Connect with your patients.

As an Orthopedic Surgeon, your time is invaluable, especially during this time of great change in the Healthcare Industry. Zimmer Biomet has created a Connected Health team to leverage digital technologies that provide you with tools for navigating the ever-changing landscape of healthcare.

Visit booth 3245 to learn how Zimmer Biomet Connected Health and HealthLoop can help you:

• Stay connected with your patients
• Collect patient reported outcomes
• Manage your online reputation

When the rules change, trust a game changer.
SwitchCut™
Reaming System

Eliminate the Guesswork of ACL Tunnel Placement

• Hit your target
• Minimize time and complexity
• Seamless implant deployment

The surgeon is responsible for determining the appropriate tunnel placement for each individual patient.

ZIMMER BIOMET
Your progress. Our promise.
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Join us at
Booth #3245

Persona® Knee System

No Compromise

Personalized implants for a new level of fit.

Component shapes based on patient anatomy is another way that the Persona Knee System allows for a No Compromise approach to total knee replacement.

• Improved balancing options with 2mm femoral increments and 1mm articular surface increments
• Improved fit with 21 distinct profiles of standard and narrow components
• Persona Natural Tibial Component designed to facilitate 92% bone coverage with proper rotation, according to one study

For more information on the Persona Knee System, call your Zimmer Biomet Sales Representative or visit zimmerbiomet.com.

1. Versus lower fidelity systems
2. Versus single M/L implant families

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Join us at
Booth #3245
From simple primary to complex revision arthroplasty, Zimmer Biomet offers a comprehensive portfolio of hip constructs that combine rich clinical heritage with modern technological advancements. Each of these is designed to address the distinct needs of individual patients, while simplifying surgical workflow.
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General
Special Events
Orange County Convention Center, West Building, Chapin Theater

Opening Ceremony
Wednesday, March 2
4:00 – 5:30 PM

Business Meetings
Thursday, March 3, 9:00 AM

Ceremonial Meeting
Thursday, March 3, 10:00 AM

Roger Staubach, AAOS Presidential Guest Speaker
Thursday, March 3, 11:00 AM

Roger T. Staubach is Executive Chairman of JLL Americas, a financial and professional services firm specializing in real estate. A 1965 graduate of the United States Naval Academy with a bachelor of science in engineering, Staubach served four years as a Navy officer including a tour in Vietnam. After the Navy he joined the Dallas Cowboys and launched his real estate career at the same time becoming a football legend.

As Executive Chairman of The Staubach Company, Staubach built a market-leading global real estate advisory firm that delivered cost-effective solutions for office, industrial and retail clients. Known for its unparalleled standard of business and personal ethics, The Staubach Company completed transactions totaling $28 billion in 2007. The following year, The Staubach Company merged with JLL, bringing together two powerful organizations into one integrated global company.

Recognized for his business skills, civic and charitable work as well as his abilities on the grid iron, Staubach has been bestowed many honors—Commercial Property News’ “Corporate Services Executive of the Year” (four times), the 2006 Congressional Medal of Honor “Patriot Award,” the NCAA “Teddy Roosevelt Award” for being one of the “100 Most Influential NCAA Student-Athletes,” the United States Naval Academy “Distinguished Graduate” and in 2009 the Vince Lombardi Award of Excellence.

The list of recognitions Staubach received while playing football is long. In 1963 he won the Heisman Trophy. While at the Naval Academy he was named the best all-around athlete winning the Thompson Trophy Cup three years in a row. He appeared in five Super Bowls, winning two. In 1971 he was the NFL’s Most Valuable Player and the following year he was the Most Valuable Player in Super Bowl VI. Known as “Captain America” and “Roger the Dodger” he was a five-time NFC Pro Bowl selection. And, in 1985, he was inducted into the Pro Football Hall of Fame.

David D. Teuscher, MD
President’s Remarks
“Art and Science”

Gerald R. Williams, Jr, MD
Incoming Presidential Address
“The Family—Revisited”

William J. Maloney, MD
Incoming First-Vice Presidential Remarks
“A Seat at the Table”

• Welcome to Colombia as the Guest Nation
• Recognition of Industry Donors
• Chief Executive Officer Report

• Kappa Delta & OREF Awards
• Humanitarian Award

• Diversity Award
• William W. Tipton, Jr, MD, Leadership Award

© 2016 American Academy of Orthopaedic Surgeons
Welcome to Orlando for the American Academy of Orthopaedic Surgeons 2016 Annual Meeting. Your participation and support are essential. The experiences you share with colleagues, your challenging questions for our presenters, and your dedication to our mission will all contribute to an outstanding event.

The AAOS 2016 Annual Meeting is Focused on You. Only here can you customize a unique educational experience, selected from an unparalleled array of topics, learning styles, and expert viewpoints. Annual Meeting Committee Chair Paul Tornetta III, MD, and his team have created an exceptional program. Along with their respective committees, Central Program Committee Chair James R. Ficke, MD; Central Instructional Course Committee Chair Tad L. Gerlinger, MD; and Exhibits Committee Chair Joseph T. Moskal, MD, have produced an exciting selection of educational opportunities—a commitment to education that includes 32 symposia by the world’s experts on exciting and timely topics, over 900 papers and 575 posters on the latest scientific and clinical studies, over 245 instructional courses presented by world-renowned faculty, more than 88 scientific exhibits on extended studies or complex procedures and to conclude the meeting, Specialty Day on Saturday, where 14 Specialty Societies will feature the latest news in their areas of expertise.

All-new sessions will recharge your perspective on today’s hottest issues. Don’t miss “Flash Five: What’s Coming Down the Pike” (page 57), “The Way I See It ….” (page 57), and “Showdowns” (page 57).

Be sure to see the latest advances in surgical and diagnostic technology at the Exhibit Hall. More than 700 technical exhibits offer new solutions for your practice and the “latest and greatest” in orthopaedic products and services.

Other important Annual Meeting events include the Opening Ceremony on Wednesday, at 4:00 PM, where we kick off the meeting and recognize Colombia as this year’s Guest Nation. On Thursday, the Ceremonial Meeting incorporates the presentations of the Humanitarian, Diversity, and Tipton Leadership Awards, Gerald R. Williams Jr, MD, incoming president’s address, and the presidential guest speaker, Roger T. Staubach, former Dallas Cowboys quarterback, naval officer and currently Executive Chairman of JLL Americas, a firm specializing in real estate.

On behalf of the Board of Directors, I sincerely want to thank all the supportive volunteers and staff for their continued time and efforts that make this meeting the foremost orthopaedic educational experience.

Enjoy the meeting!

David D. Teuscher, MD
President
David D. Teuscher, MD  
President  
Beaumont, Texas

Gerald R. Williams, Jr, MD  
First Vice-President  
Philadelphia, Pennsylvania

William J. Maloney, MD  
Second Vice-President  
Redwood City, California

Frederick M. Azar, MD  
Treasurer & Past-President  
Memphis, Tennessee

David J. Mansfield, MD  
Chair  
Board of Councilors  
El Paso, Texas

Lawrence S. Halperin, MD  
Chair-Elect  
Board of Councilors  
Orlando, Florida

Daniel K. Guy, MD  
Secretary  
Board of Councilors  
Lagrange, Georgia

David A. Halsey, MD  
Chair  
Board of Specialty Societies  
South Burlington, Vermont

Brian G. Smith, MD  
Chair-Elect  
Board of Specialty Societies  
New Haven, Connecticut

Lisa K. Cannada, MD  
Secretary  
Board of Specialty Societies  
Saint Louis, Missouri
About our Board of Directors

The Board of Directors manages the affairs of the ACADEMY and the ASSOCIATION. It is the administrative authority of the ACADEMY and the ASSOCIATION and considers all of its activities and determines its policies.

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Annual Business Meetings
All Fellows are urged to attend the Annual Business Meetings held in the Chapin Theater. The meetings are held on Thursday, March 3, 2016, starting at 9:00 AM. There is one business meeting for the American Academy of Orthopaedic Surgeons (“Academy”), the 501(c)(3) organization, immediately followed by the business meeting of the American Association of Orthopaedic Surgeons (“Association”), the 501(c)(6) organization.

2016 Nominating Committee
In May 2015, the Fellowship elected six members of the 2016 Nominating Committee by ballot. The Board of Directors appointed the Chair of the Nominating Committee in March 2015. The members of the 2016 Nominating Committee are:

John R. Tongue, MD (OR), Chair
Timothy J. Bray, MD (NV)
Lawrence D. Dorr, MD (CA)
Thomas A. Einhorn, MD (NY)
John T. Gill, MD (TX)
Richard F. Kyle, MD (MN)
Thomas P. Sculco, MD (NY)

The 2016 Nominating Committee provides its slate of nominees for each vacancy to be filled to the Fellowship in November 2016. If unopposed, this slate is voted on during the Association Business Meeting on Thursday, March 3, 2016.

2017 Nominating Committee
Nominations for the 2017 Nominating Committee are accepted from the floor during the Association Business Meeting on Thursday, March 3, 2016. All Fellows receive a ballot after the 2016 Annual Meeting, with an opportunity to cast their votes for nominees to fill the elected positions on the 2017 Nominating Committee.

Bylaws Committee
Proposed amendments to the Academy and the Association Bylaws are considered at the 2016 Annual Meeting if submitted by September 1, 2016. The AAOS Bylaws Committee conducts an Open Hearing to receive comments on the proposed bylaw amendments on Wednesday, March 2, 2016, beginning shortly after the conclusion of the Resolutions Committee Open Hearing in Room W308A. It is anticipated that the Bylaws Committee Open Hearing will begin around 1:30 PM. At the business meetings on Thursday, March 3, 2016, the Bylaws Committee presents its recommendations regarding each set of the proposed amendments to the Bylaws. Shortly after the Annual Meeting, these recommendations are voted on by the Fellowship.

Resolutions Committee
Any 20 or more Fellows, the majority of the members of the Board of Directors of a State Orthopaedic Society, a majority of the members of the Board of Directors of an orthopaedic specialty society that is a member of the Board of Specialty Societies, the AAOS Board of Directors, a supermajority of the Board of Councilors, or a supermajority of the member societies of the Board of Specialty Societies may offer a resolution for consideration by the Fellowship at the 2016 Annual Meeting.

To be binding on the Academy or the Association, a resolution must be submitted and considered by the Board of Councilors and Board of Specialty Societies before being voted upon by the Fellowship after the Annual Meeting at which it was discussed. To be considered by the Board of Councilors and the Board of Specialty Societies at the Fall Meeting, AAOS must receive a resolution on or before September 1, 2016, or it must be submitted to and be voted on by the Board of Councilors and the Board of Specialty Societies prior to consideration at the Fall Meeting. Emergency resolutions are accepted until February 2, 2016, but only if all other conditions are met. Copies of each duly submitted resolution are available and sent by email to the Fellowship in January 2016. The AAOS Resolutions Committee holds an Open Hearing on the resolutions on Wednesday, March 2, 2016, beginning at 1:00 PM in Room W308A. During the Open Hearing, proponents and opponents discuss those resolutions under consideration. At the business meetings on Thursday, March 3, 2016, the Resolutions Committee presents its proposed recommendation regarding each resolution under consideration. Shortly after the Annual Meeting, these recommendations are voted on by the Fellowship.

Agenda for the Business Meeting of the American Academy of Orthopaedic Surgeons
Thursday, March 3, 2016, at 9:00 AM
Orange County Convention Center, Chapin Theater
David D. Teuscher, MD, Presiding
1. Call to Order and Appointments
2. Report of the Treasurer
3. Report of the Orthopaedic Research and Education Foundation (OREF)
4. Report of the Resolutions Committee [DISCUSSION]
5. Adjournment

Agenda for the Business Meeting of the American Association of Orthopaedic Surgeons
Thursday, March 3, 2016, at 9:20 AM
Orange County Convention Center, Chapin Theater
David D. Teuscher, MD, Presiding
1. Call to Order and Appointments
2. Nominations for the 2017 Nominating Committee. Those ineligible to serve on the 2017 Nominating Committee, pursuant to Article XII, Paragraph 12.2 of the Association Bylaws, are Inactive Fellows, Emeritus Fellows, current members of the Board of Directors, and:
Annunziato (Ned) Amendola, MD ('15)
Daniel J. Berry, MD ('15)
Louis C. Bigliani, MD (elected 3-plus terms)
Kevin J. Bozic, MD ('15)
David S. Bradford, MD (elected 3-plus terms)
Timothy J. Bray, MD ('16)
Stephen S. Burkhart, MD ('14)
Michael W. Chapman, MD (elected 3-plus terms)
John J. Callaghan, MD ('14)
Robert D. D’Ambrosia, MD (elected 3-plus terms)
Kenneth E. DeHaven, MD (elected 3-plus terms)
Lawrence D. Dorr, MD ('16 and elected 3-plus terms)
Thomas A. Einhorn, MD ('16)
Charles H. Epps, Jr, MD (elected 3-plus terms)
Freddie H. Fu, MD (elected 3-plus terms)
Richard H. Gelberman, MD ('14)

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John T. Gill, MD ('16)
Robert N. Hensinger, MD ('14)
Joseph P. Iannotti, MD (elected 3-plus terms)
Douglas W. Jackson, Jr, MD (elected 3-plus terms)
Richard F. Kyle, MD ('16)
Amy L. Ladd, MD ('15)
Bernard F. Morrey, MD ('14)
Vincent D. Pellegrini, Jr, MD ('15)
Chitranjan S. Ranawat, MD ('15 and elected 3-plus terms)
Charles A. Rockwood, Jr, MD (elected 3-plus terms)
Roy W. Sanders, MD ('15)
Thomas P. Sculco, MD ('16)
Peter J. Stern, MD ('14 and elected 3-plus terms)
Marc F. Swiontkowski, MD (elected 3-plus terms)
Roby C. Thompson, Jr, MD (elected 3-plus terms)
Vernon T. Tolo, MD ('14)
John R. Tongue, MD ('16)
James R. Urbaniak, MD (elected 3-plus terms)
Russell F. Warren, MD (elected 3-plus years)
Augustus A. White III, MD (elected 3-plus terms)
Robert A. Winquist, MD (elected 3-plus years)

3. Report of the Political Action Committee of the American Association of Orthopaedic Surgeons (Orthopaedic PAC)

4. Report of the Resolutions Committee [DISCUSSION]

5. Report of the Bylaws Committee [DISCUSSION]

6. Election of AAOS Officer and Other Positions

7. Recognition of Retiring Members of the Board of the American Academy of Orthopaedic Surgeons and the American Association of Orthopaedic Surgeons

8. Recognition of New Members of the Board of the American Academy of Orthopaedic Surgeons and the American Association of Orthopaedic Surgeons

9. Adjournment

**Agenda for the Ceremonial Meeting**
Thursday, March 3, 2016, 10:00 AM
Orange County Convention Center, Chapin Theater
David D. Teuscher, MD, Presiding
1. Call to Order
2. Presentation of Awards
   A. Kappa Delta Awards
   B. OREF Award
   C. Diversity Award
   D. Humanitarian Award
   E. William W. Tipton, Jr, MD, Leadership Award
3. Introduction of William J. Maloney, MD, Incoming First Vice-President
4. Incoming First Vice-Presidential Remarks – William J. Maloney, MD
5. Introduction of Gerald R. Williams, MD, Incoming President
6. Incoming Presidential Address – Gerald R. Williams, MD
7. Recognition of Past President David D. Teuscher, MD, and Presentation of Past President’s Pin, Gavel, and Silver Seal
8. Adjournment

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**Award Presentations at the Annual Meeting**
Join the American Academy of Orthopaedic Surgeons as we recognize the 2016 Kappa Delta and OREF Clinical Research Award Winners

**Thursday, March 3**
10:00 – 11:00 AM
Chapin Theater

**2016 Kappa Delta Young Investigator Award**
The effects of ACL Graft Placement on In Vivo Knee Function and Cartilage Thickness Distributions
Louis DeFrate, ScD
Institution: Duke University Medical Center

**2016 Kappa Delta Ann Doner Vaughn Award**
Targeting Innate Immune Inflammatory Pathways in Osteolytic Disorders: Unmasking the Two Faces of Osteoprogenitor Cells
Francis Lee, MD, PhD
Institution: Columbia University

**2016 OREF Clinical Research Award**
Mechanisms and Prevention of ACL Injuries: Cutting ACL Injury Risk with Finely Sharpened Tools
Timothy Hewett, PhD
Co-Authors: Gregory D. Myer, PhD; Kevin R. Ford, PhD; Mark Paterno, PhD; Carmen Quatman, MD, PhD
Institution: The Ohio State University

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### TUESDAY, MARCH 1

<table>
<thead>
<tr>
<th>Education</th>
<th>Orange County Convention Center</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posters</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Career Development</td>
<td>See page 49</td>
<td>8:00 AM – 5:30 PM</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>See Schedule or pages S8-235 for room numbers</td>
<td>8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 6:00 PM</td>
</tr>
<tr>
<td>Symposia &amp; Paper Presentations</td>
<td>See pages S8-235 for room numbers</td>
<td>8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 6:00 PM</td>
</tr>
<tr>
<td>CPT and ICD-10 Coding Fundamentals for Starting Your Practice #190</td>
<td>Room W224</td>
<td>8:00 – 11:00 AM</td>
</tr>
<tr>
<td>Practice Management Seminar for Practicing Orthopaedic Surgeons #199</td>
<td>Room W300</td>
<td>8:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Nursing and Allied Health Course – CAST1</td>
<td>Rosen Centre Hotel, Junior Ballroom G</td>
<td>8:15 AM – 5:45 PM</td>
</tr>
<tr>
<td>Poster Tours</td>
<td>Academy Hall C, See page 50</td>
<td>10:00 AM – 5:30 PM</td>
</tr>
<tr>
<td>Practice Management Course for Residents and Fellows-in-Training #191</td>
<td>Room W224</td>
<td>12:30 – 5:00 PM</td>
</tr>
<tr>
<td>Flash Five</td>
<td>Room W311A</td>
<td>1:30 – 2:30 PM</td>
</tr>
<tr>
<td>The Way I See It…</td>
<td>Room W311A</td>
<td>4:00 – 5:00 PM</td>
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<table>
<thead>
<tr>
<th>General</th>
<th>Orange County Convention Center</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker Ready Rooms</td>
<td>Rooms W206 and W312</td>
<td>6:30 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Physician</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Social Program</td>
<td>Level 1 Lobby</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Housing Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Playground Build</td>
<td>Shuttles depart hourly from Level 1 Lobby</td>
<td>7:00 AM – 2:30 PM</td>
</tr>
<tr>
<td>Career Center</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Resource Center</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Guest Nation Booth – Colombia</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Board of Orthopaedic Surgery Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Joint Replacement Registry Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
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</tbody>
</table>

### WEDNESDAY, MARCH 2

<table>
<thead>
<tr>
<th>Education</th>
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<tbody>
<tr>
<td>Posters</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Career Development</td>
<td>See page 49</td>
<td>8:00 AM – 5:30 PM</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>See Schedule or pages S8-235 for room numbers</td>
<td>8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 6:00 PM</td>
</tr>
<tr>
<td>Symposia &amp; Paper Presentations</td>
<td>See pages S8-235 for room numbers</td>
<td>8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 6:00 PM</td>
</tr>
<tr>
<td>Effective Surgeon-Patient Communication #290 &amp; #291</td>
<td>Room W303B</td>
<td>8:00 AM – 12:00 PM</td>
</tr>
<tr>
<td>Nursing and Allied Health Courses – CAST2</td>
<td>Rosen Centre Hotel, Junior Ballroom G</td>
<td>8:15 AM – 5:45 PM</td>
</tr>
</tbody>
</table>

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## Daily Schedule

### Poster Tours
- **Location:** Academy Hall C, See page 50
- **Time:** 8:30 AM – 5:30 PM

### The Way I See It...
- **Location:** Hall B, Booth 2987, Technology Theater
- **Time:** 10:30 – 11:30 AM

### Exhibit Hall
- **Location:** Orange County Convention Center
- **Technical Exhibits:** Halls A – B
- **Time:** 9:00 AM – 5:00 PM
- **AAOS Advocacy Booth:** Hall A, Booth 2137
- **Time:** 9:00 AM – 5:00 PM
- **AAOS Board of Councillors Booth:** Hall A, Booth 2133
- **Time:** 9:00 AM – 5:00 PM
- **AAOS Exhibit Hall Resource Center:** Hall A, Booth 1933
- **Time:** 9:00 AM – 5:00 PM
- **Ask an Expert Sessions:** Hall A, Booth 672, See page 431 for schedule
- **Time:** 9:00 AM – 5:00 PM
- **Technology Theater:** Hall B, Booth 2987, See page 432 for schedule
- **Time:** 9:00 AM – 5:00 PM
- **Orthopaedic Learning Center Booth:** Hall A, Booth 4017
- **Time:** 9:00 AM – 5:00 PM
- **Exhibit Time**
- **Time:** 12:30 – 1:30 PM
- **Complimentary Beverage Break:** Halls A – B, Booths 1509, 2493 & 3209
- **Time:** 3:30 – 4:00 PM

### General
- **Speaker Ready Rooms:** Rooms W206 and W312
- **Time:** 6:30 AM – 6:00 PM
- **Resident Assembly Open Forum:** Room W308A
- **Time:** 6:30 AM – 7:30 AM
- **Registration – Physician:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **Registration – Social Program:** Level 1 Lobby
- **Time:** 7:00 AM – 6:00 PM
- **Housing Booth:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **Career Center:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **Resource Center:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **Guest Nation Booth – Colombia:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **American Board of Orthopaedic Surgery Booth:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **American Joint Replacement Registry Booth:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **Orthopaedic Research & Education Foundation Booth:** Academy Hall C
- **Time:** 7:00 AM – 6:00 PM
- **Resolutions Committee Open Hearing:** Room W308A
- **Time:** 1:00 PM
- **Bylaws Committee Open Hearing:** Room W308A
- **Time:** 1:30 PM (estimated)
- **Opening Ceremony:** Chapin Theater
- **Time:** 4:00 – 5:30 PM

*No educational activities are scheduled.

## THURSDAY, MARCH 3

### Education
- **Posters**
  - **Location:** Academy Hall C
  - **Time:** 7:00 AM – 6:00 PM
- **Scientific Exhibits**
  - **Location:** Academy Hall C
  - **Time:** 7:00 AM – 6:00 PM
- **Orthopaedic Video Theater**
  - **Location:** Academy Hall C
  - **Time:** 7:00 AM – 6:00 PM
- **Nursing and Allied Health Courses – NUR1 & NUR2**
  - **Location:** Rosen Centre Hotel, Junior Ballroom F
  - **Time:** 7:30 AM – 12:00 PM, 1:30 PM – 6:00 PM
- **Flash Five**
  - **Location:** Room W311A
  - **Time:** 8:00 – 9:00 AM
- **Career Development**
  - **Location:** See page 49
  - **Time:** 8:00 AM – 5:30 PM
- **Instructional Courses**
  - **Location:** See Schedule or pages 58-235 for room numbers
  - **Time:** 8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 6:00 PM
- **Symposia & Paper Presentations**
  - **Location:** See pages 58-235 for room numbers
  - **Time:** 8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 6:00 PM
- **TeamSTEPPS #390 & #391**
  - **Location:** Room W303B
  - **Time:** 8:00 AM – 12:00 PM, 1:30 – 5:30 PM
- **Poster Tours**
  - **Location:** Academy Hall C, See page 50
  - **Time:** 8:30 AM – 5:30 PM
- **The Way I See It...**
  - **Location:** Room W311A
  - **Time:** 1:30 – 2:30 PM
- **Showdown – Hip**
  - **Location:** Valencia Room B
  - **Time:** 4:00 – 5:00 PM
### Exhibit Hall

<table>
<thead>
<tr>
<th>Event</th>
<th>Orange County Convention Center</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Exhibits</td>
<td>Halls A – B</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Advocacy Booth</td>
<td>Hall A, Booth 2137</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Board of Councilors Booth</td>
<td>Hall A, Booth 2133</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Exhibit Hall Resource Center</td>
<td>Hall A, Booth 1933</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Ask an Expert Sessions</td>
<td>Hall A, Booth 672, See page 431 for schedule</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Technology Theater</td>
<td>Hall B, Booth 2987, See page 432 for schedule</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Learning Center Booth</td>
<td>Hall A, Booth 4017</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Exhibit Time*</td>
<td>Halls A – B</td>
<td>12:30 – 1:30 PM</td>
</tr>
</tbody>
</table>

### General

<table>
<thead>
<tr>
<th>Event</th>
<th>Orange County Convention Center</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complimentary Beverage Break</td>
<td>Halls A – B, Booths 1509, 2493 &amp; 3209</td>
<td>3:30 – 4:00 PM</td>
</tr>
</tbody>
</table>

*No educational activities are scheduled.

### FRIDAY, MARCH 4

#### Education

<table>
<thead>
<tr>
<th>Event</th>
<th>Orange County Convention Center</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster Award Ceremony and Breakfast</td>
<td>Academy Hall C</td>
<td>7:00 AM</td>
</tr>
<tr>
<td>Posters</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Nursing and Allied Health Courses – NUR3 &amp; NUR4</td>
<td>Rosen Centre Hotel, Junior Ballroom F</td>
<td>7:30 AM – 12:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Review Course #490</td>
<td>Hyatt Regency Orlando, Regency Ballroom R</td>
<td>7:30 AM – 4:45 PM</td>
</tr>
<tr>
<td>Career Development</td>
<td>See page 49</td>
<td>8:00 AM – 12:00 PM</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>See Schedule or pages 58-235 for room numbers</td>
<td>8:00 – 10:00 AM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10:30 AM – 12:30 PM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1:30 – 3:30 PM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4:00 – 6:00 PM</td>
</tr>
<tr>
<td>Symposia &amp; Paper Presentations</td>
<td>See pages 58-235 for room numbers</td>
<td>8:00 – 10:00 AM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10:30 AM – 12:30 PM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1:30 – 3:30 PM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4:00 – 6:00 PM</td>
</tr>
<tr>
<td>Showdown – Shoulder &amp; Elbow</td>
<td>Valencia Room B</td>
<td>8:00 – 9:00 AM</td>
</tr>
<tr>
<td>Poster Tours</td>
<td>Academy Hall C, See page 50</td>
<td>8:30 AM – 4:00 PM</td>
</tr>
<tr>
<td>The Way I See It…</td>
<td>Valencia Room B</td>
<td>1:30 – 3:30 PM</td>
</tr>
</tbody>
</table>

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### Exhibit Hall

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Exhibits</td>
<td>Halls A – B</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>AAOS Advocacy Booth</td>
<td>Hall A, Booth 2137</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>AAOS Board of Councillors Booth</td>
<td>Hall A, Booth 2133</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>AAOS Exhibit Hall Resource Center</td>
<td>Hall A, Booth 1933</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Ask an Expert Sessions</td>
<td>Hall A, Booth 672, See page 431 for schedule</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Technology Theater</td>
<td>Hall B, Booth 2987, See page 432 for schedule</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Learning Center Booth</td>
<td>Hall A, Booth 4017</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Complimentary Beverage Break</td>
<td>Halls A – B, Booths 1509, 2493 &amp; 3209</td>
<td>10:00 AM – 10:30 AM</td>
</tr>
<tr>
<td>Complimentary Exhibit Hall Social</td>
<td>Halls A – B</td>
<td>12:30 – 1:30 PM</td>
</tr>
</tbody>
</table>

### General

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker Ready Rooms</td>
<td>Rooms W206 and W312</td>
<td>6:30 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Physician</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Social Program</td>
<td>Level 1 Lobby</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Housing Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Career Center</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Resource Center</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Guest Nation Booth – Colombia</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Board of Orthopaedic Surgery Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Joint Replacement Registry Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
</tbody>
</table>

*No educational activities are scheduled.

### SATURDAY, MARCH 5 – SPECIALTY DAY

#### Education

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialty Day</td>
<td>See page 36</td>
<td>Times vary</td>
</tr>
<tr>
<td>Posters</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
</tbody>
</table>

#### General

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker Ready Rooms</td>
<td>Rooms W206 and W312</td>
<td>6:00 AM – 5:30 PM</td>
</tr>
<tr>
<td>Registration – Physician (Hall C Lobby 3:00-5:30 PM)</td>
<td>Academy Hall C</td>
<td>6:30 AM – 5:30 PM</td>
</tr>
<tr>
<td>Registration – Social Program</td>
<td>Level 1 Lobby</td>
<td>7:00 AM – 12:00 PM</td>
</tr>
<tr>
<td>Housing Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Career Center</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Resource Center</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Guest Nation Booth – Colombia</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>American Board of Orthopaedic Surgery Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>American Joint Replacement Registry Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall C</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
</tbody>
</table>

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14  CME CREDIT, DISCLAIMER, FDA STATEMENT, MEETING OBJECTIVES

General

Accreditation
The American Academy of Orthopaedic Surgeons is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CME Credit
U.S. Physicians: The AAOS designates this live activity for a maximum of 37 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

International Physicians: The AMA has determined that physicians not licensed in the United States but who participate in this CME activity are eligible for AMA PRA Category 1 Credits™.

Allied Health Professionals: The AAOS is not accredited to offer credit for nurses and other Allied Health Professionals. To determine if activities offering AMA PRA Category 1 Credits™ are acceptable for your licensing or certification needs please contact the relevant organizations directly.

IMPORTANT – It is important for you to check in as soon as you arrive. The AAOS transcript system will not allow you to claim CME credit for any educational activities you participated in before you officially check in to the meeting. For instance, if you arrive at the meeting on Tuesday but do not check in until Wednesday, you will not be able to claim CME credits for your Tuesday attendance. Please remember to check in before attending any educational activities. The CME credit system is an honor system. You should claim only the number of credits for the learning activities at the Annual Meeting in which you actively participated. For example, if you attend only on Wednesday and Thursday, the maximum amount you may claim is 18 credits. The grid below outlines the number of credit hours available per day:

<table>
<thead>
<tr>
<th>Checked In OR Register at the Meeting on:</th>
<th>Maximum Daily Credit</th>
<th>Maximum Meeting Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, March 1</td>
<td>Up to 10 Credits</td>
<td>37 Credits</td>
</tr>
<tr>
<td>Wednesday, March 2</td>
<td>Up to 9 Credits</td>
<td>27 Credits</td>
</tr>
<tr>
<td>Thursday, March 3</td>
<td>Up to 9 Credits</td>
<td>18 Credits</td>
</tr>
<tr>
<td>Friday, March 4</td>
<td>Up to 9 Credits</td>
<td>9 Credits</td>
</tr>
</tbody>
</table>

CME Certificates
The AAOS transcript system will not allow you to claim available CME credit before you officially check in to the meeting. Therefore it is important to check in as soon as you arrive. Physicians should claim only the number of credits for the learning activities at the Annual Meeting in which they actively participated. The grid below outlines the types of activities that are available at the Annual Meeting and notes which qualify for AMA PRA Category 1 Credit™.

<table>
<thead>
<tr>
<th>Activity</th>
<th>CME Credit Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPT and ICD-10 Coding Fundamentals for Starting Your Practice #190</td>
<td>Yes</td>
</tr>
<tr>
<td>Flash Five</td>
<td>Yes</td>
</tr>
<tr>
<td>Forum for Young Orthopaedic Surgeons with the ABOS</td>
<td>Yes</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>Yes</td>
</tr>
<tr>
<td>Orthopaedic Review Course</td>
<td>Yes</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Yes</td>
</tr>
<tr>
<td>Papers</td>
<td>Yes</td>
</tr>
<tr>
<td>Posters and Scientific Exhibits (only when the presenter is required to be present and during the poster tours)</td>
<td>Yes</td>
</tr>
<tr>
<td>Practice Management Seminar for Practicing Orthopaedic Surgeons #199</td>
<td>Yes</td>
</tr>
<tr>
<td>Showdowns</td>
<td>Yes</td>
</tr>
<tr>
<td>Specialty Day</td>
<td>Yes</td>
</tr>
<tr>
<td>Symposia</td>
<td>Yes</td>
</tr>
<tr>
<td>The Way I See It...</td>
<td>Yes</td>
</tr>
<tr>
<td>Ask an Expert</td>
<td>No</td>
</tr>
<tr>
<td>Technology Theater</td>
<td>No</td>
</tr>
<tr>
<td>Practice Management Course for Residents and Fellows-in-Training #191</td>
<td>No</td>
</tr>
<tr>
<td>Technical Exhibits</td>
<td>No</td>
</tr>
</tbody>
</table>

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Specialty Day CME
Listed below are the Specialty Societies designations of AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
- American Orthopaedic Foot and Ankle Society – 9 credits
- American Orthopaedic Society for Sports Medicine – 6.5 credits
- American Shoulder and Elbow Surgeons – 7.25 credits
- American Society of Surgery of the Hand/American Association for Hand Surgery – 8.5 credits
- Arthroscopy Association of North America – 7.75 credits
- Federation of Spine Associations – 8 credits
- Hip Society/American Association of Hip and Knee Surgeons – 7.75 credits
- Knee Society/American Association of Hip and Knee Surgeons – 7.75 credits
- Limb Lengthening and Reconstruction Society – 7.25 credits
- Musculoskeletal Tumor Society – 5.5 credits
- Orthopaedic Trauma Association – 5.75 credits
- Pediatric Orthopaedic Society of North America – 6.75 credits

Disclaimer
The material presented at the Annual Meeting has been made available by the American Academy of Orthopaedic Surgeons for educational purposes only. This material is not intended to represent the only, nor necessarily best, method or procedure appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement or opinion of the faculty which may be helpful to others who face similar situations. The AAOS disclaims any and all liability for injury or other damages resulting to any individual attending a session and for all claims which may arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by a physician or any other person.

FDA Statement
Some drugs or medical devices demonstrated at the Annual Meeting have been cleared by the FDA for specific purposes only or have not been cleared by the FDA. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical devices he or she wishes to use in clinical practice. Academy policy provides that “off label” uses of a drug or medical device may be described in the Academy’s CME activities so long as the “off label” use of the drug or medical device is also specifically disclosed (i.e. it must be disclosed that the FDA has not cleared the drug or device for the described purpose). Any drug or medical device is being used “off label” if the described use is not set forth on the products approval label.

2016 Annual Meeting Objectives
Global Objectives
- Develop and refine a perspective on the broad range of orthopaedic knowledge, care and surgical practice.
- Expand and integrate an understanding of the scientific and clinical tenets of orthopaedic surgery to better prevent and treat musculoskeletal disease.
- Develop an understanding of economic and practice management challenges that can lead to strategies that protect continued access to care for patients and viability of the profession.
- Provide a forum to strengthen professional relationships and develop networks that lead to better patient care, individual surgeon career satisfaction, and a more robust profession as a whole.

Instructional Objectives
- To facilitate a personalized educational experience through a comprehensive offering of instructional courses, symposia, and scientific presentations.
- Support a forum for discussion of current issues in orthopaedics including patient safety, advocacy, practice management, technology, and culturally competent care.
- Offer complementing formats to facilitate career-long education that meets the expectations of patients, colleagues and Maintenance of Certification.
- To provide a forum for the presentation of basic and clinical research with current as well as future potential applications in the management of patients with musculoskeletal disease or injury.

Learner Objectives
- Synthesize a basis for the practice of delivering evidence-based, cost effective orthopaedic care.
- Integrate current basic science, translational research, and state-of-the art procedures and technology into clinical practice.
- Become more informed and involved in advocacy issues related to orthopaedics.
- To provide a forum for resident education on current clinical practice, relevant basic science, practice management, and advocacy issues in preparation for careers as competent and ethical orthopaedic surgeons.

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Thank You!
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Houston Methodist

Zimmer Biomet

Medtronic
Walkable Hotels
2. Hyatt Regency Orlando (formerly Peabody)
3. Rosen Centre Hotel
4. Rosen Plaza Hotel
5. Castle Hotel – An Autograph Collection Hotel
6. Courtyard by Marriott I-Drive/Conv. Center
7. Crowne Plaza Orlando Universal
8. Embassy Suites Hotel I-Drive/Jamaican Ct
9. Embassy Suites Hotel I-Drive/Conv. Center
10. Extended Stay America Conv. Center/I-Drive
11. Fairfield Inn & Suites Orlando I-Drive/Conv. Center
12. Hampton Inn I-Drive/Conv. Center
13. Homewood Suites – I-Drive/Conv. Center
14. Hyatt Place Conv. Center/I-Drive
15. Residence Inn by Marriott/Conv. Center
16. Rosen Inn at Pointe Orlando
17. Sonesta ES Suites Orlando
18. Springhill Suites Conv. Center/I-Drive Area
19. Wyndham Orlando Resort I-Drive

.5–2 miles South of OCCC
20. Doubletree by Hilton Orlando at SeaWorld
21. Extended Stay America Conv. Center - Westwood Blvd South
22. Fairfield Inn & Suites Orlando at SeaWorld
23. Hilton Garden Inn Orlando at SeaWorld
24. Hilton Grand Vacations Club at SeaWorld
1. Hilton Orlando
25. Renaissance Orlando at SeaWorld
26. Residence Inn Orlando at SeaWorld®
27. Rosen Shingle Creek
28. Springhill Suites Orlando at SeaWorld
29. Vista Cay Resort by Millenium
30. The Westin Orlando at Universal Blvd

2.5–4 miles North of OCCC
31. DoubleTree by Hilton at the Entrance to Universal Orlando
32. Hard Rock Hotel® at Universal Orlando®
33. Loews Portofino Bay Hotel at Universal Orlando®
34. Loews Royal Pacific Resort at Universal Orlando®
35. Universal’s Cabana Bay Beach Resort

4–6 miles South of OCCC
36. Buena Vista Suites
37. Caribbean Royale All-Suite Hotel & Convention Center
38. Courtyard Orlando Lake Buena Vista at Marriott Village
39. Fairfield Inn & Suites Orlando Lake Buena Vista at Marriott Village
40. Springhill Suites Orlando Lake Buena Vista in the Marriott Village
41. Wyndham Lake Buena Vista Resort

6–8 miles South of OCCC
42. Buena Vista Palace Hotel & Spa
43. Doubletree Suites by Hilton Lake Buena Vista
44. Hilton Orlando Bonnet Creek
45. Hyatt Regency Grand Cypress
46. Waldorf Astoria® Orlando
47. Walt Disney World Swan and Dolphin Resort
48. Wyndham Grand Orlando Resort Bonnet Creek
## HOTEL SHUTTLE BUS ROUTES

**HOTEL AND AIRPORT SHUTTLE SCHEDULE**

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Boarding Location at Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buena Vista Palace Hotel &amp; Spa</td>
<td>Convention Entrance</td>
</tr>
<tr>
<td>Buena Vista Suites</td>
<td>@ Caribe Royale (Main Entrance)</td>
</tr>
<tr>
<td>Caribe Royale All-Suite Orlando®</td>
<td>Main Entrance Bus Stop</td>
</tr>
<tr>
<td>Castle Hotel</td>
<td>Curbside Universal Boulevard</td>
</tr>
<tr>
<td>Courtyard by Marriott Drive/Convention Center</td>
<td>Curbside on Austrian Court</td>
</tr>
<tr>
<td>Courtyard Orlando Lake Buena Vista at Marriott Village</td>
<td>Hotel Bus Depot</td>
</tr>
<tr>
<td>Crowne Plaza Orlando Universal</td>
<td>Curbside on Universal Boulevard</td>
</tr>
<tr>
<td>Doubletree by Hilton Orlando-SeaWorld</td>
<td>Main Entrance (Outer Lane)</td>
</tr>
<tr>
<td>Doubletree Suites WDW</td>
<td>Lobby Entrance</td>
</tr>
<tr>
<td>Doubletree Universal</td>
<td>Convention Entrance</td>
</tr>
<tr>
<td>Embassy Suites Hotel International Drive/Jamaican Court</td>
<td>Curbside on Jamaican Court</td>
</tr>
<tr>
<td>Embassy Suites Hotel International Drive/Convention Center</td>
<td>Curbside on International Drive</td>
</tr>
<tr>
<td>Extended Stay Deluxe Convention Center - Pointe Orlando</td>
<td>Curbside Universal Boulevard @ Castle Hotel</td>
</tr>
<tr>
<td>Extended Stay Deluxe Convention Center - Westwood Boulevard</td>
<td>Curbside Lobby Entrance</td>
</tr>
<tr>
<td>Fairfield Inn &amp; Suites International Drive/Convention Center</td>
<td>Curbside Universal Boulevard</td>
</tr>
<tr>
<td>Fairfield Inn &amp; Suites Orlando at SeaWorld</td>
<td>Curbside West Lobby behind Friday's Restaurant</td>
</tr>
<tr>
<td>Fairfield Inn &amp; Suites Orlando Lake Buena Vista at Marriott Village</td>
<td>Hotel Bus Depot</td>
</tr>
<tr>
<td>Hampton Inn Orlando International Drive/Convention Center</td>
<td>Roundabout @ Residence Inn/Universal Boulevard</td>
</tr>
<tr>
<td>Hard Rock Hotel® at Universal Orlando®</td>
<td>Abbey Road Bus Stop</td>
</tr>
<tr>
<td>Hilton Garden Inn SeaWorld</td>
<td>Curbside in Front/Westwood</td>
</tr>
<tr>
<td>Hilton Grand Vacations Club at SeaWorld</td>
<td>Curbside on Sea Harbor Drive @ Guard House</td>
</tr>
<tr>
<td>Hilton Orlando</td>
<td>Tour Lobby Entrance</td>
</tr>
<tr>
<td>Hilton Orlando Bonnet Creek</td>
<td>Main Entrance (Outer Lane)</td>
</tr>
<tr>
<td>Homewood Suites By Hilton - International Drive</td>
<td>Roundabout @ Residence Inn/Universal Boulevard</td>
</tr>
<tr>
<td>Hyatt Place Orlando Convention Center/International Drive</td>
<td>Roundabout @ Residence Inn/Universal Boulevard</td>
</tr>
<tr>
<td>Hyatt Regency Grand Cypress</td>
<td>Convention Entrance</td>
</tr>
</tbody>
</table>

**Walk**

- Hyatt Regency Orlando: Walkable
- Las Palermas, a Hilton Grand Vacation Club (aka Westin) Universal Boulevard: Main Entrance
- Loews Portofino Bay Hotel at Universal Orlando®: Bus Piazza
- Loews Royal Pacific Resort at Universal Orlando®: Main Entrance
- Renaissance Orlando Resort At SeaWorld: Convention Entrance (Oceans Ballroom Entrance)
- Residence Inn by Marriott/Convention Center: Roundabout @ Residence Inn/Universal Boulevard
- Residence Inn SeaWorld: Front Entrance

No Shuttle Service between 10:00 AM – 2:00 PM
Hotel Shuttle Bus Routes

<table>
<thead>
<tr>
<th>Route #</th>
<th>Hotel</th>
<th>Boarding Location at Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td>Rosen Centre</td>
<td>Walkable</td>
</tr>
<tr>
<td>Route 1</td>
<td>Rosen Inn at Pointe Orlando</td>
<td>Curbside on International Drive/ Bus Stop</td>
</tr>
<tr>
<td>Walk</td>
<td>Rosen Plaza</td>
<td>Walkable</td>
</tr>
<tr>
<td>Route 3</td>
<td>Rosen Shingle Creek</td>
<td>Transportation Lobby Entrance</td>
</tr>
<tr>
<td>Route 1</td>
<td>Sonesta ES Suites Orlando</td>
<td>Curbside on Austrian Court</td>
</tr>
<tr>
<td>Route 2</td>
<td>Springhill Suites by Marriott Convention Center</td>
<td>Roundabout @ Residence Inn/Universal Boulevard</td>
</tr>
<tr>
<td>Route 4</td>
<td>Springhill Suites Orlando at SeaWorld</td>
<td>Curbside West Lobby behind Friday's Restaurant</td>
</tr>
<tr>
<td>Route 9</td>
<td>Springhill Suites Orlando Lake Buena Vista at Marriott Village</td>
<td>Hotel Bus Depot</td>
</tr>
<tr>
<td>Route 3</td>
<td>Vista Cay by Millenium</td>
<td>Clubhouse/Pool Entrance on Cayview Avenue</td>
</tr>
<tr>
<td>Route 11</td>
<td>Waldorf Astoria Orlando Bonnet Creek</td>
<td>Main Entrance (Outer Lane)</td>
</tr>
<tr>
<td>Route 11</td>
<td>Walt Disney Swan &amp; Dolphin Resort</td>
<td>Swan Conference Center</td>
</tr>
<tr>
<td>Route 11</td>
<td>Wyndham Grand Orlando Bonnet Creek</td>
<td>Convention Entrance</td>
</tr>
<tr>
<td>Route 10</td>
<td>Wyndham Lake Buena Vista</td>
<td>Lobby Entrance</td>
</tr>
<tr>
<td>Route 2</td>
<td>Wyndham Orlando Resort</td>
<td>Convention Entrance</td>
</tr>
</tbody>
</table>

*=Walk to Hotel = Wheel Chair Accessible Vehicles: Call (407)346-8927 and allow (1) Hour for service.

Make Your Voice Heard
Here's your opportunity to influence the future direction of AAOS programs, resources, policies and strategy. Meet with other AAOS Resident Members focused on helping AAOS remain relevant to current residency training and transition needs by attending the first Resident Assembly Open Forum, Wednesday, March 2, from 6:30 to 7:30 AM, Room W308A.

Meet with AAOS Leadership
Take advantage of this gathering to meet and share your concerns with the AAOS Presidential Line and volunteer leaders. The Assembly is a dynamic way to engage with top performing orthopaedic surgeons and influential leaders who shape the long-term agenda for AAOS.

Make a Difference
Join a committee or become a delegate to evaluate new policies and programs and develop recommendations that will be presented regularly to the AAOS leadership.

Make a contribution to AAOS and toward your own professional advancement. Attend the AAOS Resident Assembly, Thursday, March 3, from 1:30 to 3:30 PM, Room W308A.

Membership Means More!
As we battle new federal regulations including the implementation of ICD-10, Meaningful Use Stage 3, and the new CMS bundled payment program (Comprehensive Care for Joint Replacement), one thing is clear: we need a strong voice in Washington, DC. Over the last 16 years, the Orthopaedic PAC has provided us with that voice, helping AAOS achieve a number of legislative wins.

The Orthopaedic PAC is our PAC, regardless of practice type or location, we’re committed to you. We are the only national political action committee in Washington, DC representing Orthopaedic Surgeons before Congress and continuously rank as one of the largest association PACs in the United States.

To learn more about AAOS’ legislative and regulatory activities and the Orthopaedic PAC, visit the AAOS Advocacy Booth located in Hall A, Booth 2137 or attend the Orthopaedic PAC Thank You Lunch, open to all current 2016 donors, Wednesday, March 2, 11:30AM-1:30PM.

www.aaos.org/PAC
The Academy would like to thank the Annual Meeting Committee for their hard work and contributions to the 2016 Annual Meeting
I need to:

- evolve my skills
- improve outcomes
- assess my knowledge
- streamline my practice
- ask more questions

AAOS meets my professional education and practice improvement needs

From self-assessment exams, surgical videos, and membership questions, to app assistance, new publications, and practice improvements, the AAOS Resource Center and experienced Academy staff are at your service.

Save 10% on all orders of $300 or more!

This is your on-site opportunity to try out new resources that evolve your clinical skills, challenge your problem-solving aptitude, and keep you current in your field all year long.

Visit the AAOS Resource Center
Academy Hall C
aaos.org/store

Tuesday – Friday: 7:00 AM – 6:00 PM
Saturday: 7:00 AM – 3:00 PM
Technology at the Annual Meeting

**Audience Response System**
Selected Instructional Courses and Symposia will feature the Audience Response System, allowing interactive participation with the faculty by responding to their questions utilizing a keypad to indicate your choices.

**Case Presentation Courses**
Several Case Presentation instructional courses will take place during the Annual Meeting. Tables will be facilitated by expert faculty who will introduce and discuss cases on laptops. The entire audience will discuss results and pearls.

**Electronic Handouts**
Handouts for all Instructional Courses were available electronically two weeks prior to the meeting if you have purchased a ticket for a course. Please note these are the same printed handouts course registrants will receive at the course rooms.

**ePosters and eScientific Exhibits – Academy Hall C**
ePosters and eScientific Exhibits provide a digital version of the poster or scientific exhibit. The audio recorded by the presenter will be a narrative of the poster or scientific exhibit and offered on playback by Smartphone and tablets as the attendee views the poster and scientific exhibit. A blog will allow viewers to question the authors creating an ongoing dialog. eScientific Exhibits also may contain video. Kiosks are available within Academy Hall C where attendees can view them, hear the audio, and play the video. The ePosters and eScientific Exhibits create an excellent post meeting opportunity to view this important research in your office or home, allowing you to create your own grouping of Posters and/or Scientific Exhibits to view and share with colleagues.

**Evaluations**
Instructional Courses and Symposia evaluations can be accessed through the My Academy App available for your Smartphone or internet connected device. You can easily complete and submit your evaluation form for the sessions you attended. Also, Poster Tour evaluations can be completed at the ePoster and eScientific Exhibits Kiosks or by QR code.

**Event Touch Digital Signage**
Touch screens are available at the Info Centers located throughout the convention center and will function as an interactive “You Are Here”. This technology allows you to engage directly with the display, assisting with a visual guide to meeting rooms, educational sessions, technical exhibits, Academy Hall, and special events.

**Internet Connections – Academy Hall C, Levels 3 & 4 Lobbies, Exhibit Hall B**
These “all-in-one” stations allow you to utilize the following key connections: Exhibitor Directory, 2017 Member Housing, Email sites, and Flight Check-in.

**My Academy App**
The Annual Meeting My Academy App is available free from the App Store or Google Play. View, search, and schedule all educational opportunities, Technical Exhibitor information, Social Program, Committee and Affiliate Meetings, and Special Events. You may even add personal events to your schedule to help you stay organized and make the most of your time at the Annual Meeting. A mapping program for meeting room locations and exhibiting companies within the Orange County Convention Center is also included. You may browse or search the list of participants and use the messaging feature within the app to help you connect or reconnect with colleagues. The app also includes an electronic business card exchange to help you stay in touch with new connections. Need some assistance? Visit the help desk located in the Resource Center in Academy Hall C.

**Poster Tours**
Poster Tours are guided by experts in each classification with them quizzing selected poster authors, highlighting pearls and answering your questions during the tour; and are uniquely viewed using monitors while the poster authors navigate through their important data via laptop to create a memorable experience.

**Proceedings**
Be sure to visit our website to view the 2016 Annual Meeting Proceedings. A website will be available at the start of the meeting to view the Proceedings on a PC, tablet, or mobile device at www.aaos.org/proceedings.

**Technology Theater- Hall B, Booth #2987**
Presentations that showcase current technology, products, and applications that are beneficial to orthopaedic surgeons take place here. Handouts will be accessible electronically through QR codes available on-site at the Technology Theater.

**Webcasting**
View 13 symposia webcasts as they are simulcast live from the Annual Meeting. Choose from a variety of topics addressing the hot topics of the day in shoulder, hip, knee, spine, pediatrics, hand and wrist, trauma, sports, and practice management. Did you miss the live simulcasts? You will be able to view replays on demand at your convenience following the Annual Meeting. Visit the www.aaos.org/amwebcasts website to learn more.

AAOS Members and AAOS Residents: Free! Non-Members: $79
Annual Meeting Policies

Attendee Conduct
- Selling and/or marketing activities are reserved exclusively for registered exhibitors and can only be conducted from an exhibit booth space.
- Annual Meeting attendees that plan to sell and/or market products at the Annual Meeting can only do so from an exhibit booth in the Technical Exhibit Hall. To secure a paid exhibit booth space, visit www.aaos.org/exhibits for information.
- At the sole discretion of AAOS, attendees found in violation of this requirement may be escorted from the meeting and have all meeting privileges revoked without refund of fees paid.

Image Capture
Attendees grant AAOS (and its employees and agents) permission to capture, retain, and utilize the attendees’ image, likeness, voice, and actions, whether captured live or recorded and in any format, during the Annual Meeting, for display, exhibition, publication, or reproduction in any medium or context for any purpose, including, but not limited to, commercial or promotional purposes, without further notice, authorization, or compensation.

Non-Smoking Policy
Per the Florida Clean Indoor Air Act (FCIAA), smoking is prohibited inside the Orange County Convention Center. There are designated smoking areas located outside the buildings at various locations.

Privacy Policy – Use of Personal Information
Annual Meeting registration lists, including the medical registrant’s name, postal mailing address, and phone number, are available for sale to exhibitors in advance of and after the Annual Meeting. In addition, certain personal information, including the medical registrant’s name, postal mailing address, phone number, hospital affiliation, and practice focus, is available at the Annual Meeting to exhibitors through a “lead retrieval system” mechanism. For additional information, please refer to the entire AAOS Privacy Policy by visiting www.aaos.org/privacy.

Private Meeting
The AAOS 2016 Annual Meeting is a private meeting. The AAOS reserves the right to control space and ask people to leave the meeting who are not qualified to attend or who cause disruptions, at AAOS’ sole discretion.

Refund Policy
The Academy does not issue refunds on-site during the meeting. All requests for refunds (registration, instructional courses, and/or Specialty Day) must have been received in the Academy office on or before January 25, 2016.

Registration of Children Restricted
The following guidelines have been approved for the Annual Meeting. Only children 16 or over are admitted to the educational programs, including the exhibit hall.

Children and individuals of any age, providing they are not disruptive to the meeting, are welcome in the following activities:
- Opening Ceremony
- Posters
- Scientific Exhibits

Children under the age of 16 are not permitted in the following areas of the meeting:
- Technical Exhibit Hall
- Educational Sessions (paper presentations, symposia, instructional courses)
- Business Meetings
- Ceremonial Meeting
- Guest Speaker Presentation

The Academy does provide a Social Program that is open to all spouse, family members, and guests accompanying members and attendees to the meeting. Tours and events are offered daily during the meeting.

Reproduction Policy
The Academy reserves any and all of its rights to materials presented at the Annual Meeting, including Posters and Scientific Exhibits. Reproductions of any kind, by any person or entity, without prior written permission from the Academy, are strictly prohibited. Prohibited reproductions include, but are not limited to, audiotapes, videotape, and/or still photography. Persons violating this policy may have their badge confiscated and be escorted from the meeting. No unapproved surveys, handouts, or literature may be distributed at the meeting.

Plan now to join us!

2017 Annual Meeting
March 14 – 18
San Diego, California

2018 Annual Meeting
March 6 – 10
New Orleans, Louisiana

All Academy members will automatically receive an Annual Meeting Registration Packet in mid-October.

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Emergency Numbers
Fire/Policing Emergency: In case of an emergency, please use any house phone located throughout the Orange County Convention Center, and dial extension 49311.

Security 24 hours: (407)685-1119
Non-Emergency: (407)685-1119
Poison Control: (800)222-1222 (Nationwide)

Nearest Hospitals
Dr. P. Phillips Hospital 3.7 miles
9400 Turkey Lake Road (407)351-8500

Lake Buena Vista Centra Care 6.2 miles
12500 S. Apopka Vineland Road (407)934-2273

First Aid – Orange County Convention Center
These stations are fully equipped and staffed by licensed medical professionals.

Room Med 3 - Hall C Lobby and Room Med 4 – Level 1 Lobby
• Hours of Operation:
  Tuesday – Friday ..................................7:00 AM – 7:00 PM
  Saturday ...............................................7:00 AM – 6:00 PM

For Your Safety
When you are outside you should:
• Get directions before leaving the hotel or restaurant.
• Take taxis or shuttles you recognize.
• Walk with another person. Single targets are the most likely victims of crime.
• Do not wear your badges or carry conference bags. Both identify out-of-towners.
• Avoid dark, isolated areas, such as closed plazas and apparent shortcuts back to the hotel.

Drug Stores
Walgreens, 8959 International Drive (407)345-0473
(Northeast corner of I Drive & Plaza Drive) No Pharmacy
• Hours of Operation
  Monday – Sunday .................................................24 hours

Sandlake Pharmacy, 7300 Sandlake Commons Blvd.
(407)351-8002
• Hours of Operation:
  Monday – Friday........................................9:00 AM – 8:00 PM
  Saturday ..............................................9:00 AM – 5:00 PM
  Sunday ................................................9:00 AM – 3:00 PM

CVS Pharmacy, 10701 International Drive (407)355-0929
• Hours of Operation:
  Monday – Sunday .................................................24 hours

Publix Super Market Pharmacy, 5350 Central Florida Pkwy
(407)239-0844
• Hours of Operation:
  Monday – Friday........................................8:30 AM – 7:30 PM
  Saturday ..............................................9:00 AM – 5:30 PM
  Sunday ................................................10:00 AM – 5:30 PM

AAOS Now
The Daily Edition of AAOS Now, the official newspaper of the AAOS Annual Meeting, is published Tuesday through Friday. Pick up a copy from the newspaper racks located throughout the convention center and near the shuttle bus drop off. Each issue contains coverage of events and scientific presentations, scheduled events, and reports on guest speakers and award winners, along with late-breaking news. It’s your best source for news and information during the Annual Meeting!

Academy Lounges
Academy Hall C, Technical Exhibit Halls A & B
Need a comfortable place to surf the web, catch up with a colleague, and keep up with the Annual Meeting Twitter feed? Relax with your colleagues in an Academy Lounge.

ADA Needs
Orlando has ADA accessible guestrooms at every hotel. Please specify your needs when making your reservations so that the hotel can ensure your comfort. The AAOS hotel shuttle is not available from the Hyatt Orlando, Rosen Centre, and Rosen Plaza hotels, which are located within walking distance of the Orange County Convention Center.

Electric scooter rentals are available through the following company: Scootaround – Mobility Solutions (888)441-7575 or www.scootaround.com. Advance reservations are required.

FedEx Office in Hall C Lobby serves as a drop-off and pick-up location.

Advocacy Booth
Hall A, Booth 2137
Learn more about AAOS’ legislative and regulatory activities and the Orthopaedic PAC.
• Hours of Operation:
  Wednesday – Thursday ...............................9:00 AM – 5:00 PM
  Friday ..........................................................9:00 AM – 4:00 PM

Airline Check-In Service, Bags
Level 1 Lobby and Hall D Lobby
This service gives you the ability to avoid the long check-in lines at the airport. The morning of your departure, bring your luggage that is to be checked to the convention center. You need to show the bags agents your government issued ID. All boarding passes/luggage tags are issued. Bags agents then tag, secure, and transport your luggage to the airport allowing you to proceed directly to the airline gate. Your luggage will be waiting in baggage claim at your final destination. The cost per attendee is $15 (not including airline luggage fees per airline). Luggage must be checked in three hours prior to flight departure.
• Hours of Operation:
  Friday – Saturday ........................................7:00 AM – 2:00 PM
General Information

Airline Information
If you need to make, change, or reconfirm your reservation, please contact the airline directly. Toll free numbers for major airlines and CorpTrav are listed below. Change fees may apply and will be charged according to the airline’s policy at the time the change is made.

American Airlines (800)433-7300
Delta (800)221-1212
United Airlines (800)864-8331
CorpTrav (800)318-3846

Airport Shuttle Reservation Counter
Hall C Lobby
The most economical way to get to the airport is on an airport shuttle. Shuttle service prices range from $18-$25 (one-way) and $32-$40 (round trip). Use the special AAOS Group or Promo code to receive the AAOS discount. Advance reservations are required.

SuperShuttle, go to www.supershuttle.com or call (800)258-3826 (Group Code – BFZJC).
Mears, go to www.mears.com or call (800)759-5219 (Promo Code – 507633539)

• Hours of Operation:
  Wednesday – Saturday 8:00 AM – 6:30 PM

Audio Sales
Academy Hall C
Digital audio downloads of selected sessions may be ordered for post-meeting delivery. Orders may be placed at the sales desk. Most educational sessions are recorded.

• Hours of Operation:
  Tuesday – Friday 7:00 AM – 6:00 PM
  Saturday 7:00 AM – 3:00 PM

Badge Information
Every attendee of the AAOS Annual Meeting must register. Badges are required for entrance to the Exhibit Halls and to attend all other official AAOS sessions. The following badge holder and badge stock colors have been issued:

Badges Holders
Yellow ........................................AAOS Fellow
Tan ....................................................AAOS Member, Resident/Candidate Member, International Affiliate Members
Blue .................................................Non-Member Physician, International Attendee, and U.S. Residency, U.S. Fellowship
Gray ...............................................U.S. Allied Health
Black ..........................................AAOS Staff
Pink ............................................Press

Badge Stock Colors
Lavender ......................................Family Badge
Orange .......................................Industry Non-Exhibitor
Green ........................................Technical Exhibitor

Business & Package Center – FedEx Office – (407)363-2831
Hall C Lobby
This center is available to serve as your full-service business center. Packing, shipping, printing, copying, equipment rental, and office supplies cannot be more conveniently located.

• Hours of Operation:
  Tuesday – Saturday 7:00 AM – 6:00 PM

Career Center
Academy Hall C
The AAOS Career Center offers the opportunity for employers and candidates of orthopaedic surgery positions to meet in person.

• Hours of Operation:
  Tuesday – Friday 7:00 AM – 6:00 PM
  Saturday 7:00 AM – 3:00 PM

Participants
The Career Center has been established for the benefit of the Academy membership. In addition, hospital or practice administrators and medical staff personnel are permitted to access the Career Center. Professional recruiters are not allowed to participate in this service.

• All participants must have an active listing on the website www.aaos.org/careercenter.
• We ask that you limit attendance to two representatives per company.
• All participants MUST be registered for the Annual Meeting to gain entry.

Listings on the Career Center Website and Onsite Booklets
• You can submit a new listing for an employment opportunity on-site for a fee.
• There is no fee to orthopaedic surgeons looking for employment.
• Listings can be submitted or edited directly on the website www.aaos.org/careercenter.

Bulletin Boards
Post a graphic ad for your orthopaedic opportunity on the bulletin boards in the Career Center.

• An active listing on the website is required to post your ad on the bulletin boards.
• Only orthopaedic surgery opportunities are posted.
• Posted items should NOT exceed 8.5” x 11”.
• Due to space limitations, only one ad per practice is allowed.

Interview Booths
• Private interview space may be reserved on-site at the Career Center.
• These rooms are not intended to be used as exhibit space nor may they be occupied by a candidate or employer for an extended period of time.

Free CV consultation
• Get advice on the best way to show your accomplishments with an updated CV. Visit the on-site Career Center to make an appointment for a one-on-one consultation and remember to bring your CV!
**Cash Station/ATM**
ATMs are located throughout the lobby areas of the Orange County Convention Center.

**ATMs/Banks within close proximity to the convention center:**

**Wells Fargo**
10375 Orangewood Blvd. (407)649-5360

**Hours of Operation:**
- Monday – Thursday: 9:00 AM – 5:00 PM
- Friday: 9:00 AM – 6:00 PM
- Saturday – Sunday: Closed

**Chase ATM**
8959 International Drive (800)935-9935

**ATM**: 24 hours

**Bank of America**
7220 Sand Lake Road (407)351-4220

**Hours of Operation:**
- Monday – Thursday: 9:00 AM – 4:00 PM
- Friday: 9:00 AM – 6:00 PM
- Saturday – Sunday: Closed

**ATM**: 24 hours

**Charging Stations**
Academy Hall C, Academy Lounges, Exhibit Halls A & B, Levels 3 & 4 Lobbies
Stop by the electrical plug-in stations to recharge your cell phones, laptops, and tablets.

**CME Kiosks**
Academy Hall C, Hall D Lobby, Level 1 Lobby
Print your CME certificate of attendance for the Annual Meeting and participating Specialty Societies.

**Coat and Luggage Check**
Level 1 Lobby and Hall D Lobby
For identification, please leave a business card in your pocket. There is a checked item fee of $4.00.

**Hours of Operation:**
- Tuesday – Saturday: 6:30 AM – 6:30 PM

**Focus Groups (invitation only)**
Focus Group discussions are being held in Rooms W305B and W306A Tuesday, Wednesday, and Thursday. Those who have been invited to observe the discussion groups, please meet in Room W305A for focus groups taking place in Rooms W305B and in Room W306B for focus groups taking place in Rooms W306A. For additional details, please reference the My Academy App.

**Hours of Operation:**
- Tuesday: 6:00 AM – 7:30 AM & 12:00 – 1:30 PM
- Wednesday: 6:00 AM – 7:30 AM & 12:00 – 1:30 PM
- Thursday: 12:00 – 1:30 PM

**Food Service**
The Orange County Convention Center has ample food and beverage concession areas to satisfy any appetite. Detailed menu and location information is available at the Info Centers.

AAOS Bistro is located in Hall A with an all-inclusive buffet lunch and available table reservations, Wednesday – Friday, from 11:00 AM – 2:30 PM. Tickets can be purchased at the Bistro or in advanced at the Bistro Ticket Sales Booth in Academy Hall C.

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**Forum for Young Orthopaedic Surgeons with the American Board of Orthopaedic Surgery**

**Thursday, 10:30 AM - 12:30 PM, Room W305A**
This free annual forum provides senior residents and new practitioners a unique opportunity to meet informally with Executive Director Shepard Hurwitz, MD, of the American Board of Orthopaedic Surgery (ABOS). He provides you with insightful information about Board requirements and procedures. This special program is a “must attend,” as it answers your questions about this important step in your career. If you are looking at ABOS Part 1 or Part 2 of the exam in the near future, you should not miss this forum.

**Guest Nation - Colombia**
Help us welcome Colombia as the Guest Nation for the AAOS 2016 Annual Meeting. Look for special events and activities including a collaborative symposium, “Gun Shot and Explosive Wounds” to be held on Wednesday, special poster tours given in Spanish, 10 featured posters from Colombia and remarks by the President of the Sociedad Colombiana de Cirugía Ortopédica y Traumatología (SCCOT) during the Opening Ceremony. Please stop by the Guest Nation exhibit, located in Academy Hall C, to learn more.

**Handout Sales**
Resource Center, Academy Hall C
Selected Instructional Course handout flash drives are available.

**Hours of Operation:**
- Tuesday – Friday: 7:00 AM – 6:00 PM
- Saturday: 7:00 AM – 3:00 PM

**Hotel Shuttle Bus**
Complimentary shuttle service runs between the official AAOS hotels and the Orange County Convention Center. Hotels without shuttle service are the Hyatt Orlando, Rosen Centre and Rosen Plaza hotels.

**Shuttle service is not provided between the hours of 10:00 AM – 2:00 PM.**

**Hours of Operation:**
- Morning Service, Tuesday - Saturday: 6:30 – 10:00 AM
- Afternoon Service, Tuesday - Friday: 2:00 – 6:30 PM
- Afternoon Service, Saturday: 2:00 – 6:00 PM

*Last Hotel Departure is at 5:00 PM*

Items left on the shuttles will be turned in to the Academy Headquarters Office, Hall C Lobby.

For complete details see pages 18-19.

For wheelchair-accessible vehicles, please call (407)346-8927 and allow two hour notice for this service.

**Hotel Reservations – 2017 Annual Meeting**
AAOS Members attending this year’s Annual Meeting can make hotel reservations for the 2017 Annual Meeting in San Diego. Stop by and book today at the Housing Desk in Academy Hall C or an Internet Connections kiosk located throughout the lobby areas.

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© 2016 American Academy of Orthopaedic Surgeons
Housing Help Desk
Academy Hall C
Please visit the helpdesk if you have a problem with your reservation or need to change hotels.
• Hours of Operation:
  Monday ......................................................2:00 – 6:00 PM
  Tuesday – Friday ........................................7:00 AM – 6:00 PM
  Saturday ....................................................7:00 AM – 3:00 PM

Instructional Course Ticket Exchange
Academy Hall C
Tickets purchased in advance may be exchanged at the Ticket Sales counter. The registrant must pay the difference between the advance purchase price and the on-site purchase price in order to exchange a ticket. The difference for the Orthopaedic Review Course is $100. No exchanges after the start of a course.

International Business Office
Room W209C
Academy Staff are available to assist you with inquiries. For membership inquiries, please visit the membership desk in the Resource Center, Academy Hall C.
• Hours of Operation:
  Tuesday – Friday ........................................7:00 AM – 6:00 PM
  Saturday ....................................................7:00 AM – 5:30 PM

International Groups Department
Physician Registration, Academy Hall C
Hotel and registration assistance is available to international guests who used this service.

International Surgeons Lounge
Room W209C
We invite surgeons visiting the U.S. to come and relax, meet with other international colleagues, and browse information on AAOS international activities. Refreshments (coffee, tea, and water) are provided.
• Hours of Operation:
  Tuesday – Friday ........................................7:00 AM – 6:00 PM
  Saturday ....................................................7:00 AM – 5:30 PM

Internet Connections
Academy Hall C, Levels 3 & 4 Lobbies,
Technology Theater, Hall B, Booth 2B97
These “all-in-one” stations allow you to utilize the following key connections:
• 2016 Exhibitor Directory
• 2017 Member Housing
• Email sites
• Flight Check-in

Lost and Found
Academy Headquarters Office, Hall C Lobby
• Hours of Operation:
  Monday ......................................................7:00 AM – 6:00 PM
  Tuesday – Friday ........................................6:30 AM – 6:30 PM
  Saturday ....................................................6:30 AM – 6:00 PM

Media Training
From Insights to Sound bites: Your Orthopaedic Expertise and the News Media #701
Wednesday, 8:00 AM – 12:00 PM, Room W303A
Feel more confident and learn to make the most of every media encounter and public presentation. Participants will gain an understanding of how the news media works. In this fast-paced, interactive session, you’ll learn the keys to a successful interview and the ways to best present your most important information in any discussion.

This session is limited to 15 attendees and is offered complimentary on a first-come, first-served basis to active AAOS Fellows, Candidate Members, and Emeritus Fellows.

Registration is required.

My Academy App
The Annual Meeting My Academy App is available free from the App Store or Google Play. View, search, and schedule all educational opportunities, Technical Exhibitor information, Social Program, Committee and Affiliate Meetings, and Special Events. You may even add personal events to your schedule to help you stay organized and make the most of your time at the Annual Meeting. A mapping program for meeting room locations and exhibiting companies within the Orange County Convention Center is also included. You may browse or search the list of participants and use the messaging feature within the app to help you connect or reconnect with colleagues. The app also includes an electronic business card exchange to help you stay in touch with new connections. Need some assistance? Visit the help desk located in the Resource Center in Academy Hall C.

Nursing and Allied Health Program
CAST 1 & 2, Rosen Centre Hotel, Junior Ballroom G
NUR 1-4, Rosen Centre Hotel, Junior Ballroom F
AAOS, the National Association of Orthopaedic Nurses (NAON), and the National Association of Orthopaedic Technologists (NAOT) have collaborated to develop this program. Applications have been made to the orthopaedic technologists, physician assistants, and the American Nursing Credentialing Center in order to provide multiple types of contact hours for these courses.

To attend any of these courses, you need to register for the AAOS Annual Meeting and purchase a ticket for each course. The Annual Meeting on-site registration fee is $250.

Tickets for the NUR courses are $145 per course. Tickets for the CAST courses are $220. A complete listing of the courses can be found on pages 329-332.

Offices
Academy Headquarters
Hall C Lobby (407)685-5401
Exhibits Office
Hall C Lobby (407)685-5418
International Business Office
Room W209C (407)685-4018
Media Briefing
Room W221D No Telephone
Newspaper Office
Room W221C (407)685-4022
Press Office
Room W222A (407)685-5425
Speaker Ready Rooms
Room W206 (407)685-4017
Room W312 (407)685-4015

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Other Organization Displays
Academy Hall C
- American Board of Orthopaedic Surgery – ABOS
- American Joint Replacement Registry – AJRR
- Orthopaedic Research and Education Foundation – OREF

These booths are staffed during the following hours:
Tuesday – Friday ......................................... 7:00 AM – 6:00 PM
Saturday ..................................................... 7:00 AM – 3:00 PM

Parking
Parking is abundant in Orlando. The fee for parking at the Orange County Convention Center is $15.00 per car.

Planning Committees
2016 Central Program Committee
James R. Ficke, MD, Baltimore, MD, Chair
Brian J. Cole, MD, MBA, Chicago, IL
William M. Mihalko, MD, PhD, Germantown, TN
Marc Safran, MD, Redwood City, CA
Alexander Vaccaro, MD, PhD, Gladwyne, PA

2016 Central Instructional Course Committee
Tad L. Gerlinger, MD, Chicago, IL, Chair
Craig J. Della Valle, MD, Chicago, IL
James I. Huddleston III, MD, Redwood City, CA
Javad Parvizi, MD, Philadelphia, PA
Thomas (Quin) Throckmorton, MD, Germantown, TN

2016 Exhibits Committee
Joseph T. Moskal, MD, Roanoke, VA, Chair
Jonathan J. Carmouche, MD, Roanoke, VA
Karen S. Duane, MD, Newberry, FL
Steven I. Grindel, MD, Milwaukee, WI
Tim P. Lovell, MD, Spokane, WA
Vivek Mohan, MD, MS, Naperville, IL
Jeffrey M. Schwartz, MD, FACS, New York, NY
Fernando Techy, MD, Fort Collins, CO
Scott D. Weiner, MD, Akron, OH
Dean W. Ziegler, MD, Milwaukee, WI

2016 Orthopaedic Video Theater Committee
James (Jay) M. Bennett, MD, Houston, TX, Chair
Stephen Bartol, MD, Toledo, MI
Shariff K. Bishai, DO, St. Clair Shores, MI
David M. Bloome, MD, Houston, TX
H. John Cooper, MD, New York, NY
Christopher Matthews, MD, Gainesville, FL
Philip D. Nowicki, MD, Grand Rapids, MI
Christopher E. Pelt, MD, Salt Lake City, UT
Eric Rubin, MD, East Greenwich, RI
Mark A. Vann II, MD, Sugar Land, TX
J. Michael Wiater, MD, Beverly Hills, MI

Playground Shuttle
AAOS Safe and Accessible Playground Build
Buses depart hourly from the Orange County Convention Center, outside Level 1 Lobby.
Tuesday .......................................................... 7:30 AM – 2:30 PM

Proceedings
Be sure to visit our website to view the Proceedings on a PC, tablet, or mobile device at www.aaos.org/proceedings.

Public Transportation
Lynx is Orlando’s public bus network, which makes scheduled stops at area hotels and attractions. The buses depart from the airport every 30 minutes for the city center and International Drive. Please visit http://www.golynx.com/ or call (407)841-2279 for more details.

Redemption Centers
Booths 538, 2593, and 4195
Visit the Redemption Centers to pick up a complimentary tote bag and AAOS T-shirt. Enter to win an iPad, GoPro camera, and more! Check your registration packet for special coupons, redeemable exclusively at AAOS Redemption Centers.
- Hours of Operation:
  Wednesday – Thursday ............................... 9:00 AM – 5:00 PM
  Friday .......................................................... 9:00 AM – 4:00 PM

Registration On-Site
Academy Hall C
Registration Fees
Members in good standing including AAOS Fellows, Candidate, Resident, Associate, and International Affiliate Member $150
International Resident Member.............................................. $150
Annual Meeting Official Speaker ........................................... No Fee
Annual Meeting Official Co-Author....................................... $150
U.S. Non-Member Physician ............................................ $1,000
International Non-Member Medical Attendee ......................... $800
International Non-Member Resident (approval required) .... $600
U.S. Fellowship/U.S. Residency ........................................ $150
U.S. Allied Health is limited to individuals directly employed by a hospital, healthcare network, university, or freestanding facility administering to patients (i.e. RN, OPA, PA, OTC, ATC, PT, office staff, medical students) ........................................ $250
U.S. Career Center approved participant (non-member/non-physician – a current listing is required) ....................... $250
- Hours of Operation:
  Monday ........................................................... 2:00 – 6:00 PM
  Tuesday – Friday ......................................... 7:00 AM – 6:00 PM
  Saturday ..................................................... 6:30 AM – 5:30 PM

Rental Cars
AAOS has negotiated special rates for rental cars during the meeting. Cars can be picked up at the Orlando International Airport (MCO) or at select hotels. Use the AAOS Meeting Code at the time of reservation to receive AAOS discounted rates.

<table>
<thead>
<tr>
<th>Car Company</th>
<th>Meeting Code</th>
<th>Phone</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hertz</td>
<td>CV# 02KS0021</td>
<td>(800)654-2240</td>
<td><a href="http://www.hertz.com">www.hertz.com</a></td>
</tr>
<tr>
<td>Avis</td>
<td>AWD# J095822</td>
<td>(800)331-1600</td>
<td><a href="http://www.avis.com">www.avis.com</a></td>
</tr>
</tbody>
</table>
Resident Assembly Open Forum
Wednesday, 6:30 – 7:30 AM, Room W308A
New this year, all residents are invited to attend an open forum to discuss proposed Action Items to be brought before the Resident Assembly the following day. An Action Item is defined as an initiative/opportunity for residents or a stance taken on resident issues. At the open forum, residents have the chance to present Action Items they have sponsored and discuss Action Items proposed by other residents and educational programs. This is an exciting opportunity for residents to make a difference in the AAOS.

Resident Assembly
Thursday, 1:30 – 3:30 PM, Room W308A
All residents are invited to attend the AAOS Resident Assembly. The primary purpose of the Resident Assembly is to serve as an advisory body to the AAOS on issues of importance to orthopaedic residents. This is your opportunity to make a contribution to AAOS and toward your own professional advancement. Join a committee or become a delegate, and let your voice be heard!

The Resident Bowl
Thursday, 4:00 – 6:00 PM, Room W224
The Resident Bowl is a new opportunity for residents to compete against one another in a game-style setting. AAOS President David Teuscher, MD, quizzes up to 40 teams of 5 Residents to test their knowledge in orthopaedic, orthopaedic history, and non-orthopaedic trivia. Prizes and a trophy are awarded to the winning team. In order to participate on a team, residents were required to submit an application ahead of time, but anyone can be in the audience and cheer for their colleagues.

Resource Center
Academy Hall C
Explore this once-a-year showcase of Academy education resources, practice tools and membership benefits on site. Consult with experienced AAOS staff who can answer questions, help you navigate Academy apps, and walk you through the wide selection of publications, courses, eBooks, digital content, self-assessment exams, and interactive programs created for you.


This is your on-site opportunity to try out new resources that evolve your clinical skills, challenge your problem-solving aptitude, and keep you current in your field all year long. Find support and answers to your AAOS membership benefits questions, MOC needs, and educational pursuits – from your knowledgeable AAOS staff.

Instructional Course handouts are available for purchase in the Resource Center.

Exhibit Hall Resource Center
Hall A, Booth 1933
For your convenience, when you are in the exhibit hall, visit the AAOS Exhibit Hall Resource Center located in Publishers’ Row.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Resource Center</th>
<th>Exhibit Hall Booth</th>
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</thead>
<tbody>
<tr>
<td>Tuesday</td>
<td>7:00 AM – 6:00 PM</td>
<td>Closed</td>
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<tr>
<td>Wednesday – Thursday</td>
<td>7:00 AM – 6:00 PM</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Friday</td>
<td>7:00 AM – 6:00 PM</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Saturday</td>
<td>7:00 AM – 3:00 PM</td>
<td>Closed</td>
</tr>
</tbody>
</table>

Restaurant Concierge
Hall C Lobby and Level 1 Lobby
Visit Orlando is available to assist you in selecting restaurants and evening entertainment venues during your stay in Orlando.

• Hours of Operation:
  Tuesday – Friday…………………………..8:00 AM – 6:00 PM

Ribbons
If you did not receive your participant/volunteer ribbon(s) in advance, please stop by the Ribbon Counter located in Academy Hall C. Committee members and Board of Councilors receive their ribbons from their liaisons.

Social Media
Follow the AAOS Annual Meeting on Facebook and Twitter to receive meeting news, updates, and reminders in real-time. Use #AAOS2016 to join the conversation!

AAOS Annual Meeting

@AAOSAnnual

Social Program
Level 1 Lobby
Tour and seminar information is listed on page 32.

Speaker Ready Rooms
Rooms W206 and W312

• Hours of Operation:
  Monday (Room W312 only)..........................2:00 – 6:00 PM
  Tuesday – Friday.................................6:30 AM – 6:00 PM
  Saturday...........................................6:00 AM – 5:30 PM

Specialty Day
Saturday, Orange County Convention Center, West Building
Specialty Day is a day set aside for scientific programs presented by organizations that are members of the Board of Specialty Societies (BOS). Refer to the listing on page 36.

Taxi Service
Taxi service from the airport costs $35-$50 (one way) according to the location of your hotel. All taxicabs picking up at the airport are regulated by the City of Orlando’s Vehicle-for-Hire ordinance which requires fares to be determined by a taximeter.
Technical Exhibits
Halls A-B
• Hours of Operation:
  Wednesday – Thursday..............................9:00 AM – 5:00 PM
  Friday......................................................9:00 AM – 4:00 PM

Admission
Admission to the exhibit halls is by badge only. Individuals under the age of 16 are not permitted in the exhibit halls.

Beverage Breaks
Booths 1509, 2493, and 3209
Complimentary beverage stations are provided in the exhibit hall each afternoon during the 30-minute break between scientific sessions at 3:30 PM Wednesday – Thursday and on Friday at 10:00 AM and 2:30 PM.

Technology Theater – It’s Free, No Ticket Needed!
Booth 2987
It is totally free, no ticket needed! Presentations that showcase current technology, products, and applications that are beneficial for orthopaedic surgeons and their staff take place in the Technology Theater. A schedule of the dates and times of presentations can be found on page 432, in the daily edition of AAOS Now, and at Booth 2987.
• Session Hours:
  Wednesday-Thursday..............................9:00 AM – 5:00 PM
  Friday......................................................9:00 AM – 4:00 PM

Exhibitor Directory Kiosk
Stop at an Internet Connections station to view a listing of all exhibitors, their contact and product information, and create and print your personal My Expo Plan.

Lead System
There’s no need to tote a bulging bag or cram papers in your suitcase when you leave. Simply present your badge to exhibitors whose literature you want to receive. After scanning the bar code, exhibitors are able to mail materials directly to you after the meeting, enabling you to spend more time in face-to-face discussions with exhibitors.

Seeking Advice? Ask an Expert
Booth 672
Here’s an interactive opportunity for you to present a perplexing case to an expert in orthopaedics. Audience participation is encouraged to complement the exchange of ideas. The schedule of topics and the expert leaders is listed on page 431.
• Session Hours:
  Wednesday-Thursday..............................9:00 AM – 5:00 PM
  Friday......................................................9:00 AM – 4:00 PM

Exhibit Time
One hour of exhibit time is provided each exhibit day from 12:30 – 1:30 PM.

You are Here – Floor Plan and Exhibitor Listing
To assist you in navigating the exhibit halls, pick up an updated floor plan and exhibitor listing at the You Are Here signs located at select entrances to the exhibit halls. These signs and maps are color coded to help you find your way around the exhibit halls.

Webcasting
View 12 symposia webcasts as they are simulcast live from the Annual Meeting. Choose from a variety of sessions addressing the hot topics of the day in shoulder, hip, knee, spine, pediatrics, hand and wrist, trauma, sports, and practice management. If you are unable to view the live simulcasts, you will be able to view replays on demand following the Annual Meeting. Visit www.aaos.org/amwebcasts for more details.
AAOS Members and AAOS Residents: Free
Non-Members: $79

Wi-Fi
Wireless Internet access – at no charge – is available throughout the Orange County Convention Center Lobbies, Meeting Rooms, Academy Hall, Technology Theater, Ask An Expert, and the food service areas in the exhibit halls.

Academy Executive Staff
Chief Executive Officer.............Karen L. Hackett, FACHE, CAE
Chief Operating Officer/
Chief Financial Officer.............Richard J. Stewart, CPA, MBA
Chief Education Officer.............Ellen C. Moore
General Counsel, Corporate Secretary.....Richard N. Peterson, JD
Medical Director....................William O. Shaffer, MD
Chief Technology Officer..........William C. Bruce, MBA, CAE

Academy Senior Staff
Director, Convention and Meeting Services.....Susan A. McSorley
Director, Electronic Media, Evaluation Programs,
and Course Operations...............Howard Mevis
Director, Finance.................................Tina D. Slager
Director, Human Resources...............Laura Abrahams
Director, Office of Government Relations......Graham Newson
Director, Marketing.........................Maureen Geoghegan
Director, Public Relations...............Melissa H. Leeb
Director, Publications...............Hans J. Koelsch, PhD
Director, Research
and Scientific Affairs...............Deborah S. Cummins, PhD
Director, Society Relations.............Jennifer Wolff Jones

Convention and Meetings Services Staff
Airlines, Committee Meetings and Events...............Tara Long
Affiliate and Alumni Events..................Justin Clark
Board of Directors........................Kristy Glass
Education........April Holmes, Nicole Williams, Domenic Picardo
Exhibits................Patricia Whitaker, Ken Schott, Jason Raymond
Headquarters Office..................Sue Leicht and Lane Compton
Housing and Shuttle...............Anita Cooper, CMP
Operations...............Lynn Mondack and Kierstin Noack
Orthopaedic Society Events and Meetings........Tara Long
Registration................Lynn Haase and Heather Welcing
Social Program................Tara Long

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The Social Program is open to all participants registered for the AAOS 2016 Annual Meeting and their families.

**Social Program Registration**
Visit us online at [www.aaos.org/tours](http://www.aaos.org/tours) or on-site at Orange County Convention Center, West Building Level 1 Lobby to register for Social Program tours and seminars.

**Registration Hours**
Orange County Convention Center, West Building Level 1 Lobby
Monday: 2:00 PM – 6:00 PM
Tuesday-Friday: 7:00 AM – 6:00 PM
Saturday: 7:00 AM – 12:00 PM

**Badges and Tickets**
The Social Program is not an Annual Meeting registration and will not provide a name badge. For access to Academy Hall, the Ceremonial Meeting (Guest Speaker), Opening Ceremony, or Technical Exhibits please see Family Badges.

Family badges will be available in Orange County Convention Center, West Building, Academy Hall C to non-medical spouses or immediate family on-site during registration hours. In order to receive a family badge, you must be accompanied by a registered attendee. There is a limit of 2 family badges per registered attendee.

Family Badge attendees cannot purchase Instructional Course tickets and no CME credits or verification of attendance will be issued.

Co-workers or those associated within the Orthopaedic industry do not qualify for a Family Badge. These individuals must register in the appropriate professional or exhibitor category.

**Tickets**
All pre-registered tickets will be available for pick up on-site at the Social Program desk at Orange County Convention Center, West Building Level 1 Lobby starting Monday, February 29 at 2:00 PM. **Tickets will not be mailed.**

Stop by any time prior to your first tour. (See Social Program Desk hours above). You or your spouse will need to provide an ID and confirmation letter to pick up your tickets.

**Cancellations and Refunds**
AAOS must purchase tour tickets in advance; as a result, tickets are non-refundable on-site. The cancellation deadline was February 1, 2016. Refunds will not be given after this date. Participant illness, changes in travel, inclement weather, and late arrival to the tour departure area are beyond the Academy’s control and will not be considered a reason for providing a refund.

**Attire**
Comfortable walking shoes and layered clothing are recommended for all tours. Tours will not be cancelled due to inclement weather, so please plan accordingly.

**Tours**
All Social Program tours will depart from the Orange County Convention Center. Please plan to board the tour bus 15 minutes prior to the posted departure time on your ticket. Tour and seminar costs include all current taxes, gratuities, and service changes, turnkey facilitation and tour pre-Planning.
Help us welcome Colombia as the Guest Nation for the Orlando meeting. Please stop by the Guest Nation exhibit located in Academy Hall C to learn more about the accomplishments of the Colombian orthopaedic community.

Look for special events and activities including a collaborative symposium, “Gun Shot and Explosive Wounds” that will be held on March 2, special poster tours given in Spanish, ten featured Posters from Colombia and remarks by Antonio Solano Urrutia, MD, President of the Sociedad Colombiana de Cirugía Ortopédica y Traumatología (SCCOT) during the Opening Ceremony.

Inaugurated in 2005, the AAOS Guest Nation program was established to foster greater recognition and awareness of the contributions made to the practice of orthopaedics from the many nations of the world, and to further enhance the robust international flavor and excitement of the AAOS Annual Meeting. AAOS is honored to welcome Colombia as the 2016 Guest Nation.

MORE OPTIONS to help build and staff your practice
Employers: find more options to advertise your open positions, meet with potential candidates, and schedule and conduct interviews at the on-site AAOS Career Center. Learn about the many enhancements on the online Career Center as well!

MORE OPPORTUNITIES to find the right practice and launch your career
Job Seekers: benefit from more opportunities to meet with recruiters, view and search more career postings on the Bulletin Boards, access job search resources on the online Career Center, and much more.

NEW! Free CV Consultation.
Make an appointment at the on-site Career Center for a one-on-one consultation to update and improve your CV!

Visit us today to learn more!
Orange County Convention Center
West Building, Academy Hall C
Tuesday – Friday: 7:00 AM to 6:00 PM
Saturday: 7:00 AM to 3:00 PM
Online at:
www.aaos.org/careercenter
Benefit From All Of The Outstanding Courses You May Have Missed!

Bring home all of this year’s hot topics, including:

- Avoiding and Managing Complications in Cervical Spine Surgery (#310)
- Athletic Hip Injuries: Presentation, Evaluation, and Return to Play (#370)
- Limb Deformity Evaluation and Principles (#125)
- Modern Blood Conservation Strategies for the Orthopaedic Surgeon (#263)
- Differentiating Cervical Spine and Shoulder Pathology: Common Disorders and Key Points of Evaluation and Treatment (#304)
- And hundreds more!

Get your Course Handouts at the AAOS Resource Center - Academy Hall C

HOURS:
Tue – Fri: 7:00 AM – 6:00 PM       Saturday: 7:00 AM – 3:00 PM

AAOS Members: Just $55 on-site (or $75 post-meeting). Get your flash drive with more than 200 Instructional Course Handouts.

Each individual Course Handout PDF: $15 (Available On-Site Only)

Also available at the Resource Center:
Orthopaedic Review Course #490: AAOS Members on-site $75 ($95 post-meeting)
MORE VALUE NOW
Take advantage of the full spectrum of AAOS member benefits to gain MORE:
• MORE access to clinical best practices and practice management programs
• MORE variety for live and online learning resources
• MORE tools and publications to help you stay in the forefront of the profession
• MORE opportunities to network with your peers
Find MORE programs and benefits relevant to your needs on the new AAOS web site: www.aaos.org

MORE VALUE TOMORROW
AAOS Member Services staff is here to assist you with all your membership needs – from applying for or renewing your membership, to updating your current information.

WE LOOK FORWARD TO SEEING YOU!
AAOS Membership Services at the Resource Center, Academy Hall C
Tuesday — Friday: 7:00 AM–6:00 PM   Saturday: 7:00 AM–3:00 PM

For more information, please visit www.aaos.org/member
Saturday, March 5, Orange County Convention Center, West Building

Specialty Day is a day set aside for scientific programs presented by organizations that are members of the Board of Specialty Societies (BOS). Those organizations include:

**American Orthopaedic Foot & Ankle Society**
Room W224
7:00 AM – 5:20 PM
9 AMA PRA Category 1 credits™

**American Orthopaedic Society for Sports Medicine**
Chapin Theater
7:35 AM – 5:00 PM
6.5 AMA PRA Category 1 credits™

**American Shoulder and Elbow Surgeons**
Room W311
7:25 AM – 4:35 PM
7.25 AMA PRA Category 1 credits™

**American Society for Surgery of the Hand/ American Association for Hand Surgery**
Room W304A
7:30 AM – 5:15 PM
8.5 AMA PRA Category 1 credits™

**Arthroscopy Association of North America**
Valencia Room D
7:50 AM – 5:15 PM
7.5 AMA PRA Category 1 credits™

**The Hip Society/American Association of Hip and Knee Surgeons**
Valencia Room A
8:00 AM – 5:15 PM
7.75 AMA PRA Category 1 credits™

**The Knee Society/American Association of Hip and Knee Surgeons**
Valencia Room B
8:00 AM – 5:00 PM
7.75 AMA PRA Category 1 credits™

**Limb Lengthening and Reconstruction Society**
Room W308A
8:00 AM – 4:15 PM
7.25 AMA PRA Category 1 credits™

**Musculoskeletal Tumor Society**
Room W314
8:00 AM – 4:00 PM
5.5 AMA PRA Category 1 credits™

**Orthopaedic Trauma Association**
Room W414
7:30 AM – 5:00 PM
5.75 AMA PRA Category 1 credits™

**Pediatric Orthopaedic Society of North America**
Room W315
8:00 AM – 4:15 PM
6.75 AMA PRA Category 1 credits™

**Federation of Spine Associations**
- American Spinal Injury Association
- Cervical Spine Research Society
- North American Spine Society
- Scoliosis Research Society
Room W304E
8:00 AM – 5:00 PM
8 AMA PRA Category 1 credits™
The ORS invites AAOS registrants interested in collaborating in the science of patient care to attend the ORS Annual Meeting on Sunday, March 6, when we will provide the opportunity for you to attend the meeting at no charge.

**Complimentary Programs:**
- Paper Presentations – 10:00 – 11:00 AM, 11:15 AM – 12:15 PM, 2:15 – 3:15 PM
- Scientific Posters – 9:00 AM – 6:30 PM
- 2016 Kappa Delta, OREF Clinical Research and CORR® ORS Richard A. Brand Award paper presentations – 3:30 – 5:00 PM
- ORS Clinical Research Forum: The Basis for Clinical Decision Making in Orthopaedics – 12:30 – 5:00 PM
- Professional Advancement Session: Healthcare Economics in Orthopaedics - What You Need to Know Organized by the ORS Corporate Affairs Committee – 8:00 – 9:30 AM

**Scientific Workshops - 8:00 – 9:30 AM:**
- Building Better Bone: The Weaving of Biologic and Engineering Strategies for Managing Bone Loss Collaboration of the ORS and OTA
  Organizers: Jaimo Ahn, MD, PhD and Mara L. Schenker, MD
- Strategies to Improve Total Knee Arthroplasty Collaboration of the ORS and Knee Society
  Thomas P. Vail, MD and Kevin L. Garvin, MD
- How to Accelerate Basic Discoveries to Patient Benefit Organizers: Jeffrey C. Lotz, PhD and Vijay K. Goel, PhD

**Registration and course fee is required for the following program:**
ORS/OREF Basic Science Course
Richard L. Lieber, PhD, Marjolein C. van der Meulen, PhD, Theodore Miclau, MD
Part II: Sunday, March 6, 8:00 – 11:30 AM
Registration: www.ors.org/2016annualmeeting

**HOW TO REGISTER:**
There is no fee to register for the ORS Annual Meeting on Sunday, March 6. A sticker (to be placed on your badge) is required for access to the ORS Annual Meeting on Sunday, March 6. The sticker can be obtained at ORS satellite check-in located at Orange County Convention Center, West Building, Academy Hall C on Friday, March 5 or at the ORS Registration Desk at the Disney’s Coronado Springs Resort on Sunday, March 6.
The American Academy of Orthopaedic Surgeons gratefully acknowledges the following companies, organizations and individuals for their financial support of AAOS programs and projects throughout 2015. (as of 1/12/16)

**Diamond Level – $200,000 and up**

- DePuy Synthes
- Zimmer Biomet

**Platinum Level – $100,000-$199,999**

- Alliance of Automobile Manufacturers
- Stryker Orthopaedics
- Arthrex

**Gold Level – $50,000-$99,999**

- Medtronic
- OrthoPediatrics
- Pacira Pharmaceuticals
- Smith & Nephew Orthopaedics

**Silver Level – $10,000-$49,999**

- Acelity/KCI
- Acumed
- American Association of Hip and Knee Surgeons
- American Orthopaedic Society for Sports Medicine
- Arthroscopy Association of North America
- BioMarin Pharmaceutical
- Bioventus Global
- Brainlab
- CareCredit
- DJO Global
- Ellipse Technologies
- Federación Mexicana de Colegios de Ortopedia y Traumatología, A.C. (FEMECOT)
- Houston Methodist
- K2M
- Orthofix
- Orthopaedic Research & Education Foundation
- Orthopaedic Trauma Association
- Pediatric Orthopaedic Society of North America
- Pega Medical
- Scoliosis Research Society
- Shriners Hospitals for Children
- THINK Surgical
- Wright Medical Technology

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### Bronze Level – $1,000-$9,999

<table>
<thead>
<tr>
<th>Sponsor</th>
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<tbody>
<tr>
<td>Alexandra’s Playground</td>
<td>Indonesian Orthopaedic Association</td>
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<tr>
<td>American Association of Orthopaedic Executives</td>
<td>J. Robert Gladden Orthopaedic Society</td>
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<td>American Orthopaedic Foot and Ankle Society</td>
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<td>American Shoulder and Elbow Surgeons</td>
<td>Limb Lengthening and Reconstruction Society</td>
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<td>American Society for Surgery of the Hand</td>
<td>Massachusetts General Hospital</td>
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<td>American Spinal Injury Association</td>
<td>Mayo Clinic, Rochester, Minnesota</td>
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<td>Association of Residency Coordinators in Orthopaedic Surgery</td>
<td>National Association of Orthopaedic Nurses</td>
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<td>AVID TruCustom &amp; OR Products</td>
<td>New England Baptist Hospital</td>
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<td>Bonutti Technologies</td>
<td>Newton-Wellesley Hospital Charitable Foundation</td>
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<td>Danna-Gracey</td>
<td>Orchid Orthopedic Solutions</td>
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<td>Dr. Alan &amp; Gittel Hilibrand</td>
<td>Orlando Orthopaedic Center Foundation</td>
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<td>Dr. Basil &amp; Amirra Besh</td>
<td>OrthoBullets</td>
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<tr>
<td>Dr. David &amp; Katie Halsey</td>
<td>Orthopaedic Nurses Certification Board</td>
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<tr>
<td>Dr. David L. &amp; Gail Cannon</td>
<td>Orthopaedic Research Society</td>
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<tr>
<td>Dr. Gerald R. &amp; Robin K. Williams</td>
<td>Permanente Medical Group</td>
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<tr>
<td>Dr. Howard R. &amp; Phyllis G. Epps</td>
<td>Physician Assistants in Orthopaedic Surgery</td>
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<tr>
<td>Dr. Michael F. &amp; Eileen Schafer</td>
<td>Ruth Jackson Orthopaedic Society</td>
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<tr>
<td>Dr. Richard Gayle</td>
<td>Société Internationale de Chirurgie</td>
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<tr>
<td>Dr. Stephen &amp; Sonny Hurst</td>
<td>Orthopédique et de Traumatologie (SICOT)</td>
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<tr>
<td>Dr. Stuart &amp; Lisa Hirsch</td>
<td>Sociedad Chilena de Ortopedia y Traumatologia (SCHOT)</td>
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<tr>
<td>Drs. Elizabeth Matzkin &amp; Eric Smith</td>
<td>Stanford Orthopaedic Surgery</td>
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<tr>
<td>Drs. Lawrence Robinson &amp; Jane Benton</td>
<td>Stetson Powell Orthopedics and Sports Medicine</td>
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### Thanks for your support

The Academy would also like to thank the following companies for their support for its 2015 Skills Courses and international activities by providing essential equipment and supplies:

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Contribute to the advancement of orthopaedic science and practice

Share your research with orthopaedic surgeons from around the world at the 2017 Annual Meeting. Nowhere else will your discoveries reach such a wide-ranging orthopaedic audience.

Submissions open April 1, 2016. Watch for announcements!

Submit full-page abstracts, attach images, and more!

Present your research to its best advantage on our user-friendly website.

ATTENTION SUBMITTERS. Disclosure Rules:
Abstract Submissions due June 1, 2016

All presenters and co-authors must disclose financial relationships in the AAOS Orthopaedic Disclosure Program.
The disclosure must be entered or updated as of April 1, 2016. Abstracts will not be graded without all disclosures.
Educational Programs
Educational Programs

From the Tried and True to Cutting Edge – In Your Preferred Learning Style

The Central Instructional Courses Committee and the Central Program Committee, with the assistance of the Instructional Courses and Program Committees in each classification, selected an outstanding array of educational opportunities for the 2016 Annual Meeting.

Cornerstones for Your Academy Meeting

Instructional Course Lectures present tried and true solutions in orthopaedics, “the standard of care,” and insightful opinions from expert surgeons. These courses require a ticket purchase (TICKET) with prices ranging from $50 to $400. Several Instructional Courses feature an Audience Response System, noted by included free with your registration.

Symposia bring you cutting-edge topics, debates, and the latest thinking from a world-class faculty. They offer a wide variety of subject matter, featuring innovative research and information. Several Symposia sessions are highly interactive and feature an Audience Response System, noted by included free with your registration.

Paper Presentations explore new and exciting research, updates of previous studies, and advances in orthopaedics. The moderator’s goal is to stimulate discussion. There are more than 920 papers in all; included free with your registration.

Scientific Exhibit format is used to graphically illustrate a study or a complex procedure. It differentiates itself from a poster presentation in the amount of material that is presented and uses audiovisual, interactive demonstration, or some other type of enhancement in its presentation. The authors of the exhibits are requested to be present Wednesday through Friday between 11:30 AM and 12:30 PM to discuss their ideas and presentation. Schedule your time to visit them when the author is present and they can discuss the exhibit with you. Allow 10-15 minutes for the exhibits you are most interested in so that the author has time to properly discuss his or her presentation. The complete listing is included beginning on page 251.

Scientific Exhibits have been grouped in the following categories:

- Adult Reconstruction Hip .................. SE01-SE10
- Adult Reconstruction Knee ................. SE11-SE21
- Basic Research ............................... SE22-SE23
- Foot and Ankle ............................... SE24-SE26
- Hand and Wrist .............................. SE27
- Pediatrics ...................................... SE28-SE30
- Practice Management ..................... SE31-SE37
- Shoulder and Elbow ....................... SE38-SE50
- Spine .......................................... SE51-SE54
- Sports Medicine and Arthroscopy ...... SE55-SE73
- Trauma ......................................... SE74-SE85
- Tumor and Metabolic Bone Disease .... SE86-SE88

AAOS Committee Scientific Exhibits:
- Research and Development Committee – SE55
- Women’s Health Issues Advisory Board – SE64
- EWI Project Team – SE84

BOS Scientific Exhibits:
- Pediatric Orthopaedic Society of North America – SE28

Posters are visual presentations of medical, clinical, or scientific research; and are often multi-center or multi-disciplinary studies, exciting new research, or a follow up to a previous study. Enjoy unlimited viewing at your convenience; included free with your registration. The poster presenter and/or co-authors are requested to be present daily between 11:30 AM and 12:30 PM to discuss their research and answer questions. Special focus posters include those by Allied Health, Board of Specialty Societies and the Orthopaedic Research Society. A complete listing is included beginning on page 262.

Posters are grouped in the following classifications:

- Adult Reconstruction Hip .................. P001-P105
- Adult Reconstruction Knee ................. P106-P205
- Foot and Ankle ............................... P206-P225
- Hand and Wrist .............................. P226-P240
- Pediatrics ...................................... P241-P260
- Practice Management/Rehabilitation .... P261-P280
- Shoulder and Elbow ....................... P281-P340, P576
- Spine .......................................... P341-P400
- Sports Medicine and Arthroscopy ...... P401-P475
- Trauma ......................................... P476-P535
- Tumor and Metabolic Disease ............ P536-P555
- Guest Nation – Colombia ................. P556-P565
- Orthopaedic Research Society .......... P566-P575
- Board of Specialty Societies ............. P576-P577
- Allied Health .............................. P578

ePosters and eScientific Exhibits are interactive video presentations of research to illustrate a study or procedure. Visit the Academy’s website for access to all ePosters and eScientific Exhibits.

Orthopaedic Review Course: Update for Your Practice and Preparation for Your Test is newly refocused to help you prepare for the Board Exam. This all-day review of general orthopaedics is presented by experts from each of these subspecialties: pediatrics, upper and lower extremities, tumors and metabolic bone disease, and spine. This course requires a ticket purchase (TICKET).

Orthopaedic Video Theater presents videos and multimedia programs created by your orthopaedic surgeon colleagues. These peer-reviewed programs bring you the very latest in surgical technique, leading-edge devices, and new technologies. Enjoy unlimited viewing at your convenience, Tuesday through Saturday; included free with your registration. A complete listing of the Orthopaedic Video Theater programs begins on page 236.

Tuesday – Wednesday

- Award Programs ............................. Stations 1-10
- Adult Reconstruction Hip .................. Stations 11-14
- Adult Reconstruction Knee ................. Stations 15-22
- Foot and Ankle .............................. Stations 23-26
- Trauma ......................................... Stations 27-33
- Tumors ........................................ Station 34
- Pediatrics ...................................... Stations 35-39
- Spine .......................................... Station 40

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Thursday – Saturday
• Award Programs................................................Stations 1-10
• Sports Medicine and Arthroscopy .......................Stations 11-31
• Hand and Wrist.................................................Stations 32-31
• Shoulder and Elbow .........................................Stations 35-40

In addition, 8 self-service stations are available for you to view any Orthopaedic Video Theater title online.

Technology Theater, formerly known as the Electronic Skills Pavilion, showcases the latest technology and applications beneficial to orthopaedic surgeons and their staff. Presentations take place Wednesday through Friday in Booth 2987 in the Technical Exhibit Hall. Sessions are totally free and no ticket is needed to attend.

National Association of Orthopaedic Nurses, the National Association of Orthopaedic Technologists and the AAOS worked in collaboration to bring forth world-class programming especially designed for the orthopaedic nurses and technologists. These courses requires a ticket purchase (TICKET).

Special Highlights – all included free with your registration:

Showdowns
Orthopaedic colleagues debating topics and techniques that demonstrate their point of view. YOU decide who wins! Join us for this special one hour event that will utilize the Audience Response System for you to declare the winner of the showdown. The Hip Showdown will be presented on Thursday, 4:00 – 5:00 PM with Marc J. Philippon, MD as the moderator and the Shoulder and Elbow Showdown will be presented on Friday, 8:00 – 9:00 AM with William N. Levine, MD as the moderator. Don’t miss this engaging new learning format. See page 57 for details.

Flash Five: What’s Coming Down the Pike
A five minute burst of knowledge! Fast and focused, each expert takes on a hot topic – and drills down to the most critical points and takeaways. Presented on Tuesday, 1:30 – 2:30 PM with James R. Ficke, MD as the moderator and Thursday, 8:00 – 9:00 AM with Paul Tornetta III, MD as the moderator. See page 57 for details.

The Way I See It...
Learn the “whys” of what the experts do. Benefit from the inside story – what each presenter wants you to know about a top-of-mind issue. Ride a Jetstream of consciousness as experts share their candid, personal thoughts, “just the way they see it”. Presented on Tuesday, 4:00 – 5:00 PM; Wednesday, 10:30 – 11:30 AM; Thursday, 1:30 – 2:30 PM; Friday, 1:30 – 3:30 PM in conjunction with Game Changers Paper session. See page 57 for details.

Timely Topics – New and Interactive Learning Experiences
More of the newly favorite learning format, Case Presentation Courses offer collaborative table discussions led by an expert faculty facilitator. The course moderator presents the case to the participants, sharing images and data via a monitor at each table. The facilitator then leads individual table discussion and reviews the case information provided by the moderator, with each table sharing conclusions. The moderator presents the final solution using evidence-based data and teaching points with references to support the selected treatment. These are noted by TICKET.

Technical Skills Courses focus on positioning, approach, and step-by-step technical tips via edited videos, followed by discussion on the pearls. Course attendees will receive a short video with techniques and pearls of procedures discussed. These are noted by TICKET.

Poster Tours, electronically given in the Poster Theater at the presentation stage, are virtually guided by experts in each classification and a unique way to view the best posters. Internationally recognized experts create a memorable experience by highlighting pearls and answering your questions; included free with your registration.

Career Development Courses benefit everyone who would like to further refine or develop their presentation skills and create an environment beneficial to learning. The Central Instructional Courses Committee has developed themed daily curriculums which are Leadership, Research and Education, Maintenance of Certificaton, Teaching and Communication, and Marketing. Free with your registration, no ticket necessary, and are noted by TICKET.

Ask an Expert sessions welcome you to bring case challenges on a flash drive and present them for diagnosis and recommendation. Offered Wednesday through Friday in Booth 672 in the Technical Exhibit Hall; included free with your registration.

The following symbols appear next to educational sessions and indicate one or more of the following:

U.S. Food and Drug Administration has not cleared the drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an off label use). For full information, refer to page 15.

Ticket required. For those who have not registered or purchased these tickets in advance, available tickets may be purchased when registering on site.

An Audience Response System is featured.

Case Presentation - offer collaborative table discussions led by an expert faculty facilitator. The course moderator presents the case to the participants, sharing images and data via a monitor at each table. The facilitator then leads individual table discussion and reviews the case information provided by the moderator, with each table sharing conclusions. The moderator presents the final solution using evidence-based data and teaching points with references to support the selected treatment.

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Technical Skills - focus on positioning, approach, and step-by-step technical tips via edited videos, followed by discussion on the pearls.

Symposia that are being webcast; you can watch live on your smartphone, laptop, or tablet.

The Board of Specialty Societies logo next to an educational session indicates the session is co-branded with AAOS and that society.

**Scientific Program Highlights and What’s New**

**Global Perspectives Paper Session**
Tuesday, March 1, 1:30 – 3:30 PM, Valencia Room D
Moderators: Xavier A. Duran, MD and Scott P. Steinmann, MD
The best papers from counties outside of the United States are presented in one session. Come hear the experts discuss important topics from outside the US. This paper session is presented in English.

**Poster Awards Ceremony**
Friday, March 4, 7:00 AM, Academy Hall C
Join us for a free continental breakfast and the Poster Awards Ceremony. Central Program Committee Chair James R. Ficke, MD, presents the winners of the Best Poster in each classification and the best overall poster for the 2016 Annual Meeting.

**Game Changers Paper Session and The Way I See It…**
**Orthopaedists Changing the Game**
Friday, March 4, 1:30 PM – 3:30 PM, Valencia Room B
Moderators: Brian J. Cole, MD, MBA and Marc Safran, MD
The Central Program Committee is pleased to present this very special session that focuses on cutting edge research that could change the way you might practice in the next two to three years. It represents research that could change the way you think or address a difficult problem that impacts current practice; and hear from “Game Changing” orthopaedists who have performed innovative and revolutionary techniques. This session includes the most influential and progressive research likely to shape the way we practice in the near term.

**Annual Meeting Highlights Symposium**
Friday, March 4, 1:30 – 3:30 PM, Chapin Theater
Moderators: William M. Mihalko, MD, PhD and Alexander Vaccaro, MD, PhD
This symposium features a synopsis of the best papers and posters from each of the 11 classifications that represent Annual Meeting education. Members of the Program Committees present the best three to five “shouldn’t be missed” studies presented at the 2016 Annual Meeting. The symposium provides attendees with an opportunity to maximize their Academy experience.

**Special Program for Residents**
**Symposium CC – Residency Core Competencies**
Friday, March 4, 10:30 AM – 12:30 PM, Valencia Room A
Moderator: James R. Ficke, MD
This special educational event has been developed especially for residents. Core competencies required for completion of an orthopaedic residency program will be presented. This highly interactive session is webcast live to advance registered Resident programs and the remote audience is encouraged to submit questions via Twitter.@AAOSPearls.

**ePosters and eScientific Exhibits**
ePosters and eScientific Exhibits provide audio for many of the Posters and Scientific Exhibits. The audio is a narrative of the exhibit recorded by the presenter and offered on playback by smartphone and tablet as the attendee views the exhibit. A blog allows viewers to question the authors creating an ongoing dialog. This area in Academy Hall C features a workstation with PCs where attendees can view the ePosters and eScientific exhibits, hear the audio, and also decide whether or not to view the actual exhibit. Take the Annual Meeting home with you by accessing the ePoster and eScientific Exhibits for up to two years following the meeting, www.aaos.org/ePostersandSE.

**Proceedings**
Access the Proceedings online! Now you can view the symposia handouts and abstracts from the Papers, Posters, Scientific Exhibits, and Orthopaedic Video Theater at www.aaos.org/proceedings.

**Instructional Courses Highlights and What’s New**

**Preparing for and Transitioning into Life after Orthopaedics (#208)**
Wednesday, March 2, 8:00 – 11:00 AM, Room W307C
Moderator: Dempsey S. Springfled, MD
Faculty: Joseph S. Barr Jr, MD, Cynthia K. Hinds, CLU, Michael McCaslin, CPA
Offers expert advice from a senior orthopaedic surgeon who has made the transition, an investment/retirement planning specialist, and a practice management consultant for planning the transition from full-time practicing orthopaedic surgeon to your life after orthopaedics. No CME credit.

**Effective Surgeon-Patient Communication: The Key to Patient Satisfaction, Patient-Centered Care, and Shared Decision Making (#290 & #291)**
Wednesday, March 2, 8:00 AM – 12:00 Noon & 1:30 – 5:30 PM, Room 303B
Moderator: Dwight W. Burney III, MD
Faculty: John R. Tongue, MD
Newly revised and updated, this course uses the 4E model (Engage, Empathize, Educate, Enlist) to enable surgeons to effectively and efficiently communicate with patients. Positive effects include increased patient and surgeon satisfaction, improved adherence to treatment plans, and decreased malpractice risk. Limited space, purchase your tickets early!

**TeamSTEPPS (#390 & #391)**
Thursday, March 3, 8:00 AM – 12:00 Noon & 1:30 – 5:30 PM, Room 303B
Moderator: Harpal S. Khamba, MD
Faculty: Dwight W. Burney III, MD, Mary I. O’Connor, MD, William J. Robb III, MD, Kristy L. Weber, MD
An evidence-based team building and communication program designed to enhance patient safety and efficiency in health care. This fundamentals workshop gives members of the healthcare team the tools to help lead highly effective medical teams.
The goal is to optimize the use of information, people, and resources to achieve the best clinical outcomes for patients. In the workshop, team members increase team awareness and clarify team roles and responsibilities to produce a functional unit based on patient care. Team members also learn to resolve conflicts and improve information sharing to help eliminate barriers to quality and safety. Limited space, purchase your tickets early!

General Education Information

Symposia and Instructional Courses noted with the logo of a Board of Orthopaedic Specialty Society are co-branded by that society and AAOS. Over 7,500 abstracts were submitted for presentation at the 2016 Annual Meeting. Of these, the Program Committee selected the best for presentation in over 920 paper presentations and 576 poster presentations. There are 88 scientific exhibits, displays, and 74 videos were selected for the Orthopaedic Video Theater. From over 200 applications, the Central Program Committee has selected 32 symposia, 2 Flash Five, 4 The Way I See It… and 2 Showdowns. The Central Instructional Courses Committee present 240 courses and special sessions. Applications for Symposia and Instructional Courses were evaluated and rated by the Central Program and Central Instructional Courses Committees. Countless hours were spent reviewing and rating these applications resulting in the excellent curriculum featured at the 2016 Annual Meeting.

Each Symposium and Instructional Course provides an evaluation form; your critical and constructive assessment of each session is essential. Please complete the evaluation in written or smartphone format for each session you attend. The evaluations are reviewed by the committees and are used to determine the curriculum that helps us maintain the high standards expected by those attending the Annual Meeting. The Central Program Committee and Central Instructional Courses Committee are very appreciative of the efforts extended by those who submitted abstracts and applications and congratulate them on the high quality submitted for the 2016 Annual Meeting. They are also grateful for the assistance of the Program and Instructional Courses Committees in developing an outstanding educational curriculum. Finally, we thank the faculty, instructors, moderators, and paper and poster presenters and co-authors for their efforts in presenting an excellent educational program. Their willingness to share their research and knowledge are gratefully acknowledged by all who attend the Annual Meeting.

Instructional Course Ticket Fees

Academy Hall C

For those who have not registered and purchased their tickets in advance, available tickets may be purchased when registering on site. The following fee is applied:

- 2-hour Case Presentation Courses .................................................................$95.00
- Instructional Course Lecture (ICL) 2-hour .............................................$70.00
- ICL 2-hour US Orthopaedic Resident .........................................................$25.00
- 3-hour Course ..........................................................................................$80.00
- 290 & 291 Effective Surgeon-Patient Communication .......................$80.00
- 390 & 391 TeamSTEPPS ..............................................................................$80.00
- Orthopaedic Review Course (ORC) Physician ..........................$400.00
- ORC US Orthopaedic Residents ................................................................. $160.00

Persons who have registered in advance but wish to exchange a ticket may do so as long as neither course has taken place. Persons exchanging tickets must pay the difference between the advance registration ticket fee and the increased on-site fee.

Posters, Scientific Exhibits, and the Orthopaedic Video Theater

Academy Hall C

Tuesday – Friday .................................................................7:00 AM – 6:00 PM
Saturday ......................................................................................7:00 AM – 3:00 PM

Presentation of Fraudulent Research

The Central Program Committee makes every attempt to ensure that the research activities and findings presented in the scientific program are genuine and valid. It should be understood, however, that it is not possible to vet each and every study that is presented during the Annual Meeting. The abstracts of presentations submitted for grading are rated by qualified and expert graders. In some instances, the paper presentation or poster may not reflect its related abstract submitted six months earlier. The Central Program Committee considers these instances to be errors in the presenters’ judgment when they occur. Presentation of fraudulent research violates the AAOS Standards of Professionalism on Research and Academic Responsibilities. If you feel you have witnessed a knowingly fraudulent presentation, please address your concern to a member of the Central Program Committee or Academy staff. The Central Program Committee will review the matter and may determine to bar the submission of future abstracts from the speaker(s) and/or to publish a retraction of the abstract in AAOS Now or other AAOS publications or communications. If there is a sufficient ground, any AAOS member may also file a grievance with the AAOS Professional Compliance Program. In addition, any AAOS member may also file a grievance against another member with the AAOS Professional Compliance Program. Based upon review of the Committee on Professionalism and, as applicable, the Judiciary Committee, the AAOS Board of Directors may determine to issue a letter of concern, censure, suspend, or expel the Fellow or Member who presented the fraudulent research.

Education Committees

The Central Program, Central Instructional Courses, Exhibits, and Orthopaedic Video Theater Committees gratefully acknowledge the efforts of all the committee members who work so hard to put on an excellent educational experience for all attendees.
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Joseph T. Moskal, MD, Roanoke, VA, Chair
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Scott D. Weiner, MD, Akron, OH
Dean W. Ziegler, MD, Milwaukee, WI

2016 Exhibits Committee
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Steven L. Grindel, MD, Milwaukee, WI
Tim P. Lovell, MD, Spokane, WA
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Educational Programs

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Brian J. Galinat, MD, Wilmington, DE
Chad E. Mathis, MD, Pelham, AL

Shoulder and Elbow
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Francis G. Albert, MD, Glen Rock, NJ
Kyle Anderson, MD, West Bloomfield, MI
Ryan T. Bicknell, MD, Kingston, ON, Canada
Julie Y. Bishop, MD, Columbus, OH
John G. Costourous, MD, Los Gatos, CA
Joshua S. Dines, MD, New York, NY
Sara L. Edwards, MD, San Francisco, CA
Donald P. Endrizzi, MD, Falmouth, ME
Reuben Gobezie, MD, Mayfield Heights, OH
Gordon I. Groh, MD, Asheville, NC
Ranjit Gupta, MD, Orange, CA
Samer S. Hasan, MD, PhD, Cincinnati, OH
Steven J. Hattrup, MD, Phoenix, AZ
Andrew Jawa, MD, Cambridge, MA
Michael S. Khazzam, MD, Southlake, TX
Robert B. Lynch, MD, London, ON, Canada
Sameer H. Nagda, MD, Alexandria, VA
Wesley M. Nottage, MD, Laguna Hills, CA
Wesley P. Phipatananukul, MD, Loma Linda, CA
Vani J. Sabesan, MD, Kalamazoo, MI
Kaveh R. Sajadi, MD, Lexington, KY
Robert Z. Tashjian, MD, Salt Lake City, UT
Brian R. Wolf, MD, Iowa City, IA

Spine
Norman B. Chutkan, MD, Augusta, GA, Chair
Patrick J. Cahill, MD, Philadelphia, PA
Theodore J. Choma, MD, Columbus, MO
Jason C. Datta, MD, Mesa, AZ
Robert V. Dawe, MD, Fairview, CT
William F. Donaldson III, MD, Pittsburgh, PA
Daryll C. Dykes, MD, JD, Minneapolis, MN
John C. France, MD, Morgantown, WV
Michael A. Gelfand, MD, West Palm Beach, FL
Krishna V. Gummidyala, MD, Marietta, GA
William F. Lavelle, MD, East Syracuse, NY
Michael J. Lee, MD, Chicago, IL
Alexander Lenard, MD, Jupiter, FL
Peter G. Passias, MD, Westbury, NY
Mark D. Rahm, MD, Temple, TX
Faisal A. Siddiqui, MD, Manassas, VA
Vincent J. Silvaggi, MD, Pittsburgh, PA
Kern Singh, MD, Chicago, IL
Robert L. Tatsumi, MD, Lake Oswego, OR
Jed S. Vanichkachorn, MD, MBA, Manakin Sabot, VA
F. Todd Wetzel, MD, Wilmington, DE

Sports Medicine and Arthroscopy
Dean K. Matsuda, MD, Los Angeles, CA, Chair
Champ Baker III, MD, Columbus, GA
Srino Bharam, MD, New York, NY
David R. Diduch, MD, Charlottesville, VA
Christopher T. Donaldson, MD, Johnstown, PA
Greg J. Folsom, MD, Lenexa, KS
Robert A. Gallo, MD, Hersey, PA
Trevor R. Gaskill, MD, Manhattan, KS
Peter G. Gerbino II, MD, Monterey, CA
Thomas J. Gill, MD, Boston, MA
John R.T. Green III, MD, Seattle, WA
Christopher C. Kaeding, MD, Columbus, OH
John D. Kelly IV, MD, Newtown Square, PA
Michael A. Kuhn, MD, Cape Carteret, NC
Christian Lattermann, MD, Lexington, KY
Ethan Lichtblau, MD, Montreal, QC, Canada
Edward R. McDevitt, MD, Annapolis, MD
George A. Paletta Jr. MD, Chesterfield, MO
Anil S. Ranawat, MD, New York, NY
Stephen R. Soffer, MD, Wyomissing, PA
Allston J. Stubbs IV, MD, Winston-Salem, NC
Armando F. Vidal, MD, Denver, CO
David Yucha, MD, Berwyn, PA

Trauma
Ivan S. Tarkin, MD, Pittsburgh, PA, Chair
Timothy S. Achor, MD, Belleair, TX
Jeffrey Anglen, MD, FACS, Indianapolis, IN
Robert H. Bliotter, MD, Evansville, IN
Henry M. Broekhuyse, MD, Vancouver, BC, Canada
Kyle F. Dickson, MD, Bellaire, TX
Jason M. Evans, MD, Franklin, TN
Wade T. Gordon, MD, Bethesda, MD
Eric M. Hammerberg, MD, Boulder, CO
James C. Krieg, MD, Philadelphia, PA
Anna N. Miller, MD, Winston-Salem, NC
Amer J. Mirza, MD, Portland, OR
Yvonne M. Murtha, MD, Wichita, KS
Brent L. Norris, MD, Tulsa, OK
Jacob M. O’Neill, MD, Evansville, IN
Edward Perez, MD, Memphis, TN
Bogadi R. Prashanth, MD, Mysore Karnataka, India
John C. Weinlein, MD, Memphis, TN
Patrick Yoon, MD, Minneapolis, MN

Tumor and Metabolic Disease
Jeffrey S. Kneisl, MD, Charlotte, NC, Chair
Matthew R. DiCaprio, MD, Charlotte, NC
Francis Young-In Lee, MD, New York, NY
Thomas J. Scharschmidt, MD, Westerville, OH
Felisfa M. Wodajo, MD, Arlington, VA

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2016 Instructional Courses Committee

**Adult Reconstruction Hip**
Paul J. Duwelius, MD, Portland, OR, Chair
George J. Haidukewych, MD, Orlando, FL
Wayne G. Paprosky, MD, Winfield, IL
Christopher L. Peters, MD, Salt Lake City, UT
Andrew A. Shinar, MD, Nashville, TN

**Adult Reconstruction Knee**
Adolph V. Lombardi Jr., MD, New Albany, OH, Chair
Hari Bezwada, MD, Princeton, NJ
Michael Bolognesi, MD, Durham, NJ
Terry A. Clyburn, MD, Houston, TX
William J. Long, MD, New York, NY

**Foot and Ankle**
Paul J. Juliano, MD, Hershey, PA, Chair
J Chris Coetzee, MD, Edina, MN
John S. Early, MD, Dallas, TX
Steven L. Haddad, MD, Glenview, IL
David S. Levine, MD, Bedford, NY
Vinod K. Panchbhavi, MD, FACS, Galveston, TX

**Hand and Wrist**
Sanjeev Kakar, MD, Rochester, MN, Chair
Thomas R. Hunt III, MD, Houston, TX
Peter M. Murray, MD, Jacksonville, FL
Martin C. Skie, MD, Toledo, OH
David R. Steinberg, MD, Philadelphia, PA
Robert H. Wilson, MD, Washington, D.C.

**Pediatrics**
Martin J. Herman, MD, Philadelphia, PA, Chair
Shevaun M. Doyle, MD, New York, NY
Meghan N. Imrie, MD, Menlo Park, CA
Richard W. Kruse, DO, Wilmington, DE
Ernest L. Sink, MD, New York, NY
Lewis E. Zionts, MD, Pacific Palisades, CA

**Practice Management**
Kerwyn Jones, MD, Akron, OH, Chair
David L. Flood, MD, Columbia, MO
Ira H. Kirschenbaum, MD, Bronx, NY
Paul A. Marchetto, MD, Philadelphia, PA
Bryan T. Wall, MD, Peoria, AZ

**Shoulder and Elbow**
Mark D. Lazarus, MD, Philadelphia, PA, Chair
David M. Dines, MD, Uniondale, NY
Hussein A. Elkousy, MD, Houston, TX
Leesa M. Galatz, MD, Saint Louis, MO
Tim R. Lents, MD, Grand Rapids, MI
Felix H. Savoie, MD, New Orleans, LA

**Spine**
Thomas J. Errico, MD, New York, NY, Chair
Charles J. Banta II, MD, Dallas, TX
Eric O. Klineberg, MD, Sacramento, CA
Yu-Po Lee, MD, San Diego, CA
Timothy A. Moore, MD, Shaker Heights, OH
Mark A. Palumbo, MD, Providence, RI
Michael Vives, MD, Mendham, NJ

**Sports Medicine and Arthroscopy**
Bradley J. Nelson, MD, Minneapolis, MN, Chair
Jonathan E. Buzzell, MD, Omaha, NE
James C. Dreese, MD, Monkton, MD
Mary L. Ireland, MD, Lexington, KY
Kevin R. Murray, MD, Los Gatos, CA
Bashir A. Zikria, MD, Baltimore, MD

**Trauma**
John T. Ruth, MD, Tucson, AZ, Chair
Patrick M. Osborn, MD, San Antonio, TX
Judith Siegel, MD, Worcester, MA

**Tumor and Metabolic Disease**
Carol D. Morris, MD, MS, New York, NY, Chair
Susan V. Bukata, MD, Los Angeles, CA
David S. Geller, MD, New York, NY
Michael P. Mott, MD, Detroit, MI

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Career Development Sessions benefit everyone who would like to further refine or develop their presentation, research, education, teaching, Maintenance of Certification and marketing skills. These courses are free to registrants and a ticket is not required. Descriptions and faculty can be found throughout Final Program at noted dates and times.

**Tuesday, March 1 – Leadership**

8:00 - 9:00 AM  
CD1 Perspectives on Mentorship

9:30 – 10:30 AM  
CD2 Principles of Orthopaedic Leadership: Local, Regional, National

11:00 AM – 12:00 PM  
CD3 Leadership 2.0: How to be a More Effective Leader  
*Secondary Classification: Practice Management*

1:30 – 2:30 PM  
CD4 Getting Your Ideas Supported: Effective Techniques

**Tuesday, March 1 – Research and Education**

3:00 – 4:00 PM  
CD5 Lifelong Learning: Principles of Peer Education in Orthopaedics

4:30 – 5:30 PM  
CD6 Collaboration Within and Between Institutions

**Wednesday, March 2 – Research and Education**

8:00 - 9:00 AM  
CD7 How to Assemble a Competitive ICL, Symposium and Abstract Application

9:30 – 10:30 AM  
CD8 Preparation and Delivery of the Orthopaedic Lecture

11:00 AM – 12:00 PM  
CD9 Writing a Competitive Grant Application

1:30 – 2:30 PM  
CD10 Cliff Notes on Clinical Research: What You Need to Get Started

3:00 – 4:00 PM  
CD11 Expert Pearls and Funding Strategies for Basic and Translational Research

4:30 – 5:30 PM  
CD12 Writing an Abstract that Gets Accepted

**Wednesday, March 2 – Research and Education**

8:00 - 9:00 AM  
CD13 Selection, Implementation, and Interpretation of Patient-Centered Orthopaedic Outcomes

9:30-10:30 AM  
CD14 Statistics for Orthopaedists

11:00 AM – 12:00 PM  
CD15 The Art and Science of Reviewing Manuscripts for Orthopaedic Journals

**Thursday, March 3 – Maintenance of Certification**

8:00 - 10:00 AM  
CD16 Maintenance of Certification Do’s and Don’ts and Case List Review: Preparation for your Recertification Exam

10:30-11:30 AM  
CD17 Brushing Up On Your Test Taking Skills

**Thursday, March 3 – Teaching and Communication**

8:00 – 9:00 AM  
CD18 Shared Decision Making and Informed Consent: Understanding the Goals and the Responsibility of the Orthopaedic Surgeon  
*Secondary Classification: Practice Management*

9:30 - 10:30 AM  
CD19 Video Production for Orthopaedic Surgeons: Getting the Award, Making the Difference

11:00 AM -12:00 PM  
CD20 Imagine Them Naked: Public Speaking and Teaching

1:30 – 2:30 PM  
CD21 Principles of Teaching Across Differences in Culture and Language

3:00 – 4:00 PM  
CD22 Dealing with the Underperforming Orthopaedic Resident

4:30 – 5:30 PM  
CD23 The Art of Teaching Orthopaedic Surgery

4:30 – 5:30 PM  
CD24 Cross Cultural Patient Communication

**Friday, March 4 – Marketing**

8:00 – 9:00 AM  
CD25 Getting Your Work Published and Achieving the Highest Impact

9:30 – 10:30 AM  
CD26 Social Media and Orthopaedics: Opportunities and Challenges

11:00 AM – 12:00 PM  
CD27 Building Your Practice

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Guided Poster Tours
Academy Hall C
Guided poster tours provide an opportunity for meeting attendees, asking questions and gaining insights while earning CME credit. Each tour will be guided by an expert in the field – utilizing ePosters. The expert will question the presenter, point out highlights and give interesting tips about selected posters in each classifcation. Poster Tours will be given at the Presentation Stage for your viewing pleasure on two 80" monitors while the presenter showcases their ePoster. Included with registration, limited space available.

<table>
<thead>
<tr>
<th>Date</th>
<th>Classifcation</th>
<th>Tour Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuesday, March 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00 - 11:00 AM</td>
<td>Adult Reconstruction Knee</td>
<td>James I. Huddleston III, MD</td>
</tr>
<tr>
<td>11:30 AM - 12:30 PM</td>
<td>Trauma</td>
<td>Edward Perez, MD</td>
</tr>
<tr>
<td>3:00 - 4:00 PM</td>
<td>Sports Medicine/Arthroscopy</td>
<td>Kenneth E. DeHaven, MD</td>
</tr>
<tr>
<td>4:30 - 5:30 PM</td>
<td>Adult Reconstruction Hip</td>
<td>Joshua J. Jacobs, MD</td>
</tr>
<tr>
<td><strong>Wednesday, March 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 - 9:30 AM</td>
<td>Pediatrics</td>
<td>Stuart L. Weinstein, MD</td>
</tr>
<tr>
<td>10:00 - 11:00 AM</td>
<td>Shoulder and Elbow</td>
<td>Thomas (Quin) Throckmorton, MD</td>
</tr>
<tr>
<td>11:30 AM - 12:30 PM</td>
<td>Spine</td>
<td>Alexander Vaccaro, MD, PhD</td>
</tr>
<tr>
<td>3:00 - 4:00 PM</td>
<td>Foot and Ankle</td>
<td>G. Andrew Murphy, MD</td>
</tr>
<tr>
<td>4:30 - 5:30 PM</td>
<td>Adult Reconstruction Hip</td>
<td>William M. Mihalko, MD</td>
</tr>
<tr>
<td><strong>Thursday, March 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 - 9:30 AM</td>
<td>Tumor and Metabolic Disease</td>
<td>Valerae O. Lewis, MD</td>
</tr>
<tr>
<td>10:00 - 11:00 AM</td>
<td>Spine</td>
<td>Patrick Cahill, MD</td>
</tr>
<tr>
<td>11:30 AM - 12:30 PM</td>
<td>Pediatrics</td>
<td>Martin J. Herman, MD</td>
</tr>
<tr>
<td>3:00 - 4:00 PM</td>
<td>Hand and Wrist</td>
<td>Thomas R. Hunt, MD</td>
</tr>
<tr>
<td>4:30 - 5:30 PM</td>
<td>Sports Medicine/Arthroscopy</td>
<td>Matthew T. Provencher, MD</td>
</tr>
<tr>
<td><strong>Friday, March 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 - 9:30 AM</td>
<td>Adult Reconstruction Knee</td>
<td>Giles R. Scuderi, MD</td>
</tr>
<tr>
<td>10:00 - 11:00 AM</td>
<td>Practice Management</td>
<td>Daniel B. Murrey, MD</td>
</tr>
<tr>
<td>11:30 AM - 12:30 PM</td>
<td>Trauma</td>
<td>Wade T. Gordon, MD</td>
</tr>
<tr>
<td>3:00 - 4:00 PM</td>
<td>Shoulder and Elbow</td>
<td>David M. Dines, MD</td>
</tr>
</tbody>
</table>

International Poster Tours Schedule
Portuguese and Spanish language poster tours are available. The tour guide expert will give a tour in the specified language discussing posters in the identified classification.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Language</th>
<th>Classifcation</th>
<th>Tour Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, March 1</td>
<td>1:30 - 2:30 PM</td>
<td>Portuguese</td>
<td>Adult Reconstruction Hip and Knee</td>
<td>Marco Antônio Percope de Andrade, MD</td>
</tr>
<tr>
<td>Wednesday, March 2</td>
<td>1:30 - 2:30 PM</td>
<td>Spanish</td>
<td>Shoulder and Elbow/Sports Medicine/Arthroscopy</td>
<td>Luis Fernando Calixto, MD</td>
</tr>
<tr>
<td>Thursday, March 3</td>
<td>1:30 - 2:30 PM</td>
<td>Portuguese</td>
<td>Sports Medicine/Arthroscopy</td>
<td>André Pedrinelli, MD</td>
</tr>
<tr>
<td>Friday, March 4</td>
<td>1:30 - 2:30 PM</td>
<td>Spanish</td>
<td>Adult Reconstruction Hip and Knee</td>
<td>Nicolas Restrepo, MD</td>
</tr>
</tbody>
</table>
Now YOU decide when and where to see and hear these Annual Meeting Symposia

Annual Meeting Symposia Webcasts

Annual Meeting Symposia bring you today’s hottest topics, presented by surgeons who are shaping the future of the orthopaedic specialty. Now, no matter how busy your schedule—you can “attend” 12 symposia—anytime and anywhere:

- **During the meeting,** webcasts will be streamed live to your mobile device or to your computer (www.aaos.org/amwebcasts)
- **On demand streaming will be available after the meeting.** Symposia webcasts will be available for on demand streaming from the AAOS website (www.aaos.org/amwebcasts).

Please note that CME credit is not available for the live or on-demand symposia webcasts.

**AAOS Members and AAOS Residents:** Free for unlimited viewing through June 30 (Including AAOS Fellows, Candidate Members, Residents, Emeritus Members, and International Affiliate Members)

**Non-Members:** $79 for unlimited viewing through June 30

Annual Meeting Symposia provide a rich overview of various viewpoints on specific topics. Symposia available as webcasts include:

<table>
<thead>
<tr>
<th>Title and Moderator</th>
<th>Symposium &amp; Live Webcast</th>
</tr>
</thead>
</table>
| The Essentials for Creating Value in a Knee Arthroplasty Practice  
  *Moderator: Kevin Bozic, MD* | Tuesday, 8:00 - 10:00 AM |
| The Athletic Hip: From Impingement to Arthroplasty  
  *Moderator: Christopher Larson, MD* | Tuesday, 10:30 AM - 12:30 PM |
| Hot Topics and Controversies in Revision Total Hip Arthroplasty  
  *Moderator: Paul Lachiewicz, MD* | Tuesday, 1:30 - 3:30 PM |
| Debating Controversies in Spine Surgery  
  *Moderator: Alan Hilibrand, MD* | Wednesday, 8:00 - 10:00 AM |
| Gun Shot and Explosive Wounds  
  *Moderators: James Ficke, MD and Camilo Restrepo, MD* | Wednesday, 10:30 AM - 12:30 PM |
| Quality is in the Eye of the Beholder: What’sMeasured, What Matters, and How Do We Reconcile This?  
  *Moderator: Rachel Rohde, MD* | Wednesday, 1:30 - 3:30 PM |
| Challenges and Controversies in Total Hip Arthroplasty in 2016  
  *Moderator: Daniel J. Berry, MD* | Thursday, 8:00 - 10:00 AM |
| Combined Multi-Ligament, Meniscus, and Cartilage Injuries of the Knee  
  *Moderator: Bruce Levy, MD* | Thursday, 10:30 AM - 11:30 PM |
| Computer Modeling and 3-D Printing in Upper Extremity Surgery  
  *Moderator: Lisa Lattanza, MD* | Thursday, 1:30 - 3:30 PM |
| Challenges in Pediatric Trauma: What We All Need to Know  
  *Moderator: Jeffrey Sawyer, MD* | Thursday, 4:00 - 6:00 PM |
| Bundled and Emerging Payment Models in Orthopaedics  
  *Moderator: Kevin J. Bozic, MD, MBA* | Friday, 8:00 - 10:00 AM |
| Residency Core Competencies  
  *Moderator: James Ficke, MD* | Friday, 10:30 AM - 12:30 PM |
| Upper Extremity Trauma: How to Define and Expand Your Comfort Zone  
  *Moderator: David Ring, MD* | Friday 1:30 - 3:30 PM |

All of these Symposia will be held in Valencia Room A.
Orthopaedic Review Course:  
Update for Your Practice and Preparation for Your Test (#490)

Friday, March 4 
Hyatt Regency Orlando, Regency Ballroom R 
Course Chairman: Jeffrey R. Sawyer, MD

- Review of current knowledge on diagnosis and management of clinical problems from a nationally accepted orthopaedic practice perspective 
- Major sections of the course are upper and lower extremities, metabolic bone disease, pediatrics, spine and tumors 
- Each section includes discussion of fractures, complications, infections, and trauma and Q&A with faculty 
- Handout is key takeaways of faculty presentations and references.

<table>
<thead>
<tr>
<th>Time</th>
<th>Events</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 - 9:30 AM</td>
<td>LOWER EXTREMITY</td>
<td>Moderator: Donald A. Wiss, MD</td>
</tr>
<tr>
<td>7:30 AM</td>
<td>Hip and Knee Reconstruction</td>
<td>Matthew Austin, MD</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Trauma</td>
<td>Donald A. Wiss, MD</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>Foot and Ankle</td>
<td>Steven L. Haddad, MD</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>Sports Knee</td>
<td>Mark D. Miller, MD</td>
</tr>
<tr>
<td>9:30 - 9:45 AM</td>
<td>STRETCH BREAK</td>
<td></td>
</tr>
<tr>
<td>9:45 - 11:45 AM</td>
<td>UPPER EXTREMITY/METABOLIC</td>
<td>Moderator: Leesa M. Galatz, MD</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>Hand and Wrist</td>
<td>Robert J. Strauch, MD</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>Forearm and Elbow</td>
<td>Leesa M. Galatz, MD</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>Shoulder and Humerus</td>
<td>Jeffrey S. Abrams, MD</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>Metabolic Bone Disease</td>
<td>Joseph M. Lane, MD</td>
</tr>
<tr>
<td>11:45 AM - 12:30 PM</td>
<td>LUNCH (box lunch included)</td>
<td></td>
</tr>
<tr>
<td>12:30-2:30 PM</td>
<td>PEDIATRICS</td>
<td>Moderator: William C. Warner Jr, MD</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>Hip</td>
<td>William C. Warner Jr, MD</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Infection, Congenital, Developmental Problems/Miscellaneous</td>
<td>Jeffrey R. Sawyer, MD</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>Fractures of the Upper and Lower Extremities</td>
<td>Amy L. McIntosh, MD</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Lower Extremity</td>
<td>Todd A. Milbrandt, MD</td>
</tr>
<tr>
<td>2:30-2:45 PM</td>
<td>STRETCH BREAK</td>
<td></td>
</tr>
<tr>
<td>2:45-4:15 PM</td>
<td>SPINE/TUMOR</td>
<td>Moderator: Jens R. Chapman, MD</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>Pediatric</td>
<td>David L. Skaggs, MD</td>
</tr>
<tr>
<td>3:15 PM</td>
<td>Degenerative</td>
<td>Todd J. Albert, MD</td>
</tr>
<tr>
<td>3:45 PM</td>
<td>Trauma</td>
<td>Jens R. Chapman, MD</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>Tumors</td>
<td>Albert J. Aboulafia, MD</td>
</tr>
<tr>
<td>4:45 PM</td>
<td>Adjourn</td>
<td></td>
</tr>
</tbody>
</table>

Continental breakfast and a box lunch are included in the fee, which is $400 for physicians.
Attention U.S. Orthopaedic Residents! Discounted tickets are available for the Orthopaedic Review Course at $160.
This Cross-Classification Chart shows which Instructional Course Lectures (ICL) and Symposia “cross” over into another classification. The Primary Classification (down the left side) is the session’s main focus; and placing the ICL number and/or Symposia letter in the Secondary Classification column, shows its cross-classification element. For example ICL 225 has a Primary Classification of Pediatrics with a Secondary Classification of Hand and Wrist. For further details on a session, please go to the descriptions on pages 58-235.
**NEW at this year’s Academy Meeting…**

**Translated Sessions**

There will be select Instructional Course Lectures and Symposia simultaneously translated in Spanish and Portuguese. Translation services provided by a grant from Smith & Nephew Latin America. The sessions are:

**NOVO na reunião da Academy deste ano…**

Haverá palestras e simpósios limitados traduzidos simultaneamente em espanhol e português. Para participar, basta obter um fone de ouvido ao ingressar na sala e escolher o canal do idioma.

Serviços de tradução oferecidos e outorgados pela Smith & Nephew América Latina.

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**Terça-feira, 1º de março**

**8h00 – 10h00**

Sala Valencia A

Simpósio A

Os fundamentos para criar valor na prática da arthroplastia do joelho

O sistema de saúde dos Estados Unidos está evoluindo rumo à promoção e ao incentivo do valor sobre o volume. Essa mudança exige que os prestadores de serviços de saúde que cuidam de pacientes com problemas no joelho modifiquem suas estratégias de tratamento e desenvolvam novas habilidades.

*Moderador: Dr. Kevin J. Bozic*

**10h30 – 12h30**

Sala Valencia A

Simposio B

O quadril do esportista: do impacto à arthroplastia

Fornecerá uma discussão abrangente e atual, com base em evidências, sobre a administração da dor na virilha e no quadril em pacientes ativos e que praticam esportes ao longo de diversas gerações. Também será considerado o complexo processo de tomada de decisão entre a preservação do quadril versus a arthroplastia na fase inicial degenerativa do quadril e serão revisadas as considerações técnicas sobre abordagem, superfícies de suporte e longevidade da arthroplastia.

*Moderador: Dr. Christopher M. Larson*

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**13h30 – 15h30**

Sala Valencia A

Simposio E

Principais temas e controvérsias na revisão de arthroplastia total do quadril

Abordará de maneira didática, com base em casos reais e com o uso de videoclipes, as controvérsias atuais na revisão de arthroplastia total do quadril. Entre os temas incluídos estarão: as opções de exposição - por que e quando; alternativas de revisão acetabular quando há perda óssea; opções de deslocamento; hemi-explantação do quadril infectado e; a controvérsia dos componentes femorais estraiados modulares versus não modulares.

*Moderador: Dr. Paul F. Lachiewicz*

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**Quarta-feira, 2 de março**

**10h30 – 12h30**

Sala Valencia A

Simposio L

Ferimentos provocados por armas de fogo e explosivos

Será discutido o impacto dos ferimentos provocados por armas de fogo de velocidade alta, intermediária e baixa e de outros ferimentos violentos, bem como o modo de avaliação desses pacientes, tratamentos operatórios e não operatórios e reabilitação. Este simpósio é uma colaboração entre a AAOS e o país sede do evento de 2016, a Colômbia.

*Moderador: Dr. James R. Ficke, Dr. Camilo Restrepo*

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**13h30 – 15h30**

Sala Valencia A

Simposio L

Artrite patelofemoral: estratégias de tratamento desde a restauração da cartilagem até a arthroplastia

Fornecerá uma visão geral abrangente da administração cirúrgica de lesões condrais de espessura total da articulação patelofemoral, desde procedimentos de restauração da cartilagem até a arthroplastia.

*Moderadora: Dr. Diane L. Dahm*

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**16h00 – 18h00**

Sala Valencia A

Simposio L

Retorno às atividades após a reconstrução do ligamento cruzado anterior: quando e qual exame realizar... prevenir ou remediar?

Fornecerá conhecimento científico básico e oferecerá uma perspectiva de um cirurgião ortopédico sobre o retorno às atividades ao mostrar exames específicos, análise da locomoção e cronograma de realização desses exames. Será apresentada uma abordagem com base em casos reais, segundo a observação de padrões de movimento e análise da locomoção. Também será apresentada uma perspectiva sobre o mecanismo de lesões, programas de prevenção e semelhanças nos padrões de movimento.

*Moderadora: Dr. Mary L. Ireland*

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**Quinta-feira, 3 de março**

**ICL 302**  
Sala W202  
8h00 – 10h00  
Revisão de artroplastia total do joelho: planejamento e desempenho (técnica em vídeo)  
Abordará o problema da deficiência óssea grave durante a cirurgia de revisão do joelho. Serão discutidas opções para lidar com esse problema.  
*Moderador: Dr. Peter F. Sharkey*

**ICL 321**  
Sala W202  
10h30 – 12h30  
Vamos realizar uma reposição direta do quadril anterior (sem uma mesa especial)  
Este é um curso em vídeo com foco na anatomia local relacionada à abordagem direta anterior, bem como nas técnicas cirúrgicas de artroplastia total primária do quadril e revisão de artroplastia total do quadril, utilizando uma abordagem direta anterior sem uma mesa especial. Serão fornecidas dicas para os principiantes sobre como reduzir a curva de aprendizado.  
*Moderador: Dr. William J. Hozack*

**ICL 342**  
Sala W202  
13h30 – 15h30  
Como realizar uma artroplastia total primária do joelho: vinhetas de vídeo  
As técnicas exigidas para realizar uma artroplastia total do joelho com êxito serão detalhadas em vinhetas de vídeo, incluindo o planejamento pré-operatório, seleção da prótese, exposições cirúrgicas, equilíbrio dos ligamentos, fixação e substituição patelar.  
*Moderador: Dr. Gwo-Chin Lee*

**ICL 362**  
Sala W202  
16h00 – 18h00  
O continuum da restrição na artroplastia do joelho  
Os designs de implante para a artroplastia primária do joelho foram ampliados para incluir opções mais abrangentes de restrição, no intuito de lidar melhor com a variedade de deformidades e aprimorar os resultados e o nível de satisfação em pacientes com doenças articulares degenerativas em fase terminal.  
*Moderador: Dr. Adolph V. Lombardi Jr*

There will be select Instructional Course Lectures and Symposia simultaneously translated in Spanish and Portuguese. Translation services provided by a grant from Smith & Nephew Latin America. The sessions are:

**NOVEDADES de la Reunión de la Academia de este año…**

Habrá traducciones simultáneas al español y al portugués de una cantidad limitada de charlas de cursos de formación y simposios. Para participar, simplemente tome unos auriculares al entrar a la sala y seleccione el canal para su idioma.

**Servicios de traducción facilitados mediante una subvención de Smith & Nephew Latinoamerica.**

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Miércoles 2 de marzo

ICL 202
Sala W202
08h00 a 10h00
Prevención de una nueva hospitalización y limitación de las complicaciones asociadas con la artroplastia total de cadera
Debido a una creciente atención a las nuevas hospitalizaciones después de una artroplastia total de cadera, surge la necesidad de comprender mejor y de prevenir las complicaciones que provocan la necesidad de una nueva hospitalización.

Moderador: Dr. Kevin L. Garvin

Sala Valencia A
Simposio L
10h30 a 12h30
Heridas por armas de fuego y por explosiones
Se discutirá el impacto de los disparos de armas de fuego a alta, media y baja velocidad y otras heridas violentas, como así también la forma de evaluar a estos pacientes, los tratamientos operatorios y no operatorios y la rehabilitación. El simposio es una colaboración entre la AAOS y la Nación Invitada de 2016, Colombia.

Moderador: Dr. James R. Ficke, Dr. Camilo Restrepo

ICL 249
Sala W202
13h30 a 15h30
Artritis patelofemoral: estrategias de tratamiento desde la restauración del cartílago hasta la artroplastia
Proporciona un panorama amplio del tratamiento quirúrgico de las lesiones condrales de espesor completo en la articulación patelofemoral. Esta descripción abarca desde la operación de restauración de cartílago hasta la artroplastia.

Moderador: Dr. Diane L. Dahm

ICL 271
Sala W202
16h00 a 18h00
Regreso al deporte después de la reconstrucción del ligamento cruzado anterior: qué examen realizar y cuándo... ¿Prevenir o curar?
Proporciona los fundamentos científicos y brinda la opinión de un cirujano ortopédico respecto del regreso al deporte, mostrando pruebas específicas del análisis de la marcha y la línea de tiempo para realizar estas pruebas. Se presenta un enfoque basado en casos en los que se observan los patrones de movimiento y el análisis de la marcha. También se presenta una perspectiva sobre el mecanismo de la lesión, los programas de prevención y los factores comunes en los patrones de movimiento.

Moderador: Dr. Mary L. Ireland

Jueves 3 de marzo

ICL 302
Sala W202
08h00 a 10h00
Revisión de la artroplastia total de rodilla: planificación y realización (técnica de video)
Aborda el problema de una gran deficiencia ósea durante la cirugía de revisión de rodilla. Se discuten las opciones para manejar este problema.

Moderador: Dr. Peter F. Sharkey

ICL 321
Sala W202
10h30 a 12h30
Hagamos un reemplazo anterior directo de cadera (sin una mesa especial)
Este es un curso de video centrado en la anatomía local relacionada con el enfoque anterior directo, como así también en las técnicas quirúrgicas para la artroplastia primaria y de revisión total de cadera, por medio de un enfoque anterior directo sin una mesa especial. Se brindan consejos para principiantes acerca de cómo acortar la curva de aprendizaje.

Moderador: Dr. William J. Hozack

ICL 342
Sala W202
13h30 a 15h30
Cómo realizar una artroplastia primaria total de rodilla: viñetas de video
Se detallan, mediante el uso de viñetas de video, las técnicas requeridas para realizar de manera exitosa una artroplastia total de rodilla, incluidas la planificación preoperatoria, la selección de la prótesis, las exposiciones quirúrgicas, la nivelación de los ligamentos, la fijación y la sustitución de la superficie patelar.

Moderador: Dr. Gwo-Chin Lee

ICL 362
Sala W202
16h00 a 18h00
La continuidad de las restricciones en la artroplastia de rodilla
Los diseños de los implantes para la artroplastia primaria de rodilla se han expandido para incluir opciones más amplias de restricciones a fin de adaptarse mejor a las diversas deformidades y mejorar los resultados y la satisfacción de los pacientes con enfermedad articular degenerativa en fase final.

Moderador: Dr. Adolph V. Lombardi Jr.
Flash Five: What’s Coming Down the Pike

A burst of knowledge given in five minutes on topics benefitting orthopaedists. Fast and focused...each expert takes on a hot topic and drills down to the most critical points and takeaways.

Tuesday, March 1, 1:30 – 2:30 PM, Room W311A
Master of Ceremonies – James R. Ficke, MD
Fracture Healing
Thomas A. Einhorn, MD
Bearing Surfaces
Joshua J. Jacobs, MD
Periarticular Fractures
J. Lawrence Marsh, MD
Young Adult OA of the Hip
Young Jo Kim, MD
The Diabetic Foot and Ankle
Vincent J. Sammarco, MD
The Rotator Cuff
Ken Yamaguchi, MD
Preventing Infection in Joint Replacement
Tad L. Gerlinger, MD
Preventing Infection in Fractures
Andrew H. Schmidt, MD
Geriatric Hip Fractures
Thomas A. Russell, MD
Minimally Invasive Spine Surgery
Alexander Vaccaro, MD

Thursday, March 3rd 8:00 – 9:00 AM, Room W311A
Master of Ceremonies – Paul Tornetta III, MD
Fracture Healing
Thomas A. Einhorn, MD
Bearing Surfaces
Joshua J. Jacobs, MD
Periarticular Fractures
J. Lawrence Marsh, MD
Young Adult OA of the Hip
John C. Clohisy, MD
The Diabetic Foot and Ankle
Vincent J. Sammarco, MD
The Rotator Cuff
Ken Yamaguchi, MD
Preventing Infection in Joint Replacement
Tad L. Gerlinger, MD
Preventing Infection in Fractures
Andrew H. Schmidt, MD
Geriatric Hip Fractures
Thomas A. Russell, MD
Minimally Invasive Spine Surgery
Alexander Vaccaro, MD

Showdowns

You decide who wins when four surgeons demonstrate their personal points of view in an unhearsed debate. Join us and declare the winners via the Audience Response System.

Hip Showdown, Thursday, March 3, 4:00 – 5:00 PM
Valencia Room B
Master of Ceremonies - Marc J. Philippon, MD
Debaters:
Robert E. Boykin, MD vs. S. Clifton Willimon, MD
Marc Safran, MD vs. Allston J. Stubbs IV, MD
My Approach to Labral Deficiency: When to Reconstruct...When Not to Reconstruct
My Approach to Capsular Deficiency: When to Reconstruct...When Not to Reconstruct

The Way I See It...

The Way I See It...Healthcare, Tuesday, March 1
4:00 – 5:00 PM, Room W311A
Master of Ceremonies – Douglas W. Lundy, MD
1. The Way I See It...Brandon D. Bushnell, MD, MBA - Bundled Payments
2. The Way I See It...Alexandra E. Page, MD, MBA - Healthcare
3. The Way I See It...Hassan Mir, MD, MBA - Obamacare

The Way I See It...Marketing Yourself, Wednesday, March 2
10:30 – 11:30 AM, Technology Theater (in Exhibit Hall)
Master of Ceremonies – James R. Andrews, MD
1. The Way I See It...Howard Luks, MD - How Social Media is Changing Healthcare
2. The Way I See It...Bill Champion - Building Your Practice
3. The Way I See It...Roger Holstein - Managing Your Online Reputation

The Way I See It...Team Physicians: Challenges of Sports Medicine, Thursday, March 3, 1:30 –2:30 PM, Room W311A
Master of Ceremonies – Frederick M. Azar, MD
1. The Way I See It...Brian J. Cole, MD, MBA (Chicago Bulls and Chicago White Sox)
2. The Way I See It...James R. Andrews (Andrews Institute)
3. The Way I See It...Anthony Miniaci, MD (MLB, NFL, NHL)

The Way I See It...Orthopaedists Changing the Game
Friday, March 4, 1:30 –3:30 PM, Valencia Room B
Game Changers Paper Session will be presented 1:30 – 2:30 pm
1. The Way I See It...L. Scott Levin, MD - Hand Transplantation
2. The Way I See It...Brian J. Cole, MD, MBA - Biologies, Stem Cells and PRP in OA and cartilage Disease
3. The Way I See It...Andrew D. Pearle, MD - Robotics in Orthopaedics

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Tuesday, March 1

Symposium
8:00 AM — 10:00 AM
Valencia Room A

The Essentials for Creating Value in a Knee Arthroplasty Practice (A)
Moderator: Kevin J. Bozic, MD, MBA, Austin, TX

The United States healthcare system is evolving to promote and incentivize value over volume. This change requires providers who manage patients with knee conditions to modify their strategies for delivering care, and to develop new skill sets.

Traducción simultánea en español.

Tradução simultânea em português.

I. Reducing Readmissions
   Robert L. Barrack, MD, Saint Louis, MO

II. The Most Important Things That I Do To Avoid Infection
    Thomas K. Feiring, MD, Charlotte, NC

III. Debate: I Do Not Use Injections in My Practice
     William L. Griff n, MD, Charlotte, NC

IV. Avoiding the Most Common Complications in TKA--Infection and Instability
    Arlen D. Hanssen, MD, Rochester, MN

V. Managing Risk--Population Health and Knee Arthritis
    William L. Healy, MD, Newton, MA

VI. How Bundled Payment Works In My Practice
    Richard Iorio, MD, New Rochelle, NY

VII. Opportunities to Create Value
     William A. Jiranek, MD, Richmond, VA

VIII. Outpatient Knee Surgery
     Adolph V. Lombardi, MD, New Albany, OH

IX. How I Balance the Primary Knee
    Steven J. MacDonald, MD, London, ON, Canada

X. Debate: The Evidence for HA, PRP, and Stem Cells in Knee Arthritis
    Giles R. Scuderi, MD, New York, NY

XI. What is Value-Based Payment?
    Thomas P. Sculco, MD, New York, NY

XII. Managing the Post-Discharge Expenses: SNF, HH
    Bryan D. Springer, MD, Charlotte, NC

XIII. New Concepts
     Robert T. Trousdale, MD, Rochester, MN

XIV. Can New Technology Improve Communication with Patients?
     Thomas P. Vail, MD, San Francisco, CA

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* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Tuesday, March 1

### 104 Scaphoid Fractures and Nonunions: What's Hot, What's Not
**Moderator:** Dean G. Sotereanos, MD, Pittsburgh, PA
Gregory J. Bain, MD, North Adelaide, Australia
Joe Dias, MD, Leicester, United Kingdom
Thomas G. Sommerkamp, MD, Crestview Hills, KY

Covers current concepts for diagnosis and treatment of scaphoid fractures and nonunions, including arthroscopic percutaneous vascularized and nonvascularized techniques.

### 105 Skeletally Immature Anterior Cruciate Ligament: Controversies and Management
**Moderator:** Shital N. Parikh, MD, Cincinnati, OH
Allen F. Anderson, MD, Nashville, TN
Theodore J. Ganley, MD, Philadelphia, PA
Mininder S. Kocher, MD, MPH, Boston, MA

Focuses on pearls and pitfalls of management of the immature anterior cruciate ligament (ACL). Videos of surgical technique help the audience with technical considerations during ACL reconstruction. Cases bring forward the pros and cons of each form of treatment.

### 106 Online Reputation Management
**Moderator:** Glenn B. Pfeffer, MD, Los Angeles, CA
Basil R. Besh, MD, Fremont, CA
Clay Calvert, JD, PhD, Gainesville, FL
Roger C. Holstein, Denver, CO

Takes a unique perspective on how to work review these sites, and examines the importance of online reputation management from the point of view of the physician, hospital, and the largest online medical review company in the United States.

### 107 Proximal Humerus Fractures: Treatment Considerations and Technical Pearls
**Moderator:** James C. Krieg, MD, Philadelphia, PA
Michael J. Gardner, MD, Saint Louis, MO
Charles L. Getz, MD, Newton Square, PA
Jay D. Keener, MD, Saint Louis, MO

Provides the attendee with step-by-step descriptions of each of four treatment techniques for fractures of the proximal humerus. Experts provide their technical pearls and pitfalls for open and mini-open plating, intramedullary nailing, hemiarthroplasty, and reversearthroplasty of the shoulder.

### 108 Infected Shoulder Arthroplasty: Diagnostic Dilemmas, Treatment Challenges, and Current Controversies
**Moderator:** Surena Namdari, MD, MSc, Philadelphia, PA
Mark A. Frankle, MD, Temple Terrace, FL
Jason Hsu, MD, Seattle, WA
Joseph P. Iannotti, MD, PhD, Cleveland, OH

All hot topics related to management of periprosthetic joint infection (PJI) in the shoulder are discussed. The course is divided into three sections: diagnostic challenges, spotlight on P. acnes, and surgical treatment of PJI.

### 109 Avoiding and Managing Complications in Routine Lumbar Spine Surgery
**Moderator:** Joseph R. O’Brien, MD, Washington, Dist. of Columbia
Alpesh A. Patel, MD, River Forest, IL
Faisal A. Siddiqui, MD, Manassas, VA
Harvey E. Smith, MD, Penn Valley, PA

Focused on general spinal practice with discussion on prevention and management of complications.

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The following symbols appear next to educational sessions and indicate one or more of the following:

- U.S. Food and Drug Administration has not cleared the drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an off label use). For full information, refer to page 15.
- Case Presentations - Features a participant’s round table with an expert faculty facilitator and an iPad for showing images and data from faculty selected cases. The moderator will present the case to the participants and the facilitator leads individual table discussion. The case is then discussed by all course participants with individual tables showing their conclusions. The moderator will present the final solution using evidence-based data including teaching points with references to support the selected treatment. Four to five cases will be discussed during the highly interactive two hour session.
- Technical Skills - Focused on positioning, approach, and step-by-step technical tips in an edited video followed by discussion on the pearls. The courses will feature four to five cases.
- An Audience Response System will be featured in several courses.
- Career Development - Benefits everyone who would like to further refine or develop their presentation, research, education, teaching and Maintenance of Certification and marketing skills. These courses are free to registrants and a ticket is not required.

An alphabetical faculty financial disclosure list can be found starting on page 334.
### Tuesday, March 1

#### 110
**How to Reverse Reversomania: Arthroscopic Repair of Massive Cuff Tears**

**Moderator:** John D. Kelly IV, MD, Newtown Square, PA  
Stephen S. Burkhart, MD, San Antonio, TX  
Laith M. Jazrawi, MD, New York, NY  
Miltiadis H. Zgonis, MD, Newtown Square, PA

Conveys the most recent techniques in managing massive rotator cuff tears arthroscopically. The attendee appreciates the proposal that most massive tears are indeed repairable and that partial repair does truly serve a very useful purpose. The role of graft augmentation and superior capsule reconstruction are developed.

#### 181
**Femoroacetabular Impingement: Current Understanding of Pathomechanics, Disease Staging, Relationship to Osteoarthritis, and Contemporary Treatment**

**Moderator:** Christopher L. Peters, MD, Salt Lake City, UT  
Paul E. Beaulé, MD, Ottawa, ON, Canada  
Martin Beck, MD, Luzern, Switzerland  
Asheesh Bedi, MD, Ann Arbor, MI  
J. W. Thomas Byrd, MD, Nashville, TN  
John C. Clohisy, MD, Saint Louis, MO  
Christopher M. Larson, MD, Edina, MN  
Michael Leunig, PhD, Zurich, Switzerland  
Klaus Siebenrock, MD, Bern, Switzerland  
Ernest L. Sink, MD, New York, NY  
Ira Zaltz, MD, Royal Oak, MI

Will succinctly present current experiential, clinical, and basic science information supporting the above concepts with the goal of improving knowledge of the disease process, and refinement of patient selection and treatment. Specific information regarding the relationship between FAI and hip OA, the pathological mechanisms underlying FAI (from both an in-vivo and in-vitro perspective), unique approaches to disease staging, and contemporary treatment perspectives are presented by international experts in hip preservation surgery.

#### 111
**International Perspectives on the Masquelet Technique for the Treatment of Segmental Defects in Bone**

**Moderator:** Laurent Obert, MD, Besancon, France  
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom  
Alain C. Masquelet, MD, PhD, Paris, France  
Paul R. Stafford, MD, Tulsa, OK

The Masquelet technique implies a two-stage procedure. In the first stage, a polymethylmethacrylate (PMMA) block manages the dead space resulting from segmental bone defect and produces a bioactive membrane. In the second stage, the PMMA spacer is removed and fresh cancellous bone autograft is placed into the defect with the bioactive membrane surrounding it. The membrane prevents graft resorption by promoting vascularization and corticization.

#### 112
**Surgical Exposure Trends and Controversies in Extremity Fracture Care**

**Moderator:** Stephen Kottmeier, MD, Stony Brook, NY  
Clifford B. Jones, MD, FACS, Grand Rapids, MI  
Dean Lorich, MD, New York, NY  
Paul Tornetta III, MD, Boston, MA

Half of this course is dedicated to upper extremity, and the second half to lower extremity contemporary plating techniques. Emphasis is directed to surgical access routes, trends, and controversies, as well as anatomic dissection, patient positioning, and preoperative planning. Indication, implant insertion, outcomes, and complications are deemphasized or omitted. Questions and answers and well-edited video dissections complete the course.

#### 182
**MRI-Arthroscopy Correlations of the Knee and Shoulder: A Case-based Approach**

**Moderator:** Stephen F. Brockmeier, MD, Charlottesville, VA  
Steven B. Cohen, MD, Media, PA  
F. Winston Gwathmey, MD, Charlottesville, VA  
Darren L. Johnson, MD, Lexington, KY  
Robert G. Marx, MD, New York, NY  
Eric C. McCarty, MD, Boulder, CO  
Mark D. Miller, MD, Charlottesville, VA  
Michael J. O’Brien, MD, New Orleans, LA  
Frank Petriglano, MD, Santa Monica, CA  
Hollis Potter, MD, New York, NY  
James E. Voos, MD, Cleveland, OH

In this brief introduction to MRI, a series of knee and shoulder cases are presented and discussed. MRI and arthroscopy correlation is emphasized.
Tuesday, March 1

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 11:00 AM
190 CPT and ICD-10 Coding Fundamentals for Starting Your Practice
Moderator: Margaret Maley, BSN, MS, Chicago, IL
Room W224

By the end of the course residents can identify how ICD-10 diagnosis coding will impact your documentation for five common orthopaedic diagnoses; demonstrate how to use technology to find the correct ICD-10 diagnosis in real time; understand how relative value units (RVUs) may be used to calculate your reimbursement or bonus if you are an employed physician; know how procedures are discounted by payors and how arthroscopic procedures are discounted differently; describe how modifiers protect reimbursement; and understand what is included in the global surgical package. Join us for this complimentary workshop that is so important to your career! Due to the nature of this course, it is limited to US residents only.

INSTRUCTIONAL COURSE LECTURE
8:00 AM - 5:00 PM
199 Practice Management Seminar for Practicing Orthopaedic Surgeons
Co-Moderators: Michael C. Albert, MD, Dayton, OH, John Cherf, MD, MPH, Chicago, IL
Thomas F. Murray, Jr, MD, Portland, ME
William R. Beach, MD, Richmond, VA
Scott Becker, JD, CPA, Chicago, IL
Bill Champion, Omaha, NE
Kathleen L. DeBruhl, JD, New Orleans, LA
Vicki Giambrone, MPA, FACHE, Dayton, OH
Aimee Greeter, MPH, Charlotte, NC
Max Reiboldt, CPA, Alpharetta, GA
Steven F. Schutzer, MD, Hartford, CT
Derek Theodor, MBA, Dayton, OH
Adam Waytz, PhD, Evanston, IL

Provides up-to-date information about the state of orthopaedic practice, including business and technology trends, changes in regulations and laws, and best practices to manage an orthopaedic practice in today’s environment. Learn from leading experts on value-based payment methodologies, transitioning practice models, the impact of the Affordable Care Act, and how to maximize patient satisfaction.

Symposium
10:30 AM — 12:30 PM
Valencia Room A
The Athletic Hip: From Impingement to Arthroplasty (B)
Moderator: Christopher M. Larson, MD, Edina, MN

Provides a comprehensive and current, evidence-based discussion on the management of groin and hip pain in the active and athletic patient across generations. The complex decision-making process of hip preservation versus arthroplasty in the early degenerative hip also are considered, and technical considerations regarding approach, bearing surfaces, and longevity of arthroplasty reviewed. Traducción simultánea en español. Tradução simultânea em português.

I. Hip Arthroplasty and Athletes: Optimal Bearing Surfaces
Paul E. Beaule, MD, Ottawa, ON, Canada

II. FAI and Athletes: Arthroscopy
Asheesh Bedi, MD, Ann Arbor, MI

III. Sports Hernia / Athletic Pubalgia / Core Muscle Injury: What is it?
Patrick M. Birmingham, MD, Winnetka, IL

IV. Abductor Tears and Peritrochanteric Disorders
J. W. Thomas Byrd, MD, Nashville, TN

V. Dysplasia and Athletes: PAO
John C. Clohisy, MD, Saint Louis, MO

VI. Myotendinous Pelvic Injuries: Proximal Hamstring / Rectus / Adductor injuries
Bryan T. Kelly, MD, New York, NY

VII. Hip Arthroplasty and Athletes: What’s the Best Surgical Approach
Michael Leunig, PhD, Zurich, Switzerland

VIII. Sports after Hip Arthroplasty: Recommendations and Risks?
Michael A. Mont, MD, Indianapolis, IN

IX. Prevalence of Hip Disorders in Athletes
Shane J. Nho, MD, Chicago, IL

X. The Degenerative Hip: Preservation vs Arthroplasty
Christopher L. Peters, MD, Salt Lake City, UT

XI. FAI & Athletes: Surgical Dislocation
Klaus Siebenrock, MD, Bern, Switzerland

An alphabetical faculty financial disclosure list can be found starting on page 334.

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Tuesday, March 1

**Symposium**
10:30 AM — 12:30 PM
Valencia Room B

◆ **Expanding the Role of Outpatient Surgery Centers to Include Total Joint Arthroplasty and Selective Spine Procedures (C)**
Moderator: Adolph V. Lombardi, MD, New Albany, OH

Minimizing surgical trauma with minimally invasivesurgical approaches and multimodal pain management has allowed patients to mobilize quickly after total joint arthroplasties and spinal procedures and be safely discharged to home the same day.

I. Yes, Patients Can Have a Total Hip or Total Knee and Go Home the Same Day
Keith R. Berend, MD, New Albany, OH

II. Why Has Partial Knee Arthroplasty Moved Almost Exclusively Into the Outpatient Surgery Setting?
Michael E. Berend, MD, Indianapolis, IN

III. Selecting the Proper Patient: Preoperative Education, Preoperative Physiotherapy, and Medical Optimization
Richard A. Berger, MD, Chicago, IL

IV. What’s New in Anesthesia That Makes Outpatient Arthroplasty and Selective Spine Procedures Feasible?
Craig J. Della Valle, MD, Chicago, IL

V. Blood Management in the Outpatient Setting
William G. Hamilton, MD, Alexandria, VA

VI. Selective Anterior Cervical Fusions can be Performed in the Outpatient Surgery Setting
Milan B. Herceg, MD, Dublin, OH

VII. Discharge Protocols for Patients Undergoing Arthroplasty in the Outpatient Surgery Setting
William J. Hozack, MD, Philadelphia, PA

VIII. How to Manage the Total Shoulder Arthroplasty Patient in the Outpatient Surgery Arena
Jason M. Hurst, MD, New Albany, OH

IX. Patient Selection Criteria for Lumbar Fusion in the Outpatient Surgery Center
Daniel S. Husted, MD, Stuart, FL

X. Can the Surgeon Improve Postoperative Pain Management by Utilization of Local Inf ltration?
Michael J. Morris, MD, New Albany, OH

XI. Laminectomy / Discectomy Procedures Are Appropriate for the Outpatient Surgery Setting / Discharge Protocols for Patients Undergoing Spine Procedures in the Outpatient Surgery Setting
Derek L. Snook, MD, Columbus, OH

**PAPER PRESENTATION**
8:00 AM — 10:00 AM
Valencia Room B

**Adult Reconstruction Hip I: Bearing Couple**
Moderator(s): Jean-Claude Theis, FRACS, Dunedin, New Zealand
David Mayman, MD, New York, NY,
Arthur Malkani, MD, Louisville, KY

**Paper 001**
8:12 AM
13-Year Evaluation of Highly Cross-Linked Polyethylene Articulating with 28mm and 36mm Heads Using RSA
Andrey Nebergall, Boston, MA
Meredith E. Greene, Boston, MA
Harry E. Rubash, MD, Boston, MA
Orhun K. Muratoglu, PhD, Boston, MA
Henrik Malchau, MD, Cambridge, MA
Anders Troelsen, MD, PhD, Koege, Denmark
Ola Rolfson, MD, PhD, Boston, MA

The RSA results show no change in femoral head penetration into or steady state wear of highly cross-linked polyethylene (HXLPE) liners with 28 or 36mm femoral heads over 13 years in vivo.

**Paper 002**
8:30 AM
What is the Natural History of ‘Asymptomatic’ Pseudotumors in MoM THA? Minimum 4-Year MARS MRI Longitudinal Study
Dimitris Dimitrion, MD, Cambridge, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Guoan Li, PhD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA

At minimum 4 years follow-up, the natural history of cystic pseudotumours on MARS MRI appears to be non-progressive in the majority of ‘asymptomatic’ MoM THA patients.

**Paper 003**
8:48 AM
Chromium Content in Periprosthetic Tissue is Strongly Associated with the Type of Tissue Response
Lari A. Lehtovirta, MB, Tampere, Finland
Aleksi Reito, MD, PhD, Tampere, Finland
Jyrki Parkkinen, MD, PhD, Tampere, Finland
Sirpa Peraniemi, PhD, Kuopio, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

In the current study, periprosthetic chrome concentration was found to have significant correlation with the type of inflammatory response in patients with failed metal-on-metal hip arthroplasties.

Discussion – 6 minutes
Tuesday, March 1

8:24 AM  Paper 004
Medial Calcar Erosion and Synovial Thickness in Patients with Metal-on-Metal Hip Arthroplasty
Rami Madanat, MD, Helsinki, Finland
Ola Rolfson, MD, PhD, Gothenburg, Sweden
Gabrielle Donahue, BA, Boston, MA
Daniel Hussey, BA, Boston, MA
Hollis Potter, MD, New York, NY
Robert Wallace, Stepney, Australia
Orhun K. Muratoglu, PhD, Boston, MA
Henrik Malchau, MD, Cambridge, MA

Medial calcar erosion is associated with synovial thickness in patients with metal-on-metal hip arthroplasty.

8:30 AM  Paper 005
ALVAL Scores Do Not Correlate with Metal Ion Levels or Unreadable Synovial Fluid WBC Counts
Darren R. Plummer, MBA, Columbus, OH
Paul H. Yi, MD, San Francisco, CA
Joshua J. Jacobs, MD, Chicago, IL
Robert M. Urban, Chicago, IL
Mario Moric, MS, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL

The diagnosis of ALVAL remains challenging. Although serum metal ion levels are typically elevated in failed MOM bearings, higher levels do not appear to correlate with ALVAL grade.

8:36 AM  Paper 006
Metal Ion Levels are not a Useful Test for Failed Metal-On-Metal Hip Implants: A Systematic Review and Meta-Analysis
Mark Pahuta, MD, Ottawa, ON, Canada
Paul R. Kim, MD, Ottawa, ON, Canada
Paul E. Beadle, MD, Ottawa, ON, Canada
Jose M. Smolders, MD, Lent, Netherlands
Job L. Van Susante, MD, PhD, Arnhem, Netherlands

We report a systematic review and meta-analysis of the screening and diagnostic value of metal ion testing for Adverse Reactions to Metal Debris (ARMDS)

8:48 AM  Paper 007
RCT Comparison After a Minimal Four-Year Follow Up of Vitamin E Doped Versus Conventional Polyethylene in THA
Caroline Scemama, Issy Les Moulineaux, France
Philippe Anract, MD, Paris, France
Valerie Dumaine, New York, NY
Antoine Babinet, Paris, France
Jean-Pierre Courpied, PhD, Paris, France
Moussa Hamadouche, PhD, Paris, France

This randomized in vivo wear measurements of Vitamin E doped highly cross-linked polyethylene, found significant reduction when compared to conventional polyethylene, using the Martell system.

8:54 AM  Paper 008
◆ How Common is Trunnionosis in Metal-on-Polyethylene Total Hip Replacements?
Harry Hothi, BEng, MSc, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Jayantilal M. Meswania, PhD, Stanmore, Middlesex, United Kingdom
Antti Eskelinen, MD, PhD, Tampere, Finland
Daniel Kendoff, MD, Hamburg, Germany
Christian Lausmann, Hamburg, Germany
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom

We found that MOP hips exhibited significant less evidence of trunnionosis than equivalently sized MOM hips with less corrosion and material lost at the taper junction.

9:00 AM  Paper 009
◆ Does the Use of a Ceramic Head Eliminate the Risk of Trunnionosis?
Anna Di Laura, MSc, Ruislip, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Harry Hothi, BEng, MSc, PhD, Stanmore, United Kingdom
Jayantilal M. Meswania, PhD, Stanmore, Middlesex, United Kingdom
Young-Min Kwon, MD, PhD, Boston, MA
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom

Retrieved hips showed that ceramic heads do not eliminate, but dramatically reduce, the risk of trunnionosis in patients.

9:12 AM  Paper 010
Highly Cross-Linked Polyethylene Provides Decreased Osteolysis and Reoperation at Minimum 10 Years Follow Up
Paul F. Lachiewicz, MD, Chapel Hill, NC

Highly cross-linked polyethylene provided for a decreased frequency of reoperation and osteolysis compared to standard polyethylene at minimum 10 years follow-up time.

9:18 AM  Paper 011
Are There Gender Differences in Wear with Ceramic on Highly Cross-Linked Polyethylene Hip Arthroplasty?
Jeffrey B. Stambough, MD, Saint Louis, MO
Gail Pasbos, St Charles, MO
Jacob Haynes, MD, Saint Louis, MO
John M. Martell, MD, Park Ridge, IL
John C. Clohisy, MD, Saint Louis, MO

Ceramic-on-HXLPE THA affords improved wear properties at midterm follow-up in young patients, but a significant increased wear rate was detected in females with 32 vs. 28mm heads.
Tuesday, March 1

9:24 AM  
Surface Analysis of Metal-on-Metal Hips Shows Rolling/Sliding Articulation at the Acetabular Bearing Rim  
John H. Currier, MS, Hanover, NH  
Michael B. Mayo, MD, Lebanon, NH  
Rayna Levine, BA, Hanover, NH  
Lindsay A. Holdcroft, BA, Hanover, NH  
Barbara H. Currier, MChE, Hanover, NH  
Douglas Van Citters, PhD, Hanover, NH

Wear damage features on MoM bearings provide evidence of unlubricated rolling/sliding articulation in vivo that has negative implications for bearings that rely on synovial fluid lubrication.

Discussion – 6 minutes

9:36 AM  
Poor Mid-Term Outcome with a Metal-On-Metal Total Hip Arthroplasty  
Michael J. Lim, MD, La Jolla, CA  
Kace A. Ezzet, MD, La Jolla, CA  
Pamela A. Pelido, RN, BSN, La Jolla, CA

Mid-term outcome of a commercially available metal-on-metal total hip arthroplasty from a single manufacturer was 33% aseptic failure rate contrasted with 0% failure rate in control group at 5 years.

9:42 AM  
Wear of Highly Cross-Linked Polyethylene in Primary Total Hip Replacement  
Stuart A. Callary, BS, Adelaide, Australia  
Lucian B. Solomon, MD, Hyde Park, Australia  
Oksana Holiebouycz, PhD, MPh, Adelaide, Australia  
David G. Campbell, MD, Adelaide, Australia  
Donald Houwe, MD, PhD, Adelaide, Australia

The wear of XLPE in 157 hips, within six different cohorts was measured using RSA. XLPE manufacturing method, articulation size and patient age did not affect XLPE wear between one and five years.

9:48 AM  
Comparison of 10-Year Follow-Up Wear between Annealed and Remelted Highly Cross-Linked Polyethylene  
Satoshi Hamai, MD, Fukuoka, Japan  
Yasuharu Nakashima, MD, Fukuoka, Japan  
Naohiko Mashima, Shitukawa, Toon, Japan  
Takuaki Yamamoto, MD, Fukuoka, Japan  
Tomomi Kamada, PhD, Ehime, Japan  
Goro Motomura, MD, Fukuoka, Japan  
Hiroshi Inai, PhD, Ehime, Japan  
Yukihide Iwamoto, MD, Fukuoka, Japan

The findings of this multicenter study document the equivalent PE wear in the annealed and remelted XLPEs at average follow-up periods of 10 years.

Discussion – 6 minutes

9:56 AM  
Comparing Complications of Metal-on-Metal Total Hip Arthroplasty with Other Hip Bearings  
Lindsay T. Kleeman, MD, Durham, NC  
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC  
Colin T. Pentrose, BA, BS, Durham, NC  
Abiram Bala, BA, Durham, NC  
Samuel S. Wellman, MD, Durham, NC  
Michael P. Bolognesi, MD, Durham, NC

We use population-level data to show that corticosteroid injections within 3 months of primary total hip arthroplasty is associated with increased risk of infection within one year.

PAPER PRESENTATION

8:00 AM – 10:00 AM  
Room W414

Sports Medicine/Arthroscopy I: Basic Science  
Moderator(s): Christian Lattermann, MD, Lexington, KY, James C. Dreese, MD, Lutharville, MD

8:00 AM  
What is Platelet-Rich Plasma (PRP) Really Doing to Tendon Fibroblasts?  
Joshua L. Hudgens, MD, Ann Arbor, MI  
Kristoffer Sugg, MD, Ann Arbor, MI  
Jonathan P. Grieser, BS, Ann Arbor, MI  
Jeremy Grekin III, MS, Ann Arbor, MI  
Ashesh Bedi, MD, Ann Arbor, MI  
Christopher L. Mendias, PhD, ATC, Ann Arbor, MI

In tendon cell culture PRP induces the inflammatory TNFα pathway and activates genes related to cellular proliferation and tendon collagen remodeling, but not collagen synthesis.

8:06 AM  
Differences in Cellular Composition of Platelet-Rich Plasma from Commercial Separation Systems  
Ryan Degen, FRCSC, MD, MSc, London, ON, Canada  
Johnathan Bernard, MD, MPH, Ashburn, VA  
Kristin S. Oliver, MD, MPH, Columbia, MO  
Joshua S. Dines, MD, New York, NY

This study provides a comparative analysis of the compositional differences of platelet rich plasma produced from different commercially available separation systems.

8:12 AM  
Comparison of Cell Composition and Cytokine Kinetics According to Different Preparations of Platelet-Rich Plasmas  
Joo Han Oh, Seoul, Republic of Korea  
Young Hak Roh, Incheon, Republic of Korea

The cytokine content was not necessarily proportional to the cellular composition of the PRPs since a greater content have differences between the SS or DS method depending on the type of cytokine.

Discussion – 6 minutes

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Tuesday, March 1

8:24 AM  Paper 019

Chondrotoxicity of Liposomal Bupivacaine in Articular Chondrocytes: Preliminary Findings
Kenneth A. Shaw, DO, Grovetown, GA
Peter C. Johnson, MD, Fort Gordon, GA
Steven Zamarin, PhD, Fort Gordon, GA
Augustine Chuang, Fort Gordon, GA
Craig D. Cameron, DO, Fort Gordon, GA

We assessed chondrocyte viability following exposure to liposomal bupivacaine, bupivacaine, or ropivacaine, finding that greater viability with liposomal bupivacaine after 1 hour of treatment.

8:30 AM  Paper 020

Bone-Marrow Derived Human Mesenchymal Stem Cells in a Rodent Rotator Cuff Repair: Is Regenerative Healing Possible?
Ryan Degen, FRCS, MD, London, ON, Canada
Andrew Carbone, BS, New York, NY
Camila Carballo, MSc, Rego Park, NY
Jianhun Zong, PhD, New York, NY
Amir H. Lesaboch, MD, New York, NY
Lily Ying, VBS, New York, NY
Xiang-Hua Deng, MD, New York, NY
Scott A. Rodeo, MD, New York, NY

We augmented an athymic rat rotator cuff repair with multipotent bone marrow derived human mesenchymal stem cells, identifying early improvements in biomechanical strength and histologic appearance.

8:36 AM  Paper 021

Recombinant Human Parathyroid Hormone Improves Early Load to Failure in a Rat Rotator Cuff Repair Model
Kyle Duchman, MD, Iowa City, IA
Jessica Goetz, PhD, Iowa City, IA
Andrew Amendola, Coralville, IA
Allison Maleandra, DVM, Coralville, IA
Bastian Uribe-Echevarria, Iowa City, IA
Joshua Barber, MD, Columbus, MO
Carolyn Hettrich, MD, MPH, Iowa City, IA

Delayed administration of rhPTH beginning on postoperative day seven significantly increased load to failure at 2 weeks postoperatively in a rat rotator cuff repair model.

8:48 AM  Paper 022

Tranexamin Acid: A Possible Intra-Articular Use to Prevent Haemarthrosis?
Antongiulio Marmotti, MD, Torino, Italy
Federico Dettoni, MD, Torino, Italy
Davide E. Bonasia, MD, Torino, Italy
Giuseppe Peretti, MD, Milan, Italy
Matteo Buzzzone, MD, Torino, Italy
Davide Blonna, MD, Rochester, MN
Silvia Mattia, Torino, Italy
Filippo Castoldi, MD, Torino, Italy
Roberto Rossi, MD, Torino, Italy

The use of Tranexamin acid did not influence the chondrocyte behavior during cartilage explant culture; this is clinically relevant in order to validate the intra-articular TA administration.

8:54 AM  Paper 023

Understanding the Mechanics of Focal Chondral Defects in the Hip: A Framework to Advance Treatment Options
Brenden Klennert, Salt Lake City, UT
Benjamin Ellis, Salt Lake City, UT
Travis G. Maak, MD, Salt Lake City, UT
Ashley L. Kapron, PhD, Salt Lake City, UT
Tyler Kaiser, West Jordan, UT
Jeffrey A. Weiss, Salt Lake City, UT

This subject-specific finite element modeling study demonstrates that chondral defects increase the stress and strain in the acetabular cartilage in a dysplastic hip.

9:00 AM  Paper 024

In Vivo Evaluation of Ultra High Molecular Weight Polycaprolactone Scaffold for Engineered ACL Graft
Natalie Leong, MD, Los Angeles, CA
Nima Kabir, MD, Los Angeles, CA
Armin Arshi, BS, Los Angeles, CA
Azadeh Nazemi, BS, Newport Beach, CA
Ben Wu, PhD, DDS, Los Angeles, CA
Frank Petrigliano, MD, Los Angeles, CA
David R. McAllister, MD, Los Angeles, CA

This study describes the results of implantation of Ultra High Molecular Weight Polycaprolactone scaffolds in rat knees at 16 weeks postoperatively in terms of histology and mechanical testing.
Tuesday, March 1

9:12 AM  Paper 025
Subchondral and Epiphyseal Bone Remodeling following
Anterior Cruciate Ligament Rupture
Tristan Maerz, PhD, Royal Oak, MI
Michael Kurdziel, MS, Royal Oak, MI
Michael D. Newton, BS, Warren, MI
Perry Altman, MD, Royal Oak, MI
Kyle Anderson, MD, Southfield, MI
Howard Matthew, PhD, Detroit, MI
Kevin C. Baker, PhD, Royal Oak, MI
Subchondral bone loss, increases in trabecular density and
thickness, and decreases in trabecular number were observed in
a non-invasive model of ACL rupture-induced post-traumatic
osteoarthritis.

9:18 AM  Paper 026
Adjustable Loop Anterior Cruciate Ligament Reconstruction
Device: The Value of Retensioning and Knot Tying
Benjamin Noonan, MD, West Fargo, ND
Joshua S. Dines, MD, New York, NY
Answorth A. Allen, MD, New York, NY
David W. Altchek, MD, New York, NY
Ashesh Bedi, MD, Ann Arbor, MI
Combined retensioning and knot tying enhances the operating
characteristics of an adjustable loop ACL suspensory
fixation device.

9:24 AM  Paper 027
Biomechanical Testing of Quadriceps versus Patellar Tendons: Is
Quadriceps Tendon a Better Choice?
Leslie E. Schwindel, MD, Cincinnati, OH
Farid Amiroache, MD, Chicago, IL
Giovanni F. Solitro, PhD, Chicago, IL
Mark R. Hutchinson, MD, Elmhurst, IL
Our results show further that the quadriceps tendon graft in ACL
reconstruction provide better kinematics and less stress on the
bone when completely healed.

9:36 AM  Paper 028
Structural Properties of the Anterolateral Capsule and Iliotibial
Band of Knee: Implication for Clinical Practice
Amir Ata Rabnemah Azar, MD, Pittsburgh, PA
Robert M. Miller, MS, Pittsburgh, PA
Daniel Guenther, MD, Pittsburgh, PA
Freddie H. Fu, MD, Pittsburgh, PA
Bryson P. Lesniak, MD, Pittsburgh, PA
Volker Musahl, MD, Pittsburgh, PA
Richard E. Delski, PhD, Pittsburgh, PA
The ITB is 3 times stiffer and has 50% higher ultimate load
compared to the anterolateral capsule, questioning the value of
this graft for extra-articular reconstruction in ACL injured knees.

9:42 AM  Paper 029
Stem Cell Mobilization and Changes in Articular Cartilage
Morphology following Anterior Cruciate Ligament Rupture
Tristan Maerz, PhD, Royal Oak, MI
Michael Kurdziel, MS, Royal Oak, MI
Michael D. Newton, BS, Warren, MI
Perry Altman, MD, Royal Oak, MI
Kyle Anderson, MD, Southfield, MI
Howard Matthew, PhD, Detroit, MI
Kevin C. Baker, PhD, Royal Oak, MI
ACL rupture causes mobilization of mesenchymal stem cells into
circulation and compartment-dependent changes in articular
cartilage morphology in a preclinical model of post-traumatic
osteoarthritis.

9:48 AM  Paper 030
Fibrosis Following Skeletal Muscle Laceration, After Use of
Losartan, Hydrocortisone, and Acetylsalicylic Acid
Otavio Melo Silva Jr, MD, MSc, Nova Lima, Brazil
The healing of skeletal muscle produced less fibrous scar tissue
when exposed to losartan, than when compared to the control
group or the use of hydrocortisone.

Discussion – 6 minutes

8:00 AM – 10:00 AM
W304A
Trauma I: Ankle, Distal Tibia
Moderator(s): Henry M. Broekhuyse, MD, Vancouver, BC,
Canada, Patrick Yoon, MD, Minneapolis, MN

8:00 AM  Paper 031
Surgical versus Nonsurgical Treatment of Displaced Ankle
Fractures in Diabetics
Andrew Lovy, MD, New York, NY
James E. Dowdell III, MD, New York, NY
Aakash Keswani, BA, New York, NY
Steven Koehler, MD, New York, NY
Jaehon M. Kim, MD, New York, NY
Steven B. Weinfeld, MD, New York, NY
David Joseph, MD, Brooklyn, NY
Nonoperative treatment of displaced diabetic ankle fractures is
associated with unacceptably high complication rates compared
to operative treatment.
Tuesday, March 1

8:06 AM  Paper 032
Low Energy Open Ankle Fractures in the Elderly: Outcome and Treatment Algorithm
Asanka Wijendra, MBBS, Middlesex, United Kingdom
Rupali Alwe, MSc, PT, Oxford, United Kingdom
George A. Grammatopoulos, MRCS, Oxford, United Kingdom
Michael Lamyman, Oxford, United Kingdom
Gregoris Kambouroglou, MD, London, United Kingdom

Low energy fractures in the elderly (n=62) are associated with a 3-month mortality rate of 15%, complication rate of 23% and a mean Enneking functional outcome score of 35.7 out of 40.

8:12 AM  Paper 033
Combined Randomized and Observational Study of Surgery for Type B Ankle Fracture Treatment (CROSSBAT)
Rajat Mittal, MBBS, MS, Oatlands, NS, Australia
Ian Harris, MBBS, FRACS, Caringbah, Australia
Sam Adie, MBBS, Liverpool, Australia
Justine M. Naylor, PhD, Liverpool, Australia

Surgical management is not superior to non-surgical management for the treatment of isolated minimally displaced Type B ankle fractures.

8:24 AM  Paper 034
Postoperative Complications In 32307 Ankle Fractures With Or Without Ankle Arthroscopic Procedures
Youichi Yasui, MD, Tokyo, Japan
Christopher D. Murawski, Pittsburgh, PA
Christopher J. Egan, PA-C, Dix Hills, NY
Alberto Marangoz, Lazise, Italy
Ethan J. Fraser, New York, NY
Ichiro Tonogai, MD, PhD, New York, NY
John G. Kennedy, MD, New York, NY

The current analysis revealed that more invasive re-operations were performed in the case received with ankle fixation alone.

8:30 AM  Paper 035
Weight Bearing After Open Reduction and Internal Fixation of Ankle Fractures
Fernando A. Pena, MD, Minneapolis, MN
Jordan Hauschild, Farmington, MN
Megan T. Reams, OTR/L, Bloomington, MN

In patients with a normal sensory exam, it is safe to allow weight bearing as tolerated after undergoing open reduction internal fixation of an ankle fracture regardless of the fracture pattern.

8:36 AM  Paper 036
Loading and Ambulatory Behavior of Lower Extremity Fracture Patients
Ami Stuart, Park City, UT
Matthew P. Ackerman, MSc, Salt Lake City, UT
Arad Lajevardi-Khosh, Salt Lake City, UT
Robert W. Hitchcock, Salt Lake City, UT
Erik Kubiak, MD, Salt Lake City, UT

An inexpensive, convenient, continuously recording insole sensor for monitoring limb loading has provided data that shows our ability to record the data required to develop limb loading curves.

8:48 AM  Paper 037
Medial Clamp Tine Positioning Affects Syndesmosis Malreduction
Christopher T. Cosgrove, MD, Saint Louis, MO
Steven M. Cherney, MD, Saint Louis, MO
Christopher McAndrew, MD, Saint Louis, MO
William M. Ricci, MD, Saint Louis, MO
Michael J. Gardner, MD, Saint Louis, MO

This study describes a technique for syndesmotic reduction clamp positioning, using a true talar dome lateral fluoroscopy view. It provides surgeons objective guidelines to optimize reduction quality.

9:00 AM  Paper 038
Intraoperative Computed Tomography versus Fluoroscopy in Syndesmosis Repair: A Retrospective Series
Scott A. Mitchell, Westwood, KS
Archie A. Heddings, MD, Kansas City, KS

Surgical repair of syndesmosis injuries continues to have a high malreduction and reoperation rate. Intraoperative CT imaging may help identify malreductions previously missed on fluoroscopy.

9:06 AM  Paper 039
The Trans-Syndesmotic Axis and Intraoperative Fluoroscopic Imaging Guide Anatomic Syndesmotic Reduction
Sara Putnam, MD, Saint Louis, MO
Michael S. Linn, MD, Dix Hills, NY
Christopher McAndrew, MD, Saint Louis, MO
William M. Ricci, MD, St Louis, MO
Michael J. Gardner, MD, Saint Louis, MO

Reduction clamp placement along the trans-syndesmotic axis has a predictable appearance on lateral ankle imaging that can guide anatomic clamp positioning during syndesmotic reduction.

An alphabetical faculty financial disclosure list can be found starting on page 334.

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9:12 AM  
**Paper 040**  
Suprapatellar Intramedullary Nail Technique Improves Rate of Malalignment of Distal Tibia Fractures  
Frank Avilucea, MD, Salt Lake City, UT  
Konstantinos Triantafllou, MD, Memphis, TN  
Paul S. Whitng, MD, Nashville, TN  
Edward Perez, MD, Memphis, TN  
Hassan R. Mir, MD, MBA, Nashville, TN  

The suprapatellar IMN technique results in lower rates of malalignment following surgical treatment of distal tibia fractures compared to infrapatellar IMN insertion.

9:18 AM  
**Paper 041**  
Minimizing Knee Discomfort Following IM Nailing of the Tibia by Using a Semi-Extended Approach: A Multi Center RCT  
Alan J. Johnstone, MD, Aberdeen, United Kingdom  

Minimising anterior knee discomfort following IM nailing of the tibia by using a semi-extended approach: a multi centre RCT

9:24 AM  
**Paper 042**  
Proper Distal Placement of Tibial Nail Improves Rate of Malignment for Distal Tibia Fractures  
Konstantinos Triantafllou, MD, Memphis, TN  
Eric A. Barcak, DO, Fort Worth, TX  
Arturo D. Villarreal, MD, Memphis, TN  
Cory A. Collinge, MD, Fort Worth, TX  
Edward Perez, MD, Memphis, TN  

Proper placement of intramedullary nail just lateral to center of talus when treating distal tibial fractures improves rate of malalignment.

9:36 AM  
**Paper 043**  
Posterior Pilon Fracture, More Common Than Previously Thought  
Christian Bastias, MD, Santiago, Chile  
Felipe A. chaparro, MD, Santiago, Chile  
Ximena Ahumada, Santiago, Chile  
Christian Urbona, MD, Santiago, Chile  
Leonardo A. Lagos, MD, Santiago De Chile, Chile  
Mauricio Parra, Santiago, Chile  
Fernando Vargas, MD, Santiago, Chile  
Felipe J. Pino, MD, Santiago, Chile  

Posterior pilon is more common than previously described, high awareness must be had. Posteroomedial approach is a good option in these fractures. Syndesmotic instability after f xation is prevalent.

9:42 AM  
**Paper 044**  
Energy Absorbed in Fracturing is Similar in Tibial Plateau and Pilon Fractures Over a Full Spectrum of Severity  
Kevin Dibbern, BS, Iowa City, IA  
Donald D. Anderson, PhD, Iowa City, IA  
Laurence Kempton, MD, Indianapolis, IN  
Saam Morshed, MD, Berkeley, CA  
Thomas F. Higgins, MD, Salt Lake City, UT  
Todd O. McKinley, MD, Indianapolis, IN  
John L. Marsh, MD, Iowa City, IA  

Tibial plateau and pilon fractures are created over similar ranges of fracture energy.

9:48 AM  
**Paper 045**  
CT Scan Assessment of Peroneal Tendon Displacement and Posteromedial Structure Entrapment in Pilon Fractures  
Samuel R. Huntley, BS, Miami Beach, FL  
Alex Fokin, MD, San Diego, CA  
Spencer Summers, BA, Miami, FL  
Charles M. Lawrie, MD, Miami, FL  
Steven D. Steinlauf, MD, Weston, FL  

CT scans of 200 pilon fractures were reviewed to determine 1) the prevalence of peroneal tendon displacement, and 2) proportions of missed diagnosis on preoperative CT scan by radiologists.

**Discussion – 6 minutes**

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Tuesday, March 1

8:06 AM  Paper 047
Risk Factors for Cerebrospinal Fluid Leak Following Anterior Cervical Discectomy and Fusion
Bhaveen H. Kapadia, MD, Indianapolis, IN
Samuel I. Decker, BA, Brooklyn, NY
Matthew R. Boylan, Brooklyn, NY
Fred Xavier, MD, Brooklyn, NY
Carl B. Paulino, MD, Brooklyn, NY

Increased age and black race are absolute and obesity and hypertension are modifiable risk factors of CSF leak. Length of stay and cost of admission were higher in patients who experienced CSF leak.

8:12 AM  Paper 048
Diabetes as a Predictor for Extended Hospital Stay and Complications in Surgical CSM Patients
Nancy Worley, MS, New York, NY
Cyrus Jalai, BA, New York, NY
Shaleen Vira, MD, Silver Spring, MD
Shenglin Wang, MD, Beijing, China
Thomas J. Errico, MD, New York, NY
Michael C. Gerling, MD, Manhattan, NY
Peter G. Passias, MD, Westbury, NY

Diabetes (33% insulin-dependent) was detected in 19% of surgical CSM patients, and was associated with extended LOS (43% of cases) and complications (12.6% developed ≥1 complication).

8:24 AM  Paper 049
Stand-Alone Cage versus Anterior Plating for Anterior Cervical Discectomy and Fusion
Ehsan Tabarzade, MD, Walnut Creek, CA
Junyoung Ahn, BS, Chicago, IL
Daniel D. Bohl, MD, MPH, Chicago, IL
Michael Collins, BS, Park Ridge, IL
Khaled Abu-Shaala, MD, MS, Oak Park, IL
Keri Singh, MD, Chicago, IL

Peri-operative outcomes, complications, re-operation rates, narcotics consumption, and total costs may be similar with use of a plate versus use of a stand alone construct.

8:30 AM  Paper 050
Stratified In-Hospital Costs of Elderly Odontoid Fractures by Treatment Modality
Abdul-Kareem Ahmed, BS, MS, Wakefield, RI
John M. Depasse, MD, Providence, RI
Charles A. Adams, FACS, MD, Providence, RI
Mark A. Palumbo, MD, East Greenwich, RI
Alan H. Daniels, MD, Providence, RI

In this retrospective study we determine that operative intervention and halo-vest immobilization for elderly odontoid fractures are associated with longer length of stay and higher in-hospital costs.

8:36 AM  Paper 051
Predicting Postoperative C5 Palsy Using Measures of Sagittal Balance, Foraminal Stenosis, and Spinal Cord Rotation
Arunit J. Chugh, Cleveland Heights, OH
Douglas S. Weinberg, MD, Cleveland, OH
Jason D. Eubanks, MD, Waite Hill, OH

Compared with sagittal balance and foraminal stenosis, cord rotation was the only variable to show significance in predicting postoperative C5 palsy, as evidenced by multiple statistical analyses.

8:48 AM  Paper 052
Focal and Dynamic Cervical Alignment Correlates with Health-Related Quality of Life in Cervical Deformity Patients
Renaud Lafage, New York, NY
Virginia Lafage, PhD, New York, NY
Themistocles S. Protopsis, MD, Closter, NJ
Robert A. Hart, MD, Portland, OR
Eric O. Klineberg, MD, Dvais, CA
Justin S. Smith, MD, Charlottesville, VA
Brian J. Neuman, MD, Indianapolis, IN
Christopher Ames, MD, San Francisco, CA
International Spine Study Group, Brighton, CO

Focal alignment parameters such as the maximum kyphosis and dynamic parameters such as the kinematic area were more correlated with patient reported outcome than regional parameters.

8:54 AM  Paper 053
A Novel Index for Quantifying the Surgical Risk for Patients with Cervical Spine Disorders
Peter G. Passias, MD, Westbury, NY
Bryan J. Marascalchi, MD, New York, NY
Bassel Diebo, MD, New York City, NY
Nancy Worley, MS, New York, NY
Cyrus Jalai, BA, New York, NY
Virginia Lafage, PhD, New York, NY

An index to quantify the risk for cervical surgical intervention was proposed using baseline comorbidities and procedure-related complications, to evaluate morbidity and mortality.

9:00 AM  Paper 054
The Fracture Healing Rate of Type II Odontoid Fracture Treated with Posterior Atlantoaxial Screw-Rod Fixation
Dageng Huang, MD, Xi’an, China
DingJun Hao, Shanghai China

To investigate the healing rate of type odontoid fracture treated with posterior atlantoaxial screw-rod fixation by CT image.

An alphabetical faculty financial disclosure list can be found starting on page 334.

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Tuesday, March 1

9:12 AM  Paper 055
Prospective Multicenter Assessment of Early Complication Rates Associated with ACD Surgery in 78 Patients
Justin S. Smith, MD, Charlottesville, VA
Virginie Lafage, PhD, New York, NY
Christopher I. Shaffrey, MD, Charlottesville, VA
Themistocles S. Protopsaltis, MD, New York, NY
Peter G. Passias, MD, Westbury, NY
Eric O. Klineberg, MD, Sacramento, CA
K Daniel Riew, MD, Saint Louis, MO
Christopher Ames, MD, San Francisco, CA
International Spine Study Group, Brighton, CO

Surgery for ACD is associated with high early complication rates. Complications maybe be major or minor. Surgical approach and number of levels fused are associated with complication rates.

9:18 AM  Paper 056
Length of Stay and 30-Day Readmission Predictors in CSM Patients: Analysis of 3,057 ACS-NSQIP Patients
Peter G. Passias, MD, Westbury, NY
Cyrus Jalai, BA, New York, NY
Nancy Worley, MS, New York, NY
Shaleen Vira, MD, Silver Spring, MD
Michael C. Gerling, MD, Manhattan, NY
Virginie Lafage, PhD, New York, NY
Thomas J. Errico, MD, New York, NY

Pre-operative comorbidities (such as diabetes, increased ASA class) and surgical factors (operative time) are associated with extended LOS, hospital readmission, and re-operation in CSM patients.

9:24 AM  Paper 057
Complications of Iliac Crest Bone Graft in Cervical Spine Surgery
Michael L. Golden III, MD, Chapel Hill, NC
Steven Leckie, MD, Duxbury, MA
John G. Heller, MD, Atlanta, GA

Patients who had a posterior iliac crest bone graft for posterior cervical fusion showed no difference in back pain or disability when compared to a similar group of laminoplasty patients.

9:36 AM  Paper 058
Predictors of Upper Body Post-Operative Pain/Disability in Surgical Cervical Radiculopathic Patients
Peter G. Passias, MD, Westbury, NY
Kris Radcliff, M.D., Egg Hbr Twp, NJ
Robert E. Isaacs, MD, Durham, NC
Kristina Bianco, New York, NY
Cyrus Jalai, BA, New York, NY
Paul M. Arnold, MD, FACS, Kansas City, KS
Patrick C. Hsieh, MD, MSc, Los Angeles, CA
Alexander Vaccaro, MD, PhD, Philadelphia, PA

Baseline factors, symptom localization, and HRQoL scores were associated with post-op pain and disability improvement. Baseline arm>neck pain and older age had greatest impact on patient improvement.

9:42 AM  Paper 059
Is it Necessary to Extend a Multilevel Posterior Cervical Decompression and Fusion to the Upper Thoracic Spine?
Gregory D. Schroeder, MD, Philadelphia, PA
Christopher Kepler, MD, Philadelphia, PA
Mark F. Kurd, MD, Bryn Mawr, PA
Kristen E. Radcliff, MD, Egg Hbr Twp, NJ
Loren B. Mead, BA, Philadelphia, PA
Jeffrey A. Rihn, MD, Media, PA
D Greg Anderson, MD, Moorstown, NJ
Alan S. Hilibrand, MD, Philadelphia, PA
Alexander Vaccaro, MD, PhD, Gladwyne, PA

Stopping a posterior cervical fusion at the C7 does not lead to an increase risk of early revision, and it does not affect the ability to restore sagittal alignment.

9:48 AM  Paper 060
Anterior Cervical Spine Surgery, Dysphagia, and Steroids: A Randomized, Prospective, Blinded Study
Sanford E. Emery, MD, MBA, Morgantown, WV
John C. France, MD, Morgantown, WV
Scott D. Daffner, MD, Morgantown, WV
Gerald Hobbs, PhD, Morgantown, WV

Perioperative intravenous steroids can reduce dysphagia symptoms following anterior cervical operative procedures.
Tuesday, March 1

**INSTRUCTIONAL COURSE LECTURE**

9:30 AM — 10:30 AM

**CD2**

**Principles of Orthopaedic Leadership: Local, Regional, National**

*Moderator: Aaron G. Rosenberg, FACS, MD, Chicago, IL*

*Daniel J. Berry, MD, Rochester, MN*

*John L. Marsh, MD, Iowa City, IA*

*Joseph D. Zuckerman, MD, New York, NY*

Designed to help you implement your leadership skills at the local, regional, and national levels. Specifics of successful leadership are discussed.

**INSTRUCTIONAL COURSE LECTURE**

10:30 AM — 12:30 PM

121

**Practical Techniques for Revision Total Hip Arthroplasty**

*Moderator: George J. Haidukewych, MD, Orlando, FL*

*Thomas L. Bernasek, MD, Tampa, FL*

*Richard F. Kyle, MD, Minneapolis, MN*

*Mark A. Liporace, MD, Englewood Cliffs, NJ*

This video-rich course focuses on specific tips and tricks from the experts on common, practical techniques useful during revision total hip arthroplasty. Videos supplement short, key point slide presentations. Case-based discussion with audience response system highlights key points of exposure, implant removal, and reconstructions strategies.

122

**The Fab Five of the Foot and Ankle**

*Moderator: Mark J. Berkowitz, MD, Cleveland, OH*

*Michael P. Clare, MD, Bradenton, FL*

*Mark C. Drakos, MD, New York, NY*

*James J. Serra, MD, Pittsburgh, PA*

Tips and techniques for the surgical treatment of Lisfranc injuries, hallux rigidus, 5th metatarsal fractures, ankle instability, and insertional Achilles tendinopathy are presented.

123

**Qué podemos aprender de las Prácticas de reemplazo de cadera y rodilla en Estados Unidos? (presentado en español) / Lessons Learned from US Hip and Knee Practice (presented in Spanish)**

*Moderator: Rafael J. Sierra, MD, Rochester, MN*

*Miguel E. Cabanela, MD, Rochester, MN*

*Claudio Diaz, MD, Santiago, Chile*

*Carlos J. Lavarnia, MD, Coral Gables, FL*

*Juan Lopez, MD, Bogota, Colombia*

*Fabio Orozco, MD, Linwood, NJ*

*Camillo Restrepo, MD, Philadelphia, PA*

Este curso instruccional en español tiene como objetivo compartir con el auditorio la experiencia de cirujanos de cadera y rodilla que trabajan en Estados Unidos con el fin de mejorar las prácticas quirúrgicas en otros países de habla hispana. (Intended for Spanish speaking international attendees. The aim of the course is to share U.S. total hip arthroplasty (THA) and total knee arthroplasty (TKA) practice experiences with the audience in order to improve THA and TKA care in other countries.)

124

**Management of the Mangled Upper Extremity**

*Moderator: Benjamin K. Potter, MD, Bethesda, MD*

*George P. Nanos, MD, Rockville, MD*

*Leon Nesti, MD, PhD, Croenvsville, MD*

*Peter C. Rhee, MD, San Antonio, TX*

Salient points regarding both limb salvage and amputation following severe upper extremity trauma are discussed. Illustrative cases emphasize recent advances in reconstructive and amputation surgery as well as prosthetic improvements.

125

**Limb Deformity Evaluation and Principles**

*Moderator: Jenny Frances, MD, New York, NY*

*David S. Feldman, MD, New York, NY*

*Christopher A. Iobst, MD, Winter Park, FL*

*Sanjeev Sabharwal, MD, Chatham, NJ*

Reviews the basic and more complex principles of evaluation and treatment of lower extremity deformities, applicable to both adult and pediatric deformity correction.

126

**Stress Management and Balance for the Orthopaedic Surgeon**

*Moderator: John D. Kelly IV, MD, Newtown Square, PA*

*Eric C. McCarty, MD, Boulder, CO*

*Claude T. Moorman III, MD, Durham, NC*

*Denver T. Stanfield, MD, Cincinnati, OH*

Orthopaedic surgeons work hard and stress can compromise performance. We address managing time and stress, life balance, maintaining happy families, and issues unique to the female orthopaedic surgeon.

127

**Proximal Humerus Fractures: Current Treatment Options, Pearls, and Pitfalls**

*Moderator: O. Alton Barron, MD, New York, NY*

*Louis W. Catalano III, MD, New York, NY*

*Bradford O. Parsons, MD, New York, NY*

*Thomas (Quin) Throckmorton, MD, Germantown, TN*

Provide thorough review of literature-supported treatment options; compare and contrast different techniques that are applicable to a given fracture pattern; review the basic techniques with pearls and pitfalls in an effort to minimize intraoperative and postoperative complications; and present case examples to further elucidate the teaching points covered by each speaker.

An alphabetical faculty financial disclosure list can be found starting on page 334.
##周二，三月一日

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<th>编号</th>
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<tbody>
<tr>
<td>128</td>
<td>肩关节置换：关键步骤以提高结果并最小化并发症</td>
<td>主讲人：John W. Sperling, MD, MBA, Rochester, MN；George S. Athwal, MD, London, ON, Canada；Emilie V. Cheung, MD, Redwood City, CA；Joaquin Sanchez-Sotelo, MD, Rochester, MN</td>
<td>W202</td>
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课程内容：
课程教师讨论骨关节炎和肩袖撕裂性关节炎的治疗挑战及最新进展。课程包括基于案例的讨论。

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<tr>
<td>129</td>
<td>最常见的四种软骨损伤类型：你会在实践中看到及我们如何处理和为什么</td>
<td>主讲人：Andreas H. Gomoll, MD, Chestnut Hill, MA；Brian J. Cole, MD, MBA, Chicago, IL；Jack Farr II, MD, Greenwood, IN；Christian Lattermann, MD, Lexington, KY</td>
<td>W304E</td>
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课程内容：
课程教师讨论根据实际病人呈现的软骨疾病，包括股骨头坏死症、髌股关节痛、术后半月板痛及偶然发现的缺陷。他们关注病人选择和指征，留有足够时间进行讨论。

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<td>130</td>
<td>年轻运动员的肘关节炎</td>
<td>主讲人：Laith M. Jazrawi, MD, New York, NY；Christopher S. Ahmad, MD, New York, NY；E. Lyle Cain Jr, MD, Birmingham, AL；Mandeep Virk, MD, Brookfield, IL</td>
<td>W203</td>
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课程内容：
课程教师回顾投掷运动员的肘部损伤及与长期骨关节炎相关的损伤。我们讨论手术技术及降低手术后骨关节炎风险的方法。

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<tr>
<td>131</td>
<td>正确使用和理解抗生素在治疗骨骼肌肉感染中的作用</td>
<td>主讲人：David W. Lowenberg, MD, Redwood City, CA；Douglas R. Osmon, MD, Rochester, MN；Javad Parvizi, MD, FRCS, Philadelphia, PA</td>
<td>W314</td>
</tr>
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</table>

课程内容：
课程教师讨论微生物如何在宿主中获得立足点，以及常见的治疗模式。正确使用抗生素及其在治疗这些感染中的作用和限制，包括与implant相关的因素。

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<td>183</td>
<td>关节周围 Tibia 骨折：适合俯卧的案例</td>
<td>主讲人：Lisa K. Cannada, MD, Saint Louis, MO；Timothy S. Achor, MD, Bellaire, TX；Jeffrey Anglen, MD, FACS, Indianapolis, IN；Cory A. Collinge, MD, Fort Worth, TX；Kenneth A. Egor, MD, New York, NY；Clifford B. Jones, MD, FACS, Grand Rapids, MI；Stephen Kottmeier, MD, Stony Brook, NY；Hassan R. Mir, MD, MBA, Nashville, TN；J. Tracy Watson, MD, Saint Louis, MO；Judith Siegel, MD, Worcester, MA</td>
<td>W207</td>
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课程内容：
在操作室中，俯卧定位可能是一个麻烦。此外，更多危险结构的感知及熟悉度较低的治疗方法使这个计划变得不那么受欢迎。通过回顾关节周围胫骨骨折案例，包括手术视频，您将离开此处充满激情，选择俯卧，当合适时。

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<td>184</td>
<td>颈椎Smackdown：问专家</td>
<td>主讲人：Darrel S. Brodke, MD, Salt Lake City, UT；Cedric Barrey, MD, PhD, Lyon, France；Byung-jean Choi, MD, Busan, Republic of Korea；Ken Ishii, MD, PhD, Tokyo, Japan；Louis G. Jens, MD, Boston, MA；Thomas E. Mroz, MD, Cleveland, OH；Themistocles S. Protopsaltis, MD, New York, NY；K. Daniel Riew, MD, Saint Louis, MO；Rick C. Sasso, MD, Carmel, IN；Kern Singh, MD, Chicago, IL；Jeffrey C. Wang, MD, Sherman Oaks, CA</td>
<td>W208</td>
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课程内容：
课程中，将呈现和讨论治疗案例，随后由参与者“Smackdown”。然后，参与者将展示他们的案例并就治疗方案进行辩论。
Tuesday, March 1

INSTRUCTIONAL COURSE LECTURE

12:30 PM - 5:00 PM

191 Practice Management Course for Residents and Fellows-in-Training

Co-Moderators: Gail S. Chorney, MD, New York, NY, Charles A. Goldfarb, MD, St. Louis, MO
Brent A. Ponce, MD, Birmingham, AL
John Cherf, MD, MPH, Chicago, IL
Erin Collins, Rosemont, IL
Nicholas Colyvas, MD, Campbell, CA
John Corsetti, MD, Springfield, MA
Kathleen DeBruhl, JD, New Orleans, LA
Ryan Dopirak, MD, Manitowoc, WI
William J. Maloney, MD, Redwood City, CA

New topics this year! This information filled session uses didactic lectures, demonstrations and panel discussions to provide the foundation for an effective transition from resident to practicing physician. This course provides two education tracks: Practice Management Essentials and Career Planning, including elements of practice management not covered in most residency/fellowship programs. Topics covered in the course include vital practice management information necessary to succeed in practice, as well as sessions on job search tips and negotiating physician employment agreements to help residents locate a job. While all residents are welcome, the course is especially beneficial for fourth- and fifth-year residents and fellows. PLEASE NOTE: This course focuses on issues uniquely relevant to the practice of orthopaedic surgery in the United States. For this reason, registration for this course is restricted to orthopaedic residents living in the United States.

PAPER PRESENTATION

10:30 AM — 12:30 PM

Valencia Room D

Adult Reconstruction Knee I: Surgical Technique

Moderator(s): Timothy J. Wilton, MD, Derby, United Kingdom, Thomas J. Blumenfeld, MD, Sacramento, CA

10:30 AM Paper 061
The Mid Sulcus Line is a Reliable Landmark for Tibial Resection During Total Knee Arthroplasty

David F. Dalury, MD, Indianapolis, IN
Luke Aram, MS, Warsaw, IN
Danielle M. Chapman, Towson, MD

A mid-sulcus line, a bi-planer and easily identifiable landmark on the tibia, is an accurate guide for placing both sagittal and coronal alignment for tibial preparation during TKA.

10:36 AM Paper 062
Is Synovectomy Necessary in Total Knee Arthroplasty with Rheumatoid Arthritis?

Philippe Hernigou, PhD, Creteil, France
Charles-henri H. Flouzat-lachapelle, MD, Créteil Cedex, France

Knees treated with complete synovectomy at the time of primary TKA had lower knee flexion and inferior KS pain scores, and more complications as compared with contralateral knees without synovectomy.

10:42 AM Paper 063
Raising the Joint Line in Total Knee Arthroplasty Causes Significant Mid-Flexion Instability

Thomas Luyckx, MD, PhD, Bertem, Belgium
Hilde Vandenmeule, MD, Pellenberg-Lubeek, Belgium
Evie E. Vereecke, PhD, Kortrijk, Belgium
Lenhart Schey, PhD, Pellenberg, Belgium
Jan M. Victor, MD, Gent, Belgium

Raising the joint line in TKA caused significant mid-flexion instability despite an equal and well-balanced flexion and extension gap.

Discussion – 6 minutes

10:54 AM Paper 064
Cement Fixation has Better Outcomes in Total Knee Arthroplasty

Stephen Graves, MD, Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
Peter L. Lewis, MB, Adelaide, Australia
David Davidson, MD, University Of Adelaide, Australia
Michelle Lorimer, Adelaide, Australia
Ann Tomkins, Adelaide, Australia

Cementing the tibial component improves the outcome for most TKA procedures and when using a PS knee cementing both the tibial and femoral components is associated with the lowest rate of revision.

11:00 AM Paper 065
Peri-Articular Morphine Injection in Simultaneous Bilateral Total Knee Arthroplasty

Kentaro Iwakiri, MD, Ikoma, Japan
Akio Kobayashi, MD, Nara, Japan

In a prospective randomized controlled trial in patients undergoing simultaneous bilateral TKAs, adding morphine to the peri-articular injection on one side was not locally effective for pain relief.

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Tuesday, March 1

11:06 AM  Paper 066
Area of Skin Numbness Following TKA: Does MIS Approach Make Any Difference from Standard Approach?
Aree Tanavalee, MD, Bangkok, Thailand
Pathompong Veevasethsiri, Ratchaburi, Thailand
Arak Limtrakul, MD, Bangkok, Thailand
Chavarin Amarase, Bangkok, Thailand
Srihatach G. Narmukos, MD, Bangkok, Thailand

Skin numbness following MIS-TKA and STD-TKA was similar. Cadaveric study confirmed no branch of IPBSN supplied above superior patellar pole.

Discussion – 6 minutes

11:18 AM  Paper 067
Comparison of Stability and Clinical Outcomes in TKA between Cruciate Retaining and Ultra-Congruent Insert
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Jeollanam-Do, Republic of Korea
Younggun Seol, Hwasun-Gun, Republic of Korea
Seunghun Lee, Hwasun, Republic of Korea
Hona-An Lim, MD, Gwangju, Republic of Korea
Young-Joo Shin, MD, Gwangju, Republic of Korea

The posterior cruciate ligament resection using ultra-congruent insert in TKA showed better in vivo anteroposterior stability with similar clinical outcomes compared with cruciate retaining design.

11:24 AM  Paper 068
Prospective Comparative Study of TKA by Navigation and Conventional System after Nine-Year Follow Up
Eun K. Song, MD, Hwasun-Gun, Jeollanam-Do, Republic of Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Younggun Seol, Hwasun-Gun, Republic of Korea
Seunghun Lee, Hwasun, Republic of Korea

There was no concrete evidence whether small improvements of alignment by navigated TKA improve long term clinical outcomes or survival not.

11:30 AM  Paper 069
No Improvement in Functional Outcomes with Kinematic Alignment in TKA - A Randomized Controlled Trial
Simon Young, MD, FRACS, Auckland, New Zealand
Matthew L. Walker, MD, Auckland, New Zealand
Ali Bayan, FRACS, Auckland, New Zealand
Paul Pavlou, FRCS (Ortho), Bournemouth, United Kingdom
Toby Briant-Evans, FRCS, Winchester, United Kingdom
Bill Farrington, FRACS, FRCS (Ortho), MBBS, Albany, New Zealand

In this prospective, randomized controlled trial we were unable to demonstrate a functional advantage to kinematic versus mechanical alignment in TKA.

Discussion – 6 minutes

11:42 AM  Paper 070
Patient Specific Instruments in Total Knee Arthroplasty: A Randomized Controlled Trial with Two Years Follow Up
Chunhoi Yan, MB, Dr, Hong Kong, Hong Kong
Peter K. Chiu, MD, Pokfulam, Hong Kong
Fu Yuen Ng, MD, Hong Kong Sar, Hong Kong
Ping Kean Chan, FRCS (Ortho), Hong Kong, Hong Kong
Christian X. Fang, FRCS (Ortho), MBBS, Hong Kong, Hong Kong

In our randomized controlled study, PSI in TKA demonstrated no superiority in radiological or clinical outcomes than conventional method or computer navigation at 2 years.

11:48 AM  Paper 071
Patient-Specific Instrumentation in TKA Does Not Show Better in Clinical Outcomes: Mid-term Results
Dong-Geun Kang, MD, Jinju, Republic of Korea
Kang-Il Kim, MD, Seoul, Republic of Korea

The use of PSI in TKA did not lead to a better clinical outcome than conventional instrumentation, nor did it lead to signif cant improvement in the accuracy of limb alignment and component position.

11:54 AM  Paper 072
Patient-Specific Instrumentation in Total Knee Arthroplasty: A Meta-Analysis of Alignment and Outcomes
Richard Huijbregts, MD, PhD, Houten, Netherlands
Riaz Khan, FRCS, Cottesloe, Australia
Daniel P. Fick, MBBS, FRACS, Nedlands, Australia
Emma Sorensen, MBBS, Geraldton, Australia
Samantha Haebich, Scarborough, Australia

A meta-analysis of randomized controlled trials comparing radiographic alignment, surgical eff ciency and clinical outcomes after usage of patient-specific instrumentation in total knee arthroplasty.

Discussion – 6 minutes

12:06 PM  Paper 073
Patellar Component Failure Rates in Total Knee Arthroplasty: Inset vs. Onlay Techniques
Rami El-Shaar, MD, Rochester, NY
Colin D. Canham, MD, Rochester, NY
Benjamin Strong, MD, Rochester, NY
Sandep Soin, MD, Rochester, NY
Allen D. Boyd Jr, MD, Cottonwood, AZ
Christopher J. Drinkwater, MD, Rochester, NY

Structural failure of patellar components following TKA only occurred in three-peg onlay designs compared to inset designs. Elevated BMI and active lifestyles may be risk factors for failure.
Tuesday, March 1

12:12 PM  Paper 074
Thick or Thin? Patellar Thickness: The Influence on Motion and Complications after Total Knee Arthroplasty
William G. Hamilton, MD, Arlington, VA
Debbie Ammeen, BS, Alexandria, VA
Nitin Goyal, MD, Arlington, VA
Kevin B. Fricka, MD, Alexandria, VA
C Anderson Engh Jr, MD, Alexandria, VA
Nancy L. Parks, Alexandria, VA
Gerard A. Engh, MD, Arlington, VA

Patellar composite thickness or the relative change in thickness after total knee arthroplasty could not be associated with motion achieved, revision or extensor complications.

12:18 PM  Paper 075
Frequency, and Radiographic and Clinical Features of Patella Instability in Kinematically Aligned TKA
Alexander J. Nedopil, MD, Sacramento, CA
Stephen M. Howell, MD, Sacramento, CA
Maury L. Hull, PhD, Davis, CA

Patella instability following KA TKA is infrequent. Avoiding flexion of the femoral component and designing the femoral component to accommodate KA might reduce patella instability.

Discussion – 6 minutes

PAPER PRESENTATION

10:30 AM – 12:30 PM
Valencia Room D
Shoulder & Elbow I: Treatment of Painful Shoulders Conditions (The Biceps Tendon and Frozen Shoulder)
Moderator(s): Robin R. Richards, MD, Toronto, ON, Canada, Julie Y. Bishop, MD, Columbus, OH

10:30 AM  Paper 076
Psychological Distress Influences Perceived Disability and Pain in Patients Presenting to Shoulder Clinic
Mariano Menendez, MD, Boston, MA
Dustin K. Baker, BS, Birmingham, AL
Lasun O. Oladeji, MS, Chicago, IL
Charles T. Fryberger III, BS, Birmingham, AL
Gerald McGwin Jr, PhD, Birmingham, AL
Brent A. Ponce, MD, Birmingham, AL

Psychological factors, including catastrophic thinking and pain self-effacy, influence perception of pain and disability in shoulder conditions to a greater extent than physical diagnosis alone.

10:36 AM  Paper 077
Agreement between Patient Self-Assessment and Physician Assessment of Shoulder Range of Motion
Bastian Uribe-Echevarria, Iowa City, IA
Youssef El Bitar, MD, Iowa City, IA
Matthew J. Bollier, MD, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA
Carolyn Hettich, MD, MPH, Iowa City, IA

Shoulder ROM has moderate to high level of agreement between patient-reported and physician performed measurements. This is time and cost-saving and can increase follow up.

10:42 AM  Paper 078
Advanced Glycation End-Products (AGEs) in Idiopathic Frozen Shoulder
Kyu Rim Hwang, Hornsby, Australia
Neal L. Millar, MD, Glasgow, United Kingdom
Fiona Bonar, MBChb MRCP1, Macquarie Park, Australia
Patrick H. Lam, PhD, Sydney, Australia
Judie Walton, PhD, Sydney, Australia
George A. Murrell, MD, Kogarah, NSW, Australia

The role of Advanced Glycation End-products in the pathogenesis of frozen shoulder.

Discussion – 6 minutes

10:54 AM  Paper 079
Proper Site of Steroid Injection for the Treatment of Idiopathic Frozen Shoulder: A Randomized Controlled Trial
Chul-Hyun Cho, MD, PhD, Joongu, Republic of Korea
Byung-Woo Min, MD, Daegu, Republic of Korea
Ki-Cheor Baeg, MD, Daegu, Republic of Korea
Kyung-Jae Lee, MD, Daegu, Republic of Korea
Sungyun Lee, Daegu-Gu, Republic of Korea
Donghu Kim, MD, Daegu, Republic of Korea

The effcacy of SA steroid injection in idiopathic FS was inferior to IA injection up to 12 weeks; however, combination injections had an additive effect on increasing internal rotation angle.

11:00 AM  Paper 080
Surgical Treatment of Adhesive Capsulitis
Daniel Huttman, MD, Washington, Dist. of Columbia
Usman Ali M. Syed, BS, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
Joseph A. Abboud, MD, Bryn Mawr, PA

This study set out to determine the relative success of different adhesive capsulitis treatment options and compare the clinical outcomes.
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11:06 AM  Paper 081
Arthroscopic Capsular Release versus Manipulation under Anesthesia in the Management of Adhesive Capsulitis
Walid S. Osman, MD, Cairo, Egypt
John Elfar, MD, Rochester, NY
Ahmed M. Saeed SR, DMed, Cairo, Egypt
Follow up results for arthroscopic release and manipulation in adhesive capsulitis nonresponsive to conservative treatment showed similar and substantial improvements in function and pain relief.

11:18 AM  Paper 082
Dynamometer Strength Testing Following Subpectoral Proximal Biceps Tenodesis with Cortical Button Fixation
Adam Lipman, MD, Huntington, NY
Steven Shamah, Brooklyn, NY
Alan W. McGee, MD, New York, NY
Maxwell Weinberg, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Orrin H. Sherman, MD, New York, NY
Andrew J. Feldman, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY
Subpectoral biceps tenodesis with cortical button fixation is an effective surgical treatment option to relieve pain and restore function and strength with proximal biceps pathology.

11:24 AM  Paper 083
Subpectoral Biceps Tenodesis with Interference Screw: A Biomechanical Analysis of Humeral Fracture Risk
Christen R. Mellano, MD, Torrance, CA
Jason Shin, MD, Saskatoon, SK, Canada
Akhshay Jain, Oak Brook, IL
Elizabeth Sheyman, MS, Chicago, IL
Vincent Wang, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Brian Forsythe, MD, Chicago, IL
The trends of load reduction exhibited in comparison to the intact group show that the combination of a PEEK tenodesis screw and a LHB tendon partially restores the load and energy to fracture.

11:30 AM  Paper 084
Which Method is Better for Biceps Tenodesis? Prospective Randomized Comparative Study
Jisoon Park, MD, Seoul, Republic of Korea
Hojin Jung, Seoul, Republic of Korea
Tae-Yon Rhie, MD, PhD, Seoul, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic, Korea
Joo Han Oh, Seoul, Republic of Korea
Joo Han Oh, Seoul, Republic of Korea
Interference screw fixation seemed to have higher risk in terms of the anatomic failure of biceps tenodesis than suture anchor fixation even though functional outcome was not different.

11:42 AM  Paper 085
Prospective Randomized Study of Arthroscopic Proximal vs. Open Subpectoral Biceps Tenodesis: Is One Better?
Reuben Gobezie, MD, Cleveland, OH
Yousef Shishani, MD, Cleveland, OH
Janice Flocken, MS, Solon, OH
Ryan M. Carr, MD, Chicago, IL
Directly comparing arthroscopic proximal vs. open subpectoral biceps tenodesis using a prospective study, found no significant difference in functional outcomes or pain relief.

11:48 AM  Paper 086
Long Head of Biceps Management: Prospective Cohort Study of High Versus Subpectoral Tenodesis
Francesco Franceschi, MD, Rome, Italy
Edoardo Franceschetti, MD, Roma, Italy
Alessio Palumbo, MD, Roma, Italy
Biagio Zampogna, MD, Rome, Italy
Michele Paciotti, MD, Avezzano, Italy
Guglielmo Torre, MS, Roma, Italy
Nicola Maffulli, MD, FRCS(Orth), London, United Kingdom
Rocco Papalia, MD, PhD, Rome, Italy
Vincenzo Denaro, MD Prof, Rome, Italy
The open subpectoral tenodesis is an easy and reproducible technique, leading to better clinical and cosmetic results when compared to the high arthroscopic tenodesis.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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11:54 AM  Paper 087
Does the Release of Transverse Ligament Improve the Results of High Arthroscopic Tenodesis?
Francesco Franceschi, MD, Rome, Italy
Edoardo Franceschetti, MD, Roma, Italy
Alessio Palumbo, MD, Roma, Italy
Biagio Zamponiga, MD, Rome, Italy
Michele Paciotti, MD, Avezzano, Italy
Guglielmo Torre, MS, Roma, Italy
Nicola Maffulli, MD, FRCS(Orth), London, United Kingdom
Rocco Papalia, MD, PhD, Rome, Italy
Vincenzo Denaro, MD Prof, Rome, Italy

The high arthroscopic tenodesis with release of transverse ligament lead to better clinical results when compared to the AHT.

Discussion – 6 minutes

12:06 PM  Paper 088
Liposomal Bupivacaine Versus Interscalene Nerve Block in Managing Pain After Shoulder Arthroplasty
Kelechi Okoroha, MD, Northville, MI
Robert A. Keller, MD, Detroit, MI
Jonathan Lynch, MD, Royal Oak, MI
John Korona, BS, Farmington Hills, MI
Brian K. Rill, MD, Sterling Heights, MI
Patricia A. Kolowich, MD, Detroit, MI
Stephanie J. Mub, MD, Birmingham, MI

Following a randomized clinical trial we found Liposomal Bupivacaine provides similar pain relief as Interscalene nerve block and is an effective alternative to manage pain post shoulder arthroplasty.

Discussion – 6 minutes

12:12 PM  Paper 089
Randomized Controlled Trial of Interscalene Block vs. Injectable Liposomal Bupivacaine in Shoulder Arthroplasty
Surena Namdari, MD, MSc, Philadelphia, PA
Thema A. Nicholson, MS, Philadelphia, PA
Joseph A. Abboud, MD, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
Dean Steinberg, Philadelphia, PA
Gerald R. Williams Jr, MD, Philadelphia, PA

Patients treated with extended release liposome bupivacaine required less postoperative narcotics and greater intraoperative narcotics compared to interscalene nerve block.

12:18 PM  Paper 090
Liposomal Bupivacaine: Equal Pain Relief and Less Complication versus Interscalene Block in Shoulder Arthroplasty
William J. Weller, MD, Memphis, TN
Michael G. Azzam, MD, Memphis, TN
Frederick M. Azar, MD, Germantown, TN
Richard A. Smith, PhD, Memphis, TN
Thomas W. Throckmorton, MD, Memphis, TN

Liposomal bupivacaine has equivalent pain relief and significa ntly fewer complications at less cost compared to indwelling interscalene catheter in shoulder arthroplasty

Discussion – 6 minutes

10:30 AM  Paper 091
Pediatrics I: Spine
Moderator(s): Lawrence L. Haber, MD, Jackson, MS,
Laurel C. Blakemore, MD, Gainesville, FL

10:30 AM  Paper 092
Reciprocal Changes in Sagittal Alignment with Operative Treatment of Adolescent Scheuermann's Kyphosis
Baron Lonner, MD, New York, NY
Suken A. Shah, MD, Wilmington, DE
Amer Samdani, MD, Philadelphia, PA
Patrick J. Cahill, MD, Philadelphia, PA
Joshua M. Pahys, MD, Wynnewood, PA
Yuan Ren, PhD, MS, New York, NY
Stefan Parent, MD, Montreal, QC, Canada
Harry L. Shuff ebarger, MD, Miami, FL
Peter O. Newton, MD, San Diego, CA

PJK incidence was 24.2%. Both thoracic and lumbar apices migrated closer to the gravity line after surgery. Pre-operative apices caudal to T8 moved up to the normal region in >2/3 of patients.
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10:42 AM  Paper 093
Preventing DJK by Applying the Stable Sagittal Vertebra Concept to Selective Thoracic Fusion in AIS
Alexander M. Broom, South Pasadena, CA
Lindsay M. Andras, MD, Los Angeles, CA
Kody K. Barrett, BA, Los Angeles, CA
Andrew G. Georgiadis, MD, Philadelphia, PA
John M. Flynn, MD, Philadelphia, PA
David L. Skaggs, MD, Los Angeles, CA

The rate of DJK was 17% when the LIV was superior to the SSV.

10:54 AM  Paper 094
Improving Quality and Safety in Pediatric Spine Surgery: The Team Approach
Firoz Miyanji, MD, Vancouver, BC, Canada
John S. Choi, BS, North Vancouver, BC, Canada
Janice Mok, Vancouver, BC, Canada
Michael Nitkman, Richmond, BC, Canada
Sameer Desai, BS, Surrey, BC, Canada

Implementation of a homogeneous and consistent pediatric spine surgical team significantly improved infection rates, OR time, hospital stay, blood transfusion rates and unplanned staged procedures.

11:00 AM  Paper 095
More Than Just Early Discharge: Improving the Value and Quality of Care Post Spinal Fusion for Idiopathic Scoliosis
Alex L. Gorontzky, BS, Toms River, NJ
John M. Flynn, MD, Philadelphia, PA
Wallis T. Mudhy, MD, Philadelphia, PA
Wudbhav N. Sankar, MD, Wynnewood, PA

Implementation of a standardized multimodal analgesic and rehabilitation protocol results in reduced pain, earlier discharge and fewer opioid-related side effects for patients undergoing PSF for AIS.

11:06 AM  Paper 096
Accelerated Discharge following Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis
Austin Sanders, BA, Los Angeles, CA
Lindsay M. Andras, MD, Los Angeles, CA
Ted Sousa, MD, Huson, MT
David L. Skaggs, MD, Los Angeles, CA

Reducing length of stay to 3 days following posterior spinal fusion for adolescent idiopathic scoliosis reduces post-operative charges by 22% without increasing post-operative complications.

11:18 AM  Paper 097
An Increasing Risk of Late Onset Infection in the Years After Adolescent Idiopathic Scoliosis Surgery
Jahangir Asghar, MD, Coral Gables, FL
Christopher Emerson, BS, MS, South Miami, FL
Stephen G. George, MD, Miami, FL
Harry L. Shub ebarger, MD, Miami, FL

In a large, prospectively collected multi-center study, the incidence of late infection was 2.25%, however the predicted probability of late infection increased with time to 4.8% at 10 years.

11:24 AM  Paper 098
Delayed Quadraparesis After Posterior Spinal Fusion for Scoliosis: A Case Series
Milad Alam, MD, Miami, FL
Harry L. Shub ebarger, MD, Miami, FL
Lucas Suder, BA, Miami, FL
William F. Lavelle, MD, East Syracuse, NY
Paul D. Sponseller, MD, Indianapolis, IN
Jahangir Asghar, MD, Coral Gables, FL

A multi-institutional case series of 9 patients with delayed quadraparesis after thoracolumbar deformity surgery.

11:30 AM  Paper 099
History and Physical Versus Radiographs as Determinants for Early Revision After Pediatric Posterior Spinal Fusion
Nicholas Peters, MD, Toledo, OH
Ryan D. Muchow, MD, Lexington, KY
Vishwas R. Talwalkar, MD, Lexington, KY
Henry J. Iwinski, MD, Lexington, KY
David Hamilton, MD, Lexington, KY
Alexander Caughran, MD, Huntington, WV
Joshua D. Schwind, MD, Toledo, OH

Radiographs very rarely lead to revision in the absence of correlative findings on H&P following pediatric posterior spinal fusion.

11:42 AM  Paper 100
Classification of Early Onset Scoliosis Predicts Complications after Initiation of Growth Friendly Spine Surgery
Christen M. Russo, MD, Brooklyn, NY
Hiroko Matsumoto, MA, New York, NY
Nicholas A. Feinberg, BA, New York, NY
John T. Smith, MD, Salt Lake City, UT
Amer Sambani, MD, Philadelphia, PA
Sumeet Garg, MD, Aurora, CO
John M. Flynn, MD, Wallingford, PA
Michael G. Vitale, MD, MPH, Irvington, NY

The Classification of Early Onset Scoliosis (C-EOS) has predictive validity for complications at 5-years in patients with growing spinal instrumentation. More severe CEOS, higher complication rates.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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11:48 AM  Paper 101
**Surgical Treatment of Progressive Idiopathic Early-Onset Scoliosis: A Comparison of Growing Rods Versus VEPTR**
Paul D. Sponseller, MD, Indianapolis, IN
Anna McClung, RN, Dallas, TX
Jeff Pavelek, La Jolla, CA
Ron El-Hawary, MD, Bedford, NS, Canada
George H. Thompson, MD, Cleveland, OH
John T. Smith, MD, Salt Lake City, UT
Michael G. Vitale, MD, MPH, New York, NY
Children's Spine Study Group, Valley Forge, PA
Growing Spine Study Group, Milwaukee, WI

A comparison of idiopathic EOS patients treated with GR or VEPTR; at 5-year follow up GR patients had greater curve correction, gains in thoracic height, and less kyphosis.

11:54 AM  Paper 102
**Does the Law of Diminishing Returns Apply to Guided Growth Shilla Constructs?**
Lindsay M. Andras, MD, Los Angeles, CA
Haleh Badkoobehi, MD, Los Angeles, CA
Alexander M. Broom, South Pasadena, CA
Frances L. McCullough, NP, Little Rock, AR
Richard E. McCarthy, MD, Little Rock, AR
David L. Skaggs, MD, Los Angeles, CA
Growing Spine Study Group, Milwaukee, WI

The law of diminishing returns observed in growing rods does not appear to affect guided growth Shilla constructs in the same manner.

12:06 PM  Paper 103
**Is There any Role for Standard Growing Rod Instrumentation for the Treatment of Scoliosis in Spinal Muscle Atrophy?**
Joshua Holt, MD, Iowa City, IA
Lori Dolan, PhD, Iowa City, IA
Stuart L. Weinstein, MD, Iowa City, IA

Outcomes of Definitive Posterolateral Spinal Fusion for Treatment of Scoliosis in Spinal Muscle Atrophy: Questioning the Use of Standard Growing Rod Instrumentation After 30 Years of Experience

12:12 PM  Paper 104
**Does Implant Density Affect Outcomes in Scoliosis Related to Cerebral Palsy?**
Anuj Singla, MD, Charlottesville, VA
Joshua M. Palys, MD, Philadelphia, PA
Jahangir Asghar, MD, Coral Gables, FL
Kimberly Hayes, Philadelphia, PA
Craig D. Steiner, MD, Bala Cynwyd, PA
Amer Samdani, MD, Philadelphia, PA
Paul D. Sponseller, MD, Indianapolis, IN
Patrick J. Cabill, MD, Philadelphia, PA

Pedicle screws are widely utilized for neuromuscular scoliosis correction. We evaluated the impact of screw density on curve correction. More screws did not translate into better deformity correction.

12:18 PM  Paper 105
**Impact of a Comparative Study on the Surgical Management of Scoliosis in Duchenne Muscular Dystrophy**
Addisu Mese, MD, Rochester, NY
Caroline Thirukumaran, Rochester, NY
Brandon L. Raudenbush, DO, Rochester, NY
James O. Sanders, MD, Rochester, NY
Paul T. Rubery Jr, MD, Rochester, NY

Duchenne muscular dystrophy (DMD) can result in scoliosis. Our objective was to identify the impact of a comparative study on the surgical treatment of scoliosis in DMD.

**PAPER PRESENTATION**

10:30 AM – 12:30 PM
Room W315
Hand & Wrist I
**10:30 AM**  Paper 106
**Effects of Pain-Coping Strategies on Joint Stiffness and Functional Outcomes in Patients with Hand Fractures**
Young Hak Roh, Incheon, Republic of Korea
Jong Ryoon Baek, Incheon, Republic of Korea
Jung Ho Nob, MD, PhD, Chuncheon-Si, Republic of Korea
Do Hyun Moon, Incheon, Republic of Korea
Beom Koo Lee, Incheon, Republic of Korea

The patients’ pain-coping strategies are associated with delayed recovery in patients with hand fractures, as evidenced by the scores for both the objective and subjective measures of function.
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10:36 AM  Paper 107  Distal Radius Fractures: AAOS Appropriate Use Criteria versus Actual Management at a Level One Trauma Center
   James Kyriakedes, MD, Cleveland, OH
   Eugene Tsai, MD, Boston, MA
   Charles C. Yu, MD, Detroit, MI
   Harry A. Hoyen, MD, Cleveland, OH
   Kevin J. Malone, MD, Cleveland, OH
   B T. Bafus, MD, Cleveland, OH

   The AAOS Appropriate Use Criteria (AUC) for distal radius fractures recommends a higher frequency of operative management than is actually performed at a high-volume, level one urban trauma center.

   Bilal Mahmood, MD, Rochester, NY
   Lucas Nikkel, MD, Rochester, NY
   Michael A. Maceroli, MD, Rochester, NY
   John Elfar, MD, Rochester, NY

   Our data show routine Carpal Tunnel Release after Open Reduction Internal Fixation of Distal Radius Fractures being uncommon. However, when necessary, 34.9% of patients are receiving the surgery late.

10:54 AM  Paper 109  Do Repeated Closed Reduction Attempts of Distal Radius Fractures Help Avoid Surgery?
   Haggai Sherman, MD, Tel Aviv, Israel
   Assaf Kadar, MD, Givaatayim, Israel
   Tamir Pritsch, MD, Herzelia, Israel

   Our radiographic study shows that repeated closed reduction attempts of distal radius fractures improve fracture alignment, but compromise their stability and do not reduce the need for surgery.

11:00 AM  Paper 110  Early Unprotected Return to Play after Metacarpal Fixation in Professional Athletes
   Matthew Yalizis, MBBS, FRACS, Sans Souci, Australia
   Gregory Hoy, MD, Windsor, Australia
   Eugene Ek, MD, PhD, Melbourne, Australia

   Operative fixation of metacarpal fractures in professional athletes allows unprotected return to professional play at mean of 2 weeks.

11:06 AM  Paper 111  Diagnosis of Occult Scaphoid Fractures: A Cost Effectiveness Analysis
   John Karl, MD, Brooklyn, NY
   Eric F. Swart, MD, New York, NY
   Robert J. Strauch, MD, New Rochelle, NY

   Using cost analysis modeling, we determined that advanced imaging for suspected scaphoid fractures in the setting of negative x-rays is a cost-effective strategy for reducing both costs and morbidity.

11:18 AM  Paper 112  Factors Associated with Subluxation in Mallet Fracture
   Ali Moradi, MD, Boston, MA
   David C. Ring, MD, Boston, MA
   Neal C. Chen, MD, Boston, MA

   Articular surface involvement, fragment displacement and interval between injury and treatment are strongly related to mallet fracture subluxation.

11:24 AM  Paper 113  Nonoperative Treatment for Displaced Intraarticular Distal Radius Fractures in ‘Low Demand’ Elderly Patients
   Raymond E. Anakwe, FRCS (Ortho), MBCHB, London, United Kingdom
   Emma Burke, MBCHB, London, United Kingdom
   Scott Middleton, MD, Edinburgh, United Kingdom

   Non operative treatment for ‘low demand’ elderly patients with distal radius fractures may not be as benign as previously considered.

11:30 AM  Paper 114  Distal Scaphoid Resection Arthroplasty versus Four Corner Fusion for Scaphoid Nonunions
   Kevin Krul, MD, Honolulu, HI
   Jason M. Cage, DO, Mechanicsville, VA
   Jeffrey B. Knox, MD, Honolulu, HI
   Matthew L. Drake, MD, Bethesda, MD
   Rey Dominique L. Gumboc, MD, Kailua, HI

   In carefully selected patients, Distal Scaphoid Resection Arthroplasty may lead to higher functional levels compared with four corner fusion.

Discussion – 6 minutes
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11:42 AM  Paper 115
Complex Intra-Articular Distal Radius Fractures Treated with Cross-Pin Fixation & A Non-Bridging External Fixator
Justin Mirza, DO, Nissequogue, NY
Ather Mirza, MD, Smithtown, NY
Brian Lee, MD, Philadelphia, PA
Shawn Adhya, BS, Smithtown, NY
Joshua Litwa, BS, Smithtown, NY
Daniel J. Lorenzana, BA, Los Angeles, CA

This study aims to assess the outcomes of complex, intra-articular distal radius fractures treated with closed reduction, cross pin multiplanar fixation, and a non-spanning external fixator.

11:48 AM  Paper 116
New Classification of Distal Ulna Fractures and their Impact on Distal Radius Fracture Outcomes
Laura Sims, MD, Saskatoon, SK, Canada
Geoffrey H. Johnston, MD, Saskatoon, SK, Canada
Samuel Stewart, PhD, Saskatoon, SK, Canada

A new, location-specific and outcome-based classification of distal ulna fractures associated with 781 distal radius fractures in women 50 years and older was devised and analyzed.

11:54 AM  Paper 117
Is Distal Radius Malunion Truly Asymptomatic in the Older Patient?
Wei Kang Wu, BA, Cambridge, MA
Katherine Gray, MD, San Jose, CA
Charles S. Day, MD, MBA, Boston, MA

Despite evidence demonstrating that radiographic outcome does not correlate with functional outcome in the elderly, the osteotomy rate for distal radius malunions in the older population remain high.

12:06 PM  Paper 118
Ulnar Shortening vs. Distal Radius Osteotomy for Ulnar Impaction after Distal Radius Malunion
Ali Izadpanah, FRSCS, MD, Westmount, QC, Canada
William R. Abhinder, MD, Rochester, MN
Bassem T. Elbassan, MD, Rochester, MN
Bassem T. Elbassan, MD, Rochester, MN

Ulnar shortening osteotomy and distal radius corrective osteotomy are both reasonable procedures for ulnar impaction after distal radius malunion.

25-Hydroxy-Vitamin D and Bone Turnover Marker Levels in Patients with Distal Radius Fractures
Tamara D. Rozental, MD, Boston, MA
Kempland C. Walley, BSc, Boston, MA
Lindsay Herder, BA, Boston, MA
Kathleen Coyle, Farmington, CT
Mary L. Bouxsein, PhD, Boston, MA
Jennifer M. Wolf, MD, Farmington, CT

The purpose of the study is to determine any relationship between Vitamin D levels and bone turnover markers in patients presenting with distal radius fractures, when compared to age-matched controls.

12:18 PM  Paper 120
Primary Wrist Hemiarthroplasty for Irreparable Distal Radius Fractures in the Autonomous Elderly
Guillaume Herzberg, MD, Lyon Cedex 03, France

Our current results suggest that wrist hemiarthroplasty is viable to treat complex wrist fractures in elderly autonomous patients.

Discussion – 6 minutes

INSTRUCTIONAL COURSE LECTURE

11:00 AM — 12:00 PM
CD3  Leadership 2.0: How to be a More Effective Leader
Moderator: Thomas K. Fehring, MD, Charlotte, NC
Daniel J. Berry, MD, Rochester, MN
John J. Callaghan, MD, Iowa City, IA
Daniel J. Berry, MD, Rochester, MN

Room W209B

Understanding that leaders are developed not born, this course helps leaders of all levels cast a bold vision and equip their teams to achieve stated goals. Team building, mentoring, and inertia avoidance are discussed along with time management and strategies to maintain balance.

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**Symposium**
1:30 PM — 3:30 PM
Chapin Theater

**What Keeps Me Awake at Night: Cervical Spine Surgery (D)**
*Moderator: Alan S. Hilibrand, MD, Philadelphia, PA*

Discusses/debates three challenges of cervical spine surgery: management and avoidance of intraoperative neurological deficits, timing and intervention for acute spinal injury, and safe/effective treatment of myelopathy due to ossification of posterior longitudinal ligament.

I. Management and Avoidance of Neurological Injury  
   *Darrel S. Brodke, MD, Salt Lake City, UT*

II. If Surgery is Needed, Delayed Surgery is Safer  
   *Louis G. Jenis, MD, Boston, MA*

III. How to Respond to Intraoperative Neurological Injury  
   *Joon Y. Lee, MD, Pittsburgh, PA*

IV. Early Surgery for SCI Leads to Better Outcomes  
   *Kristen E. Radcliff, MD, Egg Harbor Township, NJ*

V. OPLL: Best Approach is Laminoplasty  
   *John J. Rhee, MD, Atlanta, GA*

VI. OPLL: The Case for ACDF, AP, or Laminecomy / Fusion  
   *Rick C. Sasso, MD, Carmel, IN*

III. Non-modular Tapered Fluted Stems are Easier and Just as Effective for Femoral Revisions  
   *Clive P. Duncan, MD, MSc, Vancouver, BC, Canada*

IV. Custom Triage is Best for Revisions with Massive Bone Loss  
   *Thomas K. Fehring, MD, Charlotte, NC*

V. Posterior Approach for Revisions  
   *Kevin L. Garvin, MD, Omaha, NE*

VI. Direct Anterior Approach for Revisions is Great  
   *William G. Hamilton, MD, Alexandria, VA*

VII. Take All Components Out in an Infected Hip  
   *Arlen D. Hanssen, MD, Rochester, MN*

VIII. ETO is Best for Most Revisions  
   *Wayne G. Paprosky, MD, Winfield, IL*

IX. Cup-cage Construct for Most Revisions with Massive Bone Loss  
   *Oleg Safar, MD, Toronto, ON, Canada*

X. Jumbo Cups, With or Without Augments, for Massive Defects  
   *Rafael J. Sierra, MD, Rochester, MN*

XI. Modular Tapered Fluted Stems for all Femoral Revisions  
   *Scott M. Sporer, MD, Wheaton, IL*

**Symposium**
1:30 PM — 3:30 PM
Valencia Room A

**Hot Topics and Controversies in Revision Total Hip Arthroplasty (E)**
*Moderator: Paul F. Lachiewicz, MD, Chapel Hill, NC*

Covers, in didactic, case-based, and using video clips, the current controversies in revision total hip arthroplasty. The topics included are exposure options - why and when; acetabular revision choices when there is bone loss; dislocation options; hemi-explantation for infected hip; and the controversy of modular vs. non-modular ﬂuted femoral components. Traducción simultánea en español. Tradução simultânea em português.

I. Hemi-explantation is a Reasonable Choice for Infected Hips with Well-ﬁxed Femoral Components  
   *Keith R. Berend, MD, New Albany, OH*

II. Constrained Components are My Choice for the Recurrent Dislocator  
   *John J. Callaghan, MD, Iowa City, IA*

III. Performance Measures – Science, Myth, Stakeholders and Politics  
    *William T. Brox, MD, Fresno, CA*

IV. Private Practice Perspective  
    *Douglas K. Dew, MD, MBA, St. Augustine, FL*

V. The Quality and Value Imperative – Concepts, Principles and Practicality  
    *Warren Dunn, MD, MPH, Madison, WI*
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IV. Payment Implications – Running the Gauntlet of Carrots and Sticks
Alexandra E. Page, MD, La Jolla, CA

V. Compliance Options – Specialty-Specific Options – Paths through the Swamp
William Shaffer, Washington, Dist. of Columbia

INSTRUCTIONAL COURSE LECTURE
1:30 PM — 2:30 PM
CD4 Getting Your Ideas Supported: Effective Techniques
Moderator: Mary I. O’Connor, MD, New Haven, CT
Michael L. Parks, MD, New York, NY

Understand the types of information people want to make decisions and learn how to use this knowledge to gain support for your proposals. Highlight techniques to achieve consensus, avoid unproductive conflicts, and enhance your leadership skills.

FLASH FIVE
1:30 PM — 2:30 PM
Room W311A

FF1 Flash Five: What’s Coming Down the Pike
Moderator: James R. Ficke, MD, Baltimore, MD
Thomas A. Einhorn, MD, Philadelphia, PA
Vincent J. Sammarco, MD, Cincinnati, OH

A burst of knowledge given in five minutes on topics benefitting orthopaedists. Hear from leading experts providing insight on critical points and what lies ahead.

INSTRUCTIONAL COURSE LECTURE
1:30 PM — 3:30 PM
141 Hip Preservation Surgery: How to Avoid and Treat Complications and Failures
Moderator: John C. Clohisy, MD, Saint Louis, MO
Paul E. Beaulé, MD, Ottawa, ON, Canada
Asheesh Bedi, MD, Ann Arbor, MI
Klaus Siebenrock, MD, Bern, Switzerland

Complications and early treatment failures are seen after arthroscopic and open joint preservation procedures. Contemporary strategies to avoid and manage suboptimal outcomes are discussed.

142 Indications and Techniques for Bi- and Unicompartmental Knee Arthroplasty
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Fred D. Cashner, MD, New York, NY
Jess H. Lonner, MD, Philadelphia, PA
Michael J. Morris, MD, New Albany, OH

Interest in partial knee arthroplasty has resurfaced because of its less invasive nature, lower complication rate, and more normal kinematics provided. A better understanding of indications and enhanced prosthetic designs have led to improved results.

143 Surgical Treatment of Ankle Instability: No More Big Incisions
Moderator: Mark Glazebrook, MD, Halifax, NS, Canada
Stephanie Guillot, MD, Bordeaux, France
James W. Stone, MD, Franklin, WI
Masato Takao, MD, Itabashi, Japan

Recently, there have been advances in the field of ankle stabilization that utilize arthroscopic or percutaneous procedures that are both minimally invasive and allow complete anatomic reconstruction or repair of the ATFL and CFL. In this course, new arthroscopic and percutaneous techniques are described for surgical stabilization of the ankle that avoid large open incisions.

144 Is Medical Clearance Enough? Understanding Medical Issues that Can Affect Your Patients’ Outcomes
Moderator: William M. Mihalko, MD, PhD, Germantown, TN
Joseph M. Lane, MD, New York, NY
Javad Parvizi, MD, FRCS, Philadelphia, PA
Khaled J. Saleh, MD, MSc, Springf eld, IL

Discusses the many systemic, endocrine, and nutritional issues that can affect your patient’s outcome that are not addressed by medical clearance.

145 Skeletal Dysplasia – Evaluation and Management
Moderator: William G. Mackenzie, MD, Wilmington, DE
Benjamin Alman, MD, Durham, NC
John E. Herzenberg, MD, Indianapolis, IN
Klane K. White, MD, Seattle, WA

Reviews the clinical and genetic diagnosis and management of common spine and extremity problems in children with skeletal dysplasia using a didactic, case presentation, and discussion format.

An alphabetical faculty financial disclosure list can be found starting on page 334.

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### Educational Programs

#### Tuesday, March 1

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<th>Session</th>
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<td>146</td>
<td>MIPS, Alternate Payment Models, and Bundled Payments – What You Need to Know</td>
<td>Jack M. Bert, MD, Woodbury, MN; William R. Beach, MD, Richmond, VA; Louis P. McIntyre, MD, White Plains, NY; Ranjan Sachdev, MD, Bethlehem, PA</td>
<td>W308A</td>
<td>Discusses the Medicare Incentive Payment System, describes alternative payment models with specific focus on bundled payments, and discusses the role of outcomes and technology in enabling positive reimbursement adjustments.</td>
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<td>147</td>
<td>Rotator Cuff Controversies</td>
<td>Richard J. Hawkins, MD, Greenville, SC; Neal S. ElAttrache, MD, Los Angeles, CA; John E. Kuhn, MD, Nashville, TN; Theodore F. Schlegel, MD, Greenwood Village, CO</td>
<td>W204</td>
<td>Course faculty discuss the basic science of cuff healing and the issues of repairing or not repairing, single vs. double row, and knotless systems. The future related to tissue engineering, scaffolding, and healing also is covered.</td>
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<td>149</td>
<td>International Perspective in Revision ACL Reconstruction: What Have We Been Missing?</td>
<td>Aaron J. Krych, MD, Rochester, MN; Steven A. Claes, MD, PhD, Herentals, Belgium; Philippe Neyret, MD, Lyon - Cedex, France; Michael J. Stuart, MD, Rochester, MN</td>
<td>W314</td>
<td>Provides international perspective on treatment strategies for revision anterior cruciate ligament (ACL) reconstruction. Surgical indications, anatomy, and techniques are reviewed for anterior and anterolateral ligament reconstruction, osteotomy, concomitant meniscus/cartilage injury, and technical considerations.</td>
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<td>150</td>
<td>Shoulder Instability: An American Perspective</td>
<td>Nikhil N. Verma, MD, Chicago, IL; Robert A. Arciero, MD, Farmington, CT; Matthew T. Provencer, MD, Boston, MA; Scott Trenhaile, MD, Rockford, IL</td>
<td>W304E</td>
<td>Provide a case-based overview discussing surgical management of shoulder instability with an emphasis on North American opinions. Significant controversy exists regarding indications for soft tissue stabilization, particularly among surgeons from the US versus Europe. Although bone loss procedures are increasing in frequency, techniques and indications differ.</td>
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<td>151</td>
<td>The Not-So-Simple Ankle Fracture: Avoiding Problems and Pitfalls to Improve Patient Outcome</td>
<td>Christopher McAndrew, MD, Saint Louis, MO; Julius A. Bishop, MD, Palo Alto, CA; William W. Cross III, MD, Rochester, MN; David Dalstrom, MD, San Diego, CA</td>
<td>W203</td>
<td>Focusing on four themes, challenges to care for the rotational ankle fracture are highlighted and tips for management are provided.</td>
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<td>152</td>
<td>Diagnosis and Management of Tumors of the Hand and Upper Extremity</td>
<td>Peter J. Jebson, MD, Grand Rapids, MI; Edward A. Athanasian, MD, New York, NY; Peter M. Murray, MD, Jacksonville, FL; Matthew R. Steensma, MD, Byron Center, MI</td>
<td>W307A</td>
<td>Course faculty present an overview of the most common benign and malignant tumors in the upper limb; and review the clinical and radiographic features, biopsy principles, and treatment options for each tumor type as well as the anticipated outcomes and recurrence rate following treatment. Indications for neoadjuvant and adjuvant therapy are reviewed.</td>
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<td>159</td>
<td>Fractures of the Proximal Femur: A Case-based Approach</td>
<td>Kenneth A. Egol, MD, New York, NY; Lisa K. Cannada, MD, Saint Louis, MO; Roy Davidovitch, MD, New York, NY; Jonathan M. Gross, MD, Brooklyn, NY; Joseph R. Hsu, MD, Charlotte, NC; Kyle J. Jeray, MD, Greenville, SC; Madhav A. Karunakar, MD, Charlotte, NC; Sanjir R. Konda, MD, Rye, NY; Philipp Leucht, MD, New York City, NY; Saqib Rehman, MD, Moorestown, NJ; Philip R. Wolinsky, MD, Sacramento, CA</td>
<td>W207</td>
<td>Focuses on the management of femoral neck and peritrochanteric fracture. Attention is given to surgical tips and tricks.</td>
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Tuesday, March 1

**How to Avoid Complications in Elbow Trauma:**
A Case-based Interactive Discussion

Moderator: Graham J. King, MD, London, ON, Canada
George S. Athwal, MD, London, ON, Canada
Gregory J. Bain, MD, North Adelaide, Australia
Denise Eygendaal, Teteringen, Netherlands
Jeffrey S. Hughes, MBBS, FRACS, Chatswood, NS, Australia
Mark A. Mighell, MD, Tampa, FL
Lars P. Mueller, PhD, Cologne, Germany
Bradford O. Parsons, MD, New York, NY
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Scott P. Steinmann, MD, Rochester, MN
Thomas (Quin) Throckmorton, MD, Germantown, TN

An international panel of experts and participants are challenged with a series of cases of common elbow injuries and their complications. Groups of participants facilitated by a faculty member discuss and debate critical issues to prevent and treat common complications. Additionally, the moderator probes the faculty on controversial topics.

**INSTRUCTIONAL COURSE LECTURE**

1:30 PM — 4:30 PM

192 Ten Hot ICD-10 and CPT Coding Issues Facing Practicing Orthopaedic Surgeons

Moderator: Margaret Maley, BSN, MS, Chicago, IL

At the conclusion of this course you are able to demonstrate how to use technology to find the correct ICD-10 diagnosis in real time; identify the category of any injury diagnosis in ICD10-CM; appropriately document fracture treatment to support ICD-10 coding; use the modifier 58 for staged procedures correctly; define the common use of the modifier 59 in hip, knee, and shoulder surgery; understand and use Modifier 22 for unusual service with confidence.

**PAPER PRESENTATION**

1:30 PM — 3:30 PM
Room W414

Trauma II: Knee/Tibia

Moderator(s): Eric M. Hammerbag, Boulder, CO, John C. Weinlein, MD, Memphis, TN

1:30 PM Small Fragment Fixation of Bicondylar Tibial Plateau Fractures

Adam Sassoon, MD, Seattle, WA
Jeffrey Petrie, MD, Orlando, FL
Kenneth J. Koval, MD, Orlando, FL
George J. Haidukewych, MD, Orlando, FL
Joshua Langford, MD, Orlando, FL

Small fragment fixation constructs can be used to treat bicondylar tibial plateau fractures. With a low profile design, they are an attractive option when the soft tissue envelope is compromised.

1:36 PM MRI and Tibial Plateau Fractures: Is it Feasible to Predict Soft Tissue Injuries Using X-rays and CT Scans?

Maximiliano Scheu, MD, Santiago, Chile
Daniel Paccot SR, Santiago, Chile
Guillermo Izquierdo, MD, Santiago, Chile
Diego Montenegro SR, MD, Santiago, Chile
Maria J. Tuca, MD, Santiago De Chile, Chile
Gonzalo Espinoza, Santiago, Chile

The aim of this retrospective study (130 patients) was to assess the incidence of soft tissue injury using MRI, correlating those findings with parameters obtained in CT scans and x-rays.

1:42 PM Tibial Plateau Functional Outcome Score Identifies Patients at Risk of Diminished Functional Outcome

Sanjit R. Konda, MD, Rye, NY
Arthur Manoli III, MD, New York, NY
Roy Davidovitch, MD, New York, NY
Kenneth A. Egol, MD, New York, NY

The tibial plateau functional outcome score is a significant predictor of 6 month functional outcome.

1:54 PM A Predictive Model of Tibial Shaft Fracture Nonunion at the Time of Definitive Fixation

Kevin P. O’Halloran, MD, Indianapolis, IN
Max Coale, BA, Indianapolis, IN
Timothy Costales, Indianapolis, IN
Timothy J. Zerhusen JR, BS, Indianapolis, IN
Renan C. Castillo, MD, Indianapolis, IN
Jason W. Nascone, MD, Highland, MD
Robert V. O’Toole, MD, Indianapolis, IN
Renan C. Castillo, MD, Indianapolis, IN

We hypothesized that commonly collected data can predict nonunions and can be formed into a union prediction model to allow clinicians to determine nonunion risk early in the treatment course.

2:00 PM Low Intensity Pulsed Ultrasound in Acute Tibial Shaft Fractures Treated with IM Nails: The Results of the TRUST Trial

Paul Tornetta III, MD, Boston, MA
Jason Busse, Hamilton, ON, Canada
Mohit Bhandari, MD, FRCS, PhD, Hamilton, ON, Canada
Thomas A. Einhorn, MD, New York, NY
Emil H. Schemitsch, MD, Toronto, ON, Canada
James D. Heckman, MD, San Antonio, TX
Kwok S. Leung, MD, Hong Kong, Hong Kong
Diane Heels-Ansdell, MSc, Hamilton, ON, Canada
Sun Makosso-Kallyth, MSc, PhD, Hamilton, ON, Canada

The purpose of the study was to evaluate the use of LIPUS on validated functional outcomes of patients with acute tibial fractures treated with IM nails and to evaluate healing using the RUST method.

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2:06 PM  
**Association between Tibial Malunion Deformity Parameters and Degenerative Hip and Knee Disease**

Douglas S. Weinberg, MD, Cleveland, OH  
Paul Park, BA, Cleveland Heights, OH  
Raymond W. Liu, MD, Cleveland, OH

The results of this study suggest that shortening, coronal and axial plane malalignment are of the greatest consequence following fractures of the tibia.

**Discussion – 6 minutes**

2:18 PM  
**Open Tibia Fractures: Does Timing of Surgery Affect Their Outcomes?**

Oscar A. Duyos-Garcia, MD, San Juan, Puerto Rico  
Christian A. Foy-Parrilla, MD, Guaynabo, Puerto Rico  
Francisco M. Lopez-Gonzalez, MD, San Juan, Puerto Rico

Does a delay from the time of injury to the time of the first surgical intervention influence the rate of acute infection and nonunion in open tibia fractures in both adult and pediatric patients.

2:24 PM  
**Comparison of Routine Microbiology Results at Definitive Closure and Wound Infection in Type III Tibia Fractures**

CAPT (ret) Michael J. Bosse, MD, Charlotte, NC  
METRC Bioburden Investigators, Indianapolis, IN

We found a moderate correlation between wound bioburden at the time of definitive closure and subsequent infection as well as weak correlation of pathogens between these time points.

2:30 PM  
**Does Vancomycin Powder Decrease Surgical Site Infection in High-Risk Operatively Treated Fractures?**

Rabah Qadir, MD, The Woodlands, TX  
Timothy Costales, Indianapolis, IN  
Max Coale, BA, Indianapolis, IN  
Timothy J. Zerhusen JR, BS, Indianapolis, IN  
Manjari Joshi, Indianapolis, IN  
Robert V. O'Toole, MD, Indianapolis, IN

Vancomycin powder may play an important role in lowering the rate of surgical site infection after open reduction internal fixation of tibial pilon, bicondylar plateau, and calcaneus fractures.

**Discussion – 6 minutes**

2:42 PM  
**Anatomical Study of the Medial Knee for Minimally Invasive Plate Osteosynthesis in Medial Femoral Condylar Fracture**

Norachart Sirisreetreerux, MD, Nottingham, MD  
Babar Shafq, MD, Clarksville, MD  
Adam C. Shaner, MD, Indianapolis, IN  
Stephen Belkoff, PhD, Indianapolis, IN  
Erik A. Hasenboehler, MD, Indianapolis, IN

MIPO approach for distal medial femur condyle fractures is safe. Risks are minimal and limited to branches of the descending genicular artery. Plates can be positioned safely up Hunter's canal.

2:48 PM  
**The Effect of Knee Flexion Contracture on Outcomes of Distal Femur Fractures**

Paul Tornetta III, MD, Boston, MA  
Margaret Cooke, MD, Boston, MA  
Kenneth A. E gol, MD, New York, NY  
Clifford B. Jones, MD, FACS, Grand Rapids, MI  
Janos P. Erli, MD, Carmel, IN  
Brian Mullis, MD, Indianapolis, IN  
Edward Perez, MD, Memphis, TN  
Cory A. Collinge, MD, Fort Worth, TX  
Robert F. Ostrum, MD, Chapel Hill, NC

The purpose of this study is to compare the demographics and validated outcomes of patients with and without a flexion contracture after operative treatment for distal femur fractures.

2:54 PM  
**Arthroscopic Lysis of Adhesions Improves Range of Motion after Fixation of Fractures about the Knee**

Daniel J. Gittings, MD, Philadelphia, PA  
Patrick J. Hesketh, BS, Philadelphia, PA  
John D. Kelly IV, MD, Philadelphia, PA  
Samir Mehta, MD, Philadelphia, PA

This study examines the immediate and sustainable range of motion changes after surgical arthroscopic lysis of knee adhesions for post-traumatic knee stiffness after open reduction internal fixation.

**Discussion – 6 minutes**

3:06 PM  
**Risk Factors for Neurovascular Injury Associated with Knee Dislocations**

Robert Stewart, MD, Chicago, IL  
David C. Landy, MD, Chicago, IL  
Joseph B. Cohen, MD, Chicago, IL  
Douglas R. Dirschl, MD, Chicago, IL  
Sherwin S. Ho, MD, Chicago, IL

This retrospective database study of 1344 knee dislocations, showed the rate of nerve and vessel injury was 4.2% and 15%, respectively. Obesity is a risk factor for concomitant neurovascular injury.

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Tuesday, March 1

3:12 PM  Paper 134
When are CT Angiograms Indicated for Lower Extremity Fractures?
Shafagh Monazzam, MD, Sacramento, CA
Parker Goodell, BS, Sacramento, CA
Edgardo Salcedo, MD, Sacramento, CA
Sandahl Nelson, San Diego, CA
Philip R. Wolinsky, MD, Sacramento, CA

In a review of 275 lower extremity CTAs we found no evidence for routine use of CTAs in lower extremity fracture trauma without soft or hard signs of a vascular injury presents on physical exam.

3:18 PM  Paper 135
The Morbidity and Mortality of Floating Knee Injuries
Ronald Auer, MD, Louisville, KY
Kevin J. Himschoot, MD, Louisville, KY
John Riehl, MD, Pensacola, FL

A retrospective review of 66 floating knee injuries, complications, associated injuries and morbidity.

PAPER PRESENTATION

1:30 PM – 3:30 PM
Room W304A

Tumor I: Spine/Pelvis/Infection
Moderator(s): Francis Y. Lee, MD, PhD, New York, NY, Felasfa, M. Wodajo, MD, Pensacola, FL

1:30 PM  Paper 136
Prognostic Factors in the Operative Management of Sacral Chordomas
Matthew Sewell, Twickenham, United Kingdom
Kimberly-Anne Tan, Randwick, Australia
Bahar Kayani, MBBS BSc, Herts, United Kingdom
Sammy A. Hanna, MD, FRCS, London, United Kingdom
Richard Williams, MD, Brisbane, Australia

Retrospective review of 58 cases of sacrectomy for chordoma (mean follow-up: 43.3 months) identifying factors associated with recurrence, metastasis and survival.

1:36 PM  Paper 137
Patient Reported Outcomes after Sacral Resection based on the Nerve Roots Sacrificed
Olivier Van Wulfften Palthe, MD, Cambridge, MA
Patrick J. Boland, MD, New York, NY
Peter S. Rose, MD, Rochester, MN
Michael J. Yaszemski, MD, PhD, Rochester, MN
Francis J. Hornicek, MD, Boston, MA
John H. Healey, MD, FACS, New York, NY
Joseph H. Schuraw, MD, Boston, MA

A tri-institutional effort to collect outcomes on physical health, mental health, pain, bowel function and sexual function after sacral resection based on which nerve roots were sacrificed.

1:42 PM  Paper 138
Curative Surgical Resection of Spinal Metastases from Differentiated Thyroid Carcinoma Can Prolong Survival
Noritaka Yonezawa, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takehiko Igarashi, MD, Kanazawa, Japan
Naoki Takahashi, MD, Kanazawa-Shi, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Curative surgical resection of isolated spinal metastases from differentiated thyroid carcinomas has the potential to improve quality of life and survival.

Discussion – 6 minutes

1:54 PM  Paper 139
Risk Factors for Acute Postoperative Mortality following Surgery for Spinal Metastases
Andrew J. Schoenfeld, MD, Medford, MA
Dana A. Leonard, BA, Boston, MA
Christopher M. Bono, MD, Concord, MA
Mitchel B. Harris, MD, Boston, MA
Marco Ferrone, MD, FRCCS, Boston, MA

This effort is one of the first to identify significant predictors of acute post-operative survival in a large series of patients treated for spinal metastases.

2:00 PM  Paper 140
An Augmented-Reality-Based Navigation System for Pelvic Tumor Resection
Hwan-Seong Cho, MD, Seongnam-Si, Republic of Korea
Yeong Kyo Park, Seongnam-Si, Republic of Korea
Ilkyu Han, Seoul, Republic of Korea
Han-Soo Kim, Seoul, Republic of Korea

we evaluated the accuracy of AR-based navigation assistance in resection of the bone tumor model of pig pelvis.

2:06 PM  Paper 141
An Analysis of 138 Reconstructions After Periacetabular Resection for Bone Tumors from Two Institutions
Pietro Ruggieri, MD, PhD, Bologna, Italy
Odion Binitie, MD, Tampa, FL
Giulia Trovarelli, Bologna, Italy
Ilaria Piraino, MD, Bologna, Italy
G D. Letson, MD, Tampa, FL
Andrea Angelini, MD, Bologna, Italy

Purposes of this study were to assess the outcome, recurrence rate and complications in 136 patients (from two institutions) after resection with reconstruction for periacetabular pelvic bone tumors.

Discussion – 6 minutes

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Resection of the Acetabulum and Pelvis: Should We Still Offer Reconstructive Options?
Joseph Benevenia, MD, Newark, NJ
Francis R. Patterson, MD, Newark, NJ
Kathleen S. Beebe, MD, Newark, NJ
Steven Rivero, MD, Warren, NJ
Despite complications there is a trend in patients implanted with allograft/APC to have better MSTS scores than those with resection arthroplasty and pseudoarthrosis after pelvic sarcoma resection.

Pelvis and Lower Limb Reconstruction Using the Double-Barrel Free Vascularized Fibular Transplant
Moahmmed M. Koth, MD, Assiut, Egypt
The double-barrel fibula osteoseptocutaneous flap is an effective and reliable technique in reconstruction of pelvis and lower extremity that results in early restoration of weight-bearing function.

Infection After Surgical Resection for Pelvic Bone Tumors: An Analysis of 274 Cases from a Single Institution
Pietro Ruggeri, MD, PhD, Bologna, Italy
Teresa Calabrò, Bologna, Italy
Giulia Trovarelli, Bologna, Italy
Giulio Piaratel, MD, Bologna, Italy
Andrea Angelini, MD, Bologna BO, Italy
Surgery of pelvic tumors is challenging and it is marked by significant morbidity and complications. We analyzed the infection rate, treatment and its outcome in 274 patients with pelvic bone tumors.

The Hidden Enemy: MRSA-Osteoblast Interaction and Its Consequences in Tissue Destruction and Recurrence
Hyunwoo P. Kang, BS, MA, New York, NY
Jocelyn T. Compton, MD, Iowa City, IA
Saqib Nizami, Staten Island, NY
Jin-Michael E. Caldwel, MD, New York, NY
Do Yu Song, New York, NY
Jungho Back, PhD, New York, NY
Lee Song, PhD, New York, NY
Francis Y. Lee, MD, PhD, New York, NY
An investigation of MRSA intracellular invasion of osteoblasts. Bacteria translocate into cells within minutes, causing MAPK-mediated inflammatory cytokine release and cell death.

Doxycycline Attachment to Bone Allograft Protects Against Bacterial Colonization and Biofilm Formation
Constantinos Ketonis, MD, PhD, Philadelphia, PA
Isabelle Mortalena, DDS, Biarritz, France
Javad Parvizi, MD, FRCS, Gladwyne, PA
Christopher S. Adams, PhD, Philadelphia, PA
John A. Abraham, MD, Philadelphia, PA
Noreen J. Hickok, PhD, Philadelphia, PA
Doxycycline-modified bone allografts resist bacterial colonization and biofilm formation while remaining biocompatible and could prevent infections following graft implantation.

Surgical Treatment of Infected Tumor Megaprostheses with Staged Reconstruction
Joseph Benevenia, MD, Newark, NJ
Francis R. Patterson, MD, Newark, NJ
Kathleen S. Beebe, MD, Newark, NJ
Steven Rivero, MD, Warren, NJ
In patients with infected tumor prostheses radical debridement, antibiotics, and custom spacers followed by selective one- and two-stage reimplantation can result in successful limb salvage.

The Outcome of Frozen Autograft Using Iodine-Coated Implants: Comparison with Non-Coated Implants
Toshiharu Shirai, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Ryu Terauchi, MD, PhD, Kyoto, Japan
Shinji Miwa, MD, Ishikawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Hiroaki Kimura, MD, PhD, Nagoya, Japan
Katsuhito Hayashi, MD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Toshikazu Kubo, MD, Kyoto, Japan
We compared iodine-coated implants with non-coated implants for frozen autograft. The 5-year survival rates of autograft were 86.7% and 79.3%, respectively. Infection rate was low in the coated group.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
The Prognostic Nutritional Index as a Predictor of Wound Complications in Soft Tissue Sarcoma Patients
Tae W. Kim, MD, New York, NY
Samuel Hardy, MD, Camden, NJ
Ryan C. Miller, BA, Voorhees, NJ
Richard D. Lackman, MD, Philadelphia, PA
Mark Angelo, MD, FACP, Camden, NJ
Pre-operative nutritional status, measured by Onoderas Prognostic Nutritional Index, is predictive of wound complications in patients with soft tissue sarcomas undergoing radiation therapy.

Complications after Total Knee Arthroplasty in Patients with Hemophilia or Von Willebrand’s Disease
Jourdan M. Cancienne, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA
Patients with hemophilia A and von Willebrand’s disease are at a significantly increased risk for complications following TKA compared to matched controls.

Readmissions and Complications for Dialysis Patients Undergoing a Primary Total Knee Arthroplasty
Louis C. Okafor, MD, Indianapolis, IN
Anne Kuwahara, BA, Indianapolis, IN
Mostafa H. El Daiefawy, MD, Indianapolis, IN
Zain Naseer, Forest Hill, MD
Clayton Alexander, MD, Indianapolis, IN
Karthikeyan E. Ponnuasamy, MD, Indianapolis, IN
For primary TKA patients, dialysis-status is an independent risk factor for significantly greater rates of readmissions, complications, and 2-year mortality and infections, but not for revisions.

Psychiatric Disorders Increase Complication Rate After Primary Total Knee Arthroplasty
Mitchell R. Klement, MD, Durham, NC
Brian T. Nickel, MD, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Abiram Bala, BA, Durham, NC
Samuel S. Wellman, MD, Durham, NC
Michael P. Bolognesi, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC
A diagnosis of depression, bipolar, or schizophrenia doubles the risk of periprosthetic infection and revision after total knee arthroplasty.

Quality of Life and Satisfaction Rates in Young Active Patients Aged 50 Years or Younger Undergoing TKA
Graham S. Goh, Singapore, Singapore
Ming Han Liow, MD, MBBS, Singapore, Singapore
Hamid Rahmatullah Bin Abd Razak, MBBS, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore
Young active patients undergoing TKA experience significantly improved to their quality of life, have their expectations met and are satisfied with their surgeries.
Tuesday, March 1

2:06 PM  Paper 156
Are Post-TJR Readmissions Associated with Poorer Functional Gain After Total Joint Replacement?
Patricia Franklin, MD, MBA, Worcester, MA
Wenjun Li, PhD, Worcester, MA
Celeste Lemay, RN, MPH, Worcester, MA
David C. Ayers, MD, Worcester, MA

Patients with 30 day readmissions after TJR have poorer 6 month global function, but no difference in pain relief or function. Joint-specific PRO measures are needed to assess TJR impact.

Discussion – 6 minutes

2:18 PM  Paper 157
Hospital Inpatient versus Home-Based Rehabilitation after Knee Arthroplasty - The HIHO Study
Mark Buhagiar, Prairiewood, NS, Australia
Justine M. Naylor, PhD, Liverpool, Australia
Ian Harris, MBBS, FRACS, PhD, Caringbah, Australia
Wei Xuan, PhD, Sydney, NS, Australia
Friedbert Kohler, MBBS, FACRM, Wetherill Park, NS, Australia
Rachel J. Wright, BAppSc (OT), Fairfield, NS, Australia
Renee Fortunato, BAppSc (Physio), Sydney, NS, Australia

A two-arm parallel randomised controlled trial across two sites comparing the effectiveness of inpatient to home-based rehabilitation following total knee arthroplasty.

2:24 PM  Paper 158
Short Stay Total Joint Replacement: Any Difference Between Day 0 and Day 1 Discharge?
Jesse E. Otero, MD, Iowa City, IA
Andrew J. Pugely, MD, Coralville, IA
Nicholas Bedard, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
Nicolas O. Noiseux, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

In the population studied, the complication rate for patients discharged on POD 0 is significantly greater than for patients discharged on POD 1 following TJA.

2:30 PM  Paper 159
Metal or Modularity: Why Do Metal-Backed Tibias Have Inferior Outcomes to All-Polyethylene Tibial Components
Matthew Houdek, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Joseph R. Cass, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN

All-polyethylene tibial components have significantly improved survival when compared to metal backed tibial components, regardless of modularity.

Discussion – 6 minutes

2:42 PM  Paper 160
Long-Term Survival and Reoperation Rates in Primary Total Knee Arthroplasty Using Constrained Implants
Taylor Beahrs, MD, Rochester, MN
John R. Martin, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

When varus/valgus constrained or rotating hinge implants are required at the time of primary total knee arthroplasty, the risk of revision is over three times higher at 20 years postoperatively.

2:48 PM  Paper 161
10-Year Results of a Randomized Clinical Trial of Mobile-Bearing vs. Fixed-Bearing Total Knee Arthroplasty
Matthew P. Abdel, MD, Rochester, MN
Meagan E. Tibbo, Atlanta, GA
Robert T. Trousdale, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
Mark W. Pagnano, Rochester, MN

This large randomized clinical trial of one modern, cemented TKA design detected no difference in durability, range of motion, or function between mobile- and fixed-bearing TKAs at 10 years.

2:54 PM  Paper 162
Ceramicised Metal Compared to Cobalt-Chromium in Knee Replacement: Results of 70,323 Primary TKR from the AOANJRR
Peter L. Lewis, MB, Adelaide, Australia
Stephen Graves, MD, Adelaide, Australia
David Davidson, MD, University Of Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
Christopher Vertullo, MBBS, FRACS, Benowa, Australia
Ann Tomkins, Adelaide, Australia
Michelle Lorimer, Adelaide, Australia
Sophia Rainbird, Adelaide, Australia

Ceramicised metal knee replacements showed overall a significantly higher rate of revision after 9 months.

Discussion – 6 minutes

3:06 PM  Paper 163
Prospective, Randomized Trial of Two Cement Types in Patients Undergoing Simultaneous Bilateral Knee Replacement
John T. Dearborn, MD, Fremont, CA
Alexander P. Sah, MD, Fremont, CA

In a study of 200 bilateral TKA patients with different cement used in each knee, a significantly higher rate of tibial sclerotic lines and progressive lucencies occurred with one cement type.
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3:12 PM  Paper 164
Simultaneous Bilateral vs. Unilateral Knee Replacement: Comparing Readmissions and Major Complications
Adam Hart, MD, Montreal, QC, Canada
John Antoniou, MD, FRCS, PhD, Montreal, QC, Canada
Yaron S. Brin, MD, Kfar-Saba, Israel
Laura M. Epure, Montreal, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
David Zukor, MD, Montreal, QC, Canada
Stephane Bergeron, MD, Kirkland, QC, Canada

We queried the National Surgical Quality Improvement Program database to compare the rate of 30-day readmission and major complications between simultaneous bilateral TKA and unilateral TKA.

3:18 PM  Paper 165
Bilateral Simultaneous versus Staged Total Knee Replacement: A Comparison of Complications and Mortality
Dhiren S. Sheth, MD, Irvine, CA
Guy Cafri, PhD, La Jolla, CA
Liz Paxton, MA, Ranch Santa Fe, CA
Robert S. Namba, MD, Santa Ana, CA

After adjusting for patient, surgeon and hospital characteristics, we found no evidence of increased risk of revision, infection, death, or complications in bilateral simultaneous versus staged TKR.

2:00 PM  Paper 286
Electromyographic and Kinetic Function of Reverse Total Shoulder Arthroplasty
Stephane Pelet, MD, PhD, Quebec, Quebec, Canada
Mathieu Ratte-Larouce, MD, Quebec, Quebec, Canada

The sequence of muscular activation in RTSA is different than in normal shoulder and demonstrates a significant contribution of both the trapezius and latissimus dorsi.

2:06 PM  Paper 300
Reverse Total Shoulder Arthroplasty After Failed Open Reduction and Internal Fixation of Proximal Humerus Fracture
Florian Grubhofer, Zurich, Switzerland
Karl Wieser, MD, Zurich, Switzerland
Christian Gerber, MD, Zurich, Switzerland

In this retrospective study, we analyze outcome data of patients treated with reversed total shoulder arthroplasty after failed open reduction and internal fixation of a proximal humerus fracture.

1:48 PM  Paper 299
Revision of Reverse Shoulder Arthroplasty
Michael J. Koch, MD, Munich, Germany
Judith Lifka, M.D., Ismaning, Germany
Ashish Gupta, MD, Brisbane, Australia
Ludwig Seebauer, MD, Munich, Germany

Revision surgery of Reverse Shoulder Arthroplasty requires precise analysis and preoperative planning to avoid further revision procedures and implant removal.

2:12 PM  Paper 354
Does Stiffness Impair or Enhance Healing Post Rotator Cuff Repair?
William J. McNamara, Goulburn, Australia
Patrick H. Lam, PhD, Sydney, Australia
George A. Murrell, MD, Kogarah, Australia

Pre and post-operative pain is beneficial for rotator cuff tendon to bone healing.

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### Tuesday, March 1

#### 2:18 PM  PAPER 871
**Revision Rotator Cuff Repair with Mesenchymal Stem Cells Decreases Subsequent Revision Risk**  
Philippe Hernigou, PhD, Creteil, France  
Charles-henri Fouzat-lachaniette, MD, Créteil Cedex, France  
This study showed that significant improvement in healing outcomes could be achieved by the use of BMC containing MSC as an adjunct therapy in revision rotator cuff repair.

#### 2:30 PM  PAPER 840
**Extent of Motor and Sensory Recovery in Patients with Cubital Tunnel Syndrome**  
Takao Omura, MD, PhD, Hamamatsu, Japan  
Yukihiro Matsuyama, MD, PhD, Hamamatsu, Japan  
We show that the sensory and motor recovery in patients with cubital tunnels syndrome depends on the severity of disease and that patients regain more sensory recovery than motor.

#### 2:36 PM  PAPER 836
**Outcomes Following Hemiarthroplasty of the Elbow: Minimum Two-Year Follow Up**  
Jean-David Werthel, Paris, France  
Bradley S. Schoch, MD, Rochester, MN  
Julie E. Adams, MD, Hixson, TN  
Scott P. Steinmann, MD, Rochester, MN  
Elbow HA is an option for young/active patients with end stage elbow arthritis or unreconstructable distal humerus fractures in whom alternative procedures have failed.

#### 2:42 PM  PAPER 831
**Anatomy of the Origin of the Supinator Muscle and its Role in Lateral Elbow Pain**  
Jairo F. Gomez Ramirez, MD, Bogota, Colombia  
Luis F. Calixto, MD, Bogota, Colombia  
The supinator is implicated in persistent pain of the elbow lateral epicondylitis and its Origen is in direct relationship with the extensor carpi radialis brevis.

#### 2:54 PM  PAPER 084
**Which Method is Better for Biceps Tenodesis? Prospective Randomized Comparative Study**  
Jisoon Park, MD, Seoul, Republic of Korea  
Hojin Jung, Seoul, Republic of Korea  
Tae-Yon Rhie, MD, PhD, Seoul, Republic of Korea  
Sae Hoon Kim, MD, Seoul, Republic of Korea  
Joo Han Oh, Seoul, Republic of Korea  
Interference screw fixation seemed to have higher risk in terms of the anatomic failure of biceps tenodesis than suture anchor fixation even though functional outcome was not different.

#### 3:00 PM  Paper 086
**Long Head of Biceps Management: Prospective Cohort Study of High Versus Subpectoral Tenodesis**  
Francesco Franceschi, MD, Rome, Italy  
Eduardo Franceschetti, MD, Roma, Italy  
Alessio Palumbo, MD, Roma, Italy  
Biagio Zampogna, MD, Rome, Italy  
Michele Paciotti, MD, Avezzano, Italy  
Guglielmo Torre, MS, Roma, Italy  
Nicola Maffulli, MD, FRCS(Orth), London, United Kingdom  
Rocco Papalia, MD, PhD, Rome, Italy  
Vincenzo Denaro, MD Prof, Rome, Italy  
The open subpectoral tenodesis is a is an easy and reproducible technique, leading to better clinical and cosmetic results when compared to the high arthroscopic tenodesis.

#### 3:06 PM  PAPER 081
**Arthroscopic Capsular Release versus Manipulation under Anesthesia in the Management of Adhesive Capsulitis**  
Walid S. Osman, MD, Cairo, Egypt  
John Elfar, MD, Rochester, NY  
Ahmed M. Saeed SR, DMed, Cairo, Egypt  
Follow up results for arthroscopic release and manipulation in adhesive capsulitis nonresponsive to conservative treatment showed similar and substantial improvements in function and pain relief.

#### 3:12 PM  PAPER 833
**Can the Use of Platelet-Rich Plasma (PRP) in Chronic Elbow Tendinitis Avoid Surgery?**  
Nimesh Patel, MRCS, MBBS, BSc, London, United Kingdom  
Edward C. Matthews, MBCHB, Devon, United Kingdom  
Darren Munn, Torquay, United Kingdom  
Rangaraju Ramesh, FRCS (Ortho), Paignton, Devon, United Kingdom  
The use of PRP to treat chronic elbow tendonitis gives a significant improvement in symptoms, avoiding the need for surgery. PRP preparation technique is stipulated to provide the beneficial results.

#### 3:18 PM  PAPER 544
**Randomized Trial on Proximal Humerus Fractures: Locking Plate or Intramedullary Nailing**  
Mauro E. Gracitelli, MD, Lapa, Brazil  
Edward A. Malavolta, MD, Sao Paulo, Brazil  
Jorge H. Assunção, Sao Paulo, Brazil  
Arnaldo Ferreira, MD, Sao Paulo, Brazil  
Paulo R. Reis, MD, Sao Paulo, Brazil  
Jorge D. Silva, Sao Paulo, Brazil  
Kodi E. Kojima, MD, Sao Paulo, Brazil  
Proximal humerus fractures, classified as 2 and 3 parts of Neer, showed similar Constant and DASH scores between the groups, but complications were higher in the Nail Group.

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* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use) For full information refer to page 15.
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INSTRUCTIONAL COURSE LECTURE
3:00 PM — 4:00 PM
CDS

Lifelong Learning: Principles of Peer Education in Orthopaedics
Moderator: Evan L. Flatow, MD, New York, NY
L. Scott Levin, MD, Philadelphia, PA
William N. Levine, MD, New York, NY
Provides orthopaedic surgeons with tips to endeavor toward a life of learning and teaching.

INSTRUCTIONAL COURSE LECTURE
4:00 PM — 6:00 PM

161 Primary Total Hip Arthroplasty: Everything You Need to Know
Moderator: Jay R. Lieberman, MD, Los Angeles, CA
John J. Callaghan, MD, Iowa City, IA
J. Bohannon Mason, MD, Charlotte, NC
Robert T. Trousdale, MD, Rochester, MN
Course presenters review preoperative and postoperative strategies to improve outcomes, component preparation and implantation techniques (video demonstrations), and bearing surface selection.

162 The Land of Ligaments: Navigating Sprains, Strains, and Ruptures about the Foot and Ankle
Moderator: Joaquin Sanchez-Sotelo, MD, Rochester, MN
James A. Nunley II, MD, Durham, NC
Martin J. O’Malley, MD, New York, NY
David A. Porter, MD, Fishers, IN
A spectrum of ligamentous injuries about the ankle and foot are presented with emphasis on those occurring in sport. Case studies and videos are used to illustrate.

163 Accountable Care Organizations: A Discussion of Bioethical Conflicts
Moderator: Paul Levin, MD, Bronx, NY
Daniel K. Moon, MD, Newton, MA
Lisa Taitsman, MD, Seattle, WA
Designed to analyze many of the common and relevant ethical dilemmas faced by practicing orthopaedic surgeons. The session is case-based and utilizes the audience response answer system. It is designed to stimulate and encourage significant audience participation.

164 Hand Fractures: Simple to Complex
Moderator: Richard A. Bernstein, MD, Hamden, CT
Michael S. Bednar, MD, Maywood, IL
Randipsingh R. Bindra, MD, Bundall, Australia
Craig S. Williams, MD, Des Plaines, IL
Presents the latest advances in the treatment of fractures of the hand, metacarpals, and phalanges in adults and the pediatric population. The pros and cons of open, limited incision, and percutaneous methods are presented. Through a series of didactic lectures and case discussion, participants are presented with the most current approaches to simple and complex injuries of the hand.

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**165** Do Not Fear Elbow Fractures in Children

* Moderator: David L. Skaggs, MD, Los Angeles, CA  
  John M. Flynn, MD, Philadelphia, PA  
  Mininder S. Kocher, MD, MPH, Boston, MA  
  Peter M. Waters, MD, Boston, MA

Helps prepare an orthopaedic surgeon covering an emergency department to diagnose, treat, and avoid complications in pediatric elbow fractures such as lateral condyle fractures, radial neck fractures, medial epicondyle fractures, and supracondylar fractures based on the latest literature.

**166** Anatomy of a Medical Liability Lawsuit: Practical Issues in Malpractice Avoidance

* Moderator: John P. Lyden, MD, New York, NY  
  Theodore J. Clarke, MD, Golden, CO  
  Anisa Kelley, JD, Fairfax, VA  
  Joseph L. Messa Jr., Esq., Philadelphia, PA

A medical negligence defense attorney and orthopaedic experts in medical liability present techniques and tips to use during medical negligence lawsuits and plaintiff depositions.

**167** Arthroscopic Rotator Cuff Repair: Indication and Technique

* Moderator: Felix H. Savoie, MD, New Orleans, LA  
  Jeffrey S. Abrams, MD, Princeton, NJ  
  Joshua S. Dines, MD, New York, NY  
  Peter J. Millett, MD, MSc, Vail, CO

Reviews current physical examination, imaging, and optimal surgical and biologic repair techniques in the injured rotator cuff patient, as well as cost-effective postoperative care via a case-based, interactive approach.

**168** Pitfalls in the Operative Management of Common Shoulder Problems: How to Avoid and What To Do When They Occur

* Moderator: Joseph D. Zuckerman, MD, New York, NY  
  Asheesh Bedi, MD, Ann Arbor, MI  
  Michael J. Gardner, MD, Saint Louis, MO  
  Andrew S. Rokito, MD, New York, NY

Focuses on avoiding common pitfalls in performing rotator cuff repairs, acromioclavicular joint repairs, open reduction/internal fixation of proximal humeral fractures, shoulder arthroplasty, and how to treat problems when they occur.

**169** Surgical Management of Cervical Spondylotic Myelopathy

* Moderator: James Kang, MD, Pittsburgh, PA  
  Chris A. Cornett, MD, Omaha, NE  
  Clinton J. Devin, MD, Nashville, TN  
  Joon Y. Lee, MD, Pittsburgh, PA

Pathophysiology of cervical spondylotic myelopathy discussed followed by a thorough discussion on the rationale for surgical treatment. Indications for anterior, posterior, as well as combined approaches, are discussed.

**170** Dilemmas of the Throwing Shoulder

* Moderator: James R. Andrews, MD, Gulf Breeze, FL  
  James P. Bradley, MD, Pittsburgh, PA  
  Neal S. ElAttrache, MD, Los Angeles, CA  
  Anthony A. Romeo, MD, Chicago, IL

The presenters discuss the various pathologies of the throwing shoulder, including the role of retroversion and soft tissue, physical examination signs, and treatment options.

**171** Young Femoral Neck Fractures – Why Are They So Scary?

* Moderator: Brett D. Crist, MD, Columbia, MO  
  Tania Ferguson, MD, MS, Gig Harbor, WA  
  Scott B. Marston, MD, Dellwood, MN  
  Mark A. Lee, MD, Sacramento, CA

A “young” femoral neck fracture is a case that causes significant stress for orthopaedic surgeons. When should they be fixed, how can I get it anatomically reduced and avoid complications? This ICL reviews it all through didactics, debate, and case discussion.

**172** Geriatric Trauma: Acute Arthroplasty for Fractures

* Moderator: Jonathan P. Braman, MD, Minneapolis, MN  
  William W. Cross III, MD, Rochester, MN  
  Thomas F. Varecka, MD, Minneapolis, MN  
  Mark A. Lee, MD, Sacramento, CA

Using a case-based format, discussion focuses on shoulder, elbow, acetabular, hip, and knee fractures treated acutely with arthroplasty.

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187 The Scary Total Knee Arthroplasty – A Case-based Approach to Complex Knees
Moderator: Fred D. Cashner, MD, New York, NY
Keith R. Berend, MD, New Albany, OH
Henry D. Clarke, MD, Phoenix, AZ
Craig J. Della Valle, MD, Chicago, IL
Steven B. Haas, MD, New York, NY
Michael A. Kelly, MD, Hackensack, NJ
Adolph V. Lombardi Jr, MD, New Albany, OH
William J. Long, MD, New York, NY
David J. Mayman, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY
Giles R. Scuderi, MD, New York, NY
Geoffrey H. Westrich, MD, New York, NY

Focuses on special situations where standard knee protocols need to be modified to address specific patient needs. The case is presented followed by an approach on how to best treat each patient scenario. Following the case, a short literature review is offered with specific treatment modification options stated.

188 How to Approach and Treat Metastatic Disease – Interactive and Case-based Discussion
Moderator: Valerae O. Lewis, MD, Houston, TX
Megan E. Anderson, MD, Boston, MA
Patrick J. Boland, MD, New York, NY
Susan V. Bukata, MD, Los Angeles, CA
Ginger E. Holt, MD, Nashville, TN
Francis J. Hornicek, MD, Boston, MA
G. Douglas Letson, MD, Tampa, FL
Bryan S. Moon, MD, Houston, TX
Carol D. Morris, MD, MS, Indianapolis, IN
Peter S. Rose, MD, Rochester, MN
Kristy L. Weber, MD, Philadelphia, PA

It is crucial for the general orthopaedic surgeon to know how to effectively recognize and work up osseous metastatic (or presumptive metastatic) disease. As the survival for this patient population continues to improve, appropriate and durable fixation/management is imperative. Case scenarios and surgical, non-invasive, and minimally invasive treatment options are discussed.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Valencia Room D

Adult Reconstruction Hip II: Complications I
Moderator(s): Theodore T. Manson, MD, Bel Air, MD, Andrew H. Glassman, MD, Columbus, OH

4:00 PM
Hypoalbuminemia Predicts Joint Infection, Pneumonia, and Readmission After Total Joint Arthroplasty
Daniel D. Bohl, MD, MPH, Chicago, IL
Mary R. Shen, MS, Chapel Hill, NC
Erdan Kayraptov, Troy, MI
Craig J. Della Valle, MD, Chicago, IL

Among 49,603 patients, hypoalbuminemia (a proxy for malnutrition) independently predicted joint infection, pneumonia, and readmission after total joint arthroplasty.

4:06 PM
The Serum Albumin Threshold for Increasing Perioperative complications After THA is 3.0 g/dL
Charles L. Nelson, MD, Philadelphia, PA
Atul F. Kamath, MD, Philadelphia, PA
Nabil M. Elkassabany, MD, Philadelphia, PA
Zhenggang Guo, MD, Philadelphia, PA
Jiabin Liu, MD, PhD, Philadelphia, PA

Low serum albumin is associated with perioperative complications following THA. The threshold defining a significant increase in complications appears to be an albumin level of less than 3.0 g/dL.

4:12 PM
The Interaction of Obesity and Diabetes in Determining Risk of Complication Following Total Joint Arthroplasty
Linda Suleiman, MD, Chicago, IL
Hashim M. Alvi, MD, Chicago, IL
Adam Edelstein, MD, Chicago, IL
Mary J. Kwasny, PhD, Chicago, IL
Matthew D. Beal, MD, Chicago, IL
David W. Manning, MD, Elmhurst, IL

Diabetes increases risk for CMS-reportable complications following TJA irrespective of BMI. Obesity, when represented as a continuous variable, shows the arbitrary nature of surgical BMI cutoffs.

THE WAY I SEE IT...

4:00 PM — 5:00 PM
Room W311A

The Way I See It...Healthcare
Moderator: Douglas W. Landry, MD, Marietta, GA
Brandon D. Bushnell, MBA, MD, Rome, GA
Hassan R. Mir, MD, MBA, Nashville, TN
Alexandra E. Page, MD, La Jolla, CA

Learn the varying opinions of the experts do in healthcare. Benefit from the inside story - what each presenter wants you to know about a top-of-the-mind issue. Experts share their experience and views, just the way they see it.

An alphabetical faculty financial disclosure list can be found starting on page 334.
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4:24 PM  Paper 169
MORBID OBESITY IS A RISK FACTOR FOR EARLY DEEP SURGICAL SITE INFECTION FOLLOWING REVISION TOTAL JOINT ARTHROPLASTY
David Sing, San Francisco, CA
Derek Ward, MD, Philadelphia, PA
Alfred C. Kuo, MD, San Francisco, CA

Surgeons should anticipate increased risk for deep surgical site infection in morbidly obese patients undergoing revision total joint arthroplasty.

4:30 PM  Paper 170
TOTAL HIP ARTHROPLASTY RISK AFTER BARIATRIC SURGERY
Brian T. Nickel, MD, Durham, NC
Mitchell R. Clement, MD, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Cynthia L. Green, Durham, NC
Abiram Bala, BA, Durham, NC
Michael P. Bolognesi, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC

Bariatric weight loss surgery prior to total hip arthroplasty does not ameliorate complications perhaps due to malnourishment secondary to rapid weight loss and/or lingering comorbidities.

4:36 PM  Paper 171
DEVELOPMENT AND EVALUATION OF A PREOPERATIVE RISK CALCULATOR FOR PERIPROSTHETIC JOINT INFECTION
Timothy Tan, MD, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Alisina Shahi, MD, Philadelphia, PA
Amber R. Madden, BA, Sicklerville, NJ
Javad Parvizi, MD, FRCS, Philadelphia, PA

This study on a large number of patients from a single institution, has determined the relative weight of various risk factors for PJII following total joint arthroplasty.

Discussion – 6 minutes

4:48 PM  Paper 172
WHICH HOSPITAL AND CLINICAL FACTORS DRIVE 30-DAY READMISSION AFTER THA?
Steven M. Kurtz, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Kevin Ong, PhD, Philadelphia, PA
Edward M. Adler, MD, New York, NY
Frank R. Kolisek, MD, Greenwood, IN
Michael T. Manley, PhD, Wyckoff, NJ

We observed significant variability among hospitals 30 day readmission across the US, suggesting several different potential strategies for reducing 30d RA after THA by optimizing clinical pathways.

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**Tuesday, March 1**

**5:18 PM  Paper 176**  
Should We Think Twice About Psychiatric Disease In Total Hip Arthroplasty?  
Mitchell R. Klement, MD, Durham, NC  
Colin T. Penrose, BA, BS, Durham, NC  
Abiram Bala, BA, Durham, NC  
Daniel J. Blizzard, MD, Durham, NC  
Samuel S. Wellman, MD, Durham, NC  
Michael P. Bolognesi, MD, Durham, NC  
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC  
Overall, any psychiatric diagnosis nearly doubles the risk of periprosthetic infection, dislocation, and THA revision after total hip arthroplasty.

**5:24 PM  Paper 177**  
Late Complications Following Elective Primary THA and TKA: Who, When, and How?  
Joshua C. Rozell, MD, Philadelphia, PA  
Paul M. Courtney, MD, Philadelphia, PA  
Jonathan R. Dattilo, MD, Philadelphia, PA  
Chia H. Wu, MD, MBA, Philadelphia, PA  
Gwo-Chin Lee, MD, Philadelphia, PA  
Comorbidities associated with significantly increased risk of complications include cirrhosis, CHF, and CKD. These patients should be excluded from early discharge total joint arthroplasty protocols.

**5:36 PM  Paper 178**  
Myocardial Cobalt Levels Are Elevated After Joint Arthroplasty and Associated with Cardiac Pathology  
Cody Wyles, BS, Rochester, MN  
Robert T. Trousdale, MD, Rochester, MN  
This study demonstrates that Co levels are increased in the myocardium of patients with Co/Cr-containing prosthetics and that increased Co levels are correlated with pathologic cardiac changes.

**5:42 PM  Paper 179**  
Heart Failure after ASR XL Metal-on-Metal Hip Replacements in Men  
Stephen Graves, MD, Adelaide, Australia  
Marianne H. Gillam, M.D., Ph.D, Adelaide, Australia  
Nicole Pratt, PhD, Adelaide, Australia  
Elizabeth E. Roughhead, Ph.D, Adelaide, Australia  
Men with ASR XL prostheses are at increased risk of developing heart failure and may need close monitoring and measures to prevent serious complications.

**5:48 PM  Paper 180**  
Patient-Reported Metal Allergy: A Risk Factor for Poor Outcomes following Total Joint Arthroplasty?  
Denis Nam, MD, Saint Louis, MO  
Kevin Li, BS, Saint Louis, MO  
Staci Johnson, M.Ed, Saint Louis, MO  
James A. Keeney, MD, Columbia, MO  
Ryan Nunley, MD, Saint Louis, MO  
Robert L. Barrack, MD, Saint Louis, MO  
3.0% of patients undergoing total joint arthroplasty report a metal allergy with nearly all being female. Mental health scores were decreased postoperatively in patients reporting a metal allergy.

**Discussion – 6 minutes**

**5:54 PM  Paper 181**  
Preoperative Hip Injections Increase the Rate of Periprosthetic Infection After Total Hip Arthroplasty  
William W. Schairer, MD, New York, NY  
Benedict U. Nwachukwu, MD, MBA, New York, NY  
Stephen Lyman, PhD, New York, NY  
David J. Mayman, MD, New York, NY  
Seth A. Jerabek, MD, Lake Nebagamon, WI  
We use population-level data to show that corticosteroid injections within 3 months of primary total hip arthroplasty is associated with increased risk of infection within one year.

**Discussion – 6 minutes**

**5:59 PM  Paper 182**  
Incorporating Hip Fracture Hemiarthroplasty into a Bundled Payment System for TJA Is Not Economically Viable.  
Elisabeth M. Graboski, BS, Danville, PA  
James E. Murphy, MD, Shavertown, PA  
David J. Kolessar, MD, Shavertown, PA  
Thomas R. Bowen, MD, Danville, PA  
Carmen D. Crofoot, MD, Danville, PA  
Elie S. Ghanem, MD, Danville, PA  
The cost of treating a hip fracture using a hemiarthroplasty is nearly double that of performing an elective total joint arthroplasty in a patient with osteoarthritis.
Tuesday, March 1

4:06 PM  Paper 182
Impact of Medicaid Expansion on Academic Practice Management in Elective Orthopedics
David Sing, San Francisco, CA
Dana Pong, MPH, San Francisco, CA
Matthew K. Callahan, MSBA, San Francisco, CA
Dana Pong, MPH, San Francisco, CA
Erik N. Hansen, MD, San Francisco, CA
Academic institutions experiencing growth in Medicaid patients from the Affordable Care Act are likely to institute strategies to manage reduced reimbursement.

4:12 PM  Paper 183
Attitudes of Orthopedic Surgery Residents Towards Public Health Advocacy: The Affordable Care Act and Orthopedics
Mohamad Shaath, MD, Hoboken, NJ
Wayne S. Berberian, MD, Newark, NJ
We surveyed orthopaedic residents with regards to their knowledge of healthcare advocacy, using the Affordable Care Act as an example.

4:24 PM  Paper 184
Differences in Cost and Length of Stay for Hip, Distal Femoral and Pelvic Fractures
Arthur Manoli III, MD, New York, NY
Sanjit R. Konda, MD, Rye, NY
Anthony V. Chriistiano, New York, NY
Kenneth A. Egol, MD, New York, NY
Differences in hospital costs and length of stay between hip and distal femur fractures are statistically, but not clinically different.

4:30 PM  Paper 185
Geographic Variations in Orthopedic Trauma Billing & Reimbursements for Pelvis, Acetabular and Hip Fractures
Catherine Bulka, MPH, Nashville, TN
Rachel V. Thakore, BS, Hoffman Estates, IL
Melinda B. Runzion, PhD, Nashville, TN
William T. Obronski, MD, MPH, Nashville, TN
Jesse Ehrenfeld, MD, MPH, Nashville, TN
David Joyce, MD, Riverview, FL
Manish K. Sethi, MD, Nashville, TN
This study is the first to evaluate variability in hospital charges and Medicare reimbursement in patients with DRG 536.

4:36 PM  Paper 186
The Fate of the Acutely-injured Uninsured Patient in Orthopaedic Surgery
Michelle M. Phelps, MD, Houston, TX
Laura N. Medford-Davis, MD, Houston, TX
Paul Hausknecht, Houston, TX
Zachary F. Meisel, MD, Philadelphia, PA
Angela Siler-Fisher, MD, Houston, TX
Charles A. Reitman, MD, Charleston, SC
Patient dumping after incomplete orthopaedic treatment remains a problem for uninsured patients, leading to duplicated care and hospital charges that strain the uncompensated care system.

4:48 PM  Paper 187
Relationship Status Affects the Discharge Location for Trauma Patients
Kari J. Broder, BA, New York, NY
Anthony V. Chriistiano, New York, NY
Sanjit R. Konda, MD, Rye, NY
Kenneth A. Egol, MD, New York, NY
Relationship status affects the discharge location for trauma patients.

5:00 PM  Paper 188
Risk Factors for Complication After Total Knee Arthroplasty in the California Joint Replacement Registry
Jay J. Patel, MD, Orange, CA
Zhongmin Li, PhD, Sacramento, CA
Nelson F. SooHoo, MD, Santa Monica, CA
Kevin J. Bozic, MD, MBA, Austin, TX
James I. Huddleston III, MD, Redwood City, CA
CHF, VTE, peripheral artery disease, ASA class 3 or 4, chronic lung disease, and increased age are independent risk factors for complication after TKA in the California Joint Replacement Registry.

Discussion – 6 minutes

5:00 PM  Paper 189
Risk Factors for Complication After Total Hip Arthroplasty in the California Joint Replacement Registry
Jay J. Patel, MD, Orange, CA
Zhongmin Li, PhD, Sacramento, CA
Nelson F. SooHoo, MD, Santa Monica, CA
Kevin J. Bozic, MD, MBA, Austin, TX
James I. Huddleston III, MD, Redwood City, CA
CHF and ASA class of 3 or 4 are independent risk factors for complication after THA in the California Joint Replacement Registry.

Discussion – 6 minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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5:12 PM  Paper 190
Comparing Primary Total Hip Arthroplasty Post-Discharge Care Duration, Costs, and Outcomes
Karthikeyan E. Ponnusamy, MD, Indianapolis, IN
Zan Naseer, Forest Hill, MD
Anne Kuwabara, BA, Indianapolis, IN
Mostafa H. El Dafrawy, MD, Indianapolis, IN
Louis C. Okafor, MD, Indianapolis, IN
Clayton Alexander, MD, Indianapolis, IN
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khanna, MD, Indianapolis, IN
Richard L. Skolasky Jr, ScD, Indianapolis, IN

After primary elective total hip arthroplasty, post-discharge care involving an extended-care facility can account for 20% of costs and increased readmission and mortality rates.

5:18 PM  Paper 191
Automated EHR Surveillance System for Early Identification of Total Joint Replacement Failures
Liz Paxton, MA, Roche Santa Fe, CA
Priscilla H. Chan, MS, San Diego, CA
Rebecca Love, BSN, RN, San Diego, CA
Mary-Lou Kiley, LCSW, San Diego, CA
Robert S. Namba, MD, Santa Ana, CA
Maria C. Inacio, PhD, Adelaide, Australia

EHR indicators provide a novel and cost-effective TJR surveillance mechanism for large cohorts of patients to enhance patient safety and reduce surveillance costs.

5:24 PM  Paper 192
Post-market Changes To Orthopaedic Devices Cleared Via The FDA Premarket Approval Supplement Pathway
Andre Samuel, New Haven, CT
Vinay K. Rathir, BA, Reston, VA
Jonathan N. Grauer, MD, New Haven, CT
Joseph Ross, MD, New Haven, CT

Among the 70 high-risk orthopaedic devices cleared via the FDA Premarket Approval (PMA) pathway, a median of one post-market device change was cleared per year, often with no new clinical evidence.

5:30 PM  Paper 193
Decreasing Arthroplasty Implant Cost & Preserving Choice: Request for Proposal Process at a Regional Health System
Matthew DeHart, MPH, Portland, OR
Kevin Fleming, MBA, Maple Valley, WA
Kirsten Juul-Music, Renton, WA
James W. Fitchett, MD, Seattle, WA
Cecily Froemke, MS, Portland, OR
John Dugger, Portland, OR
Andrew Yin, MD, Manhattan Bch, CA
Thomas D. Kowalk, MD, Portland, OR
Paul J. Duwelius, MD, Portland, OR

The RFP process articulated in this research has decreased the cost of implants within this system, achieved price parity across all hospitals and states, and maintained surgeons choice.

5:36 PM  Paper 194
The Relationship Between Hospital Payer Mix and Volume Growth in Total Joint Arthroplasty
Anthony A. Catanzano, Manhasset, NY
Raj Karia, MPH, New York, NY
Joseph A. Bosco III, MD, New York, NY

The purpose of our study is to use a large statewide data base to analyze the effect on payer mix on individual hospital total joint volume over a 13 year period.

5:42 PM  Paper 195
Physician Empathy is the Strongest Driver of Patient Satisfaction in Hand Surgery
Mariano Menendez, Boston, MA
Neal C. Chen, MD, Newtonville, MA
Chaitanya S. Mudgal, MD, Boston, MA
Jesse B. Jupiter, MD, Boston, MA
David C. Ring, MD, West Hartford, CT

This prospective study of 112 patients showed that physician empathy is the strongest driver of patient satisfaction in the hand surgery office setting.

Discussion – 6 minutes
Tuesday, March 1

PAPER PRESENTATION

4:00 PM — 6:00 PM
W304A

**Trauma III: Pelvis/Acetabulum**
Moderator(s): Anna N. Miller, MD, Winston-Salem, NC, Timothy S. Achor, MD, Bellaire, TX

**4:00 PM**

Paper 196

APC Injuries with Symphyseal Fixation: What Affects Outcome?
Paul Tornetta III, MD, Boston, MA
Kyle Lybrand, MD, Waltham, MA
David C. Templeman, MD, Minneapolis, MN
Deirdre Rodericks, Boston, MA
Anthony Bell, MD, Neptune Beach, FL

The purpose was to evaluate the influence of position at union, hardware failure, ISS, and the type of posterior ring injury on outcomes of patients treated operatively for symphyseal separation.

**4:06 PM**

Paper 197

What Factors Affect Superior Public Medullary Ramus Fixation?
David Hamilton, MD, Lexington, KY
Raymond D. Wright Jr, MD, Lancaster, KY
Milton L. Routt Jr, MD, Houston, TX

Sacral dysmorphism does not affect likelihood of successful supra-acetabular region to the pubic tubercle screw insertion for standard or “best fit” preoperative planning technique.

**4:12 PM**

Paper 198

Posterior Fixation in APC-2 Pelvic Fractures Decreases the Rates of Anterior Plate Failure and Malunion
Frank Avilucea, MD, Salt Lake City, UT
Paul S. Whiting, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN

APC-2 pelvis injuries treated with anterior plating and posterior screw fixation have significantly less anterior hardware failure and malunion than those treated with anterior plating alone.

**4:24 PM**

Paper 199

Comparison of Magnetic Resonance Imaging-Detected Pelvic Ligament Injury to Displacement on Pelvic Stress Exam.
Brendan O’Daly, MD, FRCS, Co Dublin, Ireland
Michael Mueller, MD, Indianapolis, IN
Lina Chen, MD, Catonsville, MD
Derik L. Davis, MD, Indianapolis, IN
Joshua L. Gary, MD, Houston, TX
Theodore T. Manson, MD, Bel Air, MD
Jason W. Nascone, MD, Indianapolis, IN
Marcus F. Sciadmi, MD, Indianapolis, IN
Robert V. O’Toole, MD, Indianapolis, IN

Stress exams and MRI have recently been reported as techniques for evaluation of pelvic ring fracture stability. This study seeks to define the relation of findings on these two tests to each other.

**4:30 PM**

Paper 200

Safety of Percutaneous Fixation for Pelvic Trauma
James Learned, MD, Cleveland, OH
Clay A. Spiller, MD, Jackson, MS
Milton T. Little, MD, Alhambra, CA
Jonah Hebert-Davies, MD, Plattsburgh, NY
Milton L. Routt Jr, MD, Houston, TX
Reza Firoozabadi, MD, Seattle, WA

A review of all patients over a five year period treated with percutaneous fixation for pelvis and acetabular trauma to evaluate the safety of placing screws under fluoroscopic guidance alone.

**4:36 PM**

Paper 201

Low Complication Rates Associated with Open Anterior Approach to the Posterior Pelvic Ring
Paul S. Whiting, MD, Mission Viejo, CA
Eduardo J. Burgos, MD, Nashville, TN
Frank Avilucea, MD, Nashville, TN
Robert H. Boyce, MD, Nashville, TN
Jason M. Evans, MD, Franklin, TN

In our analysis, the open anterior approach demonstrated to be effective obtaining an anatomic reduction and is associated with very low complication rates.

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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off-label use). For full information refer to page 15.*
Tuesday, March 1

4:48 PM  Paper 202
Surgery for Unilateral Sacral Fractures: Are the Indications Clear?
Paul Tornetta III, MD, Boston, MA
Julie Agel, ATC, Seattle, WA
Sean E. Nork, MD, Seattle, WA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Heather A. Vallier, MD, Cleveland, OH
Brian Mullis, MD, Indianapolis, IN
Zachary V. Roberts, MD, Oklahoma City, OK
James A. Goulet, MD, Ann Arbor, MI
Anna N. Miller, MD, Winston-Salem, NC

The purpose is to compare the demographic, fracture, and displacement characteristics of 250 patients to determine what differences exist between the groups treated operatively vs. nonoperatively.

4:54 PM  Paper 203
Does Transsacral-Transiliac Screw Fixation of An Uninjured Sacroiliac Joint Affect Outcomes at One Year Follow Up?
John A. Heydemann, MD, Houston, TX
Mary Elizabeth Gibson, MD, Orlando, FL
Braden E. Hartline, MD, Houston, TX
John W. Munz, MD, Bellaire, TX
Mark L. Prasarn, MD, Bellaire, TX
Matthew C. Galpin, Houston, TX
Timothy S. Achor, MD, Bellaire, TX
Joshua L. Gary, MD, Houston, TX

There is no effect on pain or functional outcomes at one-year after transsacral transiliac screw placement compared with iliosacral screw placement.

5:00 PM  Paper 204
Spinopelvic Dissociation: Have We Finally Got It Right?
Ibraheim El-Daly, MBBS, London, United Kingdom
Paul Culpan, FRCS (Ortho), London, United Kingdom
Arun Ranganathan, FRCS (Ortho), London, United Kingdom
Alexander S. Montgomery, MB, London, United Kingdom
Peter Bates, FRCS (Ortho), MBBS, Kent, United Kingdom

We present a novel reduction manoeuvre and percutaneous fixation of 10 patients with spinopelvic dissociation treated at a level I trauma centre over two years.

5:18 PM  Paper 206
Comparing Acute with Delayed Total Hip Arthroplasty for Medicare Patients with Acetabular Fractures
Lindsay T. Kleeman, MD, Durham, NC
Abram Bala, BA, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Cynthia L. Green, Durham, NC
Thorsten M. Seyler, MD, PhD, Durham, NC
Samuel S. Wellman, MD, Durham, NC
Michael P. Bolognesi, MD, Durham, NC

Retrospective review of medicare patients with acetabular fractures showing higher complication and revision rates in patients with acute total hip arthroplasty compared to delayed hip arthroplasty.

5:24 PM  Paper 207
Excellent outcome of Acute Total Hip replacement in Acetabular fractures using modern porous metal cups
Deepak Gautam, New Delhi, India
Rajesh Malhotra, MS, New Delhi, India

The modern porous metal cups have sufficient primary stability and appear suitable for primary Total Hip Arthroplasty in acute acetabular fractures.

5:30 PM  Discussion – 6 minutes

5:36 PM  Paper 208
Randomized Controlled Trial of Tranexamic Acid in Acetabular Fracture Surgery: Early Results
William D. Lack, MD, Maywood, IL
Rachel Seymour, PhD, Charlotte, NC
Brett D Crist, MD, Columbia, MO
Madhav A. Karunakar, MD, Charlotte, NC

We present the preliminary results of the use of tranexamic acid in acetabular fracture surgery.

5:42 PM  Paper 209
Does Pelvic Embolization Increase Infection Rates in Patients Who Undergo Open Treatment of Acetabular Fractures?
Milton T. Little, MD, Alhambra, CA
Timothy B. Alton, MD, Seattle, WA
Matthew Kogut, MD, Seattle, WA
Reza Firoozabadi, MD, Seattle, WA

Evaluation of the impact of the pre-operative angiography on post-operative infection following open reduction internal fixation of acetabular fractures.
Tuesday, March 1

5:48 PM  Paper 210
Timing and Cause of Mortality in Patients with Blunt Pelvic Ring Injuries using Modern Algorithms
Alesha Scott, DO, Pontiac, MI
Rahul Vaidya, MD, Ann Arbor, MI
Ian L. Hudson, DO, MPH, Killeen, TX
Frederick E. Tomnos, DO, Novi, MI
Bryant W. Oliphant, MD, Ann Arbor, MI
Anil Sethi, MD, Detroit, MI

Death after Pelvic injury is due to Abdomino-pelvic hemmorhage < 6hrs, Head injury 6-24 hrs or MSOF >24 hrs . Isolated pelvic hemmorage is rarely a cause of death with modern pelvic algorithms.

Discussion – 6 minutes

4:12 PM  Paper 213
Effect of Complications on the Patient-reported Outcomes after Elective Surgery for Lumbar Degenerative Disease
David Stonko, BS, MS, Nashville, TN
Silky Chotai, Nashville, TN
John Sielatycki, MD, Nashville, TN
Ahilan Sivaganesan, MD, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Matthew McGirt, Charlotte, NC
Clinton J. Devin, MD, Nashville, TN

The occurrence of major complications did not signif cantly affect the PROs 12-month after surgery. These patients achieve clinically meaningful outcomes and patient satisfaction.

Discussion – 6 minutes

4:24 PM  Paper 214
Extensive Corrective Fixation Surgeries For Adult Spinal Deformity Improve Gait Posture And Gait Ability
Hideyuki Arima, MD, Fujinomiya, Shizuoka, Japan
Yu Yamato, MD, PhD, Hamamatsu, Japan
Tomohiko Hasegawa, MD, Shizuoka, Japan
Daisuke Togawa, MD, Hamamatsu, Japan
Sho Kobayashi, MD, Hamamatsu, Japan
Tatsuya Yasuda, MD, Hamamatsu, Japan
Tomohiro Banno, MD, Shizuoka, Japan
Shin Oe, MD, Hamamatsu, Japan
Yukihiro Matsuyama, MD, PhD, Hamamatsu, Japan

We performed corrective surgery in patients with adult spinal deformity. Postoperative gait posture and step length were improved when optimal correction of the deformity was well achieved.

4:30 PM  Paper 215
Shilla Growing Rods with Greater than 5 Years of Follow-up: Curve and Implant Characteristics
John T. Wilkinson, MD, Little Rock, AR
Chad E. Songy, MD, Little Rock, AR
Frances L. McCullough, NP, Little Rock, AR
Richard E. McCarthy, MD, Little Rock, AR

A retrospective review of patients treated with the Shilla system with implants in place for greater than 5 years assessing the affects of the Shilla growing rods on curve and implant characteristics.

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Tuesday, March 1

4:36 PM  Paper 216
**Drop Foot Due To Lumbar Degenerative Disease: Surgical Outcome And Prognostic Factors.**
Jun Tanaka, MD, Fukuoka, Japan  
Yoshihiro Takamori, Fukuoka, Japan  
Shinri Nobuto, Fukuoka-shi, Fukuoka, Japan  
Hitoshi Shirachi, MD, Fukuoka, Japan  
Masatoshi Naito, MD, Fukuoka, Japan  

Duration of palsy before surgery and presence of radicular leg pain might greatly affect the postoperative outcome of drop foot recovery with degenerative lumbar disease.

**Discussion – 6 minutes**

4:48 PM  Paper 217
**A Comparison of Patients Treated with Shilla Growing Rods for Early Onset Scoliosis**
Wesley S. Greer, MD, Little Rock, AR  
Paula Roberson, PhD, Little Rock, AR  
Richard E. McCarthy, MD, Little Rock, AR  

Utilization of larger rod sizes with the Shilla technique increased the time before the first return to the operating room and improved resistance to rod fracture without increased screw pullout.

**Discussion – 6 minutes**

4:54 PM  Paper 218
**Incidence of Complications After Therapeutic Anticoagulation in the Spine Trauma Patient**
Brian Shiue, MD, Indianapolis, IN  
Elizabeth Le, MD, Indianapolis, IN  
Ehsan Jazini, MD, Indianapolis, IN  
Timothy Costales, Indianapolis, IN  
Nicholas Caffes, BS, Indianapolis, IN  
Ebrahim Parsa, MD, MPH, Indianapolis, IN  
Eugene Y. Koh, MD, PhD, Indianapolis, IN  
Daniel E. Gelb, MD, Indianapolis, IN  
Steven C. Ludwig, MD, Indianapolis, IN  

A nearly three times higher rate of complications requiring reoperation was found after postoperative initiation of therapeutic anticoagulation compared to control (17.5 vs 6.3%).

5:00 PM  Paper 219
**Postoperative Daily Activities After Long Corrective Fusion To Pelvis For Elderly Spinal Deformity**
Daisuke Togawa, MD, Hamamatsu, Japan  
Tomohiko Hasegawa, MD, Shizuoka, Japan  
Yu Yamato, MD, PhD, Hamamatsu, Japan  
Sho Kobayashi, MD, Hamamatsu, Japan  
Tatsuya Yasuda, MD, Hamamatsu, Japan  
Shin Oe, MD, Hamamatsu, Japan  
Tomohiro Banno, MD, Shizuoka, Japan  
Yuki Miura, MD, Kikugawa, Japan  
Yukihito Matsuyama, MD, PhD, Hamamatsu, Japan  

Even with the successful realignment by corrective long fusion, bending activities are getting more difficult for elderly deformity patients postoperatively, thus needs to be informed preoperatively.

**Discussion – 6 minutes**

5:12 PM  Paper 220
**Performance Analysis Of 573 Three-column Osteotomy Procedures: Improvement In Adverse Events Over The Last Decade**
Bassel Diebo, MD, New York City, NY  
Virginie Lafage, PhD, New York, NY  
Christopher Ames, MD, San Francisco, CA  
Khaled M. Kebaish, MD, Indianapolis, IN  
Christopher I. Shaffrey, MD, Charlottesville, VA  
Richard A. Hostin, MD, Westlake Village, CA  
Ibrahim Obeid, Bordeaux, France  
Frank J. Schwaab, MD, New York, NY  
International Spine Study Group, Brighton, CO  

Performance analysis of 9 years of 3-column osteotomy for spinal deformity revealed operating on more disabled patients with diminishing OR time by 48 mins, significant improvement of adverse events.

5:18 PM  Paper 221
**Adult Spinal Deformity Knowledge in Orthopaedic Spine Surgeons: Impact of Training and Practice Experience**
Zachary Grabel, Atlanta, GA  
Robert A. Hart, MD, Portland, OR  
Aaron Clark, Memphis, TN  
Christopher I. Shaffrey, MD, Charlottesville, VA  
Justin K. Scheer, BS, Chicago, IL  
Justin S. Smith, MD, Charlottesville, VA  
Michael P. Kelly, MD, Saint Louis, MO  
Christopher Ames, MD, San Francisco, CA  
Alan H. Daniels, MD, Providence, RI  

The purpose of this study was to investigate adult spine deformity knowledge amongst orthopaedic spine surgeons.
Tuesday, March 1

5:24 PM  Paper 222
Important Differences in Facet Angle Exist in a large osteological collection
Douglas S. Weinberg, MD, Cleveland, OH
Katherine K. Xie, BS, Cleveland, OH
Raymond W. Liu, MD, Cleveland, OH
Jeremy Gebhart, MD, Cleveland, OH
Zachary Gordon, MD, Cleveland, OH

Increasing age, African-American race, and decreasing pelvic incidence predict a more sagittal facet orientation: a cadaveric review of 599 lumbar spines.

Discussion – 6 minutes

5:36 PM  Paper 223
Impact of the Number of Levels on Adverse Events Following Posterior Lumbar Fusion Procedures
Daniel D. Bobl, MD, MPH, Chicago, IL
Junyoung Ahn, BS, Chicago, IL
Philip Louie, MD, Chicago, IL
Dustin H. Massel, BS, Northbrook, IL
Daniel J. Johnson, BS, Touson, MD
Bryce A. Basques, MD, Chicago, IL
Kern Singh, MD, Chicago, IL

Data suggest that increasing the number of operative levels by one level has minimal impact on the rates of most short-term postoperative adverse events following posterior lumbar fusion procedures.

5:42 PM  Paper 224
Radiographic Variability Among Scheuermann's Kyphosis Patients: Appreciating Differences of the Deformity
David B. Bumpass, MD, Saint Louis, MO
Lawrence G. Lenke, MD, Saint Louis, MO
Michael P. Kelly, MD, Saint Louis, MO
Kathy Blanke, RN, Saint Louis, MO
Randal R. Betz, MD, Lawrenceville, NJ
David H. Clements III, MD, Camden, NJ
Hubert H. Labelle, MD, Montreal, QC, Canada
Ronald A. Lebman, MD, Creve Coeur, MO
Baron Lonner, MD, New York, NY

In the largest Scheuermann’s kyphosis series to date, we identified substantial radiographic variability in this patient population. Current categorization over-simplifies this deformity.

5:48 PM  Paper 225
Postoperative Pain Following Posterior Iliac Crest Bone Graft Harvesting in Spine Surgery: A Randomized Trial
Grant Shiff et, MD, New York, NY
Evan Sheha, MD, New York, NY
Benjamin T. Bjerke, MD, Rochester, MN
Srivasth Iyer, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Russel C. Huang, MD, New York, NY

Subjects underwent left or right-sided ICBG harvesting and pain scores were recorded over 1 year. Donor site pain was not clinically or statistically different from the non-surgical side after 6 weeks.

Discussion – 6 minutes

INSTRUCTIONAL COURSE LECTURE
4:30 PM — 5:30 PM
CD6  Collaboration Within and Between Institutions
Moderator: Brian R. Wolf, MD, Iowa City, IA
Kurt P. Spindler, MD, Garfield Heights, OH
Nikhil N. Verma, MD, Chicago, IL
Room W209B
Rick W. Wright, MD, Saint Louis, MO

Recognizing that successful collaboration among, within, and between institutions is an important factor, this course provides you with steps on how to create and cultivate those relationships.
Wednesday, March 2

**Symposium**
8:00 AM — 10:00 AM
Chapin Theater

**Sex and Sports: Caring for the Female Athlete in 2016 (H)**
Moderator: Cordelia W. Carter, MD, Westport, CT

Promote scientific discussion regarding sex-based differences in musculoskeletal medicine by reviewing five common sports injuries with supportive case examples whose incidence, presentation, and outcomes vary by sex. This symposium is also co-branded with the AAOS Women’s Health Issues Advisory Board.

I. Femoroacetabular Impingement
   *Asheesh Bedi, MD, Ann Arbor, MI*

II. Concussion
   *Kevin M. Guskiewicz, PhD ATC-L, Chapel Hill, NC*

III. Anterior Cruciate Ligament Injury
    *Mary L. Ireland, MD, Lexington, KY*

IV. Shoulder Instability
    *Anthony E. Johnson, MD, Fort Sam Houston, TX*

V. Shoulder Instability
    *William N. Levine, MD, New York, NY*

VI. Femoroacetabular Impingement
    *Scott D. Martin, MD, Boston, MA*

VII. Female Athlete Triad
    *Elizabeth G. Matzkin, MD, Boston, MA*

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**Symposium**
8:00 AM — 10:00 AM
Valencia Room A

**Debating Controversies in Spine Surgery (I)**
Moderator: Alan S. Hilibrand, MD, Philadelphia, PA

Debates three contemporary controversies in spine surgery. 1) Sacroiliac fusion: can it help post-fusion lower back pain? 2) Is cervical arthroplasty appropriate for 2-level disease? 3) Minimally invasive spine surgery: is the evidence finally there?

I. Management and Treatment of Common Benign Soft Tissue Tumors
   *Timothy A. Damron, MD, Lafayette, NY*

II. Soft Tissue Tumor Mimickers
    *Ginger E. Holt, MD, Nashville, TN*

III. Presentation of Soft Tissue Tumors
    *Adam S. Levin, MD, Indianapolis, IN*

IV. Diagnostic Modalities –Indication and Options
    *Carol D. Morris, MD, MS, Indianapolis, IN*

V. Management and Treatment of Malignant Soft tissue Tumors
   *Scott D. Weiner, MD, Akron, OH*

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**Symposium**
8:00 AM — 10:00 AM
Valencia Room B

**Soft Tissue Tumors: A Pictorial and Case-Based Guide to Diagnosis and Treatment (J)**
Moderator: Valerae O. Lewis, MD, Houston, TX

Reviews the diagnosis and management of soft tissue tumors through case-based presentations with an emphasis on imaging and clinical pictorial presentation. Participants develop an understanding of which tumors can be managed by the general orthopaedic surgeon and which tumors should be referred to an orthopaedic oncologist.

I. Management and Treatment of Common Benign Soft Tissue Tumors
   *Timothy A. Damron, MD, Lafayette, NY*

II. Soft Tissue Tumor Mimickers
    *Ginger E. Holt, MD, Nashville, TN*

III. Presentation of Soft Tissue Tumors
    *Adam S. Levin, MD, Indianapolis, IN*

IV. Diagnostic Modalities –Indication and Options
    *Carol D. Morris, MD, MS, Indianapolis, IN*

V. Management and Treatment of Malignant Soft tissue Tumors
   *Scott D. Weiner, MD, Akron, OH*

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**INSTRUCTIONAL COURSE LECTURE**
8:00 AM — 9:00 AM

**How to Assemble a Competitive ICL, Symposium and Abstract Application**
Co-Moderators: James R. Ficke, MD, Baltimore, MD
Tad L. Gerlinger, MD, Chicago, IL
James M. Bennett, MD, Houston, TX
Joseph T. Moskal, MD, Roanoke, VA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Focuses on describing the different types of Instructional Course Lectures (ICL) and offers tips on completing the application to present an ICL, Symposium and Abstract at the Annual Meeting.

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An alphabetical faculty financial disclosure list can be found starting on page 334.
Wednesday, March 2

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 10:00 AM

201 Arthroplasty as an Option in Unreconstructable Acute Fractures or Failed Fracture Fixation About the Hip and Knee in the Active Elderly
Moderator: Richard F. Kyle, MD, Minneapolis, MN
Paul J. Duwelius, MD, Portland, OR
George J. Haidukewych, MD, Orlando, FL
Andrew H. Schmidt, MD, Minneapolis, MN

Learn which fractures about the hip and knee are unreconstructable or have a high failure rate and why acute arthroplasty in these fractures is best in the active elderly patient. Course participants learn technical procedures after failed fracture fixation and in acute fractures at risk to optimize the success rate of arthroplasty.

202 Preventing Hospital Readmissions and Limiting the Complications Associated with Total Hip Arthroplasty
Moderator: Kevin L. Garvin, MD, Omaha, NE
William L. Healy, MD, Newton, MA
Richard Iorio, MD, New Rochelle, NY
Vincent D. Pellegrini Jr, MD, Charleston, SC

With increasing attention on hospital readmission after total hip arthroplasty, there is a need to better understand and prevent complications responsible for readmission to the hospital. Tradução simultânea em português.

203 Perioperative Management in Total Knee Arthroplasty
Moderator: Alastair S. E. Younger, MD, Vancouver, BC, Canada

This course addresses perioperative care of knee arthroplasty patients focused on evidence- and value-driven recommendations for medical management, blood conservation, pain management, infection prevention, and wound management.

204 Osteochondral Lesions of the Talus: Current Treatment Dilemmas
Moderator: Alastair S. E. Younger, MD, Vancouver, BC, Canada
Eric Giza, MD, Sacramento, CA
John G. Kennedy, MD, New York, NY
James W. Stone, MD, Franklin, WI

Explore the natural history of the untreated osteochondral lesion of the talus as well as the current treatment options, including arthroscopic autograft, allograft, or autologous chondrocyte implantation.

205 Owning Osteoporosis Care in Your Practice
Moderator: Amy L. Ladd, MD, Palo Alto, CA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Joseph M. Lane, MD, New York, NY
Aenor J. Sawyer, MD, Oakland, CA

Osteoporosis is not just a disease of women and is relevant to patients of all ages. By attending this course, participants can improve treatment of patients with fragility fractures and learn the mechanics of setting up an inpatient and outpatient osteoporosis practice.

206 Compression Neuropathies — Getting It Right So You Don’t Have To Do It Again or Deal with Complications
Moderator: A. Lee Osterman, MD, Villanova, PA
Joshua M. Abzug, MD, Timonium, MD
Dean G. Sotereanos, MD, Pittsburgh, PA
David S. Zelouf, MD, King Of Prussia, PA

The management of compression neuropathies throughout the upper extremity are presented in a case-based manner. Detailed discussion regarding pearls and pitfalls of initial treatment, and avoiding the potential complications as well as managing them, aid the orthopaedic surgeon in practice.

207 Advanced Ponseti Course and Minimally Invasive Management of Vertical Talus
Moderator: Vincent S. Mosca, MD, Seattle, WA
Jose A. Morcuende, MD, Iowa City, IA
Monica P. Negueira, MD, Sao Paulo, Brazil
Lewis E. Zions, MD, Pacific Palisades, CA

Ponseti clubfoot and reverse congenital vertical talus management are methods and not strictly techniques. All aspects of the treatments are important for success and are detailed in this didactic and hands-on course.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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Wednesday, March 2

209  Rotator Cuff: Spectrum of Repair
Moderator: Jonathan B. Ticker, MD, Merrick, NY
Richard L. Angelo, MD, Woodinville, WA
Pascal Boileau, MD, Nice, France
Felix H. Savoie, MD, New Orleans, LA
Room W308C

A variety of techniques for arthroscopic rotator cuff repair, from partial tear repairs, as well as single- and double-row repairs, to subscapularis repairs, are highlighted, along with pearls and technical tips.

210  Fractures and Dislocations about the Elbow and their Adverse Sequelae: Contemporary Perspectives
Moderator: Graham J. King, MD, London, ON, Canada
April D. Armstrong, MD, Hershey, PA
Ken Faber, MD, FRCSC, London, ON, Canada
Michael D. McKee, MD, Toronto, ON, Canada
Room W203

Based upon clinical cases and surgical videos, this course addresses contemporary treatments and controversies regarding traumatic injuries about the elbow and their sequel.

281  Management of Most Common Foot and Ankle Pathologies
Moderator: Ashish Shah, MD, Birmingham, AL
Judith F. Baumhauer, MD, MPH, Rochester, NY
Stephen E. Conti, MD, Pittsburgh, PA
John E. Femino, MD, Iowa City, IA
Naren G. Gurbani, MD, FACS, Capistrano Beach, CA
Jeffrey E. Johnson, MD, Saint Louis, MO
Mark S. Myerson, MD, Indianapolis, IN
Vinod K. Panchbhavi, MD, FACS, Galveston, TX
David B. Thordarson, MD, Los Angeles, CA
Keith L. Wagner, MD, Philadelphia, PA
Troy S. Watson, MD, Las Vegas, NV
Room W207

Discusses the fundamentals of conservative and surgical management of most common foot and ankle pathologies like acute achilles rupture, plantar fascitis, equinus contracture [gastrocnemius tightness], sesamoiditis, metatarsalgia; and also helps to understand the different controversies in treatment of these common pathologies by active discussion with the faculties.

282  Primary Anterior Cruciate Ligament Failure: How Do I Get it Right the Second Time!
Moderator: Darren L. Johnson, MD, Lexington, KY
Annunziato Amendola, MD, Iowa City, IA
Allen F. Anderson, MD, Nashville, TN
Robert A. Arciero, MD, Farmington, CT
James P. Bradley, MD, Pittsburgh, PA
Charles A. Bush-Joseph, MD, Chicago, IL
David R. McAllister, MD, Los Angeles, CA
Eric C. McCarty, MD, Boulder, CO
Mark D. Miller, MD, Charlotteville, VA
Claude T. Moorman III, MD, Durham, NC
Kurt P. Spindler, MD, Garfield Heights, OH
Room W208

Will help you to understand in-depth potential etiologies of anterior cruciate ligament (ACL) failure and ways to improve our outcomes. Also understand the importance of meniscal, collateral knee ligament injury, alignment, and chondral injury in the final outcome of ACL surgery. Technical pearls to deal with the above are provided in detail using a case-based format.

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 11:00 AM

208  Preparing for and Transitioning into Life after Orthopaedics
Moderator: Dempsey S. Springfield, MD, Palm Coast, FL
Joseph S. Barr Jr, MD, Jamaica Plain, MA
Cynthia R. Hind, ClU, Lakewood, CO
Michael McCaslin, CPA, Indianapolis, IN
Room W307C

Offers expert advice from a senior orthopaedic surgeon who has made the transition, an investment/retirement planning specialist, and a practice management consultant for planning the transition from full-time practicing orthopaedic surgeon to your life after orthopaedics. No CME credit.

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 12:00 PM

290  Effective Surgeon-Patient Communication: The Key to Patient Satisfaction, Patient-Centered Care, and Shared Decision Making
Moderator: Dwight W. Burney III, MD, Albuquerque, NM
John R. Tongue, MD, Tualatin, OR
Room W303B

Newly revised and updated, this course uses the 4Emodel (Engage, Empathize, Educate, Enlist) to enable surgeons to effectively and efficiently communicate with patients. Positive effects include increased patient and surgeon satisfaction, improved adherence to treatment plans, and decreased malpractice risk.
Wednesday, March 2

**PAPER PRESENTATION**

8:00 AM — 10:00 AM

**Valencia Room D**

**Adult Reconstruction Knee III: TKA Infection**
Moderator(s): Eoin C. Sheehan MD, FRCS (ORTHO), Tullamore, Ireland,
Michael A. Kelly, MD, Hackensack, NJ

8:00 AM  Paper 226

**Smoking Increases the Risk of Surgical Site Infection Following Total Knee Arthroplasty**
Matthew R. Boylan, Brooklyn, NY
Bhaveen H. Kapadia, MD, Indianapolis, IN
Steven Daniels, MD, Brooklyn, NY
Carl B. Paulino, MD, Brooklyn, NY
Michael A. Mont, MD, Indianapolis, IN

For current and past cigarette smokers, there is an increased risk of SSI following total knee arthroplasty.

8:06 AM  Paper 227

**Routine Work-up of Patients with Postoperative Pyrexia following Total Joint Arthroplasty is Not Necessary**
Je Hyun Yoo, MD, PhD, Anyang, Republic of Korea
Camilo Restrepo, MD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Only postoperative TJA patients with temperatures >102°F; fever occurring after POD 3, those with multiple fever spikes, and those with fever after revision TJA should receive routine fever workup.

8:12 AM  Paper 228

**Pre-operative MRSA Colonization Screening Increases Risk of PJI following Total Joint Arthroplasty**
Ying-Ying J. Kao, MD, San Francisco, CA
Kaitlin M. Carroll, BS, New York, NY
Michael B. Cross, MD, New York, NY

In a high risk group of patients, 9% of MRSA colonized patients developed a PJI, representing a significant risk for a PJI; however, MRSA colonization may be a surrogate for a poor host.

8:24 AM  Paper 229

**Do Injections Increase the Risk of Infection Following TKA?**
Nicholas Bedard, MD, Iowa City, IA
Andrew J. Pugely, MD, Coralville, IA
Jacob Elkins, MD, PhD, Iowa City, IA
Kyle Duchman, MD, Iowa City, IA
Robert W. Westermann, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Injections up to 7 months prior to TKA were associated with a higher odds of 90-day post-operative infection and closer proximity of the injection increased the chance of post TKA infection.  

8:30 AM  Paper 230

**Does Timing Of Previous Intra-articular Steroid Injection Affect Post-operative TKA Infection Rates?**
Jourdan M. Cancienne, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA

Ipsilateral intra-articular knee injection within 3 months prior to TKA is associated with significantly increased rates of post-operative infection.

8:36 AM  Paper 231

**No False Positive Results With Leukocyte Esterase Reagent Strips In Uninfected Osteoarthritic Knees**
David C. McNabb, MD, Raleigh, NC
Douglas A. Dennis, MD, Denver, CO
Charlie C. Yang, MD, Cherry Hills Village, CO
Todd Miner, MD, Denver, CO
Raymond H. Kim, MD, Cherry Hills Village, CO
Jason M. Jennings, MD, Denver, CO

In a prospective analysis of uninfected osteoarthritic knees leukocyte esterase has no false positive results

8:48 AM  Paper 232

**The CRP Test May Not Detect PJIs Cause by Less-Virulent Organisms**
Carl A. Deirmengian, MD, Wynnewood, PA
Patrick Citrano, Indianapolis, IN
Simmi Gulati, Indianapolis, IN
Erick Kazarian, BA, Ann Arbor, MI
James Stave, PhD, Claymont, DE
Keith Kardos, PhD, Wynnewood, PA

This study demonstrated a high dependence of the synovial fluid CRP on the identity of the organism causing PJI, frequently resulting in false-negative results among less-virulent organisms.

8:54 AM  Paper 233

**D-dimer: A Potential Serum Biomarker for Diagnosis of Periprosthetic Joint Infection**
Alisina Shahi, MD, Philadelphia, PA
Michael M. Kheir, BS, Philadelphia, PA
Timothy Tan, MD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

This study showed that the serum D-dimer may be a promising marker for PJI.
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9:00 AM  Paper 234
The Alpha-Defensin Test for PJI is Not Affected by Prior Antibiotic Administration
Carl A. Deirmengian, MD, Wynnewood, PA
Alisina Shahi, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Gladwyne, PA
Greg Kazarian, BA, Media, PA
Carlos A. Higuera Rueda, MD, Bay Village, OH
Salvatore J. Frangiamore, MD, MS, Cleveland, OH
Joshua Bingham, MD, Phoenix, AZ
Christopher P. Beauchamp, MD, FRCS (Ortho), Phoenix, AZ

The alpha-defensin test for PJI maintains its diagnostics performance in the setting of antibiotic administration.

9:12 AM  Paper 235
Culture of the Synovial Fluid Has Variable Results: A Multicenter Study
Joshua Bingham, MD, Mesa, AZ
Christopher P. Beauchamp, MD, FRCS (Ortho), Phoenix, AZ
Gregg R. Klein, MD, Livingston, NJ
Carlos A. Higuera Rueda, MD, Bay Village, OH
Javad Parvizi, MD, FRCS, Gladwyne, PA
Gregory K. Deirmengian, MD, Media, PA
Carl A. Deirmengian, MD, Wynnewood, PA

There is great variability in culture results from PJIs when synovial fluid is processed at two different laboratories. Efforts are needed to identify optimal culture practices and techniques.

9:18 AM  Paper 236
Oral Antibiotics Reduce Reinfection Following 2-Stage Exchange: A Multi-Center, Randomized Controlled Trial
Jonathan M. Frank, MD, Chicago, IL
Erdan Kayupov, MS, Troy, MI
Gregory K. Deirmengian, MD, Media, PA
Scott M. Sporer, MD, Winfield, IL
Curtis W. Hartman, MD, Omaha, NE
James J. Purtill, MD, Philadelphia, PA
Erik N. Hansen, MD, San Francisco, CA
Antonia Chen, MD, MBA, Philadelphia, PA
Craig J. Della Valle, MD, Chicago, IL

This multicenter randomized trial suggests that at short-term follow-up, the addition of three months of oral antibiotics significantly improved infection-free survival.

9:24 AM  Paper 237
Risk of Reinfection Following Treatment of Infected Total Knee Arthroplasty.
Adam Cochran, MD, Louisville, KY
Kevin Ong, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Michael A. Mont, MD, Indianapolis, IN
Arthur L. Malkani, MD, Louisville, KY

Two stage revision had highest success following treatment of infected TKA. Given the higher failure rate with I & D, and one stage revision guidelines needs to be established for their indications.

9:36 AM  Paper 238
Articulating vs. Static Spacers in the Management of Periprosthetic Knee Infection: A Randomized Clinical Trial
Peter N. Chalmers, MD, Chicago, IL
Erdan Kayupov, MS, Troy, MI
Scott M. Sporer, MD, Wheaton, IL
Keith R. Berend, MD, New Albany, OH
Gregory K. Deirmengian, MD, Broomall, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Craig J. Della Valle, MD, Chicago, IL

This randomized trial demonstrates that articulating spacers provide significantly better range of motion than static spacers for periprosthetic joint infection after total knee arthroplasty.

9:42 AM  Paper 239
Acute Kidney Injury after Antibiotic Spacer Placement: Risk Factors and Impact of Antibiotic Dosing
Gregory Cunn, MD, Brooklyn, NY
Thomas A. Herschmiller, MD, New York, NY
Priscilla K. Cavanagh, MS, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Christopher Haas, New York, NY
Jeffrey A. Geller, MD, New York, NY

Acute kidney injury can occur at a high rate following 2 stage revision procedures for periprosthetic joint infections, regardless of antibiotic dose used.

An alphabetical faculty financial disclosure list can be found starting on page 334.

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9:48 AM  Paper 240
Two-stage Debridement with Prosthesis Retention for Acute Infections Following Primary Hip or Knee Arthroplasty
Matthew Niesen, MD, Middleton, WI
Mark J. Spangehl, MD, Scottsdale, AZ
Henry D. Clarke, MD, Scottsdale, AZ
Adam Schwartz, MD, Phoenix, AZ
Christopher P. Beauchamp, MD, FRCS (Ortho), Phoenix, AZ
We successfully treated 90.7% of patients with an acute periprosthetic joint infection (APJI) following primary hip or knee arthroplasty with a two-stage debridement and prosthesis retention protocol

Discussion – 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room W414

Pediatrics II: Trauma/Hip
Moderator(s): Alexandre Arkader, MD, Philadelphia, PA, Wudhav N. Sankar, MD, Wynnewood, PA

8:00 AM  Paper 241
Time to Return to School Following 10 Common Orthopaedic Surgeries Among Children and Adolescents
S. Clifton Willimon, MD, Atlanta, GA
M. M. Johnson, Atlanta, GA
Mackenzie M. Herzog, MPH, Atlanta, GA
Michael T. Busch, MD, Atlanta, GA
This study identifies average time missed from school following 10 common orthopaedic surgeries among children and adolescents.

8:06 AM  Paper 242
Flexible Intramedullary Nails for Femur Fractures in Pediatric Patients Heavier Than 100 Pounds
James S. Shaha, MD, Kailua, HI
Jason M. Cage, DO, Mechanicsville, VA
Sheena R. Black, MD, Dallas, TX
Robert L. Wimberly, MD, Dallas, TX
Steve Shaha, Draper, UT
Anthony F. Riccio, MD, Dallas, TX
Stainless steel flexible IM nails are able to maintain fracture alignment without an increase in complications in a population weighing more than 100 lbs.

8:12 AM  Paper 243
Pediatric Femur Fracture Treatment: A Multicenter Review of the Pre and Post 2009 AAOS Clinical Practice Guidelines
John D. Roaten, MD, Memphis, TN
Jeffrey R. Sawyer, MD, Germantown, TN
Joseph L. Yellin, BA, Philadelphia, PA
John M. Flynn, MD, Philadelphia, PA
Sumeet Garg, MD, Aurora, CO
Micaela Cyr, BA, Aurora, CO
Lindsay M. Andras, MD, Los Angeles, CA
Alexander M. Broom, South Pasadena, CA
This multicenter review of 2646 pediatric femur fractures demonstrates a continued strong trend toward surgical treatment in patients younger than recommended in the 2009 AAOS CPG publication.

Discussion – 6 Minutes

8:24 AM  Paper 244
The Lost Art of Fracture Reduction: Development and Validation of a Distal Radius Fracture Reduction & Casting Model
Mark Seeley, MD, Danville, PA
Peter D. Fabricant, MD, MPH, Philadelphia, PA
John Todd R. Lawrence, MD, PhD, Philadelphia, PA
Teaching and assessing technical competency of fracture reduction is challenging. This is the first distal radius fracture model to incorporate objective feedback in its assessment.

8:30 AM  Paper 245
Use of Removable Long-Arm Soft Cast to Treat Non-Displaced Pediatric Elbow Fractures: A Randomized Controlled Trial
Mauricio Silva, MD, Los Angeles, CA
Gal S. Sadlik, BA, Los Angeles, CA
Tigran Avoian, MD, Tujunga, CA
Edward Ebramzadeh, PhD, Los Angeles, CA
We investigated the use of a removable long-arm soft cast for the treatment of non-displaced pediatric elbow fractures, using a randomized, controlled trial

8:36 AM  Paper 246
Incarcerated Medial Epicondyles with Elbow Dislocation - Risk Factors Associated with Morbidity
Carley Vuillermin, Halifax, Australia
Kyna S. Donohue, Boston, MA
Patricia Miller, MS, Boston, MA
Andrea S. Bauer, MD, Boston, MA
Dennis E. Kramer, MD, Boston, MA
Yi-Meng Yen, MD, Boston, MA
Incarcerated medial epicondyloid fractures are commonly associated with ulnar nerve symptoms however they are not associated with a significant rate of other complications in the postoperative period.

Discussion – 6 Minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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8:48 AM  Paper 247
The “skinny” SCFE
Rachel Y. Goldstein, MD, Los Angeles, CA
Erin Dawicki, PA, Halifax, MA
Alexander M. Broom, South Pasadena, CA
Kody K. Barrett, BA, Los Angeles, CA
Lindsay M. Andras, MD, Los Angeles, CA
Michael B. Millis, MD, Boston, MA

SCFE occurs in underweight and normal weight patients, with similar demographic characteristics and radiographic findings. However, these slips are more commonly unstable.

8:54 AM  Paper 248
Continued Delay in Diagnosis of Slipped Capital Femoral Epiphysis
Alexander M. Broom, South Pasadena, CA
Lindsay M. Andras, MD, Los Angeles, CA
Kody K. Barrett, BA, Los Angeles, CA
Rachel Y. Goldstein, MD, Los Angeles, CA
Herman Luther, Winchester, MA
Nicholas D. Fletcher, MD, Atlanta, GA
Robert Runner, MD, Atlanta, GA
Christine Bouman, MD, Kalamazoo, MI

There was no improvement in the delayed diagnosis of SCFE. Decreased delay for the contralateral SCFE suggests education of at risk children may be an effective strategy to improving this delay.

9:00 AM  Paper 249
Is Three-Dimensional Imaging Better than Plain Radiographs for Defining Pincer FAI Subtypes?
Jeffrey Nepple, MD, Saint Louis, MO
James Ross, MD, Fort Lauderdale, FL
Asheesh Bedi, MD, Ann Arbor, MI
John C. Glohisy, MD, Saint Louis, MO

Three-dimensional imaging allows for more accurate and precise characterization of pincer-type morphologies in patients with FAI, compared to plain radiographs.

9:12 AM  Paper 250
The Effects of Periacetabular Osteotomy-Induced Changes in Joint Mechanics on Short-Term Patient Outcomes
Kevin Townsend, Iowa City, IA
Jessica Goetz, PhD, Iowa City, IA
Saran Tantavisit, Bangkok, Thailand
Todd O. McKinley, MD, Indianapolis, IN
Michael C. Willey, MD, Iowa City, IA

DEA is used to calculate pre- and post-operative joint contact stress (JCS) in patients that undergo periacetabular osteotomy. Reduction in JCS is predictive of improved short term clinical outcomes.

9:18 AM  Paper 251
Is Acetabular Rim Trimming Safe & Effective For Idiopathic Femoroacetabular Impingement in the Adolescent Patient?
Kevin Smit, MD, Dallas, TX
Adriana De La Rocha, PhD, Dallas, TX
Dave A. Podeszwa, MD, Dallas, TX
Daniel J. Sucato, MD, MS, Dallas, TX

An acetabular rim trimming is safe and effective when it is deemed appropriate in the adolescent patient with symptomatic femoroacetabular impingement.

9:24 AM  Paper 252
Long Term Outcomes after Pediatric Treatment of Developmental Hip Dysplasia
Ernest Young, MD, Rochester, MN
Todd A. Milbrandt, MD, Rochester, MN
William J. Shaughnessy, MD, Rochester, MN
Annalise N. Larson, MD, Rochester, MN

Total hip arthroplasty is a common sequela in patients treated with childhood surgery for development hip dysplasia. At mean 30 year followup 22 out of 114 hips had undergone replacement.

9:36 AM  Paper 253
Evaluation of Brace Treatment for Dislocated Infantile Developmental Dysplasia of the Hip in a Prospective Cohort
Vidyadhar V. Upasani, MD, San Diego, CA
James D. Bomar, San Diego, CA
Travis H. Matheney, MD, Boston, MA
Kishore Mulpuri, MD, Vancouver, BC, Canada
Charles T. Price, MD, Winter Park, FL
Scott J. Mubarak, MD, San Diego, CA

Brace treatment was successful in 82% of dislocated hips in this series. Five variables were found to be significant risk factors of failure.

9:42 AM  Paper 254
Does Perfusion MRI Following Closed Reduction of DDH Reduce the Incidence of Avascular Necrosis?
Alex L. Gornitzky, BS, Toms River, NJ
Andrew G. Georgiades, MD, Philadelphia, PA
Mark Seeley, MD, Danville, PA
Bernard D. Horn, MD, Philadelphia, PA
Wudbhav N. Sankar, MD, Wynnewood, PA

Use of a perfusion MRI-based protocol immediately following closed reduction/spica casting for DDH may reduce the proportion of patients who develop AVN as compared to traditionally treated patients.

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9:48 AM  Paper 255

Contrast-Enhanced MRI After Reduction of Infant Hip Dislocation Predicts Avascular Necrosis on Initial Scan Only
Travis H. Matheney, MD, Boston, MA
Benjamin J. Shore, MD, MPH, Boston, MA
Michael P. Glotzbecker, MD, Boston, MA
Samantha A. Spencer, MD, Boston, MA
Michele Walters, MD, Boston, MA
Young Jo Kim, MD, PhD, Boston, MA

Poor femoral epiphysis enhancement on MRI after reduction of infant hip dislocation can predict AVN. Improvement in enhancement is commonly seen by 6 weeks but does not portend a better outcome.

Discussion – 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room W304A
Foot & Ankle I: Pre-operative/Post-operative Management & Diabetes
Moderator(s): Jamal Ahmad, MD, Philadelphia, PA, Michael S. Aronow, MD, West Hartford, CT

8:00 AM  Paper 256

Vitamin D Supplementation and Awareness in Patients Presenting to an Orthopaedic Foot and Ankle Clinic
Kevin J. McCarthy, MD, Germantown, TN
Adam Baker, MD, Happy Valley, OR
Garnett A. Murphy, MD, Germantown, TN
David R. Richardson, MD, Memphis, TN
Ben Grear, MD, Germantown, TN
Susan N. Ishikawa, MD, Cordova, TN

This study examines vitamin D knowledge and supplementation rates of 359 new patients at a foot and ankle clinic. Data was gathered from questionnaires at the initial visit and 1-2 months follow-up.

8:06 AM  Paper 257

Pre-operative Narcotic and Alcohol Use are Risk Factors for Complication in Ankle and Hindfoot Reconstruction
Ryan P. Mulligan, MD, Memphis, TN
Kevin J. McCarthy, MD, Germantown, TN
Ben Grear, MD, Germantown, TN
David R. Richardson, MD, Germantown, TN
Susan N. Ishikawa, MD, Collierville, TN
Garnett A. Murphy, MD, Germantown, TN

Pre-operative narcotic use and alcohol use are risk factors for complications after total ankle arthroplasty, ankle fusion, and hindfoot fusion.

Discussion – 6 Minutes

8:12 AM  Paper 258

Resident Involvement Increases Morbidity but not Mortality in Foot and Ankle Surgery
Christopher E. Gross, MD, Durham, NC
David G. Chang, MBA, MPH, Boston, MA
Selene G. Parekh, MBA, MD, Cary, NC
Samuel B. Adams Jr, MD, Chapel Hill, NC
Jordan Bobnem, MD, Boston, MA

Resident involvement in foot and ankle surgery was associated with an increase in total morbidity and medical complications.

Discussion – 6 Minutes

8:24 AM  Paper 259

Resident Involvement Does Not Increase Complications after Open Reduction Internal Fixation of Ankle Fractures
Philip Louie, MD, Chicago, IL
William W. Schaider, MD, New York, NY
Bryan Haughom, MD, Chicago, IL
Joshua A. Bell, MD, Chicago, IL
Kevin J. Campbell, MD, Chicago, IL
Brett R. Levine, MD, Elmhurst, IL

Short-term post-operative major medical complications do not increase with resident participation in surgery for open reduction internal fixation of ankle fractures.

8:30 AM  Paper 260

Postoperative Narcotic Prescription Practice in Orthopaedic Foot and Ankle Surgery
Thomas M. Hearty, MD, Bethesda, MD
Paul Butler, MD, Grand Rapids, MI
John G. Anderson, MD, Grand Rapids, MI
Donald R. Bobay, MD, Grand Rapids, MI

There is a prescription pain medication misuse problem in the US. This study demonstrates variability in postoperative pain medication type and dispensing in orthopaedic foot and ankle surgery.

8:36 AM  Paper 261

Psychosocial Risk Factors of Post-operative Pain in Ankle and Hindfoot Reconstruction
Ryan P. Mulligan, MD, Memphis, TN
Kevin J. McCarthy, MD, Germantown, TN
Ben Grear, MD, Germantown, TN
David R. Richardson, MD, Germantown, TN
Susan N. Ishikawa, MD, Collierville, TN
Garnett A. Murphy, MD, Germantown, TN

Pre-operative narcotic use, chronic pain disorder, mood disorder, and tobacco use are risk factors for pain after total ankle arthroplasty, ankle fusion, and hindfoot fusion.

Discussion – 6 Minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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8:48 AM  Paper 262
Eff cacy of Immediate Postoperative Pain Control Modalities after Ankle Fracture Fixation
David Y. Ding, MD, San Francisco, CA
Christian A. Pean, MS, New York, NY
Sudheer Jain, New York, NY
Kenneth A. Egol, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY

This study compares the eff cacy of single shot nerve block, continuous infusion of anesthesia by catheter, and general anesthesia in postoperative pain control for ankle fractures.

8:54 AM  Paper 263
Incidence of Venous Thromboembolism in Open Ankle Surgery
David Sing, San Francisco, CA
Daniel Thuillier, MD, San Francisco, CA
Alfred C. Kuo, MD, San Francisco, CA

Venous thromboembolic events after elective open ankle surgery occurred in <1% of 8,291 cases in a large national database.

9:00 AM  Paper 264
Cost-effectiveness of Routine Pharmacologic DVT Prophylaxis Following Select Foot And Ankle Surgeries
Adam Fleischer, DPM, MPH, North Chicago, IL
Richmond Robinson, DPM, North Chicago, IL
Craig Wirt, PhD, Chicago, IL
Carolina Barbosa, PhD, Chicago, IL
Arezou Amidi, DPM, Chicago, IL
Mitchell B. Sheinkop, MD, Chicago, IL
Robert Joseph, DPM, MD, North Chicago, IL

This is a cost-effectiveness analysis comparing routine use of low molecular weight heparin to no chemical prophylaxis for several foot/ankle surgeries with varied venous thromboembolism risk.

9:12 AM  Paper 265
Spray-applied Epidermal Growth Factor for the Treatment of Diabetic Foot Ulcers
Kwang Hwan Park, MD, Seodaemun-Gu, Republic of Korea
Jaewan Sub, MD, Seoul, Republic of Korea
Moses Lee, MD, Seoul, Republic of Korea
Yoo Jung Park, MD, Seoul, Republic of Korea
Dongwoo Shim, Namyangju-Si, Republic of Korea
Seung Hwan Han, MD, Seoul, Republic of Korea
Woojin Choi, MD, Seoul, Republic of Korea
Jin Woo Lee, MD, Seoul, Republic of Korea

The results of the present study indicate that a spray formulation of rhEGF improves the outcome of chronic diabetic foot ulcers in uncontrolled diabetic patients with adequate arterial flow.

9:18 AM  Paper 266
Allogenic Keratinocytes Therapy for the Chronic Diabetic Foot Ulcer
Kwang Hwan Park, MD, Seodaemun-Gu, Republic of Korea
Jaewan Sub, MD, Seoul, Republic of Korea
Moses Lee, MD, Seoul, Republic of Korea
Yoo Jung Park, MD, Seoul, Republic of Korea
Dongwoo Shim, Namyangju-Si, Republic of Korea
Seung Hwan Han, MD, Seoul, Republic of Korea
Woojin Choi, MD, Seoul, Republic of Korea
Jin Woo Lee, MD, Seoul, Republic of Korea

The results of the present study indicate the allogenic keratinocytes therapy may be one of useful treatment options for the chronic diabetic foot ulcers.

9:24 AM  Paper 267
Factors Affecting Hospital Stay And Mortality Of Patients With Infected Diabetic Foot Ulcers
Kyoung Min Lee, MD, Sungnam, Republic of Korea
Chin Y. Chung, MD, PhD, Seongnam, Republic of Korea
Sang Hyeong Lee, Goyang-Si, Republic of Korea
Dae Gun Kwon, Incheon, Republic of Korea
Ki Hyuk Sung, MD, Kyungki, Republic of Korea
Myungki Chung, Seongnam-Si, Republic of Korea
Gye Wang Lee, MD, Seongnam, Republic of Korea
In Hyeok Lee, Seongnam-Si, Gyeonggi-Do, Republic of Korea
Moon Seok Park, MD, Sungnam, Republic of Korea

The length of hospital stay was affected by ESR, HbA1c, BMI, and major vascular disease, whereas patient mortality was affected by age and BUN.

9:36 AM  Paper 268
Conservative treatment and management of Charcot foot arthropathy
Stefan Cristea, FRCS (Ortho), MD, PhD, Bucharest, Romania
Radu Visan, Bucharest, Romania
Andrei I. Prundeau, MD, Bucharest, Romania
Nicholas Marandici, MD, Bucharest, Romania

The goal of our study is to prove the eff cacy of conservative treatment and management of Charcot foot and decreased risk of amputation. Conservative treatment is the option of choice.
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9:42 AM  Paper 269
Do Systemic Inflammation Parameters Correlate With The Radiographic Stages Of Charcot neuro-osteoarthropathy?
Andreas M. Hingsammer, MD, Zürich, Switzerland
Thomas Boeni, MD, Zurich, Switzerland
Niklas Renner, MD, Engelberg, Switzerland
Paul Borbas, MD, Zurich, Switzerland
Pascal Schenk, MD, Sursee, Switzerland
Martin Berli, MD, Basel, Switzerland

Charcot neuro-osteoarthropathy can be associated with increased inflammatory markers, especially in the acute stages.

9:48 AM  Paper 270
Intramedullary Nailing Versus External Ring Fixation For Tibiototalcaneal Arthrodesis In Charcot Arthropathy
James Richman, MD, New York, NY
Adam G. Cota, FRCS, MD, New York, NY
Steven B. Weinfled, MD, New York, NY

In Charcot deformities requiring TTC arthrodesis, IM nails and external ring fixators result in high limb salvage rates but complications requiring further surgery are more likely with IM nails.

8:12 AM  Paper 273
A Minimally-Invasive Method for Cubital Tunnel Decompression
Andrew Loy, MD, MS, New York, NY
Steven Koebler, MD, New York, NY
Sara Guerra, FRCS, MD, Lakeshore, ON, Canada
Harshvardhan Chawla, BS, New York, NY
Michael Hausman, MD, New York, NY

We describe a technique for minimally-invasive cubital tunnel decompression that addresses all points of compression with excellent functional and cosmetic results.

9:48 AM  Paper 271
Effects of Metabolic Syndrome on Surgical Outcome of Carpal Tunnel Release: A Matched Case-Control Study
Young Hak Rob, Incheon, Republic of Korea
Jong Ryouon Baek, Incheon, Republic of Korea
Jung Ho Noh, MD, PhD, Chuncheon-Si, Republic of Korea
Do Hyun Moon, Incheon, Republic of Korea
Beom Koo Lee, Incheon, Republic of Korea

Patients with CTS and metabolic syndrome have delayed functional recovery after CTR that continues for at least 1 year.

8:48 AM  Paper 277
Displacement of Non-Operative Distal Radius Fractures following Splat Removal: A Prospective Study
Lakshmanan Sivasundaram, BS, Granada Hills, CA
Brock Foster, BS, Pasadena, CA
Nathanael D. Heckmann, MD, Los Angeles, CA
William Pannell, MD, Los Angeles, CA
Ram Alluri, MD, Los Angeles, CA
Jeffrey R. Hill, BA, BS, Los Angeles, CA
Braden M. McKnight, BS, Poway, CA
Alidad Ghiassi, MD, Pacific Palisades, CA

Acute distal radius fractures do not displace following removal of cast or splint and physical examination irrespective of fracture pattern and radiographic stability.

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8:54 AM  Paper 278
Outcome of Nerve Transfer versus Nerve Graft in Proximal Ulnar Nerve Injuries to Restore Intrinsic Hand Function
Asser Sallam, MD, PhD, Ismailia, Egypt
Mohamed El-Deeb, MSc, MD, Ismailia, Egypt
Mohamed A. Imam, MD, PhD, London, United Kingdom

Nerve transfer provides a superior alternative surgical option for restoration of intrinsic hand function when compared to nerve grafting in the management of proximal isolated ulnar nerve injuries.

9:00 AM  Paper 279
Matched-Diameter Decellular Allograft vs Cabled Sural Nerve Autograft Reconstruction in a Rat Nerve Defect Model
Peter Tang, MD, Sewickley, PA
Hongkyun Kim, MD, Seoul, Republic of Korea
Daniel R. Whiteman, BS, Philadelphia, PA
Clifford Voigt, MD, Pittsburgh, PA
Mark Carl Miller, PhD, Pittsburgh, PA

In a 10 mm rat sciatic nerve defect model, matched-diameter decellular allograft, sural nerve cable (4-5) grafting, and reverse autograft had equal functional outcomes at 12, 16 and 20 wks.

9:12 AM  Paper 280
Do Surgeons Agree on What Constitutes Tension at Nerve Repair Sites?
Joshua M. Abzug, MD, Timonium, MD
Fraser J. Leversedge, MD, Durham, NC
John P. Taras, Philadelphia, PA
Peter Tang, MD, Sewickley, PA
Harry A. Hoyen, MD, Cleveland, OH
Jonathan E. Isaacs, MD, Richmond, VA

How much “tension” is present in a nerve repair is not agreed upon by surgeons when no nerve or 2 mm of nerve is transected.

9:18 AM  Paper 281
SBRN versus Sural Nerve Grafting: a case-control analysis of 75 patients
Eric R. Wagner, MD, Rochester, MN
Nina Sub, MD, Toronto, ON, Canada
Michelle Kircher, RN, Rochester, MN
Robert J. Spinner, MD, Rochester, MN
Allen T. Bishop, MD, Rochester, MN
Alexander Yong Shik Shin, MD, Rochester, MN

Ipsilateral denervated SBRN nerve grafts in brachial plexus injuries has worse outcomes when compared to sural nerve grafts in the treatment of brachial plexus injuries in a matched series.

9:24 AM  Paper 282
Incidence of Surgery Post Collagenase Injection in the Treatment of Dupuytren's Contracture
Tsun Yee Lau, MD, Fort Lauderdale, FL
Samuel Rosas, MD, Fort Lauderdale, FL
Rishabh Jethanandani, BS, Boca Raton, FL
Frank McCormick, MD, Pompano Beach, FL
Olukemi Fajolu, MD, Cherry Hill, NJ

Incidence of surgery after collagenase injection with manipulation in Dupuytren's Contracture.

9:36 AM  Paper 283
The Diagnostic Role of Nerve Conduction Study Results in Cubital Tunnel Syndrome
Justin J. Koh, MA, Los Angeles, CA
Kodi Azari, MD, Los Angeles, CA
Nelson F. SooHoo, MD, Santa Monica, CA
Prosper Benhaim, MD, Los Angeles, CA

Nerve conduction study results are better suited for assessing disease severity than for diagnosis of cubital tunnel syndrome.

9:42 AM  Paper 284
Simultaneous Steroid Injection After Percutaneous A1 Pulley Release: a Double-Blind Randomized Controlled Trial
Midum Jegal, MD, Cheonan, Republic of Korea
Sung Jong Woo, Busan, Republic of Korea
Hyun-Il Lee, MD, Gangneung-Si, Republic of Korea
Min Jong Park, MD, PhD, Seoul, Republic of Korea

A simultaneous steroid injection after percutaneous A1 pulley release provides a greater range of motion and improvement in symptoms during the early postoperative period.

9:48 AM  Paper 285
Predictors of Return to Work After Carpal Tunnel Release in a Workers’ Compensation Population
Jennife Y. Kho, MD, Modesto, CA
Michael Gaspar, MD, Philadelphia, PA
Patrick Kane, MD, Stratham, NH
Sidney M. Jacoby, MD, Gladwyne, PA
Eon K. Shin, MD, Philadelphia, PA

Psychosocial factors play a predominant role in delayed return to work (RTW) after carpal tunnel release in the Workers’ compensation population, while disease severity and job type do not.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 334.
EDUCATIONAL PROGRAMS

Wednesday, March 2

INSTRUCTIONAL COURSE LECTURE

9:30 AM — 10:30 AM

CD8 Preparation and Delivery of the Orthopaedic Lecture
Moderator: James H. Beaty, MD, Memphis, TN
James J. McCarthy, MD, Cincinnati, OH
Theodore W. Parsons III, MD, FACS, Detroit, MI
David L. Skaggs, MD, Los Angeles, CA

Focuses on utilizing PowerPoint especially for the medical professional and developing a lecture for an orthopaedic audience. Learn tips and tricks you can use to enhance your teaching skill when participating in educational sessions for your colleagues and for patient education – both individually and community wide.

CD14 Statistics for Orthopaedists
Moderator: Mohit Bhandari, MD, PhD, Hamilton, ON, Canada

Reviews and provides statistical methods that are useful in orthopaedic research.

Symposium
10:30 AM — 12:30 PM

Chapin Theater

Foot and Ankle Surgery for the Sports Medicine Physician (K)
Moderator: Timothy Charlton, MD, Los Angeles, CA

Foot and ankle problems account for over 20% of the sports medicine injuries seen on the field of play, yet understanding of these problems is often limited to the fellowship trained foot and ankle surgeon. The primary objective of this symposia is to discuss the most common problems seen on field, the management of these problems, and the most advanced treatment options.

I. Lis Franc Fractures and Sprains in the Elite Athlete
   Robert B. Anderson, MD, Charlotte, NC

II. Lateral Ankle Instability and Peroneal Tendon Pathology
    Richard D. Ferkel, MD, Van Nuys, CA

III. Cartilage and OCD Lesions of the Talus - Current Treatment Options in the Elite Athlete
     Eric Giza, MD, Sacramento, CA

IV. Jones Fracture and Stress Fractures - Treatment Choices in the Elite Athlete
    Martin J. O’Malley, MD, New York, NY

Symposium
10:30 AM — 12:30 PM

Valencia Room A

Gun Shot and Explosive Wounds (L)
Co-Moderators: James R. Ficke, MD, Baltimore, MD
Camilo Restrepo, MD, Philadelphia, PA

Will discuss the impact of high, intermediate and low velocity gun shot and other violent wounds as well as how to evaluate these patients, operative and nonoperative treatments and rehabilitation. This symposium is a collaboration between AAOS and the 2016 Guest Nation of Colombia.

I. Introduction
   James R. Ficke, MD, Baltimore, MD

II. Impact of Gun Shot Wounds
    James R. Ficke, MD, Baltimore, MD and Camilo Restrepo, MD, Philadelphia, PA

III. How to Put Them Back Together Again / Bone Trauma of High Velocity Gun Shot Wound
    Camilo Restrepo, MD, Philadelphia, PA

IV. Civil Gun Shot Wounds: How Do We Manage It
    Juan M. Concha, MD, Popayan, Colombia

V. Gun Shot Wounds in the Upper Extremity
    Fabio Suarez, MD – Bogotá, Colombia

VI. Gun Shot Wounds in the Lower Extremity
    Oscar Calderón, MD - Colombia

VII. Pelvic and Acetabular Gun Shot Wounds
    Jorge Alonso, MD – Mobile, AL

VIII. Evaluation and Management of Articular Lesions
     Carlos Satizabal, MD - Bogotá, Colombia

IX. High Speed Spinal Gun Shot Wounds in the USA
    Carlo J. Bellabarra, MD – Seattle, WA

X. Antipersonal Mine Wounds: Rational Management
   Carlos Valderrama, MD – Medellin, Colombia

XI. Amputations – Decision Making First Surgery
    Rami Mosheiff, MD – Jerusalem, Israel

XII. Massive Attacks
     Luis Carlos Morales, MD – Bogotá, Colombia

XIII. Terrorist Attacks: What Can We Learn From Our Experience in Colombia?
      Luis Carlos Morales, MD – Bogotá, Colombia

XIV. Hand Violence Lesions: Treatment and Reconstruction
    Elkin Lozano-González, MD – Tomila, Colombia

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off-label use). For full information refer to page 15.

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Wednesday, March 2

Symposium
10:30 AM — 12:30 PM
Valencia Room B

Controversies in Pediatric Sports Medicine: A Case-based Approach (M)
Co-Moderators: Eric W. Edmonds, MD, San Diego, CA
Matthew Milewski, Farmington, CT

Case-based debate examining treatment options for four common pediatric sports injuries. Shoulder instability discussion includes first-time traumatic dislocation and multidirectional instability. Patella instability and osteochondritis dissecans of the knee discussion covers the various scenarios that these children may present and then there is a discussion of pediatric anterior cruciate ligament and tibial spine fractures.

I. Anterior Cruciate Ligament
   Michael T. Busch, MD, Atlanta, GA
II. Anterior Cruciate Ligament
    Theodore J. Ganley, MD, Philadelphia, PA
III. Patella Instability
     Daniel W. Green, MD, New York, NY
IV. Co-moderator and Shoulder Instability
    Matthew Milewski, MD, Farmington, CT
V. OCD of the Knee
    Kevin G. Shea, MD, Boise, ID
VI. OCD of the Knee
    Jennifer M. Weiss, MD, Los Angeles, CA
VII. Patella Instability
     Lawrence Wells, MD, Philadelphia, PA

INSTRUCTIONAL COURSE LECTURE
10:30 AM — 12:30 PM

221 Recurrent Dislocation after Total Hip Arthroplasty: Controversies and Solutions
   Moderator: Paul E. Lachiewicz, MD, Chapel Hill, NC
   Stephen A. Jones, MD,
   Vale Of Glamorgan, United Kingdom
   Samuel S. Wellman, MD, Durham, NC
   By better understanding how to effectively prevent, diagnose, and treat the infected total knee arthroplasty (TKA), the orthopaedic surgeon can improve and optimize care for TKA patients.

222 The Total Knee Infection: From Prevention to Treatment
   Moderator: Khaled J. Saleh, MD, MSc, Springfield, IL
   William A. Jiranek, MD, Richmond, VA
   William M. Mihalko, MD, PhD, Germantown, TN
   Wayne G. Paprosky, MD, Winfield, IL
   By better understanding how to effectively prevent, diagnose, and treat the infected total knee arthroplasty (TKA), the orthopaedic surgeon can improve and optimize care for TKA patients.

223 Orthopaedic Basic Science for the Practicing Physician
   Moderator: Philipp Leucht, MD, New York City, NY
   Geoffrey D. Abrams, MD, Atherton, CA
   Thomas A. Einhorn, MD, New York, NY
   The purpose of this course is to educate the practicing orthopaedic surgeon in the most recent developments in orthopaedic basic science with a special focus on fracture healing, osteoarthritis, and orthobiologics.

224 The Management of Thumb Basilar Joint Arthritis
   Moderator: Sanjeev Kakar, MD, Rochester, MN
   Ryan P. Calfee, MD, Saint Louis, MO
   Amy L. Ladd, MD, Palo Alto, CA
   A. Lee Osterman, MD, Villanova, PA
   Provides an overview to the pathophysiology of basilar thumb joint arthritis and reviews the treatment options/available evidence including arthroscopic debridement, trapeziectomy alone or with interposition, trapeziectomy with suspension arthroplasty, arthrodesis, and joint replacement. Areas of controversy such as how to address metacarpophalangeal (MCP) joint hyperextension and the management of failed primary basilar thumb joint reconstructions are covered. Cases for panel and audience discussion and an algorithm are presented.

225 Pediatric Hand and Wrist Fractures: An Approach to their Management and the Ability to Treat the Complications that Inevitably Occur
   Moderator: Joshua M. Abzug, MD, Timonium, MD
   Andrea S. Bauer, MD, Boston, MA
   Roger Cornelius, MD, Cincinnati, OH
   Theresa O. Wyrick, MD, Little Rock, AR
   Management of pediatric hand and wrist fractures is presented in a case-based manner. Detailed discussion regarding pearls and pitfalls of initial treatment, and avoiding the potential complications as well as managing them, aid the orthopaedic surgeon in practice.

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Wednesday, March 2

226 Practical Tips for Implementing Bundled Payments in Your Practice
Moderator: Kevin J. Bozic, MD, MBA, Austin, TX
Mark I. Froimson, MD, Hunting Valley, OH
Richard Iorio, MD, New Rochelle, NY
Steven F. Schutzer, MD, Hartford, CT

Provides attendees with a greater understanding of the policy trends driving new payment methodologies, their readiness for participation in bundled payments, and strategies for successful implementation of value-based payment models.

227 Elbow Trauma Gone Bad
Moderator: Emilie V. Cheung, MD, Redwood City, CA
April D. Armstrong, MD, Hershey, PA
Robert Z. Tashjian, MD, Salt Lake City, UT

Complications ensuing from elbow trauma can be challenging to manage. We discuss current understanding on recognizing and treating instability patterns. Critical concepts regarding soft tissue complications such as stiffness, wound healing, and nerve injury are discussed.

228 From the Glenoid to the Radial Tuberosity - Management of Biceps Pathology in 2016
Moderator: Anthony A. Romeo, MD, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Laith M. Jazrawi, MD, New York, NY
Eric J. Strauss, MD, New York, NY

Provides a comprehensive overview of management of the biceps from the glenoid to the radial tuberosity, with an evidence-based approach focusing on the cost-effectiveness and value of all available surgical approaches.

229 Complex Proximal Tibia Fractures: Work Up, Surgical Approaches, and Definitive Treatment Options
Moderator: Philip R. Wolinsky, MD, Sacramento, CA
Nirmal C. Tejwani, MD, New York, NY
Brad J. Yoo, MD, Portland, OR
Bruce Ziran, MD, FACS, Atlanta, GA

Discusses intra- and extra-articular proximal tibia fracture evaluation and management, including soft tissue injuries, surgical approaches, and reduction and fixation strategies.

230 What's Wrong with the Bone?
Moderator: Kristy L. Weber, MD, Philadelphia, PA
Richard L. McGough, MD, Pittsburgh, PA
Michael P. Mott, MD, Detroit, MI

Provides an overview of common metabolic lesions, infection, and benign and malignant bone tumors occurring in children and adults. Imaging characteristics and the appropriate diagnostic workup are reviewed. A robust discussion and case-based format is used.

283 Management of Common Complications of Total Knee Arthroplasty: A Case-based Discussion
Moderator: Mark W. Pagnano, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
Michael P. Bolognesi, MD, Durham, NC
Henry D. Clarke, MD, Phoenix, AZ
David F. Dalury, MD, Indianapolis, IN
Brian R. Hamlin, MD, Pittsburgh, PA
Arlen D. Hansen, MD, Rochester, MN
Adolph V. Lombardi Jr, MD, New Albany, OH
Aaron G. Rosenberg, FACS, MD, Chicago, IL
Robert T. Trousdale, MD, Rochester, MN
Thomas P. Vail, MD, San Francisco, CA

The topics that are covered include the most common complications and reasons for reoperation after total knee arthroplasty (TKA): instability after TKA (tibiofemoral and patello-femoral), infection after TKA (early and late), wound healing problems after TKA, stiffness after TKA, extensor mechanism disruption after TKA, and periprosthetic fracture after TKA. This course does not cover the generic topic of knee revision for implant loosening, which is covered in other ICLs.

284 Degenerative Spondylolisthesis: An Evidence-based Assessment of Treatment Options and Outcomes
Moderator: John C. France, MD, Morgantown, WV
Ivan Cheng, MD, Redwood City, CA
Theodore J. Choma, MD, Columbia, MO
Scott D. Daffner, MD, Morgantown, WV
Michael D. Daubs, MD, Las Vegas, NV
John G. Devine, MD, Augusta, GA
Mitchel B. Harris, MD, Boston, MA
James Kang, MD, Pittsburgh, PA
Ronald A. Lehman, MD, Creve Coeur, MO
Robert W. Molinari, MD, Pittsburgh, PA
Kern Singh, MD, Chicago, IL
Seth K. Williams, MD, Madison, WI

Covers treatment options and outcomes for degenerative spondylolisthesis. The cases review diagnostic, nonsurgical, and surgical techniques to show interventions that the literature supports and those that need further investigation.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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**THE WAY I SEE IT...**

**10:30 AM — 11:30 AM**
Technology Theater (in Exhibit Hall)

**The Way I See It...Marketing Yourself**
*Moderator: James R. Andrews, MD, Gulf Breeze, FL*
*Bill Champion, Omaha, NE*
*Roger C. Holstein, Denver, CO*
*Howard J. Luks, MD, Katonah, NY*

Learn the “whys” of what the experts do in marketing. Benefit from the inside story - what each presenter wants you to know about a top-of-the-mind issue. Experts share their experience and views, just the way they see it.

**PAPER PRESENTATION**

**10:30 AM — 12:30 PM**
Valencia Room D

**Shoulder & Elbow II: Reverse Shoulder Arthroplasty**
*Moderator(s): Joseph A. Abboud, MD, Philadelphia, PA, Gordon I. Groh, MD, Asheville, NC*

**10:30 AM**

**Paper 286**

**Electromyographic And Kinetic Function Of Reverse Total Shoulder Arthroplasty**
*Stephane Pelet, MD, PhD, Québec, QC, Canada*
*Mathieu Ratte-Larouche, MD, Québec, QC, Canada*

The sequence of muscular activation in RTSA is different than in normal shoulder and demonstrates a significant contributon of both the trapezius and latissimus dorsi.

**10:36 AM**

**Paper 287**

**Reverse Total Shoulder Arthroplasty Outcomes With And Without Repair Of The Subscapularis**
*Richard J. Friedman, MD, Charleston, SC*
*Pierre-Henri Flurin, MD, Merignac, France*
*Thomas W. Wright, MD, Gainesville, FL*
*Joseph D. Zuckerman, MD, New York, NY*
*Christopher Roche, MS, MBA, Gainesville, FL*

Significant improvements in clinical outcomes and motion were seen in both cases, but not repairing the subscapularis had a higher complication rate, including dislocations and scapular notching.

**10:42 AM**

**Paper 288**

**Clinical Outcomes of Reverse Shoulder Arthroplasty in Patients 65 Years of Age or Younger**
*Brian T. Samuelsen, MD, Rochester, MN*
*Eric R. Wagner, MD, Rochester, MN*
*Matthew Houdek, MD, Rochester, MN*
*Bassem T. Elhassan, MD, Rochester, MN*
*Joaquin Sanchez-Sotelo, MD, Rochester, MN*
*Robert H. Cofield, MD, Rochester, MN*
*John W. Sperling, MD, MBA, Rochester, MN*

This investigation assessed clinical and radiographic outcome measures in a consecutive series of young patients (<65) after Reverse Shoulder Arthroplasty.

**10:54 AM**

**Paper 289**

**Radiographic and Clinical Results of an Adjustable Press-Fit Humeral Stem in Reverse Shoulder Arthroplasty**
*Samuel Harmsen, MD, San Francisco, CA*
*Tom R Norris, MD, San Francisco, CA*

Excellent, predictable humeral fixation is achievable with use of an adjustable press-fit humeral stem in reverse shoulder arthroplasty.

**11:00 AM**

**Paper 290**

**Neutral Humeral Version In Reverse Shoulder Arthroplasty Can Reduce Impingement In Activities Of Daily Living**
*Xiang Chen, MS, New York, NY*
*Andreas Kontaxis, MSc, PhD, New York, NY*
*Julien Berhouet, MD, Saint Lyr Sur Loire, France*
*David M. Dines, MD, Uniondale, NY*
*Edward V. Craig, MD, Bloomington, MN*
*Russell F. Warren, MD, New York, NY*
*Lawrence V. Gulotta, MD, New York, NY*

The study performed virtual RSA in 30 pre-op OA subjects and calculated impingement for a set of daily activities. Results showed that impingement was minimized for 0° humeral component version.

**11:06 AM**

**Paper 291**

**The Effect of Shoulder Humeral Component Length and Material on Bone Stresses: A Finite Element Analysis**
*Najmeh Razfar, MSc, London, ON, Canada*
*Jacob Reeves, MSc, London, ON, Canada*
*G Daniel G. Langobr, MSc, London, ON, Canada*
*Ryan Willing, PhD, Binghamton, NY*
*George S. Athwal, MD, London, ON, Canada*
*James A. Johnson, PhD, London, ON, Canada*

Shoulder arthroplasty humeral implant material and length have a substantial effect on proximal humeral bone stresses.

**Discussion – 6 Minutes**
Wednesday, March 2

11:18 AM  Paper 292
Prediction of Scapular Notching using 3D CT Simulation Software and Video-Based Motion Analysis
Joel Kolmodin, MD, Cleveland Hts, OH
Iyoob Uchechukwu Davidson, MD, Shaker Heights, OH
Bong-Jae Jun, PhD, Cleveland, OH
Nitunj SoDBi, BA, Cleveland, OH
Naveen Subbas, MD, Cleveland, OH
Thomas E. Patterson, PhD, Cleveland, OH
Zong-Ming Li, PhD, Cleveland, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Eric T. Ricchetti, MD, Cleveland, OH

The clinical impact of scapular notching is controversial This clinical study of 415 rTSA patients demonstrates negative impact of scapular notching.

11:24 AM  Paper 293
Comparison of Outcomes with Reverse Total Shoulder Arthroplasty in Patients with and without Scapular Notching
Joseph D. Zuckerman, MD, New York, NY
Lynn A. Crosby, MD, Augusta, GA
Pierre-Henri Flurin, MD, Merignac, France
Thomas W. Wright, MD, Gainesville, FL
Christopher Rocche, BS, MBA, Gainesville, FL

The clinical impact of scapular notching is controversial This clinical study of 415 rTSA patients demonstrates negative impact of scapular notching.

11:30 AM  Paper 294
Reverse Shoulder Outcomes with Scapular Deformities: Augmented Glenoid Baseplates vs Bone Grafting
Thomas W. Wright, MD, Gainesville, FL
Richard B. Jones, MD, Asheville, NC
Pierre-Henri Flurin, MD, Merignac, France
Joseph D. Zuckerman, MD, Mamaroneck, NY
Christopher Rocche, BS, MBA, Gainesville, FL

This study compares rTSA clinical outcomes using augmented baseplates and bone grafting in patients with severe glenoid wear and demonstrates each technique achieves equivalent outcomes.

11:42 AM  Paper 295
Shaped-Bio Reverse Shoulder Arthroplasty for Primary Glenohumeral Osteoarthritis with Posterior Glenoid Bone Loss
Samuel Harmsen, MD, San Francisco, CA
Danielle Casagrande, MD, San Francisco, CA
Tom R Norris, MD, San Francisco, CA

Shaped Bio-Reverse Shoulder Arthroplasty for treatment of primary glenohumeral osteoarthritis with posterior glenoid bone loss is associated with excellent clinical outcomes.

11:48 AM  Paper 296
Angled BIO-RSA: a Solution for Asymmetrical Glenoid Erosion and Deficiency
Pascal Boileau, MD, Nice, France
Nicolas Morin-Salvo, Nice, France
Marc-Olivier GAUCI, Nice, France
Gregory Moineau, Brest, France
Pierre Deransart, Saint-Martin D’Uriage, France
Gilles Walch, MD, Lyon, France

The use of asymmetrical humeral bone graft combined with eccentric reaming restores the glenoid bone stock and allows to obtain correct alignment of the glenoid implant with minimum morbidity.

11:54 AM  Paper 297
Revision Reverse Arthroplasty (RSA): A 12 Year Review of a Lateralized Implant
Brent Stephens, MD, Decatur, GA
Peter Simon, PhD, Tampa, FL
Rachel Clark, BA, Tampa, FL
Lisa Vaccaro, Tampa, FL
Adam Lorenzetti, MD, Loma Linda, CA
Geoffrey P. Stone, MD, Houma, LA
Mark A. Frankle, MD, Temple Terrace, FL

RSA revisions are becoming increasingly common. Although revision RSA is a challenging procedure with a higher risk for complications, patients still exhibit significant clinical improvements.

12:06 PM  Paper 298
Outcomes of the Reverse Prosthesis in Revision Shoulder Arthroplasty
Eric R. Wagner, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Matthew Crowe, MD, Rochester, MN
Bassem T. Elhassan, MD, Rochester, MN
Robert H. Cofeld, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN

RSA in the revision setting has reasonable implant survival rates, with a relatively high rate of glenoid loosening, especially in patients with a history of tobacco use and diabetes.

12:12 PM  Paper 299
Revision of Reverse Shoulder Arthroplasty
Michael J. Koch, MD, Munich, Germany
Judith Lifka, MD, Ismaning, Germany
Ashish Gupta, MD, Brisbane, Australia
Ludwig Seebauer, MD, Munich, Germany

Revision Surgery of Reverse Shoulder Arthroplasty requires precise analysis and preoperative planning to avoid further revision procedures and implant removal.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off-label use). For full information refer to page 15.

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Wednesday, March 2

12:18 PM  Paper 300
Reverse Total Shoulder Arthroplasty After Failed Open Reduction And Internal Fixation Of Proximal Humerus Fracture
Florian Grubhofer, Zurich, Switzerland
Karl Wieser, MD, Zurich, Switzerland
Christian Gerber, MD, Zurich, Switzerland

In this retrospective study, we analyze outcome data of patients treated with reversed total shoulder arthroplasty after failed open reduction and internal fixation of a proximal humerus fracture.

Discussion – 6 Minutes

12:30 PM  Paper 301
Incidence of Symptomatic DVT/PE and Bleeding Complications Following Knee and Hip Arthroplasty
Ryan Nunley, MD, Saint Louis, MO
Denis Nam, MD, MSc, St Louis, MO
James A. Keeney, MD, Columbia, MO
Staci Johnson, M.Ed, Saint Louis, MO
Douglas J. McDonald, MD, MS, Webster Groves, MO
John C. Globsy, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO

Patients receiving mobile compression devices were equivalent in the prevention of VTEs, with reduced major bleeding events, wound complications, days of drainage, and hospital readmissions.

Discussion – 6 Minutes

10:30 AM — 12:30 PM
W414

PAPER PRESENTATION

10:30 AM  Paper 302
VTE prophylaxis in Primary Total Knee Arthroplasty: an examination of 30,499 patients from a US Total Joint Registry
Guy Cafri, PhD
Michael K. Gould, MD, MS, Pasadena, CA
T Craig Cheatham, Pasadena, CA
T. C. Cheetham, Pasadena, CA
Liz Paxton, MA, Rcho Santa Fe, CA
Stefano A. Bmt, MD, Oakland, CA
Monti Khatod, MD

Fondaparinux and Coumadin were more efficacious than aspirin in PE prophylaxis after TKA.

10:42 AM  Paper 303
Low Dose Aspirin Is Effective for Venous Thromboembolism Prophylaxis Following Total Joint Arthroplasty
Javad Parvizi, MD, FRCS, Philadelphia, PA
Ronald Huang, MD, Philadelphia, PA
Camilo Restrepo, MD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA
William J. Hozack, MD, Philadelphia, PA
Jess H. Lonner, MD, Philadelphia, PA

This study demonstrates that ASA 81mg BID is as effective for venous thromboembolism prophylaxis following total joint arthroplasty as ASA 325mg BID.

Discussion – 6 Minutes

10:54 AM  Paper 304
Validated Risk Stratification System for Pulmonary Embolism After Primary Total Joint Arthroplasty
Daniel D. Bohl, MD, MPH, Chicago, IL
Mitchell Maltenfort, PhD, Philadelphia, PA
Ronald Huang, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Jay R. Lieberman, MD, Los Angeles, CA
Craig J. Della Valle, MD, Chicago, IL

We present a risk stratification system for PE following primary TJA that was developed using a nationwide prospective registry and validated among a population of patients from a single institution.

11:00 AM  Paper 305
Which Hospital and Clinical Factors Drive 30-Day Readmission after TKA?
Steven M. Kurtz, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Kevin Ong, PhD, Philadelphia, PA
Edward M. Adler, MD, New York, NY
Frank R. Kolisek, MD, Greenwood, IN
Michael T. Manley, PhD, Wyckoff, NJ

We observed impressive variability in 30 day readmission among hospitals across the US, suggesting potential strategies for reducing 30d RA after TKA by optimizing clinical pathways.

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Wednesday, March 2

11:06 AM  Paper 306
Timing of Complications Following Total Joint Arthroplasty
Daniel D. Bohl, MD, MPH, Chicago, IL
Andre Samuel, MD, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Adam Lukasiewicz, MSc, New Haven, CT
Bryce A. Basques, MD, Chicago, IL
Brett R. Levine, MD, Elmhurst, IL
Jonathan N. Grauer, MD, New Haven, CT

These precisely described time periods enable heightened awareness amongst orthopaedic surgeons during the first month following total joint arthroplasty procedures.

Discussion – 6 Minutes

11:18 AM  Paper 307
Predictors of Acute Ischemic Stroke after Total Knee Arthroplasty
Mariano Menendez, Boston, MA
Eric M. Greber, MD, Little Rock, AR
Charles S. Schumacher, MD, Boston, MA
C L. Barnes, MD, Little Rock, AR

This population-based study showed that patients undergoing bilateral TKA are nearly 3 times more likely to develop acute ischemic stroke compared with unilateral TKA patients.

11:24 AM  Paper 308
Inpatient Falls after Total Knee Arthroplasty: Outcomes and National Trends
Yi-Loong C. Woon, MD, Chicago, IL
Vincent M. Moretti, MD, Chicago, IL
Brian E. Schwartz, MD, Chicago, IL
Alexander C. Gordon, MD, Morton Grove, IL

0.11% of total knee arthroplasty patients sustain inpatient falls. This frequency was stable over the past decade. Fall risk appears greatest in older patients and those with multiple co-morbidities.

11:30 AM  Paper 309
Do Glycemic Markers Predict The Occurrence Of Complications In Diabetic Patients After Total Knee Arthroplasty?
Young Gon Na, MD, Seongnam-Si, Republic of Korea
Ji Sup Hwang, Seoul, Republic of Korea
Seok Jin Kim, MD, Gyeonggi-Do, Republic of Korea
Ankur B. Banne, MD, Navi Mumbai, India
Tae Kyun Kim, MD, Seongnam-si, Republic of Korea

there is a positive correlation among the various available glycemic markers among patients with diabetes undergoing TKA

Discussion – 6 Minutes

11:42 AM  Paper 310
Complication Rates after Total Hip and Knee Arthroplasty in Patients with Hepatitis C Compared to Matched Controls
Brian C. Werner, MD, Charlottesville, VA
Jourdan M. Cancienne, MD, Charlottesville, VA
Quanjun Cui, MD, Charlottesville, VA
James A. Broene, MD, Charlottesville, VA

Patients with hepatitis C are at a significantly increased risk for complications following TKA and THA, including infection, revision arthroplasty, medical complications and blood transfusion.

11:48 AM  Paper 311
Readmissions and Complications for Patients Requiring a Blood Transfusion After Primary Total Knee Arthroplasty
Zan Naseer, Forest Hill, MD
Clayton Alexander, MD, Indianapolis, IN
Mostafa H. El Daflawy, MD, Indianapolis, IN
Louis C. Okafor, MD, Indianapolis, IN
Karthikeyan E. Ponnumamy, MD, Indianapolis, IN
Robert S. Sterling, MD, Owings Mills, MD
Richard L. Skolasky Jr, ScD, Indianapolis, IN
Harpal S. Khanuja, MD, Indianapolis, IN

For primary TKA patients, transfusion was an independently risk factor for 30-day surgical complications, 60-day readmissions, and 60-day periprosthetic joint infections, but not revisions.

11:54 AM  Paper 312
Complications after TKA in Patients with Inflammatory Arthritis
Jourdan M. Cancienne, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
James A. Broene, MD, Charlottesville, VA

Rheumatoid, Psoriatic Arthritis, and Ankylosing Spondylitis are associated with significantly increased rates of infection, VTE, medical complications, and revision surgery after primary TKA.

Discussion – 6 Minutes

12:06 PM  Paper 313
Risk Factors For Infection In Lower Limb Arthroplasty
Jon Clarke, Glasgow, United Kingdom
Alistair M. Ewen, PhD, Clydebank, United Kingdom
Mohammed Almustafa, MBBS, MA, Wigan, United Kingdom
Frederic Picard, MD, FRCS, Glasgow, United Kingdom

Low blood MCV, Dermabond® and more aggressive chemical DVT prophylaxis associated with higher risk for infection after primary total knee arthroplasty.

Discussion – 6 Minutes

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Wednesday, March 2

12:12 PM  Paper 314
The Impact of Patient and Surgical Factors for TKA Infection: An analysis of 64,566 joints from the NZJR
Edward Tayton, Bournemouth, United Kingdom
Chris Frampton, Christchurch, New Zealand
Gary J. Hooper, MD, Christchurch, New Zealand
Simon Young, MD, FRACS, Wellington, New Zealand

This NZJR study of 64,566 primary TKAs linked male sex, previous surgery, laminar flow, and antibiotic laden cement to the development of prosthetic joint infection via a multivariate analysis.

12:18 PM  Paper 315

Botox to Treat Flexion Contracture After TKA: A Double-Blinded RCT
Eric B. Smith, MD, Media, PA
Jenny Cai, BS, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Ari Greis, DO, Philadelphia, PA

This double-blinded, prospective, randomized controlled study showed that Botulinum toxin A can improve knee extension for subjects with a flexion contracture in routine patients following TKA.

10:36 AM  Paper 317
Outcomes in Revision Tommy John Surgery in Major League Baseball Pitchers
Joseph Liu, MD, New York, NY
Grant Garcia, MD, New York, NY
Stan Conte, PT, San Carlos, CA
Neal S. ElAttrache, MD, Los Angeles, CA
David W. Altchek, MD, New York, NY
Joshua S. Dines, MD, New York, NY

The rate of revision Tommy John surgery in MLB pitchers is substantially higher than previously reported; additionally, pitching performance declines across the majority of performance categories.

10:54 AM  Paper 319
MRI and Plain Radiographs have poor co-relation for symptomatic ACJ Arthritis
Bijayendra Singh, FRCS (Ortho), Maidstone, United Kingdom
Arpit Goyal, MS, MBBS, Agra, India
Pallavi Gupta, MD, MBBS, Agra, India
Rajesh Bawale, MBBS, MRCS, Barkingside, Essex, United Kingdom

The purpose of this study was to compare the radiologic changes in symptomatic and asymptomatic patients undergoing arthroscopic ACJ excision.

11:00 AM  Paper 320
Radiographic and Clinical Outcomes after Anatomic Coracoclavicular Reconstruction: Does Graft Size Matter?
Emmanuel Eisenstein, MD, Brownsville, TX
Brian R. Waterman, MD, El Paso, TX
Joseph T. Lanzi Jr, MD, El Paso, TX
Mark P. Pallis, DO, El Paso, TX

Anatomic coracoclavicular reconstruction outcomes amongst a large cohort of patients.
Wednesday, March 2

11:06 AM  Paper 321
The Less Shoulder Examination Of Acromioclavicular Joint Pathology: A Clinical Diagnosis Decision Analysis
Samuel Rosas, MD, Fort Lauderdale, FL
Benedict U. Nwachukwu, MD, MBA, New York, NY
Michael K. Krill, ATC, MS, Columbus, OH
Shatena L. Watson, BA, Shalimar, FL
Frank McCormick, MD, Pompano Beach, FL

The purpose of this study was to identify and create a decision analysis scenario to diagnose acromioclavicular joint pathology in the clinic based on level I-II physical exam and ultrasound studies.

Discussion – 6 Minutes

11:18 AM  Paper 322
Survivorship after Arthroscopic Management of Glenohumeral Osteoarthritis with a Minimum 5 year Follow-up
Peter J. Millett, MD, MSc, Vail, CO
Joshua A. Greenspoon, Vail, CO
Marilee P. Horan, MPH, Vail, CO

CAM was developed as a joint preservation surgery in young or active patients with glenohumeral OA. The purpose of this study was to determine the 5 year survivorship after arthroscopic CAM procedure.

11:24 AM  Paper 323
The Natural History of Primary Anterior Glenohumeral Joint Dislocation in Adolescent Patients
Nick Beattie, BA, MBCHB, Edinburgh, United Kingdom
Simon B. Roberts, MBCHB, MSc, Edinburgh, United Kingdom
Christopher M. Robinson, MD, Edinburgh, United Kingdom

Natural history of primary anterior shoulder dislocation in adolescents. Prospective data of 133 patients. These patients have a high rate of repeat dislocation, which occurs within two years.

11:30 AM  Paper 324
Intra Articular Bone Graft on the Latarjet Procedure Increases Range of Motion without Compromising Joint Stability
Yoshiaki Itoigawa, MD, Rochester, MN
Alexander W. Hooke, MA, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Scott P. Steinmann, MD, Rochester, MN
Kristin D. Zhao, Rochester, MN
Nobuyuki Yamamoto, MD, Sendai, Japan

During the Latarjet procedure, an intra-articular bone graft results in a greater external rotation range of motion versus an extra-articular bone graft with no compromise to the stabilizing effect.

Discussion – 6 Minutes

11:42 AM  Paper 325
Outcomes Of Distal Tibia Allograft Reconstruction for Recurrent Anterior Shoulder Instability
Rachel M. Frank, MD, Chicago, IL
Petar Goličanin, BS, Boston, MA
Saleh Aiyash, MA, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Matthew T. Provencher, MD, Boston, MA

Fresh distal tibia allograft reconstruction for recurrent anterior shoulder instability results in a clinically stable joint with excellent clinical outcomes and minimal graft reabsorption.

11:48 AM  Paper 326
Tenotomy or Tenodesis of the Biceps Tendon? How Surgeons Decide.
Justin L. Hodgins, MD, Toronto, ON, Canada
David Kovacevic, MD, Brooklyn, NY
Janice He, BA, New York, NY
Charles M. Jobin, MD, New York, NY
William N. Levine, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY

Surgeons have strong biases for biceps tenodesis versus tenotomy despite a lack of high quality evidence and patient activity level and cosmesis are the most important surgeon considerations.

11:54 AM  Paper 327
Arthroscopic Proximal Biceps versus Subpectoral Tenodesis: Short-Term Differences and Long-term Follow-up
Stephen C. Weber, MD, Sacramento, CA

Arthroscopic proximal biceps tenodesis is shown to be equivalent to open distal tenodesis at long-term follow-up, with less cost

Discussion – 6 Minutes

12:06 PM  Paper 328
Complication and Re-operation Rates following Pectoralis Major Tendon Repair in the Young Active Population
Drew W. Nute, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
John Dunn, MD, El Paso, TX
Brian R. Waterman, MD, El Paso, TX

In the largest study on clinical outcomes after pectoralis major repair in a young athletic cohort, we show that 94% of patients are able to return to full activity with less than a 6% rerupture rate.

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Wednesday, March 2

12:12 PM  Paper 329
Difference in Site of PASTA Lesion between Shoulders with Recurrent Anterior Instability and Throwing Injuries
Yusuke Ueda, MD, Tokyo, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Keisuke Matsuki, MD, Funabashi, Japan
Norimasa Takabashi, MD, Funabashi, Japan
Nobuki Kawai, MD, Chiba, Japan
Morihito Tokai, MD, Funabashi, Chiba, Japan
Kazutomo Onishi, MD, Chiba, Japan
Shota Hoshika, MD, Funabashi, Japan
Hiroshige Hamada, Funabashi-Shi, Japan

In shoulders with traumatic instability, 5.3% had PASTA tears which involves anterior rotator cable insertion; however, in throwers, 38% had PASTA lesion without involving the cable insertion.

12:18 PM  Paper 330
Shoulder Arthroscopy in the Older Adult Population: Who’s at Risk for Postoperative Complications?
Alexis C. Colvin, MD, New York, NY
Christian A. Pean, MS, New York, NY
William J. Rubenstein, BA, New York, NY

Independent patient characteristics associated with increased risk of adverse event occurrence in shoulder arthroscopy included age above 80, BMI greater than 35, and functional dependent status.

10:36 AM  Paper 332
Comparison of perioperative times at an Ambulatory Surgery Center and an outpatient hospital
Michael Ryan, MD, New York, NY
William Rossy, MD, Hoboken, NJ
Daniel Bunger, Bronx, NY
Raj Karia, MPH, New York, NY
Joseph A. Bosco III, MD, New York, NY

With the current state of healthcare reform and the increasing population of insured patients, it is imperative that all inefficiencies be identified and addressed.

10:42 AM  Paper 333
The Five-Year Experience of an Orthopaedic Specialty Hospital: An Assessment of the Safety and the Efficiency
Eric M. Padegimas, MD, Philadelphia, PA
Matthew L. Ramsey, MD, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Kelly Doyle, RN, Bensalem, PA
Michael West, CEO, Philadelphia, PA
Richard H. Rothman, MD, Philadelphia, PA
Alexander Vaccaro, MD, PhD, Philadelphia, PA
Surena Namdari, MD, MSc, Philadelphia, PA

We have performed over 8,000 surgeries in the first five years of our specialty hospital. Orthopedic care has been delivered safely and efficiently with low transfer rates and short hospital courses.

An alphabetical faculty financial disclosure list can be found starting on page 334.

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Wednesday, March 2

11:00 AM Paper 335
Improvement in TJA Quality Metrics: Year One vs. Year Three of the Bundled Payment for Care Initiative
Richard Iorio, MD, New Rochelle, NY
Joseph D. Zackerman, MD, Mamaroneck, NY
Joseph A. Bosco III, MD, Irvington, NY
James D. Slover, MD, New York, NY
Stephen Yu, M.D., Garden City, MI
John M. Dundon, MD, Dayton, OH
Yousuf Sayeed, BS, Ponce, Puerto Rico

Changes in care coordination, clinical care pathways, and evidence-based protocols are the key to improving the quality of BCPI, thus bringing increased value to our TJA patients.

11:06 AM Paper 336
The Tortoise and the Hare Increase Complications During Total Joint Arthroplasty
Kyle Duchman, MD, Iowa City, IA
Andrew J. Pugely, MD, Coralville, IA
Christopher T. Martin, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Operative time >150 minutes was associated with increased wound and overall 30-day complication rates. There was also a trend toward increased complications with operative time <30 minutes.

Discussion – 6 Minutes

11:18 AM Paper 337
Validating a Predictive Score for Cardiac Events Following Total Joint Arthroplasty
Brian R. Waterman, MD, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX
Julia O. Bader, PhD, El Paso, TX
Andrew J. Schoenfeld, MD, Phoenix, AZ

Our Cardiac Risk Index score accurately predicted post-operative cardiac complications following primary total hip and knee arthroplasty and performed better than existing utilities.

11:24 AM Paper 338
Joint Replacement Surgical Home: Impact of Patient Characteristics and Comorbidities on Length of Stay
Ran Schwarzkopf, MD, Irvine, CA
Kyle S. Ahn, MD, Orange, CA
Joseph B. Rinehart, MD, Orange, CA
Maxime Cannesson, Orange, CA
Zeev Kain, MD, MBA, Irvine, CA

Even in a Perioperative Surgical Home care model, ASA score and BMI play a significant role in post-operative outcomes in joint arthroplasty patients.

11:30 AM Paper 339
Effect Of 3 Dimensional Visual Aids On Patient Satisfaction In Orthopaedic Consent: A Randomized Controlled Trial
Kapil Sugand, MBBS, London, United Kingdom
Hammad H. Malik, London, United Kingdom
Simon Newman, BS, FRCs (Ortho), London, United Kingdom
Chinmay Gupte, PhD, FRCs, London, United Kingdom

Three dimensional models significantly improve patient satisfaction during orthopaedic consenting in a single blinded randomized controlled trial using qualitative and validated quantitative measures.

Discussion – 6 Minutes

11:42 AM Paper 340
Does the Charlson Comorbidity Index Impact an Orthopaedic Trauma Patient’s Hospital Length of Stay?
Sarah Greenberg, BA, Nashville, TN
Jacob P. Vanhouten, MS, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN
William T. Obermey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

Our study demonstrates that a patient’s CCI score can be utilized as a predictor for increased hospital LOS for lower extremity patients.

11:48 AM Paper 341
Ultra Low Dose Computed Tomography Scanning: A Reliable Modality with an Improved Patient Safety Profile
Sanjit R. Konda, MD, Rye, NY
Abraham M. Goch, New York, NY
Philipp Leucht, MD, New York City, NY
Anthony V. Christiano, New York, NY
Soterios Gyftopoulos, MD, Long Island City, NY
Kenneth A. Egol, MD, New York, NY

This protocol produces images that appear comparable to conventional computed tomography for fracture evaluation with a near fourteen fold reduction in estimated effective dose.

11:54 AM Paper 342
Performance of PROMIS in Healthy Patients Undergoing Meniscal Surgery
Kyle J. Hancock, MD, Iowa City, IA
Natalie A. Glass, PhD, Iowa City, IA
Christopher Anthony, MD, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
Carolyn Heitrich, MD, MPH, Iowa City, IA
John P. Albright, MD, Iowa City, IA
Matthew J. Bollier, MD, Iowa City, IA

A study evaluating the relative performance of PROMIS and potential ceiling effects in a healthy population of patients undergoing meniscal surgery.

Discussion – 6 Minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Wednesday, March 2

12:06 PM  Paper 343
The Silent Money Pit - The Cost of Poorly Managed Central Supply
Bruce Ziran, MD, FACS, Atlanta, GA
William Min, MD, Chamblee, GA
Our study finds that equipment preparation flaws that require opening of additional surgical trays incur a significant cost.

12:12 PM  Paper 344
Inpatient Rehabilitation Following Hip Fracture: Recent Trends and Implications for Post-acute Care Reform
Arthur Manoli III, MD, New York, NY
Sanjit R. Konda, MD, Rye, NY
Christian A. Pena, MS, New York, NY
Kenneth A. Egol, MD, New York, NY
Younger, healthier patients who undergo operative management of hip fractures are more likely to be discharged to an IRF over a SNF.

12:18 PM  Paper 345
An Innovative Model for Postoperative Rehabilitation in Total Joint Arthroplasty
William Dieter, Cherry Hill, NJ
Antonia Chen, MD, MBA, Philadelphia, PA
Tim Fox, DPT, PT, Cherry Hill, NJ
Jason M. Mattioli, MS, PT, Cherry Hill, NJ
Ryan Cummings, PT, Cherry Hill, NJ
Travis King, DPT, Avalon, NJ
Anthony Buccafurri, DPT, PT, Cherry Hill, NJ
As healthcare evolves, value-based models are being emphasized. This innovative rehabilitation model reduces costs while maintaining patient safety and outcomes during early rehabilitation after TJA.

Discussion – 6 Minutes

INSTRUCTIONAL COURSE LECTURE

11:00 AM — 12:00 PM

CD9  Writing a Competitive Grant Application
Moderator: Kurt P. Spindler, MD, Garfield Heights, OH
John J. Callaghan, MD, Iowa City, IA
Grants can be competitive and non-competitive. This course provides helpful tips and examples on writing a competitive grant application.

CD15  The Art and Science of Reviewing Manuscripts for Orthopaedic Journals
Moderator: William N. Levine, MD, New York, NY
John M. Flynn, MD, Philadelphia, PA
Journal editors help reviewers and authors learn how to craft more effective manuscripts by emphasizing specific assessment criteria for clinical, research, and review articles.

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INSTRUCTIONAL COURSE LECTURE
1:30 PM — 2:30 PM
CD10 Cliff Notes on Clinical Research: What You Need to Get Started
Moderator: Leesa M. Galatz, MD, New York, NY
Ryan P. Calfee, MD, Saint Louis, MO
Aaron M. Chamberlain, MD, Saint Louis, MO
Jay D. Keener, MD, Saint Louis, MO

Understand the scientific method and be able to design and complete a clinical research project. Formulate a clinically relevant hypothesis, perform a power analysis, collect and analyze data. Determine when your results are worthy of abstract submission.

INSTRUCTIONAL COURSE LECTURE
1:30 PM — 3:30 PM
244 Management of Shoulder and Elbow Pathology in the Pediatric Athlete: Current Concepts
Moderator: Nirav K. Pandya, MD, Oakland, CA
Eric W. Edmonds, MD, San Diego, CA
Jason Jagodzinski, MD, Atlanta, GA
Andrew T. Pennock, MD, San Diego, CA

Pediatric participation in sports with repetitive upper extremity activity has increased tremendously. Appropriate management of shoulder instability, internal impingement, capitellar osteochondritis dissecans lesions, and overuse in these patients is essential.

Three and Four Part Proximal Humerus Fractures – The Gambler Edition
Moderator: Jonathan C. Levy, MD, Fort Lauderdale, FL
Mark A. Frankle, MD, Temple Terrace, FL
Richard J. Haukins, MD, Greenville, SC
Mark A. Mighell, MD, Tampa, FL

Surgical management of complex three- and four-part proximal humerus fractures has improved with new technologies such as locked plates and the reverse shoulder arthroplasty. The goal is to better understand when to hold ‘em (fix), when to fold ‘em (arthroplasty), and when to walk away (nonoperative management). Focuses on technical tips to assist in each surgical option together with expert opinion and literature review.

Massive Rotator Cuff Tears: Arthroscopy to Arthroplasty
Moderator: Reuben Gobezie, MD, Cleveland, OH
Christian Gerber, MD, Zurich, Switzerland
Peter J. Millett, MD, MSc, Vail, CO
Curtis R. Noel, MD, Copley, OH

Covers the diagnosis, classification, and treatment of massive cuff tears, including open and arthroscopic repair, the use of grafts and transfers, and arthroplasty options.

Correction Strategies and Implant Placement in Spine Deformity Surgery – How I Do It
Moderator: Annalise N. Larson, MD, Rochester, MN
Peter O. Newton, MD, San Diego, CA
Matthew Oetgen, MD, Chevy Chase, MD
David W. Polly Jr, MD, Minneapolis, MN

Through videos and technical discussion, this fast-paced course covers classic and contemporary spinal correction maneuvers outside of osteotomies with a focus on intraoperative assessment and appropriate intervention to optimize correction.
**Wednesday, March 2**

**248**  
**Arthroscopic Management of Shoulder Instabilities: Anterior, Posterior, and Multidirectional**  
*Moderator: Larry D. Field, MD, Jackson, MS*  
Jeffrey S. Abrams, MD, Princeton, NJ  
CDR (ret) Matthew T. Provencher, MD, Boston, MA  
Richard K. Rye, MD, Santa Barbara, CA  
Room W205B  
This is a comprehensive overview featuring advanced, cutting-edge arthroscopic shoulder instability techniques. Clinical pearls and technique tips are emphasized. Case controversies are presented and discussed.

**249**  
**Patellofemoral Arthritis: Treatment Strategies from Cartilage Restoration to Arthroplasty**  
*Moderator: Jack Farr II, MD, Greenwood, IN*  
Elizabeth A. Arendt, MD, Minneapolis, MN  
David Dejour, MD, Lyon, France  
Andreas H. Gomoll, MD, Chestnut Hill, MA  
Room W202  
Provides a comprehensive overview of the surgical management of full thickness chondral lesions of the patellofemoral joint from cartilage restoration procedures to arthroplasty.  
Tradución simultánea en español. Tradução simultânea em português.

**250**  
**Femur Fractures: Subtrochanteric to Supracondylar**  
*Moderator: Robert F. Ostrum, MD, Chapel Hill, NC*  
Paul Tornetta III, MD, Boston, MA  
Philip R. Wolinsky, MD, Sacramento, CA  
Room W307C  
Femoral shaft fractures are common injuries but still can have management issues. This course uses a short didactic session combined with case-based discussions on femoral shaft fractures, from the subtrochanteric to the supracondylar regions, to examine treatment options and methods to avoid complications in the treatment of these fractures.

**251**  
**Making It Through the Night**  
*Moderator: Lisa K. Cannada, MD, Saint Louis, MO*  
Robert P. Dunbar, MD, Mercer Island, WA  
Samir Mehta, MD, Philadelphia, PA  
James P. Stannard, MD, Columbia, MO  
Room W304E  
During this Instructional Course Lecture, the faculty discuss clinical situations necessitating urgent or emergent management by the on call orthopaedic surgeon. This is an interactive session with case-based scenario.

**INSTRUCTIONAL COURSE LECTURE**

**1:30 PM — 5:30 PM**

**291**  
**Effective Surgeon-Patient Communication: The Key to Patient Satisfaction, Patient-Centered Care, and Shared Decision Making**  
*Moderator: Dwight W. Burney III, MD, Albuquerque, NM*  
John R. Tongue, MD, Tualatin, OR  
Room W303B  
Newly revised and updated, this course uses the 4E model (Engage, Empathize, Educate, Enlist) to enable surgeons to effectively and efficiently communicate with patients. Positive effects include increased patient and surgeon satisfaction, improved adherence to treatment plans, and decreased malpractice risk.

**285**  
**Trunions, Tapers, and Corrosion in Total Hip Arthroplasty: What’s All the Fuss About? What Every Surgeon Should Know**  
*Co-Moderators: Daniel J. Berry, MD, Rochester, MN*  
John J. Callaghan, MD, Iowa City, IA  
Robert L. Barrack, MD, Saint Louis, MO  
Mathias Bostrom, MD, New York, NY  
James A. Browne, MD, Charlottesville, VA  
A. Seth Greenwald, DPhil Oxon, Cleveland Heights, OH  
Joshua J. Jacobs, MD, Chicago, IL  
Atul F. Kamath, MD, Philadelphia, PA  
Arthur L. Malkani, MD, Louisville, KY  
Douglas E. Padgett, MD, New York, NY  
Christopher L. Peters, MD, Salt Lake City, UT  
Peter K. Sculco, MD, Rochester, MN  
Michael J. Taunton, MD, Rochester, MN  
Thomas P. Vail, MD, San Francisco, CA  
Room W207  
Faculty evaluates what we know about the frequency of the problem and the clinical circumstances under which the problem occurs. Next we cover the current state of knowledge about how various factors including taper design and materials affect the likelihood of this problem developing. Finally we cover how to best treat the problem when revision is required, when to remove and when to retain implants, what materials to use if a taper is retained (ceramic head etc.), and how to manage soft tissues that may have been damaged by taper corrosion.
Distal Radius Fractures: From Pediatrics to Geriatrics

Moderator: A. Lee Osterman, MD, Villanova, PA
Joshua M. Abzug, MD, Timonium, MD
Julie E. Adams, MD, Rochester, MN
Mark E. Baratz, MD, Bethesda, PA
Roger Corneil, MD, Cincinnati, OH
Jesse B. Jupiter, MD, Boston, MA
Amy L. Ladd, MD, Palo Alto, CA
Robert Medoff, MD, Kailua, HI
Jorge L. Orbay, MD, Miami, FL
Blane A. Sessions, MD, Philadelphia, PA

The management of distal radius fractures occurring in all age groups is presented in a case-based manner. Detailed discussion regarding pearls and pitfalls of initial treatment and avoiding the potential complications as well as managing them aid the orthopaedic surgeon in practice.

1:30 PM — 3:30 PM
Valencia Room D

Shoulder & Elbow III: The Rotator Cuff I: Clinical Aspects
Moderator(s): Kyle Anderson, MD, Southfield, MI, Steven J. Hattrup, MD, Phoenix, AZ

Long Term MRI Findings And Functional Outcome After Arthroscopic Rotator Cuff Repair: Mean 8 Years Follow-up Study
Koichi Ichikawa, Osaka City, Japan
Yoichi Ito, MD, PhD, Osaka, Japan
Tomoya Manaka, ATC, BA, Osaka, Japan
Yoshihito Hirakawa, Osaka, Japan
Yoshinobu Matsuda, MD, Osaka, Japan
Hayato Shimmzu, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

Functional results remain constant and cuff repair integrity was relatively good at average 8 years follow up, though the risk to retear was thought to be about 10% during follow up period.

10-year Clinical and Radiological Outcome following Arthroscopic Rotator Cuff Repair: A prospective study.
Philip R. Heuberer, MD, Vienna, Austria
Leo Pauzenberger, MD, Vienna, Austria
Fabian Plachel SR, Vienna, Austria
Brenda Laky, PhD, MSc, Vienna, Austria
Bernhard Kriegeder, MD, Vienna, Austria
Werner Anderl, MD, Vienna, Austria

All-arthroscopic rotator cuff repair showed good clinical long-term results despite a high rate of re-tears.

1:42 PM
How Long Should We Monitor High-grade Partial Thickness Rotator Cuff Tears?
Oh Joo Han, MD, Seongnam, Republic of Korea
Jeewon Kwon, Seoul, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea
Jeong Dong Lee, MD, Seongnam-Si, Republic of Korea
Je Kyun Kim, MD, Seongnam-Si, Republic of Korea
Do Yeon Kim, Seongnam-Si, Republic of Korea
Tae-Yon Rhee, MD, PhD, Seoul, Republic of Korea

Thirty-one percent of high-grade partial thickness rotator cuff tears would progress to full thickness tears as time went by. Therefore regular monitoring should be considered.

1:54 PM
Prevalence Of The Rotator Cuff Tear Concomitant With Neuropathy Using Needle Electromyogram In 651 Cases
Nobuyasu Ochiai, MD, PhD, Chiba City, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Norimasa Takahashi, MD, Chiba, Japan
Keisuke Matsuki, MD, Funabashi, Japan
Yu Sasaki, MD, Chiba, Japan
Takashi Yamaguchi, MD, Inohana, Chuoku-Ku, Chiba, Japan
Takehiro Kijima, Chiba, Japan
Eiko Hashimoto, Chiba, Japan
Yasuhiro Sasakura, Chiba, Japan

Prevalence of cervical spine lesion concomitant with massive rotator cuff tear was 40.4% which were higher than suprascapular neuropathy. Needle electromyogram was useful in massive rotator cuff tear.

2:00 PM
Sleep Disturbance following Rotator Cuff Repair: A Prospective 2-year Investigation
Luke S. Austin, MD, Linwood, NJ
Fotios P. Tjoumakaris, MD, Ocean View, NJ
Bradford S. Tucker, MD, Ocean City, NJ
Alvin C. Ong, MD, Linwood, NJ
Nicholas J. Lombardi, BS, Egg Harbor Township, NJ
Matthew D. Pepe, MD, Linwood, NJ

Sleep disturbance is common in patients undergoing rotator cuff repair. After surgery, sleep disturbance improves to levels comparable with the general public and is preserved in long term follow-up.
### Wednesday, March 2

**2:06 PM**
**Paper 351**
**Do Patients Undergoing Arthroscopic Rotator Cuff Repair Prioritize Pain Relief or Return of Strength?**
David M. Levy, MD, Chicago, IL  
Mandeep Virk, MD, Brookfield, IL  
James Kercher, MD, Atlanta, GA  
Benjamin Kuhns, Chicago, IL  
Annemarie K. Tilton, BS, Chicago, IL  
Stephen S. Burkart, MD, San Antonio, TX  
Anthony A. Romeo, MD, Chicago, IL  
Nikhil N. Verma, MD, Chicago, IL  
Brian J. Cole, MD, MBA, Chicago, IL

Patients undergoing arthroscopic rotator cuff repair value the recovery of strength significantly more than pain relief and continue to prioritize strength even after surgery.

**Discussion – 6 Minutes**

**2:18 PM**
**Paper 352**
**Do Statin Medications Affect Clinical Outcomes in Patients with Rotator Cuff Tears?**
Austin L. Taylor, MD, Ann Arbor, MI  
Christopher B. Robbins, Ann Arbor, MI  
Asheesh Bedi, MD, Ann Arbor, MI  
James E. Carpenter, MD, Ann Arbor, MI  
Joel J. Gagnier, PhD, Ann Arbor, MI  
Bruce S. Miller, MD, MS, Ann Arbor, MI

Neither statin use nor lipid levels were associated with clinical outcomes in patients being treated for rotator cuff tears.

**2:24 PM**
**Paper 353**
**Tendon Delamination is Associated with Poor Healing after Single-Row Cuff Repair**
Olivier Andreani, MD, Nice, France  
Martin Schramm, MD, Nice, France  
Thomas D’Ollonne, MD, Nice, France  
Patrick Gendre, MD, Nice, France  
Charles Bessiere, MD, Nice, France  
Nicolas Holzer, MD, PhD, Genève, Switzerland  
Pascal Boileau, MD, Nice, France

Tendon delamination in large to massive cuff tears is associated with poor tendon healing after single-row repair; these tears should be preferentially repaired with a “double-layer” technique.

**2:30 PM**
**Paper 354**
**Does Stiffness Impair or Enhance Healing Post Rotator Cuff Repair?**
William J. McNama, Goulburn, Australia  
Patrick H. Lam, PhD, Sydney, Australia  
George A. Murrell, MD, Kogarah, Australia

Pre and post-operative pain is beneficial for rotator cuff tendon to bone healing.

**Discussion – 6 Minutes**

**2:42 PM**
**Paper 355**
**Longterm MRI-Followup and Quantification of Biodegradable Suture Anchor Drill Holes**
Philip R. Heuberer, MD, Vienna, Austria  
Dipal Chatterjee, MD, Forest Hills, NY  
Manfred Neumaier, Vienna, Austria  
Brenda Laky, PhD, MSc, Vienna, Austria  
Sergei Pushin, MD, Brooklyn, NY  
Bernhard Kriegleder, MD, Vienna, Austria  
Werner Anderl, MD, Vienna, Austria

Biodegradation of the poly-L-DL-lactic acid and concomitant replacement by newly formed bone takes much longer than the period suggested by the manufacturer.

**2:48 PM**
**Paper 356**
**Arthroscopic Anchored vs. Anchorless Rotator Cuff Repair: Comparison of Outcomes and Costs**
Umasuthan Srikumaran, MD, MBA, Clarksville, MD  
Catherine Hannan, BS, Indianapolis, IN  
Meera R. Chappidi, Indianapolis, IN  
Kelly G. Kilcoyne, MD, El Paso, TX  
Steve A. Petersen, MD, Indianapolis, IN  
Edward G. McFarland, MD, Lutherville, MD  
Bashir A. Zikria, MD, MSc, Indianapolis, IN

This case-control analysis demonstrates arthroscopic anchorless, transosseous rotator cuff repair is clinically equivalent and cost effective compared to traditional anchored rotator cuff repair.

**2:54 PM**
**Paper 357**
**Arthroscopic Transosseous vs. Anchored Rotator Cuff Repair: A Prospective Cost & Outcome Analysis**
Adam J. Seidl, MD, Aurora, CO  
Nicholas J. Lombardi, BS, Egg Harbor Township, NJ  
Mark D. Lazarus, MD, Philadelphia, PA  
Eric M. Black, MD, Livingston, NJ  
Mitchell Maltenfort, PhD, Philadelphia, PA  
Matthew D. Pepe, MD, Limwood, NJ  
Luke S. Austin, MD, Limwood, NJ

Arthroscopic anchorless rotator cuff repair provides significant cost savings when compared to anchor-based repair with no significant difference in operative time or compromise in outcomes.

**Discussion – 6 Minutes**

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Superior Capsule Reconstruction Using Human Dermal Allograft: A Biomechanical Cadaveric Study
Teruhisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Christopher Bui, MD, Gardena, CA
Matthew A. Cavagnaro, MD, Hermosa Beach, CA
Masaki Akeda, MD, Redondo Beach, CA
Michael Kuenzler, MD, Long Beach, CA
Alexander B. Peterson, BA, Marina Del Rey, CA
Yasuo Itami, MD, Ibaraki, Osaka, Japan
Masashi Neo, Takatsuki, Japan
Thay Q. Lee, PhD, Long Beach, CA

Superior capsule reconstruction using human dermal allograft only partly restores superior translational stability of the glenohumeral joint due to graft elongation that occurs with shoulder motion.

Superior Capsule Reconstruction For Irreparable Rotator Cuff Tear: A Prospective Study In 100 Consecutive Patients
Teruhisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Thay Q. Lee, PhD, Long Beach, CA
Yasuo Itami, MD, Ibaraki, Osaka, Japan
Masashi Neo, Takatsuki, Japan

Arthroscopic superior capsule reconstruction restored shoulder function and resulted in high rates of return to recreational sport and work with a few complications.

Outcome of Lower Trapezius Transfer to Reconstruct Massive Irreparable Posterior-Superior Rotator Cuff Tear
Bassem T. Elhassan, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Jean-David Werthel, Paris, France

The lower trapezius prolonged with Achilles tendon allograft to reconstruct massive irreparable posterior-superior rotator cuff tear may lead to good outcome in most patients.

Repeat Meniscus Repair: What Result Can We Expect?
Paul Sousa, MBA, MD, Rochester, MN
Patrick Reardon, BS, Rochester, MN
Bruce A. Levy, MD, Byron, MN
Diane L. Dahm, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN

With an overall failure rate of 39%, repeat meniscal repair should be considered in select cases as knee function was superior in patients that had successful repeat repairs.

The Role of the Lateral Meniscus Posterior Root in providing Anterolateral Knee Joint Stability
Timothy Lording, MD, Malvern, Australia
Gillian G. Corbo, London, ON, Canada
Timothy Burkhart, PhD, London, ON, Canada
Alan Getgood, MD, FRCS (Ortho), London, ON, Canada

This biomechanical study shows that an injury to the LMPR has as great of an effect as the ALL on anterolateral instability in the presence of an ACL injury.

Meniscus Allograft Transplantation: Clinical Outcomes and Survivorship at Mean 5-Year Follow-Up
Youssef El Bitar, MD, Iowa City, IA
Taylor Den Hartog, BS, Iowa City, IA
Biagio Zampogna, MD, Rome, Italy
Sebastiano Vasta, MD, Rome, Italy
Annunziato Amendola, MD, Iowa City, IA

Meniscus allograft transplantation is a feasible option for properly selected patients, with a deficient meniscus and minimal pre-operative OA changes of the knee joint.
Wednesday, March 2

2:00 PM  Paper 365
Immediate Weight Bearing Vs. Protected Weight Bearing Following Meniscal Repair Greater Than 5 Years Post Surgery
Marc Tompkins, MD, Minneapolis, MN
Bryan Perkins, Edina, MN

Weight bearing as tolerated after meniscal repair does not result in a higher failure rate than traditional, non-weight bearing over a five year follow-up period.

2:06 PM  Paper 366
Meniscal Allograft Transplantation in the Pediatric and Adolescent Population
Annemarie K. Tilton, BS, Chicago, IL
Jonathan C. Riboh, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Kirk A. Campbell, MD, New York, NY
Brian J. Cole, MD, MBA, Chicago, IL

Meniscal allograft transplantation using a physsis sparing bridge-in-slot technique should be considered in the treatment of symptomatic meniscal deficiency in children and adolescents.

2:18 PM  Paper 367
Isolated Lateral Meniscectomy Versus Repair - Is There a Difference?
Jay V. Kalawadia, MD, Philadelphia, PA
Alexis C. Colvin, MD, New York, NY
Mitchell S. Fourman, MD, Turtle Creek, PA
Raymond Pabk, MD, Bayside, NY
Volker Musabl, MD, Pittsburgh, PA
James J. Irgang, PhD, Pittsburgh, PA
Christopher D. Harner, MD, Houston, TX

Compared to partial lateral meniscectomy, lateral meniscal repair results in improved patient reported outcomes and decreased radiographic evidence of osteoarthritis at average 5-year follow-up.

2:24 PM  Paper 368
Clinical Outcomes after Arthroscopic Centralization of an Extruded Lateral Meniscus
Hideyuki Koga, MD, PhD, Tokyo, Japan
Takeshi Muneta, MD, Tokyo, Japan
Ichiro Sekiya, MD, PhD, Tokyo, Japan

Arthroscopic centralization of the lateral meniscus improved clinical and radiographic outcomes for meniscus extrusion as well as discoid menisci at 2-year follow-up.

2:30 PM  Paper 369
Survival After Osteochondral Allograft Transplantation of the Knee: Analysis of Failures at 5 Years
Rachel M. Frank, MD, Chicago, IL
David M. Levy, MD, Chicago, IL
Simon Lee, MD, Ann Arbor, MI
Pamela Scalise, BS, Chicago, IL
Margaret E. Smith, BA, Milwaukee, WI
Gregory L. Cvetanovich, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL

In a series of 149 osteochondral allograft transplants, there is a 41% reoperation rate, with arthroscopic debridement the most common (90%), and an 83% allograft survival rate at average of 5 years.

2:42 PM  Paper 370
Allogeneic Mesenchymal Stem Cells are Safe and Stimulate Cartilage Repair upon Co-implantation with Chondrons
Lucienne A. Vonk, PhD, Utrecht, Netherlands
Tommy S. de Windt, MD, Utrecht, Netherlands
Roel De Weger, PhD, Utrecht, Netherlands
Ineke Slaper-Cortenbach, PhD, Utrecht, Netherlands
Daniel B. Saris, MD, Ph D, Utrecht, Netherlands

A one-stage application of 90% allogeneic MSCs mixed with 10% autologous chondrons to cartilage defects in the knee resulted in repair with hyaline cartilage-like tissue one year post-operatively.

2:48 PM  Paper 371
Return to Sport after Articular Cartilage Repair in the Knee
Aaron J. Krych, MD, Rochester, MN
Ayoosh Pareek, BS, Rochester, MN
Alexander H. King, BS, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Riley J. Williams, MD, New York, NY

In a review of 2549 athletes, cartilage restoration surgery had a 76% return to sport at mid-term follow-up. OAT offered a faster recovery and a higher rate of return to pre-injury athletics.

2:54 PM  Paper 372
Reoperation Rates After Cartilage Restoration Procedures: Analysis of a Large US Commercial Database
Frank McCormick, MD, Pompano Beach, FL
Samuel Rosas, MD, Fort Lauderdale, FL
Rachel M. Frank, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Brian J. Cole, MD, MBA, Chicago, IL

While failure/revision rates are similar comparing microfracture, ACI, OATS, and osteochondral allograft transplantation, cell-based approaches yield a statistically increased risk for reoperation.

An alphabetical faculty financial disclosure list can be found starting on page 334.
Wednesday, March 2

3:06 PM
Paper 373
**Patellofemoral Osteochondral Lesions Treated With Structural Grafts In Patients Aged 40 Years Or Older**
Ryan Degen, FRCS, MD, MSc, London, ON, Canada
Nathan W. Coleman, MD, Seattle, WA
Danielle Tetreault, BA, New York, NY
Gregory T. Mahony, BA, New York, NY
Riley J. Williams, MD, New York, NY

Treatment of patellofemoral chondral lesions in >40 y.o. with structural grafts is a viable treatment option with significant improvements in clinical outcome scores and maintained activity levels.

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The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

### PAPER PRESENTATION

1:30 PM — 3:30 PM
Room W304A

**Trauma IV: Geriatric**
Moderator(s): Jeffrey Anglen, MD, FACS, Indianapolis, IN, Jason M. Evans, MD, Franklin, TN

1:30 PM
Paper 376
**Risk Stratification of Geriatric Hip Fracture Patients using a New Geriatric Trauma Triage Score**
Sanjit R. Konda, MD, Rye, NY
Rachel Seymour, PhD, Charlotte, NC
Madhav A. Karunakar, MD, Charlotte, NC

Our Low-Energy Geriatric Trauma Triage Score (LE-GTTS) is a valid triage tool in geriatric hip fracture patients.

3:12 PM
Paper 374
**Native Joint Septic Arthritis - What Happens To The Joint In The Long Term?**
Rhys Clement, MD, Edinburgh, United Kingdom
Seng J. Wong, MBCHB, United Kingdom, United Kingdom
Sarah Howie, PhD, Edinburgh, United Kingdom
Sarah Howie, PhD, Edinburgh, United Kingdom
Andrew C. Hall, Edinburgh, United Kingdom
Hamish R. Simpson, DMed, ChB, Edinburgh, United Kingdom

We report outcomes at a mean of 6 years in 141 patients who had native hip or knee SA highlighting that secondary joint degeneration is a concern.

1:36 PM
Paper 377
**Institution-Specific Modifications to the Score for Trauma Triage in the Geriatric and Middle Aged Patient**
Sanjit R. Konda, MD, Rye, NY
Kari J. Broder, BA, New York, NY
Sebastian Schubl, MD, Jamaica, NY
Kenneth A. Egol, MD, New York, NY

The Score for Trauma Triage in Geriatric and Middle Aged Patients maintains the ability to predict inpatient mortality when utilized real-time in the ED setting.

1:42 PM
Paper 378
**Incidence Of Bone Protection And Associated Fragility Injuries In Patients With Proximal Femoral Fractures**
Ignacio Aguado-Maestro, MD, Valladolid, Spain
Michalis Panteli, MD, Leeds, United Kingdom
Manuel Garcia-Alonso, MD, PhD, Valladolid, Spain
Roberto Escudero-Marcos Sr., Valladolid, Spain
Alejandro Bañuelos Sr, Valladolid, Spain
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom

Observational assessment of bone protection medication and fragility fractures on a series of 1004 patients. Patients sustaining a hip fracture are undertreated for osteoporosis.

1:48 PM
Paper 379
**Role of Computed Tomography (CT) Scan of the Head in Low Energy Geriatric Femur Fractures**
Hemil H. Maniar, MD, Danville, PA
Akhil Tawari, MBBS, MD, Danville, PA
Jove Graham, PhD, Danville, PA
Andrew J. Marcantonio, DO, Wellesley, MA
Kasey Bramlett, PA-C, Burlington, MA
Harish Kempegowda, MD, Danville, PA
Michael Suk, MD, Danville, PA
Daniel S. Horwitz, MD, Danville, PA

Head CT scans should be reserved for patients with a history and physical findings that support head injury namely presence of head trauma, new onset confusion or GCS score of less than 15.

1:54 PM
Paper 380
**Utility of Advanced Imaging in Treating Pelvic Insufficiency Fractures in the Geriatric Population**
Harold Fogel, MD, Chicago, IL
Roman Natoli, MD, Indianapolis, IN
Daniel Holt JR, Chicago, IL
Adam P. Schiff, MD, Highland Park, IL
Mitchell Bernstein, MD, Maywood, IL

Our retrospective review supports that it may be unnecessary to obtain advanced imaging studies in geriatric patients that sustain pelvic insufficiency fractures identified on plain radiographs.
**Wednesday, March 2**

**2:06 PM** Paper 381

**Sacral Insufficiency Fractures: Determining Frequency and Defining the Patient Profile**

Matthew DeHart, MPH, Portland, OR  
Blake Obrock, DO, Corvallis, OR  
 Paxton A. Gehling, Portland, OR  
 Jacob Coleman, BS, Portland, OR  
 Thomas D. Kowalik, MD, Portland, OR  
 Paul J. Duwelius, MD, Portland, OR  
 Amer J. Mirza, MD, Portland, OR

We utilized the HCUP NIS to identify the annual incidence, patient characteristics, treatment trends, and financial burden associated with Sacral Insufficiency Fractures.

**Discussion – 6 Minutes**

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**2:18 PM** Paper 382

**Hip Osteoarthritis As A Predictor Of The Fracture Pattern In Proximal Femur Fractures.**

Ignacio Aguado-Maestro, MD, Valladolid, Spain  
 Michalis Panteli, MD, Leeds, United Kingdom  
 Manuel Garcia-Alonso, MD, PhD, Valladolid, Spain  
 Roberto Escudero-Marcos Sr, MD, Valladolid, Spain  
 Alejandro Batuelos SR, Valladolid, Spain  
 Peter Giannoudis, MD, FRCS, Leeds, United Kingdom

Higher grades of hip osteoarthritis are significantly related to extracapsular hip fractures, whereas lower grades of hip osteoarthritis are related to intracapsular patterns.

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**2:24 PM** Paper 383

**Complications and Transfusion Rates after Hemi- and Total Hip Arthroplasty for Femoral Neck Fractures**

Emmanouil Liodakis, MD, Hannover, Germany  
 John Antoniou, MD, FRCS, Montreal, QC, Canada  
 Olga Huk, MD, Weston, QC, Canada  
 David Zukor, MD, Montreal, QC, Canada  
 Laura M. Epure, Montreal, QC, Canada  
 Stephane Bergeron, MD, kirkland, QC, Canada

The incidence of major complications is influenced by patient factors rather than the type of procedure. Contrary to that, the incidence of transfusions is higher for THA.

**Discussion – 6 Minutes**

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**2:30 PM** Paper 384

**Survivorship of Cemented Bipolar Hemiarthroplasty after Femoral Neck Fracture: A Final Follow-up**

Philipp Von Roth, MD, Berlin, Germany  
 Matthew P. Abdel, MD, Rochester, MN  
 Daniel J. Berry, MD, Rochester, MN

The long-term implant survival rate of bipolar hemiarthroplasties utilized to treat displaced femoral neck fractures in the elderly was high, and the procedure can be considered as definitive.

**Discussion – 6 Minutes**

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**2:42 PM** Paper 385

**Tranexamic Acid Safely Reduced Blood Loss: Randomized Clinical Trial of 138 Femoral Neck Fractures**

Chad Watts, MD, Rochester, MN  
 Matthew Houdek, MD, Rochester, MN  
 William W. Cross III, MD, Rochester, MN  
 Stephen A. Semis, MD, Oronoco, MN  
 Mark W. Pagnano, MD, Rochester, MN

In this large randomized clinical trial, tranexamic acid was safe and effective in reducing blood loss but not the proportion of patients transfused after hip arthroplasty for femoral neck fracture.

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**2:48 PM** Paper 386

**Incidence and Sources of Sepsis Following Geriatric Hip Fracture Surgery**

Daniel D. Bobl, MD, MPH, Chicago, IL  
 Erdan Kayapou, MS, Troy, MI  
 Craig J. Della Valle, MD, Chicago, IL

The rate of sepsis following geriatric hip fracture surgery is about 1 in 40, and that the most common source of sepsis is urinary tract infection, accounting for as many as 35% of cases.

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**2:54 PM** Paper 387

**Femoral Fractures And Dementia: Surgical Or Conservative Treatment? Evaluation Of Mortality And Complications.**

Stefania De Sanctis, MD, Ischia, Italy  
 Raffaella Alonzo, Rome, Italy  
 Silvia Frontini, Rome, Italy  
 Flavia Di Salvo, MD, Rome, Italy  
 Antonio Vadala, MD, Rome, Italy  
 Carmelo D’Arrigo, Rome, Italy  
 Andrea Ferretti, MD, Rome, Italy  
 Priscilla Di Sette, Rome, Italy

Patients with femoral intracapsular neck fractures and dementia conservatively treated showed higher mortality and worse quality of life than surgically treated.

**Discussion – 6 Minutes**

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**3:06 PM** Paper 388

**Geriatric Distal Femur Fracture: One in Three Chance of Death or Nonunion at One Year**

Gele Moloney, MD, Pittsburgh, PA  
 Tiffany Pan, MD, Pittsburgh, PA  
 Carola F. Van Eck, MD, Pittsburgh, PA  
 Devan D. Patel, BS, Pittsburgh, PA  
 Ivan S. Tarkin, MD, Pittsburgh, PA

In 176 geriatric patients with low energy distal femur fractures treated with laterally based locked plating there is a 20% one year mortality and a 25% rate of nonunion in survivors at one year.

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An alphabetical faculty financial disclosure list can be found starting on page 334.
3:12 PM  Paper 389
Operative Fixation Versus Distal Femur Replacement Arthroplasty for Comminuted Distal Femur Fractures
Gavin P. Hart, MD, Charlotte, NC
Jeffrey S. Kneisl, MD, Charlotte, NC
Bryan D. Springer, MD, Charlotte, NC
Joshua C. Patt, MD, Charlotte, NC
Madhav A. Karunakar, MD, Charlotte, NC

One year after treatment of comminuted distal femur fractures, operative fixation was associated with a two-fold incidence of secondary surgery compared to distal femoral replacement arthroplasty.

3:18 PM  Paper 390
Distal Femoral Replacement in the Treatment of Fractures: Low Complication Rates and Early Ambulation
Adam Sassoon, MD, Seattle, WA
Frank C. Bohnenkamp, MD, Huntley, IL
Joseph R. Cass, MD, Rochester, MN
Stephen A. Sems, MD, Rochester, MN
William W. Cross III, MD, Rochester, MN
James A. Keeney, MD, Columbia, MO
Denis Nam, MD, MSc, St Louis, MO
Ryan Nunley, MD, Saint Louis, MO

DFR provides a good option in the treatment of acute distal femur fractures, periprosthetic femur fractures, and fracture non-unions in an geriatric patient population.

Discussion – 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
W315

Foot & Ankle II: Soft Tissue is the Issue: Tendons
Moderator(s): Sandra E. Klein, MD, Saint Louis, MO
Timothy Charlton, MD, Los Angeles, CA

1:30 PM  Paper 391
Is Flexor Hallucis Longus Transfer Needed for Surgical Treatment of Insertional Achilles Tendinopathy?
Gregory P. Witkowski, MD, Warrenville, IL
Jeffrey A. Senall, MD, Naperville, IL
Thea Rogers, MPH, Winfeld, IL
Marjorie Delaney, NP, Warrenville, IL

A randomized prospective study to evaluate the need for Flexor Hallucis Longus transfer in the surgical treatment of insertional Achilles tendinopathy, with data collection at 6, 12 and 24 months.

1:36 PM  Paper 392
Age Associated Risk of Achilles Tendon Rupture in Patients with Achilles Tendinopathy
Ichiro Tonogai, MD, PhD, New York, NY
Youichi Yasui, MD, Tokyo, Japan
Christopher D. Murawski, Pittsburgh, PA
Ethan J. Fraser, New York, NY
Christopher J. Egan, PA-C, Dix Hills, NY
John G. Kennedy, MD, New York, NY

Caution for the possibility that Achilles tendinopathy can lead to Achilles rupture must be taken in the treatment for Achilles tendinopathy, if patients are late-middle aged or early-elderly people.

1:42 PM  Paper 393
Is Increased Body Mass Index (BMI) a Major Risk Factor for Achilles Tendon Rupture?
Eugene Jang, MD, New York, NY
Derly O. Cuellar III, MD, University City, MO
Peter Noback, BA, Alpine, NJ
Emiliano Malagoli, MD, New York, NY
Justin K. Greisberg, MD, New York, NY
James T. Vosseller, MD, New York, NY

In a case control study an increased BMI was not associated with an increased risk of rupture of the Achilles tendon.

1:54 PM  Paper 394
The Effect of Obesity on Surgical Treatment of Achilles Tendon Ruptures
Jamal Ahmad, MD, Philadelphia, PA
Kennis Jones, BA, Philadelphia, PA

This is a retrospective comparison of outcomes of surgically treating acute Achilles tendon ruptures in non-obese and obese patients.

Discussion – 6 Minutes

2:00 PM  Paper 395
Risk Factors for Complications after Primary Repair of Achilles Tendon Ruptures
Christian A. Pean, MS, New York, NY
William J. Rubenstein, BA, New York, NY
Anthony V. Cristiano, New York, NY
Sanjit R. Konda, MD, Rye, NY
Kenneth A. Egol, MD, New York, NY

This study is an evaluation of risk factors for complications after primary repair of Achilles tendon ruptures utilizing the National Surgical Quality Improvement Program (NSQIP) Database.
Wednesday, March 2

2:06 PM  Paper 396
Wound Complications After Primary Open Achilles Tendon Repair
Meghan E. Bishop, MD, Philadelphia, PA
Carly D. Comer, BS, Philadelphia, PA
Justin M. Kane, MD, Philadelphia, PA
Steven M. Raikin, MD, Merion Station, PA

Clinically significant wound complications following primary Achilles tendon repair are not as prevalent as previously described.

2:18 PM  Paper 397
Classification and Relationship of Plantar Heel Spurs in Patients with Plantar Fasciitis
Jamal Ahmad, MD, Philadelphia, PA
Ammar Karim, DO, Stratford, NJ
Joseph N. Daniel, DO, Egg Harbor Township, NJ

The purpose of this study is to classify the morphology of plantar heel spurs and examine their clinical relationship to plantar fasciitis.

Discussion – 6 Minutes

2:24 PM  Paper 398
Hyaluronate Injection for Plantar Fasciitis - A Randomized, Double-blind, Placebo Controlled Study
Tsukasa Kumai, MD, PhD, Kashihara, Japan
Norihiro Samoto, MD, Nara City, Nara, Japan
Hideo Noguchi, MD, Gyoda-Shi, Japan
Kazuya Sugimoto, MD, Nara-Shi, Nara, Japan
Yasuhiro Tanaka, MD, Kashihara, Japan
Yoshinori Takakura, MD, Nara, Japan

Hyaluronate injections significantly reduce pain and improve function in patients with plantar fasciitis, and can become the alternative treatment without any serious adverse effects.

2:30 PM  Paper 399
Outcomes of Iliac Crest Bone Marrow Aspirate Injection for the Treatment of Recalcitrant Plantar Fasciitis
Eric W. Tan, MD, Los Angeles, CA
Guy Friedman, MD, Asqwelom, Israel
Paul Talusan, MD, Ann Arbor, MI
Eric Dein, Indianapolis, IN
Talal Zahoor, MD, New Orleans, LA
LeW C. Schon, MD, Indianapolis, IN

BMA injection in patients with failure of conservative treatment show statistically significant decrease in VAS pain score at each assessment with no adverse effects.

2:42 PM  Paper 400
Peroneal Tendon Repair: A Retrospective Review of Patient Reported Outcomes
Brian D. Steginsky, DO, Columbus, OH
Aimee Riley, DO, Hilliard, OH
Douglas Edward Lucas, DO, Durango, CO
Terrence Pfibin, DO, Dublin, OH
Gregory C. Berlet, MD, Westerville, OH

The purpose of this study was to identify patients who underwent primary repair of the peroneus brevis tendon and evaluate clinical outcomes.

Discussion – 6 Minutes

2:48 PM  Paper 401
Postoperative Complication in Dislocation of Peroneal Tendon Between with/without Osteotomy
Ichiro Tonogai, MD, PhD, New York, NY
Youichi Yasui, MD, Tokyo, Japan
Christopher D. Murawski, Pittsburgh, PA
Ethan J. Fraser, New York, NY
Christopher J. Egan, PA-C, Dix Hills, NY
John G. Kennedy, MD, New York, NY

The study suggests that osteotomy procedures for dislocation of peroneal tendon should be useful to prevent re-operation.

2:54 PM  Paper 402
Randomized Comparison of Three Different Types of Ankle Support in Treatment of Acute Lateral Ankle Ligament Injury
Robert Van De Kimmenade, MD, EB Utrecht, Netherlands
Inger Sierevelt, MSc
Karin Eggink, MD, Nijmegen, Netherlands
Gino M. Kerkhoffs, MD, PhD, Amsterdam, Netherlands
C N. Van Dijk, MD, Apsedoorn, Netherlands
Eric Raven SR, Apeldoorn, Netherlands
Michel Van den Bekerom, Amsterdam, Netherlands

Randomized comparison of tape versus semi-rigid and versus lace-up ankle support in the treatment of acute lateral ankle ligament injury showed no difference in outcome after 6 months.

3:06 PM  Paper 403
Outcomes of Minimal Invasive Suture-tape Augmentation Without Brostrom Procedures For Chronic Ankle Instability
Byung-Ki Cho, MD, Cheong-Ju, Republic of Korea
Seung Myung Choi, Seoul, Republic of Korea
Kyoung Jin Park, MD, Irvine, CA

Minimally invasive suture-tape augmentation without modified Brostrom procedure seems to be one of the effective alternatives for young women with chronic ankle instability.
Wednesday, March 2

3:12 PM  Paper 404
Comparison Between Two Brostrom Procedures For Chronic Ankle Instability: Suture Bridge Vs Suture Anchor Technique
Byung-Ki Cho, MD, Cheong-Ju, Republic of Korea
Seung Myung Choi, Seoul, Republic of Korea
Kyoing Jin Park, MD, Irvine, CA
The modified Brostrom procedures using double suture anchor technique and suture bridge technique showed similar functional outcomes but low cost-effectiveness in suture bridge group.

Discussion – 6 Minutes

3:18 PM  Paper 405
Simultaneous Reconstruction of The Medial and Lateral Ligaments For Chronic Combined Ligament Injury of The Ankle
Tosito Yasuda, MD, Takatsuki City, Japan
Hiroaki Shima, MD, Osaka, Japan
Katsunori Mori, Takatsuki, Japan
Masashi Neo, Takatsuki, Japan
Combined chronic injuries of the ankle MCL and LCL can be effectively managed through simultaneous surgical treatment of the two ligaments, allowing athletes to return to sports participation.

Discussion – 6 Minutes

INSTRUCTIONAL COURSE LECTURE
3:00 PM — 4:00 PM
CD11  Expert Pearls and Funding Strategies for Basic and Translational Research
Moderator: Kristy L. Weber, MD, Philadelphia, PA
Leesa M. Galatz, MD, New York, NY
Francis Young-In Lee, MD, PhD, New York, NY
William M. Mihalko, MD, PhD, Germantown, TN
Discuss the benchmarks, or standards, in technique and practice in the study of basic science and translational research.

INSTRUCTIONAL COURSE LECTURE
4:00 PM — 6:00 PM
261  Innovative Techniques in Revision
Total Hip Arthroplasty
Moderator: Scott M. Sporer, MD, Wheaton, IL
Kevin B. Fricka, MD, Alexandria, VA
Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada
Paul F. Lachiewicz, MD, Chapel Hill, NC
Room W314
Reviews new techniques for management of common problems encountered in revision hip surgery. Acetabular component removal and revision with enhanced surface jumbo cups, new recurrent dislocation options, easier ways to perform extended trochanteric osteotomy (ETO) and fabricate antibiotic cement spacer, and management of the painful metal-metal and ceramic-ceramic hip are covered in video vignettes and case presentations.

Challenges and Controversies in Foot and Ankle Trauma
Moderator: David B. Thordarson, MD, Los Angeles, CA
Eric Giza, MD, Sacramento, CA
Thomas G. Harris, MD, Altadena, CA
Anand M. Vora, MD, Lake Forest, IL
Room W310
Provides a practical, case-based lecture on the current state of the art in common foot and ankle trauma. It covers how to avoid common pitfalls as well as emphasizes how to achieve good surgical and nonsurgical outcomes. Each talk highlights easy-to-miss injuries as well.

263  Modern Blood Conservation Strategies for the Orthopaedic Surgeon
Moderator: Fred D. Cushner, MD, New York, NY
Maxime Cannesson, Orange, CA
Harpal S. Khanna, MD, Cockeysville, MD
Ran Schwarzkopf, MD, Irvine, CA
Room W205A
Explores the challenges of preoperative anemia evaluation, current modern practices for intraoperative fluid management and blood conservation, and postoperative transfusion triggers and hypovolemic treatment algorithms.

264  The Lost and Found Art of Percutaneous Pinning in the Hand and Wrist
Moderator: O. Alton Barron, MD, MDCM, New York, NY
Louis W. Catalano III, MD, New York, NY
Steven Z. Glickel, MD, New York, NY
Robert J. Strauch, MD, New Rochelle, NY
Room W307C
Describes the biomechanics, indications, techniques, and outcomes of percutaneous pinning of fractures. Percutaneous pinning is somewhat of a lost art, and the lectures are aimed at reclaiming this art while clearly elucidating important principles through case presentations that demonstrate the pearls and pitfalls of the various techniques.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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Wednesday, March 2

**265** Congenital Scoliosis: Diagnosis and Treatment
Moderator: Frances A. Farley, MD, Ann Arbor, MI
Laurel C. Blakemore, MD, Gainesville, FL
John P. Dormans, MD, Houston, TX
Michael G. Vitale, MD, MPH, Irvington, NY

Covers diagnosis and treatment of congenital scoliosis. The faculty uses cases to discuss surgery and controversies.

**266** Risk Evaluation and Management Strategies for Prescribing Opioids
Moderator: Thomas B. Fleeter, MD, Reston, VA
Paul M. Arntzen, PhD, RN, Boston, MA
David C. Ring, MD, Boston, MA
David H. Sohn, JD, MD, Perrysburg, OH

Course details the Food and Drug Administration's risk valuation and mitigation strategy opioid program, assists physicians in safe narcotic dosing, and outlines risks of inappropriate narcotics prescribing. This course was organized by the AAOS Medical Liability Committee.

**267** The Young Arthritic Shoulder: Scope, Arthroplasty, Interposition, Fusion, and Resurfacing
Moderator: Joseph A. Abboud, MD, Philadelphia, PA
George S. Atwal, MD, London, ON, Canada
Anand M. Murthy, MD, Indianapolis, IN
Robert Z. Tashjian, MD, Salt Lake City, UT

Provides registrants with the most up-to-date treatment options for the young arthritic shoulder. The focus is on biologic options, arthroplasty, role of arthroscopy, as well as fusion.

**268** New Frontiers in Shoulder Instability: From Cutting Open to Cutting Edge and Back Again
Moderator: John M. Tokish, MD, Simpsonville, SC
Robert A. Arciero, MD, Farmington, CT
Giovanni Di Giacomo, MD, Roma, Italy
Laurent Lafosse, MD, Amnecy, France

Addresses current controversies in treating anterior shoulder instability – balancing innovative techniques with the evidence for and against them in a case-based format.

**269** Head and Injuries in Athletes: When to Worry
Moderator: William C. Warner Jr, MD, Germantown, TN
Patrick J. Cahill, MD, Philadelphia, PA
Kern Singh, MD, Chicago, IL
Alexander Vaccaro, MD, PhD, Gladwyne, PA

Head and spine injuries in athletes can range from minor to catastrophic, can occur in sports as varied as football and cheerleading, can occur in any age group, and can limit or prohibit return to sports. It is essential to differentiate among the many levels of severity of head and spine injuries to determine appropriate treatment and safe return to play.

**270** Hip Arthroscopy: Tales from the Crypt
Moderator: Dean K. Matsuda, MD, Los Angeles, CA
Marc J. Philippon, MD, Vail, CO
Marc Safran, MD, Redwood City, CA
Thomas G. Sampson, MD, San Francisco, CA

Presents nightmareish errors, preventative and corrective measures, and lessons learned by a renowned group of experienced surgeons with integrated time to discuss audience experiences.

**271** Return to Play after Anterior Cruciate Ligament Reconstruction: When and What Test to Do...Safe or Sorry?
Moderator: Mary L. Ireland, MD, Lexington, KY
James J. Irrgang, PhD, Pittsburgh, PA
Darren L. Johnson, MD, Lexington, KY
Brian Noebren, PT, PhD, Lexington, KY

Gives basic science and offers an orthopaedic surgeon’s perspective on return to play by showing specific tests, gait analysis, and timeline of doing these tests. A case-based approach based on observation of movement patterns and gait analysis is shown. Perspective on mechanism of injury, prevention programs, and commonalities of movement patterns also are presented. Traducción simultánea en español. Tradução simultânea em português.

**272** Elements of Bundling Hip Fracture Care
Moderator: Simon Mears, MD, Little Rock, AR
Stephen L. Kates, MD, Rochester, NY
Michael Suk, MD, Danville, PA

Will address the basics of bundling in different systems of medicine. We discuss how to develop relationships between diverse groups to allow the team to come together and work on a care plan. This process of change management must start with physician leadership and involve commitment from hospital administration.

**273** Revision Total Knee Arthroplasty Essentials: A Case-based Approach
Moderator: Tad M. Malory, MD, Rochester, MN
James A. Browne, MD, Charlottesville, VA
Kevin L. Garvin, MD, Omaha, NE
Arlen D. Hanssen, MD, Rochester, MN
Curtis W. Hartman, MD, Omaha, NE
Raymond H. Kim, MD, Denver, CO
Steven J. MacDonald, MD, London, ON, Canada
R. Michael Meneghini, MD, Fishers, IN
Christopher L. Peters, MD, Salt Lake City, UT
Bryan D. Springer, MD, Charlotte, NC
Michael J. Taunton, MD, Rochester, MN

Addresses the essentials of revision total knee arthroplasty (TKA) with a focus on surgical indications and practical solutions to the most common revision challenges: instability, stiffness, bone loss, and infection.

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288 Techniques and Decision Making in Common Fractures: A Case-based Small Group Session
Moderator: Paul Tornetta III, MD, Boston, MA
Joshua L. Gary, MD, Houston, TX
Daniel S. Horwitz, MD, Philadelphia, PA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Stephen Kottmeier, MD, Stony Brook, NY
Samir Mehta, MD, Philadelphia, PA
Theodore T. Manson, MD, Bel Air, MD
J. Spence Reid, MD, Hummelstown, PA
Heather A. Vallier, MD, Cleveland, OH
Philip R. Wolinsky, MD, Sacramento, CA

This course features case-based teaching with discussion and questions and answers for various trauma cases.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Valencia Room D
Adult Reconstruction Hip III: Primary THR
Moderator(s): Michael A. Mont, MD, Baltimore, MD, Holly K. Brown, Jupiter, FL

4:00 PM Paper 406
A Multi-Center, Prospective, Randomized Study of Outpatient versus Inpatient Total Hip Arthroplasty
Nitin Goyal, MD, Arlington, VA
Sarah Padgett, PA-C, Alexandria, VA
Antonia Chen, MD, MBA, Philadelphia, PA
Timothy Tan, MD, Philadelphia, PA
Michael M. Kherr, BS, Philadelphia, PA
Robert Hopper, PhD, Alexandria, VA
William G. Hamilton, MD, Alexandria, VA
William J. Hozack, MD, Philadelphia, PA

Although 26% of subjects randomized to outpatient THA required an overnight hospital stay, those discharged on the same day had higher satisfaction at 4-week follow-up compared to the inpatient group.

4:06 PM Paper 407
Same Day Total Hip Arthroplasty Performed at an Ambulatory Surgical Center: 90 day Complication Rate on 549 Patients
Gregg R. Klein, MD, Paramus, NJ
Harlan B. Levine, MD, Paramus, NJ
Jason Posner, BA, South Orange, NJ
Mark A. Hartzband, MD, Paramus, NJ

Ambulatory surgical center THAs (n=549) were found to be safe and reproducible.

4:12 PM Paper 408
THA in Patients 21 and Younger Using Highly Cross Linked Polyethylene: Encouraging Mid-term Results
Adam Sassoon, MD, Seattle, WA
Frank C. Bohnenkamp, MD, Huntley, IL
Geneva Baca, Saint Louis, MO
Gail Pasbos, St Charles, MO
John C. Clohisy, MD, Saint Louis, MO

HCLPE demonstrated encouraging results as a THA bearing surface in an extremely young patient population with a five-year survivorship, free from revision, of 98%.

Discussion – 6 Minutes

4:24 PM Paper 409
Topical Compared to Intravenous Tranexamic Acid in Total Hip Arthroplasty - A Prospective Randomized Trial
Stijn Ghijselings, MD, Leuven, Belgium
Brecht Jacobs, Hasselt, Belgium
Ronald Driesen, MD, Genk, Belgium
Kristoff Corten, MD, PhD, Genk, Belgium

The intra-articular use of 3g Tranexamic acid was equally effective in reducing postoperative bloodloss compared with 1.5g of TXA administered intravenously in direct anterior total hip arthroplasty.

4:30 PM Paper 410
Systemic Absorption of Intravenous and Topical Tranexamic Acid in Primary Total Hip Arthroplasty
Richard Nadeau, MD, London, ON, Canada
James Howard, MD, London, ON, Canada
Fiona Railey, MBCHB, London, ON, Canada
Lyndsay Somerville, PhD, London, ON, Canada
Douglas Naudie, MD, FRCS, London, ON, Canada

Compared to intravenous TEA, topical administration of TEA in primary THA results in 4-fold lower circulating levels of antifibrinolytic one hour after administration.

4:36 PM Paper 411
Oral and Intravenous Tranexamic Acid are Equivalent at Reducing Blood Loss Following Total Hip Arthroplasty
Erdan Kayupov, MS, Troy, MI
Yale Fillingham, MD, Chicago, IL
Darren R. Plummer, MBA, MD, Columbus, OH
Mario Moric, MS, Chicago, IL
Tad L. Gerlinger, MD, San Antonio, TX
Craig J. Della Valle, MD, Chicago, IL

A prospective, double blinded, randomized, placebo controlled trial showed equivalence between oral and IV tranexamic acid with blood loss after total knee arthroplasty.

Discussion – 6 Minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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4:48 PM  Paper 412
Comparing Aminocaproic and Tranexamic Acid in Reducing Post-operative Transfusions in Total Hip Arthroplasty
Jessica Churchill, BS, Norfolk, VA
Kathleen E. Puca, MD, Milwaukee, WI
Matthew Carleton, West Allis, WI
Melissa J. Dahlgren, Milwaukee, WI
Susan Truchan, BSN, RN, Grafton, WI
Elizabeth Vermeulen, MPH, Milwaukee, WI
Michael J. Anderson, MD, Mequon, WI

Intraoperative administration of EACA or TXA significantly decreases postoperative transfusion rates. EACA is comparable to TXA for reducing transfusion rates while at a lower cost per surgery.

4:54 PM  Paper 413
Are All Cemented Stems The Same?
Hussain Kazzi, MB, FRCS (Ortho), Toronto, ON, Canada
Sarah Whitehouse, PhD, Brisbane, Australia
Andrew J. Timperley, MD, Exeter, United Kingdom

Revision rate is higher in cemented non-polished stem designs. Registry analysis comparing fixation philosophy is no longer appropriate and comparison should take place at ‘brand’ level.

5:00 PM  Paper 414
Local Bisphosphonate Improves The Fixation Of Cemented Acetabular Cups And Reduces Formation Of Radiolucent Zones.
Jorg Schilcher Sr, PhD, MD, Sverige, Sweden
Lars Palm SR, PhD, Linköping, Sweden
Ingemar Ivarsson, Linköping, Sweden
Per Aspberg, MD, PhD, Linköping, Sweden

5:12 PM  Paper 415
Direct Anterior THA Offers no Difference In Dislocations or Acetabular Abduction Compared to Posterior Approach
Krishna R. Tripuraneni, MD, Albuquerque, NM
Michael J. Archibeck, MD, Albuquerque, NM
Joshua T. Carothers, MD, Los Ranchos De Albuquerque, NM

In this single-surgeon, prospective study comparing posterior and DA THA, no difference in hip stability or cup abduction resulted.

5:18 PM  Paper 416
Direct Anterior Approach Does Not Reduce Dislocation Risk
Joseph Maratt, MD, Ann Arbor, MI
Joel J. Gagnier, PhD, Ann Arbor, MI
Paul Butler, MD, Grand Rapids, MI
Brian R. Hallstrom, MD, Ann Arbor, MI
Andrew G. Urquhart, MD, Ann Arbor, MI
Karl C. Roberts, MD, Grand Rapids, MI

Short term outcome and complication data from a state joint replacement registry shows DAA and PA THA to have no compelling advantage over each other including no difference in the dislocation risk.

5:24 PM  Paper 417
Impact of Anterior Versus Posterior Approach for Total Hip Arthroplasty on Post-Acute Care Service Utilization
John E. Tessier, MD, Saint Louis, MO
Paul J. Duwelius, MD, Portland, OR
Coles E. L’Hommedieu, MD, Saint Louis, MO
James T. Gera JR, MBA, Saint Charles, MO
Michael F. Burns, MD, Saint Louis, MO
Gerald R. Rupp, MD, Longmont, CO

The results of this study indicate that surgical approach alone is not the primary driver of post-acute care service utilization and cost.

5:36 PM  Paper 418
The Direct Anterior Approach is a Risk Factor for Early Failure in Cementless THA: A Multi-Center Study
R M. Meneghini, MD, Fishers, IN
Addison Elston, BS, Indianapolis, IN
Antonia Chen, MD, MBA, Philadelphia, PA
Michael M. Kheir, BS, Philadelphia, PA
Thomas K. Febring, MD, Charlotte, NC
Bryan D. Springer, MD, Charlotte, NC

The DA approach for THA has been heavily marketed with claims of superiority over other approaches. Femoral exposure can be challenging with DAA. We assessed early femoral component failure in DAA.

5:42 PM  Paper 419
Muscle Biomarkers Are Not an Objective Surrogate Measure of Surgical Invasiveness after Contemporary THA
Kirsten L. Poehling-Monaghan, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN
Atul F. Kamath, MD, Philadelphia, PA
Rafael J. Sierra, MD, Philadelphia, PA
Robert T. Trousdale, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN

Biomarkers of muscle damage were not correlated with pain or functional outcome after contemporary THA with either mini-posterior or direct anterior approaches.
Early Proximal Periprosthetic Femoral Fractures in Total Hip Arthroplasty using a Direct Anterior Approach
Marcel A. Bas, MD, New York, NY
Cameron Yau, MD, New York, NY
Kenneth Jabng, MD, Loma Linda, CA
Herbert J. Cooper, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY
Risk factors for early proximal femoral fractures in direct anterior approach total hip arthroplasty include age and femoral neck fracture. Compound higher risk also seen with older age and low BMI.

A 5-year Prospective Randomised Study Of Anatomic Single Vs Double Bundle ACL Reconstruction
Ioannis Karikis, Uddevalla, Sweden
Ioannis Karikis, Uddevalla, Sweden
Neel Desai, Molndal, Sweden
Ninni Sernert, RPT, Trollhattan, Sweden
Lars Rostgaard-Christensen, MD, Lidkoping, Sweden
Juri Kartus, MD, Trollhattan, Sweden
A 5-year prospective randomized study showed that anatomic DB reconstruction was not superior to anatomic SB reconstruction in terms of subjective, objective and radiographic outcome variables.

Investigating Subjective Patient and Surgeon Expectations following Anterior Cruciate Ligament Reconstruction
Nicholas J. Lombardi, BS, Egg Harbor Township, NJ
Kevin B. Freedman, MD, Horsham, PA
John P. Salvo Jr, MD, Voorhees, NJ
Michael G. Ciccotti, MD, Philadelphia, PA
Steven B. Cohen, MD, Media, PA
Bradford S. Tucker, MD, Egg Harbor Township, NJ
Matthew D. Pepe, MD, Linwood, NJ
Fotios P. Tjoumakaris, MD, Egg Harbor Township, NJ
This investigation is the first to compare patient’s expectation to their surgeon’s expectations. Our results suggest that surgeon’s may need to convey more realistic expectations to their patients.

Anterior Cruciate Ligament Reconstruction in Professional Athletes: Differences in Outcomes of Each Sport
Harry Mai, BS, Manhattan Beach, CA
Danielle Chun, BA, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Ryan D. Freshman, BS, Chicago, IL
Benjamin Kester, MD, New York, NY
Shobhit Minhas, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Wellington K. Hsu, MD, Chicago, IL
The inherent physical nature and performance demands of basketball, football, hockey, and baseball significantly differ. The outcomes after ACL reconstruction may be driven by those differences.

A 5-year prospective randomized study showed that anatomic DB reconstruction was not superior to anatomic SB reconstruction in terms of subjective, objective and radiographic outcome variables.

Postoperative pain has several etiological factors. This randomized control trial evaluates the relation between tourniquet pressure during ACL reconstruction and postoperative need for analgesia.

Tibialis anterior, tibialis posterior, and peroneus longus allografts exhibit similar mechanical characteristics when standardized by looped diameter and likely may be used interchangeably.
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4:36 PM  Paper 426
Biomechanical Study of Anterolateral Tenodeses in Combined Anterior Cruciate Ligament and Anterolateral Injuries
Eivind Inderhaug, MD, MPH, Boenes, Norway
Joanna M. Stephen, MSc, Thurso, United Kingdom
Andrew Williams, MBBS, FRCS, London, United Kingdom
Andrew A. Amis, London, United Kingdom

A biomechanical comparison of MacIntosh, Lemaire and ALL procedures supports using MacIntosh and Lemaire tenodeses when performing ACL reconstruction in combined ACL and anterolateral injured knees.

Discussion – 6 Minutes

4:48 PM  Paper 427
Extra-articular reconstruction in Anterior Cruciate Ligament deficient knee revised 25 years later
Andrea Ferretti, MD, Rome, Italy
Antonio Porzo, MD, Roma, Italy
Edoardo Monaco, MD, Rome, Italy
Raffaele Iorio, MD, Rome, Italy
Ludovico Caperna, MD, Rome, Italy
Fabio Conteduca, MD, Roma, Italy

Adding a lateral tenodesis to an ACL IR with hamstrings seems to improve rotator knee stability and to reduce risk of recurrence, not increasing development of DOA.

4:54 PM  Paper 428
Does ACL Innervation Matter for Joint Function and Development of OA?
James L. Cook, DVM, PhD, Columbia, MO
Christopher Nagelli, Columbus, OH
Keichi Kuroki, DVM, PhD, Columbia, MO
Chantelle Bozynski, DVM, MSc, Columbia, MO
Timothy E. Hewett, PhD, Columbus, OH

This study investigates the effects of local sensory denervation of the ACL on knee function and health, and indicates ACL denervation may lead to joint dysfunction and osteoarthritis.

5:00 PM  Paper 429
Liposomal Bupivacaine for Pain Control for Anterior Cruciate Ligament Reconstruction
Ajay Premkumar, BS, McLean, VA
Heather Samady, MD, Atlanta, GA
Harris Slone, MD, Charleston, SC
Regina Hash, OTC, Atlanta, GA
Spero G. Karas, MD, Atlanta, GA
John W. Xerogeanes, MD, Atlanta, GA

Prospective, double-blinded, randomized clinical trial demonstrated 0.25% bupivacaine HCl to have comparable pain control at a 200-fold lower cost than liposomal bupivacaine after ACL reconstruction.

Discussion – 6 Minutes

5:12 PM  Paper 430
Anteromedial Portal Versus Transtibial Drilling Techniques For Femoral Tunnel Placement in ACL Reconstruction
Ayman Gabr, MBChB, MRCS, London, United Kingdom
Mohsin Khan, Essex, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom

The aim of this study was to compare the functional and radiographic outcomes of arthroscopic ACL reconstructions using either the Anteromedial portal technique or Transtibial technique.

5:18 PM  Paper 431
Passive Anterior Tibial Subluxation in ACL-Injured Knees Restores after Reconstruction Surgery
Amir Ata Rahnejat Azar, MD, Pittsburgh, PA
Carola F. Van Eck, MD, Pittsburgh, PA
Volker Musahl, MD, Pittsburgh, PA
James J. Irrgang, PhD, Pittsburgh, PA
Freddie H. Fu, MD, Pittsburgh, PA

After ACL reconstruction, the medial and lateral compartments of the tibia reduce posteriorly. No significant difference exists between anterior tibial subluxation after reconstruction and controls.

5:24 PM  Paper 432
Anterior Cruciate Ligament Reconstruction by Patellar Tendon Graft: a Novel Solution to Reduce Anterior Knee Pain
Mostafa Abdelmaboud, MD, PhD, Cairo, Egypt
Mohammed Elrakaybi, Jeddah, Saudi Arabia
Enjie I. Ali, MBBS, Jeddah, Saudi Arabia

A randomized controlled trial conducted to evaluate the relation between using autologous cancellous graft covered by bone wax to fill donor site defects and reduced incidence of anterior knee pain.

Discussion – 6 Minutes

5:36 PM  Paper 433
Randomized Clinical Evaluation of Anterior Cruciate Ligament Reconstruction Grafts
COL Edward D. Arrington, MD, University Place, WA
Jason A. Grassbaugh, MD, Tacoma, WA
Joseph W. Galvin, DO, Dupont, WA
Joseph H. Dannenbaum IV, MD, Spokane, WA
Betsey K. Bean, DO, Dupont, WA
Josef K. Eichinger, MD, Gig Harbor, WA

This prospective, randomized trial compared 6 different types of ACL reconstruction grafts, and demonstrated no significant differences in IKDC, KOOS, SF-36, or KT-2000 between patient groups.

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**5:42 PM**  
**Paper 434**  
**Risk Factors for Subsequent Surgery after ACL Reconstruction: a population-based study**  
Siddharth A. Mahure, MD, New York, NY  
Brian Capogna, MD, New York, NY  
Brent Mollon, MD, FRCSC, Markham, ON, Canada  
Andrew S. Rokito, MD, New York, NY  

A database review of 39,980 cases of anterior cruciate ligament reconstruction was performed. We identified risk factors associated with patients undergoing subsequent surgical procedures.

**5:48 PM**  
**Paper 435**  
**Surgical Predictors of Clinical Outcome following Revision ACL Reconstruction**  
MARS Group, Saint Louis, MO  
Rick W. Wright, MD, Saint Louis, MO  

This study provides evidence from a prospective cohort that surgical factors at the time of revision ACL reconstruction have the ability to significantly influence 2 year patient reported outcomes.

**PAPER PRESENTATION**

**4:00 PM – 6:00 PM**  
**Room W304A**  
**Trauma V: Hip/Femur**  
*Moderator(s): James C. Krieg, MD, Philadelphia, PA, Bogudi R. Prashanth, MD, Karmataka, India*

**4:00 PM**  
**Paper 436**  
**Minimally displaced intracapsular neck of femur fractures - two-hole Dynamic Hip Screw or Cannulated Hip Screws?**  
Al-Mothenna Alloush, MD, Victoria Docks, United Kingdom  
Simon Woods, BA, MBBS, West Yorkshire, United Kingdom  
Reza Mayahi, MD, East Riding of Yorkshire, United Kingdom  

This study revealed a significantly lower failure rate with CHS compared to two-hole DHS. Use of a derotation screw with DHS is associated with a lower rate of failure compared to DHS alone.

**4:06 PM**  
**Paper 437**  
**Risk of Nonunion and Osteonecrosis After Completed Displaced Femoral Neck Stress Fractures in Young Adults**  
Grant K. Cochran, MD, La Mesa, CA  
Gregory R. Staeheli, MD, San Diego, CA  
Kevin M. Kuhn, MD, San Diego, CA  

This retrospective review of completed displaced femoral neck stress fractures demonstrates a high nonunion and osteonecrosis rate in young adults.

**4:12 PM**  
**Paper 438**  
**The Radiographic Union Score for Hip Defnes Nonunion and Predicts Revision Surgery in Hip Fractures**  
Tym Frank, MD, Vancouver, BC, Canada  
Georg Osterhoff, MD, Vancouver, BC, Canada  
Sheila Sprague, PhD, Hamilton, ON, Canada  
Mobit Bhandari, MD, FRCSC, Hamilton, ON, Canada  
Gerard Sobogean, MD, MPH, Vancouver, BC, Canada  

The 6-month RUSH score is a radiographic measure that can be used to define femoral neck nonunion and help predict fractures that will require future non-union surgery.

**4:18 PM**  
**Discussion – 6 Minutes**

**4:24 PM**  
**Paper 439**  
**Does The Angle of The Nail Matter? The Importance of Matching Neck-Shaft Angles in Intertrochanteric Fractures.**  
Joshua A. Parry, MD, Rochester, MN  
Bradley S. Schoch, MD, Rochester, MN  
William W. Cross III, MD, Rochester, MN  
Joseph R. Cass, MD, Rochester, MN  

Treatment of unstable intertrochanteric hip fractures with cephalomedullary nails with a neck-shaft-angle that is less than the native neck-shaft-angle increases the likelihood of a varus reduction.

**4:30 PM**  
**Paper 440**  
**Is Distal Locking Necessary In Stable Intertrochanteric Fractures? A Randomized, Prospective, Comparative Study.**  
Vincenzo Caiiffa, MD, Bari, Italy  
Giovanni Vicenti JR, MD, Altamura, Italy  
Antonella Abate, Bari, Italy  
Massimiliano Carrozzo Sr, MD, Aveetana, Italy  
Girolamo Picca, MD, Bari, Italy  
Claudio Mori, MD, Bari, Italy  
Valeria Ereda, Bari, Italy  
Biagio Moretti, MD, Bari, Italy  

The purpose of this study is to investigate the necessity of distal locking in the treatment of intertrochanteric fracture with an intramedullary hip nail.

**4:36 PM**  
**Paper 441**  
**Is Nailing All Intertrochanteric Fractures Financially Responsible? A Cost of Care Analysis.**  
Iain Elliott, MD, Salt Lake City, UT  
Lucas S. Marchand, MD, Salt Lake City, UT  
Zachary Working, MD, Salt Lake City, UT  
Erik Kubiak, MD, Salt Lake City, UT  
Thomas F. Higgins, MD, Salt Lake City, UT  
David Rothberg, MD, Salt Lake City, UT  

To determine if the use of only CMN’s in the treatment of all intertrochanteric hip fractures would reduce outcome variability and total costs.

**4:42 PM**  
**Discussion – 6 Minutes**

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*
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4:48 PM  Paper 442  
Failure of Femoral Nail for Atypical Femoral Fracture caused by Cortical Reaction  
Kwang Woo Nam, MD, PhD, Jeju, Republic of Korea  
Sang-Rim Kim, MD, Jeju, Republic of Korea  
Sung-Wook Choi, Jeju, Republic of Korea  
Kyu-Bum Seo, Jeju, Republic of Korea  
Hee J. Kim, MD, Seoul, Republic of Korea  
Mark S. Vrahos, MD, Boston, MA  
Seung B. Han, MD, Seoul, Republic of Korea  
Kee H. Rhyu, MD, Seoul, Republic of Korea  
Kang Su Yoon, MD, Seoul, Republic of Korea  

Atypical Femoral Fractures with cortical thickening had higher risk of malunion and nonunion rate compared with those without cortical thickening.

4:54 PM  Paper 443  
Low Dose CT Scanogram for Measurement of Femoral Version  
Kristi L. Hultman, MD, PhD, Royal Oak, MI  
Rahul Vaidya, MD, Ann Arbor, MI  
Ibraheem Malkawi, MBBS, Detroit, MI  
Jon B. Carlson, MD, Detroit, MI  
Jason B. Wynberg, MD, Detroit, MI  

Low dose CT scanograms can reduce the ionizing radiation exposure to 10% of the current dose with no significant effect on the accuracy of the rotational measurement.

5:00 PM  Paper 444  
Does Severe Comminution Affect Version After Intramedullary Nailing of Femoral Shaft Fractures?  
David Galos, MD, New York, NY  
Richard S. Yoon, MD, New York, NY  
Neeraj M. Patel, MD, MPH, New York, NY  
John Koerner, MD, Hoboken, NJ  
Kenneth A. Egol, MD, New York, NY  
Frank A. Liporace, MD, Englewood Clfs, NJ  

Increasing degree of comminution had no significant impact on obtaining acceptable femoral version following intramedullary nailing.

5:12 PM  Paper 445  
Immediate Weight Bearing has Improved Outcomes after Intramedullary Fixation for Subtrochanteric Fractures  
Brian Cunningham, MD, Phoenix, AZ  
Brian Cunningham, MD, Phoenix, AZ  
Justin Roberts, MD, Phoenix, AZ  
Brian Miller, MD, Scottsdale, AZ  
Anthony S. Rbore, MD, Scottsdale, AZ  
Gilbert D. Ortega, BS, Tucson, AZ  
Harry Basmajian, MD, Anaheim Hills, CA  
Kelly Jackson, NP, Scottsdale, AZ  

This is the first study to demonstrate improved outcomes with Immediate weight bearing as tolerated after intramedullary nailing for subtrochanteric femur fractures.

5:18 PM  Paper 446  
Intramedullary Nails Outperform Fixed-Angle Plates in Distal Femur Fractures: An Analysis of the VOTOR Database  
Wayne Hoskins, MBBS, PhD, Parkville, Australia  
Rohan Sheehy, MBBS, Ivanhoe, Australia  
Nick Parsons, PhD, Coventry, United Kingdom  
Andrew T. Bucknill, FRCS, Parkville, Australia  
Xavier L. Griff, MBBS, MSc, Coventry, United Kingdom  

This 7 year, 4 hospital analysis of a prospective database provides evidence in favor of intramedullary nail fixation for distal femur fractures.

5:24 PM  Paper 447  
The Impact of Time to Surgery for Polytraumatic Femur Fractures on In-hospital Morbidity and Mortality  
James A. Blair, MD, El Paso, TX  
Nicholas A. Kusnezov, MD, El Paso, TX  
Tuesday Fisher, MD, El Paso, TX  
Julia O. Bader, PhD, El Paso, TX  
Philip J. Belmont Jr, MD, El Paso, TX  

For polytraumatic femur fractures, time to surgery over 72 hours demonstrated significantly increased mortality, major systemic complication, ARDS, and mean ventilator and ICU stay durations.

5:36 PM  Paper 448  
Is it Safe to Operate on Therapeutically Anticoagulated Hip Fractures?  
Paul Tornetta III, MD, Boston, MA  
David Saper, MD, Wilmette, IL  
Kyle Lybrand, MD, Waltham, MA  
Kasey Bramlett, PA-C, Burlington, MA  
Michael S. Kain, MD, Burlington, MA  
Peter L. Althausen, MD, Reno, NV  
Andrew J. Marcantonio, DO, Wellesley, MA  

The purpose of this study was to compare the safety of surgical intervention in hip fracture patients with sub-therapeutic and therapeutic INR values.

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5:42 PM  Paper 449
Tranexamic Acid (TXA) Reduces Blood Loss in Patients with Hip-Fractures; Results of a Randomized Controlled Trial.
Peter T. Tengberg, MD, Copenhagen K, Denmark
Nicolai B. Foss, DMed, MD, Copenhagen, Denmark
Henrik Palm, MD, Boston, MA
Thomas Kallemose, MSc, Vanlose, Denmark

Anders Troelsen, MD, PhD, Koege, Denmark

We have shown a nearly 600 ml reduction in Total Blood Loss with the use of intravenous Tranexamic Acid (TXA). Questions remain on the safety of this drug for this group of patients.

5:48 PM  Paper 450
Intraoperative Temperature in Hip Fractures: Effect on Complications and Outcome
Nicholas B. Frisch, MD, MBA, Minneapolis, MN
Andrew M. Pepper, MD, Detroit, MI
Toufic R. Jildeh, BS, Mason, MI
Jonathan Shaw, B.S., Royal Oak, MI
Edward Peterson, PhD, Detroit, MI
Stuart T. Guthrie, MD, Detroit, MI
Craig Silverton, DO, Detroit, MI

Intraoperative normothermia is a goal for hip fractures, but little supporting evidence exists. We evaluate the incidence of and outcomes associated with intraoperative hypothermia in hip fracture.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room W315

Spine III: Basic Science, Biomechanics, Biologics
Moderator(s): Franklin T. Wetzel, MD, Wilmington, DE, Robert V. Dawe, MD, Fairfield, CT

4:00 PM  Paper 451
Superiority of Human Mesenchymal Stem Cells Derived from Facet Joint and Interspinous Ligament
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Worawat Limthongkul, MD, Bangkok, Thailand
Wicharn Yingasakmongkol, MD, Bangkok, Thailand

Human mesenchymal stem cells derived from facet joint and interspinous ligament could serve as potential sources of mesenchymal stem cells for tissue engineering and clinical applications.

4:06 PM  Paper 452
Local Insulin Application has a Dose-Dependent Effect on Lumbar Fusion in a Rabbit Model
Michael Vives, MD, Mendham, NJ
J. P. O’Connor, PhD, Newark, NJ
Sangeeta Subramanian, BS, Newark, NJ
Jessica Gottrell, PhD, South Orange, NJ
Saad Chaudhary, MD, New York, NY
Neel P. Shah, MD, Newark, NJ
William Munoz III, MD, Summit, NJ
Sheldon S. Lin, MD, Newark, NJ

This preliminary study demonstrates the potential role of local insulin as a bone graft enhancer using a validated rabbit model.

4:12 PM  Paper 453
Reducing Rod Breakage and Pseudarthrosis in PSO: The Importance of Rod Number and Configuration in 264 patients
Munish C. Gupta, MD, Sacramento, CA
Jensen Henry, BA, New York, NY
Virginia Lafage, PhD, New York, NY
Vedat Deviren, MD, San Francisco, CA
Robert A. Hart, MD, Portland, OR
Richard A. Hostin, MD, Westlake Village, CA
Gregory M. Mundis, MD, San Diego, CA
Han Jo Kim, MD, New York, NY
International Spine Study Group, Brighton, CO

Utilization of 3-4 rod constructs in satellite orientations reduced the risk of failures (rod breakage/revision for pseudarthrosis) in 264 patients after pedicle subtraction osteotomy.

Discussion – 6 Minutes

4:24 PM  Paper 454
Molecular And Cellular Changes in Vertebral Bone Marrow Lesions
Stefan Dudli, PhD, San Francisco, CA
David Sing, San Francisco, CA
Serena S. Hu, MD, Redwood City, CA
Shane Burch, MD, San Anselmo, CA
Jeffrey C. Lotz, PhD, San Francisco, CA

Bone marrow and disc tissue samples from patients undergoing spine fusion were analyzed. Vertebral bone marrow lesions are associated with pro-inflammatory activity and dysregulated myelopoiesis.

4:30 PM  Paper 455
Would Resting a Lateral Interbody Cage Across the Ring Apophysis in the Lumbar Spine Mitigate Endplate Violation?
Joseph M. Zavatsky, MD, New Orleans, LA
Bradford S. Waddell, MD, New Orleans, LA
Brandon Cook, MD, New Orleans, LA
David Briski, MD, Jefferson, LA

Lateral lumbar interbody fusion has increased in popularity because of its biomechanical and complication related advantages over the anterior and posterior interbody surgical approaches.

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* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Wednesday, March 2

4:36 PM  Paper 456

The Risk of Cancer with the Use of Recombinant Human Bone Morphogenetic Protein in Spine Fusion: a Cohort Study
Joseph R. Dettori, Steilacoom, WA
Jens R. Chapman, MD, Seattle, WA
John G. Devine, MD, Augusta, GA
Robert A. McGuire Jr, MD, Jackson, MS
Daniel Norvell, PT, Tacoma, WA
Noel S. Weiss, MD, Seattle, WA

16,914 patients had spine fusion, of whom 4,246 received rhBMP over an eight year period. The incidence rate of cancer was similar between the rhBMP and no rhBMP groups.

Discussion – 6 Minutes

4:48 PM  Paper 457

Sagittal Correction Using Lateral Approach: Effect of Cage Angle & Technique on Segmental Lordosis
Rojeh Melikian, MD, Atlanta, GA
S T. Yoon, MD, PhD, Atlanta, GA
Jin Young Kim, MD, Atlanta, GA
Kun Young Park, MD, Daejeon, Republic of Korea
Caroline Yoon, Decatur, GA
William C. Hutton, DSC, Atlanta, GA

ALL release & 30° cage placement through the lateral approach can achieve a 10.5° gain in segmental lordosis. This can be further increased to 26° if combined with posterior element resection.

Discussion – 6 Minutes

4:54 PM  Paper 458

Effects Of Radiation On Spinal Dura Mater And Surrounding Tissue In Mice
Noriaki Yokogawa, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Noritaka Yonezawa, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Spinal epidural fibrosis and thinning of the arachnoid barrier cell layer were observed in the late stages after high-dose irradiation to murine spine.

5:00 PM  Paper 459

Novel Virtual Modeling of Alignment Following ASD Surgery and Proximal Junctional Kyphosis
Renaud Lafage, New York, NY
Robert S. Bess, MD, Castle Rock, CO
Christopher Ames, MD, San Francisco, CA
Steven D. Glassman, MD, Louisville, KY
Han Jo Kim, MD, New York, NY
Breton G. Line, BS, Denver, CO
Frank J. Schweab, MD, New York, NY
Virgimie Lafage, PhD, New York, NY
International Spine Study Group, Brighton, CO

A novel model, using pre-operative and postoperative alignment was developed and used to compare patient with and without PJK. Comparison reveals a significant difference in global alignment.

Discussion – 6 Minutes

5:12 PM  Paper 460

Evaluation of Vancomycin Powder on Bone Healing in a Rat Arthrodesis Model
Marco Mendoza, MD, Chicago, IL
Abhishek Kannan, BS, Altamonte Springs, FL
Kevin Sonn, MD, Chicago, IL
Sharath Bellary, MD, West Orange, NJ
Sean M. Mitchell, Chicago, IL
Stuart R. Stock, PhD, Chicago, IL
Erin L. Hsu, PhD, Chicago, IL
Wellington K. Hsu, MD, Chicago, IL

This rat posterolateral arthrodesis model demonstrates that vancomycin does not inhibit new bone formation or fusion rates at an equivalent wt% dose or a dose ten-fold higher.

5:18 PM  Paper 461

Very Low-dose BMP in a Nanocrystalline Calcium-Phosphate Putty Leads to High Lumbar Interbody Fusion Rate at 1 year
Brian Kwon, MD, Boston, MA
David H. Kim, MD, Wellesley, MA

Use of very low-dose BMP combined in a nanocrystalline calcium-phosphate putty leads to 98% lumbar interbody fusion rate at 1 year assessed by CT scans. This novel combination warrants further study.
Wednesday, March 2

5:24 PM  Paper 462
The Effect Of Severity Of Illness On Spine Surgery Costs Across New York State Hospitals
Ian Kaye, MD, New York, NY
Lorraine Hutzler, BA, New York, NY
Joseph A. Bosco III, MD, New York, NY
The greater cost and variability of spine surgery for patients with increased severity of illness illustrates the inherent unpredictability in cost forecasting and budgeting for these patients.

Discussion – 6 Minutes

5:36 PM  Paper 463
“Smart” Coatings: A Novel Implant Coating to Deliver Antibiotics Through An Active Trigger Mechanism
Erik Dworsky, MD, Santa Monica, CA
Nicholas Bernthal, MD, Venice, CA
Alexandra Stavrakis, MD, Los Angeles, CA
Amanda Loftin, Santa Monica, CA
Sherif Richman, Los Angeles, CA
Yan Hu, Los Angeles, CA
Anthony A Scaduto, MD, Los Angeles, CA
Polyethylene glycol-polypropylene sulf de is an optimal coating vehicle to deliver antibiotics in the setting of spinal implants.

5:42 PM  Paper 464
Polishing Less a Factor in Cell Adhesion than Roughness of Titanium Plasma Spray Coatings on PEEK
Byung Jo Yoon, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Celeste Abjornson, PhD, New York, NY
The purpose of the study is to determine whether different polishing methods have a greater effect than roughness/topography in mediating cell adhesion to the surface.

5:48 PM  Paper 465
Is Pre-Operative Fibrinogen Associated with Total Blood Loss in Adolescent Idiopathic Scoliosis (AIS) Correction?
Matthew J. Geck, MD, Austin, TX
Devender Singh, PhD, Austin, TX
Eric Truumees, MD, Austin, TX
Bleeding is associated with higher morbidity and costs of care. We report the association between fibrinogen, bleeding and transfusion requirements in Adolescent Idiopathic Scoliosis corrections.

Discussion – 6 Minutes

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Thursday, March 3

Symposium
8:00 AM — 10:00 AM
Valencia Room A

Challenges and Controversies in Total Hip Arthroplasty in 2016 (P)
Moderator: Daniel J. Berry, MD, Rochester, MN

This symposium focuses on major current controversies and challenges in primary hip arthroplasty in 2016. For each topic, the moderator provides a brief evidence-based commentary on the main treatment options and leads a discussion with the whole panel to provide the audience with a broader perspective of the prevailing opinions about optimal management.

I. Ceramic Heads for Everyone
   John J. Callaghan, MD, Iowa City, IA

II. Use Direct Anterior Approach / Strict Adherence to Weight Loss Before THA
    William J. Hozack, MD, Philadelphia, PA

III. Individualize When to Offer Operative Management
     William A. Jiranek, MD, Richmond, VA

IV. Use Cemented Femoral Fixation in Elderly Patients
    David G. Lewallen, MD, Rochester, MN

V. Use Cross-Linked PE
    Jay R. Lieberman, MD, Los Angeles, CA

VI. Individualize use of Co-Cr vs Ceramic Heads
    Steven J. MacDonald, MD, London, ON, Canada

VII. Use Uncemented Femoral Fixation in Elderly Patients
    William J. Maloney, MD, Redwood City, CA

VIII. Use Dual Mobility Implant
     Douglas E. Padgett, MD, New York, NY

IX. Use Posterior Approach
    Mark W. Pagnano, MD, Rochester, MN

X. Use Large Diameter Fixed Head
    Harry E. Rubash, MD, Boston, MA

XI. Use Ceramic-Ceramic
    Robert T. Trousdale, MD, Rochester, MN

Symposium
8:00 AM — 10:00 AM
Valencia Room B

The Treatment of Periprosthetic Fractures in 2016: Can We Reach a Consensus? (Q)
Orthopaedic Trauma Society
Moderator: Emil H. Schemitsch, MD, Toronto, ON, Canada

Periprosthetic fractures are increasing in frequency and complexity as the number of patients with a joint replacement, and their activity levels post-surgery, steadily rise. The failure rate of operative intervention remains higher than that seen with other fractures and there remains significant room for improvement in the care of these injuries. A primary goal of the symposium is to achieve consensus opinions on many current issues and controversies regarding the treatment of periprosthetic fractures.

I. How to Deal with a Periprosthetic Fracture of the Proximal Femur and a Loose Femoral Stem
   George J. Haidukewych, MD, Orlando, FL

II. Periprosthetic Fractures of the Upper Extremity: Current Concepts in Management
    Michael D. McKee, MD, Toronto, ON, Canada

III. Fixation strategies for Periprosthetic Fractures of the Proximal Femur with a Stable Implant
    Aaron Nauth, MD, Toronto, ON, Canada

IV. IM Nail Versus Locked Plate for Periprosthetic Distal Femur Fractures
    William M. Ricci, MD, St. Louis, MO

V. The Role of Revision TKA
    Andrew H. Schmidt, MD, Minneapolis, MN

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 9:00 AM

CD18  Shared Decision Making and Informed Consent: Understanding the Goals and the Responsibility of the Orthopaedic Surgeon
Moderator: Paul Levin, MD, Bronx, NY
Kevin J. Bozic, MD, MBA, Austin, TX
Hassan R. Mir, MD, MBA, Nashville, TN

Complicated clinical, cultural, and social presentations frequently create medical uncertainty. Understanding the core biomedical principles of patient care and shared decision making can successfully assist the physician in resolving personal conflicts in the care of these patients.

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An alphabetical faculty financial disclosure list can be found starting on page 334.
Thursday, March 3

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 10:00 AM

301 Complex Revision Total Hip Arthroplasty: An Advanced Course
Moderator: Bassam A. Masri, MD, FRCSC, Vancouver, BC, Canada
Clive P. Duncan, MD, MSc, Vancouver, BC, Canada
Richard W. McCalden, MD, London, ON, Canada
Douglas E. Padgett, MD, New York, NY
Wayne G. Paprosky, MD, Winfield, IL

Utilizing audience response and video, the faculty demonstrates revision total hip arthroplasty techniques stressing planning and exposure, reconstruction of bone loss, and treating dislocations.

302 Revision Total Knee Arthroplasty: Planning and Performance (Video Technique)
Moderator: Peter F. Sharkey, MD, Media, PA
Michael Dunbar, MD, Halifax, NS, Canada
Ormonde M. Mahoney, MD, Athens, GA
Emmanuel Thienpont, MD, Asse, Belgium

Addresses the issue of major bone deficiency during knee revision surgery. Options for handling this problem are discussed. Traducción simultánea en español. Tradução simultânea em português.

303 Osteotomy and Arthrodesis of the Forefoot and Hindfoot
Moderator: Kenneth Hunt, MD, Aurora, CO
Samuel B. Adams, MD, Durham, NC
Scott Ellis, MD, New York, NY
Andrew R. Hsu, MD, Huntersville, NC

This course reviews common surgical techniques for correction of hallux valgus and hindfoot arthrodesis.

304 Differentiating Cervical Spine and Shoulder Pathology: Common Disorders and Key Points of Evaluation and Treatment
Moderator: Clinton J. Devin, MD, Nashville, TN
Charles L. Cox III, MD, Nashville, TN
Thomas R. Duquin, MD, Buffalo, NY
Wellington K. Hsu, MD, Chicago, IL

Provides information to differentiate cervical spine and shoulder pathology and reviews common disorders and key points of evaluation and treatment.

305 Ulnar Sided Wrist Pain: Where Do I Start?
Moderator: Sanjeev Kakar, MD, Rochester, MN
Brian D. Adams, MD, Houston, TX
William B. Geissler, MD, Jackson, MS
A. Lee Osterman, MD, Villanova, PA

Overview of pathophysiology and provides an evidence-based approach toward management of ulnar sided wrist pain. The panel reviews the treatment options available for conditions such as distal radioulnar joint arthritis and instability, triangular f brocartilage complex disruption, and ulnar impaction.

306 Hospital Alignment Strategies
Moderator: John Cherf, MD, MBA, Chicago, IL
James M. Daniel JR, JD, MBA, Glen Allen, VA
Debra O’Connor, DO, Downers Grove, IL

Rapid strategic change is being driven by dynamic shifts in financial incentives, the competitive marketplace, quality measurement, proposed health reform, lifestyle concerns, and a changing social compact between hospitals and physicians. Discussion of new models emerging to successfully align interests.

307 Management of Glenoid Bone Loss in Primary and Revision Shoulder Arthroplasty
Moderator: Thomas (Quin) Throckmorton, MD, Germantown, TN
George S. Athwal, MD, London, ON, Canada
Joseph P. Iannotti, MD, PhD, Cleveland, OH
John W. Sperling, MD, MBA, Rochester, MN

Focuses on management of glenoid bone loss in shoulder arthroplasty. The key points of glenoid pathoanatomy and their applications to preoperative planning are discussed. Glenoid bone grafting techniques, custom targeting guides, and their outcomes also are covered. The goal is to understand and apply the tools that are available to treat glenoid defects.

308 Elbow Arthroplasty: Lessons Learned from the Past and Directions for the Future
Moderator: Joaquin Sanchez-Sotelo, MD, Rochester, MN
Theodore A. Blaine, MD, New Haven, CT
Graham J. King, MD, London, ON, Canada
Mark E. Morrey, MD, Rochester, MN

Reviews current standards on elbow arthroplasty including patient selection, exposure, implant selection, surgical technique, and postoperative management; and provides an evidence-based approach to current literature on elbow arthroplasty. Present and future improvements in implant design and surgical technique are discussed as well.
Thursday, March 3

151

EDUCATIONAL PROGRAMS

Modem Techniques in the Treatment of Patients with Metastatic Spine Disease
Moderator: Rex A. Marco, MD, Houston, TX
Justin E. Bird, MD, Houston, TX
Peter S. Rose, MD, Rochester, MN
Joseph H. Schubach, MD, Boston, MA
Room W307A
Focuses on which patients with spinal metastatic disease may benefit from surgery vs. radiation therapy. In addition, advanced spine surgical techniques are presented.

Avoiding and Managing Complications in Cervical Spine Surgery
Moderator: Joon Y. Lee, MD, Pittsburgh, PA
Darrel S. Brodke, MD, Salt Lake City, UT
Mark F. Kurtd, MD, Bryn Mauer, PA
Moe R. Lim, MD, Chapel Hill, NC
Room W300
Management of common complications such as dysphasia and dysphonia and more complex ones such as vertebral artery injuries, adjacent levedisease, inadequate decompression, and fusion-related complications are discussed.

Maintenance of Certification: Do's and Don'ts and Case List Review: Preparation for Your Recertification Exam
Moderator: Shepard R. Hurwitz, MD, Chapel Hill, NC
David F. Martin, MD, Winston Salem, NC
Ellen Moore, Rosemont, IL
Terrance Peabody, MD, Chicago, IL
Room W209B
The American Board of Orthopaedic Surgery's Maintenance of Certification (MOC) process requires diplomates to pursue a series of educational activities throughout their career, in 10-year cycles, to maintain Board certifcation. Based on your preferences, the Academy's Learning Portfolio helps you track CME credits you have earned through Academy programs.

Management of Infected Total Joint Arthroplasty in 2016 – Where Do We Stand Now?
Moderator: Thomas K. Fehring, MD, Charlotte, NC
Brian M. Curtin, MD, Charlotte, NC
Craig J. Della Valle, MD, Chicago, IL
Mark G. Freeman, MD, Chattanooga, TN
Kevin L. Garvin, MD, Omaha, NE
Thorsten Gebret, MD, Hamburg, Germany
Arlen D. Hanssen, MD, Rochester, MN
William A. Jiranek, MD, Richmond, VA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Brian D. Springer, MD, Charlotte, NC
Louis S. Stryker, MD, San Antonio, TX
Room W207
As the number of total joints performed increases exponentially, so too will the infection burden. This course helps all arthroplasty surgeons become well versed in the diagnosis and management of patients with a periartificial infection through a case-based format.

Adolescent Hip Pain: A Frequent Complaint
Moderator: Ira Zaltz, MD, Royal Oak, MI
Asheesh Bedi, MD, Ann Arbor, MI
Pablo Castaneda, MD, Mexico, Mexico
John J. Christoforetti, MD, Pittsburgh, PA
Christopher Cook, MD, Rochester, NY
Reinbold Ganz, MD, Guemligen, Switzerland
Brian D. Giordano, MD, Pitsf, NY
Michael Mills, MD, Boston, MA
Eduardo N. Novais, MD, Aurora, CO
Widdhav N. Sankar, MD, Wynnwood, PA
Klaus Siebenrock, MD, Bern, Switzerland
Ernest L. Sink, MD, New York, NY
Moritz Tannast, MD, Bern, Switzerland
Room W208
The field of hip preserving surgery has expanded tremendously as adolescents are concentrating on specific activities with increased intensity. The approach to evaluating and managing patients in this age group has changed with the advent of newer technical approaches that are used to alter skeletal structure and to repair chondral tissue. This course explores the current evaluation and management strategies for adolescent patients with hip pain.

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 12:00 PM

TeamSTEPPS
Moderator: Harpal S. Khanuja, MD, Cockeysville, MD
Dwight W. Burney III, MD, Albuquerque, NM
Mary I. O’Connor, MD, New Haven, CT
William J. Robb III, MD, Winnmetka, IL
Kristy L. Weber, MD, Philadelphia, PA
Room W303B
TeamSTEPPS is an evidence-based team building and communication program designed to enhance patientsafety and eff ciency in health care. Gives members of the healthcare team the tools to help lead highly effective medical teams. Team members increase team awareness and clarify team roles and responsibilities to produce a functional unit based on patient care; and learn to resolve conflicts and improve information sharing to help eliminate barriers to quality and safety.

An alphabetical faculty financial disclosure list can be found starting on page 334.
**Thursday, March 3**

**PAPER PRESENTATION**

**8:00 AM — 10:00 AM**

**Valencia Room D**

**Adult Reconstruction Knee V: Revision TKA/Basic Science**

Moderator(s): David Backstein, MD, Toronto, ON, Canada, Simon Mears, MD, Little Rock, AR

**8:00 AM  Paper 466**

Effectiveness Of Anti-oxidant Polyethylene: What Early Retrievals Can Tell Us

Barbara H. Currier, MChE, Hanover, NH
John H. Currier, MS, Hanover, NH
Michael B. Mayor, MD, Lebanon, NH
Rayna Levine, BA, Hanover, NH
Lindsay A. Holdcroft, BA, Hanover, NH
Douglas Van Citters, PhD, Hanover, NH

Antioxidant polyethylene tibial retrievals show superior oxidation resistance to conventional gamma-inert inserts. Material toughness varies with the irradiation dose used to produce the material.

**8:06 AM  Paper 467**

Oxidation And Property Changes Of A Remelted Highly Cross-linked UHMWPE In Retrieved Tibial Bearings

Steven D. Reinitz, PhD, Hanover, NH
Barbara H. Currier, MChE, Hanover, NH
Rayna Levine, BA, Hanover, NH
Michael B. Mayor, MD, Lebanon, NH
Douglas Van Citters, PhD, Hanover, NH

Remelted tibial components exhibit increased oxidation with in vivo time and decreased cross-link density with increased oxidation. A subsurface white zone was found in one bearing.

**8:12 AM  Paper 468**

Bearing Surface Corrosion and Damage Mechanisms in Retrieved Total Knee Arthroplasty Femoral Components

Christina M. Arnholt, Philadelphia, PA
Daniel MacDonald, Philadelphia, PA
Sevi Kocaoglu, BS, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Harold E. Cates Jr, MD, Knoxville, TN
Gregg R. Klein, MD, Paramus, NJ
Clare M. Rimmac, PhD, Cleveland, OH
Steven M. Kurtz, PhD, Philadelphia, PA

The purpose of this study was to investigate the prevalence and morphology of damage (3rd body scratches and ICIC) at the bearing surface in retrieved TKA femoral components.

**8:24 AM  Paper 469**

Comparison Of Tibial Insert Polyethylene Damage In Rotating Hinge And Constrained Revision Tka: Retrieval Analysis

Kamal Bali, MD, Hamilton, ON, Canada
Douglas Naudie, MD, FRCSC, London, ON, Canada
Richard W. McCalder, MD, London, ON, Canada
James Howard, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada
Matthew G. Teeter, PhD, London, ON, Canada

Retrieval analysis comparing 19 tibial inserts each from rotating hinge (RH) and highly constrained (HC) implants showed greater post damage in HC group while greater backside damage in RH group.

**8:30 AM  Paper 470**

Results of Contemporary Rotating Hinge Total Knee Arthroplasties

Umberto Cottino, Pecetto Torinese, Italy
Matthew P. Abdel, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN

Contemporary rotating hinge TKAs demonstrate survivorship of 94% at 10 years, in association with concerted efforts at achieving improved metaphyseal fixation, especially in major defects.

**8:36 AM  Paper 471**

The Survival of Constrained and Hinged Prostheses in Primary and Revision TKR - Analysis of 3237 Cases

Benjamin Parkinson, MBBS, FRACS, Edge Hill, Australia
Victoria N. Gibbs, BA (Oxon), London, United Kingdom
Nick A. Smith, MBBS, West Midlands, United Kingdom
Peter L. Lewis, MB, Adelaide, Australia
Michelle Lorimer, Adelaide, Australia

The survival rates of varus/valgus constrained and hinge knee prostheses are similar when matched by age or diagnosis.

**8:48 AM  Paper 472**

Contemporary Failure Mechanisms after TKA: Arthrofrosis & Chronic Infection Continue the Charge

Matthew P. Abdel, MD, Rochester, MN
Ajdin Kobic, B.S., Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN

When analyzing contemporary TKA, the reoperation rate was 4% and the revision rate was 2%. Arthrofrosis & chronic infection are the most common reasons for reoperation and revision, respectively.
Thursday, March 3

8:54 AM  Paper 473
Catastrophic Varus Collapse of the Tibia in Obese Total Knee Patients
Thomas K. Fehring, MD, Charlotte, NC
Keith Fehring, MD, Rochester, MN
Bryan D. Springer, MD, Charlotte, NC

Obesity coupled with a small proximal tibia can lead to varus tibial collapse; weight optimization or a large tibial stem should be used if the cancellous threshold of 300,000 pascals is exceeded.

9:00 AM  Paper 474
Perioperative Complications and Length of Stay after Aseptic Revision Total Hip and Knee Arthroplasty
Emmanouil Liodakis, MD, Hannover, Germany
Stephane Bergeron, MD, Kirkland, QC, Canada
David Zukor, MD, Montreal, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
Laura M. Epure, Montreal, QC, Canada
John Antoniou, MD, FRCS, Montreal, QC, Canada

Multivariable analysis showed that anemia is an important modifiable independent predictor for both major complications and prolonged hospital stay after Revision Hip and Knee Arthroplasties.

9:12 AM  Paper 475
Malnutrition Predicts Periprosthetic Joint Infection in Revision Total Joint Arthroplasty
Daniel D. Bohl, MD, MPH, Chicago, IL
Mary Shen, BS, MS, Chapel Hill, NC
Erdan Kayupov, Troy, MI
Gregory L. Cvetanovich, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL

Patients undergoing revision TJA for a septic indication were over 3 times more likely to be malnourished compared with patients undergoing revision for an aseptic indication.

9:18 AM  Paper 476
Influence of Fixation Type on Stability and Bone Mineral Density around Tibial Component in Total Knee Replacement
Nils O. Nivbrant, MBBS, East Perth, Australia
Raz Khan, FRCS, Cottesloe, Australia
Daniel P. Fick, MBBS, FRACS, Nedlands, Australia
Samantha Haebich, Scarborough, Australia
Ewan Smith, MBBS, Perth, Australia

This randomised clinical study compares how cemented or uncemented tibial fixation impacts on stability, bone remodeling and clinical outcomes in 84 posterior stabilised Total Knee Replacements (TKRs)

9:24 AM  Paper 477
Racial Differences in Total Knee Arthroplasty Revision Incidence and Burden in a National Private Payer Database
Martin W. Roche, MD, Fort Lauderdale, FL
Tsun Yee Lau, MD, Kaohsiung, Taiwan
Kevin Wang, MD, Fort Lauderdale, FL
Samuel Rosas, MD, Fort Lauderdale, FL

This study investigates the risk of total knee arthroplasty complications stratified by race.

9:36 AM  Paper 478
Quantifying and Predicting Surgeon Work Effort for Primary and Revision Total Knee Arthroplasty
Kevin Bunn, MD, Myrtle Beach, SC
Mark J. Isaacson, DO, Ankeny, IA
Phil C. Noble, PhD, Houston, TX
Stephen J. Incavo, MD, Houston, TX

Surgeon operative work effort is at least 50% greater for revision than primary TKA.

9:42 AM  Paper 479
Diagnostics Of Painful Total Knee Arthroplasty- Is There A Role For Spect/ct?
Michael T. Hirschlmann, MD, Bruderholz, Switzerland
Felix Amsler, MSc, Bruderholz, Switzerland
Helmut Rasch, MD, Bruderholz, Switzerland

Prospective study investigating the clinical value of SPECT/CT for diagnostics of 100 painful knees after total knee arthroplasty.

9:48 AM  Paper 480
Outpatient Total Joint Replacement: Is It Safe? Evaluation of Complications and Readmission Rates
Jesse E. Otero, MD, Iowa City, IA
Andrew J. Pugely, MD, Coralville, IA
Nicholas Bedard, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Nicholas O. Noisieux, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

With the selection bias utilized at the hospitals submitting TJA data to NSQIP, 30-day complication and readmission rates were at least comparable for outpatient surgery as for admitted patients.
### Thursday, March 3

#### PAPER PRESENTATION

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>8:00 AM</td>
<td>Paper 481</td>
<td>Ulnar Shortening Osteotomy: Is it Necessary to Create Ulnar Neutral Variance?</td>
<td>Joel V. Ferreira, MA, MD, Altoona, PA, Loukia K. Papateodorou, MD, Larissa, Greece, Mark E. Baratz, MD, Bethel Park, PA, Robert W. Weiser, PA-C, Pittsburgh, PA, Dean G. Sotereanos, MD, Pittsburgh, PA</td>
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<tr>
<td>8:06 AM</td>
<td>Paper 482</td>
<td>Surgical Treatment for Lateral Epicondylitis: A Meta-analysis of Open, Arthroscopic, and Percutaneous Techniques</td>
<td>Andrew J. Riff, MD, Chicago, IL, Bryan M. Saltzman, MD, Chicago, IL, Gregory L. Cvetanovich, MD, Chicago, IL, Jonathan M. Frank, MD, Chicago, IL, Robert W. Wysoki Jr, MD, Chicago, IL</td>
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<td>8:12 AM</td>
<td>Paper 483</td>
<td>Result of Revision Ligament Reconstruction Tendon Interposition for the Thumb Carpometacarpal Joint</td>
<td>Anita Sadhu, MD, Saint Louis, MO, Andre K. Guthrie, BS, Saint Louis, MO, Lindley B. Wall, MD, Saint Louis, MO</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>Paper 485</td>
<td>The Role of First Metacarpal Osteotomy in the Management of Basilar Thumb Arthritis</td>
<td>Megan Meislin, MD, Chicago, IL, Maureen A. O’Shaughnessy, MD, Rochester, MN, Marco Rizzo, MD, Rochester, MN</td>
</tr>
<tr>
<td>8:48 AM</td>
<td>Paper 487</td>
<td>A 40 year Experience Evaluating Factors Contributing to Aseptic Distal Loosening in Total Wrist Arthroplasty</td>
<td>Eric R. Wagner, MD, Rochester, MN, Kapil Mehrotra, MD, Rochester, MN, Marco Rizzo, MD, Rochester, MN</td>
</tr>
<tr>
<td>8:54 AM</td>
<td>Paper 488</td>
<td>Predicting Failure and Complications in TWA; review of a 40-year experience</td>
<td>Eric R. Wagner, MD, Rochester, MN, Kapil Mehrotra, MD, Rochester, MN, Marco Rizzo, MD, Rochester, MN</td>
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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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Thursday, March 3

9:00 AM  Paper 489
**Proximal Interphalangeal Joint Arthroplasty for Inflammatory Arthritis: an implant comparison analysis**
Eric R. Wagner, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Robert Van Demark, MD, Rochester, MN
Steven L. Moran, MD, Rochester, MN
Marco Rizzo, MD, Rochester, MN

Overall, utilizing any of the 3 common total joint arthroplasty implants (pyrocarbon, SRA, or silicone) to treat PIP arthritis showed similar implant survival, complication rates, and function.

**Discussion – 6 Minutes**

9:12 AM  Paper 490
**Outcomes of a Cementless Thumb Basal Joint Hemiarthroplasty for Treatment of Trapeziometacarpal Osteoarthritis**
Patrick G. Marinello, MD, Shaker Heights, OH
Mark C. Shreve, MD, New York, NY
Peter J. Evans, MD, PhD, Cleveland, OH

We found poor implant survivorship and an unacceptably high rate of reoperation with the BioPro thumb basal joint hemiarthroplasty device.

9:18 AM  Paper 491
**Reconstruction Of Annular Pulleys Of The Hand Flexor Tendon Sheath Using Flexor Digitorum Superficialis Tendon**
Mohamed A. Quolquela, MD, Tanta, Egypt

The use of superficialis tendon remnants to reconstruct annular pulleys especially A2 and A4 was proven to be easy and efficient.

9:24 AM  Paper 492
**When are Pyrocarbon Implants Indicated in Metacarpophalangeal Arthroplasty? a longitudinal analysis of 253 cases**
Eric R. Wagner, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Robert Van Demark, MD, Rochester, MN
Steven L. Moran, MD, Rochester, MN
Marco Rizzo, MD, Rochester, MN

MCP arthroplasty using a pyrocarbon reasonable implant survival and low complications, with worse outcomes in smokers, prior instability, and those requiring methotrexate.

**Discussion – 6 Minutes**

9:36 AM  Paper 493
**Arthroscopic Resection of Basal Joint Arthritis: Comparing Isolated Carpometacarpal to Pantrapezial Disease**
Tyson K. Cobb, MD, Davenport, IA
Anna L. Walden, BS, DC, Davenport, IA
Ying Cao, MS, MSc, Silver Spring, MD

Minimum 4-year follow-up comparing outcomes of arthroscopic resection arthroplasty for isolated carpometacarpal to pantrapezial disease are not significantly different.

**Discussion – 6 Minutes**

9:42 AM  Paper 494
**Is Health Literacy Associated with Treatment Outcome and Satisfaction in Patients with Mallet Finger Injury?**
Young Hak Roh, Incheon, Republic of Korea
Jong Ryoum Park, Incheon, Republic of Korea
Jung Ho Nob, MD, PhD, Chuncheon-Si, Republic of Korea
Do Hyun Moon, Incheon, Republic of Korea
Beom Koo Lee, Incheon, Republic of Korea

A limited health literacy was associated with poor compliance in splint care for a mallet finger injury and also led to poorer treatment outcomes in terms of extensor lag and treatment satisfaction.

9:48 AM  Paper 495
**A Disease-Specific Questionnaire for Basal Joint Arthritis**
Peter Noback, BA, Alpine, NJ
Joseph Lombardi, MD, New York, NY
Derly O. Cuellar III, MD, University City, MO
Melvin P. Rosenwasser, MD, New York, NY

A study focusing on the creation and validation of a questionnaire to specifically compare treatments for basal-joint arthritis.

**Discussion – 6 Minutes**
Thursday, March 3

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room W404A

Spine IV: Diagnostic/Imaging
Moderator(s): William F. Donaldson III, MD, Pittsburg, PA, Jason C. Datta, MD, Tempe, AZ

8:00 AM  Paper 496
Discrepancies in Planned Sagittal Alignment and Age-Adjusted Ideals: Implications of Over- or Under-Correction
Jensen Henry, BA, New York, NY
Matthew A. Spiegel, BA, Woodmere, NY
Jonathan H. Oren, MD, New York, NY
Isaac Gammal, BA, Brooklyn, NY
Cyrus Jalai, BA, New York, NY
Themistocles Protopsaltis, MD, New York, NY
Virginie Lafage, PhD, New York, NY
International Spine Study Group, Brighton, CO

In this prospective study of surgical planning for adult spinal deformity, favorable post-operative alignment occurred when the planned alignment incorporated age-adjusted ideals.

8:06 AM  Paper 497
Utility of MRIs in Patients with Thoracolumbar Fractures
Elizabeth P. Norheim, MD, Downey, CA
Steven D. Glassman, MD, Louisville, KY
Erin Adams, BS, Louisville, KY
Allison M. Hunter, MD, Birmingham, AL
Brain G. Harbrecht, MD, Louisville, KY
John R. Dimar II, MD, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY

The addition of MRI to CT in the initial evaluation of thoracolumbar spine injuries changed treatment in 32% of case-rater pairs.

8:12 AM  Paper 498
Chain of Relaxation: How Sagittal Correction Affects Spino-pelvic, Lower Limb, and Global Alignment
Jonathan H. Oren, MD, New York, NY
Shaleen Vira, MD, New York, NY
Barthelemy Liabaud, MD, New York, NY
Bassel Diebo, MD, New York City, NY
Matthew A. Spiegel, BA, Woodmere, NY
Renaud Lafage, New York, NY
Thomas J. Errico, MD, New York, NY
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY

Most global correction occurs when spino-pelvic mismatch changes from severe to moderate. Age-adjusted alignment targets are reached when spino-pelvic mismatch is corrected to its age-adjusted target.

8:24 AM  Paper 499
Discrimination of Malignant and Benign Vertebral Fractures
Tomoyuki Takigawa, MD, PhD, Okayama, Japan
Masato Tanaka, MD, Okayama, Japan
Yoshisita Sugimoto, MD, Okayama, Japan
Shinya Arataki, MD, PhD, Okayama, Japan
Keiichiro Nishida, MD, Okayama City, Japan
Toshifumi Ozaki, MD, Okayama, Japan

114 vertebral fractures were investigated to clarify benign and malignant MRI features. Combining MRI features is able to make accurate diagnosis (97.3%).

8:30 AM  Paper 500
A Cohort Study of Adult Spinal Deformity and Its Relation with Hip-Knee ROM
Mutsuya Shimizu, MD, Asahikawa, Japan
Tetsuya Kobayashi, Asahikawa, Japan
Shizuo Jimbo, MD, PhD, Asahikawa, Hokkaido, Japan
Issei Senoo, MD, Asahikawa, Japan
Hiroshi Ito, MD, Asahikawa, Japan

Hip ROM showed significant correlation with LL, PT and SVA among 80 community-based volunteers, and reduced hip ER by 1SD was equivalent to increased PT of 6.0°and SVA of 3.0cm.

8:36 AM  Paper 501
Contrast-Enhanced µCT Characterization of Cartilage Endplate Morphology and Extracellular Matrix Composition
Abigail Davidson, BS, Royal Oak, MI
Michael D. Newton, BS, Royal Oak, MI
Tristan Maerz, PhD, Royal Oak, MI
Michael P. Planalp, MD, Royal Oak, MI
Daniel K. Park, MD, Bloomfield Hills, MI
Kevin C. Baker, PhD, Royal Oak, MI

Application of contrast-enhanced µCT to characterize pathologic changes in morphology and extracellular matrix composition of cartilage endplates in a rodent model of degenerative disc disease.

Discussion – 6 Minutes

8:48 AM  Paper 502
Age-adjusted Alignment Goals Have the Potential to Reduce PJK
Frank J. Schwab, MD, New York, NY
Renaud Lafage, New York, NY
Steven D. Glassman, MD, Louisville, KY
Robert S. Bess, MD, Castle Rock, CO
Robert A. Hart, MD, Portland, OR
Douglas C. Burton, MD, Kansas City, KS
Han Jo Kim, MD, New York, NY
Virginie Lafage, PhD, New York, NY
International Spine Study Group, Brighton, CO

PJK rate increased with age across independently of the correction. Comparisons on the offset versus the age-adjusted alignments demonstrate an over-correction of PI-LL and SVA on PJK patients.

Discussion – 6 Minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
An alphabetical faculty financial disclosure list can be found starting on page 334.

8:54 AM  Paper 503
A Comparison of Ocular Radiation Exposure Utilizing Three Types of Leaded Glasses
Bradford S. Waddell, MD, New York, NY
William H. Waddell, Shreveport, LA
Joseph M. Zavatsky, MD, New Orleans, LA
We show leaded glasses offer significant reductions in radiation exposure surgeon’s lens in spine surgery. Lead glasses without lead sides and sport wraparound glasses offered the most protection.

9:00 AM  Paper 504
Chance Fractures In The Pediatric Population Are Often Misdiagnosed And Mistreated
Lindsay M. Andras, MD, Los Angeles, CA
Kira F. Skaggs
Haleh Badkoobehi, MD, Los Angeles, CA
Paul D. Choi, MD, Los Angeles, CA
David L. Skaggs, MD, Los Angeles, CA
The majority of pediatric Chance fractures were initially misdiagnosed (71%; 5/7) or mistreated (14%; 1/7). Average time to correct diagnosis of a Chance fracture was 3 months.

9:12 AM  Paper 505
Defining the Role of Lower Limbs in Compensating for Sagittal Malalignment
Barthelemy Liabaud, New York, NY
Renaud Lafage, New York, NY
Bassel Diebo, MD, New York City, NY
Jonathan H. Oren, MD, New York, NY
Shaleen Vira, MD, New York, NY
Themistocles S. Protopsaltis, MD, New York, NY
Thomas J. Errico, MD, New York, NY
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY
Evaluation of full body xray revealed the antero-posterior translation of the pelvis to maintain T9 in line with the ankles. Lower limb compensatory mechanisms permit an increase in PT recruitment.

9:18 AM  Paper 506
Unlocking TPA’s Clinical and Sagittal Significance by Analyzing Its Relation to Pelvic Tilt
Barthelemy Liabaud, New York, NY
Renaud Lafage, New York, NY
Jonathan H. Oren, MD, New York, NY
Shaleen Vira, MD, Silver Spring, MD
Bassel Diebo, MD, New York City, NY
Themistocles S. Protopsaltis, MD, Closter, NJ
Thomas J. Errico, MD, New York, NY
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY
In order to account for compensatory mechanisms and convey both clinical and radiographic data of significance, the T1 Pelvic Angle (TPA) should be reported in conjunction with Pelvic Tilt (PT).

9:24 AM  Paper 507
High-resolution Magnetization Transfer Correlates with Cervical Stenosis in Patients with Cervical Myelopathy
Linda Suleiman, MD, Chicago, IL
Kenneth A. Weber II, DC, Chicago, IL
Todd B. Parrish, PhD, Chicago, IL
Jason W. Savage, MD, Chicago, IL
Wellington K. Hsu, MD, Chicago, IL
Alpesh A. Patel, MD, River Forest, IL
Cervical spondylotic myelopathy patients demonstrated decreased MTR indicating myelin degradation compared to our healthy subjects and MTR was negatively correlated with the severity of CSM.

9:36 AM  Paper 508
Reliability of Intraoperative Prone Lateral Radiographs in Predicting Postoperative Standing Sagittal Alignment
Wesley Bronson, MD, New York, NY
Barthelemy Liabaud, MD, New York, NY
Gregory M. Mundis, MD, San Diego, CA
Jeffrey Gum, MD, Louisville, KY
Douglas C. Burton, MD, Kansas City, KS
Frank J. Schwab, MD, New York, NY
International Spine Study Group, Brighton, CO
A review of radiographs of 20 patients with adult spinal deformity analyzed by 7 observers showed excellent reliability in the intraoperative prediction of postoperative PI, LL, PI-LL, LPA and T9PA
Thursday, March 3

9:42 AM  Paper 509  
Epidemiological Study of Adult Spinal Deformity: Toward Standard Values For Aging Spine  
Tetsuya Kobayashi, Asahikawa, Japan  
Mutsuya Shimizu, MD, Asahikawa, Japan  
Shizuo Jimbo, MD, PhD, Asahikawa, Hokkaido, Japan  
Issei Senoo, MD, Asahikawa, Japan  
Hiroshi Ito, MD, Asahikawa, Japan  
A mean 11.6-year follow-up of 289 community-based female volunteers showed disproportionate changes in SSA parameters. Standard for PI-LL and PT modifier might be different among elderly patients.

9:48 AM  Paper 510  
Clinical Characteristics Of Cervical Myelopathy Complicated With Diabetic Neuropathy  
Takanori Saito, MD, Moriguchi, Japan  
Shinichiro Taniguchi, MD, Suita-Shi, Japan  
we assessed clinical characteristics and the prognosis of cervical myelopathy with diabetic neuropathy, and differential diagnosis and postoperative evaluation by electrophysiological method.

8:00 AM — 10:00 AM  
PAPER PRESENTATION  
W315  
Tumor II: Margins/Recurrence/Prognosis  
Moderator(s): Matthew R. DiCaprio, MD, Albany, NY, Jeffrey S. Kneisl, MD, Charlotte, NC.

8:00 AM  Paper 511  
The Variability in Surgical Margin Reporting in Limb Salvage Surgery for Sarcoma  
Kevin Hoang, Iowa City, IA  
Yubo Gao, PhD, Iowa City, IA  
Benjamin J. Miller, MD, Iowa City, IA  
A simple literature search showed several different margin classification systems used in sarcoma without an obvious trend toward one preferred system.

8:06 AM  Paper 512  
Patterns of Local Recurrence and Metastatic Progression Following Treatment of Bone Sarcomas  
Cara A. Cipriano, MD, Saint Louis, MO  
Anthony M. Griffin, MSc, Toronto, ON, Canada  
Peter Ferguson, MD, Thornhill, ON, Canada  
Peter Ferguson, MD, Thornhill, ON, Canada  
Jay Wunder, MD, Toronto, ON, Canada  
Following treatment of bone sarcomas, histologic grade influenced the timing but not incidence of local recurrence, and both the timing and incidence of distant metastasis.

8:12 AM  Paper 513  
Multi-institutional Study of a New Limb Salvage Surgery Using Acridine Orange in Patients with Bone Sarcomas  
Takao Matsubara, MD, Tsu City, Mie, Japan  
Katsuyuki Kusuzaki, MD, Kyoto, Japan  
Kyoji Okada, MD, Akita, Japan  
Takashi Tsuchiya, MD, PhD, Yamagata, Japan  
Takahiro Goto, MD, PhD, Tokyo, Japan  
Ryu Tsumoda, MD, PhD, Tokyo, Japan  
Hiroyuki Tsuchiya, MD, Kanazawa, Japan  
Akibiko Matsumine, MD, PhD, Tsu City, Mie, Japan  
Akibiro Sudo, MD, Tsu City, Mie, Japan  
Acridine Orange Therapy supported by photodynamic therapy, to 30 bone sarcomas as multi-institutional study, improved limb function by preserving normal tissues without local recurrence.

Discussion – 6 Minutes

8:24 AM  Paper 514  
Efficacy of Fluorescence-Guided Surgery on Primary Human Osteosarcoma  
Shinji Miwa, MD, Ishikawa, Japan  
Fuminari Uehara, MD, San Diego, CA  
Hiroaki Kimura, MD, PhD, Nagoya, Japan  
Katsuhiko Hayashi, MD, Kanazawa, Japan  
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan  
Robert M. Hoffman, PhD, San Diego, CA  
Hiroyuki Tsuchiya, MD, Kanazawa, Japan  
Efficacy of fluorescence-guided surgery was assessed in orthotopic mouse model of human osteosarcoma. This study showed that FGS significantly reduced the recurrence of the tumor.

8:30 AM  Paper 515  
Prognostic Significance of Positron Emission Tomography in Patients with Sarcoma  
Tadahiko Kubo, MD, PhD, Hiroshima, Japan  
Jun Fujimori, MD, Hiroshima, Japan  
Taisuke Furuta, Hiroshima, Japan  
Mitsuo Ochi, MD, PhD, Hiroshima, Japan  
18F-Fluorodeoxyglucose positron emission tomography/computed tomography at diagnosis must be a very useful predictive tool for patients with soft tissue sarcoma and bone sarcoma.

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8:36 AM  Paper 516
Bone Scans Have Little Utility in Evaluation of Well-differentiated Cartilaginous Lesions of the Humerus
Andre Samuel, New Haven, CT
Izuchukwu K. Ibe, MD, New Haven, CT
Gary E. Friedlaender, MD, New Haven, CT
Dieter Lindskog, MD, New Haven, CT

Only 8% of enchondroma patients receiving bone scans had negative scans, allowing differentiation from malignant lesions. In addition, findings did not correlate with features seen on x-ray or MRI.

Discussion – 6 Minutes

8:48 AM  Paper 517
Long-term Survival After Metastasectomy in Patients With Bone Metastases From Renal Cell Carcinoma
Takashi Higuchi, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Katsuhiko Hayashi, MD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Shinji Miwa, MD, Ishikawa, Japan
Hiroyuki Inatani, MD, Nagoya, Japan
Yu Aoki, Kanazawa, Japan
Kensaku Abe, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

This study evaluated the long-term outcome of surgery for bone or soft tissue metastases from RCC and suggests that surgical resection is a favorable option for improving prognosis.

8:54 AM  Paper 518
Commercial Activity Monitor for Assessing Free-Living Pediatric Osseous Malignancy Limb Salvage
Kenneth R. Gundle, MD, Seattle, WA

In lower extremity pediatric bone cancer patients, a low-cost commercial activity monitor demonstrated validity. Measuring free-living activity may enhance patient education and treatment assessment.

9:00 AM  Paper 519
To Fix or Not? In-hospital Cost and Complication Analysis of Impending and Pathologic Fracture Treatment
Nicole K. Behnke, MD, Mountain Brk, AL
Dustin K. Baker, BS, Birmingham, AL
Thomas Nienaber, MD, Birmingham, AL
Reaves M. Crabtree Jr, BA, Birmingham, AL
Brent A. Ponce, MD, Birmingham, AL

Prophylactic fixation of impending pathologic fracture reduces postoperative complications and mortality relative to treatment after fracture, and differences in length of stay or cost were not seen.

Discussion – 6 Minutes

9:12 AM  Paper 520
Resection of Bone Sarcoma using 3D Printed Guides: Improving Accuracy by Accounting for Soft Tissue
Carlos G. Helguero, MSc, Miller Place, NY
Fazel Khan, MD, Stony Brook, NY
David E. Komatsu, PhD, Stony Brook, NY
Imin Kao, PhD, Stony Brook, NY

Exploring resection of bone sarcomas using 3-D printed cutting guides. Improving accuracy with jigs designed to account for soft tissue coverage. Quantifying soft tissue effect during jigs positioning.

9:18 AM  Paper 521
Augmented-Reality Assistance in Bone Tumor Surgery
Hwan-Seong Cho, MD, Seongnam-Si, Republic of Korea
Yeong Kyoon Park, Seongnam-Si, Republic of Korea
Ilkyu Han, Seoul, Republic of Korea
Han-Soo Kim, Seoul, Republic of Korea

We evaluated the accuracy of AR-based navigation assistance in resection of the bone tumor through a simulation of bone tumor in the pig femora.

9:24 AM  Paper 522
Influence of Fixation Method and External Beam Irradiation on the Pathway and Efficacy of Fracture Healing
Yongren Wu, PhD, Charleston, SC
Evan L. Hanna, MD, Charleston, SC
Robert E. Holmes, MD, Charleston, SC
William R. Barfield, PhD, Charleston, SC
Joseph Stains, PhD, Indianapolis, IN
Vincent D. Pellegrini, MD, Charleston, SC

Radiographic analysis in a bilateral rat femur fracture model suggests that primary membranous ossification and related fracture healing is more resistant to radiation than endochondral ossification.

Discussion – 6 Minutes

9:36 AM  Paper 523
Erk Mediates Aggressive Growth and Bone Destruction in Osteolytic Metastatic Breast Cancers to Bone
Francis Y. Lee, MD, PhD, New York, NY
Jungbo Back, PhD, New York, NY
Hyunwoo P. Kang, BS, MA, New York, NY
Saqib Nizami, Staten Island, NY
Danielle Stamer, Pleasant Valley, NY
Jocelyn T. Compton, MD, Iowa City, IA
Do Yu Soung, New York, NY
Lee Song, PhD, New York, NY

We identified ERK as an important mediator of osteolytic metastatic breast cancer-induced bone destruction and cancer growth using human pathology specimens and in vivo mouse model.
Thursday, March 3

9:42 AM  
**Paper 524**

**Denosumab as Adjuvant Treatment for Giant Cell Tumor of Bone - Risks and Benefits for the Oncologic Surgeon**
Daniel A. Mueller, MD, Zürich, Switzerland
Giovanni Beltrami, MD, Firenze, Italy
Guido Scoccianti, Firenze, Italy
Rodolfo Capanna, MD, Firenze, Italy

Denosumab facilitates the surgical treatment of giant cell tumor of bone by “downstaging” the lesion, but adapted curettage technique is necessary in order to obtain local control.

9:48 AM  
**Paper 525**

**The Efficacy of Radical Resection For Bone And Soft Tissue Metastatic Lesions Of Renal Cell Carcinoma**
Takashi Higuchi, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Katsuhiko Hayashi, MD, Kanazawa, Japan
Akito Takeuchi, MD, Kanazawa, Japan
Shinji Miwa, MD, Ishikawa, Japan
Hiroyuki Inatani, MD, Nagoya, Japan
Yu Aoki, Kanazawa, Japan
Kensaku Abe, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We evaluated a long term survival after the surgery of bone and soft tissue metastatic lesion in renal cell carcinoma and radical resection is a favorable option for improving prognosis.

**Discussion – 6 Minutes**

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**INSTRUCTIONAL COURSE LECTURE**

9:30 AM — 10:30 AM

**Video Production for Orthopaedic Surgeons: Getting the Award, Making the Difference**
Moderator: James M. Bennett, MD, Houston, TX
Shariff K. Bishat, DO, Saint Clair Shores, MI
Rachel M. Frank, MD, Chicago, IL

Video is one of orthopaedic education’s most widely used instructional tools. This workshop teaches you how to critically evaluate the orthopaedic technique videos you watch, and how to create award-winning orthopaedic videos of your own.

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**Symposium**

10:30 AM — 12:30 PM

**Valencia Room A**

**Combined Multi-Ligament, Meniscus, and Cartilage Injuries of the Knee (R)**
Co-Moderators: Bruce A. Levy, MD, Rochester, MN
Gregory C. Fanelli, MD, Denville, PA

Uses a case-based approach to highlight current evidence-based treatment principles for multiligament knee reconstruction, meniscal repair and transplantation, cartilage preservation, and osteotomies about the knee.

I.  FCL/PLC Reconstruction in the MLIK
    Joel L. Boyd, MD, Minneapolis, MN

II.  MCL/PMC Reconstruction in the MLIK
    Lars Engdahlsen, MD, Oslo, Norway

III. PCL Reconstruction in the MLIK
    Gregory C. Fanelli, MD, Denville, PA

IV.  Meniscus & Meniscus Root Repair in the MLIK
    Robert F. LaPrade, MD, PhD, Vail, CO

V.  Cartilage Preservation (Cell-Based) in the MLIK
    Peter B. MacDonald, MD, Winnipeg, MB, Canada

VI. Osteotomies (HTO/DFO) in the MLIK
    Robert G. Marx, MD, New York, NY

VII.  Timing of Surgery in the MLIK
    Mark D. Miller, MD, Charlottesville, VA

VIII. Cartilage Preservation (OAT/OCA) in the MLIK
    James P. Stannard, MD, Columbia, MO

IX.  Meniscus Transplant in the MLIK
    Michael J. Stuart, MD, Rochester, MN

X.  Initial Assessment of the Severely Injured Knee
    Daniel Whelan, MD, Toronto, ON, Canada

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Symposium
10:30 AM — 12:30 PM
Valencia Room B

Controversies in Geriatric Care in Orthopaedics (S)
Moderator: Julie A. Switzer, MD, Saint Paul, MN

Focusses on the financial aspects of health reform and the implications for orthopaedic care in the elderly; on the establishment of quality measures for the provision of hip fracture care in the elderly and whether we can work as a committed whole to engineer and execute this; and on an innovative program designed to provide orthopaedic care to the frail elderly outside of the usual office setting.

I. Incorporation of Fracture Liaison Services and Geriatric Focus
   Kyle J. Jeray, MD, Greenville, SC

II. Financial Aspects of Health Reform and Implications for Orthopaedic Care in the Elderly
   Stephen L. Kates, MD, Rochester, NY

INSTRUCTIONAL COURSE LECTURE
10:30 AM — 11:30 AM
CD17 Brushing Up on Your Test-Taking Skills
Moderator: Joseph A. Bosco III, MD, New York, NY

Provides tips on getting organized, planning ahead, panic strategy, staying calm, and how to apply what you have learned when taking the test.

INSTRUCTIONAL COURSE LECTURE
10:30 AM — 12:30 PM
321 Let’s Do a Direct Anterior Hip Replacement (Without a Special Table)
Moderator: William J. Hozack, MD, Philadelphia, PA
Kristoff Corten, MD, PhD, Genk, Belgium
Michael Leunig, PhD, Zurich, Switzerland
Jose A. Rodriguez, MD, New York, NY

This is a video-based course focusing on local anatomy related to the direct anterior approach as well as surgical techniques for primary and revision total hip arthroplasty using a direct anterior approach without a special table. Tips for novices on how to shorten the learning curve are provided. Tradución simultánea en español. Tradução simultânea em português.

322 The Urban Legends of Total Knee Arthroplasty
Moderator: Bryan D. Springer, MD, Charlotte, NC
James A. Browne, MD, Charlottesville, VA
Raymond H. Kim, MD, Denver, CO
J. Bohannon Mason, MD, Charlotte, NC

Focuses on evidence-based medicine as it relates to common myths and legends that continue to be practiced in total knee arthroplasty. Each speaker deals with related urban legends in the preoperative, intraoperative, and postoperative time period in an effort to provide evidence-based practice-changing guidelines for the audience.

323 Infection in Arthroplasty: The Basic Science of Bacterial Biofilm in its Pathogenesis, Diagnosis, Treatment and Prevention
Moderator: Javad Parvizi, MD, FRCS, Philadelphia, PA
Fares S. Haddad, FRCS, London, United Kingdom
Edward M. Schwarz, PhD, Rochester, NY
Mark S. Smeltzer, PhD, Little Rock, AR

Course faculty discuss the surest state of affairs with regard to orthopaedic infections and the challenge that biofilm formation presents to the orthopaedic community.

324 Arthritis of the Ankle Joint: Refining and Expanding Options in Management
Moderator: Steven L. Haddad, MD, Glenview, IL
J. Chris Coetzee, MD, Edina, MN
Mark E. Easley, MD, Durham, NC
Paul T. Fortin, MD, Royal Oak, MI

The new version of this course will provide the attendee with the entire toolkit in managing ankle arthritis. Both joint preserving and joint sacrificing methods will be explored in depth, with signiﬁcant use of video tips and tricks to achieve the desired patient outcome for all procedures. Will make the attendee a veteran in future patient consultation and decision-making.

325 PRP, BMP, and Stem Cells: What Surgeons Need to Know
Moderator: Jeffrey C. Wang, MD, Sherman Oaks, CA
Wellington K. Hsu, MD, Chicago, IL
Thomas E. Mroz, MD, Cleveland, OH
Frank Petrigliano, MD, Santa Monica, CA

Discusses the most important biologics in orthopaedic surgery, including growth factors, cell therapy, and pharmacologic to promote bone and soft tissue healing.

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326  Venturing into the Overlap Between Pediatric Orthopaedics and Hand Surgery
Moderator: Joshua M. Abzug, MD, Timonium, MD
Andrea S. Bauer, MD, Boston, MA
Michael S. Bednar, MD, Maywood, IL
Christine A. Ho, MD, Dallas, TX

The management of pediatric upper limb fractures, congenital syndromes, and other conditions are presented in a case-based manner. Detailed discussion regarding pearls and pitfalls of treatment, avoiding the potential complications, as well as managing them, can aid the orthopaedic surgeon in practice.

327  Pediatric Sports Medicine Operative Challenges and Solutions
Moderator: Theodore J. Ganley, MD, Philadelphia, PA
Michael T. Busch, MD, Atlanta, GA
Benton E. Heyworth, MD, Boston, MA
Kevin G. Shea, MD, Boise, ID

With a case-based interactive format with expert faculty, this course covers hot topics in pediatric sports medicine from the shoulder to the foot.

Moderator: Daniel W. Green, MD, New York, NY
Laurel C. Blakemore, MD, Gainesville, FL
Roger F. Widmann, MD, New York, NY

Offers a concise review of the management and treatment of adolescent idiopathic scoliosis (AIS). Expert faculty discuss best practices for bracing, and surgical techniques for AIS in 2016. Surgical discussions highlight patient safety, including neuro-monitoring, pedicle screw placement, de-rotation maneuvers, and management of complications. Cases of AIS are reviewed to emphasize patient safety and function as well as pearls and pitfalls of management.

329  All Things Clavicle: From Acromioclavicular to Sternoclavicular and All Points in Between
Moderator: Gordon L. Grob, MD, Asheville, NC
Carl J. Basamania, MD, Edmonds, WA
Laurence D. Higgins, MD, Boston, MA
Mark A. Mighell, MD, Tampa, FL

Addresses management and clinical outcomes of clavicular injuries, including midshaft and distal clavicle fractures, as well as acromioclavicular and sternoclavicular joint dislocations. Anatomical and biomechanics related to treatment are reviewed.

330  Shoulder Arthroplasty: How To Do Them All
Moderator: Thomas (Quin) Throckmorton, MD, Germantown, TN
Leesa M. Galatz, MD, New York, NY
Charles L. Getz, MD, Newton Square, PA
John W. Sperling, MD, MBA, Rochester, NY

Focuses on the key step-by-step technical aspects of performing multiple types of shoulder arthroplasty. This includes standard total shoulder arthroplasty as well as techniques to address glenoid deficiency, improve component position, and treat proximal humeral bone loss.

331  Sports Tumors – How to Manage Orthopaedic Conditions in the Setting of Common Benign Tumors
Moderator: Wakenda K. Tyler, MD, MPH, Rochester, NY
Joseph Benevenia, MD, Newark, NJ
Lee K. Liddy, MD, Charleston, SC
Adam S. Levin, MD, Indianapolis, IN

Designed to help appreciate the appropriate recognition and workup of incidental masses noted on workup of common musculoskeletal complaints, as well as develop practical solutions for safe and effective care for these conditions.

333  Adult Spinal Deformity: Surgical Planning and Complications
Moderator: Jeffrey Nepple, MD, Saint Louis, MO
Christopher M. Larson, MD, Edina, MN

Focuses on detailed review of preoperative imaging with direct correlation to findings at the time of surgery. Utilizing a video-based discussion of the surgical treatment, participants are exposed to a variety of surgical techniques in FAI with detailed discussion of surgical preference and surgical pearls.

335  Advanced Surgical Techniques in Femoroacetabular Impingement: An In-Depth Approach
Moderator: Robert A. Hart, MD, Portland, OR
Robert S. Bess, MD, Castle Rock, CO
Darrel S. Brodke, MD, Salt Lake City, UT
Khaled M. Kebaish, MD, Indianapolis, IN

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Christopher Ames, MD, San Francisco, CA
Robert S. Bess, MD, Castle Rock, CO
Darrel S. Brodke, MD, Salt Lake City, UT
Thomas J. Errico, MD, New York, NY
Khaled M. Kebaish, MD, Indianapolis, IN
Michael P. Kelly, MD, Saint Louis, MO
Rex A. Marco, MD, Houston, TX
Gregory M. Mundis, MD, San Diego, CA
Themistocles S. Protopsaltis, MD, New York, NY
Rajiv K. Sethi, MD, Seattle, WA

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Thursday, March 3

**Complex Primary Total Hip Arthroplasty: A Case-based Approach**

Moderator: Daniel J. Berry, MD, Rochester, MN  
John J. Callaghan, MD, Iowa City, IA  
Craig J. Della Valle, MD, Chicago, IL  
C. Anderson Engh Jr., MD, Arlington, VA  
Kevin L. Garvin, MD, Omaha, NE  
George J. Haidukewych, MD, Orlando, FL  
William A. Jiranek, MD, Richmond, VA  
David G. Lewallen, MD, Rochester, MN  
Daniel A. Oakes, MD, Pasadena, CA  
Wayne G. Paprosky, MD, Winfield, IL  
Christopher L. Peters, MD, Salt Lake City, UT

This case-based course highlights techniques and discusses clinical tips and tricks to manage complex primary hip arthroplasty challenges. Techniques to manage challenging cases, including developmental dysplasia of the hip, posttraumatic hip problems, bone deformity and deficiency, and young patients, are discussed.

**FLASH FIVE**

8:00 AM — 9:00 AM  
Room W311A  
FF2 Flash Five: What’s Coming Down the Pike  
Moderator: Paul Tornetta III, MD, Boston, MA  
John C. Clohisy, MD, Saint Louis, MO  
Thomas A. Einhorn, MD, New York, NY  
Todd L. Gerlinger, MD, Chicago, IL  
Joshua J. Jacobs, MD, Saint Louis, MO  
John L. Marsh, MD, Iowa City, IA  
William M. Ricci, MD, Saint Louis, MO  
Thomas A. Russell, MD, Eads, TN  
Vincent J. Sabesan, MD, Cincinnati, OH  
Alexander Vaccaro, MD, PhD, Gladwyne, PA  
Ken Yamaguchi, MD, Saint Louis, MO

A burst of knowledge given in five minutes on topics benefiting orthopaedists. Hear from leading experts providing insight on critical points and what lies ahead.

**PAPER PRESENTATION**

10:30 AM — 12:30 PM  
Valencia Room D

Shoulder & Elbow IV: Miscellaneous Issues: Trauma; Risk; Reduction, Other Concerns

Moderator(s): Vani J. Sabesan, MD, Kalamazoo, MI, Francis G. Alberta, MD, Glen Rock, NJ

**10:30 AM**  
*Paper 526*  
The Majority of Shoulder MRIs Ordered by Non-Orthopaedic Providers do not Meet National Guidelines  
Kyle Borque, MD, Chicago, IL  
Olumuyiwa Idoneu, BA, Chicago, IL  
Hristo I. Pironov, Evanston, IL  
Jason L. Koh, MD, Winnetka, IL  
Lewis L. Shi, MD, Chicago, IL

Inappropriate utilization of shoulder MRIs is an area of potential cost cutting for both Orthopaedic and primary care providers.

**10:36 AM**  
*Paper 527*  
Immobilization in External Rotation After Primary Anterior Shoulder Dislocation Reduces the Risk of Recurrence  
Stephane Pelet, MD, PhD, Quebec, QC, Canada  
Jean-Christophe Murray, MD, Boischatel, QC, Canada  
Alexandre Leclerc, MD, FRSCC, Quebec, QC, Canada

This study suggests that immobilization in external rotation reduces the risk of recurrence after a primary anterior shoulder dislocation in patients aged between 20 and 40 years.

**10:42 AM**  
*Paper 528*  
Positional Change in Displacement of Midshaft Clavicle Fractures: An Aid to Preoperative Evaluation  
Awais Malik, Indianapolis, IN  
Ehsan Jazmi, MD, Indianapolis, IN  
Ehsan Jazmi, MD, Indianapolis, IN  
Xu Yang Song, MD, Indianapolis, IN  
Gerard Slobogean, MD, MPH, Vancouver, BC, Canada  
Joshua M. Abzug, MD, Monkton, MD

We found a significant positional increase in the displacement of midshaft clavicle fractures that highlights the importance of obtaining upright radiographs when considering surgical indications.

**Discussion – 6 Minutes**
Thursday, March 3

10:54 AM  Paper 529
Epidemiology Of Pectoralis Major Tendon Ruptures In The Active Duty Population
Alaina M. Brelin, MD, Bethesda, MD
George C. Balazs, MD, Elkridge, MD
Michael Donohue, MD, BS, Bethesda, MD
John-Paul H. Rue, MD, Annapolis, MD
Jonathan F. Dickens, MD, Bethesda, MD
Jeffrey R. Giuliani, MD, Bethesda, MD
Pectoralis major tendon ruptures have an incidence of 60 per 100,000 person-years in military personnel, and the results of surgical treatment are excellent.

11:00 AM  Paper 530
Operative Repair of Proximal Humerus Fractures in Septuagenarians and Octogenarians: How Old is Too Old?
Abraham M. Goch, New York, NY
Anthony V. Christiano, New York, NY
Sanjit R. Konda, MD, Rye, NY
Philipp Leucht, MD, New York City, NY
Kenneth A. Egol, MD, New York, NY
Operative fracture repair using locked plating of the proximal humerus in septuagenarians and octogenarians can provide for excellent long term outcomes in appropriately selected patients.

11:06 AM  Paper 531
Sternoclavicular Joint Allograft Reconstruction Using the Sternal Docking Technique
Yaser M. Baghdadi, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Reconstruction of the sternoclavicular joint with a semitendinous allograft in a sternal docking fashion restores stability in most patients requiring surgery for instability or osteoarthritis.

11:18 AM  Paper 532
Complication Rates In The Reconstruction Of Acute Acromioclavicular Joint Dislocations
Brian Lee, MD, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Usman Ali M. Syed, BS, Philadelphia, PA
Joseph A. Abbond, MD, Philadelphia, PA
Christopher Dodson, MD, Philadelphia, PA
Matthew L. Ramsey, MD, Philadelphia, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
A retrospective study examining the complication rates of acute AC joint dislocations with and without the use of tendon graft.

11:24 AM  Paper 533
Hardware Complications and Patient Reported Outcomes (PROs) After Plate Fixation of Midshaft Clavicle Fractures
Micah Naimark, MD, San Francisco, CA
Faustine L. Dufka, BA, San Francisco, CA
Richard J. Han, MD, San Francisco, CA
David Sing, San Francisco, CA
Paul Toogood, MD, Seattle, WA
Alan Zhang, MD, San Francisco, CA
Brian T. Feeley, MD, San Francisco, CA
Precontoured plate fixation of midshaft clavicle fractures results in excellent PROs and union rates, but hardware removal rates remain high in national database and institutional cohorts.

11:30 AM  Paper 534
Minimally Invasive Plate Osteosynthesis Using 3D Printing for Shaft Fractures Of Clavicles
Kyoung Jin Park, MD, Cheongiu, Republic of Korea
Yong-Min Kim, MD, Cheongiu, Republic of Korea
Byung-Ki Cho, MD, Cheong-Ju, Republic of Korea
Chae-Ok Lim, MD, Cheongiu, Republic of Korea
HyeonJun Eun, MD, Cheongiu, Republic of Korea
Minimally invasive plate osteosynthesis using 3D printing for displaced shaft fractures of clavicles showed excellent result include less scar, relatively rapid bony union without complication.

11:42 AM  Paper 535
Preoperative Risk Stratification Improves the Safety of Shoulder Surgery in the Beach Chair Position
Mohit Gilotra, MD, Indianapolis, IN
Nabil M. Elkassabany, MD, Philadelphia, PA
Andrew F. Kuntz, MD, Philadelphia, PA
G Russell Huffman, MD, Springfield, PA
David L. Glaser, MD, Villanova, PA
Preoperative risk stratification, stage positioning, and normotensive anesthesia lead to decreased risk of an ischemic event during shoulder surgery in the beach chair position.

11:48 AM  Paper 536
The Timing of Elective Shoulder Surgery after Intra-articular Injection Affects Postoperative Infection Risk
Brian C. Werner, MD, Charlottesville, VA
Jordaan M. Cancienne, MD, Charlottesville, VA
Justin W. Griff, MD, Charlottesville, VA
Matthew T. Burrus, MD, Charlottesville, VA
F Winston Gwathmey, MD, Charlottesville, VA
Stephen F. Brockmeier, MD, Charlottesville, VA
Intra-articular injection within 3 months before elective shoulder surgery increases postoperative infection risk.

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11:54 AM  Paper 537
Perioperative Antibiotic Prophylaxis in Shoulder Arthroscopy: A Single Center Study including over 6700 Patients.
Leo Pauzenberger, MD, Vienna, Austria
Annemarie Grieb, Vienna, Austria
Michael Hexel, MD, Vienna, Austria
Brenda Luky, PhD, MSc, Vienna, Austria
Bernhard Kriegleider, MD, Vienna, Austria
Werner Anderl, MD, Vienna, Austria
Philip R. Heuberer, MD, Vienna, Austria

Perioperative antibiotic prophylaxis is highly recommended in reconstructive shoulder arthroscopy, whereas the routine use of antibiotics in non-reconstructive procedures seems not to be warranted.

Discussion – 6 Minutes

12:06 PM  Paper 538
Surgical Skin Antisepsis for the Eradication of Propionibacterium Acnes in Shoulder Surgery
Lakshmanan Sirasundaram, BS, Granada Hills, CA
Nathanael D. Heckmann, MD, Los Angeles, CA
William Pannell, MD, Los Angeles, CA
Rami Aliani, MD, Los Angeles, CA
Diego C. Villacis, MD, Santa Monica, CA
Reza Omid, MD, Irvine, CA
C Thomas Vangsness Jr, MD, Los Angeles, CA
George F. Hatch III, MD, Los Angeles, CA

Despite a variety of sterilization methods, Propionibacterium acnes persists on the skin. This is problematic, as P. acnes is a common organism responsible for delayed shoulder infection.

12:12 PM  Paper 539
Propionibacterium Cultured at Revision Shoulder Arthroplasty: It’s Not Always P. acnes
Ian J. Whitney, MD, Boerne, TX
Jason Hsu, MD, Seattle, WA
Roger E. Bumgarner, PhD, BS, MS, Seattle, WA
Frederick A. Matsen III, MD, Seattle, WA

Propionibacterium species other than P. acnes can be recovered from failed shoulder arthroplasties having surgical revision if more advanced diagnostic techniques are carried out.

12:18 PM  Paper 540
Electrical Stimulation Combined with Antibiotics Treats Periprosthetic Joint Infection
Scott Nodzo, MD, New York, NY
Menachem Tobias, Buffalo, NY
Nicole Luke-Marshall, PhD, Buffalo, NY
Lisa Hufnagel, MS, Buffalo, NY
Richard Ahn, MD, Williamsville, NY
Anthony Campagnari, PhD, Buffalo, NY
Mark T. Ehrensberger, PhD, Getzville, NY

Cathodic voltage controlled electrical stimulation with prolonged vancomycin therapy effectively treated a periprosthetic joint infection in a rodent animal model.

Discussion – 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
W414
Trauma VI: Upper Extremity Trauma
Moderator(s): Edward Perez, MD, Memphis, TN, Robert H. Blotter, MD, Marquette, MI

10:30 AM  Paper 541
Regional Anesthesia Only for Clavicle Fracture ORIF is Safe and Effective
Devon J. Ryan, BA, New York, NY
Kenneth A. Egol, MD, New York, NY

This study demonstrates that regional only anesthesia using a combined brachial and superficial cervical plexus block is a viable alternative to general anesthesia for clavicle fracture ORIF.

10:36 AM  Paper 542
Plate Fixation Compared with Nonoperative Treatment of Displaced Midshaft Clavicular Fractures
Andreas Quist, MD, Aarhus, Denmark
Michael T. Vaesel, MD, Stoholm, Denmark
Carsten Jensen, MD, Randers, Denmark
Steen L. Jensen, Ph.D., Farsoe, Denmark

ORIF of displaced midshaft clavicle fractures with precontoured plates and screws results in higher union rate and quicker return to work. There is no difference in functional outcome after one year.
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10:42 AM  Paper 543
Clavicle Fractures Are Associated With Shoulder Arthritis In A Large Osteological Collection
Douglas S. Weinberg, MD, Cleveland, OH
Heather A. Vallier, MD, Cleveland, OH
Gregory Gaumer, BS, Cleveland Heights, OH
Daniel R. Cooperman, MD, Trumbull, CT
Raymond W. Liu, MD, Cleveland, OH

Clavicle fractures were associated with the development of degenerative joint disease of the ipsilateral glenohumeral joint in a large osteological collection.

Discussion – 6 Minutes

10:54 AM  Paper 544
Randomized Trial on Proximal Humerus Fractures: Locking Plate or Intramedullary Nailing
Mauro E. Gracitelli, MD, Lapa, Brazil
Eduardo A. Malavolta, MD, São Paulo, Brazil
Jorge H. Assunção, São Paulo, Brazil
Arnaldo Ferreira, MD, São Paulo, Brazil
Paulo R. Reis, MD, São Paulo, Brazil
Jorge D. Silva, São Paulo, Brazil
Kodi E. Kojima, MD, São Paulo, Brazil

Proximal humerus fractures, classified as 2 and 3 parts of Neer, showed similar Constant and DASH scores between the groups, but complications were higher in the Nail Group.

11:00 AM  Paper 545
Utilization and Cost of Reverse Shoulder Arthroplasty versus Hemiarthroplasty for Proximal Humerus Fractures
Abiram Bala, BA, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Thorsten M. Seyler, MD, PhD, Durham, NC
Richard C. Mather III, MD, Durham, NC
Michael P. Bolognesi, MD, Chapel Hill, NC

Reverse Total Shoulder Arthroplasty outperforms Hemiarthroplasty for acute proximal humerus fractures in cost savings over 1 year.

11:06 AM  Paper 546
Total Shoulder Arthroplasty for Proximal Humerus Fracture is Associated with Increased Hospital Charges
Arthur Manoli III, MD, New York, NY
Sanjit R. Konda, MD, Rye, NY
Christina Capriccioso, BS, Ann Arbor, MI
Kenneth A. Ego!, MD, New York, NY

Compared to hemiarthroplasty and ORIF, patients receiving total shoulder arthroplasty are more likely to have a high cost hospital stay but less likely to have a prolonged length of stay.

Discussion – 6 Minutes

11:18 AM  Paper 547
A Quantitative Analysis of Extensile Approaches to the Humerus
Kevin D. Phelps, MD, Charlotte, NC
Luke Harmer, MD, MPH, Rochester, MN
Colin V. Crickard, MD, VA Beach, VA
Nady Hamid, MD, Charlotte, NC
Katie Sample, BA, Charlotte, NC
Erica Andrews, BS, Charlotte, NC
Rachel Seymour, PhD, Charlotte, NC
Joseph R. Hsu, MD, Charlotte, NC

This cadaveric study describes a fully extensile humeral approach, compares it with other extensile approaches, and illustrates a method for managing the deltoid and brachialis during extension.

11:24 AM  Paper 548
Small-Fragment Plate Fixation of Humeral Shaft Fractures
Giuliana Rotunno, BS, Indianapolis, IN
Marcus F. Sciacini, MD, Indianapolis, IN
Christina Sebastian, B.S., Wilmington, NC
Robert V. O’Toole, MD, Indianapolis, IN
Andrew Eglese, M.D., Indianapolis, IN

Open reduction and internal fixation of diaphyseal humeral shaft fractures may be performed using 3.5 mm small fragment plates without increased risk of plate fracture or nonunion.

11:30 AM  Paper 549
Immediate Sarmiento Bracing for the treatment of humeral shaft fractures
Benjamin F. Sandberg, MD, Minneapolis, MN
Kyle C. Bohm, MD, Minneapolis, MN
Sandy Vang, BA, St Paul, MN
Julie A. Switzer, MD, Saint Paul, MN
Brian W. Hill, MD, Saint Louis, MO
Joshua Olson, Saint Paul, MN
Paul M. Lafferty, MD, Saint Paul, MN

The immediate application of a functional brace for humeral shaft fractures results in equivalent initial and final alignment.

Discussion – 6 Minutes

11:42 AM  Paper 550
A Prospective Randomized Trial of Non-Operative Versus Operative Management of Olecranon Fractures in the Elderly
Andrew D. Duckworth, MSc, MB, ChB, Edinburgh, United Kingdom
Nicholas D. Clement, MRCS Ed, Edinburgh, United Kingdom
Jane McEachan, FRCS (Ortho), MB, Perthshire, United Kingdom
Timothy O. White, MD, FRCS, Edinburgh, United Kingdom
Charles Court-Brown, Lothianbridge, United Kingdom
Margaret M. McQueen, MD, Edinburgh, United Kingdom

Primary non-operative management of isolated displaced olecranon fractures in elderly lower demand patients provides a comparable outcome to operative management with a lower rate of complications.

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11:48 AM  Paper 551
Functional Outcomes of Distal Humerus Fractures Managed Non-Operatively in Elderly Patients
William Desloges, MD, Ottawa, ON, Canada
Ken Faber, MD, FRCSC, London, ON, Canada
Graham J. King, MD, London, ON, Canada
George S. Atuwal, MD, London, ON, Canada

Satisfactory outcomes were observed following the non-operative management of selected distal humerus fractures in lower demand, medically unwell, and/or older patients.

11:54 AM  Paper 552
Posttraumatic Elbow Arthrofrosis Incidence and Risk Factors: A Retrospective Review
Lucas S. Marchand, MD, Salt Lake City, UT
Zachary Working, MD, Salt Lake City, UT
John Barton Williams, MD, Salt Lake City, UT
Lain Elliott, MD, Salt Lake City, UT
Thomas F. Higgins, MD, Salt Lake City, UT
David Rothenberg, MD, Salt Lake City, UT
Erik Kubiak, MD, Salt Lake City, UT

Through retrospective review the risk factors and incidence of post-traumatic elbow arthrofrosis were identified in a series of trauma patients.

12:06 PM  Paper 553
Acute Internal Fixation Is Safe And Effective For Both Bone Forearm Fractures Associated With Compartment Syndrome
Hannah H. Lee, MD, PhD, Pittsburgh, PA
Kevin Kang, MD, Pittsburgh, PA
Peter A. Siska, MD, Pittsburgh, PA
Ivan S. Tarkin, MD, Pittsburgh, PA

Acute internal fixation is safe and effective for both bone forearm fractures associated with compartment syndrome.

12:12 PM  Paper 554
Outcomes of Surgical Treatment for High-Energy Open Forearm Fractures
Elizabeth Polfer, MD, Silver Spring, MD
Benjamin W. Hoyt, BS, Rockville, MD
George C. Balazs, MD, Elkridge, MD
Derek F. Ipsen, DO, Clarksville, MD
George P. Nanos, MD, Rockville, MD
Scott M. Tintle, MD, Oakton, VA

A cohort of 66 patients with high-energy open forearm fractures had a primary union rate of 83.8% and a final union rate of 93.9%.

12:18 PM  Paper 555
Open Distal Radius Fracture Trends, Treatment, and Complications: A Large National Study.
William Pannell, MD, Los Angeles, CA
Lakshmanan Sivasundaram, BS, Granada Hills, CA
Ram Alluri, MD, Los Angeles, CA
Nathanael D. Heckmann, MD, Los Angeles, CA
Joseph M. Hahn, MD, Los Angeles, CA
Reza Omid, MD, Los Angeles, CA
George F. Hatch III, MD, Los Angeles, CA
Alidad Ghiassi, MD, Pacific Plastics, CA

Open distal radius fractures are not uncommon injuries and most patients can be treated with open reduction internal fixation. Non-primary closure is the strongest risk factor for complication.

Discussion – 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
W304A
Spine V: Nonoperative/Functional Restoration/Injections
Moderator(s): John C. France, MD, Morgantown, WV, Robert, L. Tatsumi, MD Tualatin, OR

10:30 AM  Paper 556
The Role of Physical Therapy and Rehabilitation after Lumbar Fusion for Degenerative Disease: A Systematic Review
Jeremy L. Brady, DPT, Medford, OR
Sylvia Deily, DC, Austin, TX
Marcella Madera, MD, Austin, TX
Trent L. McGinty, DPT, Austin, TX
Devender Singh, PhD, Austin, TX
George W. Tipton Jr, MD, Austin, TX
Eoric Truumees, MD, Austin, TX

Rehabilitation is usually recommended post lumbar fusion. However, a number of questions remain as to the benefits, appropriate timing, and the proper modalities.

10:36 AM  Paper 557
Do Preoperative Epidural Injections Increase Postoperative Infection after Single Level Lumbar Decompression?
Jourdan M. Cancienne, MD, Charlottesville, VA
Scott S. Yang, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
Hamid Hassanzadeh, MD, Charlottesville, VA
Adam L. Shimer, MD, Charlottesville, VA
Francis H. Shen, MD, Charlottesville, VA
Anuj Singla, MD, Charlottesville, VA

LESI prior to single-level lumbar decompression is associated with increased risk of postoperative infection.
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10:42 AM  Paper 558
Effect of Depression and Anxiety on Patient Reported Outcomes following Cervical Epidural Steroid Injection
David Stonko, BS, MS, Nashville, TN
Silky Chotai, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
John Sielatycki, MD, Nashville, TN
Matthew McGirt, Charlotte, NC
Clinton J. Devin, MD, Nashville, TN
Concomitant psychological symptoms lead to worse absolute scores but similar 12-month change scores for patient reported pain, disability and quality of life outcomes.

Discussion – 6 Minutes

10:54 AM  Paper 559
A Novel Dynamic Spinal Brace In The Management Of Scoliosis Due To Cerebral Palsy
Yu Moriguchi, MD, PhD, Suita, Osaka, Japan
Thamina Khair, BA, New York, NY
Ichiro Kajura, MD, PhD, Osaka, Japan
A dynamic spinal brace, designed for neuromuscular scoliosis, corrected spinal curvature and improved patients’ ADL with minimal dropouts in a two-year follow-up.

11:00 AM  Paper 560
Does Spinopelvic Alignment Affect The Union Status in Thoracolumbar Osteoporotic Vertebral Compression Fracture
Akira Iwata, MD, Hakodate, Japan
Masahiro Kanayama, MD, Hakodate, Japan
Fumibiro Oba, MD, Hakodate, Japan
Tomoyuki Hashimoto, MD, Hakodate, Japan
Normasa Iwasaki, Sapporo, Japan
Radiographic evaluation of thoracolumbar osteoporotic vertebral compression fracture showed that the distance between SVA and center of fractured vertebra was a significant risk factor for nonunion.

11:06 AM  Paper 561
Are Non-particulate steroids Less Effective Than Particulate Steroids for Cervical & Lumbar Radiculopathy?
Nanjundappa S. Harshavaradhana, MD, Minneapolis, MN
Amir A. Mehbod, MD, Wayzata, MN
Ensor E. Transfeldt, MD, Minneapolis, MN
Non-particulates are as effective as particulate steroids when used in transforaminal epidural injections for cervical and lumbar radiculopathy in a meta-analysis of four RCTs involving 274 patients.

Discussion – 6 Minutes

11:18 AM  Paper 562
Is Drain Tip Culture After Spinal Surgery Necessary?
Kazuyoshi Kobayashi, MD, PhD, Nagoya, Japan
Shiro Imagama, MD, PhD, Nagoya, Japan
Zenyu Ito, PhD, Nagoya, Japan
Kei Ando, MD, Nagoya, Japan
Naoki Ishiguro, MD, Nagoya, Japan
In case of which methicillin-resistant bacteria are detected on the drain tip, the PPV was 60%, and significantly higher than that in cases with non-methicillin resistant bacteria.

11:24 AM  Paper 563
Preoperative Spinal Epidural Steroid Injections in patients undergoing spinal surgery
Ana M. Cervan, Marbella (malaga), Spain
Miguel Rodriguez-Solera SR, MD, Marbella (malaga), Spain
Miguel Hirschfeld, Malaga, Spain
Angela Sanchez SR, Talavera De La Reina (toledo), Spain
Enrique Guerado, MD, Marbella, Spain
We study the relation between pre-operative spinal epidural steroid injection and the frequency of perioperative complications in spine surgery.

11:30 AM  Paper 564
Topical Injection and Infusion for pain management of lumbar spine surgery
Chi-Huan Li, MD, Taichung City, Taiwan
Topical injections and infusion with special regimens for postoperative pain management in spine surgery is easy, useful and good cost-effective.

Discussion – 6 Minutes

11:42 AM  Paper 565
Patient Reported Outcomes after Lumbar Epidural Steroid Injection in Depressed versus Non-depressed patients
Joseph B. Wick, BA, Nashville, TN
Silky Chotai, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
Ahilan Sivaganesan, MD, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Matthew McGirt, Charlotte, NC
Clinton J. Devin, MD, Nashville, TN
Depressive symptoms lead to worse absolute scores for pain and quality of life outcomes following epidural spinal injection. Change score was similar between depressed and non-depressed patients.
Thursday, March 3

11:48 AM  Paper 566
Do Epidural Injections Prior to Lumbar Fusions Effect Postoperative Infection And Intraoperative Durotomy Rates?
Jourdan M. Cancienne, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
Scott S. Yang, MD, Charlottesville, VA
Hamid Hassanzadeh, MD, Charlottesville, VA
Adam L. Shimer, MD, Charlottesville, VA
Francis H. Shen, MD, Charlottesville, VA
Anuj Singla, MD, Charlottesville, VA

LESI within 3 months of posterior lumbar spinal fusion is associated with increased risk of postoperative infection and intraoperative durotomy.

11:54 AM  Paper 567
Effects of Mechanical Stimulation of C5 for Referred Shoulder Pain: A Randomized Double-Blinded Clinical Trial
George Hardas, Sutherland, NS, Australia

The major effect of applying a MAI to the C5 facet joints in referred shoulder pain is improved shoulder strength for internal rotation in this randomized double-blinded clinical trial.

12:06 PM  Paper 568
The Rate And Risk Of Curve Progression Following Skeletal Maturity - Does The Story End With Curve Magnitude?
Firoz Miyanji, MD, Vancouver, BC, Canada
Chris Reilly, MD, Vancouver, BC, Canada
Suken A. Shab, MD, Wilmington, DE
David H. Clements III, MD, Camden, NJ
Amer Sandani, MD, Philadelphia, PA
Sameer Desai, BS, Surrey, BC, Canada
Harry L. Shuffeberger, MD, Miami, FL
Randal R. Betz, MD, Ocean City, NJ
Peter O. Newton, MD, San Diego, CA

Skeletally mature patients with AIS ≥ 30° may continue to progress at a mean rate of 1.7°/yr with a significant decline in SRS-22 Pain and Self-image outcome scores over time.

12:12 PM  Paper 569
Pca Use For Inpatient Posterior Lumbar Spine Fusion: Opioid-related Complications And Costs
Clinton J. Devin, MD, Nashville, TN
Matthew McGirt, Charlotte, NC
Edmund Lau, MS, Menlo Park, CA
Scott Lovald, Menlo Park, CA
Kevin Ong, PhD, Philadelphia, PA

PCA use after inpatient posterior lumbar fusion was associated with an increase in multiple costly opioid related adverse events in Medicare patients.
Thursday, March 3

10:42 AM  Paper 573
Diagnosing Infection in Patients Undergoing Conversion of Prior Internal Fixation to Total Hip Arthroplasty
Daniel J. Gittings, MD, Philadelphia, PA
Paul M. Courtney, MD, Philadelphia, PA
Blair S. Ashley, MD, Philadelphia, PA
Patrick J. Heskerth, BS, Philadelphia, MA
Derek J. Donegan, MD, Media, PA
Neil P. Sheth, MD, Philadelphia, PA

The purpose of this study is to identify risk factors for infection in patients undergoing conversion of prior internal fixation to total hip arthroplasty.

Discussion – 6 Minutes

10:54 AM  Paper 574
Risk Factors for Staphylococcus Aureus Nasal Colonization in Joint Replacement Patients
Adam C. Fields, BA, New York, NY
Amanda Walsh, MD, New York, NY
James Dieterich, BA, New York, NY
Christine C. Carbonaro, PA, New York, NY
Dena L. McDonough, PA-C, New York, NY
Maureen Walsh, PA-C, New York, NY
Darwin D. Chen, MD, New York, NY
Michael J. Bronson, MD, New York, NY
Calin S. Mousea, MD, New York, NY

S.aureus nasal colonization is associated with postoperative infection. Patients with diabetes, renal insufficiency, and immunosuppression were at increased risk to be colonized with S.aureus.

11:00 AM  Paper 575
The Effects of Chlorhexidine Gluconate on Surgical Site Infections following Total Hip Arthroplasty
Bhaveen H. Kapadia, MD, Indianapolis, IN
Samik Banerjee, MD, Albany, NY
Kimona Issa, MD, Little Falls, NJ
Michael A. Mont, MD, Indianapolis, IN

Patients who used pre-admission chlorhexidine gluconate-impregnated cloths had less surgical site infections compared to patients who underwent standard in-hospital peri-operative preparation only.

11:06 AM  Paper 576
Incidence, Risk Factors, and Sources of Sepsis Following Total Joint Arthroplasty
Daniel D. Bobl, MD, MPH, Chicago, IL
Erdan Kayupov, MS, Troy, MI
Craig J. Della Valle, MD, Chicago, IL

The rate of sepsis following total joint arthroplasty is about 1 in 300, and the most common sources are UTI (31%), surgical site infection (27%), and pneumonia (15%).

Discussion – 6 Minutes

11:18 AM  Paper 577
A Multi-Center Randomized Clinical Trial of Articulating and Static Spacers for Periprosthetic Hip Infection
Erdan Kayupov, MS, Troy, MI
Peter N. Chalmers, MD, Chicago, IL
Mario Moric, MS, Chicago, IL
Timothy Tan, MD, Los Angeles, CA
Gregory K. Deirmengian, MD, Media, PA
Javad Parvizi, MD, FRCS, Gladwyne, PA
Matthew Austin, MD, Philadelphia, PA
Craig J. Della Valle, MD, Chicago, IL

This randomized clinical trial demonstrates that articulating spacers are associated with shorter hospital stays for both stages in the treatment of an infected total hip arthroplasty.

11:24 AM  Paper 578
Smoking Increases the Risk of Surgical Site Infection Following Total Hip Arthroplasty
Matthew R. Boylan, Brooklyn, NY
Steven Daniels, MD, Brooklyn, NY
Bhaveen H. Kapadia, MD, Indianapolis, IN
Carl B. Paulino, MD, Brooklyn, NY
Michael A. Mont, MD, Indianapolis, IN

For current cigarette smokers, there is an increased risk of SSI following total hip arthroplasty.

11:30 AM  Paper 579
Hospital Specific Hip Arthroplasty Surgical Site Infection Rates Do Not Correlate with Other Procedure SSI rates
Ravi Vaswani, BS, New York, NY
Raj Karia, MPH, New York, NY
Lorraine Hutzler, BA, New York, NY
Joseph A. Bosco III, MD, New York, NY

The purpose of our study is to determine if hospital specific THA SSI rates correlate to other procedure specific SSI rates at the same institution.

Discussion – 6 Minutes

11:42 AM  Paper 580
A Critical Analysis Of Radiographic Factors In Patients Who Develop Dislocation After Elective Primary THA
Marion Opperer, Salzburg, Austria
Francisco Nally, MD, Capital Federal, Argentina
Alvaro Blanes, MD, New York, NY
Yuu-Yu Lee, MS, Astoria, NY
Alejandro Gonzalez Della Valle, MD, New York, NY

The majority of patients dislocating after elective THA had radiographically sound reconstructions similar to those observed in stable THAs.
Thursday, March 3

11:48 AM  Paper 581
The Effect Of Flexural Rigidity, Taper Angle, And Contact Length On Fretting And Corrosion At The Head-neck Junction
Ying-Ying J. Kao, MD, San Francisco, CA
Chelsea Koch, BS, New York, NY
Timothy M. Wright, PhD, New York, NY
Douglas E. Fadgett, MD, New York, NY

More rigid trunnions experience less fretting, which suggests that fretting is predominantly a mechanically driven process.

11:54 AM  Paper 582
Aspirin is as Effective as and Safer Than Warfarin for Patients at Elevated Risk of VTE Undergoing TJA
Ronald Huang, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Gladwyne, PA
William J. Hozack, MD, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA

Our study demonstrates that ASA is more effective and safer than warfarin for VTE prophylaxis following total joint arthroplasty, even in patients at higher risk of VTE.

12:06 PM  Paper 583
Are Readmissions Following Total Hip Arthroplasty Preventable?
Douglas S. Weinberg, MD, Cleveland, OH
Matthew J. Kraay, MD, Cleveland, OH
Steven Fitzgerald, MD, Cleveland Hts, OH
Vasu Sidagam, MD, Cleveland, OH
Glenn D. Wera, MD, Cleveland, OH

At our institution, readmissions occurred for operative and non-operative reasons, although only a small percentage of readmissions to our health care system were considered potentially preventable.

12:12 PM  Paper 584
BMI Affects Post-Operative Complications, and 30-Day Readmission Rate, in Total Joint Arthroplasty
Yaron S. Brin, MD, Kfar-Saba, Israel
Laura M. Epure, Montreal, QC, Canada
Stephane Bergeron, MD, kirkland, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
John Antoniou, MD, FRCS, Montreal, QC, Canada
David Zukor, MD, Montreal, QC, Canada

Obese TJA patients are at higher risk for longer surgeries, and their transfusion rate is higher. Obese THA patients have increased rates of wound infections and longer hospital stay.

12:18 PM  Paper 585
Ankylosing Spondylitis Increases Peri- and Post-operative Complications After Total Hip Arthroplasty
Daniel J. Blizzard, MD, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Michael A. Gallizzi, MD, Durham, NC
Charles Sheets, PT, Durham, NC
Mitchell R. Klement, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC
Michael P. Bolognesi, MD, Durham, NC
Christopher R. Brown, MD, Raleigh, NC

Ankylosing spondylitis increases peri- and post-operative complications following primary total hip arthroplasty including dislocation, component breakage, infection, and revision surgery.

INSTRUCTIONAL COURSE LECTURE
11:00 AM — 12:00 PM
CD20  Imagine Them Naked: Public Speaking and Teaching
Moderator: Rena Romano, Tampa, FL
Room W209A

If just the thought of public speaking makes you nervous, then picture audience members naked! This course provides helpful tips to help manage, and even prevent, anxiety when addressing the public or peers.

THE WAY I SEE IT...
1:30 PM — 2:30 PM
Room W311A
The Way I See It...Team Physicians: Challenges of Sports Medicine
Moderator: Frederick M. Azar, MD, Memphis, TN
James R. Andrews, MD, Gulf Breeze, FL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony Miniacci, MD,FRCS, Garf eld Heights, OH

Learn the “whys” of what the experts do as team physicians in sports medicine. Benefit from the inside story - what each presenter wants you to know about a top-of-the-mind issue. Experts share their experience and views, just the way they see it.

An alphabetical faculty financial disclosure list can be found starting on page 334.

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Thursday, March 3

Symposium
1:30 PM — 3:30 PM
Chapin Theater

Great Debates in Total Knee Arthroplasty (T)
Moderator: Jay R. Lieberman, MD, Los Angeles, CA

Review the latest controversial issues associated with knee arthroplasty. After each series of lectures, the moderator queries the panel to highlight areas of consensus and controversy. Cases are reviewed to allow the audience to determine how they will treat their patients.

I. Tourniquet Use: Keep Your Wound Dry - Negative
Robert L. Barrack, MD, Saint Louis, MO

II. Patellar Resurfacing: Leave the Patella Alone - Aff rmative
Michael E. Berend, MD, Indianapolis, IN

III. Antibiotics in the Cement: A Good Idea - Aff rmative
Daniel J. Berry, MD, Rochester, MN

IV. Unicondylar Total Knee: You Should Be Doing More - Aff rmative
Craig J. Della Valle, MD, Chicago, IL

V. Unicondylar Total Knee: You Should Be Doing More - Negative
David A. Halsey, MD, South Burlington, VT

VI. Patellar Resurfacing: Leave the Patella Alone - Negative
William A. Jiranek, MD, Richmond, VA

VII. Patellofemoral Arthroplasty: No More Anterior Knee Pain - Aff rmative
Jess H. Lonner, MD, Philadelphia, PA

VIII. Kinematic Alignment: The Only Way To Go - Negative
William J. Maloney, MD, Redwood City, CA

IX. Tourniquet Use: Keep Your Wound Dry - Aff rmative
R. Michael Meneghini, MD, Farmington, CT

X. Kinematic Alignment: The Only Way To Go - Aff rmative
Mark W. Pagnano, MD, Rochester, MN

X. Antibiotics in the Cement: A Good Idea - Negative
Javad Parvizi, MD, FRCS, Philadelphia, PA

XII. Patellofemoral Arthroplasty: No More Anterior Knee Pain - Negative
Thomas P. Vail, MD, San Francisco, CA

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Symposium
1:30 PM — 3:30 PM
Valencia Room A

Computer Modeling and 3-D Printing in Upper Extremity Surgery (U)
Moderator: Lisa L. Lattanza, MD, San Francisco, CA

Discusses the applications of computer modeling and three-dimensional printing to upper extremity surgery. Case examples using patient-specific guides to address complex osteotomies in both adult and pediatric patients are discussed.

I. Case example: Pediatric Forearm Malunion
Andrea S. Bauer, MD, Boston, MA

II. Case example: Intra-Articular Distal Radius Malunion
Jesse B. Jupiter, MD, Boston, MA

III. “The Evolution of Computer-Assisted Surgery”
Henry R. McCarroll, MD, San Francisco, CA

Symposium
1:30 PM — 3:30 PM
Valencia Room B

Controversies in Approaches to Anterior Shoulder Instability (V)
Moderator: John M. Tokish, MD, Simpsonville, SC

Discusses advantages and disadvantages and techniques of different surgical approaches for shoulder instability to obtain stabilization of the shoulder. The course combines the current evidence in the literature with case presentations to advance clinical care options. A Casebased, Pan-Specialty Perspective from AANA, AOSSM, SOMOS, and ASES.

I. Augmentation to the Arthroscopic Bankart: Tips to Make This Your Most Successful Instability Operation
Jeffrey S. Abrams, MD, Princeton, NJ

II. The Failed Bankart: Revision Surgery- Now What?
Robert A. Arciero, MD, Farmington, CT

III. Open Bankart; How to Employ the One Approach that Ends all Debate
Richard J. Hawkins, MD, Greenville, SC

IV. Augmentation: Bony Options to Restore Anatomy
Matthew T. Provencher, MD, Boston, MA

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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Thursday, March 3

INSTRUCTIONAL COURSE LECTURE
1:30 PM — 2:30 PM
CD21 Principles of Teaching Across Differences in Culture and Language
Moderator: Guido Marra, MD, Chicago, IL
Stefano A. Bini, MD, Piedmont, CA
Xavier A. Duralde, MD, Atlanta, GA
Room W209B

Designed to help attendees implement three general principles for teaching those whose first languages is not English and/or have cultural norms and operating procedures that are significantly different from those in the United States.

INSTRUCTIONAL COURSE LECTURE
1:30 PM — 2:30 PM
341 The Pre-Arthritic Hip in the Young, Active Patient: How Do You Approach It? Scope vs. Open, Acetabulum, or Femur
Moderator: Marc Safran, MD, Redwood City, CA
J. W. Thomas Byrd, MD, Nashville, TN
Young Jo Kim, MD, PhD, Boston, MA
Room W314

This course reviews the different treatment options for femoroacetabular impingement and hip dysplasia. Discussion includes arthroscopic treatment, as well as open acetabular based and open femoral osteotomy based approaches.

342 How to Perform a Primary Total Knee Arthroplasty: Video Vignettes
Moderator: Guo-Chin Lee, MD, Philadelphia, PA
Henry J. Clarke, MD, Phoenix, AZ
William J. Long, MD, New York, NY
Ryan Nunley, MD, Saint Louis, MO
Room W202

Techniques required to perform a successful total knee arthroplasty are detailed using video vignettes, including preoperative planning, prosthesis selection, surgical exposures, ligamentous balancing, fixation, and patellar resurfacing. Traducción simultánea en español. Tradução simultânea em português.

343 Management of the Cavus Foot: A Practical Guide with Video Techniques
Moderator: Mark S. Myerson, MD, Indianapolis, IN
J. Chris Coetzee, MD, Edina, MN
Steven L. Haddad, MD, Glenview, IL
William C. McGarvey, MD, Katy, TX
Room W308C

The cavus foot has a varied presentation. This course explains how to examine the foot for a flexible deformity and thereby avoid arthrodesis. An algorithm for treatment of forefoot, midfoot, and hindfoot deformity on the cavus foot is presented. Each deformity is outlined with a case-based approach using video techniques to emphasize reconstruction.

344 Antibiotic Stewardship in Orthopaedic Surgery: Principles and Practice
Moderator: Joseph A. Bosco III, MD, New York, NY
Brett R. Levine, MD, Elmhurst, IL
Michael Phillips, MD, New York, NY
James D. Slover, MD, New York, NY
Room W205A

The emergence of resistance, geographical diversity of infecting pathogens, and changing patient population requires customization of our prophylactic regimen to reduce infectious complications. A multidisciplinary approach to ASP leads to improved patient outcomes and cost-effective medical care.

345 Why I Cannot Fix this Distal Radius Fracture with Volar Plate?
Moderator: Nileshkumar Chaudhari, MD, Birmingham, AL
Abhinav B. Chhabra, MD, Keswick, VA
Robert J. Medoff, MD, Kailua, HI
Joseph M. Sherrill, MD, Birmingham, AL
Room W310

Each faculty member presents a didactic lecture on specific fracture patterns, including information regarding fracture pattern, preoperative planning, selection of surgical approach, technique pearls, fixation options, complications, and difficulties associated with the fixation method of complex distal radius fracture.

346 Update in Pediatric Musculoskeletal Infections: When It Is, When It Isn't, and What to Do
Moderator: Ken J. Noonan, MD, Madison, WI
Alexandre Arkader, MD, Los Angeles, CA
James H. Conway, MD, FAAP, Madison, WI
William C. Warner Jr, MD, Germantown, TN
Room W204

Lectures, cases, and audience participation provide attendees with a contemporary understanding of pediatric infections and their management, an appreciation for disorders that mimic infection, and strategies to avoid surgical site infections.

An alphabetical faculty financial disclosure list can be found starting on page 334.
<table>
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<th>#</th>
<th>Title</th>
<th>Moderator</th>
<th>Room</th>
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<tbody>
<tr>
<td>347</td>
<td>Payment Reform: Update on a Moving Target</td>
<td>Alexandra E. Page, MD, La Jolla, CA</td>
<td>W300</td>
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<td></td>
<td>Brian R. McCardel, MD, Lansing, MI</td>
<td>George F. Muschler, MD, Cleveland, OH</td>
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<td>Payment reform requires recognizing and responding to changes.</td>
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<td>348</td>
<td>Adult Lumbar Scoliosis: State-of-the-Art Treatment (Operative and</td>
<td>Eric O. Klineberg, MD, Sacramento, CA</td>
<td>W307C</td>
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<td>Nonoperative)</td>
<td>Munish C. Gupta, MD, Sacramento, CA</td>
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<td>Thomas S. Hir, MD, Redwood City, CA</td>
<td>Themistocles S. Protopsaltis, MD, New York, NY</td>
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<td>Rajie K. Selbi, MD, Seattle, WA</td>
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<td>349</td>
<td>Current Concepts in Cervical Spine Trauma</td>
<td>Richard J. Bransford, MD, Seattle, WA</td>
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<td>Carlo Bellabarba, MD, Seattle, WA</td>
<td>Robert W. Molinari, MD, Pittsford, NY</td>
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<td>Timothy A. Moore, MD, Shaker Heights, OH</td>
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<td>Reviews current concepts in the evaluation and treatment of</td>
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<td>cervical spine trauma to include upper and subaxial cervical</td>
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<td>fractures and spinal cord injuries.</td>
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<td>350</td>
<td>Tips and Tricks for Problem Fractures</td>
<td>Daniel S. Horwitz, MD, Danville, PA</td>
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<td>Erik Kubiat, MD, Salt Lake City, UT</td>
<td>Frank A. Liporace, MD, Englewood Cliffs, NJ</td>
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<td>Bruce Ziran, MD, FACS, Atlanta, GA</td>
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<td>Focus is on common fractures which present technical challenges to</td>
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<td>techniques, tips, and tricks to be applied to aid and simplify the</td>
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<td>surgical procedure and improve clinical outcomes.</td>
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<td>351</td>
<td>Talus and Calcaneus Fractures: Current Treatment</td>
<td>Mark Adams, MD, Newark, NJ</td>
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<td>Stephen K. Benirschke, MD, Seattle, WA</td>
<td>Reza Firoozabadi, MD, Seattle, WA</td>
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<td>John W. Munz, MD, Houston, TX</td>
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<td>Reviews current concepts on management of complex fractures of the</td>
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<td>352</td>
<td>Bone and Soft Tissue Tumors for the General Orthopaedic Surgeon:</td>
<td>Carol D. Morris, MD, MS, Indianapolis, IN</td>
<td>W205B</td>
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<tr>
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<td>How to Diagnose, Manage, and Avoid Errors</td>
<td>Jonathan A. Forsberg, MD, Silver Spring, MD</td>
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<td>Valerue O. Lewis, MD, Houston, TX</td>
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<td>Reviews the most common bone and soft tissue tumors that present to</td>
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<td>the general orthopaedic surgeon or nontumor orthopaedic subspecialist.</td>
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<td>Both adult and pediatric clinical scenarios are covered. We outline</td>
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<td>a strategy for working-up and triaging suspicious lesions including</td>
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<td>353</td>
<td>Complex Shoulder Arthroplasty: Case Discussions and Management</td>
<td>Thomas (Quin) Throckmorton, MD, Germantown, TN</td>
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<td>Theodore A. Blaine, MD, New Haven, CT</td>
<td>Edward V. Craig, MD, New York, NY</td>
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<td>Lynn A. Crosby, MD, Augusta, GA</td>
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<td>Evan L. Flatow, MD, New York, NY</td>
<td>Leesa M. Galatz, MD, New York, NY</td>
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<td>Joseph P. Iannotti, MD, PhD, Cleveland, OH</td>
<td>Mark A. Migbell, MD, Tampa, FL</td>
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<td>Matthew L. Ramsey, MD, Philadelphia, PA</td>
<td>John W. Sperling, MD, MBA, Rochester, MN</td>
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<td>Philipp N. Streubel, MD, Omaha, NE</td>
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<td>Understand and apply strategies for managing glenoid and humeral</td>
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<td>bone deficiency in shoulder arthroplasty, options and techniques</td>
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<td>instability after shoulder arthroplasty. Learn to treat them</td>
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Thursday, March 3

**INSTRUCTIONAL COURSE LECTURE**

1:30 PM — 5:30 PM

**391** TeamSTEPPS

Moderator: Harpal S. Khanuja, MD, Cockeysville, MD
Dwight W. Burney III, MD, Albuquerque, NM
Mary J. O’Connor, MD, New Haven, CT
William J. Robb III, MD, Winnetka, IL
Krissy L. Weber, MD, Philadelphia, PA

TeamSTEPPS is an evidence-based team building and communication program designed to enhance patientsafety and efficiency in health care. Gives members of the healthcare team the tools to help lead highly effective medical teams. Team members increase team awareness and clarify team roles and responsibilities to produce a functional unit based on patient care; and learn to resolve conflicts and improve information sharing to help eliminate barriers to quality and safety.

**386** Concussion Management in Athletes: A Multi-disciplinary Approach

Moderator: Carl D. Allred, MD, CO Springs, CO
Brett C. Anderson, MD, CO Springs, CO
Laura Baugh, MD, USAF Academy, CO
Darren E. Campbell, MD, CO Springs, CO
Christopher D’Lauro, PhD, Monument, CO
Jonathan Jackson, MD, CO Springs, CO
Anthony J. Jarecke, OD, MBA, USAF, CO
Ky Kobayashi, MD, CO Springs, CO
Gerald McGinty, USAF Academy, CO
Renee Pazdan, MD, CO Springs, CO
Alicia Souvignier, DPT, Fort Carson, CO
Brian R. Johnson, DO, USAF Academy, CO

Emphasis is placed on differentiating patterns of clinical presentation such as primary visual or vestibular dysfunction. Principles for developing an active, patient specific treatment plan are discussed. Cases allow for teaching points covering return-to-play guidelines and protocols. A multi-disciplinary team of medical professionals serve as table facilitators.

**PAPER PRESENTATION**

1:30 PM — 3:30 PM

Valencia Room D

**Adult Reconstruction Hip V: Outcomes**

Moderator(s): Paul A. Manner, MD, Seattle, WA,
Peter F. Sharkney, MD, Media, PA

1:30 PM Paper 586

**Intravenous Tranexamic Acid Improves Early Ambulation and Postoperative Outcomes After Total Hip Arthroplasty**

Ayal Segal, MD, Great Neck, NY
Maryanne Cronin, PharmD, Glen Cove, NY
Sanjeev J. Surattwala, MD, FACS, Great Neck, NY
Paul Enker, MD, Lake Success, NY
Eugene S. Krauss, MD, Old Westbury, NY

Intravenous tranexamic acid improves early ambulation, reduces anemia, and minimizes postoperative transfusions without significant side effects after anterior and posterior total hip replacement.

1:36 PM Paper 587

**Home Discharge Following Primary THA/TKA is Associated with Fewer Complications**

Gwo-Chin Lee, MD, Philadelphia, PA
Kevin Ong, PhD, Philadelphia, PA
Doruk Baykal, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Arthur L. Malkani, MD, Louisville, KY

Discharge to home following primary THA/TKA is associated with lower risks of postoperative complications and readmissions. Optimization of home discharge should be an institutional priority.

1:42 PM Paper 588

**Does Radiographic Severity of Osteoarthritis Predict Outcomes in Young Hip Arthroplasty Patients?**

Jeffrey B. Stambough, MD, Saint Louis, MO
Ao Xiong, MD, Shenzhen, China
John J. Callaghan, MD, Iowa City, IA
John C. Clohisy, MD, Saint Louis, MO

Our findings suggest THA in the setting of preoperative joint space width less than 1.5-2mm will reliably provide greater improvements in pain, function and activity level outcomes in young patients.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 334.
Thursday, March 3

1:54 PM  Paper 589
Lumbar Back Surgery Prior to Total Hip Replacement is Associated with Worse Patient-reported Outcomes
Ted O. Eneqvist, MD, Gothenburg, Sweden
Szilard Nemes, Goeteborg, Sweden
Helena Brisby, MD, Gothenburg, Sweden
Goran Garellick, MD, PhD, Goteborg, Sweden
Peter Fritzell, Jönköping, Sweden
Ola Rolfson, MD, PhD, Gothenburg, Sweden

Combining data from a spine surgery and a hip arthroplasty register, this study demonstrates that lumbar back surgery prior to total hip replacement is associated with worse patient-reported outcomes.

2:00 PM  Paper 590
Perioperative Outcomes of Primary Total Hip Arthroplasty after Prior Lumbar Spinal Fusion
Jeffrey Barry, MD, San Francisco, CA
David Sing, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Erik N. Hansen, MD, San Francisco, CA

Prior lumbar spinal fusion is associated with worse perioperative outcomes after primary total hip arthroplasty including increased complication and reoperation rates.

2:06 PM  Paper 591
The Timed Up-and-go Predicts Length of Stay Following Total Hip Arthroplasty
Stephen Petis, MD, London, ON, Canada
James Howard, MD, London, ON, Canada
Brent Lanting, MD, London, ON, Canada
Lyndsay Somerville, PhD, London, ON, Canada
Edward Vasarhelyi, MD, MSc, London, ON, Canada

The TUG test was predictive of hospital length of stay following THA. It is a simple functional test that can be used to assist with discharge planning preoperatively.

2:18 PM  Paper 592
Patient and Perioperative Variables Affecting 30-Day Readmission Following Hip and Knee Arthroplasty
Steven B. Daines, MD, Boise, ID
Kathryn Oi, BA, New York, NY
Yuo-Yu Lee, MS, Astoria, NY
Anethia Joseph, BA, New York, NY
Geoffrey H. Westrich, MD, New York, NY

30-day readmissions at our specialty hospital after THR and TKR were associated with short lengths of stay, disposition to inpatient nursing facilities, depression and increased procedure time.

2:24 PM  Paper 593
Pain Function Profiles in Patients Undergoing THR; Are Readmissions Associated With Poorer Functional Gain?
David C. Ayers, MD, Worcester, MA
Patricia Franklin, MD, MBA, Worcester, MA

This data support the importance of hip-specific PRO measures to assess THR outcome in quality of care programs and CMS public reporting programs.

2:30 PM  Paper 594
Readmissions and Complications for Dialysis Patients Undergoing a Primary Total Hip Arthroplasty
Karthikeyan E. Ponussamy, MD, Indianapolis, IN
Louis C. Okafor, MD, Indianapolis, IN
Clayton Alexander, MD, Indianapolis, IN
Mostafa H. El Dafrayy, MD, Indianapolis, IN
Zan Naseer, Forest Hill, MD
Robert S. Sterling, MD, Owings Mills, MD
Richard L. Skolasky Jr, ScD, Indianapolis, IN
Harpal S. Khamjuja, MD, Indianapolis, IN

Patients on dialysis undergoing primary THA have much greater readmissions, complications, and mortality out to 2 years, but dialysis status is not associated with 2-year revisions/infections.

2:42 PM  Paper 595
Outcomes Following Total Hip Arthroplasty in Sickle Cell Hemoglobinopathy: Targets for Improvement
Daniel S. Mangiapani, MD, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Abiram Bala, BA, Durham, NC
Cynthia L. Green, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC
Samuel S. Wellman, MD, Durham, NC
Michael P. Bolognesi, MD, Durham, NC

A Medicare database review of 803 sickle cell patients provides outcomes from, to our knowledge, the largest reported cohort undergoing primary THA and identifies potential targets for improvement.

2:48 PM  Paper 596
The Effect of Prior Bariatric Surgery on THA/TKA Outcomes
Guo-Chin Lee, MD, Philadelphia, PA
Kevin Ong, PhD, Philadelphia, PA
Doruk Baykal, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Arthur L. Malkani, MD, Louisville, KY

The impact of bariatric surgery prior to elective THA/TKA remains unclear. Patients are at increased risk for infections and revisions following THA and TKA respectively.
2:54 PM  Paper 597
Chronic Kidney Disease Linearly Predicts Outcomes After Elective Total Joint Arthroplasty
Timothy Tan, MD, Philadelphia, PA
Michael M. Kheir, BS, Philadelphia, PA
Edward J. Filippone, MD, Philadelphia, PA
Dean D. Tan, BS, Pleasanton, CA
Antonia Chen, MD, MBA, Philadelphia, PA

Severe chronic kidney disease is associated with an increased risk of transfusion, length of stay, and in hospital complications after total joint arthroplasty.

Discussion – 6 Minutes

3:06 PM  Paper 598
Does Previous Hip Arthroscopy Impact The Clinical Outcomes Of Total Hip Arthroplasty?
Jacob Haynes, MD, Saint Louis, MO
Ao Xiong, MD, Shenzhen, China
Tonya W. An, BS, Saint Louis, MO
Geneva Baca, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

At midterm follow up, prior ipsilateral arthroscopic hip surgery did not adversely affect the clinical outcome of primary total hip arthroplasty.

Discussion – 6 Minutes

3:12 PM  Paper 599
Long-term Outcome of Total Hip Arthroplasty in Patients with Cerebral Palsy: A Matched Cohort Study
Matthew Houdek, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Todd A. Milbrandt, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN

THA provides patients with CP significant pain relief and functional improvement. Patients with CP should expect similar outcome to those with a primary diagnosis of OA.

3:18 PM  Paper 600
Are Patient-Reported Outcomes Different After Anterior Versus Posterior Approach to Total Hip Arthroplasty?
Michael S. Cremins, PA-C, PhD, Hartford, CT
John Grady-Benson, MD, Farmington, CT
Smita S. Velanki, MSc, Hartford, CT
Steven F. Schutzer, MD, Hartford, CT
Gina Panek, BS, Hartford, CT

Surgeons that exclusively perform either the anterior or the posterior total hip arthroplasty approach can achieve excellent and equivalent six month postoperative patient-reported outcomes.

Discussion – 6 Minutes
Thursday, March 3

1:54 PM  Paper 604
Pelvic Incidence Plays a Role in Pelvic Mobility & Acetabular Version in Patients with Femoroacetabular Impingement
James Ross, MD, Fort Lauderdale, FL
Jeffrey Nepple, MD, Saint Louis, MO
Eric Tannenbaum, MD, Ann Arbor, MI
Christopher M. Larson, MD, Edina, MN
Asheesh Bedi, MD, Ann Arbor, MI

Pelvic incidence, an important measure of sagittal balance, was found to have a correlation with pelvic mobility and the radiographic appearance of the acetabulum.

2:00 PM  Paper 605
Is There An Association Between Hip Motion And Severity Of Acetabular Dysplasia? Analysis Of The ANCHOR PAO Cohort
Peter D. Fabricant, MD, MPH, Boston, MA
Mark Seely, MD, Philadelphia, PA
John C. Clohisy, MD, Saint Louis, MO
Ira Zaltz, MD, Huntington Woods, MI
Wudbhav N. Sankar, MD, Philadelphia, PA
ANCHOR Group, Saint Louis, MO

Contrary to previous understanding, increased acetabular dysplasia severity doesn’t predict increased hip ROM. Rather, femoral-sided deformity seems to drive observed differences in rotational hip ROM.

2:06 PM  Paper 606
Effectiveness of Endoscopic Shelf Acetabuloplasty for Athletes with Hip Dysplasia.
Soshi Uchida, MD, PhD, Kitakyushu, Japan
Toshiharu Mori, MD, PhD, Kitakyushu, Japan
Hitoshi Suzuki, M.D., PhD, Kitakyushu, Japan
Hajime Utsunomiya, MD, Kitakyushu, Japan
Akihisa Hatakeyama, MD, Kashiwazaki, Japan
Akinori Sakai, MD, PhD, Kitakyushu, Japan

We investigated the effectiveness of endoscopic shelf acetabuloplasty for the athletes with dysplasia. This technique could provide favorable clinical outcome for athletes with dysplasia.

Discussion – 6 Minutes

2:18 PM  Paper 607
Postoperative Alpha Angle Not Associated with Outcomes 5 years following Hip Arthroscopy for FAI
Karen K. Briggs, MPH, Vail, CO
Marc J. Philippon, MD, Vail, CO
Eduardo Augusto M. Soares, MD, Belo Horizonte, Brazil
Sanjeev Bhatia, MD, Vail, CO

This study examined the effect of the postop AA on patient outcome at 5 years s/p arthroscopy for FAI. There were no significant difference between any outcome score based on a correction of 55°.

2:24 PM  Paper 608
Analysis of the Current Indications for Microfracture of Chondral Lesions in the Hip
Darrin Trask, MD, Madison, WI
Matthew W. Squire, MD, MS, Madison, WI
James S. Keene, MD, Madison, WI

Results of microfracture in large lesions (≥400 mm²) and older (≥ 50 years) patients were very good (Two-year MHHS 86 and 85 points) and the same as those with smaller lesions and in younger patients.

2:30 PM  Paper 609
The Effect of Platelet-Rich Plasma Administration in Hip Arthroscopy: A Review of Clinical Outcomes
Misty Suri, MD, New Orleans, LA
Alexander H. Tejani, MD, Brooklyn, NY
Alexander H. Tejani, MD, Brooklyn, NY
Daniel Tensmeyer, MD, Metairie, LA
Scott Montgomery, MD, New Orleans, LA
Stephanie Paulak, BA, River Ridge, LA
Deryk G. Jones, MD

Administration of PRP during hip arthroscopy may cause a placebo effect of believing that the PRP improves outcome while in actuality may not have a beneficial effect on healing and physical outcome.

Discussion – 6 Minutes

2:42 PM  Paper 610
Clinical Outcomes Of Initial 3-Month Trial Of Conservative Treatment For Femoroacetabular Impingement
Pil Whan Yoon, MD, Seoul, Republic of Korea
Taesoo Ahn, MD, Seoul, Republic of Korea
Soong Joon Lee, MD, Seoul, Republic of Korea
Jung Taek Kim, MD, Seoul, Republic of Korea
Hyun Ah Kim, Seoul, Republic of Korea
Jae Suk Chang, MD, PhD, Seoul, Republic of Korea
Hee J. Kim, MD, Seoul, Republic of Korea
Kang Sup Yoon, MD, Seoul, Republic of Korea

An initial trial of sufficient period conservative treatment for FAI patients should be considered before surgical intervention.

2:48 PM  Paper 611
Treatment Of Cartilage Defects In Impingement Surgery Reduces The Risk Of Total Hip Arthroplasty At 10 Year Follow Up
Pascal C. Haefeli, MD, Bern, Switzerland
Simon D Steppacher, MD, Bern, Switzerland
Moritz Tannast, Bern, Switzerland
Klaus Siebenrock, MD, Bern, Switzerland
Lorenz Buchler, MD, Biel, Switzerland

Treatment of Cartilage Defects during Surgical Hip Dislocation for the Treatment of Femoroacetabular Impingement Significantly lowers the Risk for Total Hip Arthroplasty at 10-year Follow-up
Thursday, March 3

2:54 PM  Paper 612
Acetabular Labral Tears Show Significant Function Improvement but Continued Pain with Year of Conservative Therapy
Shivam Upadhyaya, BS, Boston, MA
Kyle Alpaugh, MD, Northborough, MA
Noah J. Quinlan, BA, Burlington, VT
Scott D. Martin, MD, Boston, MA

Non-operative therapy of acetabular labral tears is a continued area of study with regards to functional outcome. We present a cohort who underwent conservative therapy and their short-term outcomes.

Discussion – 6 Minutes

3:06 PM  Paper 613
Clinical Outcomes of Hip Arthroscopy in Patients Over 60
Brian Capogna, MD, New York, NY
John Begly, MD, New York, NY
Michael Ryan, MD, New York, NY
Kristofer E. Chenard, MD, New York, NY
Rajkishen Narayanan, MS, New York, NY
Thomas Youn, MD, New York, NY

Utility of hip arthroscopy in the elderly population is unclear. We present clinical outcomes of a large series of patients undergoing hip arthroscopy greater than 60 years of age.

3:12 PM  Paper 614
Hip-Spine Syndrome: The Relationship between Cam-Type Deformity and Osteoarthritis of the Spine
Jeremy Gebhart, MD, Cleveland, OH
Douglas S. Weinberg, MD, Cleveland, OH
William Z. Morris, MD, Cleveland, OH
Keegan Conry, BS, Cleveland, OH
Lee Sasala, BA, Cleveland, OH
Raymond W. Liu, MD, Cleveland, OH

Increasing alpha angle and decreasing anterior femoral neck offset are significant predictors of lumbar spine OA; femoral osteoplasty may slow the development of OA and decrease back pain.

3:18 PM  Paper 615
The Economic Impact of Acetabular Labral Tears - A Cost-Effectiveness Analysis
Parth Lodha, MD, Westmont, IL
Chengcheng Gui, BS, Westmont, IL
Sivashankar Chandrasekaran, Denham Court, Australia
Carlos E. Suarez, MD, Mexico City, Mexico
Douglas R. Dirschl, MD, Chicago, IL
Benjamin G. Domb, MD, Oak Brook, IL

This is a study on the cost-effectiveness of hip arthroscopy when compared to physical rehabilitation alone. This utilizes data from several published sources.

Discussion – 6 Minutes

1:30 PM — 3:30 PM
Room W304A
Spine VI: Thoracolumbar Trauma/Deformity II
Moderator(s): Kern Singh, MD, Chicago, IL, Michael J. Lee, MD, Chicago, IL

1:30 PM  Paper 616
Malnutrition Predicts Infectious and Wound Complications Following Posterior Lumbar Spinal Fusion
Daniel D. Bohl, MD, MPH, MPH, Chicago, IL
Junyoung Ahn, BS, Chicago, IL
Daniel F. Johnson, BS, Touson, MD
Dustin H. Massel, BS, Northbrook, IL
Bryce A. Basques, MD, Chicago, IL
Kern Singh, MD, Chicago, IL

Among 4,310 patients, the prevalence of malnutrition was 4.8%, and malnutrition was associated with wound dehiscence, surgical site infection, urinary tract infection, and readmission.

1:36 PM  Paper 617
Determining Drivers of Cost for Elective Laminectomy and Fusion for Lumbar Degenerative Disease
Silky Chotai, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
Abilan Swaganesan, MD, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Matthew McGirt, Charlotte, NC
Clinton J. Devin, MD, Nashville, TN

There was considerable variation in total direct cost for laminectomy and fusion; 23% of this variation in the cost can be explained by readmission, length of hospital stay, and length of surgery.

1:42 PM  Paper 618
Determining the Drivers of Cost for Elective Microdiscectomy for Single-Level Lumbar Disc Herniation
Clinton J. Devin, MD, Nashville, TN
Silky Chotai, Nashville, TN
Abilan Swaganesan, MD, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
Matthew McGirt, Charlotte, NC

There was moderate variation in total direct cost after lumbar microdiscectomy. 3.4% of this variation can be explained by readmission within 90-days.
Thursday, March 3

1:54 PM  Paper 619
Medicare's Hospital Acquired Conditions Policy: A Problem of Non-Payment After Spine Deformity Surgery
Andrew J. Pugely, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Zachary Ries, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Christopher Anthony, MD, Iowa City, IA

The NIS database was used to analyze 144,235 cases of adult spinal deformity surgery for the presence of Hospital Acquired Conditions (HACs), as defined by CMS.

2:00 PM  Paper 620
Development of a Preoperative ASD Frailty Index that Correlates to Common Quality and Value Metrics
Amit Jain, MD, Indianapolis, IN
Daniel Scuibba, MD, Indianapolis, IN
Khaled Kebaish, MD, Indianapolis, IN
Brian J. Neuman, MD, Indianapolis, IN
Robert S. Bess, MD, Castle Rock, CO
Christopher Ames, MD, San Francisco, CA
International Spine Study Group, Brighton, CO

We found that in operatively treated ASD patients, high frailty index predicted greater complications, higher length of stay and worse self-reported outcomes before and after spinal surgery.

2:06 PM  Paper 621
Early Lumbar Nerve Palsy after Three Column Osteotomy for Fixed Sagittal Plane Deformities in Adults
Tarush Rustagi, MD, Syracuse, NY
Richard Tallarico, MD, Manlius, NY
William F. Lavelle, MD, East Syracuse, NY

Nerve palsies after three column corrective osteotomy occurred in 23% cases and most tend to recover. Significant correction of scoliosis at the osteotomy level (≥50%) may be a reason for nerve palsy.

2:18 PM  Paper 622
2-year Follow-up in Spine Clinical Research: An Adequate Benchmark?
Firoz Miyanji, MD, Vancouver, BC, Canada
Sameer Desai, BS, Surrey, BC, Canada
Amer Samdani, MD, Philadelphia, PA
Suken A. Shah, MD, Wilmington, DE
Jahangir Asghar, MD, Coral Gables, FL
Burt Yaszay, MD, San Diego, CA
Harry L. Shuff, MD, Miami, FL
Randal R. Betz, MD, Ocean City, NJ
Peter O. Newton, MD, San Diego, CA

A non-negligible rate of new complications requiring intervention may become apparent >2-5 years post-op, emphasizing the importance of longitudinal follow-up beyond 2 years following AIS surgery.

2:24 PM  Paper 623
Pelvic incidence: An anatomic investigation of 880 cadaveric specimens
Douglas S. Weinberg, MD, Cleveland, OH
William Z. Morris, MD, Cleveland Hts, OH
Jeremy Gebhart, MD, Cleveland, OH
Raymond W. Liu, MD, Cleveland, OH

Important demographic differences in pelvic incidence exist in a large osteological collection.

2:30 PM  Paper 624
Does Obesity Predict Worse Patient-Reported Outcomes Following Lumbar Spine Surgery?
John Siatycki, MD, Nashville, TN
Silky Chotai, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
Joseph B. Wick, BA, Nashville, TN
David Stonko, BS, MS, Nashville, TN
Matthew McGirt, Charlotte, NC
Clinton J. Devin, MD, Nashville, TN

Obesity (BMI greater than 35) is associated with worse baseline and 12-month PROs, however no differences in PRO change scores were observed across BMI groups.

Discussion – 6 Minutes

2:42 PM  Paper 625
Outcomes after Decompression without Fusion in Stenosis with Clinically Significant Pre-op Back Pain
Charles H. Crawford III, MD, Prospect, KY
Steven D. Glassman, MD, Louisville, KY
Praveen V. Mummaneni, San Francisco, CA
John Knightly, FACS, MD, Morristown, NJ
Anthony Asher, Charlotte, NC

A high level of pre-op back pain should not be a contraindication to decompression only surgery in patients who otherwise are candidates for surgical decompression of symptomatic lumbar stenosis.

Discussion – 6 Minutes

2:48 PM  Paper 626
Increasing Rate of Surgical Management of Adult Spinal Deformity in Patients Over Sixty
David Sing, San Francisco, CA
Ryan Khanna, Chicago, IL
Jeremy D. Shaw, MD, MS, San Francisco, CA
Lionel Metz, MD, San Francisco, CA
Shane Burch, MD, San Anselmo, CA
Sigurd H. Berven, MD, San Francisco, CA

Multilevel surgical management of adult spinal deformity in patients >60 increased from 2004 to 2011 at a rate exceeding the growing age >60 demographic during the same period.
When Does Compensation for Lumbar Stenosis Become a Clinical Sagittal Plane Deformity?
Aaron Buckland, MD, New York, NY
Shaleen Vira, MD, Silver Spring, MD
Jonathan H. Oren, MD, New York, NY
Renaud Lafage, New York, NY
Bassel Diebo, MD, New York City, NY
Themistocles S. Protopsaltis, MD, Closter, NJ
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY
John A. Bendo, MD, New York, NY

Lumbar stenosis and adult spinal deformity patients adopt different compensatory mechanisms with mild-moderate deformity, but similar compensatory mechanism with moderate-severe deformity.

Discussion – 6 Minutes

An Anatomic Investigation Between Facet Angle, Pelvic Incidence, And Osteoarthritis Of The Lumbar Spine
Douglas S. Weinberg, MD, Cleveland, OH
Raymond W. Liu, MD, Cleveland, OH
Katherine K. Xie, BS, Cleveland, OH
William Z. Morris, MD, Cleveland Hts, OH
Jeremy Gebhart, MD, Cleveland, OH
Zachary Gordon, MD, Cleveland, OH

Important differences in pelvic incidence and facet angle are associated with lumbar spine osteoarthritis in a large cadaveric collection.

Discussion – 6 Minutes

Does Greater Body Mass Index Increase the Risk for Recurrent Herniation Following Lumbar Discectomy?
Daniel D. Bohl, MD, MPH, MPH, Chicago, IL
Junyoung Ahn, BS, Chicago, IL
Ehsan Tabaraei, MD, Walnut Creek, CA
Robert A. Sershon, MD, Chicago, IL
Bryce A. Basques, MD, Chicago, IL
Kern Singh, MD, Chicago, IL

The two-year risk for recurrent herniation following discectomy was 1.8% for normal weight patients, 12.5% for overweight patients, 9.1% for obese patients, and 25.0% for morbidly obese patients.

Discussion – 6 Minutes

Center Variability in Surgical Technique and Outcomes in Adult Spinal Deformity
Thomas Cheriyian, New York, NY
Munish C. Gupta, MD, Sacramento, CA
Renaud Lafage, New York, NY
Justin S. Smith, MD, Charlottesville, VA
Robert S. Bess, MD, Castle Rock, CO
Robert A. Hart, MD, Portland, OR
Richard A. Hostin, MD, Plano, TX
Virginie Lafage, PhD, New York, NY
International Spine Study Group, Brighton, CO

Despite various surgical techniques employed, 2-year radiographic and patient-reported outcomes were similar among centers. Differences in reoperation rates and neurological deficits were noted.

Discussion – 6 Minutes

Neuromotor Sub-Classification of GMFCS -5 Predicts Complications and HRQoL in Cerebral Palsy after Spine Fusion
Amit Jain, MD, Indianapolis, IN
Paul D. Sprouse, MD, Indianapolis, IN
Patrick J. Cahill, MD, Philadelphia, PA
Burt Yaszay, MD, San Diego, CA
Amer Samdani, MD, Philadelphia, PA
Randal R. Betz, MD, Laurenceville, NJ
Suken A. Shah, MD, Wilmington, DE
Peter O. Newton, MD, San Diego, CA
Michelle Marks, NMD, Tucson, AZ

GMFCS5 is a heterogeneous category that can be subdivided based on preoperative neuromotor impairments; sub-classification predicts postoperative complications.
Thursday, March 3

1:36 PM  Paper 632
Development of a Risk Severity Score for Nonidiopathic Pediatric Spine Surgical Site Infection
Jeanne M. Franzone, MD, New York, NY
Hiroko Matsumoto, MA, New York, NY
Michael J. Troy, BS, Boston, MA
Kody K. Barrett, BA, Los Angeles, CA
Brendan Striano, Nutley, NJ
Michael P. Glotzbecker, MD, Waban, MA
John M. Flynn, MD, Wallingford, PA
David L. Skaggs, MD, Los Angeles, CA
Michael G. Vitale, MD, MPH, Irvington, New York

A surgical site infection (SSI) risk severity score (RSS) based on preoperatively known characteristics for patients with nonidiopathic spinal deformity undergoing spinal fusion has been developed.

1:42 PM  Paper 633
Minimizing Complications in Scoliosis Surgery in Children with Cerebral Palsy
Michael W. Shrader, MD, Madison, MS
Miranda Falk, PA-C, Chandler, AZ
Lee S. Segal, MD, Madison, WI
William Wood, MD, Phoenix, AZ
Carla Boan, M.Sc., Phoenix, AZ
Gregory R. White, MD, Phoenix, AZ

The use of two attending surgeons for posterior spinal fusion in children with cerebral palsy lowers blood loss, operative time, length of stay, and complication rates.

1:54 PM  Paper 634
Results Of Early Hip Reconstructive Surgery In Severely Involved Children With Cerebral Palsy
Betsey K. Beam, DO, Dupont, WA
Glen O. Baird, MD, Spokane, WA
Bryan J. Tompkins, MD, Spokane, WA
William E. Bronson, MD, Spokane Valley, WA
Mark McMulkun, PhD, Spokane, WA
Bryan Tompkins, M.D., Spokane, WA
Paul M. Caskey, MD, Spokane, WA

This study reports the outcomes of hip reconstructive surgery performed for hip instability in severely involved children with cerebral palsy based on age and procedure performed.

2:00 PM  Paper 635
Hip Dysplasia in Patients with Cerebral Palsy Treated with Bernese Periacetabular Osteotomy
Mark L. Miller, MD, Saint Louis, MO
Perry L. Schoenecker, MD, Kirkwood, MO
John C. Clohisy, MD, Saint Louis, MO

This study examines our experience with Bernese periacetabular osteotomy, in combination with adjunctive treatments, for the treatment of hip dysplasia in patients with Cerebral palsy.

2:06 PM  Paper 636
Open vs. Arthroscopic Anterior Release for Internal Shoulder Contracture in Obstetric Brachial Plexus Palsy
Mostafa H. Elsherbini, MD, Giza, Egypt
Mostafa A. Ibrahim, Cairo, Egypt
Amr M. Mohamed Aly, MD, Cairo, Egypt
Shady Samir, MD, Cairo, Egypt
Nabil Ghali, Cairo, Egypt

Arthroscopic release for internal shoulder contracture offers selective release in contrast to open release decreasing the potential of anterior dislocation and/or external rotation contractures.

2:18 PM  Paper 637
Reorientational Proximal Femoral Osteotomies for Arthrogrypotic Hip Contractures in Children
Harold J. Van Bosse, MD, Wynnewood, PA
Roger E. Saldana, MD, Miami, FL

Arthrogrypotic children often have potential for ambulation if their limb positioning can be optimized. The reorientational hip osteotomy is a straightforward solution to treat the hip contractures.

2:24 PM  Paper 638
Diagnosis and Treatment of Pediatric Septic Hips: Is there consensus?
Joshua M. Abzug, MD, Timonium, MD
William L. Hennrikus Jr, MD, Hershey, PA
Joshua E. Hyman, MD, New York, NY
Mary E. Hurley, MD, Fontana, CA
Kerwyn Jones, MD, Akron, OH
Brian K. Brighton, MD, Charlotte, NC
Charles T. Mehlman, DO, MPH, Cincinnati, OH

There is wide variability regarding the diagnosis and treatment of pediatric septic hips and therefore standardized guidelines may lead to improved quality and safety as well as cost savings/value.

2:30 PM  Paper 639
Validation and Modification of a Severity of Illness Score for Children with Acute Hematogenous Osteomyelitis
Alexander G. Athey, BS, Dallas, TX
Megan Mignemi, MD, Dallas, TX
William T. Gheen, BA, Dallas, TX
Eduardo A. Lindsay, MD, Dallas, TX
Chan-Hee Jo, PhD, Dallas, TX
Lawson A. Copley, MD, Dallas, TX

This study validates and improves upon a previously published severity of illness scoring system in a large, prospective cohort of children with acute hematogenous osteomyelitis.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an off-label use). For full information refer to page 15.
Thursday, March 3

2:42 PM  Paper 640
Vitamin D Status in Children and Adolescents in a Middle Latitude United States Climate
Janet Walker, MD, Lexington, KY
Neeley Buhr, MS, Lexington, KY
Donna Jean Oeffinger, PhD, Lexington, KY
Todd A. Milbrandt, MD, Rochester, MN
Ryan D. Muchow, MD, Lexington, KY
Vishwas R. Talwalkar, MD, Lexington, KY
Henry J. Iwinski, MD, Lexington, KY
Scott A. Riley, MD, Lexington, KY
72% vitamin D insufficiency is greater than that reported nationally. Those at risk are non-white, obese, on Medicaid, who drink <2 glasses of milk per day and spend <20 minutes outdoors per day.

2:48 PM  Paper 641
Evidence of an Association between ADHD Medication and Diminished Bone Health in Children and Adolescents
Jeffrey T. Howard, PhD, San Antonio, TX
Kristina S. Walick, MD, CO Springs, CO
Jessica C. Rivera, MD, Fort Sam Houston, TX
NHANES population data were analyzed, demonstrating an association between ADHD medication use and decreased bone mineral density in pediatric patients.

2:54 PM  Paper 642
Functional Outcomes of Pediatric Patients Diagnosed with Complex Regional Pain Syndrome at a Single Institution
Jane V. Charyasulkit, MD, Boston, MA
Matthew Levitsky, BA, Boston, MA
Philip Rosenstock, BS, Boston, MA
Diana Milojevic, MD, Boston, MA
Stuart V. Braun, MD, Cohasset, MA
Prashant A. Gholve, MD, Boston, MA
These validated quality-of-life measures suggest pediatric CRPS patients may have a milder disease course with decreased disability, perhaps due to effective interventions and earlier diagnosis.

3:12 PM  Paper 644
Ponseti-treated Idiopathic Clubfeet – is Brace Compliance In The First 90 Days Predictive Of Outcome?
B Stephens Richards III, MD, Dallas, TX
Shaeene Faulks, Lewisville, TX
Kevin Felton, Dallas, TX
Chan-Hee Jo, PhD, Dallas, TX
Following nonoperative clubfoot correction, objective monitoring of brace wear during the first 90 days does identify those most at risk for relapse and the ultimate need for surgery.

3:18 PM  Paper 645
Macrodactyly of the Foot
Grant D. Hogue, MD, Richardson, TX
Victoria Prete, BS, Somerville, MA
James R. Kasser, MD, Boston, MA
Collin J. May, MD, Newton, MA
This study reviews the clinical and radiographic outcomes of twenty-six patients who underwent one or more operative procedures for macrodactyly of the foot at our single tertiary-care institution.

3:24 PM  Paper 921
Update on 50-Year Outcomes of Tibialis Anterior Tendon Transfer for Relapsed Idiopathic Clubfoot
Joshua Holt, MD, Iowa City, IA
David Eirin Oji, MD, Dublin, CA
H John Yack, PT, Iowa City, IA
Jose A. Morcuende, MD, Iowa City, IA
Tibialis Anterior Tendon Transfer for Relapsing Idiopathic Clubfoot Treated with the Ponseti Method is Effective at Preventing Additional Relapse of Deformity Without Affecting Long-Term Foot Function

INSTRUCTIONAL COURSE LECTURE
3:00 PM — 4:00 PM
CD22   Dealing with the Underperforming Orthopaedic Resident
Moderator: R. Dale Blasier, MD, Little Rock, AR
S. Elizabeth Ames, MD, Burlington, VT
April D. Armstrong, MD, Hershey, PA
John L. Marsh, MD, Iowa City, IA
Helps you design a plan as part of the educational process to foster success and target areas to deal with underperformance on a case-by-case basis. One size does not fit all!
SHOWDOWN
4:00 PM – 5:00 PM
Valencia Room B

Hip Showdown: Labral Def ciency and Capsular Def ciency - What is My Approach?
Moderator: Marc J. Philippon, MD, Vail, CO
YOU decide who wins when four surgeons demonstrate their personal points of view in an unrehearsed debate. Join us and declare the winners via the Audience Response System.

DEBATE I:
My Approach to Labral Def ciency: When to Reconstruct... When Not to Reconstruct
Robert E. Boykin, MD, Asheville, NC
vs.
S. Clifton Willimon, MD, Atlanta, GA

DEBATE II:
My Approach to Capsular Def ciency: When to Reconstruct... When Not to Reconstruct
Marc Safran, MD, Redwood City, CA
vs.
Allston J. Stubbs IV, MD, Winston-Salem, NC

Symposium
4:00 PM — 6:00 PM
Valencia Room A

Challenges in Pediatric Trauma: What We All Need to Know (W)
Moderator: Jeffrey R. Sawyer, MD, Germantown, TN
Provides the latest information on the safest and most effective techniques in treatment of challenging upper and lower extremity fractures in children.

I. Remodeling of Fractures in Children: Which Fractures Remodel and Which Don’t (Case presentation)
   James H. Beatty, MD, Memphis, TN
II. Techniques for Optimal Management of Displaced Forearm Fractures in the Off ce.
    Martin J. Herman, MD, Philadelphia, PA
III. Compartment Syndrome in Children: Who is at Risk?
     Pooja Hosseinzadeh, MD, Miami, FL
IV. Management of Open Fractures: Should Children be Managed the Same as Adults?
    Todd A. Milbrandt, MD, Rochester, MN
V. Displaced Supracondylar Humerus Fractures: Can They Wait Till the Next Day? What are the Safest Surgical Techniques?
    Ken J. Noonan, MD, Madison, WI

Symposium
4:00 PM — 6:00 PM
Chapin Theater

The Employed Orthopaedic Surgeon: Promises and Pitfalls (X)
Moderator: Alexandra E. Page, MD, La Jolla, CA
AAOS Fellows increasingly choose employment. Both surgeon and hospital systems drive this trend. Pros and cons of different employment models are explored, including practical issues of employment, and how employment may change in the future.

I. Employment in a Single Hospital Setting: Pros & Cons
   Melbourne D. Boynton, MD, Rutland, VT
II. Employment Contracts for Orthopaedic Surgeons
    David D. Haynes Jr, Esq, New Orleans, LA
III. Hospital Employment: What’s Ahead?
     Nicholas J. Janiga, Castle Rock, CO
IV. Physicians and Hospitals: What’s Driving the Trend?
    Michael Suk, MD, Danville, PA
V. Employment in a Fully Integrated System: Pros & Cons
    Ronald W. Wyatt, MD, Walnut Creek, CA

INSTRUCTIONAL COURSE LECTURE
4:00 PM — 6:00 PM

361 Prevention, Diagnosis, and Treatment of Periprosthetic Joint Infection: An Analysis
Moderator: Bryan D. Springer, MD, Charlotte, NC
Matthew P. Abdel, MD, Rochester, MN
Craig J. Della Valle, MD, Chicago, IL
Fares S. Haddad, FRCS, London, United Kingdom
Focuses on the challenges and controversies of prevention, diagnosis, and treatment. Rather than a standard didactic session, the panel explores illustrative case examples and analysis that are common to the practicing orthopaedic surgeon.

362 The Continuum of Constraint in Knee Arthroplasty
Moderator: Adolph V. Lombardi, MD, New Albany, OH
Keith R. Berend, MD, New Albany, OH
Jeffrey H. DeClaire, MD, Rochester, MI
Christopher L. Peters, MD, Salt Lake City, UT
Implant designs for primary knee arthroplasty have expanded to include broader options for constraint in an effort to better address varying deformities and improve outcomes and satisfaction in patients with end-stage degenerative joint disease. Traducción simultánea en español. Tradução simultânea em português.

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### Thursday, March 3

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<th>Room</th>
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<tr>
<td>W306C</td>
<td>Nuts and Bolts of Foot and Ankle Injuries in the Athlete</td>
<td>Robert B. Anderson, MD, Charlotte, NC&lt;br&gt;Steven L. Haddad, MD, Glenview, IL&lt;br&gt;James R. Holmes, MD, Ann Arbor, MI</td>
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<td>Provides an overview of how injury management has evolved over time to improve outcome and also allow the athlete a safe and early return to activity. Faculty discusses new innovations in treatment options for specific injuries and also concentrates on postoperative care and rehabilitation techniques to facilitate return to sport. Specific attention is given not only to the serious athlete, but also to the weekend warrior and dancers.</td>
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<tr>
<td>W307C</td>
<td>Magnetic Resonance Imaging of the Knee and Shoulder</td>
<td>Lynne S. Steinbach, MD, San Francisco, CA&lt;br&gt;Christine B. Chung, MA, San Diego, CA&lt;br&gt;ChunBong B. Ma, MD, San Francisco, CA</td>
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<td>Provides an overview of magnetic resonance imaging diagnostic criteria for injury and conditions of the knee and shoulder. Discussion includes pitfalls, confounders, and potential applications for novel technologies.</td>
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<tr>
<td>W310</td>
<td>Complications of Common Hand Surgery Procedures</td>
<td>Peter J. Stern, MD, Cincinnati, OH&lt;br&gt;Ryan P. Calfee, MD, Saint Louis, MO&lt;br&gt;Sanjeev Kakar, MD, Rochester, MN&lt;br&gt;Fraser J. Leversedge, MD, Durham, NC</td>
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<td>Covers complications following surgery for basal joint arthritis, carpal and cubital tunnel decompression, small bone fixation, volar plating for distal radius fracture, and includes a panel discussion.</td>
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<td>W205A</td>
<td>Off-Office Pediatric Orthopaedics for the General Orthopaedic Surgeon: Staying Current, Avoiding Mistakes</td>
<td>Bernard D. Horn, MD, Philadelphia, PA&lt;br&gt;Martin J. Herman, MD, Philadelphia, PA&lt;br&gt;Richard W. Kruse, DO, Wilmington, DE&lt;br&gt;Todd A. Milbrandt, MD, Rochester, MN</td>
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<td>Geared toward the generalist, introduces current concepts for managing common pediatric orthopaedic problems that are seen in the off-ce. The faculty discusses preferred treatment strategies, avoiding mistakes, and managing complications.</td>
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<td>W205B</td>
<td>How to Manage the Failed Rotator Cuff Repair in the Younger Patient (&lt; 50)</td>
<td>Joseph A. Abboud, MD, Philadelphia, PA&lt;br&gt;Bassem T. Elhassan, MD, Rochester, MN&lt;br&gt;Annand M. Murthi, MD, Indianapolis, IN&lt;br&gt;Robert Z. Tashjian, MD, Salt Lake City, UT</td>
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<td>Target audience is surgeons who are trying to more effectively manage patients with failed rotator cuff repairs who need operative treatment. The focus is on evidence-based methods, specifically non-arthroplasty options.</td>
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<td>W204</td>
<td>Shoulder Instability: Technical Skills</td>
<td>Hussein A. Elkousy, MD, Houston, TX&lt;br&gt;Pascal Boileau, MD, Nice, France&lt;br&gt;James P. Bradley, MD, Pittsburgh, PA&lt;br&gt;Laurence D. Higgins, MD, Boston, MA</td>
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<td>Provides technical guidance for arthroscopic and open management of anterior, posterior, and multidirectional instability as well as revision surgery and management of bone loss.</td>
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<td>W300</td>
<td>Adult Lumbar Disc Herniation: Treatment, Complications, Outcomes, and Evidence-Based Data for Patient and Health Professional Counseling</td>
<td>Eric O. Klineberg, MD, Sacramento, CA&lt;br&gt;Michael P. Kelly, MD, Saint Louis, MO&lt;br&gt;Han Jo Kim, MD, New York, NY&lt;br&gt;Peter G. Passias, MD, Westbury, NY</td>
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<td>Provides evidence-based treatment options for adult patients with lumbar disc herniation to aid surgeons in counseling patients and healthcare professionals.</td>
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<tr>
<td>W307A</td>
<td>Athletic Hip Injuries: Presentation, Evaluation, and Return to Play</td>
<td>Thomas S. Lynch, MD, New York, NY&lt;br&gt;Asheesh Bedi, MD, Ann Arbor, MI&lt;br&gt;Laith M. Jazrawi, MD, New York, NY&lt;br&gt;Marc Safran, MD, Redwood City, CA</td>
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<td>Will introduce the audience to common core and hip pathology that is prevalent in the athletic population as well as the treatment necessary to allow our athletes to return to play safely and quickly.</td>
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<td>W203</td>
<td>The Management of Meniscal Pathology: From Partial Meniscectomy to Transplantation</td>
<td>Eric J. Strauss, MD, New York, NY&lt;br&gt;Philip A. Davidson, MD, Park City, UT&lt;br&gt;Laithe M. Jazrawi, MD, New York, NY&lt;br&gt;Michael J. Salata, MD, Cleveland, OH</td>
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<td>Provides a focused consolidation of expert lectures on current diagnoses and management of meniscus pathology and treatment.</td>
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<td>W207</td>
<td>Multiple Ligament Knee Injuries – What Would You Do?</td>
<td>Mark D. Miller, MD, Charlottesville, VA&lt;br&gt;Ammunziato Amendola, MD, Iowa City, IA&lt;br&gt;Robert A. Arciero, MD, Farmington, CT&lt;br&gt;Gregory C. Fanelli, MD, Danville, PA&lt;br&gt;F. Winston Gwathmey, MD, Charlottesville, VA&lt;br&gt;Christopher D. Harner, MD, Houston, TX&lt;br&gt;Darren L. Johnson, MD, Lexington, KY&lt;br&gt;Robert F. LaPrade, MD, PhD, Vail, CO&lt;br&gt;Bruce A. Levy, MD, Rochester, MN&lt;br&gt;Eric C. McCarty, MD, Boulder, CO&lt;br&gt;Claude T. Moorman, MD, Durham, NC</td>
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<td>Using a series of actual knee multiple ligament injury (MLI) cases, we discuss treatment options for a variety of conditions to include open injuries, four ligament tears, obese MLI, and delayed presentation.</td>
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Thursday, March 3

**Pediatric Orthopaedic Trauma: Principles of Management**

**Moderator:** Shital N. Parikh, MD, Cincinnati, OH
James H. Beaty, MD, Memphis, TN
Alvin H. Crawford, MD, Cincinnati, OH
John M. Flynn, MD, Philadelphia, PA
William L. Hemnrikus, MD, Hershey, PA
Andrew Howard, MD, Toronto, ON, Canada
Christopher A. Iobst, MD, Winter Park, FL
Charles T. Mehlman, DO, MPH, Cincinnati, OH
Scott J. Mubarak, MD, San Diego, CA
Ken J. Noonan, MD, Madison, WI
Andrew T. Penrock, MD, San Diego, CA
Susan A. Scherl, MD, Omaha, NE
David L. Skaggs, MD, Los Angeles, CA

Discusses the fundamentals of pediatric orthopaedic trauma management in general and for specific injuries, providing guidelines for management.

**PAPER PRESENTATION**

* 4:00 PM — 6:00 PM
  * Valencia Room D
  * **Shoulder & Elbow V: Shoulder Arthroplasty**
    * **Moderator(s):** John G. Costouros, MD, Redwood City, CA, Donald P. Endrizzi, MD, Falmouth, ME
  * **4:00 PM**
    * **Paper 646**
      * Resilience Correlates to Outcomes after Total Shoulder Arthroplasty
      * John M. Tokish, MD, Simpsonville, SC
      * Michael J. Kissenberth, MD, Simpsonville, SC
      * Stefan J. Tolan, MD, Greenville, SC
      * Keith T. Lonergan, MD, Simpsonville, SC
      * Richard J. Hawkins, MD, Greenville, SC
      * Tariq I. Salim, BS, Greer, SC
      * Jennifer M. Mercuri, MS, Greenville, SC
      * Ellen Stanley, PhD, PT, Greer, SC
    * Resilience was found to be a major predictor of postoperative outcomes after total shoulder arthroplasty in our study examining the correlation between resilience and traditional outcomes scores.
  * **4:06 PM**
    * **Paper 647**
      * Differences in Expectations and Outcomes of Total Shoulder Arthroplasty by Gender: A Prospective Evaluation
      * Andrew Jawa, MD, Cambridge, MA
      * Umer Dasti, MD, Fair Lawn, NJ
      * Suzanne L. Miller, MD, Chestnut Hill, MA
      * Amy L. Brown, MD, Milton, MA
      * Kathryn S. Grammat, MD, Dover, MA
    * Total shoulder arthroplasty results in excellent improvement in functional outcomes for both men and women without a significant difference between genders.

**4:12 PM**

**Paper 648**

**Rotator Cuff Dysfunction after Anatomic Total Shoulder Arthroplasty: Who is at Risk?**

Stephen T. Ikard Jr, MD, Tuscaloosa, AL
Kevin W. Farmer, MD, Gainesville, FL
Aimee Struk, ME, MBA, Gainesville, FL
Thomas W. Wright, MD, Gainesville, FL

Patients with post-TSA cuff dysfunction demonstrate worse function, more glenoid radiolucencies, and implants that are placed more proud than their healthy-cuff counterparts.

**Discussion – 6 Minutes**

**4:24 PM**

**Paper 649**

**Increased Implant Conformity Results in Early Radiolucency after Anatomic Total Shoulder Arthroplasty**

Vahid Entezari, MD, Beachwood, OH
Michael H. Amini, MD, University Heights, OH
Jason Ho, MD, Cleveland, OH
Roy Xiao, BA, Cleveland Heights, OH
Eric T. Ricchetti, MD, Shaker Heights, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH

Patients with higher glenohumeral implant conformity and history of diabetes showed increased rate of glenoid radiolucency at 6 to 24 months following anatomic total shoulder arthroplasty.

**4:30 PM**

**Paper 650**

**Immediate Versus Delayed Passive Range Of Motion Following Total Shoulder Arthroplasty**

Patrick J. Denard, MD, Medford, OR
Alexandre Laedermann, MD, Meyrin, Switzerland

Immediate passive range of motion leads to earlier ROM following TSA but may lower the healing rate of a lesser tuberosity osteotomy.

**Discussion – 6 Minutes**

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Thursday, March 3

4:48 PM  Paper 652
Pre-operative MRI for Shoulder Osteoarthritis Does Not Change Surgeon Decision-making Compared to CT Scan
David Burnikel, MD, Boston, MA
Andrew Jawa, MD, Cambridge, MA

Pre-operative evaluation with an MRI vs. CT scan does not affect surgical decision making with respect to selection of a reverse or standard shoulder arthroplasty.

4:54 PM  Paper 653
CT Analysis Of Pathologic Correction In Total Shoulder Arthroplasty Using A Standard Or Augmented Glenoid Component
Eric T. Ricchetti, MD, Cleveland, OH
Bong-Jae Jun, PhD, Cleveland, OH
Thomas E. Patterson, PhD, Cleveland, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH

CT analysis shows that a posteriorly augmented glenoid component can better correct retroversion and maintain a lateralized joint line in a B2 glenoid, which can lead to better humeral head centering.

5:00 PM  Paper 654
Glenoid Inclination: Is it Replicated in Total Shoulder Arthroplasty?
Haifeng Ren, MD, Burlington, ON, Canada
Robin R. Richards, MD, Toronto, ON, Canada

We showed that radiologically, normal glenoid inclination was not replicated following TSA in reality and that the glenoid components were most commonly tilted superiorly.

5:06 PM  Discussion

5:12 PM  Paper 655
The Utility of Obtaining Routine Hematologic Laboratory Values Following Shoulder Arthroplasty
Rachel M. Frank, MD, Chicago, IL
Simon Lee, MD, Ann Arbor, MI
Sahil Aiyash, MA, Chicago, IL
Noam Kupfer, MA, Chicago, IL
Nikhil N. Verna, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Gregory P. Nicholson, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL

Routine postoperative laboratory analyses do not change the acute postoperative management following shoulder arthroplasty, and are likely of no utility in the vast majority of patients.

5:18 PM  Paper 656
Postoperative Chemistry Labs Are Unnecessary for the Majority of Primary Shoulder Arthroplasty Patients
Alexis Williams, BA, Villanova, PA
Eric H. Tischler, BA, Philadelphia, PA
Daniel Sholdt, BS, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Sarena Namdari, MD, MSc, Philadelphia, PA

The objective of this study was to determine patient-specific risk factors and the clinical intervention rates for abnormal postoperative Chem-7 panels in patients undergoing shoulder arthroplasty.

5:24 PM  Paper 657
Is Previous Non-arthroplasty Surgery a Risk Factor for Periprosthetic Infection in Primary Shoulder Arthroplasty
Jean-David Werthel, Paris, France
Taku Hatta, MD, Sendai, Miyagi, Japan
Bradley S. Schoch, MD, Rochester, MN
Robert H. Cofield, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Bassem T. Elhassan, MD, Rochester, MN

The risk of infection after primary SA in patients who underwent previous non-arthroplasty related surgery is significantly higher than in those who did not

5:30 PM  Discussion

5:36 PM  Paper 658
Insurance Status Affects Postoperative Morbidity and Complication Rate after Shoulder Arthroplasty
Xinning Li, MD, Lexington, MA
Antonio Cusano, BS, Avon, CT
Paul H. Yi, MD, San Francisco, CA
David Sing, San Francisco, CA
Joel J. Gagnier, PhD, Ann Arbor, MI
Josef K. Eichinger, MD, Tacoma, WA
Andrew Jawa, MD, Cambridge, MA
Asheesh Bedi, MD, Ann Arbor, MI

Private insurance payer status is associated with a lower risk of medical complications and lower comorbidity index when compared to the Medicaid and Medicare payer status.

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An alphabetical faculty financial disclosure list can be found starting on page 334.
Thursday, March 3

5:42 PM  Paper 659
Single Stage Revision is Effective for Failed Shoulder Arthroplasty With Positive Cultures for Propionibacterium
Jason Hsu, MD, Seattle, WA
Jacob Gorbaty, BA, Tacoma, WA
Ian J. Whitney, MD, Boerne, TX
Frederick A. Matsen III, MD, Seattle, WA

Clinical outcomes after single-stage revision shoulder arthroplasty associated with positive Propionibacterium cultures are similar to outcomes in revision procedures without infection.

5:48 PM  Paper 660
Hospital Cost of Two-Stage Reimplantation for the Treatment of Deep Infection After Shoulder Arthroplasty
Yaser Baghdadi, MD, Indianapolis, IN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Taylor Dennison, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Robert H. Cofeld, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN

The hospital cost of two-stage reimplantation for the treatment of an infected shoulder arthroplasty is about two times higher than the cost of a primary shoulder arthroplasty.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
W414
Adult Reconstruction Knee VI: Primary TKA
Moderator(s): Harlan B. Levine, MD, Tenafly, NJ,
Alfred J. Tria Jr., MD, Princeton, NJ

4:00 PM  Paper 661
Periarticular Liposomal Bupivacaine Offers No Benefit Over Bupivacaine in Total Knee Arthroplasty
Pouya Alijanipour, MD, Philadelphia, PA
Timothy Tan, MD, Philadelphia, PA
Christopher Matthews, MD, Gainesville, FL
Jessica R. Viola, BS, Philadelphia, PA
James J. Partill, MD, Philadelphia, PA
Richard H. Rothman, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA

Liposomal bupivacaine, in this prospective, randomized clinical trial, did not demonstrate superior efficacy to standard bupivacaine for the outcomes measured, especially given the cost differential.

Discussion – 6 Minutes

4:06 PM  Paper 662
Femoral Nerve Block is Not Superior to Periarticular Injection for Primary Total Knee Analgesia
Thomas R. Turgeon, MD, Winnipeg, MB, Canada
Sanjay Aragola, Winnipeg, MB, Canada
Eric R. Bohm, MD, Winnipeg, MB, Canada
Benjamin G. Avenson, BS, Winnipeg, MB, Canada
Amirali Esmail, Winnipeg, MB, Canada
David Hedden, MD, Winnipeg, MB, Canada
Colin D. Burnell, FRCSC, MD, Winnipeg, MB, Canada
Marshall S. Tenenbein, MD, Winnipeg, MB, Canada
Eric Jacobsohn, MD, Winnipeg, MB, Canada

This double-blinded randomized-control trial of 72 subjects found no benefit of continuous femoral nerve block over periarticular injection for analgesia following primary total knee arthroplasty.

4:12 PM  Paper 663
Intra-Operative Synovitis Predicts Worse 2 Year Outcomes after Total Knee Arthroplasty for Osteoarthritis
Shivi Duggal, BS, MBA, Hartsdale, NY
Kelly McHugh, BA, New York, NY
Xian Wu, MPH, New York, NY
Geoffrey H. Westrich, MD, New York, NY
Thomas P. Sculco, MD, New York, NY
John A. Carrino, MD, New York, NY
Edward F. DiCarlo, MD, New York, NY
Charles N. Cornell, MD, Greenwich, CT
Lisa A. Mandl, MD, MPH, New York, NY

Synovial inflammation at the time of surgery predicts worse WOMAC pain and function 2 years post-TKA in patients with osteoarthritis.

Discussion – 6 Minutes

4:24 PM  Paper 664
Participation in Non-Recommended Sports After Total Knee Did Not Affect Long-Term Durability
Matthew P. Abdel, MD, Rochester, MN
Mitchell R. Obey, B.S., Rochester, MN
Sebastian Parratte, MD, Marseille, France
Diane L. Dahm, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN

Patients participating in non-recommended sports after TKA did not have a higher risk of mechanical failure at 14 years when compared to those involved in low to moderate activities.

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Thursday, March 3

4:30 PM  Paper 665
In Vivo Mobile Fluoroscopic Analyses: Traditional and More Challenging Activities for Subjects Having a TKA
Trevor F. Grieco, BS, Knoxville, TN
Adrija Sharma, PhD, Knoxville, TN
William Hamel, PhD, Knoxville, TN
Ian M. Zeller, MS, Knoxville, TN
Harold E. Cates Jr, MD, Knoxville, TN
Richard D. Komistek, PhD, Knoxville, TN

Mobile fluoroscopy was used to investigate kinematics of 275 patients with various TKAs during a deep knee bend, a chair-rise, walking up/down steps, normal walking, and/or walking up/down ramps.

4:36 PM  Paper 666
When is it Safe for Patients to Drive after Right Total Knee Arthroplasty?
Victoria A. Younger, BS, Egg Harbor Township, NJ

Patients can re-evaluate their driving ability between 2 and 4 weeks after TKA.

4:48 PM  Paper 667
Lingering Risk: Bariatric Surgery Prior to Total Knee Arthroplasty
Brian T. Nickell, MD, Durham, NC
Mitchell R. Klement, MD, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Cynthia L. Green, Durham, NC
Abiram Bal, BA, Durham, NC
Michael P. Bolognesi, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC

Bariatric surgery prior to TKA does not decrease surgical complications; in fact, it may increase complications.

5:00 PM  Paper 669
Predictors for Delayed Discharge after Total Joint Arthroplasty
Michael B. Gottschalk, MD, New York, NY
Ajay Premkumar, BS, McLean, VA
Aaron Gebrelul, BA, Atlanta, GA
Bryan Sirmon, MD, Decatur, GA
William Carpenter, MD, Atlanta, GA
James R. Roberson, MD, Atlanta, GA
Greg Erens, MD, Decatur, GA
Thomas L. Bradbury, MD, Atlanta, GA

As the financial landscape of US healthcare is evolving, decreasing hospital length of stay without compromising care after TJA could have a significant financial impact.

5:12 PM  Paper 670
Contemporary UKA versus HTO in 239 Patients Under 55: UKA Provided Higher Activity and Durability at 5-7 Years
Aaron J. Krych, MD, Rochester, MN
Patrick Reardon, BS, Rochester, MN
Joshua J. Christensen, MD, Rochester, MN
Paul Sousa, MBA, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN

When comparing PTO and UKA for treatment of medial compartment arthritis, patients treated with UKA more quickly reached and sustained a higher level of function compared to PTO.

5:18 PM  Paper 671
Mobile Unicompartmental Knee Arthroplasty: A Prospective Independent Study. Ten To 15 Years Follow-up.
Lukas Lisowski, MD, Amsterdam, Netherlands
Michel Van den Bekerom, Amsterdam, Netherlands
Linda Meijer, MSc, Dordrecht, Netherlands
Andrzej Lisowski, MD, Heerlen, Netherlands

The 15-year cumulative survival rate of first 138 mobile unicompartmental knee replacements is 90.6%. Presence of radiolucency has no influence on functional outcome, survival and pain complaints.

5:45 PM  Paper 668
Rapid Discharge After Total Knee Arthroplasty Is Safe In The Medicare Population
Gregory G. Klingenstein, MD, Mount Laurel, NJ
Scott D. Schochet, MD, Voorhees, NJ
Jeremy Reid, MD, Moorestown, NJ
Robert E. Post, MD, MS, Voorhees, NJ
Rajesh K. Jain, MD, MPH, Moorestown, NJ
Manny D. Porat, MD, Voorhees, NJ

Medicare patients can be discharged safely the day after total knee arthroplasty with no increased risk of 30-day readmission in a community medical center.

5:24 PM  Paper 672
Arthroscopy after Total Knee Arthroplasty is Associated with Increased Infection and Revision Rates
Luke Luethemeyer, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
Samuel E. Carstensen, MD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA

Arthroscopy for non-infectious indications following TKA is associated with significantly increased rates of both subsequent infection and revision TKA.
Thursday, March 3

5:36 PM  Paper 673
Cause-Specific Mortality Trends Following Total Hip and Knee Arthroplasty
Clement J. Michet III, BA, Rochester, MN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Cathy D. Schleck, Rochester, MN
Dirk Larson, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Following THA and TKA, the risk of death is elevated for mental and musculoskeletal conditions.

5:42 PM  Paper 674
A Randomized Controlled Trial Of Different Preoperative Erythropoietin Protocols In Total Knee Joint Replacement
Nikolaos K. Paschos, MD, Davis, CA
Dimitrios Giotis, Ioannina, Greece
Anastasios D. Georgoulis, MD, Ioannina, Greece
In this RCT, 3 protocols of preoperative erythropoietin use were compared. A single dose protocol reduced the need of transfusions with no associated increase in cost or thromboembolic events.

5:48 PM  Paper 675
Clinical and Functional Outcome of Primary Condylar Constraint compared to Posterior Stabilised Knee Arthroplasty
Ken Lee Puah, MD, Singapore, Singapore
Hwee Chi Chong, Singapore, Singapore
Siang Shen Leon Foo, MD, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore
The use of primary constrained condylar knee arthroplasty does not affect clinical and functional outcomes at 2 years when compared to posterior stabilised knees

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room 304A
Trauma VII: Post Traumatic Reconstruction
Moderator(s): Wade T. Gordon, MD, Bethesda, MD
Ivan S. Tarkin, MD, Pittsburg, PA

4:00 PM  Paper 676
Can Screening Swabs Help Predict Risk of Post-operative Infection Following Open Fracture Treatment?
Cassandra Cardarelli, MD, Bethesda, MD
Matthew Vasquez, MD, Bethesda, MD
Jacob Glaser, MD, Indianapolis, IN
Michelle Romeo, BS, Indianapolis, IN
Kerry Campbell, Indianapolis, IN
Michael McCusker Jr, MA, MD, Indianapolis, IN
Marcus F. Scardino, MD, Indianapolis, IN
Robert V. O’Toole, MD, Indianapolis, IN
Manjari Joshi, Indianapolis, IN
Positive nasal swabs for methicillin-resistant staph aureus (MRSA) are associated with increased risk of post-operative infection after open fracture.

4:06 PM  Paper 677
Debridement of Open Tibia Fractures More Than 48 Hours After Injury: Does time to Surgery Matter?
Nathanael D. Heckmann, MD, Los Angeles, CA
Kyle Mombell, BA, Los Angeles, CA
Geoffrey Marecek, MD, Los Angeles, CA
Jason A. Davis, MD, Houston, TX
A delay of more than 48 hours to surgical debridement of open tibia fractures does not result in an increased reoperation rate.

4:12 PM  Paper 678
An Analysis of 214 Open Tibial Fractures Over 3 Years: Adherence to National Guidelines vs Clinical Outcomes
Huai Ming Phen, Ilford, United Kingdom
Neil T. Morton, London, United Kingdom
Jamila Kassam, MSc, PT, London, United Kingdom
Katie Sai Tien Chu, London, United Kingdom
Peter Bates, FRCS (Ortho), MBBS, Kent, United Kingdom
Collaboration between orthopaedic and plastic surgeons is a stronger predictor of post-operative complications following open tibia fractures than adherence to rigid timings of surgical intervention.

Discussion – 6 Minutes

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Thursday, March 3

4:24 PM  Paper 679
**Can We Predict Non Union Of Long Bone Fractures?**
Emmanuele Santolini, MD, Genova, Italy
Robert M. West, MSc, Leeds, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom
This case-control study explored the development and effectiveness of a clinical decision rule to assist surgeons to consider early re-operation in patients at risk to develop non-union.

4:30 PM  Paper 680
**Proportion of Causative Factors of Fracture Nonunion**
Takahiro Niikura, MD, PhD, Kobe, Japan
Sang Y. Lee, MD, Kobe, Japan
Takashi Iwakura, MD, PhD, Kobe, Japan
Ryosuke Kuroda, MD, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan
137 nonunion cases were reviewed. 24% had mechanical, 20% had biological, and 56% had both factors. 2% had patient-dependent, 45% had patient-independent, and 53% had both factors.

4:36 PM  Paper 681
**Time Trade-Off as a Measure of Health-Related Quality of Life: Long Bone Nonunions Have a Devastating Impact**
Patrick C. Schottel, MD, Burlington, VT
Daniel P O’Connor, PhD, Houston, TX
Mark R. Brinker, MD, Houston, TX
A long bone nonunion is a debilitating injury. We found that patients were willing to trade 32% of their remaining lifespan for perfect health rather than continuing in their current state of health.

4:48 PM  Paper 682
**Multi-Disciplinary Malnutrition Screening Program in Orthopaedic Trauma Patients**
Michael C. Willey, MD, Iowa City, IA
Nathan Nicholson, MD, Iowa City, IA
Matthew D. Karam, MD, Iowa City, IA
John L. Marsh, MD, Iowa City, IA
A prospective screening program for malnutrition in patients with acute fractures indicated for operative fixation highlights the effectiveness and expense of the screening.

4:54 PM  Paper 683
**The Power of a Swab: Do Nasal Cultures Predict Complications or Outcomes Following Repair of Fracture Nonunion?**
David P. Taormina, MD, New York, NY
Sanjit R. Konda, MD, Rye, NY
Frank A. Liporace, MD, Engleweed Clfs, NJ
Kenneth A. Egol, MD, New York, NY
Pre-operative nasal swabbing for staphylococcus aureus is a simple and non-invasive diagnostic tool with significant prognostic implications in patients undergoing fracture nonunion surgery.

5:00 PM  Paper 684
**Nonsteroidal Anti-inflammatory Drugs Versus Acetaminophen in Fracture Healing. A Randomized Controlled Trial**
Nikolaos K. Paschos, MD, Davis, CA
Dimitrios Giotis, Ioannina, Greece
Khaled Abuhemoud, Ioannina, Greece
Anastasios D. Georgoudis, MD, Ioannina, Greece
In this RCT, NSAIDs were proven to have comparable outcome with acetaminophen regarding fracture healing. However, increased dose and treatment duration with NSAIDs resulted in higher non-union rate.

5:12 PM  Paper 685
**Tibia Screw Configuration and Fibular Osteotomy Decrease Healing Time In Exchange Nailing**
Bryan Abadie, BS, Winston-Salem, NC
Daniel Leas, MD, Huntersville, NC
Lisa K. Camnada, MD, Saint Louis, MO
Michael P. Morwood, MD, Durham, NC
Daniel R. Schlatterer, DO, Atlanta, GA
Anna N. Miller, MD, Winston-Salem, NC
This retrospective study analyzed patients with tibia fractures that underwent exchange nailing and found that a dynamic screw configuration and fibular osteotomy promoted faster healing time.

5:18 PM  Paper 686
**Percutaneous Transplantation of Bone Marrow Granulocytes Precursors Cells for infected Tibial Nonunion**
Philippe Hernigou, PhD, Creteil, France
Charles-henri foucat-lachaniette, MD, Créteil Cedex
The outcomes indicate the feasibility and safety of cell therapy in patients with infected nonunion, with less recurrent infections as compared with standard iliac graft.
Thursday, March 3

5:24 PM  Paper 687
**Engineering the Masquelet Technique**
Magdalena Tarchala, MD, Ottawa, ON, Canada
Jake Barralet, PhD, Montreal, QC, Canada
Edward J. Harvey, MD, MSc, Westmount, QC, Canada

The study of the Masquelet Technique elicited the role of induced membrane primarily as a barrier. When replaced with a synthetic PTFE membrane similar osteo-integrative properties were observed.

Discussion – 6 Minutes

5:36 PM  Paper 688
**Predictors of Amputation in High-Energy Forefoot and Midfoot Injuries**
Zachary Working, MD, Salt Lake City, UT
Iain Elliott, MD, Salt Lake City, UT
Lucas S. Marchand, MD, Salt Lake City, UT
Lance Jacobson, MD, Salt Lake City, UT
Ami Stuart, Park City, UT
David Rothberg, MD, Salt Lake City, UT
Thomas F. Higgins, MD, Salt Lake City, UT
Erik Kubiak, MD, Salt Lake City, UT

All high-energy forefoot & midfoot injuries (level 1 trauma hospital) in the last decade were reviewed for predictors of amputation & development of a hazard model for improved patient counseling.

5:42 PM  Paper 689
**Trauma-related Upper Extremity Amputations: An Epidemiologic Study Using the National Trauma Data Bank**
Elizabeth Inkellis, MD, San Francisco, CA
Eric Low, MS, San Francisco, CA
Saam Morshed, MD, Berkeley, CA

This study uses the 2009-2012 National Trauma Data Bank to investigate the epidemiology of upper extremity amputations and to assess predictors of complications and re-amputation.

5:48 PM  Paper 690
**Post-traumatic Lower Limb Osteomyelitis: What Outcomes Should Be Expected?**
Paul L. Rodham, MBBS, Houghton Le Spring, United Kingdom
Michalis Panteli, MD, Leeds, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom

Post-traumatic osteomyelitis of the lower limb continues to be a debilitating complication of fracture fixation that leads to significant morbidity.

Discussion – 6 Minutes

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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*
Friday, March 4

Orthopaedic Review Course
7:30 AM — 4:45 PM
Hyatt Regency Orlando, Regency Ballroom R

490 Orthopaedic Review Course: Update for Your Practice and Preparation for Your Test
Chair: Jeffrey R. Sawyer, MD, Germantown, TN
Albert J. Aboulafia, MD, Indianapolis, IN, Jeffrey S. Abrams, MD, Princeton, NJ, Todd J. Albert, MD, New York, NY, Matthew Austin, MD, Philadelphia, PA, Jens R. Chapman, MD, Seattle, WA, Leesa M. Galatz, MD, New York, NY, Steven L. Haddad, MD, Glenview, IL, Joseph M. Lane, MD, New York, NY, Amy L. McIntosh, MD, Dallas, TX, Todd A. Milbrandt, MD, Rochester, MN, Mark D. Miller, MD, Charlottesville, VA, David L. Skaggs, MD, Los Angeles, CA, Robert J. Strauch, MD, New Rochelle, NY, William C. Warner Jr, MD, Germantown, TN, Donald A. Wiss, MD, Los Angeles, CA

A review of current knowledge on diagnosis and management of clinical problems from a nationally accepted orthopaedic practice perspective. Major sections of the course are pediatrics, upper and lower extremities, tumors and metabolic bone disease, and spine. Each section includes discussion of fractures, complications, infections, and trauma.

SHOWDOWN
8:00 AM – 9:00 AM
Valencia Room B

Shoulder and Elbow Showdown: Management of 4-part Humeral Fractures
Moderator: William N. Levine, MD, New York, NY

YOU decide who wins when four surgeons demonstrate their personal points of view in an unrehearsed debate. Join us and declare the winners via the Audience Response System.

DEBATERS:
ORIF
Christopher S. Ahmad, MD, New York, NY
Non-operative Management
Evan L. Flatow, MD, New York, NY
Reverse TSA
Anthony A. Romeo, MD, Chicago, IL
HHR
John W. Sperling, MD, MBA, Rochester, MN

Symposium
8:00 AM — 10:00 AM
Chapin Theater

✦ Preoperative Optimization of Total Joint Arthroplasty Surgical Risk (Y)
Moderator: Richard Iorio, MD, New Rochelle, NY

Identifies “modifiable” risk factors significantly contributing to poor clinical outcome following TJA. Although some of these modifiable risk factors may be longstanding and recalcitrant to change, patients may express renewed interest in addressing them if they stand in the way of obtaining TJA, a procedure they hope will result in quality of life improvement. We suggest perioperative orthopaedic surgical home (POSH) model to help with this process. Faculty discusses the advantages of preoperative optimization of TJA patients.

I. Diabetes Control and Nutrition
Michael Bolognesi, MD, NC

II. Staphylococcus Aureus Colonization
Kevin L. Garvin, MD, Omaha, NE

III. Neurocognitive, Psychological and Dependency Problems
William A. Jiranek, MD, Richmond, VA

IV. Physical Deconditioning and Fall Risk
William B. Macaulay, MD, New York, NY

V. Morbid Obesity
William M. Mihalko, MD, PhD, Germantown, TN

VI. Venous Thromboembolic Disease
Jacob M. Drew, MD, Charleston, SC

VII. Cardiovascular Disease and Stroke Prevention
James D. Slover, MD, New York, NY

VIII. Tobacco Cessation
Bryan D. Springer, MD, Charlotte, NC

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Friday, March 4

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 9:00 AM
CD25  Getting Your Work Published and Achieving the Highest Impact
Moderator: Fares S. Haddad, FRCS, London, United Kingdom
Charles Clark, MD, Iowa City, IA
Seth S. Leopold, MD, Seattle, WA
Gareth Scott, FRCS, Brentwood, United Kingdom

Offers a good understanding of the peer review process and its importance in scientific journals, provides key information on best practices and how to optimize papers for publication, and gives insight into how to review papers including a section on identifying research fraud.

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 10:00 AM
401  Periprosthetic Fractures Around the Hip and Knee: Contemporary Techniques of Internal Fixation and Revision
Moderator: Frank A. Liporace, MD, Englewood Cliffs, NJ
Erik Kubla, MD, Salt Lake City, UT
Brett R. Levine, MD, Elmhurst, IL
Samir Mehta, MD, Philadelphia, PA

Contemporary indications and techniques of internal fixation and revision for periprosthetic fractures around total hip and total knee arthroplasty are presented.

402  Techniques in Revision Total Knee Replacement
Moderator: Arlen D. Hanssen, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
David Backstein, MD, Toronto, ON, Canada
James I. Huddleston, MD, Redwood City, CA

Lectures utilize video segments to describe surgical exposures, implant removal, prosthesis constraint, extensor mechanism reconstruction, bone defects, antibiotic spacers, and other surgical tips and techniques.

403  Management of Common Complications of Foot and Ankle Surgery
Moderator: Mark E. Easley, MD, Durham, NC
Mark S. Myerson, MD, Indianapolis, IN
Selene G. Parekh, MBA, MD, Cary, NC
Steven M. Raikin, MD, Philadelphia, PA

Covers common errors in decision making and surgical reconstruction of the foot and ankle. Techniques for revision surgery, reconstruction, and salvage of these deformities are presented in a case-based approach with an emphasis on video techniques.

404  Adopting New Techniques and Technologies: Learning Curve in Orthopaedics
Moderator: Paul E. Beaule, MD, Ottawa, ON, Canada
Wade T. Gofton, BSCH, MD, Ottawa, ON, Canada
Mobit Bhandari, MD, PhD, Hamilton, ON, Canada
Richard De Steiger, MD, Richmond, Australia

It has been suggested that within 10 years of graduation, a surgeon needs to acquire a complete set of new skills. This course reviews what an appropriate learning curve is to incorporate a particular technique into practice, as well as how to optimize it using evidence-based medicine.

405  Infections of the Upper Extremity – New Developments and Challenges
Moderator: Peter J. Jebson, MD, Grand Rapids, MI
Douglas R. Osman, MD, Rochester, MN
Apurva Shah, MD, MBA, Philadelphia, PA
Robert W. Wysocki, MD, Chicago, IL

We review the role of the infectious disease consultant with an emphasis on serological testing, diagnostic workup, and microbiological analysis. Through illustrative case examples, we discuss the key clinical features and treatment of necrotizing fasciitis, mucormycosis, and infections caused by mycobacteria and Vibrio species.

406  Problems and Procedures in Pediatric Trauma
Moderator: Steven L. Frick, MD, Orlando, FL
Matthew A. Halanski, MD, Madison, WI
Christopher A. Iobst, MD, Winter Park, FL
Susan A. Scherl, MD, Omaha, NE

Case presentations of pediatric trauma and complications guide audience response and discussion. Technical methodology is provided as a tool for treatment of challenging trauma.

408  Navigating the Research in Rotator Cuff Disease: An Evidence-Based Approach to Improved Patient Outcomes
Moderator: ChunBong B. Ma, MD, San Francisco, CA
Brian T. Feeley, MD, San Francisco, CA
Jay D. Keener, MD, Saint Louis, MO
John E. Kuhn, MD, Nashville, TN

Presents a summary of all the best evidence research over the past five years on the management of rotator cuff disease. Participants learn about the clinical outcomes, operative and nonoperative management, and basic science studies regarding rotator cuff diseases.
Friday, March 4

409  Realignment Planning in Adult Spinal Deformity: The Newest Tools, Formulas, and Techniques to Get it Right
Moderator: Robert S. Bess, MD, Castle Rock, CO
Christopher Ames, MD, San Francisco, CA
Michael P. Kelly, MD, Saint Louis, MO
Themistocles S. Protopsaltis, MD, New York, NY

Covers the treatment of adult spinal deformity and focuses on clinical data and new tools to help improve surgical planning, outcomes, and avoid complications.

410  Surgical Management of Patellar Instability
Moderator: Shital N. Parikh, MD, Cincinnati, OH
David Dejour, MD, Lyon, France
John P. Fulkerson, MD, Farmington, CT
Robert A. Teitge, MD, Dearborn, MI

Focuses on a step-wise approach to the surgical treatment of patellar stabilization addressing each contributing factor.

411  New Paradigms in the Throwing Shoulder
Moderator: John D. Kelly, MD, Newtown Square, PA
W. Benjamin Kibler, MD, Lexington, KY
Craig D. Morgan, MD, Wilmington, DE
Brian J. Sennett, MD, Philadelphia, PA

Delves into the latest scientific research regarding the causation and mechanisms involved in injury to the throwing shoulder. The role of the scapula, GIRD, retroversion, and kinetic chain are addressed. The most contemporary and efficient means of resolving labral, cuff, and capsular lesions are developed with particular attention paid to the rotator interval capsule.

412  Open Fractures – Principles of Management
Moderator: Michael J. Patzakis, MD, San Marino, CA
L. Scott Levin, MD, Philadelphia, PA
Randall E. Marcus, MD, Cleveland, OH
Charalampos Zalavras, MD, Los Angeles, CA

Offers a comprehensive approach to the management of open fractures emphasizing principles and evidence-based practices. Areas covered include antibiotic therapy and prevention of infection. Debridement and wound management options are presented. Fracture stabilization guidelines and techniques are discussed. Promotion of fracture healing options are reviewed.

413  Extreme Nailing: Tips and Tricks from the Experts
Moderator: George J. Haidukewych, MD, Orlando, FL
Daniel S. Horwitz, MD, Danville, PA
Joshua Langford, MD, Orlando, FL

Focuses on fractures commonly encountered by the practicing surgeon that can be challenging to nail. Subtrochanteric, distal femur, proximal tibia, and distal tibia are covered in a “how I do it?” video presentation followed by a “key points” slide presentation and discussion. Videos are intense.

481  Managing Complex Problems in Lumbar Spinal Stenosis
Moderator: Christopher G. Furey, MD, Cleveland, OH
Paul A. Anderson, MD, Madison, WI
John P. Birkedal, MD, Winston-Salem, NC
Gregory D. Carlson, MD, Santa Ana, CA
Kingsley R. Chin, MD, Fort Lauderdale, FL
John A. Davis Jr., MD, New Orleans, LA
Sanford E. Emery, MD, MBA, Morgantown, WV
Russel C. Huang, MD, New York, NY
Timothy A. Moore, MD, Shaker Heights, OH
Sheeraz Qureshi, MD, New York, NY
Joseph D. Smucker, MD, Carmel, IN
Jung U. Yoo, MD, Portland, OR

Reviews of treatment strategies for complex cases of spinal stenosis, including recurrent stenosis, degenerative scoliosis, thoracolumbar stenosis, and the elderly, compromised patient. The course appeals to those who treat patients whose conditions are not always “garden variety.”

482  How to Avoid Complications in Reverse Shoulder Arthroplasty
Moderator: David M. Dines, MD, Uniondale, NY
George S. Athwal, MD, London, ON, Canada
Pascal Boileau, MD, Nice, France
Wayne Z. Burkhead Jr, MD, Dallas, TX
Edward V. Craig, MD, New York, NY
Joshua S. Dines, MD, New York, NY
Thomas B. Edwards, MD, Houston, TX
Mark A. Frankle, MD, Temple Terrace, FL
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Tom R. Norris, MD, San Francisco, CA
Thomas (Quin) Throckmorton, MD, Germantown, TN

As indications for the use of reverse total shoulder arthroplasty have increased, the use of this technology has become more widespread among practitioners. Will present current concepts in the diagnosis, treatment, and prevention of complications in a case presentation format; directed to both less and more experienced surgeons.
Friday, March 4

PAPER PRESENTATION

Friday, March 4

8:00 AM — 10:00 AM
Valencia Room D

Adult Reconstruction Hip VI: Pain/ Fractures/ Miscellaneous
Moderator(s): Paul E. Beaulé, MD, Ottawa, ON, Canada, Richard W. McCalden, MD, London, ON, Canada

8:00 AM  Paper 691

Eff cacy of Preoperative Lumbar Plexus Block in Pain Management and Opioid Consumption after Total Hip Arthroplasty
Cristina Suarez, MD, Bogotá, Colombia
Rafael E. Perez, MD, Bogota DC, Colombia
Antonio Bonilla, MD, Bogota, Colombia
Omar A. Amado, MD, Bogotá, Colombia
Mauricio M. Afa SR, Bogota, Colombia
Javier E. Cubillos, Bogota, Colombia
Ginna M. Moreno, MD, Bogotá, Cundinamarca, Colombia

Performance of a preoperative single lumbar plexus block would reduce postoperative pain and opioid consumption during the first 48 postoperative hours.

8:06 AM  Paper 692

Long-acting Opioid Use Independently Predicts Perioperative Complication in Total Joint Arthroplasty
David Sing, San Francisco, CA
Jeffrey Barry, MD, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Erik N. Hansen, MD, San Francisco, CA

Opioid use prior to primary total joint arthroplasty signif cantly increases in-hospital opioid use and perioperative complications. Alternative pain options may benef t opioid-tolerant patients.

8:12 AM  Paper 693

Persistent Opioid Use as an Early Indication of Total Hip Arthroplasty Failure
Robert S. Namba, MD, Corona Del Mar, CA
Maria C. Inacio, PhD, Adelaide, Australia
Nicole Pratt, PhD, Adelaide, Australia
Stephen Graves, MD, Adelaide, Australia
Elizabeth E. Roughhead, PhD, Adelaide, Australia
Craig T. Cheetham, MD, Pasadena, CA
Liz Paxton, MA, Rcho Santa Fe, CA

Persistent opioid use after THA was evaluated. Use of 100 mg OME, or more, after the initial 90 day postoperative period was associated with an increased risk of revision.

Discussion – 6 Minutes

8:24 AM  Paper 694

Pre-operative Reduction of Opioid Use Prior to Total Joint Arthroplasty
Long-Co Nguyen, BA, BS, San Francisco, CA
David Sing, San Francisco, CA
Kevin J. Bozic, MD, MBA, Austin, TX

Opioids who tapered their dose prior to total joint replacement surgery achieved signif cantly improved patient-reported outcomes compared to those who did not taper.

8:30 AM  Paper 695

The Effect of Total Hip Replacement on the Non-operated Lower Extremity Joints
Kristi Collins, PA-C, Lewisburg, PA
Thomas R. Bowen, MD, Danville, PA
Edgardo Parrilla, BS, Danville, PA
Patricia Franklin, MD, MBA, Worcester, MA
Celeste Lemay, RN, MPH, Worcester, MA
Elie S. Ghannem, MD, Danville, PA

Patients who undergo THA achieve pain improvement in their non-operated hip or knees in addition to the pain relief they obtain from their operated hip.

8:36 AM  Paper 696

The Incidence and Location of Pain in Young, Active Patients Following Hip Arthroplasty
Denis Nam, MD, St Louis, MO
Denis Nam, MD, St Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Timothy J. Sauber, MD, Wexford, PA
Staci Johnson, M.Ed, Saint Louis, MO
Peter J. Brooks, MD, Gates Mills, OH
Robert L. Barrack, MD, Saint Louis, MO

A signif cant proportion (40%) of young, active patients experience persistent pain following total hip and surface replacement arthroplasty, despite the presence of well-f xed components.

Discussion – 6 Minutes

8:48 AM  Paper 697

Medicare Payments for THA Create a Financial Incentive Favoring Low-risk Patients
R Carter Clement, MD, MBA, Chapel Hill, NC
Adrianne Soo, BS, Chapel Hill, NC
Michael M. Kheir, BS, Philadelphia, PA
Peter Derman, MD, MBA, New York, NY
David N. Flynn, MD, MBA, Philadelphia, PA
L S. Levin, MD, FACS, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Medicare reimbursement is higher for THA patients with elevated ASA Scores but is not enough to compensate for their higher costs, thus potentially creating incentives against these high-risk patients.
FRIDAY, MARCH 4

8:54 AM Paper 698
Should All Patients Be Included in Alternative Payment Models For Primary THA and TKA?
Joshua C. Rozell, MD, Philadelphia, PA
Paul M. Courtney, MD, Philadelphia, PA
Jonathan R. Dattilo, MD, Philadelphia, PA
Chia H. Wu, MD, MBA, Philadelphia, PA
Gwo-Chin Lee, MD, Philadelphia, PA

CKD and COPD are independent risk factors for increased length of stay and readmissions following primary total joint arthroplasty. The CCI showed strong correlation with LOS and readmissions.

9:00 AM Paper 699
How will the Financial Incentive to Provide THA For High-risk Patients Change with Bundled Payments?
R Carter Clement, MD, MBA, Chapel Hill, NC
Michael M. Kheir, BS, Philadelphia, PA
Adrienne Soo, BS, Chapel Hill, NC
Peter Derman, MD, MBA, New York, NY
David N. Flynn, MD, MBA, Philadelphia, PA
L S. Levin, MD, FACS, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Major complications after THA (which are predicted by ASA score) are well compensated by Medicare but not by bundled payments without risk adjustment, which may incentivize against high-risk patients.

9:12 AM Paper 700
Young Patients with Hematological Malignancy or Lymphoma Have High Risk For Total Joint Arthroplasty
Tuukka T. Niinimaki, MD, PhD, Oulu, Finland
Arja Harila-Saari, M.D., Ph.D., Stockholm, Sweden
Pasi Ohtonen, MSc, Oulu, Finland
Riitta Niinimäki, MD, Oulu, Finland

Lympho-hematological malignancies may cause osteonecrosis. In population-based study, patients less than 35 years of age treated for cancer had a 45-fold risk of total joint arthroplasty.

9:18 AM Paper 701
Adipose-derived MSCs Are Phenotypically Superior for Regeneration in Osteonecrosis
Cody Wyles, BS, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Atta Behfar, MD, PhD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

aMSCs outperform bMSCs in growth rate and bone differentiation potential in the setting of osteonecrosis, suggesting they may be a more potent regenerative therapeutic strategy in this population.

9:24 AM Paper 702
Societal Cost Savings of Total Hip Arthroplasty: A Markov Analysis
Andrew Locy, MD, MS, New York, NY
Aakash Keswani, BA, New York, NY
Calin S. Moucha, MD, Livingston, NJ
Steven McAnany, MD, New York, NY

Total hip arthroplasty compared to nonsurgical treatment for severe hip OA results in a $176,248 societal cost savings over 20 years in a hypothetical employed 50 year old patient.

9:36 AM Paper 703
Hemiarthroplasty For Displaced Femoral Neck Fractures In The Elderly Has A Very Low Conversion Rate
Matthew Grosso, MD, New York, NY
Jonathan Danoff, MD, Englewood, NJ
Taylor Murtough, BS, New York, NY
David Trofa, MD, New York, NY
William B. Macaulay, MD, New York, NY

The cemented unipolar hemiarthroplasty performed for a femoral neck fracture in the elderly has a lower conversion rate to total hip arthroplasty compared to the younger patient population.

9:42 AM Paper 704
Total Hip Arthroplasty for Femoral Neck Fracture Versus Osteoarthritis: A Propensity-Matched Cohort Study
William W. Schairer, MD, New York, NY
Alexander S. McLawhorn, MD, MBA, New York, NY
Joseph M. Lane, MD, New York, NY
Douglas E. Paidgett, MD, New York, NY

This study evaluated the short-term outcomes for total hip arthroplasty for femoral neck fracture and osteoarthritis, using a propensity-score matched cohort.

9:48 AM Paper 705
Outcomes after Total Hip Arthroplasty for Posttraumatic Arthritis
Abram Bala, BA, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Thorsten M. Seyler, MD, PhD, Durham, NC
Richard C. Mather III, MD, Durham, NC
Samuel S. Wellman, MD, Durham, NC
Michael P. Bolognesi, MD, Durham, NC

Patients who receive total hip arthroplasty(THA) for posttraumatic arthritis are sicker and at higher risk for postoperative complications compared to those who receive THA for primary osteoarthritis.
Enzymatic Biofilm Prevention and Dispersal Using a Marine Endonuclease.
Andrea P. Nicolas, MD, Newcastle Upon Tyne, United Kingdom
Martin March, MD, Newcastle Upon Tyne, United Kingdom
Nithyalakshmy Rajarajan, PhD, Newcastle Upon Tyne, United Kingdom
Nicholas S. Jakubovics, PhD, Newcastle Upon Tyne, United Kingdom
James G. Burgess, Professor, Newcastle Upon Tyne, United Kingdom
Mike Reed, MD, Northumberland, UK

Prosthetic joint infection (PJI) is commonly associated with biofilm formation. Prevention and disruption of established biofilms may allow more effective treatment. NucB is a novel endonuclease which degrades extracellular DNA, a structural biofilm component. The aim was to demonstrate the prevention of formation and dispersal of biofilms of clinical isolates of Staphylococcus aureus and S. epidermidis, and to quantify enzyme activity against biofilms attached to surgically relevant metals (titanium and cobalt chrome).

Discussion – 6 Minutes

Recurrent Anterior Shoulder Instability with Combined Bone Loss: Results with the Modified Latarjet Procedure
Justin Yang, MD, Farmington, CT
Augustus D. Mazzocca, MD, MS, Farmington, CT
Mark Cote, PT, Farmington, CT
Cory Edgar, MD, PhD, West Hartford, CT
Robert A. Arciero, MD, Farmington, CT

The modified Latarjet procedure provides satisfactory outcomes for patients with combined bone loss and pathology known to have high recurrence rates with traditional arthroscopic stabilization.

Discussion – 6 Minutes

Recurrence instability after arthroscopic Bankart Reconstruction: Metaanalysis of Surgical Technical Factors
Aman Dhawan, MD, Hummelstown, PA
Shane Rothermel, BS, Lebanon, PA
Landon Brown, MD, Hershey, PA

We present our systematic review and metaanalysis of surgical technical factors that increase the risk of recurrent glenohumeral instability after arthroscopic bankart reconstruction.

Discussion – 6 Minutes

Analysis of Anchor Placement for Bankart Repair: Trans-subscapularis versus Inferior Rotator Interval Portal
Ehsan Jazini, MD, Indianapolis, IN
Brian Shiu, MD, Indianapolis, IN
R Frank Henn III, MD, Ellicott City, MD
Syed A. Hasan, MD, Indianapolis, IN
Ehsan Jazini, MD, Indianapolis, IN

Suture anchor placement through the trans-subscapularis portal translates into decreased glenoid perforation at the 5:30 position as compared to the anterior inferior interval portal.

Discussion – 6 Minutes

The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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8:48 AM  Paper 712
Platelet-Rich Plasma in Arthroscopic Rotator Cuff Repair - A Systematic Review of Overlapping Meta-Analyses
Bryan M. Saltzman, MD, Chicago, IL
Akshay Jain, Oak Brook, IL
Kirk A. Campbell, MD, New York, NY
Randhir Mascarenhas, MD, Winnipeg, MB, Canada
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL

The current highest level of evidence suggests PRP use at the time of arthroscopic rotator cuff repair surgery does not universally improve re-tear rates or affect clinical outcome scores.

8:54 AM  Paper 713
Interposition Porcine Dermal Matrix Xenografts: An Alternative To Traditional Treatment Of Massive Cuff Tears
Julie A. Neumann, MD, Durham, NC
Kathleen D. Reay, MD, Durham, NC
Miltiadis H. Zgonis, MD, Philadelphia, PA
Stephanie W. Mayer, MD, Aurora, CO
Blake Boggess, DO, Durham, NC
Alison P. Toth, MD, Durham, NC

As interposition grafts, porcine dermal matrix xenografts hold great promise in repair of massive cuff tears showing significant improvement in pain, range of motion, strength and subjective function.

9:00 AM  Paper 714
A prospective trial of Interscalene Nerve Block versus Suprascapular Nerve Block in outpatient rotator cuff repair
Michael F. Shepard, MD, Orange, CA
Russell S. Petrie, MD, Newport Beach, CA
Akil P. Simon, MD, Irvine, CA
Dennis Cummings, MD, Irvine, CA
Robert C. Grumet, MD, Orange, CA

This prospective, randomized study was performed to compare the efficacy of a suprascapular nerve block versus an interscalene nerve block in 104, outpatient rotator cuff surgeries.

9:12 AM  Paper 715
Conservative Treatment For Ulnar Neuritis Around The Elbow In Adolescent Baseball Players
Masahiro Maruyama, MD, Yamagata City, Japan
Hiroshi Satake, MD, PhD, Yamagata, Japan
Nariyuki Mura, Yamagata, Japan
Mikio Harada, Sendai, Japan
Tomohiro Uno, MD, Yamagata, Japan
Masatoshi Takahara, MD, PhD, Sendai, Japan
Michiaki Takagi, MD, PhD, Yamagata, Japan

Hand numbness on the ulnar side, ulnar nerve subluxation, and UCL injury are indications of poor outcomes following conservative treatment for ulnar neuritis.

9:18 AM  Paper 716
A National and Statewide Analysis of Elbow Arthroscopy
Evan O’Donnell, MD, New York, NY
Mark A. Vitale, MD, MPH, Greenwich, CT
Christopher S. Ahmad, MD, New York, NY

This study is first to identify national and statewide trends in elbow arthroscopy, the growth in utilization, broadening indications, and concurrent ulnar nerve transposition over recent years.

9:24 AM  Paper 717
Cost-Effectiveness of Revision Arthroscopic Repair vs Latarjet in Recurrent Instability Following Initial Repair
Eric C. Makhni, MD, MBA, New York, NY
Nayan Lamba, Ashburn, VA
Michael Steinhaus, MD, New York, NY
Erin F. Swart, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY
Anthony A. Romeo, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL

Latarjet procedure for failed instability repair presents as a dominant cost-effective treatment option when compared to revision arthroscopic instability repair.

9:36 AM  Paper 718
Direct Cost Analysis of Outpatient Arthroscopic Rotator Cuff Repair
Steven J. Narvy, MD, Los Angeles, CA
Avtar Ahluwalia, MBA, Los Angeles, CA
C Thomas Vangsness Jr, MD, Los Angeles, CA

The purpose of this study was to calculate the direct cost of arthroscopic rotator cuff repair. Using Time-Driven Activity Based Costing, we determined the cost to be $5904.21 for the cycle of care.

9:42 AM  Paper 719
Systematic Review of Rotator Cuff Retear Rates after Arthroscopic Single Row, Double Row, and Suture Bridge Repair
Jonathan S. Chae, MD, Royal Oak, MI
Jordan Reilly, BS, MS, Novi, MI
Joel E. Hein, MD, Green Bay, WI
Tristan Maerz, PhD, Royal Oak, MI
Kyle Anderson, MD, Southfield, MI

In a systematic review of 2048 total repairs, double-row and suture bridge rotator cuff repair techniques had a lower incidence of retears in most tear size categories at 1 year of imaging follow up.
Partial thickness articular sided rotator cuff tears involving the rotator cable leads to increased anterior, inferior, and total glenohumeral translation in our cadaveric biomechanical model.

Discussion – 6 Minutes

8:24 AM  Paper 724
Impact of Delay to Surgery Greater than 6 Months on Deformity in Adolescent Idiopathic Scoliosis Patients
Brandon A. Ramo, MD, Dallas, TX
Dong-Phuong Tran, MS, Dallas, TX
Sumeet Garg, MD, Aurora, CO
Casey C. Erickson, MD, Aurora, CO
Kevin E. Rathjen, MD, Dallas, TX
Anil Reddy, BS, El Paso, TX
Cameron R. Nishwanter, BA, Aurora, CO
Kaitlyn Brown, B.S., Dallas, TX
Chun-Hee Jo, PhD, Dallas, TX

Delay to surgery greater than 6 months in Risser 0 and premenarchal AIS patients leads to significant curve progression which may increase surgical fusion levels.

8:30 AM  Paper 725
Post Operative Radiological Changes And Developing Proximal Junctional Kyphosis
Faisal M. Konbaz, MBBS, Indianapolis, IN
Alim Ramji, BS, Indianapolis, IN
Anil Jain, MD, Indianapolis, IN
Brian J. Neuman, MD, Indianapolis, IN

Post operative changes in the lumbar lordosis and the proximal junctional angle are risk factor for developing proximal junctional kyphosis

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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8:36 AM  Paper 726
Preoperative Irradiation Increases Perioperative Complications Of Total En Bloc Spondylectomy
Noriaki Yokogawa, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Noritaka Yonezawa, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Total en bloc spondylectomy in a previously irradiated field carries increased risk of perioperative complications.

9:00 AM  Paper 729
Relationship between Size of Disc and Postoperative Functional Outcomes after Lumbar Discectomy
Derick C. En’Wezoh, BS, Kennewick, WA
Dana A. Leonard, BA, Boston, MA
Jay M. Zampini, MD, Philadelphia, PA
Mitchel B. Harris, MD, Boston, MA
Christopher M. Bono, MD, Boston, MA

The “6 mm Rule” as is could not be externally validated in the current patient cohort. However, size of the DH does seem to influence outcomes in some ways.

8:48 AM  Paper 727
Selective Thoracic Fusion of a Left Decompensated Main Thoracic Curve: Proceed with Caution?
Burt Yaszay, MD, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Carrie Bartley, MA, San Diego, CA
Sukhan A. Shah, MD, Wilmington, DE
Baron Lonner, MD, New York, NY
Jahangir Asghar, MD, Coral Gables, FL
Firoz Miyanji, MD, Vancouver, BC, Canada
Patrick J. Cahill, MD, Philadelphia, PA
Peter O. Newton, MD, San Diego, CA

STF for right main thoracic curves decompensated to the left resulted in a high rate of postop decompensation (41%). Patients balanced postop had greater thoracic curve correction and higher SLCC.

8:54 AM  Paper 728
Does Intrawound Vancomycin Decrease the Risk of Surgical Site Infection after Spine Surgery? - A Multicenter Study
Clinton J. Devlin, MD, Nashville, TN
Alexander Vaccaro, MD, PhD, Philadelphia, PA
Matthew McGirt, Charlotte, NC
Silky Chotai, Nashville, TN
Jim A. Youssif, MD, Durango, CO
Douglas G. Orndorff, MD, Durango, CO
Paul M. Arnold, MD, FACS, Kansas City, KS
Anthony Frempeng-Boadu, MD, New York, NY
Isador H. Lieberman, MD, MBA, Plano, TX

Intrawound application of vancomycin after elective spine surgery was associated with reduced risk of SSI and return to OR associated with SSI, even after controlling for confounding variables.

9:12 AM  Paper 730
Magnetically-Controlled Growing Rods for Early Onset Scoliosis: A study of 23 cases with 2 years follow-up
Pooria Hosseini, MD, MSc, Moreno Valley, CA
Jeff Pawelek, La Jolla, CA
Gregory M. Mundis, MD, San Diego, CA
Burt Yaszay, MD, San Diego, CA
John A. Ferguson, FRACS, Auckland, New Zealand
Ilkka J. Helenius, MD, Turku, Finland
Kenneth M. Cheung, MD, Sandy Bay, Hong Kong
Behrooz A. Akbarnia, MD, San Diego, CA

MCGR is safe and effective method in primary cases. Conversion cases had slight decline in their thoracic height after 2 years, however these declines were not statistically significant.

9:18 AM  Paper 731
5-Year Reoperation Risk and Causes for Revision after Idiopathic Scoliosis Surgery
Syed I. Ahmed, MD, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Burt Yaszay, MD, San Diego, CA
Peter O. Newton, MD, San Diego, CA

For 1435 idiopathic scoliosis surgical patients, the actuarial cumulative 5 year survivorship (no revision) rate was 93.9%.

9:24 AM  Paper 732
Spinal Dural Arteriovenous Fistula: A Case Series and Review of Imaging Findings
Shandy Fox, MD, Saskatoon, SK, Canada
Luke Hnenny, MD, FRSC, Regina, SK, Canada
Michael Kelly, MD, PhD, Saskatoon, SK, Canada

Spinal arteriovenous fistulae are rare lesions often mistaken as stenosis with progressive myelopathy. Surgical ligation can halt progression and improve function. Diagnosis is key to patient success.
Results of Database Studies in Spine Surgery Can Be Significantly Affected by Missing Data
Bryce A. Basques, MD, Chicago, IL
Andre Samuel, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Adam Lukasiewicz, MSc, New Haven, CT
Daniel D. Bobl, MD, MPH, Chicago, IL
Junyoung Ahn, BS, Chicago, IL
Kern Singh, MD, Chicago, IL
Jonathan N. Grauer, MD, New Haven, CT
This study reports the rates of missing data for spine surgery patients from a commonly used national database and found that study results can vary greatly based on the treatment of missing data.

Risk Factors And Predictive Potential Of Haemostatic Biomarkers For Venous Thromboembolism After Spine Surgery
Katsuhito Yoshioka, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Noritaka Yonezawa, Kanazawa, Japan
Naoki Takahashi, MD, Kanazawa-Shi, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
This is the first prospective comparative study to demonstrate the incidence and identify the risk factors of venous thromboembolism after spine surgery.

Rod Fracture and Lengthening Intervals in Traditional Growing Rods: Is There a Relationship?
Pooria Hosseini, MD, MSc, San Diego, CA
Jeff Pawelek, La Jolla, CA
Stacie Nguyen, MPH, La Jolla, CA
George H. Thompson, MD, Cleveland, OH
Suken A. Shah, MD, Wilmington, DE
John M. Flynn, MD, Philadelphia, PA
John P. Dormans, MD, Houston, TX
Behrooz A. Akbarnia, MD, San Diego, CA
Growing Spine Study Group, Milwaukee, WI
The current clinical study did not support the finite element analysis findings showing shorter lengthening intervals result in lower incidence of rod fracture in traditional growing rods.

Sohail Youssaf, MRCS, Surrey, United Kingdom
Shahmawz Haleem, MBBS, Dartford, United Kingdom
Mohamed Zbaeda, London, United Kingdom
Henry Willmott, Dorset, United Kingdom
Clinicians often rely on talar shift to evaluate stability after ankle fractures, however SER fractures may present with a deep deltoid injury that is not apparent on the initial radiographs.

Radiographic Assessment of Fibular Length Variance: The Case for the ‘Fibula - Minus’
Vinod K. Panchbhavi, MD, FACS, Galveston, TX
Barkha N. Gurbani, MD, Galveston, TX
The distal tip of the fibula is most commonly not at the level of talus lateral process as commonly described.

Intra-articular Findings Identifed by Arthroscopy in the Setting of Acute Ankle Fractures
Thomas Sherman, MD, Washington, Dist. of Columbia
Eric Cotter, BS, Washington, Dist. of Columbia
John W. Lally, BS, Washington, Dist. of Columbia
Francis X. McGuigan, MD, Washington, Dist. of Columbia
Abnormal intra-articular findings are present in the majority of acute ankle fractures but cannot be accurately predicted by radiographic criteria or patient age.

Open Treatment of Ankle Fracture as an Inpatient Increases the Risk of A Complication
Frank Avilucea, MD, Salt Lake City, UT
Sarah Greenberg, BA, Nashville, TN
Paul S. Whiting, MD, Nashville, TN
Bassem Attium, MD, Prospect, KY
Amir A. Jahanpur, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN
Undergoing open treatment of an ankle fracture as an inpatient has two-fold increased odds of developing a complication within 30-days.
Friday, March 4

8:30 AM  Paper 740
Costs Associated with Geriatric Ankle Fractures: Operative versus Nonoperative Management
Rishin Kadakia, MD, Atlanta, GA
Briggs Ahearn, MD, Atlanta, GA
Raymond Y. Hsu, MD, Providence, RI
Shay A. Tenenbaum, MD, Hershey, PA
Yoojin Lee, Providence, RI
COL (ret) Roman A. Hayda, MD, Providence, RI
Vincent Mor, Providence, RI
Jason T. Bariteau, MD, Atlanta, GA

The annual inpatient costs of geriatric ankle fractures is approximately 185 million dollars with nearly 17% of these costs attributable to hospital readmissions within 90 days of discharge.

8:36 AM  Paper 741
Mortality Risk Associated with a Nursing Home Disposition following a Geriatric Ankle Fracture
Rishin Kadakia, MD, Atlanta, GA
Raymond Y. Hsu, MD, Providence, RI
Shay A. Tenenbaum, MD, Dallas, TX
Yoojin Lee, Providence, RI
COL (ret) Roman A. Hayda, MD, Providence, RI
Vincent Mor, Providence, RI
Jason T. Bariteau, MD, Atlanta, GA

Although nursing home admission following a geriatric ankle fracture is associated with increased complications, this disposition is not associated with increased mortality rates.

9:00 AM  Paper 744
Does Physical Therapy Predict Outcomes after Ankle Fractures and Ankle Fracture-Dislocations?
Chad Ferguson, MD, Charlotte, NC
Luke Harmer, MD, MPH, Rochester, MN
Rachel Seymour, PhD, Charlotte, NC
John K. Ellington, MD, Charlotte, NC
CAPT (ret) Michael J. Bosse, MD, Charlotte, NC

After ankle fractures and ankle fracture-dislocations, patients receiving supervised physical therapy produced a similar outcome to those under routine physician-directed rehabilitation.

9:12 AM  Paper 745
3D Quantification of Posterior Malleolar Fragment-Reduction Predicts Clinical Outcome in a Prospective Trial
Diederik T. Meijer, Amsterdam, Netherlands
Robert-Jan O. de Muinck Keizer, MD, Amsterdam, Netherlands
Bonheur Van Der Gronde, Amsterdam, Netherlands
Teun Teunis, MD, Amsterdam, Netherlands
Sjoerd Stufkens, MD, PhD, Amsterdam, Netherlands
Job N. Doornberg, MS, Amsterdam, Netherlands
Tim Schepers, MD, PhD, Amsterdam, Netherlands
Gino M. Kerkhoffs, MD, PhD, Amsterdam, Netherlands
J.C. Goslings, MD, PhD, Amsterdam, Netherlands

Contemporary measurements of postoperative joint congruity predict patient-reported outcome in posterior malleolar fractures.
Friday, March 4

9:18 AM  Paper 746
Open Ankle Fractures: What Predicts Infection?
Paul Torretta III, MD, Boston, MA
Margaret Cooke, MD, Boston, MA
Heather A. Vallier, MD, Cleveland, OH
Daniel S. Horwitz, MD, Danville, PA
Harish Kempegowda, MD, Danville, PA
Saam Morshed, MD, San Francisco, CA
Tigist Belaye, MA, San Francisco, CA
David C. Teague, MD, OK City, OK
Max Coale, BA, Indianapolis, IN

The purpose of this study was to identify the patient, injury, and treatment factors associated with infection of open ankle fractures in a large data set generated from individual chart reviews.

9:24 AM  Paper 747
Tibiof bular Screw Fixation For Syndesmotic Injury: To Retain Or Remove Before Weight Bearing?
Kwang Soon Song, MD, Daegu, Republic of Korea
Si Wook Lee SR, Daegu, Republic of Korea

Removal of the syndesmotic screws would be safe after diastasis healing.

Discussion – 6 Minutes

9:36 AM  Paper 748
Is Calcaneal Fracture Treatment Worth the Cost? A Cost Effectiveness Model of Four Treatment Methods
R Carter Clement, MD, MBA, Chapel Hill, NC
Pamela Lang, MD, Santa Monica, CA
Robert A. Overman, MPH, Chapel Hill, NC
Robert F. Ostrum, MD, Chapel Hill, NC
Joshua N. Tennant, MD, Chapel Hill, NC

Cost effectiveness analysis comparing four management strategies for a displaced intraarticular calcaneus fracture in a 40-year-old laborer favors primary subtalar arthrodesis.

9:42 AM  Paper 749
The Evaluation of Traditional Fixation vs Suture-Mini Plate Reduction of the Ankle Syndesmosis.
Edward Jung, MD, Berkley, MI
Andrew G. Georgiadis, MD, Philadelphia, PA
Jonathan Ben-ze’Ev, Huntington Woods, MI
Wayne T. North, MD, Berkley, MI
David A. Katcherian, MD, Plymouth, MI

This study aims to compare the clinical outcomes of patients treated with the method of suture-mini plate fixation of the distal tibia fibular joint with traditional methods of syndesmotic fixation.

9:48 AM  Paper 750
Strength of Syndesmosis Fixation: Two TightRope Versus One Tightrope with Plate-and-Screw Construct
Justin Tsai, MD, New York, NY
Bhavveen H. Kapadia, MD, Indianapolis, IN
Westley Hayes, MS, Brooklyn, NY
Marlon McLeod, BS, Jamaica, NY
Robert Pieive, MD, Brooklyn, NY
Julio J. Jauregui, Indianapolis, IN
Jaime A. Uribe, MD, Albertson, NY

The similar load to failure of the two TightRope and the one TightRope and plate-and-screw plate implies similar stiffness between the two constructs.

Discussion – 6 Minutes

INSTRUCTIONAL COURSE LECTURE
9:30 AM — 10:30 AM
Room W209B
CD26  Social Media and Orthopaedics: Opportunities and Challenges
Moderator: Naven Duggal, MD, Manlius, NY
Ira H. Kirschenbaum, Bronx, NY
J. Martin Leland III, MD, Cleveland, OH
Lance M. Silverman, MD, Edina, MN

Social media is an emerging modality that can be viewed as a chance to update our approach to interacting with patients, data, and each other in important new ways. However, careful attention regarding patient privacy, liability, and HIPPA violations is required by the orthopaedist interested in utilizing this technology. With mindful use of social media, we are able to leverage our positions as trusted community leaders to create and nurture a much larger community.
Symposium
10:30 AM — 12:30 PM
Chapin Theater
Outcomes Metrics Symposium for Total Joint Arthroplasty (AA)
Moderator: Adam Rana, MD, Falmouth, ME
The Patient Protection and Affordable Care Act has created several new Medicare programs. This symposium reports the learned experience of those who have been involved in developing and implementing quality metric strategies at the hospital level through the national level.

I. Where Do We Stand Regarding Risk Adjustment for Patient Specific Comorbidities when Evaluating PROMs: The FORCE-TJR Experience
   David C. Ayers, MD, Worcester, MA

II. What Quality Metrics is My Hospital Being Evaluated on and What Penalties are They Subject To?
   Kevin J. Bozic, MD, MBA, Austin, TX

III. Now That My Group Has a System for Collecting PROMs, Who Audits it and Will I Ever Recover My Initial Investment Dollars?
   Mark I. Froimson, MD, Hunting Valley, OH

IV. Building the AJRR and Incorporating PROMs: The Past, Present and Future
   David G. Lewallen, MD, Rochester, MN

V. The PROM Runway; Getting It To Fly
   Adolph J. Yates, MD, Pittsburgh, PA

Symposium
10:30 AM — 12:30 PM
Valencia Room B
Shoulder Arthroplasty: What to Do When Things Go Bad – Managing Complications (BB)
Moderator: Scott P. Steinmann, MD, Rochester, MN
Addresses the main complications that can be seen in the postoperative period. Work-up of the painful arthroplasty, dislocation and instability of the anatomic or reverse implant, and diagnosis and treatment of infection are addressed. Additionally, glenoid sided failure, scapular, and periprosthetic fractures are discussed. Finally neurologic issues related to the surgical procedure are addressed.

I. Is Notching a Complication of Reverse Arthroplasty
   George S. Athwal, MD, London, ON, Canada

II. Glenoid Failure in Reverse Shoulder Arthroplasty
   Pascal Boileau, MD, Nice, France

III. Scapular Spine Fractures
   Lynn A. Crosby, MD, Augusta, GA

IV. Painful Reverse Shoulder Arthroplasty
   Mark A. Frankle, MD, Temple Terrace, FL

V. Periprosthetic Fractures in Shoulder Arthroplasty
   Frank Gohlke, MD, Wuerzburg, Germany

VI. Nerve Injury After Shoulder Arthroplasty
   Laurent Lafosse, MD, Annecy, France

VII. The Unstable Anatomic Shoulder Arthroplasty
   Joaquin Sanchez-Sotelo, MD, Rochester, MN

VIII. Work-up of the Infected Arthroplasty
   John W. Sperling, MD, MBA, Rochester, MN

Symposium
10:30 AM — 12:30 PM
Valencia Room A
Residency Core Competencies (CC)
Moderator: James R. Ficke, MD, Baltimore, MD
This special educational event has been developed especially for residents. Core competencies required for completion of an orthopaedic residency program will be presented. This highly interactive session is webcast live to Resident programs and the remote audience is encouraged to submit questions via Twitter, @AAOSPearls.

I. Patient Communication / Giving Feedback
   David A. Halsey, MD, South Burlington, VT

II. Interpersonal Skills and Communication
   Harpal S. Khanuja, MD, Cockeysville, MD

III. Patient Safety
   William J. Robb III, MD, Winnetka, IL

IV. Fatigue Management
   COL Daniel W. White, MD, Casper, WY

INSTRUCTIONAL COURSE LECTURE
10:30 AM — 12:30 PM
421 ABCs of Planning a Knee Arthroplasty
Moderator: Carlos J. Lavermia, MD, Coral Gables, FL
Brian S. Parsley, MD, Bellaire, TX
Rafael J. Sierra, MD, Rochester, MN
Room W304E
Intended for general orthopaedists. It reviews basics steps necessary to minimize complications and optimize outcomes as well as a comprehensive review of medical/surgical knee arthroplasty planning and tools available to surgeons.

An alphabetical faculty financial disclosure list can be found starting on page 334.
Friday, March 4

**422 The Synovial Joint: Structure, Function, Injury and Repair, Osteoarthritis**  
*Room W205A*

Moderator: Joseph A. Buckwalter, MD, Iowa City, IA  
Alan J. Grodzinsky, PhD, Cambridge, MA

Offers a concise review of current understanding of the biology and biomechanics of articular cartilage and provides a basis for current understanding of osteoarthritis and cartilage repair. A basis for understanding current clinical approaches to providing biologic resurfacing of articular cartilage and restoration of synovial joint function also is covered.

**423 Surgical Treatment of Charcot Foot**  
*Room W308C*

Moderator: Michael S. Pinzur, MD, Maywood, IL  
Carroll P. Jones, MD, Charlotte, NC  
Jeremy J. McCormick, MD, Saint Louis, MO

There is an evidence-based appreciation that the deformity associated with Charcot Foot leads to poor clinical outcomes. This case-based course discusses the evidence-supported rationale for use of the new superconstruct internal fixation and static circular external fixation devices.

**424 An Orthopaedist's Introduction to the AMA Guides to Permanent Physical Impairment by Examples Using the 4th, 5th, and 6th Editions**  
*Room W308A*

Moderator: J. Mark Melborn, MD, Wichita, KS

The need for accurate impairment and disability evaluations continues to increase. This course is designed to select the most common musculoskeletal diagnoses and review how to evaluate and rate using the 4th, 5th, and 6th editions of the American Medical Association Guides.

**425 Contemporary Perspectives on Complex Fracture-Dislocations of the Wrist**  
*Room W307A*

Moderator: Jesse B. Jupiter, MD, Boston, MA  
Diego L. Fernandez, MD, Berne, Switzerland  
Fiesky A. Nunez, MD, VA, Venezuela, Republic of Bolivarian  
Alexander Yong Shik Shin, MD, Rochester, MN

Perilunate and fracture-dislocations about the wrist are a compendium of combined soft tissue and bony injuries which are challenging to recognize and effectively treat. The outcomes are often the result of a careful assessment and surgical management. This course is based around a series of case examples which highlight the variety of injury patterns, methods of clinical and radiological assessment, decision making regarding surgical management, and evidence-based presentation of outcomes and complications.

**426 Practical Guide to Avoiding and Managing Complications in Pediatric Spinal Deformity Surgery**  
*Room W310*

Moderator: Patrick J. Cahill, MD, Philadelphia, PA  
Baron Lonner, MD, New York, NY  
Suken A. Shah, MD, Wilmington, DE  
Burt Yaszay, MD, San Diego, CA

Addresses the complications of pediatric spinal deformity surgery and their management. The format covers the major categories of complications – neurologic injury, infection, loss of fixation and pseudarthrosis, and medical complications.

**427 Nontechnical Surgical Skills: What Are They; Why Do They Matter?**  
*Room W300*

Moderator: Dwight W. Burney III, MD, Albuquerque, NM  
Andrew W. Grose, MD, Sleepy Hollow, NY  
Mary I. O’Connor, MD, New Haven, CT  
John S. Webster, MD, MBA, La Mesa, CA  
Andrew M. Wong, MD, Tallahassee, FL

Nontechnical skills (communication, teamwork, leadership, situational awareness, decision making) are increasingly recognized as important in surgical outcomes. This course reviews current knowledge of the role of nontechnical skills in the successful care of the patient requiring orthopaedic surgery.

**428 Diagnosis and Treatment of the Biceps-Labral Complex: The State of the Art 2016**  
*Room W204*

Moderator: Anthony A. Romeo, MD, Chicago, IL  
James R. Andrews, MD, Gulf Breeze, FL  
Stephen F. Brockmeier, MD, Charlottesville, VA  
Nikhil N. Verma, MD, Chicago, IL

The anatomy of the biceps-labral complex is well understood, but the function and appropriate indications for treatment remain controversial. Recommendations are discussed and cases presented.

**429 Is it the Back or the Hip? Differentiating Lumbar Spine from Hip Pathologies: Key Points of Evaluation and Treatment**  
*Room W314*

Moderator: Afshin Razi, MD, New York, NY  
Aaron Buckland, FRACS, New York, NY  
Ryan G. Miyamoto, MD, Arlington, VA  
Rakesh Patel, MD, Ann Arbor, MI  
James D. Slover, MD, New York, NY

Focuses on the causes and overlapping clinical presentation of lumbar spine and hip pathology. Key diagnostic methods, clinical signs, and exam findings used to differentiate them, as well as common treatment options, are discussed.

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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*

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**430** Joint Preservation Techniques for the Knee in 2016: The Utility of Biologics, Osteotomies, and Cartilage Restoration Procedures
Moderator: Brian J. Cole, MD, MBA, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Andreas H. Gomoll, MD, Chestnut Hill, MA
Eric J. Strauss, MD, New York, NY

Provides a comprehensive overview of joint preservation techniques for the knee, including biologic and reconstructive approaches, with an emphasis on evidence-based treatment guidelines for young, high-demand patients.

**431** Current Plating Techniques and Definitive Treatment Options for Fractures of the Tibial Plafond and Treatment of the Late and Failed Pilon
Moderator: Gilbert R. Ortega, MD, MPH, Scottsdale, AZ
Animesh Agarwal, MD, San Antonio, TX
Samir Mehta, MD, Philadelphia, PA

Discusses staged treatment of tibial plafond fractures with an emphasis on modern plating techniques including standard and alternative operative approaches. It includes discussion on open treatment in combination with definitive external fixation and salvage of the late presentation and treatment failures.

**432** How Can I Get This Bone To Heal?
Moderator: Charalampos Zalavras, MD, Los Angeles, CA
Randall E. Marcus, MD, Cleveland, OH
John K. Sontich, MD, Cleveland, OH

Provides a comprehensive overview of (a) early interventions aiming to prevent nonunions and (b) evaluation and management of established nonunions. This enables participants to optimize care of fracture patients and improve outcomes.

**484** Personalized Approach to the Painful Aseptic Total Knee Arthroplasty
Moderator: Khaled J. Saleh, MD, MSc, Springfield, IL
David Backstein, MD, Toronto, ON, Canada
Michael E. Berend, MD, Indianapolis, IN
Mathias Bostrom, MD, New York, NY
Douglas A. Dennis, MD, Denver, CO
Stuart B. Goodman, MD, Redwood City, CA
William L. Griffin, MD, Charlotte, NC
William A. Jiranek, MD, Richmond, VA
William B. Macaulay, MD, New York, NY
William M. Mihalko, MD, PhD, Germantown, TN
Mark W. Pagnano, MD, Rochester, MN
Wayne G. Paprosky, MD, Winfield, IL
Javad Parvizi, MD, FRCS, Philadelphia, PA

By better understanding the classification, diagnosis, and treatment options for aseptic pain, orthopaedic surgeons may benefit their total knee arthroplasty patients through a greater understanding of this potentially debilitating complication.

**PAPER PRESENTATION**

**10:30 AM — 12:30 PM**
**Valencia Room D**

**Adult Reconstruction Knee VII: Miscellaneous**
Moderator(s): David A. Fisher, MD, Indianapolis, IN, Daniel J. Del Gaizo, MD, Chapel Hill, NC

**10:30 AM** Paper 751
Tranexamic Acid and Epsilon-Aminocaproic Acid to Reduce Blood Loss Following Total Knee Arthroplasty
Clifford K. Boese, MD, Council Bluffs, IA
Leslie Centeno, BA, Council Bluffs, IA
Marcia Weis, Council Bluffs, IA
Ryan Walters, MS, Omaha, NE
Rebecca Baker, RN, Council Bluffs, IA
Mark J. Harris, Council Bluffs, IA
Brian Cooley, MS, RN, Council Bluffs, IA
Theresa J. Gallo, PA-C, Council Bluffs, IA

This is a prospective, double-blind, randomized controlled trial comparing the antifibrinolytic effects of tranexamic acid and epsilon-aminocaproic acid in total knee arthroplasty.

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10:36 AM  Paper 752  Combined Intra-articular and Intravenous Tranexamic Acid Significantly Reduce Blood Loss in Knee Arthroplasty
Christian Skovgaard Nielsen, MD, Boston, MA
Oleivind Jans, MD, PhD, Copenhagen Ø, Denmark
Nicolai B. Foss, DMed, MD, Copenhagen, Denmark
Thue Oersnes, MD, Copenhagen, Denmark
Anders Troelsø, MD, PhD, Koege, Denmark
Henrik Husted, MD, Charlottenlund, Denmark

In this randomized clinical trial significantly reduced blood loss of 37% was found at 24 h and 2nd day with combined systemic and topical tranexamic acid versus systemic alone in knee replacement.

10:42 AM  Paper 753  Comparative Results with 3 Strategies to Use Tranexamic Acid for Blood Loss Reduction After Total Knee Arthroplasty
Sung Yup Lee, Seoul, Republic of Korea
Nimesh P. Jain, MBBS, MS, Mumbai, India
Suri Chong, Seong-Nam City, Republic of Korea
Sang Wook Lee, Seongnam, Republic of Korea
Seon Woo Lee, MD, Seongnam-si, Republic of Korea
Young Gon Na, MD, Seongnam-si, Republic of Korea
Gaurav Sharma, MBBS, MS (Ortho), New Delhi, India
Tae Kyun Kim, MD, Seongnam-si, Republic of Korea

It shows that the use of IA TNA administration reduces blood loss better than IV use only or similar to combined IV/IA TNA administrations.

10:54 AM  Paper 754  IV vs. Topical Tranexamic Acid in TKA: In a Randomized Clinical Trial of 600 Patients Both Effective
Matthew P. Abdel, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
Edwin P. Su, MD, New York, NY
Steven B. Haas, MD, New York, NY
Mark P. Figgie, MD, New York, NY
David Mayman, New York, NY

In this large randomized clinical trial of contemporary TKA, topical use of TA resulted in slightly higher blood loss but similar drain output and transfusion rates (<2%) compared to IV TA.

11:00 AM  Paper 755  Calculating the Cost and Risk of Comorbidities in Total Joint Arthroplasty in the United States
Joshua Hustedt, MD, Phoenix, AZ
Daniel D. Bohl, MD, MPH, Chicago, IL
James Fraser, MD, Phoenix, AZ
Nina J. Lara, MD, Phoenix, AZ
Alexander C. McLaren, MD, Phoenix, AZ
Mark J. Spangehl, MD, Scottsdale, AZ

This study characterizes the relationship between cost and risk of postoperative complications for common preoperative comorbidities in patients undergoing total joint arthroplasty.

11:06 AM  Paper 756  How will the Financial Impact of Major Medical Complications after TKA Change with Bundled Payments?
R Carter Clement, MD, MBA, Chapel Hill, NC
Michael M. Kheir, BS, Philadelphia, PA
Adrianne Soo, BS, Chapel Hill, NC
Peter Derman, MD, MBA, New York, NY
David N. Flynn, MD, MBA, Philadelphia, PA
L S. Levin, MD, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Major medical complications after TKA are well compensated by Medicare but not by bundled payments without risk adjustment, which may incentivize providers against patients they believe are high-risk.

11:18 AM  Paper 757  High Rates of Antibiotic Resistance in Early Periprosthetic Joint Infection
Saiprasad Ravi, Auckland, New Zealand
Mark Zhu, Auckland, New Zealand
Christopher Lucy, MBCHB, Auckland, New Zealand
Simon Young, MD, FRACS, Auckland, New Zealand

This retrospective audit of 4009 arthroplasties found that 58% of organisms causing early prosthetic joint infections are methicillin-resistant, empiric antibiotic treatment should account for this.

11:24 AM  Paper 758  Knee Arthroscopy vs Physiotherapy Alone for Meniscal Damage Complicated by Osteoarthritis
Ronald A. Navarro, MD, Rolling Hills, CA
Annette L. Adams, PhD, Pasadena, CA
John Fleming, MD, Torrance, CA
Ivan A. Garcia, MD, Baldwin Park, CA
Janet Lee, MS, Pasadena, CA
Mary Helen Black, MS, PhD, Pasadena, CA

For patients with meniscal damage complicated by OA, treatment with Knee Arthroscopy does not decrease risk for eventual knee replacement compared to PT-alone (did not “buy time”).
Friday, March 4

11:30 AM  Paper 759
Comparative Effectiveness Of Viscosupplement And Corticosteroid Injections For Knee Osteoarthritis
Jonathan R. Staples, MD, Saint Louis, MO
James A. Keeney, MD, Columbia, MO

Annualized viscosupplement cost was 5 times greater than successful corticosteroid injection (CSI). Disease progression following CSI was not observed, supporting preferential CSI use for knee OA.

Discussion – 6 Minutes

11:42 AM  Paper 760
Mohammed A. Al-Sobeai, MD, Montreal, QC, Canada
Laura M. Epure, Montreal, QC, Canada
Stephane Bergeron, MD, Kirkland, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
David Zukor, MD, Montreal, QC, Canada
John Antoniou, MD, FRCSC, Montreal, QC, Canada

Data from ACS-NSQIP were reviewed for Primary TKA to identify the effect of resident level on postoperative complications and we compared two different Health care systems, US versus Canada.

11:48 AM  Paper 761
Clinical And Radiologic Evaluation Of Medial Epicondylar Osteotomy For Severe Varus Tka
Jaegang Sim, MD, Incheon, Republic of Korea
Beom Koo Lee Sr, MD, Incheon City, Republic of Korea

From 2004 to 2012, 63 severe varus TKAs with medial epicondylar osteotomy were retrospectively evaluated. Results are satisfactory and stability with bony and fibrotic unions is not different.

11:54 AM  Paper 762
The Accuracy Of Patient Specif c Jigs During Total Knee Arthroplasty Do We Resect What The Jigs Plans For Us To Resect?
Yadin D. Levy, MD, Sydney, Australia
Vincent V. An, BS, Strathf eld, Australia
Christopher J. Shean, Canberra, Australia
Peter M. Walker, FRCS, Concord, Australia
Warwick Bruce, FRACS, MD, Miller’s Point, Australia

Evaluation of TKA patient specific instruments accuracy was conducted by comparing the preoperative surgical plan and the actual intraoperative resection size and only a fair correlation was found.

Discussion – 6 Minutes

12:06 PM  Paper 763
Leg Length Discrepancy After High Tibial Osteotomy: Comparative Study Of Closing Versus Opening Wedge Osteotomy
Joong Il Kim, Seol, Republic of Korea
Bo Hyun Kim, MD, Seoul, Republic of Korea
Ki Young Lee, MD, Seoul, Republic of Korea
O-Sung Lee, MD, Seoul, Republic of Korea
Yongsuk Lee, MD, Seongnam, Republic of Korea
Hyuk Soo Han, MD, Seoul, Republic of Korea
Sahnghoong Lee, MD, PhD, Seoul, Republic of Korea
Chong Bum Chang, MD, PhD, Seoul, Republic of Korea
Myung C. Lee, MD, Seoul, Republic of Korea

After unilateral high tibial osteotomy (HTO), leg length discrepancy was negligible with lateral closing wedge HTO and increased with medial opening wedge HTO.

12:12 PM  Paper 764
High Tibia Medial Open Wedge Osteotomy: Survival, Radiostereometric, and Functional outcome Followed Up
Cheng-Yi Wu, Chia-Yi City, Taiwan
Wei Hsing Chih, Chia-Yi City, Taiwan
I-Ming Jou, Tainan, Taiwan
Chang Hao Lin, Chia-Yi City, Taiwan

Our study have shown that we can achieve satisfactory and good results by performing OWHTO with using autograft combined with synthetic materials and conventional AO buttress non-locking plate.

12:18 PM  Paper 765
Mid-Long Term Clinical Outcomes of Opening Wedge High Tibial Osteotomy for Spontaneous Osteonecrosis of the Knee
Kazuhiko Saeki, MD, PhD, Fukuoka, Japan
Takahiko Kiyama, MD, Fukuoka, Japan
Akira Maeyama, MD, Fukuoka, Japan
Satoshi Kamada, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan

We performed opening wedge high tibial osteotomy with autologous osteochondral graft transplantation for spontaneous osteonecrosis of the knee with varus deformity.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 334.

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Recombinant Human Bone Morphogenic Protein-2 Leads to Bony Healing in a Novel, Ulnar Nonunion Model
Jason H. Ghodasra, MD, Los Angeles, CA
Brian M. Weatherford, MD, Glenview, IL
Michael Nickoli, MD, Chicago, IL
Erika Daley, MD, Royal Oak, MI
Erin L. Hsu, PhD, Chicago, IL
Wellington K. Hsu, MD, Chicago, IL

Robotic Assessment of Anterolateral Ligament: Reconstruction of the Anterolateral and Anterolateral Cruciate Ligament
Marco Nitti, MD, Vail, CO
Matthew Rasmussen, BS, Vail, CO
Brady T. Williams, BS, Vail, CO
Samuel Moulton, BA, Eugene, OR
Raphael Serra Cruz, MD, Vail, CO
Grant Dornan, MSc, Vail, CO
Mary T. Goldsmith, MSc, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO

In the setting of combined ACL and ALL deficiency, concurrent anatomical reconstruction of the ALL and ACL restores the rotatory stability of the knee compared to solely reconstructing the ACL.

Surgical Outcomes of Medial versus Lateral Sided Injuries in the Dislocated Knee
Alexander H. King, BS, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Matthew Prince, DO, Rochester, MI
Michael J. Stuart, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN

Patients undergoing multiligament knee reconstruction with KDIII-M knee dislocations are not as likely to achieve positive results as patients with KDIII-L dislocations.

Biomechanical Comparison of Five Posterior Cruciate Ligament Reconstruction Techniques
Clayton W. Nuelle, MD, Columbia, MO
James L. Cook, DVM, PhD, Columbia, MO
Ferris Pfeiffer, PhD, Boonville, MO
Jeffrey Mikes, MD, Columbia, MO
Patrick A. Smith, MD, Columbia, MO
Mauricio Kfuri JR, MD, PhD, Columbia, MO
James P. Stannard, MD, Columbia, MO

We tested five PCL reconstruction techniques, both all arthroscopic and open, single bundle and double bundle, to evaluate which techniques most closely resemble the native ligament/knee biomechanics.

Flexion Gap In Isolated PCL Injury Might Affect The Result Of Conservative Treatment
Yasukazu Yonetani, MD, PhD, Osaka, Japan
Kousuke Sakata, Hirakata, Japan
Yoshinari Tanaka, MD, Sakai, Japan
Masayuki Hamada, MD, Osaka, Japan
Shuji Horibe, MD, Osaka, Japan

Flexion laxity affects outcome of conservative treatment, it could be a factor of indication of surgical treatment for isolated PCL injury in addition to posterior laxity.

Total Knee Arthroplasty Following Multi-ligament Knee Surgery: A Matched Cohort Study
Steven I. Pancio II, MD, Rochester, MN
Paul Sousa, MBA, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
Diane L. Dahm, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN

Patients with a history of multi-ligament surgery have outcomes similar to those without in terms of implant survival. Such patients are at risk of reoperation if increased constraint is needed.
Friday, March 4

11:18 AM  Paper 772
Changes In Gait Pattern In Adolescents With Recurrent Patellar Instability
Carlo Camathias, MD, Basel, Switzerland
Rabel Meier, Arlesheim, Switzerland
Elias Ammann, Basel, Switzerland
Erich Rutz, MD, Basle, Switzerland
Patrick Vavken, MD, Basel, Switzerland

Adolescents with patellar dislocations decrease the knee flexion during loading response and mid stance phase. Decreased hip flexion and increased plantar flexion indicate a possible compensation.

11:24 AM  Paper 773
Repair of Knee Extensor Mechanism Injury with Suture Anchors
Joel Huleatt, MD, Atlanta, GA
Aaron Gebrelul, BA, Atlanta, GA
Ajay Premkumar, BS, McLean, VA
John W. Xerogeanes, MD, Atlanta, GA

This retrospective case series of patients treated with a suture anchor technique for quadriceps tendon and patellar tendon repair reports on functional outcomes, range of motion, and failure rate.

11:30 AM  Paper 774
Patellar Sleeve Fractures: Nonoperative Management of Minimally-Displaced Fractures Provides Excellent Outcome
Paul Sousa, MBA, MD, Rochester, MN
Matthew Prince, DO, Rochester, MI
Alexander H. King, BS, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Diane L. Dahn, MD, Rochester, MN

Minimally displaced patellar sleeve fractures can be successfully managed non-operatively with excellent outcome scores and low risk of patellar tendon ossification.

11:42 AM  Paper 775
Biomechanical Consequences Of Excessive Patellar Distalization
Justin Yang, MD, Farmington, CT
John P. Fulkerson, MD, Farmington, CT
Elifio Oboipilue, Torrington, CT
Andreas Voss, MD, Hartford, CT
Jessica M. Divenere, BS, Farmington, CT
Augustus D. Mazzocca, MD, MS, Farmington, CT
Robert A. Arciero, MD, Farmington, CT
Cory Edgar, MD, PhD, West Hartford, CT

Patellar baja, as a result of excessive patellar distalization, can cause increased patellofemoral contact pressures during early flexion.

11:48 AM  Paper 776
The Bereiter Trochleoplasty: Results and outcomes of a 12 years series
Andrew Metcalf, FRCS (Ortho), PhD, Coventry, United Kingdom
Damian A. Clark, FRCS (Ortho), MBBS, Bristol, United Kingdom
Mark A. Kemp, FRCS (Ortho), Bristol, United Kingdom
Jonathan D. Eldridge, FRCS, FRCS (Ortho), Bristol, United Kingdom

The Bereiter trochleoplasty is an effective treatment for recurrent patella instability in patients with severe trochlea dysplasia with good ongoing function and low rates of recurrent instability.

11:54 AM  Paper 777
Patellar Redislocation: Surgical Vs Conservative Approach
Daniele Mazza, Fiumicino, Italy
Raffaele Iorio, MD, Rome, Italy
Cosma Calderaro, Rome, Italy
Carolina Civitenga, MD, Rome, Italy
Andrea Redler, MD, Rome, Italy
Priscilla Di Sette, Rome, Italy
Angelo De Carli, MD, Rome, Italy
Fabio Conteduca, MD, Roma, Italy
Andrea Ferretti, MD, Rome, Italy

Elmslie-Trillat is an effective procedure in the treatment of patellar instability and degenerative changes in the Knee seems to normally occur in patellar instability.

12:06 PM  Paper 778
Allograft/Autograft ACL Reconstruction Equal Outcomes in All Ages, No Anterior Knee Pain: Average 7 Year Follow Up
Stephanie C. Petterson, MPT, PhD, Stamford, CT
Allison M. Green, PhD, Stamford, CT
Kevin D. Plancher, MD, MS, New York, NY
Kevin D. Plancher, MD, MS, Cos Cob, CT

Allograft/Autograft ACLR with a modified harvest/closure technique yields equal outcomes with low recurrence rate and return to high level sports without resultant anterior knee pain.

12:12 PM  Paper 779
Quality and Variability of Physical Therapy Protocols for ACL Reconstruction
Eric C. Makhni, MD, MBA, New York, NY
Erica K. Crump, MD, San Diego, CA
Michael Steinhaus, MD, New York, NY
Nikhil N. Verma, MD, Chicago, IL
Christopher S. Ahmad, MD, New York, NY
Brian J. Cole, MD, MBA, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL

Many ACL rehabilitation protocols are not supported by evidence-based practices, and show substantial variability in composition and time range.
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12:18 PM  Paper 780

Restricted Hip Rotation is an Independent Risk Factor for ACL Injury
Curtis D. VandenBerg, MD, Ann Arbor, MI
Eileen A. Crawford, MD, Magnolia, DE
Elizabeth R. Sibilsky Enslenman, MED, ATC, Ann Arbor, MI
Christopher B. Robbins, Ann Arbor, MI
Edward M. Wojtys, MD, Ann Arbor, MI
Ashesh Bedi, MD, Ann Arbor, MI

Prospectively comparing male and female ACL-injured athletes to matched controls revealed a correlation with ACL injury and restricted hip rotation, and an increased incidence of cam-type morphology.

Discussion – 6 Minutes

10:42 AM  Paper 783

Outcomes of Osteochondral Allograft Transfer for Osteochondral Lesions of the Talus in a Military Population
John Dunn, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
Brian R. Waterman, MD, El Paso, TX
Justin D. Orr, MD, El Paso, TX

Despite modest improvements in short term outcome scores, large osteochondral lesions requiring structural allograft transfer remain difficult to treat, particularly in high demand patients.

Discussion – 6 Minutes

10:54 AM  Paper 784

Ankle Arthrodesis: A Retrospective Review Comparing Single Column, Locked Anterior Plating to Crossed Lag Screws
Mark A. Prissel, DPM, Westerville, OH
Gary A. Simpson, DO, CO Springs, CO
Sean A. Sutphen, DO, Columbus, OH
Christopher Hyer, DPM, Westerville, OH
Gregory C. Berlet, MD, Westerville, OH

A retrospective evaluation of radiographic and clinical fusion rates and time to bony fusion for patients who underwent ankle arthrodesis using a locked plate construct versus crossed lag screws.

11:00 AM  Paper 785

Outcomes of Osteochondral Allograft Transfer for Osteochondral Lesions of the Talus in a Military Population
John Dunn, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
Brian R. Waterman, MD, El Paso, TX
Justin D. Orr, MD, El Paso, TX

Despite modest improvements in short term outcome scores, large osteochondral lesions requiring structural allograft transfer remain difficult to treat, particularly in high demand patients.

Discussion – 6 Minutes

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11:18 AM  Paper 787  
Lateral Column Lengthening Versus Subtalar Arthroereisis In The Treatment Of The Adult Flat Foot  
Remesh Kunnasegaran, Singapore, Singapore  
Lee Bing Howe, MBBS, Singapore, Singapore  
Goutereson Thevendran, MD, Singapore, Singapore  

Retrospective review of radiological and functional outcomes following lateral column lengthening and subtalar arthroereisis in pes planus reconstruction.

11:24 AM  Paper 788  
Instability of the medial Column post triple Arthrodesis for Stage III Posterior Tibial Tendon Dysfunction  
Wei Ting Lee, FRCS (Ortho), MBBS, Singapore, Singapore  
Adriana Avila Salgado, MD, Huixquilucan, Mexico  
Qinglin Han, Indianapolis, IN  
Mark S. Myerson, MD, Indianapolis, IN  

Triple arthrodesis for the treatment of Stage III PTTD leads to long term instability of medial column which is most apparent in the sagittal plane of the naviculocuneiform joint.

11:30 AM  Paper 789  
The Prevalence, Risk Factors and Natural History of Unexplained Pain After Hallux Valgus Corrective Surgery  
Yongqiang Jerry Chen, MBBS, Singapore, Singapore  
Fu Hong Benjamin Ang, MBBS, Singapore, Singapore  
Lei Jiang, MBBS, Singapore, Singapore  
Hwee Chi Chong, Singapore, Singapore  
Andy Yew, PhD, Singapore, Singapore  
Eng Meng Nicholas Yeo, MD, Singapore, Singapore  
Oon Thien Kevin Koo, MD, Singapore, Singapore  
Inderjeet S. Rikhraj, MD, Singapore, Singapore  

Although the prevalence of unexplained pain after hallux valgus corrective surgery is 31%, most of these patients do experience resolution of pain by two years follow up.

11:42 AM  Paper 790  
First Metatarsophalangeal Joint Arthrodesis: A comparison of operative techniques.  
Douglas Edward Lucas, DO, Durango, CO  
Loretta Chou, MD, Redwood City, CA  
Kenneth Hunt, MD, Redwood City, CA  

First MTP arthrodesis is a commonly performed procedure for severe hallux pathology. This study seeks to explore the effectiveness of third generation dorsal plates with two surgical techniques.

11:48 AM  Paper 791  
Intermediated-term Results Of Metatarsal Dorsif exion Osteotomy As Salvage Procedure for Advanced Hallux Rigidus  
Byung-Ki Cho, MD, Cheong-Ju, Republic of Korea  
Seung Myung Choi, Seoul, Republic of Korea  
Kyoung Jin Park, MD, Irvine, CA  

Distal metatarsal dorsif exion osteotomy using bio-compression screw seems to be one of effective joint salvage procedures for advanced hallux rigidus.

11:54 AM  Paper 792  
♦ First Metatarsophalangeal Hemi Arthroplasty with a new Synthetic Cartilage Implant: Surgical and Recovery time  
Mark Glazebrook, MD, Halifax, NS, Canada  
Timothy R. Daniels, MD, FRCS, Toronto, ON, Canada  
Dishan Singh, ChB, Stanmore, Middlesex, United Kingdom  
Alastair S.E. Younger, MD, Vancouver, BC, Canada  
Anthony Sakkaliou, FRCS, Camberley, Surrey, United Kingdom  
Matthew C. Solan, FRCS, Godalming Surrey, United Kingdom  
Guy Wansbrough, FRCS (Ortho), MBBS, Torquay, United Kingdom  
Elizabeth Pedersen, MD, Edmonton, AB, Canada  
Ian Le, MD, Calgary, AB, Canada  

Cartiva, a novel synthetic implant for MTP hemi arthroplasty that was shown to be efficacious and safe compared to arthrodesis and took less surgical time demonstrating a faster recovery for patients.

Discussion – 6 Minutes

12:06 PM  Paper 793  
♦ Prospective Randomized Multi-Centered Trial comparing a Synthetic Implant to 1st MTP fusion in Hallux Rigidus  
Judith F. Baumhauer, MD, MPH, Rochester, NY  
Chris M. Blundell, FRCS (Ortho), Sheff eld, United Kingdom  
Dishan Singh, ChB, ChB, Stanmore, Middlesex, United Kingdom  
Mark Glazebrook, MD, Halifax, NS, Canada  
Timothy R. Daniels, MD, FRCS, Toronto, ON, Canada  

There was equivalent improvement in pain and function between the MT implant and 1st MTP fusion. The MT implant preserves 1st MTP motion and <10% of implants were revised to fusion at 2 years.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 334.
Friday, March 4

12:12 PM  Paper 794
Abnormal Metatarsal Parabola is Associated with Progressive 2nd Metatarsophalangeal Joint Plantar Plate Injury
Adam Fleischer, DPM, MPH, North Chicago, IL
Erin E. Klein, DPM, MS, Grayslake, IL
Maheen Abbad, MS, MPH, Lake Bluff, IL
Fernanda Catena, MD, Chicago, IL
Mitchell B. Sheinkop, MD, Chicago, IL
Lowell S. Weil, DPM, Lake Forest, IL
This study explores the relationship between a long second metatarsal and the increased risk for developing 2nd MTP joint plantar plate pathology.

12:18 PM  Paper 795
Results Of The Dorsal Approach Plantar Plate Repair With A Weil Metatarsal Osteotomy: A 2 Year Follow Up Study
Erin E. Klein, DPM, MS, Grayslake, IL
Lowell S. Weil, DPM, Lake Forest, IL
Adam Fleischer, DPM, MPH, North Chicago, IL
Mitchell B. Sheinkop, MD, Chicago, IL
Brian Gradisek, DPM, Chicago, IL
This study presents data of a cohort of patients who underwent a dorsal approach plantar plate repair with a Weil metatarsal osteotomy two years after the index procedure.

12:24 PM  Paper 922
Simple Neurectomy Versus Intramuscular Implantation for Interdigital Neuroma: A Comparative Study
Chamnanni Rungprai, MD, Iowa City, IA
John E. Femino, MD, Iowa City, IA
Ong-Art Phruetthiphat, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
Phunit Phisilkul, MD, Iowa City, IA
Intramuscular implantation of the proximal stump can be an effective method alternative to simple neurectomy for treatment of interdigital neuroma.

Discussion – 6 Minutes

10:30 AM — 12:30 PM
Room W315
Pediatrics IV: Pediatric Sport/General
Moderator(s): Robert K. Fraser, MD, Durban, South Africa, Paul M. Saluan, MD, Hinckley, OH, Jay C. Albright, MD, Aurora, CO

10:30 AM  Paper 796
Early Results Of Single Plug OATS For Osteochondritis Dissecans Of The Capitellum
Eitan M. Ingall, Boston, MA
Eliza B. Lewine, Boston, MA
Donald S. Bae, MD, Boston, MA
Single-plug OATS is safe and effective in improving pain and elbow function in adolescents with unstable OCD, with high return to sports rates and little donor-site morbidity.

10:36 AM  Paper 797
The Mid-term Effects of Tendon Transfers and Open Reduction on Glenohumeral Deformity in Brachial Plexus Birth Palsy
Carley Vuillermin, Boston, MA
Eliza B. Lewine, Boston, MA
Donald S. Bae, MD, Boston, MA
Peter M. Waters, MD, Boston, MA
Open reduction with tendon transfers for mild-moderate glenohumeral deformity in BPBP results in improved humeral head position, glenoid version, and glenohumeral classification at mid-term follow-up.

10:42 AM  Paper 798
Mobilization Of A Congenital Radio-ulnar Synostosis With A Free Vascularized Fascio-fat Graft
Fuminori Kanaya, MD, Okinawa-Ken, Japan
Masaki Kinjo, MD, Nishibara Okinawa, Japan
Yasunori Kinjo, MD, Nishibara Okinawa, Japan
Yasunori Toume, MD, PhD, Okinawa, Japan
Yasunori Tome, MD, PhD, Okinawa, Japan
Fuminori Uehara, MD, San Diego, CA
We performed mobilization of a radio-ulnar synostosis with a free vascularized fascio-fat graft on 26 forearms. No re-ankyllosis was observed and the mean range of forearm rotation was 81.6 degrees.

Discussion – 6 Minutes

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Friday, March 4

10:54 AM  Paper 799

Can BMP2 Lead To Ossification Of The Unossified Femoral Neck And Lower Recurrence Of Coxa VARA In Severe CFD?
Davida Packer, MD, West Palm Beach, FL
Dror Paley, MD, West Palm Beach, FL
Craig A. Robbins, MD, West Palm Beach, FL
Matthew J. Harris, MD, MBA, Jupiter, FL
John Robb, PA-C, Stuart, FL

The use of fixed-angle implants with off-label use of BMP2 in the SUPERhip procedure, leads to the most predictable anatomic correction of severe deformities of severe CFD and lowest rates of failure.

11:00 AM  Paper 800

Internal Fixation Improves Outcomes for Unicameral Bone Cysts of Proximal Femur in Children
Benjamin Wilke, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Annalise N. Larson, MD, Rochester, MN
Todd A. Milbrandt, MD, Rochester, MN

Unicameral bone cysts (UBCs) of the proximal femur are a challenging problem. We evaluate our institutional outcomes of UBCs treated with and without internal fixation.

11:06 AM  Paper 801

Improving Bone Healing In Neurofibromatosis: A Study In Mice
Benjamin Alman, MD, Durham, NC
Saber Ghadakzadeh, MSc, Toronto, ON, Canada
Heather C. Whetstone, MSc, Toronto, ON, Canada
gurpreet bahl, PhD, Toronto, ON, Canada

Inhibition of beta-catenin genetically or pharmacologically improves bone healing in mice with a mutation in NF1, suggesting a novel treatment for conditions such as pseudarthrosis of the tibia.

11:18 AM  Paper 802

All-Epiphyseal ACL Reconstruction: A 3D Modeling Study to Characterize a Safe and Reproducible Surgical Approach
Daniel Marchwiany, BS, Algonquin, IL
Steven C. Chudik, MD, Westmont, IL
Michael J. Ryan, BS, North Riverside, IL

3D MRI modeling demonstrates the potential for safely performing all epiphyseal ACL reconstruction in skeletally immature knees without insult to the physes, cartilage, and adjacent structures.

11:24 AM  Paper 803

Percutaneous Transphyseal Screw Epiphysiodesis: Efficacy and Complications
Emily Dodwell, MD, New York, NY
Elise Bixby, BA, New York, NY
Matthew R. Garner, MD, Seattle, WA
Roger F. Widmann, MD, New York, NY

Contrary to previous reports, PETS did not result in significant angular deformity, insufficient growth inhibition or other serious complications, while demonstrating an overall efficacy of 108%.

11:30 AM  Paper 804

Outcomes of Physeal Sparing ACL Reconstruction with IT Band in Skeletally Immature Children
Mininder S. Kocher, MD, MPH, Boston, MA
Benton E. Heyworth, MD, Boston, MA
Frances Tepolt, Hershey, PA
Lyle J. Micheli, MD, Boston, MA

Physeal sparing, combined intra- and extra-articular ACLR with ITB graft in prepubescent children provides excellent functional outcomes, minimal risk of growth disturbance, and low revision rate.

11:42 AM  Paper 805

Medial Patello-femoral Ligament (MPFL) Origin And The Relation To The Distal Femoral Physis
Alexandra C. Styhl, Boise, ID
John C. Jacobs JR, BS, Salt Lake City, UT
John D. Polousky, MD, Centennial, CO
Theodore J. Ganley, MD, Philadelphia, PA
Matthew Milewski, MD, Avon, CT
Allen F. Anderson, MD, Nashville, TN
Kevin G. Shea, MD, Boise, ID

This anatomic/cadaveric study clarifies the relationship between the MPFL and femoral physis, providing recommendations for anatomic graft placement in skeletally immature patients.

11:48 AM  Paper 806

Safe Drilling Paths in the Distal Femoral Epiphysis for Pediatric Medial Patellofemoral Reconstruction
Cynthia Nguyen, MD, Cleveland, OH
Allison Gilmore, MD, Cleveland, OH
Lucid D. Farrow, MD, Garfield Heights, OH
Raymond W. Lue, MD, Cleveland, OH

To minimize iatrogenic trauma during pediatric MPFL reconstruction, it is safest to angle the distal femoral tunnel distal and anterior approximately 15-20 degrees in each plane from the MPFL origin.

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11:54 AM  Paper 807
Evaluating Length: The Use of Low Dose Biplanar Radiography (EOS) and Tantalum Bead Implantation
Emily Dodwell, MD, New York, NY
Matthew R. Garner, MD, Seattle, WA
Matthew A. Dow, MD, Charleston, SC
Elise Bixby, BA, New York, NY
Douglas N. Mintz, MD, Katonah, NY
Roger F. Widmann, MD, New York, NY

EOS is comparable to CT scanogram in the assessment of total bone length and inter-bead distance, with excellent reliability for all measurements.

12:06 PM  Paper 808
The Association Between Tibia-Femur length Ratio And Osteoarthritis
Douglas S. Weinberg, MD, Cleveland, OH
Raymond W. Lin, MD, Cleveland, OH

Increased tibia length respective to femur length predicted hip and knee arthritis in a large osteological collection

12:12 PM  Paper 809
Reliability of a Modified Complication Classification System in Pediatric Orthopaedic Patients
Emily Dodwell, MD, New York, NY
Rubini Pathy, MD, New York, NY
Daniel W. Green, MD, New York, NY
David M. Scher, MD, New York, NY
John S. Blanco, MD, New York, NY
Aaron Daluiski, MD, New York, NY
Shevaun M. Doyle, MD, New York, NY
Ernest L. Sink, MD, New York, NY

We evaluated the inter- and intra-rater reliability of an adapted classification system for assessing complications following pediatric orthopaedic surgery.

12:18 PM  Paper 810
Characteristics of Medical Professional Liability Claims in Pediatric Orthopaedics
Jessica D. Burns, MD, Phoenix, AZ
Mohan V. Bethur, MD, Scottsdale, AZ
Steven Irby, MS, Phoenix, AZ
Carla Boan, M.Sc., Phoenix, AZ
Divya Parikh, MPH, Rockville, MD
Michael W. Shrader, MD, Phoenix, AZ

Malpractice claims in pediatric orthopaedics most commonly result from joint procedures and closed fracture reductions, with more paid claims and a with higher payment than adult orthopaedics.

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Friday, March 4

**Symposium**
1:30 PM — 3:30 PM
Valencia Room A

**Upper Extremity Trauma: How to Define and Expand Your Comfort Zone (EE)**
Moderator: David C. Ring, MD, Boston, MA

Experts in upper extremity trauma discuss the key pitfalls and the technical challenges that comprise expertise for fractures at specific regions in short didactic vignettes and case-based discussions. Surgeons can affirm what they are good at and the training and experience that would help them expand their expertise.

I. Proximal Humerus Fracture
   Neal C. Chen, MD, Boston, MA

II. Clavicle Fracture
    Niloofar Dehghan, MD, Mississauga, ON, Canada

III. Olecranon Fracture
     Douglas P. Hanel, MD, Seattle, WA

IV. Distal Radius Fracture
    Jorge L. Orbay, MD, Miami, FL

V. Distal Humerus Fracture
    Scott P. Steinmann, MD, Rochester, MN

VI. Radial Head Fracture
    Thomas F. Varecka, MD, Minneapolis, MN

**INSTRUCTIONAL COURSE LECTURE**
1:30 PM — 3:30 PM

441 **The Treatment and Management of Acetabular Bone Loss in Revision Total Hip Arthroplasty**
Moderator: Neil P. Sheth, MD, Philadelphia, PA
Matthew Ausin, MD, Philadelphia, PA
William G. Hamilton, MD, Alexandria, VA
Wayne G. Paprosky, MD, Winfield, IL

Upon completion of this course, participants have an algorithmic approach on how to evaluate acetabular bone loss and determine how to surgically treat this entity. Clinical cases help reinforce concepts presented in this instructional course lecture.

442 **Managing Problems and Complications During and After Primary Total Knee Arthroplasty**
Moderator: Jay R. Lieberman, MD, Los Angeles, CA
Michael P. Bolognesi, MD, Durham, NC
Steven J. MacDonald, MD, London, ON, Canada
William J. Maloney, MD, Redwood City, CA

Reviews diagnosis and management of intraoperative problems (instability, patella maltracking, and stiffness) and complications (wound drainage, infection, instability, and pain) commonly associated with total knee arthroplasty.

443 **Update on Biomaterials**
Moderator: Paul A. Anderson, MD, Madison, WI
Nicholas J. Giori, MD, Palo Alto, CA
A Seth Greenwald, DPhil Oxon, Cleveland Heights, OH
Carlos J. Lavernia, MD, Coral Gables, FL

Focuses on modern changes in design and manufacturing of common metals and plastics and their mechanical performance. Essential engineering principles that should be considered when using medical devices and how new designs may affect them are reviewed.

444 **Getting It Right the Second Time: Pearls and Principles for Revision Surgery in the Foot and Ankle**
Moderator: Mark J. Berkowitz, MD, Cleveland, OH
Paul T. Fortin, MD, Royal Oak, MI
Jeffrey E. Johnson, MD, Saint Louis, MO
Lew C. Schon, MD, Indianapolis, IN

Presents strategies and techniques for the evaluation and treatment of the failed foot and ankle surgery including the failed bunion, nonunion/malunion of hindfoot and ankle fusion, the unsuccessful flatfoot surgery, and the failed ankle fracture.

445 **Osteochondritis Dissecans in the Adolescent Athlete**
Moderator: Jeremy S. Frank, MD, Parkland, FL
Eric W. Edmonds, MD, San Diego, CA
Charles A. Goldfarb, MD, Saint Louis, MO
Samuel C. Willimon, MD, Atlanta, GA

Juvenile osteochondritis dissecans of the knee, elbow, and ankle in the adolescent athlete is an emerging topic in young adult sports medicine. Expert faculty members review various etiologies and treatment strategies as well as explore potential complications and controversies.

446 **Cost Effectiveness Research In Orthopaedics: What You Need to Know**
Moderator: Kevin J. Bozic, MD, MBA, Austin, TX
Eric C. Makhni, MD, MBA, New York, NY
Richard C. Mather, MD, MBA, New York, NY
Eric F. Swart, MD, New York, NY

Cost-effectiveness research is becoming increasingly prevalent in orthopedic research, yet many orthopedic surgeons are unfamiliar with the underlying principles and concepts regarding this discipline. The goal of this ICL is to teach the participant how to read and interpret cost-effectiveness studies, as well as how to perform these types of analyses. Finally, clinical and policy-making implications of cost-effectiveness research will be reviewed.
Total Shoulder Arthroplasty: Should I Be Using a Stemless Prosthesis? When, Why, and How
Moderator: Joseph A. Abboud, MD, Philadelphia, PA
Mark D. Lazars, MD, Philadelphia, PA
Ofer Levy, MD, Henley-On-Thames, United Kingdom
Anand M. Murthi, MD, Indianapolis, IN
The total shoulder market in recent years has exploded with new humeral stem designs from standard stems, platform stems, mini, micro, and stemless. Will help practitioners navigate through this process and learn how to technically optimize the stem they choose.

Elbow Arthroscopy: Indications, Techniques, Outcomes, and Complications
Moderator: Felix H. Savoie III, MD, New Orleans, LA
John E. Conway, MD, Fort Worth, TX
Michael J. O’Brien, MD, New Orleans, LA
Matthew Ramsey, MD, Philadelphia, PA
Outlines techniques for performing arthroscopic procedures at the elbow, with a specific focus on indications, tips and pearls, and outcomes and alternative treatment strategies. Potential complications are studied with an emphasis on how to avoid them.

Treating the Aging Spine
Moderator: Theodore J. Choma, MD, Columbia, MO
Darrel S. Brodke, MD, Salt Lake City, UT
Robert A. McGuire Jr, MD, Jackson, MS
Glenn R. Rechtine II, MD, Asheville, NC
Targets orthopaedists who treat spinal conditions in the elderly – from osteoporosis and fractures to degenerative deformities.

Acetabular Fractures: A Problem-Oriented Approach
Moderator: Berton R. Moed, MD, Saint Louis, MO
Philip J. Kregor, MD, Nashville, TN
Mark C. Keilly, MD, Newark, NJ
Michael D. Stover, MD, Chicago, IL
Using a case-based approach, the participant comes away with an improved understanding of the operative management of acetabular fractures occurring in combination with complicating factors.

Challenges in the Management of Fractures in Adolescents: A Case-based Approach
Moderator: Susan A. Scherl, MD, Omaha, NE
R. Dale Blasier, MD, Little Rock, AR
Jaime R. Denning, MD, Montgomery, OH
Craig P. Eber, MD, Providence, RI
Howard R. Epps, MD, Houston, TX
William L. Hemmikus, MD, Hershey, PA
Martin J. Herman, MD, Philadelphia, PA
Christine A. Ho, MD, Dallas, TX
Bernard D. Horn, MD, Philadelphia, PA
Anthony I. Riccio, MD, Dallas, TX
Brian Scannell, MD, Charlotte, NC
Case-based presentations on adolescent fracture patterns, including information regarding technique pearls, complications associated with treatment of the fracture in adolescents, and management of those complications, are discussed.

ACL Revision Reconstruction Technical Issues: A Case-based Approach
Moderator: Michael J. Stuart, MD, Rochester, MN
Joel L. Boyd, MD, Minneapolis, MN
Thomas M. DeBerardino, MD, Farmington, CT
Gregory C. Fanelli, MD, Danville, PA
Aaron J. Krych, MD, Rochester, MN
Robert F. LaPrade, MD, PhD, Vail, CO
Bruce A. Levy, MD, Rochester, MN
Peter B. MacDonald, MD, Winnipeg, MB, Canada
Robert G. Marx, MD, New York, NY
Daniel Whelan, MD, Toronto, ON, Canada
Rick W. Wright, MD, Saint Louis, MO
Provides practical information and technical tips for surgeons who perform revision anterior cruciate ligament (ACL) reconstruction. The case presentations highlight decision-making skills and solutions to common, challenging problems.

The Way I See It...
1:30 PM — 3:30 PM
Valencia Room B
The Way I See It...Orthopaedists Changing the Game
Moderator: Brian J. Cole, MD, MBA, Chicago, IL
Co-Moderator: Marc Safran, MD, Redwood City, CA
L. Scott Levin, MD, FACS, Philadelphia, PA
Andrew D. Pearle, MD, Rye, MD
Learn the “whys” of what the experts do in cutting edge orthopaedic procedures. Benefit from the inside story - what each presenter wants you to know about a top-of-the-mind issue. Experts share their experience and views, just the way they see it.

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2:18 PM  Paper 817

Early Outcomes of Revision Surgery for Taper Corrosion of Dual Taper THA with Pseudotumours in 187 patients

Dimitris Dimitriou, MD, Cambridge, MA
Tsung-Yuan Tsai, PhD, Boston, MA
William A. Leone, MD, Lighthouse Point, FL
Guoan Li, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA
Young-Min Kwun, MD, PhD, Boston, MA

A high rate of early complications (20%) and re-revisions (6%) was observed after revision of pseudotumour associated with taper corrosion in dual taper THA.
Friday, March 4

2:24 PM  Paper 818
Outcome of Debridement and Implant Retention in Prosthetic Hip Joint Infection - A Case Control Study
George A. Grammatopoulos, MRCS, United Kingdom
Benjamin J. Kendrick, MBBS, FRCS (Ortho), Oxford, United Kingdom
Nick Athanasou, MRCP, FRCPATH, Oxford, United Kingdom
Bridget Atkins, Oxford, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom
Peter McLardy-Smith, FRCS, Oxford, United Kingdom
David W. Murray, MD, Oxford, United Kingdom
Adrian Taylor, MBBS, Oxford, United Kingdom

Debridement and implant retention (DAIR) for 1° THA infection has functional outcome superior to 2-stage revision and similar to 1° THA. DAIRs' complication rate is similar to that of 2-stage revision.

2:30 PM  Paper 819
Long-term Mortality following Revision Total Hip Arthroplasty (THA)
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Jeanine E. Ransom, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN

Long-term survival following revision THA differs according to surgical indications.

2:42 PM  Paper 820
Factors Influencing the Outcome of Revision Total Hip Arthroplasty for Periprosthetic Fractures
Sujith Konan, London, United Kingdom
Clive P. Duncan, MD, MSc, Vancouver, BC, Canada
Bassam A. Masri, MD, FRCSC, Vancouver, BC, Canada
Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada

Several patient comorbidities and implant related factors influence PROMS after revision THA for B2/B3 PPF. Surgeons should be aware of this and counsel patients appropriately.

2:48 PM  Paper 821
A 20 year systematic review of treatment outcomes in Vancouver B2 & B3 periprosthetic femur fractures
Jose A. Romero, MD, Dallas, TX
Michael H. Huo, MD, Dallas, TX
Matthew Swann, MD, BA, Dallas, TX
Timothy Brown, MD, Dallas, TX

A systematic review over 20 years analyzing treatment outcomes for Vancouver B2 & B3 periprosthetic femur fractures using various revision techniques and the principals behind them.

2:54 PM  Paper 822
Proximal Femoral Replacement for Massive Bone Loss in Revision Hip Arthroplasty: Indications and Survivorship
Jacob Haynes, MD, Saint Louis, MO
Jeffrey B. Stambough, MD, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO

Proximal femoral replacement is a salvage option for extensive femoral bone loss in revision THA; however it is associated with an elevated rate of complications and subsequent revision surgery.

3:00 PM  Paper 823
Cup-Cages in the Treatment of Massive Acetabular Defects
Peter K. Sculco, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN

Both the cup-cage and half cup-cage reconstruction techniques demonstrate excellent survivorship at mid-term follow-up in the treatment of massive acetabular defects and pelvic discontinuity.

3:12 PM  Paper 824
Revision Outcomes of Failed Metal-on-Metal THA: Experience of a Tertiary Multi-Disciplinary MoM Referral Center
Dimitris Dimitriou, MD, Cambridge, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Guoan Li, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA

Revision complication rate (14%) at a specialized MoM referral center was relatively low, suggesting the importance of multidisciplinary and systematic evaluation in optimizing MoM revision outcome.

3:18 PM  Paper 825
Which Adverse Events are Associated with Revision Versus Primary Total Joint Arthroplasty?
Daniel D. Bohl, MD, MPH, Chicago, IL
Andre Samuel, New Haven, CT
Adam Lukasiewicz, MSc, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Bryce A. Basques, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL
Brett R. Levine, MD, Elmhurst, IL
Jonathan N. Grauer, MD, New Haven, CT

Patients undergoing revision procedures have higher rates of periprosthetic joint infection and sepsis but not most other complications following total joint arthroplasty.

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2:00 PM  Paper 830
Lacertus Fibrosis versus Achilles Allograft reconstruction for Chronic Distal Biceps Tears: A Biomechanical Study
Miguel Ramirez, MD, Indianapolis, IN
Shannon R. Carpenter, MD, Royal Oak, MI
Anand M. Murthi, MD, Indianapolis, IN
Biomechanically, the lacertus f brosis may be a reasonable alternative for chronic distal biceps reconstruction in which primary repair is not possible.

2:06 PM  Paper 831
Anatomy Of The Origin Of The Supinator Muscle And Its Role In Lateral Elbow Pain
Jairo F. Gomez Ramirez, MD, Bogota, Colombia
Luis F. Calixto, MD, Bogota, Colombia
The supinator is implicated in persistent pain of the elbow lateral epicondylitis and its Origen is in direct relationship with the extensor carpi radialis brevis

2:18 PM  Paper 832
MRI Findings Reveal Common Extensor Tendon Tears Are More Frequent Than Thought in Golf and Racquet Athletes
Yonatan G. Keschner, Woodmere, NY
Kevin D. Plancher, MD, MS, Cos Cob, CT
Kevin D. Plancher, MD, MS, New York, NY
Stephanie C. Petterson, MPT, PhD, Stamford, CT
Partial common extensor tears on MRI are signif cantly higher in golf and racquet sport athletes than in other athletes due to sport specific demands on the extensor muscles.

2:24 PM  Paper 833
Can the use of Platlet Rich Plasma (PRP) in chronic elbow tendinitis avoid surgery?
Nimesh Patel, MRCS, MBBS, London, United Kingdom
Edward C. Matthews, MBCHB, Devon, United Kingdom
Darren Munn, Torquay, United Kingdom
Rangaraju Ramesh, FRCS (Ortho), Paignton, Devon, United Kingdom
The use of PRP to treat chronic elbow tendonitis gives a signif cant improvement in symptoms, avoiding the need for surgery. PRP preparation technique is stipulated to provide the benef cial results.
Friday, March 4

2:30 PM  Paper 834
Open Release vs. Radiofrequency Microtenotomy (RFMT) in the Treatment of Lateral Epicondylitis.
Katharine Hamlin, MBCHB, Aberdeen, United Kingdom
Scott L. Barker, Aberdeen, United Kingdom
Sean M. McKenna, FRCS (Ortho), Belfast, United Kingdom
Kapil Kumar, FRCS MCh, Scotland, United Kingdom

In our prospective randomised trial we found radiofrequency microtenotomy and open release are both effective treatments for lateral epicondylitis but there was no significant difference between them.

Discussion – 6 Minutes

2:42 PM  Paper 835
Hanbing Zhou, MD, Worcester, MA
Nathan Orvets, MD, Boston, MA
Gabriel Merlin, MD, Boston, MA
Joshua Shaw, MD, MPH, Worcester, MA
Joshua S. Dines, MD, New York, NY
Mark D. Price, MD, Wellesley, MA
Josef K. Eichinger, MD, Tacoma, WA
Xinning Li, MD, Lexington, MA

Total elbow arthroplasty is a relatively uncommon surgery in comparison to other forms of arthroplasty but is associated with low in-patient complication rate.

2:48 PM  Paper 836
Outcomes Following Hemiarthroplasty Of The Elbow: Minimum 2-year Follow-up.
Jean-David Wertheil, Paris, France
Bradley S. Schoch, MD, Rochester, MN
Julie E. Adams, MD, Hixson, TN
Scott P. Steinmann, MD, Rochester, MN

Elbow HA is an option for young/active patients with end stage elbow arthritis or unreconstructable distal humerus fractures in whom alternative procedures have failed.

2:54 PM  Paper 837
David C. Landy, MD, Chicago, IL
Jimmy Jiang, MD, Chicago, IL
Hristo I. Piponov, MD, Evanston, IL
Lewis L. Shi, MD, Chicago, IL
Jason L. Kob, MD, Winnetka, IL

Total elbow arthroplasty for distal humerus fractures has remained fairly constant over the last decade. The majority of cases are performed in elderly females with an added cost of 20,000$ per case.

Discussion – 6 Minutes

3:06 PM  Paper 838
Effect Of Increased Radial Head Implant Length On Ulnohumeral Joint Reaction Forces Using An Extra-articular Method
Robert Mason, MD, Rochester, NY
Michael Caldwell, BS, Rochester, NY
Daniel J. Vasconcellos, Rochester, NY
Joseph Schaffer, MD, Rochester, NY
Walid S. Osman, MD, Cairo, Egypt
Mark Olles, PhD, Rochester, NY
John Elfar, MD, Rochester, NY

Cadaveric specimens were analyzed to determine the impact on ulnohumeral joint reaction force, measured using an extra-articular method, after radial head arthroplasty with various implant lengths.

3:12 PM  Paper 839
Timing of Surgery for Pediatric Supracondylar Humerus Fractures
Daniel S. Sutton, MD, Washington, Dist. of Columbia
Lawrence C. Enweze, BS, Washington, Dist. of Columbia
Gezzer Ortega, MD, Wheaton, MD
Robert H. Wilson, MD, Washington, Dist. of Columbia

Early percutaneous pinning (<12 hours) for supracondylar fractures was associated with increased rates of unplanned reoperation.

3:18 PM  Paper 840
Extent Of Motor And Sensory Recovery In Patients With Cubital Tunnel Syndrome
Takao Omura, MD, PhD, Hamamatsu, Japan
Yukibiro Matsuyama, MD, PhD, Hamamatsu, Japan

We show that the sensory and motor recovery in patients with cubital tunnels syndrome depends on the severity of disease and that patients regain more sensory recovery than motor.

Discussion – 6 Minutes

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Friday, March 4

PAPER PRESENTATION

1:30 PM — 3:30 PM
W304A

Sports Medicine/Arthroscopy VIII: Foot/Ankle, Miscellaneous
Moderator(s): Anil S. Ranawat, MD, New York, NY, Edward R. McDevitt, MD, Annapolis, MD

1:30 PM  Paper 841
The NFL Orthopedic Surgery Outcomes Database (NO-SOD): The Impact on Career of Common Orthopedic Procedures
Harry Mai, BS, Manhattan Beach, CA
Andrew P. Alvarez, BS, Chicago, IL
Ryan D. Freshman, BS, Chicago, IL
Danielle Chun, BA, Chicago, IL
Shobhit Minhas, MD, New York, NY
Alpesh A. Patel, MD, River Forest, IL
Jason W. Savage, MD, Chicago, IL
Wellington K. Hsu, MD, Chicago, IL

A comparison of the career impact and outcomes of NFL athletes after common orthopedic procedures.

1:36 PM  Paper 842
Poor Static Balance Is The Risk Factor For Non-contact Anterior Cruciate Ligament Injury
Takeshi Oshima, MD, Kanazawa-City, Japan
Junsuke Nakase, MD, Kanazawa, Japan
Yosuke Shima, PhD, MD, Kanazawa City, Japan
Katsuhiro Kitaoka, MD, Kanazawa, Japan
Hitoshi Numata, MD, Ishikawa, Japan
Yasushi Takata, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Twenty-five of 287 high school female athletes experienced a non-contact ACL injury in a 3-year observation period. The static balance was poor in injured players compared with uninjured players.

1:42 PM  Paper 843
Surgical Treatment for Chronic Exertional Compartment Syndrome (CECS) in Pediatric Patients
Jennifer Beck, MD, Los Angeles, CA
Frances Tepolt, Hershey, PA
Patricia Miller, MS, Boston, MA
Lyle J. Micheli, MD, Boston, MA
Mininder S. Kocher, MD, MPH, Boston, MA

Pediatric patients with CECS present as adolescent females with bilateral symptoms. Surgical fasciotomy results in 79.5% return to sport, 11.2% wound complications and 18.8% reoperation rate.

1:54 PM  Paper 844
Outcomes after Orthopaedic Surgery in the National Basketball Association
Shobhit Minhas, MD, New York, NY
Benjamin Kester, Medical Student, Chicago, IL
Kevin E. Larkin, BA, Ogden, UT
Harry Mai, BS, Manhattan Beach, CA
Wellington K. Hsu, MD, Chicago, IL

NBA players undergoing Achilles tendon rupture repair or arthroscopic knee surgery had significantly worse performance postoperatively compared to other orthopedic procedures.

2:00 PM  Paper 845
Inadequate Helmet Fit Increases Concussion Severity in American High School Football Players
Dustin A. Greenhill, MD, Philadelphia, PA
Paul Navo, MPH, Philadelphia, PA
Dawn Comstock, PhD, Aurora, CO
Joseph S Torg, MD, Saint Davids, PA
Huaqing Zhao, PhD, Philadelphia, PA
Barry P. Boden, MD, Rockville, MD

Improperly fitted helmets and air bladders increase the risk, severity, and/or duration of concussion. It does not appear that the 2011 NFHS rule change adequately corrected this dilemma.

2:06 PM  Paper 846
Single Team Seventeen Year Experience with Concussions in the National Football League
Johnathan Bernard, MD, MPH, Ashburn, VA
Scott A. Rodeo, MD, New York, NY
Ronnie P. Barnes, East Rutherford, NJ
Russell F. Warren, MD, New York, NY

Our series represents a seventeen year period of managing concussions in the NFL. Understanding the epidemiology of concussions and management can help identify those at risk and reduce concussions.

Discussion – 6 Minutes

2:18 PM  Paper 847
Intraarticular Steroid Injection During Ankle Arthroscopy Leads to Increased Rates of Postoperative Infection
Brian C. Werner, MD, Charlottesville, VA
Jourdan M. Cancienne, MD, Charlottesville, VA
Matthew T. Burrus, MD, Charlottesville, VA
Joseph S. Park, MD, Charlottesville, VA
Minton T. Cooper, MD, Charlottesville, VA

The use of intraarticular corticosteroid injection at the time of ankle arthroscopy is associated with significantly increased rates of postoperative infection.

Discussion – 6 Minutes

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Friday, March 4

**2:24 PM**  
**Paper 848**  
**Intrinsic Risk Factor Of Ankle Sprains In Adolescent Soccer Players**  
Tomoyuki Oda, MD, Nagoya, Japan  
Hideki Hiraiwa, MD, PhD, Nagoya, Japan  
Takashi Hamada, Nagoya City, Japan  
Satoshi Yamashita, MD, Nagoya City, Aichi, Japan  
Kentaro Miyamoto, MD, Nagoya, Japan  
Yasuzumi Kishimoto, MD, Nagoya City, Japan  
Saho Tsuchiya, Nagoya, Japan  
Tadahiro Sakai, MD, PhD, Nagoya, Japan  

Dorsiflexion range of motion (less than 20°) at the ankle and older (high school) players is strongly associated with risk of ankle sprains in male adolescent soccer players.

**2:30 PM**  
**Paper 849**  
**Ankle Injury Prevention Programs for Soccer Athletes: A Level 1 Systematic Review and Meta-Analysis**  
Nathan L. Grimm, MD, Durham, NC  
John C. Jacobs JR, BS, Salt Lake City, UT  
Annunziato Amendola, MD, Iowa City, IA  
Jaewhan Kim, PhD, Salt Lake City, UT  
Kevin G. Shea, MD, Boise, ID  

This meta-analysis of studies of ankle injury prevention programs found a statistically significant reduction in risk ankle injury with the use of injury prevention programs for soccer athletes.

**2:42 PM**  
**Paper 850**  
**Comparison of Osteochondral Autografts and Allografts for Treatment of Talar Osteochondral Lesions**  
Jamal Ahmad, MD, Philadelphia, PA  
Kennis Jones, BA, Philadelphia, PA  

This is a prospective comparison of outcomes from using either osteochondral autograft or allograft to manage either recurrent or large osteochondral lesions of the talar dome.

**2:48 PM**  
**Paper 851**  
**Effect of Suprascapular Nerve Block Combined with Interscalene Brachial Plexus Block in Arthroscopic Cuff Repair**  
Jung-Taek Hwang, MD, PhD, Chuncheon-si, GA, Republic of Korea  
Do-Young Kim, MD, PhD, Chuncheon-si, Republic of Korea  
Sang-soo Lee, MD, Chuncheon-si, Republic of Korea  

Ultrasound-guided ISB with arthroscopy-guided SSNB showed a lower VAS at postoperative 3-48 hour and a higher SAT at postoperative 6-36 hours than ISB alone with an attenuated rebound pain.

**2:54 PM**  
**Paper 852**  
**Outcomes Following Structural Grafting of Distal Femoral Osteochondral Lesions In Patients 40 Years And Older**  
Ryan Degen, FRCS, MD, London, ON, Canada  
Nathan W. Coleman, MD, Seattle, WA  
Danielle Tetreault, BA, New York, NY  
Gregory T. Mabony, BA, New York, NY  
Riley J. Williams, MD, New York, NY  

Cartilage restoration procedures using structural grafts for distal femoral lesions are successful in patients older than 40 years of age, with improved pain and functional outcome scores.

**3:06 PM**  
**Paper 853**  
**Comparing Prp With High Molecular Weight Hyaluronic Acid Injections For End Career Athletes.**  
Rocco Papalia, MD, PhD, Rome, Italy  
Francesco Franceschetti, MD, Rome, Italy  
Andrea Tecame, Rome, Italy  
Eduardo Franceschetti, MD, Roma, Italy  
Sebastiano Vasta, MD, Rome, Italy  
Biagio Zampogna, MD, Rome, Italy  
Lorenzo Alirio Díaz Balzani, Roma, Italy  
Sebastiano Vasta, MD, Rome, Italy  
Nicola Maffulli, MD, FRCS(Orth), London, United Kingdom  
Vincenzo Denaro, MD, Rome, Italy  

**3:12 PM**  
**Paper 854**  
**Surgical versus Non-surgical Outcomes after Primary Repair of Proximal Hamstring Ruptures**  
Jonathan Slaughter, MD, Philadelphia, PA  
Evan R. Bannister, Philadelphia, PA  
Keith D. Baldwin, MD, Philadelphia, PA  
John D. Kelly IV, MD, Newtown Square, PA  
Samir Mehta, MD, Philadelphia, PA  

No significant difference seen between surgical repair and nonsurgical management in regards to strength difference, but the surgical group showed an increased trend in improved function seen on LEFS.

**3:18 PM**  
**Paper 855**  
**Reliability, Validity and Injury Predictive Value of the Functional Movement Screen: a MetaAnalysis**  
Nicholas Bonazza, MD, Hershey, PA  
Dallas Smuin, BS, Hummelstown, PA  
Cayce A. Onks, D.O., Palmyra, PA  
Matthew Silvis, MD, Hershey, PA  
Aman Dhawan, MD, Hummelstown, PA  

A systematic review and meta-analysis of the reliability, validity and injury predictive value of the Functional Movement Screen, a screening test used for orthopaedic injury prevention.

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3:24 PAPER 920
Assessment of a Novel Antibiotic Coating in Decreasing Periprosthetic Infection Using an in vivo Mouse Model
Alexandra Stavrakis, MD, Los Angeles, CA
Suwei Zhu, PhD, Los Angeles, CA
Amanda Loftin, Santa Monica, CA
Lloyd Miller, MD, PhD, Baltimore, MD
Tatiana Segura, PhD, Los Angeles, CA
Nicholas Bernthal, MD, Venice, CA

Discussion – 6 Minutes

1:30 PM — 3:30 PM
Room W315

PAPER PRESENTATION

Practice Management III: Risk Management
Moderator(s): Brian J. Galinat, MD, Wilmington, DE

1:30 PM  Paper 856
Does Admission to Medicine or Orthopaedics Impact a Geriatric Hip Patient’s Hospital Length of Stay?
Sarah Greenberg, BA, Nashville, TN
Jacob P. Vanboutsen, MS, Nashville, TN
Robert H. Boyce, MD, Mount Juliet, TN
Craig Melbourne, BS, Nashville, TN
Amir A. Jabangir, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

This is the first study to demonstrate that admission to medicine compared to orthopaedics for geriatric hip fractures increases a patient's expected LOS after controlling for confounding factors.

1:36 PM  Paper 857
Preoperative Anaemia as a Prognostic Indicator of Mortality in Lower Limb Arthroplasty
Jonathan Miles, FRCS (Ortho), MBBS, London, United Kingdom
Heledd Havard, London, United Kingdom
James Donaldson, FRCS (Ortho), MBBS, London, United Kingdom
Richard Carrington, MD, Herts, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alexander Sell, MBBS, Stannmore, United Kingdom
Vijayaraghavan Ramesh, MBBS, Middlesex, United Kingdom
Paul Gunning, MBBS, London, United Kingdom

Preoperative anaemia significantly increases 1 year mortality yet is a modifiable risk factor - optimisation of patients prior to elective arthroplasty surgery reduces morbidity and mortality.

1:42 PM  Paper 858
Pre-operative Labs: Wasted Dollars Or Predictors Of Postoperative Cardiac Events In Orthopaedic Trauma Patients?
Vasanth Sathiyakumar, Nashville, TN
Amir A. Jabangir, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

This study is the first of its kind to demonstrate the utility of preoperative labs in orthopaedic trauma and hip fracture patients in predicting cardiac and septic adverse events.

Discussion – 6 Minutes

1:54 PM  Paper 859
Comparing Primary Total Knee Arthroplasty Post-Discharge Care Duration, Costs, and Outcomes
Karthikeyan E. Ponnusamy, MD, Indianapolis, IN
Anne Kuuwabara, BA, Indianapolis, IN
Zan Naseer, Forest Hill, MD
Clayton Alexander, MD, Indianapolis, IN
Mostafa H. El Dafrawy, MD, Indianapolis, IN
Louis C. Okajfor, MD, Indianapolis, IN
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khanna, MD, Indianapolis, IN
Richard L. Skolasky Jr, ScD, Indianapolis, IN

After primary elective total knee arthroplasty, post-discharge care involving an extended-care facility can account for 20% of costs and increase readmission and mortality rates.

2:00 PM  Paper 860
Can We Predict Discharge Status After Total Joint Arthroplasty? A Simple Calculator to Predict Home Discharge
Andrew J. Pugely, MD, Iowa City, IA
Nicholas Bedard, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
Christopher Anthony, MD, Iowa City, IA
Nicolas O. Noisieux, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Using a multicenter national cohort of 107,300 TKA and THA patients, predictive models of patient discharge location were constructed into a simple calculator tool.

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2:06 PM  Paper 861
Kidney Injury After Antibiotic Cement Spacer Implantation for Prosthetic Joint Infection
Eric L. Smith, MD, Boston, MA
Madhumathi Rao, MD, PhD, Boston, MA
Susan Hadley, MD, Boston, MA
Andrew N. Liu, MD, Torrance, CA
Mary E. Pevear, Boston, MA
Michael Baratz, MD, Brookline, MA
Anshul Bhalla, MBBS, MD, Boston, MA

The purpose of this multidisciplinary, retrospective study was to quantify the extent of kidney involvement during a two-stage approach for prosthetic joint infection using antibiotic cement spacers.

Discussion – 6 Minutes

2:18 PM  Paper 862
Where are the Women in Orthopaedic Surgery? Examining Reasons for the Persistent Gender Gap
Rachel S. Rohde, MD, Southfield, MI
Jennifer M. Wolf, MD, Farmington, CT
Julie E. Adams, MD, Hixson, TN

The largest known survey of women orthopaedic surgeons is presented, exploring their motivations for choosing orthopaedics and the persistent paucity of women entering the field.

2:24 PM  Paper 863
Recommendation Strength and Methodological Reporting in Health Economic Studies in Orthopaedic Surgery
Eric C. Makhni, MD, MBA, New York, NY
Michael Steinhaus, MD, New York, NY
Eric F. Swart, MD, New York, NY
Kevin J. Bozic, MD, MBA, Austin, TX

A considerable portion of orthopaedic cost-effectiveness studies provide weak recommendations and methodological practices vary substantially.

2:30 PM  Paper 864
Statistical Significance in Trauma Research: Too Unstable To Trust?
Paul Tornetta III, MD, Boston, MA
Mohtit Bhandari, MD, FRSC, Hamilton, ON, Canada
Robert L. Parisien, MD, Boston, MA
Jesse Dashe, MD, Boston, MA
Patrick Cronin, MD, Roxbury Crossing, MA

We sought to examine how easily the statistical significance of comparison trials in fracture care would change if the number of events in one group were incrementally changed.

Discussion – 6 Minutes

2:42 PM  Paper 865
Physician-owned Hospitals: Are the ACA Restrictions Warranted in 2015?
Atul F. Kamath, MD, Philadelphia, PA
Daniel K. Lundgren, Wynnewood, PA
Joshua A. Lopez, Scotch Plains, NJ
Paul M. Courtney, MD, Philadelphia, PA

Physician-owned hospitals had better patient satisfaction and lower complications, with higher total costs. This must be weighed in legislative decisions that might impact access to quality care.

2:48 PM  Paper 866
SSI Risk Is Higher In Spinal Instrumented Surgery Compared To Arthroplasty
Koji Yamada, MD, PhD, Kanagawa-Ken, Japan
Hiroshi Okazaki, MD, Tokyo, Japan
Tatsuro Karita, Tokyo, Japan
Fumiaki Tokimura, MD, Tokyo, Japan
Takuya Matsumoto, MD, PhD, Kunitachi-Shi, Japan
Kiyofumi Yamakawa, MD, PhD, Tokyo, Japan
Koji Nakajima, MD, Tokyo, Japan
Yasuhiro Tajiiri, MD, Tokyo, Japan
Hideki Nakamoto, MD, Yokohama City, Kanagawa Prefecture, Japan

SSI risk of spinal instrumented surgery was 4.2 fold higher compared to joint arthroplasty. Additional efforts may be necessary for SSI prevention in this particular procedure.

2:54 PM  Paper 867
Review of 5.5 Years’ Experience Using Email-based Telemedicine to Deliver Orthopaedic Care to Remote Communities
Adam G. Cota, MD, New York, NY
Magdalena Tarchala, MD, Ottawa, ON, Canada
Caroline Parent-Harvey, Westmount, Canada
Victor Engel, Montreal, Canada
Edward J. Harvey, MD, MS, Westmount, QC, Canada

Using an email-based teleorthopaedic service to manage acutely injured patients in remote communities allowed 79% of patients to be treated locally, with travel related cost savings of $4,176,958 USD.

Discussion – 6 Minutes

3:06 PM  Paper 868
Analyses Of 22,833 Orthopaedic Surgeons’ Scores From 2 Major Physician-rating Websites
Mohammed Hussain, BS, Chicago, IL
Waqas M. Hussain, MD, Bettendorf, IA
Haroon Hussain, MD, Cincinnati, OH
Hristo I. Pironov, Evanston, IL
Douglas R. Dirschl, MD, Chicago, IL
Lewis L. Shi, MD, Chicago, IL

The internet is being used to rate and select orthopedic surgeons. A database of surgeons was systematically searched on two large rating sites. Interpersonal skills correlate with overall score.
Friday, March 4

3:12 PM  Paper 869
Health Literacy in Patients Seeking Orthopaedic Care
Andrew Rosenbaum, MD, Albany, NY
Richard Uhl, MD, Albany, NY
Michael T. Mulligan, MD, Albany, NY
Daniel Pauze, MD, Albany, NY
Denis R. Pauze, MD, Albany, NY
Nancy R. Robak, RN, MPH, Albany, NY
The prevalence of inadequate musculoskeletal health literacy is concerning, as 69% of our patients may lack the skills essential to making informed decisions about their care.

3:18 PM  Paper 870
Fitness tracking devices: Applications in Orthopaedics
Dalibel M. Bravo, MD, New York, NY
Stephanie Swensen, MD, New York, NY
Claudette M. Lajam, MD, New York, NY
A comprehensive review of fitness tracking devices and applications in orthopaedic surgery.

PAPER PRESENTATION

1:30 PM — 3:30 PM
Valencia Room B
Game Changers
Moderator(s): Brian J. Cole, MD, MBA, Chicago, IL
Marc Safran, MD, Redwood City, CA

1:30 PM  Paper 490
Outcomes of a Cementless Thumb Basal Joint Hemiarthroplasty for Treatment of Trapeziometacarpal Osteoarthritis
Patrick G. Marinello, MD, Shaker Heights, OH
Mark C. Shreve, MD, New York, NY
Peter J. Evans, MD, PhD, FRCSC, Cleveland, OH
We found poor implant survivorship and an unacceptably high rate of reoperation with the BioPro thumb basal joint hemiarthroplasty device.

1:36 PM  Paper 181
Incorporating Hip Fracture Hemiarthroplasty into a Bundled Payment System for TJA is Not Economically Viable
Elisabeth M. Graboski, BS, Danville, PA
James E. Murphy, MD, Shavertown, PA
David J. Kolezar, MD, Shavertown, PA
Thomas R. Bowen, MD, Danville, PA
Carmen D. Crofoot, MD, Danville, PA
Elie S. Ghanem, MD, Danville, PA
The cost of treating a hip fracture using a hemiarthroplasty is nearly double that of performing an elective total joint arthroplasty in a patient with osteoarthritis.

1:42 PM  Paper 334
Medicare’s Hospital Acquired Conditions Policy: A Problem of Non-Payment After Total Joint
Andrew J. Pugely, MD, Iowa City, IA
Nicholas Bedard, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Kyle Duchman, MD, Iowa City, IA
Robert W. Westermann, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
The NIS database was used to analyze 2.6 million cases of Total Joint Arthroplasty (TJA) for the presence of Hospital Acquired Conditions (HACs), as defined by CMS.

2:00 PM  Paper 858
Pre-operative Labs: Wasted Dollars Or Predictors Of Postoperative Cardiac Events In Orthopaedic Trauma Patients?
Vasant Sathiyakumar, Nashville, TN
Amir A. Jabangir, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN
This study is the first of its kind to demonstrate the utility of pre-operative labs in orthopaedic trauma and hip fracture patients in predicting cardiac and septic adverse events.

2:06 PM  Paper 323
The Natural History of Primary Anterior Glenohumeral Joint Dislocation in Adolescent Patients
Nick Beattie, BA, MBChB, Edinburgh, United Kingdom
Simon B. Roberts, MBChB, MSc, Edinburgh, United Kingdom
Christopher M. Robinson, MD, Edinburgh, United Kingdom
Natural history of primary anterior shoulder dislocation in adolescents. Prospective data of 133 patients. These patients have a high rate of repeat dislocation, which occurs within two years.

2:12 PM  Paper 713
Interposition Porcine Dermal Matrix Xenografts: An Alternative To Traditional Treatment Of Massive Cuff Tears
Julie A. Neumann, MD, Durham, NC
Kathleen D. Reay, MD, Durham, NC
Miltiadis H. Zgonis, MD, Philadelphia, PA
Stephanie W. Mayer, MD, Aurora, CO
Blake Boggess, DO, Durham, NC
Alison P. Toth, MD, Durham, NC
As interposition grafts, porcine dermal matrix xenografts hold great promise in repair of massive cuff tears showing significant improvement in pain, range of motion, strength and subjective function.

An alphabetical faculty financial disclosure list can be found starting on page 334.
Symposium
4:00 PM — 6:00 PM
Valencia Room B
The Regulatory Process: How Do I Get My Invention into Patients (FF)
Moderator: Barbara D. Boyan, PhD, Richmond, VA
Invention is only the first step in generating a product that can be used to treat patients. This symposium provides surgeons with an overall understanding of product development, focusing on the role of federal regulatory agencies and how to best navigate the regulatory process.

I. What is an Invention? When Should You Disclose It to Industry
Cheryl R. Blanchard, PhD, Fort Wayne, IN

II. Determining Safety and Effectiveness
Stuart B. Goodman, MD, Redwood City, CA

III. Developing Combination Products (and you thought simple devices are a challenge)
Farshid Guilak, PhD, Durham, NC

IV. The Role of Standards in Product Development
Warren O. Haggard, PhD, Bartlett, TN

V. Interacting with the Food and Drug Administration
Mark Melkerson, MS, Silver Spring, MD

VI. Collaborating with Basic and Applied Scientists
Brian Snyder, MD, PhD, Boston, MA

VII. Financing Your Invention while Practicing Orthopaedics
Peter F. Ullrich, MD, Neenah, WI

INSTRUCTIONAL COURSE LECTURE
4:00 PM — 6:00 PM

461 Total Hip Arthroplasty – How Do I Get Out of This Problem?
Moderator: Steven J. MacDonald, MD, London, ON, Canada
Daniel J. Berry, MD, Rochester, MN
Kevin L. Garvin, MD, Omaha, NE
Jay R. Lieberman, MD, Los Angeles, CA

Designed to provide the surgeon with strategies to manage the most common challenges faced intraoperatively and early postoperatively after total hip arthroplasty (THA). We provide recommendations from leading surgeons on how to deal with these common challenges and consensus opinion by the panel on the best way to solve problems.

462 Foot and Ankle Fusions: You Can’t Always Replace Us
Moderator: Christopher P. Chiiodo, MD, Boston, MA
J. Chris Coetzee, MD, Edina, MN
Christopher W. DiGiovanni, MD, Boston, MA
Jeremy T. Smith, MD, Newton, MA

Covers foot and ankle fusions. Indications, surgical techniques, current controversies, as well as pearls and pitfalls.

463 Flexible Intramedullary Rodding of Pediatric Upper and Lower Extremity Fractures: Techniques, Pearls, and Pitfalls
Moderator: David A. Podeszwa, MD, Dallas, TX
Christine A. Ho, MD, Dallas, TX
Anthony I. Riccio, MD, Dallas, TX
Robert L. Wimberly, MD, Dallas, TX

Provides a didactic review and interactive case-based discussion of the indications, techniques, and potential complications of intramedullary (IM) rodding of pediatric and adolescent forearm, femur, and tibia fractures. It is appropriate for both the non-pedic and pediatric orthopaedic surgeon.

464 Biologic Treatments and Enhancements for Treatment of Rotator Cuff Tears – Past, Present, and Future
Moderator: Ofer Levy, MD, Henley-On-Thames, United Kingdom
Alessandro Castagna, MD, Rozzano, Italy
CDR (ret) Matthew T. Provencher, MD, Boston, MA
Scott A. Rodeo, MD, New York, NY

Course faculty discuss the biologic challenges in treatment of rotator cuff tears, the history of biologic treatments and enhancements, and assess current and future developments in a critical evidence-based way.

465 Complication Management in Minimally Invasive Spine Surgery
Moderator: Sheeraz Qureshi, MD, New York, NY
Saad Chaudhary, MD, New York, NY
Jeffrey S. Rob, MD, Sammamish, WA
Kern Singh, MD, Chicago, IL

Addresses rarely discussed complications involved with minimally invasive spine surgery both in the initial and later phases of adoption; and involves a detailed interactive discussion on perioperative and intraoperative pearls to safely and successfully perform minimally invasive procedures. In addition, salvage techniques are discussed, addressing complication avoidance, management, and results.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Friday, March 4

**466**  Issues of Alignment and Tibial Slope: When to Address and How?  
Moderator: Volker Musahl, MD, Pittsburgh, PA  
David Dejour, MD, Lyon, France  
Alan Getgood, MD, FRCS (Ortho), London, ON, Canada  
Anil S. Ranawat, MD, New York, NY

Room  W308C

A review of knee malalignment with a special focus on coronal plane and sagittal plane alignment. Indications for proximal tibia osteotomies and distal femur osteotomies and advantages and disadvantages of closing wedge and opening wedge osteotomies are presented.

**467**  Management of Pelvic Fractures  
Moderator: Michael D. Stover, MD, Chicago, IL  
Kelly A. Lefaivre, MD, Vancouver, British Columbia, Canada  
Keith A. Mayo, MD, Gig Harbor, WA  
Stephen H. Sims, MD, Charlotte, NC

Room  W314

Current standards of pelvic ring injury evaluation, acute management, decision making, surgical techniques, and complication avoidance are presented in depth.

**468**  Lower Extremity Fracture Reduction: Tips, Tricks, and Techniques so that You Leave the OR Satisfied  
Moderator: Michael T. Archdeacon, MD, Cincinnati, OH  
Christina L. Boulton, MD, Indianapolis, IN  
Hassan R. Mir, MD, MBA, Nashville, TN  
George V. Russell Jr, MD, Jackson, MS

Room  W204

Provides the community fracture surgeon with reduction tools, tips, and tricks to facilitate lower extremity fracture reductions and subsequently improve patient outcomes.

**488**  Articular Cartilage Disease and Meniscal Deficiency  
Moderator: Brian J. Cole, MD, MBA, Chicago, IL  
Co-Moderator: Andreas H. Gomoll, MD, Chestnut Hill, MA  
Jack M. Bert, MD, Woodbury, MN  
William Bugbee, MD, San Diego, CA  
Robert T. Burks, MD, Salt Lake City, UT  
Brian Chillemi, MD, Chicago, IL  
Andrew D. Goodvielle, MD, Great Neck, NY  
Christian Lattermann, MD, Lexington, KY  
Bert Mandelbaum, MD, Santa Monica, CA  
Frank R. Noyes, MD, Cincinnati, OH  
Nicholas A. Sgaglione, MD, Great Neck, NY  
Geoffrey Van Thiel, MD, MBA, Rockford, IL  
Adam B. Yanke, MD, Chicago, IL

Room  W208

Focusing on evidence-based decision making as it relates to the care and treatment of patients with articular cartilage defects. Facilitators emphasize an open dialogue related to concomitant management of comorbidities such as meniscal deficiency and malalignment.

**PAPER PRESENTATION**

4:00 PM — 6:00 PM  
Valencia Room D

Shoulder & Elbow VI: The Rotator Cuff II: Basic Science Aspects  
Moderator(s): Ranja Gupta, MD, Orange, CA, Brian R. Wolf, MD, Iowa City, IA

4:00 PM  Paper 871  
Revision Rotator Cuff Repair with Mesenchymal Stem Cells Decreases Subsequent Revision Risk  
Philippe Hernigou, PhD, Créteil, France  
Charles-henri Fouzat-Lachaniette, MD, Créteil Cedex, France

This study showed that significant improvement in healing outcomes could be achieved by the use of BMC containing MSC as an adjunct therapy in revision rotator cuff repair.

4:06 PM  Paper 872  
Vascular Patterns in the Repaired Rotator Cuff Depending on Suture Methods  
Atsushi Urita, MD, PhD, Sapporo, Japan  
Tadanao Funakoshi, MD, Sapporo, Hokkaido, Japan  
Norimasa Iwasaki, Sapporo, Japan  
Bert Mandelbaum, MD, Santa Monica, CA  
Robert T. Burks, MD, Salt Lake City, UT  
Brian Chillemi, MD, Chicago, IL  
Andrew D. Goodvielle, MD, Great Neck, NY  
Christian Lattermann, MD, Lexington, KY  
Bert Mandelbaum, MD, Santa Monica, CA  
Frank R. Noyes, MD, Cincinnati, OH  
Nicholas A. Sgaglione, MD, Great Neck, NY  
Geoffrey Van Thiel, MD, MBA, Rockford, IL  
Adam B. Yanke, MD, Chicago, IL

This prospective randomized study suggested that the blood flow from bone tunnels on the footprint would provide an abundant blood supply in the distal area of repaired rotator cuff after ACR.
Friday, March 4

4:12 PM  Paper 873
Perivascular Stem Cells Diminish Muscle Atrophy Following Massive Rotator Cuff Tears in a Small Animal Model
Claire Eliasberg, BA, Los Angeles, CA
Tomasz J. Kowalski, MD, PhD, Los Angeles, CA
Cameron A. Garagozlo, Melbourne, FL
Kyle Nathubara, MD, Sacramento, CA
Owen McBride, ATC, BS, Los Angeles, CA
Adam Khan, BS, Los Angeles, CA
David R. McAllister, MD, Los Angeles, CA
Brian T. Feeley, MD, San Francisco, CA
Frank Petrigniano, MD, Santa Monica, CA

Our findings demonstrate significantly less muscle atrophy in the groups with perivascular stem cell injections compared to respective controls following massive rotator cuff tears in a mouse model.

Discussion – 6 Minutes

4:24 PM  Paper 874
Anchored versus Anchorless Rotator Cuff Repair: A Biomechanical Analysis
Kelly G. Kilcoyne, MD, El Paso, TX
Stanley Guillaume, BS, Indianapolis, IN
Evan R. Langdale, MS, Indianapolis, IN
Catherine Hannan, BS, Indianapolis, IN
Stephen Belkoff, PhD, Indianapolis, IN
Umashanth Srikumaran, MD, MBA, Clarksville, MD

This controlled laboratory study demonstrates that anchored rotator cuff repairs have significantly increased load to failure than anchorless, transosseous repairs.

4:30 PM  Paper 875
Stiffness Changes in the Supraspinatus Muscle after Double-row and Knotless Transosseous Equivalent Cuff Repair
Taku Hatta, MD, Rochester, MN
Hugo Giambini, PhD, Rochester, MN
Alexander W. Hooke, MA, Rochester, MN
Chunfeng Zhao, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Scott P. Steinmann, MD, Rochester, MN
Nobuyuki Yamamoto, MD, Sendai, Japan
Eiji Ito, MD, Sendai, Japan
Kai-Naw An, PhD, Rochester, MN

Knotless transosseous equivalent technique for the medium-large size tear provides a more uniform stiffness distribution in repaired supraspinatus muscles compared to the double-row technique.

4:36 PM  Paper 876
Tape Versus Suture for Arthroscopic Rotator Cuff Repair - A Biomechanical and Clinical Study
Ruiwen Liu, MD, Kogarah, NSW, Australia
Patrick H. Lam, PhD, Sydney, NSW, Australia
Henry Shepherd, Kogarah (Sydney), Australia
George A. Murrell, MD, Kogarah, NSW, Australia

Tape was better biomechanically but suture better clinically.

Discussion – 6 Minutes

4:48 PM  Paper 877
Parr1 Knock Out Leads To Regeneration And Decreased Fatty Inf ltration After Rotator Cuff Tear In A Mouse Model
Michael Kuenzler, MD, Long Beach, CA
Katja M. Nuss, DVM, Zurich, Switzerland
Agnieszka Karol, DVM, MSc, Zurich, Switzerland
Michael Schaer, MD, New York, NY
Michael Hottiger, DVM, PhD, Long Beach, CA
Brigitte von Rechenberg, MD, Zurich, Switzerland
Matthias Zumstein, MD, Bern, Switzerland

PARP1 Knock-out mice have less early inflammation and late adipogenesis in their rotator cuff. After severe atrophy 6 weeks post-tenotomy, the muscles of the knock out mice regenerate to normal size.

4:54 PM  Paper 878
Muscle Degeneration Associated with Rotator Cuff Tendon Release and / or Denervation in Sheep
Karl Wieser, MD, Zurich, Switzerland
Dominik C. Meyer, MD, Zurich, Switzerland
Martin Flick, Zurich, Switzerland
Brigitte von Rechenberg, MD, Zurich, Switzerland
Mario Benn, Zurich, Switzerland
Christian Gerber, MD, Zurich, Switzerland

Muscle denervation leads to lengthening of muscle fibers, with a reduced cross sectional area and a slow-to-fast type transformation, leading to an overall significantly stronger muscle atrophy.

Friday, March 4

5:00 PM  Paper 879
Effect of Hyaluronic Acid on Tendon-to-Bone Healing in Rotator Cuff Repair Model
Hirokazu Honda, MD, Fukuoka, Japan
Masafumi Gotoh, MD, PhD, Kurume, Japan
Tomonoshin Kanazawa, MD, PhD, Kurume, Fukuoka, Japan
Hiroki Ohsano, Kurume City, Japan
Hiideki Shibata, MD, Kurume, Japan
Hisao Shimokobe, Kurume-City Fukuoka, Japan
Hidehiro Nakamura, MD, Kurume Fukuoka, Japan
Ryo Tamesue, MD, Kurume, Japan
Naoto Shiba, MD PhD, Fukuoka, Japan

Marrow-derived stromal cells activated by hyaluronic acid may play a crucial role in acceleration of tendon-bone healing after cuff repair in rabbits, enhancing the biomechanical strength at the site.

Discussion – 6 Minutes

5:12 PM  Paper 880
Effect of Polydeoxyribonucleotide on Rotator Cuff Healing and Fatty Degeneration in Rat Model
Jung-Taek Hwang, MD, PhD, Chuncheon-si, GA, Republic of Korea
Do-Young Kim, MD, PhD, Chuncheon-si, Republic of Korea
Sang-soo Lee, MD, Chuncheon-si, Republic of Korea

The use of PDRN and PN might have possibility to improve tendon healing and decrease fatty infiltration after cuff repair.

5:18 PM  Paper 881
Reduction of Lipid Accumulation and Fibrosis after Rotator Cuff Repair
Jeffrey Wilde, MD, Dexter, MI
Jonathan P. Gumucio, BS, Ann Arbor, MI
Jeremy Grekin III, MS, Ann Arbor, MI
Max Davis, Ann Arbor, MI
Stuart M. Roche, BS, Ann Arbor, MI
Asheesh Bedi, MD, Ann Arbor, MI
Christopher L. Mendias, PhD, ATC, Ann Arbor, MI

Inhibition of p38 MAPK was found to have a significant decrease in fibrosis and intramuscular lipid accumulation that is usually seen in the degenerative cascade of rotator cuff tears.

Discussion – 6 Minutes

5:24 PM  Paper 882
Effect Of Hypercholesterolemia On Fatty Infiltration And Healing In A Chronic Rotator Cuff Tear Model Of Rabbit
Joo Han Oh, Seoul, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
HAEBONG PARK, Seoul, Republic of Korea
Jieun Kwon, Seoul, Republic of Korea
Tae-Yon Rhee, MD, PhD, Seoul, Republic of Korea

Hypercholesterolemia resulted in a deleterious effect on fatty infiltration and rotator cuff healing, and lowering hypercholesterolemia seemed to halt or reverse these harmful effects.

Discussion – 6 Minutes

5:36 PM  Paper 883
Identificaton Of A Familial Predisposition For And A Genetic Variant Associated With Rotator Cuff Repair Healing
Robert Z. Tashjian, MD, Salt Lake City, UT
Erin Granger, MPH, Salt Lake City, UT
Yue Zhang, Sandy, UT
Craig C. Teerlink, PhD, Salt Lake City, UT
Lisa Cannon-Albright, Salt Lake City, UT

Failure of rotator cuff repair healing is associated with a family history of rotator cuff tearing and the presence of a genetic variant in the estrogen-related receptor beta (ESRRB) gene.

5:42 PM  Paper 884
Characteristics Of The Gene Expression Of The Torn Rotator Cuff Tendon Tissue In Patients With Diabetes
Seok Won Chung, MD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Seoungnam-Si, Republic of Korea

Our results demonstrated the over-expression of MMP-9 and IL-6 protein in diabetic torn cuff tendon tissues compared with controls.

5:48 PM  Paper 885
Fatty Replacement of Human Rotator Cuff Muscle Following Chronic Tendon Tear
Michael Gibbons, La Jolla, CA
Anshuman Singh, MD, San Diego, CA
Timothy Cheng, MD, San Diego, CA
Oke A. Anakwenze, MD, New York, NY
Simon Schenk, PhD, La Jolla, CA
Samuel R. Ward, PhD, La Jolla, CA

Biopsies from massive rotator cuff tears demonstrate active degenerative and regenerative processes, high levels of fibrosis, vascularity and apoptosis, and novel “fatty replacement” of muscle tissue.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room W414
Adult Reconstruction Knee VIII: Miscellaneous
Moderator(s): Jason A. Grassbaugh, MD, Tacoma, WA, Sumon Nandi, MD, Lima, OH

4:00 PM  Paper 886
Simultaneous Bilateral Total Knee Arthroplasty In Elderly Greater Than 70 Yeras Old
Raju Vaishya, MD, MBBS, New Delhi, India
Vipul Vijay, MBBS, MS, New Delhi, India

With predictable benefits of surgery, SBTKA seems a safe and viable procedure for carefully selected elderly patients, provided the risks are well accepted by doctors, patients and family members.

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4:06 PM  Paper 887
Outcomes of Unicompartmental Knee Arthroplasty in Patients with Genu Recurvatum
Lei Jiang, MBBS, Singapore, Singapore
Yongqiang Jerry Chen, MBBS, Singapore, Singapore
Hwee Chi Chong, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore

Pre-operative genu recurvatum results in poorer outcomes after unicompartmental knee arthroplasty and these patients benefit from better improvement in function after total knee arthroplasty instead.

4:12 PM  Paper 888
Alpha-Defensin is an Accurate Test for PJI
Erdan Kayupov, Troy, MI
Greg Kazarian, BA, Media, PA
Darren R. Plummer, MBA, MD, Columbus, OH
Carl A. Deirmengian, MD, Newtown Square, PA
Craig J. Della Valle, MD, Chicago, IL

Alpha-Defensin is an accurate test for PJI and especially valuable at identifying cases of culture-negative PJI.

Discussion – 6 Minutes

4:24 PM  Paper 889
Long-term Results Of Total Knee Arthroplasty For Valgus Knees: Soft-tissue Release Technique And Implant Selection
Ashok Rajgopal, MD, FRCS (Ortho), Gurgaon, India

Adequate lateral soft-tissue release is the key to successful TKAs in valgus knees. The choice of implant depends on the severity of the valgus deformity.

4:30 PM  Paper 890
Medial Overhang of Tibia Component is associated with higher risk of inferior KOOS pain score after Knee Replacement
Christian Skovgaard Nielsen, MD, Boston, MA
Audrey Nebergall, Boston, MA
James J. Huddleston III, MD, Redwood City, CA
Christopher J. Barr, BS, Boston, MA
Henrik Malchau, MD, Cambridge, MA
Anders Troelsden, MD, PhD, Koege, Denmark

In this multicenter, prospective study, a significant association was shown between medial overhang of the tibial component and unacceptable 1 year KOOS pain.

Discussion – 6 Minutes

4:36 PM  Paper 891
Right TKR Patients Treated With Enhanced Pain and Rehabilitation Protocols Can Drive at 2 Weeks
David F. Dalury, MD, Indianapolis, IN
Danielle M. Chapman, Towson, MD

Right TKR patients treated with enhanced pain and rehabilitation protocols can return to their driving capabilities earlier than previously expected.

Discussion – 6 Minutes

4:48 PM  Paper 892
Factors Associated with Prolonged Opioid Use After Total Knee Arthroplasty
Robert S. Namba, MD, Corona Del Mar, CA
Anshuman Singh, MD, San Diego, CA
Maria C. Intaco, PhD, Adelaide, Australia
Liz Paxton, MA, Rojo Santa Fe, CA

Risk factors for prolonged opioid use after TKA were evaluated. Preoperative opioid use, patient ethnicity, and co-morbidities were evaluated.

4:54 PM  Paper 893
Safe Continuation Of Aspirin Mono-therapy During TKA With Multimodal Blood Management.
Emmanuel Thienpont, MD, Asse, Belgium
Pierre-Emmanuel Schuab, Bruxelles, Belgium

Aspirin stop before surgery can lead to withdrawal syndrome with thromboembolic complications. With today’s multimodal blood management stopping aspirin mono-therapy before TKA is no longer necessary.

5:00 PM  Paper 894
Prevalence of Venous Thromboembolic Events is Low in Asians After Total Knee Arthroplasty Without Chemoprophylaxis
Hamid Rahmatullah Bin Abd Razak, MBBS, Singapore, Singapore
Noorul Faeyza, Singapore, Singapore
Hwee Chi Chong, Singapore, Singapore
Andrew Tan, MD, Singapore, Singapore

With risk stratification and stringent protocols on mechanical prophylaxis with early ambulation, routine chemoprophylaxis may not be necessary in Asian patients undergoing total knee arthroplasty.

Discussion – 6 Minutes

5:12 PM  Paper 895
The Cost-Effectiveness of TKA at High Volume Hospitals
Jayme C. Burket, PhD, New York, NY
Hassan Ghomrawi, PhD, New York, NY
Alexander Dresner, Business Administrator, New York City, NY
Ting-Jung Pan, MPH, New York, NY
Douglas E. Padgett, MD, New York, NY
Steven Lyman, PhD, New York, NY

High volume hospitals provide better value per healthcare dollar spent for primary elective unilateral TKA relative to lower volume hospitals.

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5:18 PM  Paper 896  Periprosthetic Joint Infection: Organism Profile May Be Changing
Garrett C. Davis, MD, Bala Cynwyd, PA
Carl A. Deirmengian, MD, Wynnewood, PA
Simmi Gulati, Indianapolis, IN
James W. Stave, PhD, Claymont, DE
Javad Parvizi, MD, FRCSC, Philadelphia, PA

Prosthetic joint infection (PJI) in the US can be caused by a wide array of organisms, many not previously recognized. Coagulase negative Staphylococcus may be the most common infecting organism.

5:24 PM  Paper 897  Quantifying the Length of the Electronic Medical Record Implementation Period
Daniel J. Scott, MD, Durham, NC
Eva Labro, PhD, Chapel Hill, NC
Colin T. Penrose, BA, BS, Durham, NC
Michael P. Bolognesi, MD, Durham, NC
Samuel S. Wellman, MD, Durham, NC
Richard C. Mather III, MD, Durham, NC

The implementation period for electronic medical records for returning to previous labor costs appears to be 6 months.

5:36 PM  Paper 898  Combined Method Of Intraarticular And Intravenous Tranexamic Acid In Total Knee Arthroplasty
Eduardo Hevia, Madrid, Spain
Miguel Ortega, Madrid, Spain
Agustin Garabito Cocina, Madrid, Spain
Enrique Gomez-Barrena, Madrid, Spain

Decrease in blood loss and mean hospital length of stay after TKA using a multimodal blood loss prevention protocol including combined method of intra-articular and IV tranexamic acid and no drains.

5:42 PM  Paper 899  Surgeon Accuracy In Identifying Anatomic Landmarks For Femoral Component Positioning In TKA
Fadi Saied, DO, Bakersfield, CA
Rikin Patel, Houston, TX
Sabir Ismaily, Houston, TX
Meleyn A. Harrington, MD, Houston, TX
Glenn C. Landon, MD, Houston, TX
Brian S. Parsley, MD, Bellaire, TX
Philip C. Noble, PhD, Houston, TX

The purpose of this study is to evaluate surgeon accuracy in identifying anatomic landmarks for the purpose of femoral component positioning in total knee arthroplasty (TKA).

5:48 PM  Paper 900  Clinical Results and Survivorship of Unique TKA System at 15 Years Follow-up
Richard W. McCalden, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada
Dougald Naudie, MD, FRCSC, London, ON, Canada
Robert B. Bourne, MD, FACSC, London, ON, Canada

This unique TKA system, with “built-in” femoral external rotation, continues to demonstrate excellent long-term survivorship and improvement in health-related outcomes at 15 years.

5:54 PM  Paper 918  Is Ketorolac The Next Intra-Articular Knee Injection For Osteoarthritis?
Jaime L. Bellamy, DO, San Antonio, TX
Brandon Goff, DO, Fair Oaks Ranch, TX
Siraj A. Sayeed, MD, San Antonio, TX

Osteoarthritis of the knee can be a disabling disease. Ketorolac is a safe non-operative option for knee intra-articular injection that gives similar pain relief to corticosteroid.

4:00 PM — 6:00 PM
Room W304A

4:00 PM  Paper 901  Formal Physical Therapy After Primary Total Hip Arthroplasty May Not Be Necessary
Brian T. Urbani, MS, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
William J. Hozack, MD, Philadelphia, PA
Richard H. Rothman, MD, Philadelphia, PA
Javad Parvizi, MD, FRCSC, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA

The purpose of this prospective, randomized study was to determine the effect of formal outpatient physical therapy on the functional outcome of total hip arthroplasty.
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4:06 PM  Paper 902
Simultaneous Bilateral Versus Staged Bilateral Total Hip Arthroplasty: A Matched Survival Study
Matthew Houdek, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN

In this matched cohort analysis, simultaneous bilateral THA was not associated with an increased risk of revision, reoperation, infection or postoperative complications.

4:12 PM  Paper 903
5 Year Clinical Performance of Highly Cross-Linked Polyethylene and Vitamin E Diffused Polyethylene using RSA
Audrey Nebergall, Boston, MA
Meredith E. Greene, Boston, MA
Mogens B. Laursen, MD, PhD, Aalborg, Denmark
Orhun K. Muratoglu, PhD, Boston, MA
Anders Troelsen, MD, PhD, Koege, Denmark
Henrik Malchau, MD, Gothenburg, Sweden

Both the HXLPE and VEPE showed low femoral head penetration at 5 years. All PROMs improved significantly and remained favorable at 5 years suggesting excellent clinical performance.

4:24 PM  Paper 904
Screening Protocol And Incidence Of Adverse Reaction To Metal Debris: A Systematic Review And Meta-analysis
Aleksi Reito, MD, PhD, Tampere, Finland
Olli Lainiala, MB, Tampere, Finland
Antti Eskelinen, MB, Tampere, Finland

The intensity of the screening protocol affects the incidence of ARMD, but there seems to be implant concept related variations.

4:30 PM  Paper 905
The Effect of Bilateral Hip Replacement on Metal Ion Levels in Patients with Metal-on-Metal Implants
Daniel Hussey, BA, Boston, MA
Rami Madanat, MD, Helsinki, Finland
Gabrielle Donahue, BA, Boston, MA
Ola Rolfson, MD, PhD, Gothenburg, Sweden
Orhun K. Muratoglu, PhD, Boston, MA
Henrik Malchau, MD, Cambridge, MA

When assessing blood metal ions in patients with MoM implants, a chromium ion level ≥ 10 ppb may be an indicator of hip failure based on functional outcomes.

4:36 PM  Paper 906
Bilateral Total Hip Arthroplasty: One-stage Versus Two-stage Procedure
Afshin Taberiazam, Tehran, Islamic Republic of Iran
Farshad Safdari, Tehran, Islamic Republic of Iran

One-stage bilateral THA can be served as a safe procedure in patients requiring bilateral hip arthroplasty without increased rate of complications.

4:48 PM  Paper 907
Readmission and Complication Rates for Patients Requiring a Blood Transfusion After Primary Total Hip Arthroplasty
Clayton Alexander, MD, Indianapolis, IN
Mostafa H. El Daafawy, MD, Indianapolis, IN
Zan Naseer, Forest Hill, MD
Louis C. Okafor, MD, Indianapolis, IN
Karthikeyan E. Ponnusamy, MD, Indianapolis, IN
Robert S. Sterling, MD, Owings Mills, MD
Richard L. Khanuja, Cockeysville, MD

Transfused primary THA patients had an independently higher risk for surgical complications within 30 days; for 60-day readmissions; and for 60-day periprosthetic joint infections.

4:54 PM  Paper 908
Subsequent Total Joint Arthroplasty After Primary Total Knee Or Hip Arthroplasty: A 40 Year Population-based Study
Thomas L. Sanders, MD, Rochester, MN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Cathy D. Schleck, Rochester, MN
Dirk Larson, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

This study reports on the rate of additional contralateral or ipsilateral joint arthroplasty after primary THA or TKA.

5:00 PM  Paper 909
Predictors for Readmission Following Primary Total Joint Arthroplasty in Lower Extremity
Ong-Art Phruetthiphat, MD, Iowa City, IA
Jesse E. Otero, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
Sebastian Vasta, MD, Rome, Italy
Biagio Zampogna, MD, Rome, Italy
Yubo Gao, PhD, Iowa City, IA

Patient co-morbidities and pre-operative functional capacity significantly affect 30-day readmission rate following total joint arthroplasty in lower extremity.

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5:12 PM  Paper 910  
What Are Normal Metal Ion Levels After Total Hip Arthroplasty?  
A Serologic Analysis of Five Bearing Surfaces  
Brian Barlow, MD, New York, NY  
John Boles, BS, New York, NY  
Geoffrey H. Westrich, MD, New York, NY  

The normal serum Co and Cr ion levels in well-functioning THA are not significantly different across contemporary bearing surfaces. Serum Ti ion levels were undetectable.

5:18 PM  Paper 911  
Risk Reduction Efforts Do Not Decrease 30-Day THA Readmissions for Disadvantaged CMS Patients  
James A. Keeney, MD, Columbia, MO  
Denis Nam, MD, DSc, Saint Louis, MO  
Staci Johnson, MEd, Saint Louis, MO  
Ryan Nusley, MD, Saint Louis, MO  
John C. Clohisy, MD, Saint Louis, MO  
Robert L. Barrack, MD, Saint Louis, MO  

CMS beneficiaries from minority and low socioeconomic groups had high 30-day THA readmission rates that did not respond to risk reduction initiatives that were effective in reducing TKA readmissions.

5:24 PM  Paper 912  
Discharge Trends in Medicare Patients Undergoing Primary THA and TKA  
Gwo-Chin Lee, MD, Philadelphia, PA  
Kevin Ong, PhD, Philadelphia, PA  
Doruk Baykal, PhD, Philadelphia, PA  
Edmund Lau, MS, Menlo Park, CA  
Arthur L. Malkani, MD, Louisville, KY  

There has been an increasing trend to home discharge in Medicare patients undergoing primary THA, but not primary TKA patient without an increase in readmissions following surgery.

5:36 PM  Paper 913  
Contralateral THA After Index THA for Avascular Necrosis Stratified By Demographics and Comorbidities  
Kimona Issa, MD, Little Falls, NJ  
Aiman Rifai, DO, Wayne, NJ  
Todd Pierce, MD, Indianapolis, IN  
Vincent K. McNerney, MD, Morristown, NJ  
Julio J. Jauregui, Indianapolis, IN  
Randa K. Elmallah, Indianapolis, IN  
Jeffrey J. Cherian, DO, Indianapolis, IN  
Michael A. Mont, MD, Indianapolis, IN  

Our purpose was to evaluate the incidence of contralateral THA in patients who had undergone THA due to AVN and evaluate different patient demographic, comorbidities, or radiographic findings.

5:42 PM  Paper 914  
Do Precautions prevent Dislocation after Total Hip Arthroplasty? A Systematic Review and Meta-Analysis  
Walter A. van der Weegen, PhD, Geldrop, Netherlands  
Anke Kornuijt, PT, Geldrop, Netherlands  
Dirk Das, MD, Geldrop, Netherlands  

A more liberal lifestyle restrictions and precautions protocol will not lead to worse dislocation rates after THA, but will lead to earlier and better resumption of activities.

5:48 PM  Paper 915  
Robotic Assisted Total Hip Arthroplasty; Is it the future yet?  
James R. Lachman, MD, Flourtown, PA  
Christopher L. Haydel, MD, Philadelphia, PA  
Easwaran Balasubramanian, MD, Gwynedd Valley, PA  

100 conventional THAs and 100 robotic-assisted THAs were compared. Outcomes including LOS, OR time, EBL, cup position (version/inclination), dislocation, readmission, and early revision.

Discussion – 6 Minutes
Orthopaedic Video Theater presents videos and multimedia programs created by your orthopaedic surgeon colleagues. These peer-reviewed programs bring you the very latest in surgical technique, leading-edge devices, and new technologies. Enjoy unlimited viewing at your convenience, Tuesday through Saturday; included free with your registration.

Tuesday – Wednesday
• Award Programs .................................................Stations 1-10
• Adult Reconstruction Hip ...................................Stations 11-14
• Adult Reconstruction Knee .................................Stations 15-22
• Foot and Ankle ...................................................Stations 23-26
• Trauma ...............................................................Stations 27-33
• Tumors .................................................................Station 34
• Pediatrics .............................................................Stations 35-39
• Spine .................................................................Station 40

Thursday – Saturday
• Award Programs .................................................Stations 1-10
• Sports Medicine and Arthroscopy .......................Stations 11-31
• Hand and Wrist ...................................................Stations 32-34
• Shoulder and Elbow ............................................Stations 35-40

In addition, 8 self-service stations are available for you to view any Orthopaedic Video Theater title online.

AWARD WINNING MOVIES

Tuesday, March 1 – Saturday, March 5
Academy Hall C

STATION 1
Minimally Invasive Direct Anterior Approach for Revision of the Acetabular Component
Cesare Faldini, MD, Bagheria, Italy
Francesco Traina, MD, Bologna, Italy
Daniele Fabbrì, MD, Bologna, Italy
Domenico Fenga, MD, Messina, Italy
Raffaele Borghi, MD, Bologna, Italy
Fabrizio Perna, MD, Palermo, Italy
Eugenio Leo, MD, Messina, Italy
Carlotta Calamelli, MD, Imola, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy

The aim of this video is to describe surgical tricks and pitfalls for performing acetabular cup revisions through a modified minimally invasive anterior approach.

Product Number V16001, 20 mins.

STATION 2
Three-Step Technique for Revision Total Knee Arthroplasty (TKA): Tips and Tricks
Federica Rosso, MD, Torino, Italy
Davide E. Bonasia, MD, Torino, Italy
Umberto Cottino, MD, Pecetto Torinese, Italy
Federico Dettoni, MD, Torino, Italy
Matteo Bruzzone, MD, Torino, Italy
Roberto Rossi, MD, Torino, Italy

The Three-Steps Technique introduced by Kelly Vince is a guideline for the surgeons approaching a revision total knee arthroplasty (TKA). In this video the three steps will be described, in association with some tips and tricks to solve the problems the surgeon has to face during a revision TKA.

Product Number V16002, 15 mins.

STATION 3
Surgical Treatment of Flexible Flatfoot in Children: Subtalar Arthroereisis and Combined Surgical Procedures
Cesare Faldini, MD, Bagheria, Italy
Francesco Traina, MD, Bologna, Italy
Matteo Nanni, MD, Bagheria, Italy
Daniele Fabbrì, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Fabrizio Perna, MD, Palermo, Italy
Ilaria Sanzarello, MD, Messina, Italy
Federico Pilla, MD, Bologna, Italy
Sandro Giammini, MD, Bologna, Italy

This video presents the surgical technique for subtalar arthroereisis using a bioabsorbable implant in the treatment of flexible flatfoot during growing age, and combined surgical procedures.

Product Number V16003, 23 mins.

STATION 4
Transscaphoid Perilunate Fracture Dislocation: Overview and Surgical Technique
Laura Sims, MD, Saskatoon, Saskatchewan, Canada
Jason Shin, MD, Saskatoon, Saskatchewan, Canada
George S. Athwal, MD, London, Ontario, Canada
David Sauder, MD, Saskatoon, Saskatchewan, Canada

This video provides a comprehensive overview of transscaphoid perilunate dislocations, with a focus on surgical technique.

Product Number V16004, 10 mins.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
STATION 5
Congenital Muscular Torticollis: Minimally Invasive Bipolar Tenotomy
Cesare Faldini, MD, Bagheria, Italy
Federico Pilla, MD, Bologna, Italy
Fabrizio Perna, MD, Palermo, Italy
Domenico Fenga, MD, Messina, Italy
Daniele Fabbri, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Matteo Nanni, MD, Bagheria, Italy
Francesco Traina, MD, Bologna, Italy

The aim of this video is to show a case of CMT successfully managed by bipolar tenotomy of SCM and its postoperative management.

Product Number V16005, 12 mins.

STATION 6
On-Track/Off-Track Shoulder Instability
Giovanni Di Giacomo, MD, Rome, Italy
Paolo Scarso, MD, Sinagra, Italy
Nicola De Gasperis, MD, Rome, Italy

The Hill-Sachs lesion can be called “off-track” or “on-track”. We have developed a treatment paradigm with specific surgical criteria for all patients with anterior shoulder instability.

Product Number V16006, 17 mins.

STATION 7
Distal Biceps Tendon Repair with Button and Interference Screw Fixation
Fraser J. Taylor, FRACS, MBCHB, Burleigh Heads, Australia
Randipsingh R. Bindra, MD, Bundall, Australia

We present the operative technique for repair of rupture of distal biceps tendon insertion. Patient demographics, indications and pearls and pitfalls of the operative technique are presented.

Product Number V16007, 13 mins.

STATION 8
How to Reduce Unbalanced Severe Isthmic Spondylolisthesis
Cesare Faldini, MD, Bagheria, Italy
Angelo Toscano, MD, Mori, Italy
Raffaele Borghi, MD, Bologna, Italy
Daniele Fabbri, MD, Bologna, Italy
Fabrizio Perna, MD, Palermo, Italy
Alberto Di Martino, MD, PhD, Rome, Italy
Camilla Pungetti, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Francesco Traina, MD, Bologna, Italy

The aim of this video is to show the surgical technique of reduction of L5 high grade isthmic spondylolisthesis (HGIS) in a 36 years old female who suffered from chronic low back pain associated with intractable L5 bilateral radiculopathy. This video may help the young surgeons learn how to approach HGIS and manage it appropriately.

Product Number V16008, 20 mins.

STATION 9
Arthroscopic-Assisted Outside-In Repair of Triangular Fibrocartilage Complex Tears
Rachel M. Frank, MD, Chicago, IL
John J. Fernandez, MD, Winnetka, IL
Mark S. Cohen, MD, Glencoe, IL
Robert W. Wysocki Jr, MD, Chicago, IL

Appropriate surgical management of peripheral TFCC tears utilizing an arthroscopic-assisted outside-in surgical technique allows for excellent clinical outcomes with low complication rates.

Product Number V16009, 13 mins.

STATION 10
Posteromedial Tibial Plateau Fixation in the Prone Position: Applications of the Lobenhoffer Approach
Stephen Kottmeier, MD, Stony Brook, New York
Elliot Row, MD, Stony Brook, New York
J. Tracy Watson, MD, Saint Louis, Missouri
Clifford B. Jones, MD, Phonix, Arizona

A critical assessment of radiographic and clinical outcomes, when managing complex articular fragments of the proximal tibia, demonstrates several aspects worthy of re-evaluation and potential modification. These include: 1) Refined understanding of fracture pathoanatomy and classification; 2) Surgical access (operative exposure) and timing; 3) Preferential fixation constructs; and 4) Implant design modification. The following presentation highlights the attributes and limitations of contemporary classification schemes and the role posterior access in the prone position may offer in select scenarios. The following are discussed: 1) Axial classification schemes; 2) Posteromedial (lobenhoffer) surgical exposure - technique; 3) Indications and case examples of retrocondylar access and fixation; and 4) The author’s clinical experience and outcomes.

Product Number V16010, 22 mins.

STATION 11
NPWT over Closed Incisions Decreases Wound Complications following High-Risk TJA
Marcel A. Bas, MD, New York, NY
H. John Cooper, MD, New York, NY

Negative pressure wound therapy applied over a close incision decreases wound complications following high-risk THA and TKA.

Product Number V16011, 13 mins.
STATION 12
Multimodal Pain Management with Periarticular Infiltration of Liposomal Bupivacaine in Total Hip Arthroplasty
Michael A. Mont, MD, Baltimore, MD
John W. Barrington, MD, Plano, TX
Jeffrey J. Cherian, DO, Philadelphia, PA

Multimodal protocols are important for pain management. The addition of liposomal bupivacaine may further improve outcomes after THA.

Product Number V16012, 17 mins.

STATION 13
The Superior Approach for Total Hip Arthroplasty: Technique and 13 Years Experience
J.S. Reid, MD, Newton, MA
William Murphy, Winchester, MA
Kevin S. Borchard, MD, Boston, MA
Anil O. Thomas, MD, Woodstock, GA
Daniel Le, MD, Houston, TX
Richard D. Reitman, MD, Plano, TX
Stephen B. Murphy, MD, Boston, MA

Thirteen year experience with the superior hip approach for THA demonstrates reliable results and economic data showing more than $5000 less total expenditure per episode than the control cohort.

Product Number V16013, 8 mins.

STATION 14
Surgical Technique: Hip Resurfacing Postero-Lateral Approach
Antonio Moroni, MD, Rimini, Italy
Giovanni Micera, MD, Bologna, Italy
Maria Teresa Miscione, MD, Milano, Italy
Riccardo Orsini, MD, Bologna, Italy

This is a surgical technique demonstrating hip resurfacing using a postero-lateral approach.

Product Number V16014, 21 mins.

STATION 15
Good To Great! Use of Navigation System in Revision of HTO to TKA
Han-Jun Lee, MD, Seoul, Republic of Korea
Jae Sung Lee, MD, PhD, Seoul, Republic of Korea
Hyeok Bin Kun, MD, Seoul, Republic of Korea
Jung-Won Lim, MD, Seoul, Republic of Korea
Dai-Ung Ham, MD, Seoul, Republic of Korea
Seong Hwan Kim, MD, Daehak-Ro, Republic of Korea
Sung-Min Khee, MD, Seoul, Republic of Korea

The navigation assisted revision of open wedge HTO to TKA provides considerable preoperative information, minimal bone cuts, and accurate limb alignment with proper soft tissue balancing.

Product Number V16015, 11 mins.

STATION 16
Revision Total Knee Arthroplasty: Exposure and Component Removal
Alberto Carli, MD, New York, NY
Mark P. Figge, MD, Riverside, CT
Lucian C. Warth, MD, New York, NY
Douglas E. Padgett, MD, New York, NY

This video illustrates a systematic approach to exposure and implant removal in revision total-knee arthroplasty. Tips and tricks for removing cementless and cemented components, various polyethylene inserts and stemmed components are also demonstrated.

Product Number V16016, 20 mins.

STATION 17
Implant Removal in Revision Total Knee Arthroplasty (TKA): Tips and Tricks
Federica Rosso, MD, Torino, Italy
Davide E. Bonasia, MD, Torino, Italy
Umberto Cottino, MD, Pecetto Torino, Italy
Federico Dettoni, MD, Torino, Italy
Matteo Bruzzone, MD, Torino, Italy
Roberto Rossi, MD, Torino, Italy

During implant removal in total knee arthroplasty (TKA) care should be taken not to remove unwanted bone. In this video we will focus on the steps of the implant removal, and onto some tips and tricks for complex removal will be described.

Product Number V16017, 12 mins.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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EDUCATIONAL PROGRAMS

STATION 18
Everything You Always Wanted to Know About TKR in Ankylosed Knee* (*But were Afraid to Ask)
Matteo Bruzzone, MD, Torino, Italy
Roberto Rossi, MD, Torino, Italy
Federica Rosso, MD, Torino, Italy
Federico Dettoni, MD, Torino, Italy
Davide E. Bonasia, MD, Torino, Italy
Umberto Cottino, MD, Pecetto Torinese, Italy
Antongiulio Marmotti, MD, Torino, Italy
Davide Blonna, MD, Torino, Italy
In this video we present a complex case of an ankylosed knee in a hemophilic patient, analyzing in a stepped way all the main problems we had to deal with during surgery: exposure, extensor mechanism shortening, definition of anatomic landmarks and joint line, soft tissues balancing and implant choice.
Product Number V16018, 19 mins.

STATION 19
Multimodal Pain Management with Periarticular Inf ltration of Liposomal Bupivacaine in Total Knee Arthroplasty
Michael A. Mont, MD, Baltimore, MD
John W. Barrington, MD, Plano, TX
Jeffrey J. Cherian, DO, Philadelphia, PA
Multimodal protocols are important for pain management. The addition of liposomal bupivacaine may further improve outcomes after TKA.
Product Number V16019, 22 mins.

STATION 20
Lateral Epicondylar Sliding Osteotomy in Total Knee Arthroplasty for Rigid Valgus Deformity
Fabio Conteduca, MD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Daniele Mazza, MD, Fiumicino, Italy
Gabriele Bolle, MD, Rome, Italy
Andrea Redler, MD, Rome, Italy
Raffaele Iorio, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy
This is a lateral femoral sliding osteotomy technique for ligamentous balancing is a reliable and effective surgical procedure in restoring stable alignment in patients with a rigid varus knee deformity.
Product Number V16020, 10 mins.

STATION 21
Restoration of Posterior Condylar Offset in TKA: The Effect of Posterior-Referencing Jig Design
Matthew S. Hepinstall, MD, New York, NY
Ryan Coyle, MD, New York, NY
Marcel A. Bas, MD, New York, NY
External rotation of femoral implants in posterior-referencing TKA has variable effects posterior condylar offset, depending on the condyle(s) referenced.
Product Number V16021, 13 mins.

STATION 22
Knee Preservation with Osteotomy: Surgical Techniques
Rachel M. Frank, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Charles A. Bush-Joseph, MD, Chicago, IL
Adam B. Yanke, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Joint preservation with high tibial osteotomy (varus knee malalignment) and distal femoral osteotomy (valgus knee malalignment) allows for excellent clinical outcomes with low complication rates.
Product Number V16022, 14 mins.

STATION 23
Talof bular Bony Impingement in the Ankle
Woo Chun Lee, MD, Seoul, Republic of Korea
Jae Young Kim, MD, Seoul, Republic of Korea
Ji-Beom Kim, MD, Seoul, Republic of Korea
Young Yi, MD, Seoul, Republic of Korea
Jiyong Ahn, MD, Seoul, Republic of Korea
Talof bular bony impingement is a distinct disease entity which causes pain and limits motion. It is diff cult to detect on plain radiograph, similar to the spur on the anterior border of the medial malleolus and anterior portion of the medial talar facet. This video helps viewers understand the diagnosis of talof bular impingement and surgical procedure and outcome of talof bular bony impingement excision in the ankle.
Product Number V16026, 10 mins.

STATION 24
Balloon Assisted Reduction, Pin Fixation, and Tricalcium Phosphate Augmentation for Calcaneal Fracture
Donato Vittore, MD, Foggia, Italy
Giovanni Vicenti Jr, MD, Altamura, Italy
Gianni Cauzi, MD, Bari, Italy
Antonella Abate, MD, Bari, Italy
Massimiliano Carrozzo Sr, MD, Avetrana, Italy
Girolamo Picca, MD, Bari, Italy
Marco Dilonardo, MD, Foggia, Italy
Biagio Moretti, MD, Bari, Italy
Sanders III and IV calcaneal fracture treatment with balloon assisted reduction, pin fixation and tricalcium phosphate augmentation. A minimally invasive and rapid effective technique.
Product Number V16027, 7 mins.

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STATION 25
Technique of Endoscopically Assisted Percutaneous Achilles Tendon Repair
Chamnan Rungprai, MD, Iowa City, IA
Phinit Phisitkul, MD, Coralville, IA
Endoscopically assisted percutaneous Achilles tendon repair is a safe and effective treatment of acute closed rupture of Achilles tendon.
Product Number V16028, 12 mins.

STATION 26
Tibiotalocalcaneal Reconstructions with Fibular Strut Grafts
Wendy Pierce, MD, Birmingham, AL
Caleb Jones, BS, Birmingham, AL
Ashish Shah, MD, Birmingham, AL
TTC fusion is a challenging surgery in cases such as: failed total ankle replacement, infection, paresis and degenerative arthritis. A fibula strut graft can be an excellent method of intramedullary fixation in failed cases.
Product Number V16029, 6 mins.

HAND AND WRIST

STATION 32
Bridge Plating for Distal Radius Fractures and Fracture Dislocations of the Wrist
Miguel A. Pirela-Cruz, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
John Dunn, MD, El Paso, TX
Michael Ting, BS, El Paso, TX
This video demonstrates bridge plating of the wrist for radio-carpal dislocations and severely comminuted or osteoporotic fractures of the distal radius, along with presenting two cases were this technique proved valuable.
Product Number V16030, 16 mins.

STATION 32
Ultrasound Guided Carpal Tunnel Release: A New Ultra Minimally Invasive Technique
Jose M. Rojo-Manauta, MD, PhD, Madrid, Spain
Alberto Capa Grasa, MD, PhD, Madrid, Spain
Francisco Chana Rodriguez, MD, PhD, Madrid, Spain
Ruben Perez Marañes, MD, PhD, Madrid, Spain
Guillermo Rodriguez Maruri, MD, Bilbao, Spain
Javier Vaqueru Martin, MD, PhD, Madrid, Spain
The ultrasound guided 1 mm ultrasound guided carpal tunnel release is a safe and effective technique capable of diminishing damage to non-etiological structures, producing less postoperative morbidity and earlier functional return.
Product Number V16031, 12 mins.

STATION 33
Scaphoid Staple Fixation: An Alternative to Traditional Screw Fixation
Miguel A. Pirela-Cruz, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
John Dunn, MD, El Paso, TX
Michael Ting, BS, El Paso, TX
We have presented an alternative method for internal fixation of the scaphoid than the traditional central axis compression screw for mid-waist fractures of the scaphoid using a palmar approach.
Product Number V16032, 6 mins.

STATION 34
Zone 2 Flexor Tendon Injuries: Primary Repair and Secondary Reconstruction
Christopher Klifto, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Fralinge, MD, New York, NY
Anthony Sapienza, MD, New York, NY
Zone 2 flexor tendon injuries are common injuries following laceration. In this video we present a step-by-step guide for two cases, a primary repair, and a secondary reconstruction.
Product Number V16034, 15 mins.

Dynamic Ultrasound with Anatomic Correlation of the Wrist and Hand
Jeffrey Orr, MD, Brooklyn, NY
Giacomo Cappelletti, MD, Brooklyn, NY
Orry Erez, MD, Brooklyn, NY
Evan Golan, MD, Brooklyn, NY
David M. Edelstein, MD, Brooklyn, NY
Dynamic ultrasound is an important diagnostic tool for orthopedists to evaluate pathology.
Product Number V16025, 11 mins.
PEDIATRICS

Tuesday, March 1 – Wednesday, March 2
Academy Hall C

STATION 35
The Power of Plaster
Kathryn S. Doughty, MD, Los Angeles, CA
Serial casting is widely accepted as the gold standard treatment for clubfeet. The indications for serial casting can be stretched to include older children with untreated clubfeet, recurrent clubfeet after posteromedial releases, idiopathic toe walking, and even flexible cavovarus deformities.

Product Number V16035, 13 mins.

STATION 36
Procedure Guide to a Safe and Effective Casting in Developmental Hip Dysplasia
Luca Labianca, MD, Rome, Italy
Carlo Iorio, MD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Daniele Mazza, MD, Fiumicino, Italy
Antonello Montanaro, MD, Rome, Italy
Francesco Torturro, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy
Closed reduction and cast remains the preferred treatment in hip developmental dysplasia. The competence to correctly apply the plaster is crucial in influencing the success rate.

Product Number V16040, 18 mins.

STATION 37
Proximal Femur Derotation Osteotomy with Pediatric Proximal Femur Nailing
Muharrem Inan, MD, Istanbul, Turkey
Ilker Abdullah Sarikaya, MD, Istanbul, Turkey
Ozan Ali Erdal, MD, Istanbul, Turkey
Thirteen children (18 extremities) with cerebral palsy underwent consecutive proximal femoral derotation osteotomy by using a pediatric proximal femur nail. The patients were operated between 2012 and 2015. The average age at surgery was 10.7±3.7 years. In those patients with internal rotation gait improvement was achieved. Radiologically all patients had complete consolidation. There was no infection or loss of fixation. There was only one delayed union.

Product Number V16036, 9 mins.

STATION 38
Endoscopic Cubital Tunnel Release
Tyson K. Cobb, MD, Bettendorf, IA
Anna L. Walden, BS, DC, Davenport, IA
This video presents endoscopic cubital tunnel release surgical technique along with a review of the current literature, indications, contraindications, tips, tricks, and pearls to safely transition.

Product Number V16041, 16 mins.
STATION 35

Stemless Reverse Total Shoulder Arthroplasty Surgical Technique and 10 Years Results
Ofer Levy, MD, Henley-On-Thames, United Kingdom

Stemless triple-f nned Reverse Total Shoulder Arthroplasty - Surgical Technique and 10 Years Results.Tips and tricks to make rTSA surgery simpler with better outcome using innovative design of stemless bone preserving implant.

Product Number V16042, 21 mins.

STATION 36

Use of Codman's Paradox to Perform Safe & Simple Manipulation Under Anaesthetic for Frozen Shoulder Release
Ofer Levy, MD, Henley-On-Thames, United Kingdom
George Arealis, MD, Athens, Greece
Ioannis Polyzois SR, ChB, London, United Kingdom
Oren Tsvieli, MD, Reading, United Kingdom
Giorgio Ippolito, MD, Latina, Italy
Ehud Atoun, MD, Kochav Michael, Israel

Description of the technique using Codman's Paradox to perform a safe and simple manipulation under anaesthetic for frozen shoulder release, understanding the biomechanics and reporting the results.

Product Number V16043, 12 mins.

STATION 36

Shoulder Arthroplasty in the Presence of Posterior Glenoid Bone Loss
Daniel S. Robertson, MD, San Antonio, TX
Scott Stephens, MD, Houston, TX
Kevin C. Paisley, DO, Anchorage, Alaska
Michael A. Wirth, MD, San Antonio, TX
Anil K. Dutta, MD, San Antonio, TX

Glenoid bone loss in the setting of shoulder arthroplasty continues to be a treatment dilemma. Presented is a surgical technique utilizing a posterior augmented glenoid and a review of literature.

Product Number V16044, 11 mins.

STATION 37

Management of Glenoid Bone Loss in Shoulder Arthroplasty
Michael S. Guss, MD, New York, NY
William Ryan, BS, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
Brent Mollon, MD, FRCS, Orillia, Canada
Kirk A. Campbell, MD, Chicago, IL
Young W. Kwon, MD, PhD, New York, NY
Joseph D. Zuckerman, MD, New York, NY

This video demonstrates two step-by-step approaches to glenoid augmentation and will leave viewers with a comprehensive understanding of the management of glenoid bone loss in should arthroplasty.

Product Number V16046, 14 mins.

STATION 38

Ulnar Collateral Ligament Reconstruction - Modified Jobe Approach using Docking Technique
Sergio A. Glait, MD, New York, NY
David J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
Maxwells Weinberg, MD, New York, NY
Michael J. Alaia, MD, New York, NY
Guillem Gonzalez-Lomas, MD, Jersey City, NJ
Laith M. Jazrawi, MD, New York, NY

The docking technique for UCL reconstruction is rapidly gaining popularity due to its numerous advantages. This video takes the viewer from case presentation through surgery, to follow-up.

Product Number V16047, 11 mins.

STATION 38

Modified Boneless Latarjet Procedure for Recurrent Anterior Shoulder Dislocation
Antonio Vadala, MD, Rome, Italy
Pierluigi Serlorenzi, MD, Rome, Italy
Daniele Mazzza, MD, Fiumicino, Italy
Cosma Calderaro, MD, Rome, Italy
Lorenzo Proietti, MD, Rome, Italy
Domenico Lupariello, MD, Roma, Italy
Andrea Redler, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

In this video we show a modification of the Latarjet procedure in which we perform a Bankart repair of the damaged anterior capsule along with a transposition of the only conjoined tendon.

Product Number V16048, 7 mins.
STATION 39
Open Shoulder Stabilization Using Humeral and Distal Tibial Allografts
Jason Capo, MD, New York, NY
Michael Ryan, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Fralinger, MD, New York, NY
Andrew S. Rokito, MD, Scarsdale, NY

Shoulder instability can be secondary to bony defects of the joint. Distal tibial allograft allows restoration of articular, osteochondral surface that mimics normal, cup-like anatomy of glenoid.

Product Number V16049, 9 mins.

STATION 39
Glenohumeral Joint Preservation with Allograft: Surgical Technique
Rachel M. Frank, MD, Chicago, IL
Petar Golijanin, BS, Boston, MA
Bryan G. Vopat, MD, Providence, RI
Anthony A. Romeo, MD, Chicago, IL
CDR (ret) Matthew T. Provencher, MD, Boston, MA

Glenohumeral joint preservation with allograft reconstruction of both the glenoid and humeral head, when indicated, allows for excellent clinical outcomes with low complication rates.

Product Number V16050, 13 mins.

STATION 40
Sternoclavicular Joint Reconstruction: Surgical Technique
Rachel M. Frank, MD, Chicago, IL
Petar Golijanin, BS, Boston, MA
Anthony A. Romeo, MD, Chicago, IL
CDR (ret) Matthew T. Provencher, MD, Boston, MA

In patients with symptomatic sternoclavicular joint instability, sternoclavicular joint reconstruction with allograft allows for excellent clinical outcomes with low complication rates.

Product Number V16051, 11 mins.

STATION 11
A Simple Technique for Capsular Repair Following Hip Arthroscopy
Christopher L. Camp, MD, Rochester, MN
Patrick Reardon, BS, Rochester, MN
Bruce A. Levy, MD, Byron, MN
Aaron J. Krych, MD, Rochester, MN

In summary, this video technique demonstrates a reliable, efficient, and effective method for arthroscopic closure of the interportal capsulotomy following hip arthroscopy. It can be utilized for simple closure or plication with direct passage of suture without having to use a shuttle.

Product Number V16054, 3 mins.

STATION 12
Arthroscopic Autogenous Bone Graft for Avascular Necrosis (AVN) of Femoral Head
Myung-Sik Park, MD, Jeonju, Republic of Korea
Sun Jung Yoon, MD, PhD, Jeonju, Republic of Korea
Seongyu Jeong, MD, Jeonju, Republic of Korea
Seung Min Choi Jr, MD, Jeollabuk-Do Jeonju-Si, Republic of Korea
Dong-Gun Shim, Jeonju, Republic of Korea

In the present report, we describe the technique of arthroscopic autogenous bone-grafting for the treatment of AVN. An arthroscopic autogenous bone grafting of AVN results in shorter hospital stay, early joint motion at early postoperative period, thereby effectively treating in a minimally invasive.

Product Number V16064, 8 mins.
STATION 12
Rectus Femoris Repair with Anterior-Inferior Iliac Spine Debridement
Guillem Gonzalez-Lomas, MD, Jersey City, NJ
Daniel J. Kaplan, BA, Great Neck, NY
Natalie Danna, MD, East Brunswick, NJ
David Fralinger, MD, New York, NY
Michael J. Alaia, MD, New York, NY
Roy Davidovitch, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY
Proximal avulsion or rupture of the rectus femoris is an uncommon injury with limited published data. We present a repair of a patient with an 8-month injury.

Product Number V16090, 7 mins.

STATION 13
Hip Arthroscopy: Comparison of the Extracapsular Capsulotomy Technique to the Interportal Technique
Russell P. Swann, MD, Salt Lake City, UT
Krista Ellis, MS, Park City, UT
Jennifer Marland, PT, Murray, UT
Hugh S. West Jr, MD, Salt Lake City, UT
We provide a technical video for another way to access the central compartment of the hip arthroscopically. We believe this to be an easier learning curve and reproducible while minimizing traction times, and iatrogenic injuries. We did not show a difference in clinical outcomes between the two techniques but that unrepaid IPC is a risk for instability post operatively.

Product Number V16070, 14 mins.

STATION 13
Hip Capsule Reconstruction
Jorge Chahla JR, MD, Caba, Argentina
Chase Dean, Vail, CO
Eduardo Augusto M. Soares, MD, Belo Horizonte, Brazil
William R. Mook, MD, Avon, CO
Karen K. Briggs, MPH, Vail, CO
Marc J. Philippon, MD, Vail, CO
This video details our technique of hip capsule reconstruction using dermal allograft.

Product Number V16088, 7 mins.

STATION 14
Internal Snapping Hip from Anatomy to Endoscopic Release
William H. Marquez, MD, Medellin, Colombia
Juan Gomez-Hoyos, MD, Dallas, TX
Francisco Javier Monsalve, MD, Medellin, Colombia
Lorena Bejarano-Pineda, MD, Medellin, Colombia
Alvaro Vanegas, MD, Medellin, Colombia
An arthrosopic release of the iliopsoas tendon at the level of the labrum is a highly effective intervention for treating symptomatic internal snapping hip.

Product Number V16062, 10 mins.

STATION 15
Endoscopy-Assisted Peri-Aacetabular Osteotomy
Dean K. Matsuda, MD, Los Angeles, CA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Hal D. Martin, DO, Dallas, TX
The rationale, setup, key surgical steps, and early outcomes from endoscopy-assisted peri-acetabular osteotomy are presented. Cadaveric and live patient video is included.

Product Number V16056, 7 mins.

STATION 15
Arthroscopic “Trap-Less” Trapdoor Procedure for Pre-Collapse Osteonecrosis of the Femoral Head
Dean K. Matsuda, MD, Los Angeles, CA
This video shows pre-collapse ONFH treated with outpatient arthroscopic surgery and percutaneous core decompression plus injection of calcium sulfate/phosphate regenerative graft cement and locally harvested bone graft.

Product Number V16094, 10 mins.

STATION 16
Arthroscopic Decompression of Baker’s Cyst: Surgical Technique
Amite Pankaj, MBBS, MS, DNS, MRCS Edin, New Delhi, India
Deepak Chahar, New Delhi, India
Arthroscopic Decompression of Baker’s cyst is a simple, reproducible and safe procedure with minimal rate of complications.

Product Number V16055, 8 mins.

STATION 16
Popliteal Cyst Excision
Guillem Gonzalez-Lomas, MD, Jersey City, NJ
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Fralinger, MD, New York, NY
Michael J. Alaia, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY
This video presents an overview of evaluation, management, and demonstration of an excision technique for popliteal cysts.

Product Number V16077, 5 mins.
STATION 16
Patellofemoral Joint Reconstruction
Jorge Chahla Jr, MD, Buenos Aires, Argentina
Chase Dean, Vail, CO
Raphael Serra Cruz, MD, Vail, CO
Tyler Cram, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO
This video details our surgical technique of patellar instability with MPFL reconstruction, open trochleoplasty in patients with severe trochlear dysplasia, and Tibial Tuberosity Osteotomy in patients with an increased TT-TG or patella alta. The content includes the indications, patient positioning, surgical technique, outcomes and postoperative management.

Product Number V16094, 10 mins.

STATION 18
Chronic Patellar Tendon Reconstruction
Michael J. Alaia, MD, New York, NY
Jason Capo, MD, New York, NY
Brian Capogna, MD, New York, NY
Brian Capogna, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Fralinger, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY
Chronic Patellar tendon rupture repair or reconstructions have added challenges compared with acute ruptures. This video presents a chronic reconstruction, and a chronic reconstruction after failure.

Product Number V16089, 17 mins.

STATION 19
Medial Patellofemoral Ligament Reconstruction - Getting it Right
Matthew T. Burrus, MD, Charlottesville, VA
Abdurrahman Kandil, MD, Charlottesville, VA
Nabil Abazaide, BS, MS, Charlottesville, VA
Luis D. Goity, BA, Charlottesville, VA
David R. Diduch, MD, Charlottesville, VA
Medial patellofemoral ligament (MPFL) reconstruction is an effective method of treating patellar instability but is associated with technical mistakes. This video provides a straightforward but comprehensive demonstration of how to avoid these errors.

Product Number V16068, 14 mins.

STATION 20
Inside-Out Meniscal Repair - Surgical Technique
Jorge Chahla Jr, MD, Buenos Aires, Argentina
Chase Dean, Vail, CO
Raphael Serra Cruz, MD, Vail, CO
Tyler Cram, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO
This video details our technique of inside-out meniscal repair. The content includes the indications and contraindications of inside-out meniscal repair, patient positioning, the surgical technique including the postero medial and posterolateral surgical approaches, outcomes and postoperative management.

Product Number V16072, 6 mins.

An alphabetical faculty financial disclosure list can be found starting on page 334.
STATION 20

Arthroscopic Meniscus Surgery: What’s the Vector Victor?
Justin D. Saliman, MD, Los Angeles, CA

Proper portal establishment and maintenance are crucial to best arthroscopic practices, however determination of optimal vectors and techniques for maintaining those vectors can be complicated. This instructional video uses animation and arthroscopic footage to demonstrate the key pearls of arthroscopic portal vector establishment and maintenance as they apply to partial meniscectomy, meniscus repair and meniscus transplant.

Product Number V16083, 15 mins.

STATION 21

Chronic Patellar Instability with Large Chondral Defect
Guillem Gonzalez-Lomas, MD, Jersey City, NJ
Daniel J. Kaplan, BA, Great Neck, NY
Sergio A. Glait, MD, New York, NY
William Ryan, BS, New York, NY
David Frahinger, MD, New York, NY
Robert J. Meislin, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY

Patellofemoral instability is multifactorial, and may involve patellar chondral defects. We find best outcomes are achieved with a combination AMZ, and MPFL reconstruction, possibly with ACI.

Product Number V16079, 10 mins.

STATION 21

Repair of a Patellar Chondral Lesion in the Setting of an Increased TT-TG
Jason Capo, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Frahinger, MD, New York, NY
Thomas Youm, MD, Hoboken, NJ

Patellofemoral pain is multifactorial. Bony, soft tissue and chondral procedures have been described. Identifying the correct combination, and skill in each, is crucial for success.

Product Number V16079, 10 mins.

STATION 22

Therapeutic Modalities in the Management of Sports Injuries
Catherine A. Logan, MD, MBA, PT, Dedham, MA
Daniel Haber, MD, Boston, MA
Ashley J. Tisosky, MD, Boston, MA
CDR (ret) Matthew T. Provencher, MD, Boston, MA

There are a multitude of therapeutic modalities that can be utilized to improve pain and function in both the post-injury and post-surgical patient. A surgeon’s understanding of the proper indications and current evidence of therapeutic modalities is essential to ensure successful rehabilitation.

Product Number V16069, 13 mins.

STATION 22

The Anterolateral Capsule of the Knee
Marcio B. Albers, MD, Pittsburgh, PA
Humza Shaikh, BA, Pittsburgh, PA
Amir Ata Rahnejat Azar, MD, Pittsburgh, PA
Sebastian Iraurrizaval, MD, Santiago, Chile
Volker Musahl, MD, Pittsburgh, PA
Freddie H. Fu, MD, Pittsburgh, PA

This video will scientifically analyze the current concepts on the anatomy, histology, biomechanics and clinical relevance of the anterolateral capsule of the knee in ACL-R.

Product Number V16086, 9 mins.

STATION 23

Fresh Osteochondral Allograft - Surgical Technique
Jorge Chahla Jr, MD, Buenos Aires, Argentina
Chase Dean, Vail, CO
Raphael Serra Cruz, MD, Vail, CO
Tyler Crum, Vail, CO
Robert E. LaPrade, MD, PhD, Vail, CO

This video details our technique of osteochondral allograft transplantation for the treatment of articular cartilage defects of the knee. The content includes the indications and contraindications of osteoarticular allograft transplantation, patient positioning, surgical technique, outcomes and postoperative management.

Product Number V16073, 4 mins.

STATION 23

Anatomic Double Bundle Antero-Lateral Ligament Reconstruction Using an Ilio-Tibial Tract Strip
Andrea Ferretti, MD, Rome, Italy
Edoardo Monaco, MD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Daniele Mazza, MD, Fiumicino, Italy
Mattia Fabbri, MD, Rome, Italy
Angelo De Carli, MD, Rome, Italy

Anatomic reconstruction of the anterolateral ligament is an effective procedure for controlling Pivot Shift phenomenon in ACL deficient knee.

Product Number V16078, 8 mins.

STATION 24

All-Epiphyseal Physeal-Sparing Anterior Cruciate Ligament Reconstructive Surgery
Daniel Marchwiany, BS, Algonquin, IL
Steven C. Chudik, MD, Westmont, IL
Cody Lee, BS, Downers Grove, IL

The technique described in this video provides an approach for safely performing ACL reconstruction in skeletally immature knees without injury to the physes, articular cartilage, or adjacent tendons and ligaments.

Product Number V16059, 8 mins.
STATION 24
ACL Reconstruction with Quadriceps Tendon Autograft - A Reliable Technique Utilizing the Bone Plug
Paul L. Burroughs III, MD, Raleigh, NC
David T. Jones, MD, Raleigh, NC
James D. Crouther, MD, Raleigh, NC
Frederick E. Benedict, MD, Raleigh, NC
Robert G. Jones, MD, Raleigh, NC
ACL Reconstruction using the Quadriceps Tendon with the attached bone plug is a simple technique once the method is learned and the appropriate instruments are available. The procedure should be included in the “armamentarium” of any Orthopaedic Surgeon Performing ACL reconstruction.
Product Number V16066, 14 mins.

STATION 25
Surgical Treatment of Acute Antero-Lateral Ligament Injuries in Anterior Cruciate Ligament Deficient Knee
Andrea Ferretti, MD, Rome, Italy
Edoardo Monaco, MD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Daniele Mazza, MD, Fiumicino, Italy
Mattia Fabbri, MD, Rome, Italy
Fabio Conteduca, MD, Rome, Italy
Angelo De Carli, MD, Rome, Italy
Recognition and repair of their injury, which often occur along with ACL tears, could be considered, in selected cases.
Product Number V16076, 8 mins.

STATION 26
Extra-Articular Augmentation for the Failed ACL: ALL Reconstruction
Sergio A. Glait, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
Amy Kaplan, BS, New York, NY
Michael J. Alaia, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY
The LCL docking technique is rapidly gaining popularity. This video discusses the technique, its advantages, and takes the viewer through a case from presentation through follow-up.
Product Number V16081, 13 mins.

STATION 27
Lateral Collateral Ligament Reconstruction Using Docking Technique
Sergio A. Glait, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Fralinger, MD, New York, NY
Guillem Gonzalez-Lomas, MD, Jersey City, NJ
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY
The LCL docking technique is rapidly gaining popularity. This video discusses the technique, its advantages, and takes the viewer through a case from presentation through follow-up.
Product Number V16081, 13 mins.

STATION 26
Anatomic Posterolateral Corner Reconstruction
Robert F. LaPrade, MD, PhD, Vail, CO
Samuel Moulton, BA, Eugene, OR
This video presents a detailed description of the anatomic PLC reconstruction surgical technique including clinical presentation, indications and outcomes.
Product Number V16093, 13 mins.

STATION 27
Suture Repair of Distal Triceps Rupture with an Anatomic Transosseous Cruciate Construct
David Kovacevic, MD, Brooklyn, NY
Dylan Lowe, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY
An anatomic transosseous cruciate suture repair construct provides strength at initial fixation, optimizes footprint restoration, and is a cost-conscious solution to suture anchor repair techniques.
Product Number V16065, 13 mins.

STATION 27
Pectoralis Major Tendon Repair: Brief Review and Surgical Technique
Jason Capo, MD, New York, NY
Brent Mollon, MD, FRCSC, Orillia, Canada
Sergio A. Glait, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
Andrew S. Rokito, MD, Scarsdale, NY
This video provides surgeons with a step by step approach to pectoralis major tendon repair using a cortical button technique, as well as an overview of evaluation and management.
Product Number V16075, 8 mins.
STATION 28

Arthroscopically Assisted Acromioclavicular/Coracoclavicular Joint Reconstruction of the Shoulder
Jason Capo, MD, New York, NY
John Begly, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
Amy Kaplan, BS, New York, NJ
Laith M. Jazrawi, MD, Brooklyn, NY
Robert J. Meislin, MD, New York, NY

Arthroscopy has revolutionized orthopaedics. We present a case of a class 5 AC/CC joint tear with arthroscopically-assisted repair.

Product Number V16085, 11 mins.

STATION 28

Anterior Shoulder Stabilization with Latarjet: Surgical Technique
Rachel M. Frank, MD, Chicago, IL
Mandeep Virk, MD, Brookfield, IL
Saleh Aiyash, MA, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL

Anterior shoulder stabilization with the congruent arc Latarjet technique allows for excellent clinical outcomes with low complication rates and low recurrence rates.

Product Number V16092, 14 mins.

STATION 29

The Anatomic Coracoclavicular Reconstruction (ACCR) Technique
John M. Apostolakos, BS, Farmington, CT
Michael O’Sullivan, MD, Farmington, CT
Monica Shoji, BA, Farmington, CT
Jessica M. Divenere, BS, Farmington, CT
Mark Cote, PT, Farmington, CT
Augustus D. Mazzocca, MD, MS, Farmington, CT

This video describes the anatomic coracoclavicular reconstruction (ACCR) technique. It includes operative video with technical tips and pitfalls as well as a demonstration of post-operative rehabilitation exercises.

Product Number V16071, 15 mins.

STATION 29

Modified All-Arthroscopic Coracoclavicular Ligament Reconstruction using a Hamstring Allograft
Xinning Li, MD, Lexington, MA
Antonio Casano, BS, Avon, CT

Modified all-arthroscopic coracoclavicular ligament reconstruction using a hamstring allograft.

Product Number V16087, 13 mins.

STATION 30

Arthroscopic Remplissage for Engaging Hill-Sachs Lesions in Patients with Anterior Shoulder Instability
Christopher L. Camp, MD, Rochester, MN
Diane L. Dahn, MD, Rochester, MN
Patrick Reardon, BS, Rochester, MN
Aaron J. Krych, MD, Rochester, MN

This video demonstrates arthroscopic Remplissage for engaging Hill-Sachs lesions in patients with anterior shoulder instability. This technique can be used to augment other stabilization techniques.

Product Number V16060, 3 mins.

STATION 30

Bony Bankart Bridge Repair Combined with Remplissage for Complex Shoulder Instability
David Kovacevic, MD, Brooklyn, NY
Dylan Lowe, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY

Double-row bony Bankart bridge repair with remplissage restores bony anatomy for acute, traumatic complex shoulder instability with an engaging Hill-Sachs lesion in the highly active patient.

Product Number V16067, 13 mins.

STATION 31

Arthroscopic Rotator Cuff Repair Using Absorbable Biologic Augment
Anthony P. Trenga, Charlottesville, VA
Russell E. Holzgrefe, BS, Charlottesville, VA
Justin W. Griff, MD, Charlottesville, VA
Stephen F. Brockmeier, MD, Charlottesville, VA

A video presenting early results of a multi-center prospective study and the surgical technique for arthroscopic rotator cuff repair using an absorbable biologic augment made of poly 4-hydroxybutyrate (P4HB) in massive rotator cuff tears.

Product Number V16063, 14 mins.

STATION 31

Rotator Cuff Repair Using Collagen Based Bioinductive Implant
Jason Capo, MD, New York, NY
John Begly, MD, New York, NY
Daniel J. Kaplan, BA, Great Neck, NY
William Ryan, BS, New York, NY
David Fralinger, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Robert J. Meislin, MD, New York, NY

Bioimplantion for rotator cuff repairs is an exciting new area. This video shows the procedural technique, and the implant looks on second-look arthroscopy at 3 month follow-up.

Product Number V16074, 8 mins.
An alphabetical faculty financial disclosure list can be found starting on page 334.
STATION 33
Optimizing Skin Incision Size and Location for a Sliding Hip Screw Fixation
Rodrigo Wulf, MD, Santiago, Chile
Cristian Nelson Barrientos Mendoza, MD, Santiago, Chile
Alvaro Martinez Herold, MD, Santiago, Chile
Ignacio A. Campos, MD, Santiago de Chile, Chile
Sebastian Leon, MD, Santiago Chile
A novel method for optimizing skin incision size and location in a sliding hip screw fixation procedure is shown and described. Anatomic and radiological references are shown step by step. Real-time procedure is shown.
Product Number V160101, 11 mins.

TUMORS
Tuesday, March 1 – Wednesday, March 2
Academy Hall C

STATION 34
Multiple Exostoses of the Ribs: Video-Assisted Thoracoscopy Excision
Luca Labianca, MD, Rome, Italy
Daniele Mazza, MD, Fiumicino, Italy
Cosma Calderaro, MD, Rome, Italy
Carlo Iorio, MD, Rome, Italy
Antonello Montanaro, MD, Rome, Italy
Francesco Tarturo, MD, Rome, Italy
Mattia Fabbri, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy
Video-assisted thoracoscopic surgery is a minimally invasive surgical technique recently used to assist the surgeon to successfully treat symptomatic costal exostoses, that reduces thoracotomy morbidity.
Product Number V16102, 9 mins.
An alphabetical faculty financial disclosure list can be found starting on page 334.

**Scientific Exhibit SE01**

Revisiting Cemented Femoral Stem Use in Primary Total Hip Arthroplasty

John A. Scanelli III, MD, Washington, DC
Ryan D. Scully, MD, Washington, DC
Matthew J. Wilson, FRCS (Ortho), MBBS, Devon, United Kingdom
Joseph T. Moskal, MD, Roanoke, VA

Cemented total hip arthroplasty has an excellent long term track record in several national registries with beneficial cost-savings and a low risk of complications in patients over 75 years of age.

**Scientific Exhibit SE02**

Trunnion Corrosion in Total Hip Arthroplasty

Kenneth Urish, MD, PhD, Sewickley, PA
Nadim Hallab, Oak Park, IL
Nicholas J. Giori, MD, Stanford, CA
Carlos J. Laverna, MD, South Miami, FL
Anton Y. Plakseychuk, MD, Pittsburgh, PA
Brian R. Hamlin, MD, Allison Park, PA
William M. Mihalko, MD, PhD, Germantown, TN
Paul A. Anderson, MD, Madison, WI

The basic science, design issues, evaluation and treatment of trunnion corrosion in THA will be discussed.

**Scientific Exhibit SE03**

Advanced Arthroplasty Techniques for Acetabular Component Placement in Dysplastic Hips

Amy Wasterlain, MD, New York, NY
Nicole Wake, MS, New York, NY
Maxwell Wainberg, MD, New York, NY
Jonathan Vigdorchik, MD, Saint Louis, MO

Imaging and 3D-printed life-sized pelvis models reflecting actual patient cases are used to demonstrate specific surgical strategies for acetabular component positioning in dysplastic hips.

**Scientific Exhibit SE04**

Periacetabular Osteotomy for Symptomatic Acetabular Dysplasia: Contemporary Concepts, Techniques, and Outcomes

Benjamin R. Coobs, MD, Roanoke, VA
John C. Globitsy, MD, Saint Louis, MO

This exhibit is an updated review of contemporary concepts, techniques and outcomes of periacetabular osteotomy surgery for managing symptomatic acetabular dysplasia in the skeletally mature patient.

**Scientific Exhibit SE05**

Pelvic Discontinuities Associated with Total Hip Arthroplasties: Evaluation, Treatment, and Results

Matthew P. Abdel, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

Pelvic discontinuity (PD) poses a reconstructive problem because one must simultaneously obtain long-term acetabular component stability and create an environment conducive to healing of the PD.

**Scientific Exhibit SE06**

Intraarticular Antibiotic Infusion Is Effective in One-Stage Revision for Infected Total Hip Arthroplasty

Leo A. Whiteside, MD, Saint Louis, MO
Marcel Roy, PhD, Saint Louis, MO

The results of these two study groups suggest that the failure rate of revision THA with resistant organisms is lower with intra-articular delivery than with other currently available methods.

**Scientific Exhibit SE07**

Understanding Why Dual-Taper Hips Fail

Anna Di Laura, MSc, Ruislip, United Kingdom
Harry Hotbi, BEng, MSc, PhD, Stanmore, United Kingdom
Danielle De Villiers, PhD, Stanmore, United Kingdom
Kevin Ilo, MBBS, BS, London, United Kingdom
Young-Min Kwon, MD, PhD, Boston, MA
Paul J. Bills, PhD, MSc, Huddersfield, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
Alister Hart, FRCS, London, United Kingdom

Our multi-disciplinary team of surgeons and engineers will present the mechanisms of failure of 100 retrieved dual taper hip arthroplasties, identifying surgical, implant and patient risk factors.

**Scientific Exhibit SE08**

The Anterolateral Approach: The “Other” Anterior Approach to the Hip

Roberto Civinini, MD, Firenze, Italy
Christian Cvalu, MD, Firenze, Italy
Fabrizio Matassi, MD, Firenze, Italy
Marco Villano, MD, Firenze, Italy
Massimo Innocenti, MD, Firenze, Italy

The antero-lateral approach utilizes an intermuscular interval “anterior” to gluteus medius and it shares the advantages of direct anterior approach of not violating the abductors.
Scientific Exhibit SE09
Accuracy of Component Positioning in 1,980 Total Hip Arthroplasties: A Comparative Analysis by Mode of Guidance
Benjamin G. Domb, MD, Oakbrook, IL
John M. Redmond, MD, Ponte Vedra, FL
Steven S. Louis, MD, Hinsdale, IL
Kris J. Alden, MD, PhD, Elmhurst, IL
Robert J. Daley, MD, Hinsdale, IL
Justin M. Lareau, Hinsdale, IL
Alexandra E. Petakos, Westmont, IL
Chengcheng Gru, BS, Westmont, IL
Carlos E. Suarez, MD, Mexico City, Mexico

This purpose of this multi-surgeon study was to assess acetabular component placement, leg length discrepancy and global offset discrepancy in total hip arthroplasty, and compare six modes of guidance.

Scientific Exhibit SE10
Total Hip Arthroplasty in Obese Patients - Outcomes Using Administrative BMI Data - The Go/No-Go Decision, Part II
Menachem M. Meller, MD, Merion, PA
Norman A. Johanson, MD, Philadelphia, PA
Mark H. Gonzalez, MD, Chicago, IL
Edmund Lau, MS, Menlo Park, CA
Min-Sun Son, PhD, Philadelphia, PA
Nader Toossi, MD, Philadelphia, PA

As we transition from volume to value episodic care in TJA optimizing care and managing risk will be of paramount importance. We present the patient specific outcomes with regards to obesity and THA.

Scientific Exhibit SE11
Novel Total Knee Implant Designs Do Not Improve Clinical Outcomes in Young Patients
Jangwon Park, MD, Seoul, Republic of Korea
Young-Hoo Kim, MD, Seoul, Republic of Korea
Jun-Shik Kim, MD, Seoul, Republic of Korea

Novel total knee implant designs (high-flex, mobile-bearing, gender-specific and oxidized zirconium knees) do not improve clinical outcomes in 368 young patients (51.1 years) at 11.1 years follow-up.

Scientific Exhibit SE12
Risk Stratification, Length of Stay, and Readmission Rates after TKA: An Optimization Function
Vincent D. Pellegretti, MD, Charleston, SC
Dawn Robertson, MS, Charleston, SC
Jacob M. Drew, MD, Charleston, SC
Harry A. Demos, MD, Charleston, SC

Severity of illness strongly affects both length of stay (LOS) and readmission after TKA. Since readmission penalties are substantial, future strategies will view LOS as an optimization function.

Scientific Exhibit SE13
Findings from a Specialized Knee Clinic for Painful Knee Arthroplasty - What Have We Learned?
Michael T. Hirschmann, MD, Bruderholz, Switzerland
Helmut Rasch, MD, Bruderholz, Switzerland
Niccolo Rotigliano, DMD, Bruderholz, Switzerland
Anna Hirschmann, MD, Therwil, Switzerland
Johann Henckel, MD, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom
Beat Hintermann, MD, Liestal, Switzerland

Typical causes of pain, instability and stiffness after knee arthroplasty identified by a standardized diagnostic algorithm including novel imaging (CT, MRI, 3D-SPECT/CT) are interactively presented.

Scientific Exhibit SE14
The Detection of Small Periprosthetic Bone Defects Around the Oxidized Zirconium Femoral Component
Yukihide Minoda, MD, Osaka, Japan
Mitsuhiko Ikekuchi, MD, Abeno-ku Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Yoichi Ohta, Osaka, Japan
Kazumasa Yamamura, MD, Osaka City Osaka, Japan
Kazutaka Sugimoto, MD, Tokyo, Japan
Shingo Baba, Kyoto, Japan
Akira Kasai, BS, Kyoto-City, Japan
Hiroaki Nakamura, MD, Osaka, Japan

For the early detection of small bone defects around the oxidized zirconium femoral component, MRI is advantageous over plain radiography, tomography, and CT in terms of sensitivity and specificity.

Scientific Exhibit SE15
Geometric Constraint of Total Knee Arthroplasty Designs: Addressing Patient Needs
Edward Morra, MSME, Cleveland, OH
A S. Greenwald, DPhil Oxon, Cleveland Heights, OH

This study computationally defines tibial-femoral geometric constraint for contemporary TKA designs to assist implant selection for presenting soft tissue pathology, helping to assure a good outcome.

Scientific Exhibit SE16
LIMA: Lifetime Initiative for the Management of Arthritis (LIMA): Understanding Arthritis as a Disease State
Richard Iorio, MD, New Rochelle, NY
Alessandra Szulc, MA, New York, NY
Thomas A. Einhorn, MD, New York, NY
Joseph A. Bosco III, MD, Irvington, NY
Laith M. Jazrawi, MD, New York, NY
Raj Karia, MPH, New York, NY
Joseph D. Zuckerman, MD, New York, NY

The Lifetime Initiative for the Management of Arthritis (LIMA) is designed to provide a pragmatic population health management tool which brings value based care to OA patients.
**Scientific Exhibit SE17**
Distal Femoral Periprosthetic Total Knee Arthroplasty Fractures: Management Options and Treatment Approach
Aaron J. Johnson, MD, Glen Burnie, MD
Theodore T. Manson, MD, Bel Air, MD
Farshad Adib, MD, Baltimore, MD
Vincent Ng, MD, Ellicott City, MD

We have provided a comprehensive algorithm to approach periprosthetic TKA fractures that is appropriate for any generalist or subspecialty-trained surgeon.

**Scientific Exhibit SE18**
Gastrocnemius Rotational Flap as a Solution for Extensor Mechanism Deficiency in Revision Total Knee Arthroplasty
Benjamin M. Frye, MD, Morgantown, WV
Matthew J. Dietz, MD, Morgantown, WV
Elie S. Ghanem, MD, Danville, PA
Thomas R. Bowen, MD, Danville, PA
Edgardo Parrilla, BS, Danville, PA

A medial gastrocnemius rotational flap can be used as an alternative to allograft or mesh reconstruction for extensor mechanism deficiency in cases of prior infection or soft tissue deficiency.

**Scientific Exhibit SE19**
Mobile Bearing Unicompartmental Knee Arthroplasty: How Closely Does it Replicate Native Knee Biomechanics?
Lennart Scheys, PhD, Pellenberg, Belgium
Joshua Slane, PhD, Pellenberg, Belgium
Philipp Otto Georg Dworschak SR, MD, Marburg, Germany
Susanne Fuchs-Winkelmann, MD, Marburg, Germany
Geert Peersman, MD, Schilde, Belgium
Thomas J. Heyse, MD, Marburg, Germany

Results agree closely with those previously observed for fixed-bearing UKA: optimal balancing is difficult and under-stuffed results in kinematics that are the closest to the native knee.

**Scientific Exhibit SE20**
The Painful Total Knee Arthroplasty: Diagnosis and Treatment
Umberto Cottino, Pecetto Torinese, Italy
Federico Del-toni, Pesci torinese, Italy
Matteo Bruzzone, MD, Torino, Italy
Federico Dettoni, MD, Torino, Italy
Davide Biondi, MD, Torino, Italy
Davide Blonna, MD, Torino, Italy
Antonio Marrotta, MD, Torino, Italy
Roberto Rossi, MD, Torino, Italy

We propose a step-by-step approach to the failed total knee arthroplasty based on a literature review. Diagnosis and treatment have been analyzed.

**Scientific Exhibit SE21**
Non-Arthroplasty Options in the Young Patient with Knee Osteoarthritis
Louis C. Okafor, MD, Baltimore, MD
Alex Johnson, MD, Baltimore, MD
Nigel Hsu, MD, Baltimore, MD
Savvasachi Chakrabarti, MD, Baltimore, MD
Bashir A. Zikra, MD, MSc, Baltimore, MD
Yalda J. Siddiqui, BS, Murrieta, CA

Non-arthroplasty options in the young patient with knee osteoarthritis delays arthroplasty surgery and/or improves quality of life for patients – allowing them to get back to activities they enjoy.

**Scientific Exhibit SE22**
Cellular Therapies for Musculoskeletal Tissue Regeneration
J T. Watson, MD, Saint Louis, MO
Lynne C. Jones, PhD, Baltimore, MD
Stuart B. Goodman, MD, Redwood City, CA

This scientific exhibit will provide guidance for the practicing orthopaedic surgeon when deciding to use cellular therapies for tissue regeneration, based upon laboratory and clinical studies.

**Scientific Exhibit SE23**
Fixation of Soft Tissue to Bone: Techniques, Implants, and Fundamentals
Rachel M. Frank, MD, Chicago, IL
Adam B. Yanke, MD, Chicago, IL
Peter N. Chalmers, MD, Chicago, IL
Eli T. Sayegh, BS, New York, NY
Akshay Jain, Oak Brook, IL
Nikhil N. Verma, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL

This exhibit provides a comprehensive framework based on the best-available evidence to help surgeons understand and apply the fundamental principles of soft tissue fixation to bone.

**Scientific Exhibit SE24**
The Role of Diagnostic Injections About the Foot and Ankle
Johnathan Bernard, MD, MPH, Ashburn, VA
Eric W. Tang, MD, Los Angeles, CA
Alex Johnson, MD, Baltimore, MD
Eric Dein, Baltimore, MD
Malick Bachabi, MD, Baltimore, MD
Lew C. Schon, MD, Baltimore, MD

Physical exam coupled with diagnostic injections accurately and efficiently identify pathology about the foot and ankle. The role of foot and ankle injections needs better definition.
Scientific Exhibit SE25
Multi-Modal Analysis of Failed Total Ankle Arthroplasty Implants Retrieved at Multiple Centers
Zachary Vaupel, MD, Royal Oak, MI
Erin A. Baker, MS, Royal Oak, MI
John G. Anderson, MD, Grand Rapids, MI
Donald R. Bohay, MD, Grand Rapids, MI
J C. Coetzee, MD, Edina, MN
Mark S. Myerson, MD, Baltimore, MD
Grearin Green, MD, Royal Oak, MI
Megan Salisbury, BS, Royal Oak, MI
Michelle A. Padley, BS, CRC, Grand Rapids, MI
Kevin C. Baker, PhD, Royal Oak, MI
Paul T. Fortin, MD, Royal Oak, MI

A multi-center study of 112 total ankle arthroplasty systems retrieved from four sites throughout the U.S. reveals trends in component damage, local tissue effects, and radiographic changes.

Scientific Exhibit SE26
Management of Acute Ruptures of the Achilles Tendon - Healing the Achilles' Heel
Eric Tan, MD, Los Angeles, CA
Nigel Hsu, MD, Baltimore, MD
Johnathan Bernard, MD, MPH, New York, NY
David M. Macias, MD, Boise, ID
Paul Talusan, MD, Ann Arbor, MI
Jacob Wisbeck, MD, Severna Park, MD
Gregory P. Gayton, MD, Baltimore, MD
Stuart D. Miller, MD, Owings Mills, MD
Lew C. Schon, MD, Baltimore, MD

The optimal treatment of acute ruptures of the Achilles tendon remains controversial. We reviewed the literature on all management options, including orthobiologics, and postoperative rehabilitation.

HAND AND WRIST

Scientific Exhibit SE27
Distal Radius Fractures: Tips to Prevent Complications and Management if They Occur
Christopher Klifto, MD, New York, NY
Michael S. Guss, MD, New York, NY
Anthony Sapienza, MD, New York, NY
Syngil S. Yang, MD, New York, NY
John T. Capo, MD, New York, NY
Nader Pakzima, DO, New York, NY
Kevin Klifto, Moorestown, NJ

A literature review of non-operative and operative complications of distal radius fractures, techniques that can minimize complications, and how to treat the complications once they occur.

PEDIATRIC

Scientific Exhibit SE28
Pediatric Orthopaedic Society of North America: Challenges of Pediatric Orthopedic Implant Design and Approval
Matthew A. Halanski, MD, Madison, WI
Michael W. Shrader, MD, Madison, MI
Michael G. Vitale, MD, MPH, Irvington, NY
Brian Snyder, MD, PhD, Boston, MA

FDA approval of pediatric orthopedic implants can be a challenging process. This exhibit highlights these challenges, describes the regulatory process and provides recent success stories.

Scientific Exhibit SE29
Approach to Diagnosis and Treatment of Shoulder and Elbow Pain in the Skeletally Immature Athlete
Ryan Mlynarek, MD, BS, Ann Arbor, MI
Alexander Weber, MD, Ann Arbor, MI
Jeffrey Nepple, MD, Saint Louis, MO
Joshua S. Dines, MD, New York, NY
Ximming Li, MD, Lexington, MA
Christopher S. Ahmad, MD, New York, NY
Asheesh Bedi, MD, Ann Arbor, MI

The purpose of this exhibit is to present the current diagnosis strategies and treatment options for pediatric and adolescent throwing athletes presenting with upper extremity pain.

Scientific Exhibit SE30
Algorithm of Decision Making and Surgical Approach in Treatment of Relapsed Congenital Clubfoot after Walking Age
Cesare Faldini, MD, Bagheria, Italy
Francesco Traina, MD, Bologna, Italy
Matteo Nanni, MD, Bagheria, Italy
Ilaria Sanzarello, MD, Messina, Italy
Daniele Fabbri, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Fabrizio Perna, Bologna, Italy
Domenico Fenga, MD, Messina, Italy
Sandro Giannini, MD, Bologna, Italy

Aim of this scientific exhibit is to present an algorithm of decision making and surgical approach in the treatment of relapsed congenital clubfoot.

PRACTICE MANAGEMENT

Scientific Exhibit SE31
3D Printing: The Latest Innovations and Applications in Orthopaedic Surgery
Stephen Yu, MD, New York City, NY
Hamadi Murphy, New York, NY
Austin Ramme, MD, PhD, New York, NY
Richard Iorio, MD, New Rochelle, NY
Peter S. Walker, MD, New York, NY
Jonathan Vigdorchik, MD, New York, NY

Orthopaedics is beginning to tap into the potential of 3D printing, offering virtually limitless surgical, clinical and educational applications. We aim to present current and future innovation.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Scientific Exhibit SE32
Osteoporosis and the Orthopaedic Surgeon’s Role
Arthur Manoli III, MD, New York, NY
Roy Davidovitch, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Frank A. Liporace, MD, Englewood Cliffs, NJ
Sanjit R. Konda, MD, Rye, New York
Kenneth A. Egol, MD, New York, NY

Orthopaedic surgeons are in a unique position to contribute to the diagnosis and management of osteoporosis.

Scientific Exhibit SE33
Medical Liability in Cyberspace: Legal and Ethical Impediments to Practicing Telemedicine in 2016
Thomas B. Fleeter, MD, Reston, VA
Robert R. Slater Jr, MD, Folsom, CA
John P. Lyden, MD, New York, NY
Kevin B. Shrock, MD, Fort Lauderdale, FL
Michael M. Albrecht, MD, Austin, TX
David J. Gandy, MD, Jackson, MS

The AAOS Medical liability committee addresses legal issues in cybermedicine including reimbursement, conflicting state and federal laws, liability, consent crossing state lines and teleprescribing.

Scientific Exhibit SE34
Occupational Hazards of Orthopaedic Surgery: What's Known, What's Not, and How to Protect Ourselves
Rachel S. Rohde, MD, Southfield, MI
Claudette M. Lajam, MD, Larchmont, NY
Julie E. Adams, MD, Hixson, TN
Jennifer M. Wolf, MD, Farmington, CT

The occupational risks to the practicing orthopaedic surgeon are reviewed. Specific strategies to prevent or minimize exposure and to manage occurrences are suggested.

Scientific Exhibit SE35
Real-Time Video Auditing: A Novel Technology to Improve Orthopaedic Operating Room Efficiency
Yonah Heller, MD, New Hyde Park, NY
Adam S. Levin, MD, Baltimore, MD
Sara Merwin, MPH, New Hyde Park, NY
Martin Lesser, PhD, Manhasset, NY
Ezra Kassin, MD, New Hyde Park, NY
Frank Overdyk, MD, MS, New Hyde Park, NY
Nicholas A. Sgaglione, MD, Great Neck, NY

Remote Real Time Video Auditing was used to measure OR processes for orthopaedic procedures, which was nested in a larger initiative to improve overall OR efficiency.

Scientific Exhibit SE36
Teaching Orthopaedic Residents Strategies to Address Bioethical Challenges in Research and Clinical Care
Paul Levin, MD, Bronx, NY

The AAOS committee on bioethics has developed an on-line case-based series of ethics module to teach the basic principles of bioethics and their application to the daily challenges of patient care.

Scientific Exhibit SE37
Wearable Technology as a Means for Enhancing Postoperative Care and Outcome Monitoring in Orthopaedic Surgery
Jay Reider, MD, MPH, Baltimore, MD
Alex Johnson, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD
Babar Shafiq, MD, Clarksville, MD
Lee H. Riley III, MD, Baltimore, MD
Greg M. Osgood, MD, Baltimore, MD

Wearable technologies are rapidly improving and demonstrate great potential to enhance post-operative care through activity tracking, rehabilitation guidance, and real-time outcome monitoring.

Shoulder and Elbow

Scientific Exhibit SE38
Management of Glenohumeral Osteoarthritis in the Young Patient
Gregory L. Cvetanovich, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Gregory P. Nicholson, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL

Management of glenohumeral osteoarthritis in the young active patient presents challenges given the high failure rates of arthroplasty, and we review non-arthroplasty treatment options and outcomes.

Scientific Exhibit SE39
Massive Rotator Cuff Tears in Young Patients: What is the State of the Art?
William Mosenthal, MD, Chicago, IL
Kyle Borque, MD, Chicago, IL
Cory M. Stueart, MD, Chicago, IL
Eugene Ek, MD, PhD, Melbourne, Australia
Jason L. Koh, MD, Winnetka, IL
Lewis L. Shi, MD, Chicago, IL

An overview of the indications, techniques, and outcomes of various massive rotator cuff tears treatments, highlighting current literature focusing on young, active patients.

Scientific Exhibit SE40
Presentation, Diagnosis, and Treatment of Postoperative Shoulder Infection
Harpreet Bawa, MD, Chicago, IL
Srikanth Divi, MD, Chicago, IL
Jason L. Koh, MD, Winnetka, IL
John W. Sperling, MD, MBA, Rochester, MN
Lewis L. Shi, MD, Chicago, IL

Postoperative shoulder infection can adversely affect patient function and surgical outcome. This exhibit will discuss the presentation, diagnosis, and management of postoperative shoulder infections.

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Intrinsic Causes for Rotator Cuff Disease
Usman Ali M. Syed, BS, Philadelphia, PA
Daniel E. Davis, MD, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Andrzej Fertala, PhD, Philadelphia, PA
Joseph A. Abboud, MD, Bryn Mawr, PA

The goal is to show the intrinsic causes for rotator cuff disease to aid surgeons in eventually developing therapeutic treatments which can alter the environment of the rotator cuff.

Biomechanical and Clinical Comparison of Suture Techniques in Arthroscopic Rotator Cuff Repair
Meghan E. Bishop, MD, Philadelphia, PA
Robert MacLeod, MD, Tinton Falls, NJ
Fotios P. Tjoumakaris, MD, Egg Harbor Township, NJ
Sommer Hammond, MD, Doylestown, PA
Steven B. Cohen, MD, Media, PA
Christopher Dodson, MD, Philadelphia, PA
Michael G. Ciccotti, MD, Philadelphia, PA
Kevin B. Freedman, MD, Horsham, PA

A review of biomechanical and clinical outcomes of various suture configurations currently being utilized in practice for arthroscopic rotator cuff repair.

Proximal Biceps Management: Open and Arthroscopic Tenodesis
Neal Shah, BS, Naperville, IL
David Savin, MD, Chicago, IL
Cyrus M. Press, MD, Fairfax Station, VA
Benjamin Goldberg, MD, Chicago, IL

Proximal biceps or superior labral pathology can be successfully managed all arthroscopically or with a combined arthroscopic tenotomy and intra- or subpectoral tenodesis.

Muscle Changes Following Rotator Cuff Pathology - Implications for Treatment
Robert Stewart, MD, Chicago, IL
Kyle Borque, MD, Chicago, IL
Eugene Ek, MD, PhD, Melbourne, Australia
Jason L. Kob, MD, Winnetka, IL
Lewis L. Shi, MD, Chicago, IL

Atrophy and fatty infiltration of rotator cuff musculature following tendon tears is well described. This exhibit seeks to educate providers about the pathogenesis and clinical value of this process.

The Osteoporotic Proximal Humerus Fractures: Predicting Fixation Failure and Techniques for Augmentation
Daniel E. Davis, MD, Wilmington, DE
Joseph A. Abboud, MD, Bryn Mawr, PA
Luke S. Austin, MD, Egg Harbor Township, NJ
Charles L. Getz, MD, Newton Square, PA
Surena Namdari, MD, MSc, Philadelphia, PA

The Osteoporotic Proximal Humerus Fractures: predicting fixation failure and techniques for augmentation.

Management of Adhesive Capsulitis: Epidemiology, Diagnosis, Imaging, Treatment, and Outcomes
Xinning Li, MD, Boston, MA
Emily Curry, BA, Boston, MA
Kiera Kingston, B.S., Boston, MA
Antonio Cusano, B.S., Avon, CT
Josef K. Eichinger, MD, Tacoma, WA
Asha Bedi, MD, Ann Arbor, MI
Elizabeth G. Matzkin, MD, Newton, MA

This scientific exhibit provides an epidemiological analysis, diagnosis, imaging, and review of both medical and surgical management of patients with adhesive capsulitis.

Management of Adult Elbow Fracture-Dislocations
John Jennings, MD, Philadelphia, PA
Christopher L. Haydel, MD, Philadelphia, PA
Saqib Rehman, MD, Philadelphia, PA

While surgical treatment of complex elbow dislocations is historically challenging, a systematic approach will guide treatment in order to restore stability, optimize function, and avoid stiffness.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Evidence-Based Approach to Rotator Cuff Rehabilitation after Repair
Kenneth S. Chakour, MD, Chicago, IL
Jason Somogyi, MD, Chicago, IL
Joseph B. Cohen, MD, Chicago, IL
Steven Jackson, PhD, PT, Chicago, IL
Jason L. Koh, MD, Winnetka, IL
Jon J. Warner, MD, Boston, MA
Lewis L. Shi, MD, Chicago, IL

Rotator cuff tears frequently impair the quality of life of those injured. This exhibit reviews the current research on clinical outcome of RTC surgery as it relates to rehabilitation protocols.

New York Orthopaedic Hospital - 150 years of Progress in Orthopaedic Surgery
James Lin, MD, MS, New York, NY
Anca Meret, MS, New York, NY
Jonathan B. Ticker, MD, Merrick, NY
Louis U. Bigliani, MD, New York, NY
William N. Levine, MD, New York, NY

This exhibit celebrates 150 years of advances in orthopedic surgery at the New York Orthopaedic Hospital with emphasis on leaders, landmark scientific breakthroughs, and rarely seen media.

Total Disc Arthroplasty: The Current and Future Use of an Evolving Technology in Spine Surgery
Saqib Hasan, MD, New York, NY
Karan S. Patel, New York, NY
Wesley Bronson, MD, Scarsdale, NY
William Ryan, BS, New York, NY
Themistocles S. Protopsaltis, MD, Closter, NJ
Jeffrey A. Goldstein, MD, New York, NY
Thomas J. Errico, MD, New York, NY

We present an interactive review of the evolution and outcomes of total disc arthroplasty in an effort to elucidate its current role in motion-preserving spine surgery.

Inclusion of Asymptomatic Spondylotic Levels Decreased Revision Rates for Adjacent Segment Disease Following ACDF
Caleb J. Behrend, MD, Roanoke, VA
Alan S. Hilibrand, MD, Philadelphia, PA
Jonathan J. Carmouche, MD, Roanoke, VA
Conor O’Neill, Roanoke, VA
Zakk Walterscheid, BS, Roanoke, VA
Paul W. Millhouse, MD, Philadelphia, PA
Alexander Vaccaro, MD, PhD, Gladwyne, PA
Todd J. Albert, MD, New York, NY

A multimedia presentation examining the incidence of adjacent segment disease following ACDF with an emphasis on the role of including asymptomatic adjacent degenerative levels.

Minimally Invasive Spine Surgery for Thoracolumbar Trauma: Indications, Techniques, and Evidence in 2016
Brian Shiu, MD, Baltimore, MD
Mark Shasti, MD, Timonium, MD
Ehsan Jazini, MD, Baltimore, MD
Xuyang Song, MD, Baltimore, MD
Eugene Y. Koh, MD, PhD, Baltimore, MD
Daniel E. Gelb, MD, Baltimore, MD
Kelley E. Banagan, MD, Baltimore, MD
Steven C. Ludwig, MD, Baltimore, MD

This exhibit provides a comprehensive literature review on the outcomes of minimally invasive spine surgery for thoracolumbar trauma as well as our experience over the past decade.

Novel Autograft Site in Anterior Cervical Discectomy/Fusion: A Multifaceted Description and Analysis
Conor O’Neill, Roanoke, VA
Zakk Walterscheid, BS, Roanoke, VA
Caleb J. Behrend, MD, Roanoke, VA
Jonathan J. Carmouche, MD, Roanoke, VA

A multidisciplinary evaluation of a new technique for autologous grafting in ACDF evaluated through plain radiographic, CT, biomechanical, retrospective and prospective clinical perspectives.

AAOS Research Development Committee: Biologic Treatments of Orthopaedic Injuries
Robert F. LaPrade, MD, PhD, Vail, CO
Constance R. Chu, MD, Redwood City, CA
Constance R. Chu, MD, Redwood City, CA
Jason L. Koh, MD, Winnetka, IL
Jason L. Dragoo, MD, Redwood City, CA
Erin L. Ramsford, Rosemont, IL

This exhibit will examine the current state of the art and identify knowledge gaps in emerging biologic treatments for articular cartilage, muscle, tendon, and bone injuries.

MRI Physics: What Every Orthopaedic Surgeon Should Know
Stephanie Swensen, MD, New York, NY
Michael S. Day, MD, New York, NY
Maxwell Weinberg, MD, New York, NY
Michael J. Alaia, MD, New York, NY
Gregory Chang, MD, New York, NY
Michael Recht, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY

This exhibit complements traditional orthopaedic functional understanding of musculoskeletal imaging by enhancing understanding of magnetic resonance imaging fundamentals.
Advances in tissue engineering and cell delivery have introduced new therapies to address knee cartilage injury. As part of this exhibit we review current concepts and therapies.

Scientific Exhibit SE58
Osteotomies About the Knee in the Young Active Patient
Alex Johnson, MD, Baltimore, MD
Malick Bachabi, MD, Baltimore, MD
Eric Dein, Baltimore, MD
Sophia A. Strike, MD, Baltimore, MD
Johnathan Bernard, MD, MPH, Ashburn, VA
Bashir A. Zikria, MD, MSc, Baltimore, MD
Osteotomies are a safe and effective way to surgically address pathology about the knee in young active patients.

Scientific Exhibit SE59
Meniscus Replacement, Transplantation, and Regeneration: State of the Art in 2015
Seth Sherman, MD, Columbia, MO
Trevor R. Gulbrandsen, BS, Columbia, MO
Farra A. Monibi, DVM, Columbia, MO
Clayton W. Nuelle, MD, Columbia, MO
James L. Cook, DVM, PhD, Columbia, MO
James P. Stannard, MD, Columbia, MO
Surgical innovation and evolving techniques have led to expanding indications for the use of MR and MAT in patients with symptomatic meniscal deficiency.

Scientific Exhibit SE60
Biologic Scaffolds for Management of Articular Cartilage Lesions: Emerging Indications, Techniques, and Outcomes
Kristofer Jones, MD, Los Angeles, CA
Dean Wang, MD, Santa Monica, CA
Brian Rebolledo, MD, New York, NY
Aaron J. Krych, MD, Rochester, MN
Danyal Nawabi, MD, FRCS (Orth), New York, NY
David R. McAllister, MD, Los Angeles, CA
Riley J. Williams, MD, New York, NY
In this exhibit, we will review emerging applications for biologic scaffolds for the treatment of cartilage defects.

Scientific Exhibit SE61
Principles in Diagnostic Arthroscopy
Brandon Erickson, MD, Chicago, IL
Gregory L. Ceteanovich, MD, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
CDR (ret) Matthew T. Provencher, MD, Boston, MA
Robert A. Sershen, MD, Chicago, IL
Annie Tilton, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
With the proper knowledge base of relevant anatomy as well as proper arthroscopic techniques, the orthopaedic surgeon can be very effective in treating a multitude of conditions minimally invasively.

Scientific Exhibit SE62
An Evidence-Based Algorithm of Surgical Treatment Strategies for Osteochondral Lesions of the Talus
Christopher D. Murawski, Pittsburgh, PA
Youichi Yasui, MD, Tokyo, Japan
Arianna Gianakos, New York, NY
MaCalus Hogan, MD, Gibsonia, PA
John G. Kennedy, MD, New York, NY
The purpose of this scientific exhibit is to provide a comprehensive summary of the surgical treatment strategies available for OLT, as well as to outline an evidence-based treatment algorithm.

Scientific Exhibit SE63
Evaluation and Treatment of Common Sport-Specific Orthopaedic Injuries: Guide for the Team Physician
Alexander Weber, MD, Ann Arbor, MI
Rachel M. Frank, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Joshua S. Dines, MD, New York, NY
Bryan T. Kelly, MD, New York, NY
Asheesh Bedi, MD, Ann Arbor, MI
The purpose of this exhibit is to provide the team physician with a detailed approach to the evaluation and management of common on-field orthopaedic injuries and guidelines for return to play.

Scientific Exhibit SE64
Women’s Health Issues Advisory Board: Sex-Based Considerations in Caring for Common Sports Injuries
Laura M. Bruse Gebrig, MD, Henderson, NV
Margaret M. Baker, MD, Fort Angeles, WA
Cordelia W. Carter, MD, Westport, CT
Mary L. Ireland, MD, Lexington, KY
Christina M. Hylden, MD, Fort Sam Houston, TX
Anthony E. Johnson, MD, Fort Sam Houston, TX
Elizabeth G. Matzkin, MD, Boston, MA
Erin L. Ransford, Rosemont, IL
This exhibit will explore the epidemiology of sex-based differences and discrepant incidence rates in common sports injuries. Racial differences will also be included if reported.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Scientific Exhibit SE65
Superior Labral Anterior-Posterior Tears 2016 Update: Ignore, Debride, Repair, or Tenodese?
Brandon Erickson, MD, Chicago, IL
Peter N. Chalmers, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Bryan M. Sattznan, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL

Management of SLAP tears is challenging and outcomes can be unpredictable. Our exhibit provides a comprehensive framework for making treatment decisions for these patients to optimize outcomes.

Scientific Exhibit SE66
Atypical Hip Joint Impingement: Preoperative, Imaging, Therapeutic, and Surgical Considerations
Sandeep Mannava, MD, PhD, Winston Salem, NC
Robert E. Boykin, MD, Asheville, NC
Austin V. Stone, MD, Winston-Salem, NC
Trevor R. Gaskill, MD, Portsmouth, VA
Michelle Bruner, MS ATC, Asheville, NC
Elizabeth A. House, MD, New Hyde Park, NY
Alejandro Marquez-Lara, MD, Winston-Salem, NC
Allston J. Stubbs IV, MD, Winston Salem, NC

A modern multidisciplinary hip arthroscopy program has been implemented with a particular emphasis on the indications and peri-operative management of atypical hip impingement.

Scientific Exhibit SE67
An Evidence-Based Approach for Diagnosing Pathology of the Long Head of the Biceps
Samuel Rosas, MD, Fort Lauderdale, FL
Benedict U. Nwachukwu, MD, MBA, New York, NY
Michael K. Krill, ATC, MS, Columbus, OH
Shaunna L. Watson, BA, Shalimar, FL
Kelms Amoo-Achampong, BA, Somerset, NJ
Frank McCormick, MD, Pompano Beach, FL

The purpose of this exhibit is to present clinicians with an overview of biceps pathology spectrum and an evidence-based clinical algorithm and decision analysis for its evaluation and diagnosis.

Scientific Exhibit SE68
Extraarticular Reconstruction in ACL Deficient Knee Revisited: Anatomy, Biomechanics, and Clinical Implications
Andrea Ferretti, MD, Rome, Italy
Edoardo Monacco, MD, Rome, Italy
Fabio Conteduca, MD, Roma, Italy
Angelo De Carli, MD, Rome, Italy
Mattia Fabbri, Rome, Italy
Antonio Fonzo, MD, Roma, Italy
Priscilla Di Sette, Rome, Italy

The role of extraarticular reconstruction in ACL deficient knee is revisited from different point of view: anatomy, biomechanics and clinical implications.

Scientific Exhibit SE69
Advances in Hip Arthroscopy: From Bench to Bedside
Benjamin Kuhns, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Alexander Weber, MD, Ann Arbor, MI
Brandon Erickson, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
David M. Levy, MD, Chicago, IL
John Clohisy, MD, St. Louis, MO
Christopher Larson, MD, Edina, MN
Charles A. Bush-Joseph, MD, Chicago, IL
Asheesh Bedi, MD, Ann Arbor, MI
Shane J. Nho, MD, Chicago, IL

This exhibit provides a comprehensive framework to assess recent advances in hip arthroscopy with a focus on indications, techniques, and disease-specific management.

Scientific Exhibit SE70
Proximal Hamstring Injury: Diagnosis and Treatment
Charles P. Hannon, MD, New York, NY
Benjamin Kuhns, Chicago, IL
Timothy J. Luchetti, MD, Chicago, IL
David M. Levy, MD, Chicago, IL
Charles A. Bush-Joseph, MD, Chicago, IL
Shane J. Nho, MD, Chicago, IL

This exhibit will provide an overview of our current understanding of the diagnosis and management of proximal hamstring injuries.

Scientific Exhibit SE71
Anatomic Layers of the Hip
David M. Levy, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Benjamin Kuhns, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Bryan T. Kelly, MD, New York, NY
Michael J. Salata, MD, Cleveland, OH
Richard C. Mather III, MD, Durham, NC
Shane J. Nho, MD, Chicago, IL

This scientific exhibit presents a discussion of the complex interaction between multiple anatomic layers of the hip.

Scientific Exhibit SE72
The Role of Anterolateral Capsule on Stability of the Knee: A Multidisciplinary Approach
Amir Ata Rahmenai Azar, MD, Pittsburgh, PA
Daniel Guenther, MD, Pittsburgh, PA
Sebastian Irarrazaval, Pittsburgh, PA
Fabio V. Arilla, MD, Estancia Velha, Brazil
Kevin M. Bell, MS, Pittsburgh, PA
James J. Irrgang, PhD, Pittsburgh, PA
Richard E. Delbski, PhD, Pittsburgh, PA
Freddie H. Fu, MD, Pittsburgh, PA
Volker Musahl, MD, Pittsburgh, PA

The role of anterolateral capsule on stability of the knee: A multidisciplinary approach.

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Scientific Exhibit SE73
The Weak Link in ACL Reconstruction: A Guide to Graft Fixation Device Selection
Maxwell Weinberg, MD, New York, NY
Christopher Looze, MD, New York, NY
Steven Shamah, Brooklyn, NY
Michael J. Alana, MD, New York, NY
Guillem Gonzalez-Lomas, MD, Jersey City, NJ
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, Brooklyn, NY

The current concepts in ACL graft fixation will be reviewed including the biology of graft healing, as well as the various femoral and tibial devices available for graft fixation.

Scientific Exhibit SE74
Biomaterials and Biomechanics for Orthopaedic Trauma Surgeons
Philipp Leucht, MD, New York City, NY
Abraham M. Goch, New York, NY
Oran D. Kennedy, PhD, New York, NY
Kenneth A. Egol, MD, New York, NY

This exhibit serves to review and summarize emerging concepts in orthopaedic biomechanics and biomaterials.

Scientific Exhibit SE75
Proximal Humerus Fractures: A Spectrum of Fixation and Reconstructive Techniques
Bryan M. Saltzman, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Joshua Harris, MD, Bellaire, TX
Anil Gupta, MD, MBA, Ottawa Hills, OH
Mark A. Mighell, MD, Tampa, FL
Anthony A. Romeo, MD, Chicago, IL

This evidence-based review will provide the orthopedic surgeon with a firm understanding of the indications, techniques, and outcomes of common surgical options for proximal humerus fractures.

Scientific Exhibit SE76
The Evolution of Patella Fracture Fixation
Stephen J. Warner, MD, New York, NY
Ashley Levack, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Matthew R. Garner, MD, New York, NY
Elizabeth Gausden, MD, New York, NY
Andre D. Shaffer, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorrich, MD, New York, NY

This exhibit will provide a comprehensive overview of the different methods for patella fracture fixation and the most recent literature on how these techniques affect patient outcomes.

Scientific Exhibit SE77
Intramedullary Nailing of Subtrochanteric Femur Fractures: What to Do, What Not to Do, and How to be Efficient
Richard S. Yoon, MD, New York, NY
Mark Gage, MD, New York, NY
Abhishek Ganta, MD, New York, NY
Derek J. Donegan, MD, Philadelphia, PA
Nirmal C. Tejwani, MD, New York, NY
Toni M. McLaurin, MD, New York, NY
Joshua Langford, MD, Orlando, FL
George J. Haidukewych, MD, Orlando, FL
Frank A. Liporace, MD, Englewood Cliffs, NJ

This exhibit will focus on the tips, tricks and pitfalls to avoid in the treatment of subtrochanteric femur fractures with IMN.

Scientific Exhibit SE78
Management of Osseous Defects in Orthopaedic Trauma
Mark Gage, MD, New York, NY
Richard S. Yoon, MD, New York, NY
Ryan Roach, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Sanjit R. Konda, MD, Rye, NY
Frank A. Liporace, MD, Englewood Cliffs, NJ
Toni M. McLaurin, MD, New York, NY

This exhibit will discuss emerging techniques, update on the latest outcomes studies and propose a treatment algorithm that includes advantages, disadvantages and ways to avoid complications.

Scientific Exhibit SE79
Limb Lengthening and Reconstruction Society Presents an Illustrated History of Limb Lengthening
Stuart A. Green, MD, Los Alamitos, CA

The Limb Lengthening and Reconstruction Society present a profusely illustrated scientific exhibit reviewing the interesting history of limb lengthening.

Scientific Exhibit SE80
Negative Pressure Wound Therapy: Clinical Indications and Techniques for a Variety of Wound Types
William R. Smith, MD, Philadelphia, PA
Christopher L. Haydel, MD, Aston, PA

Negative pressure wound therapy: Techniques to maximize wound healing environments while minimizing drainage and bacterial loads for primarily closed wounds at risk or those requiring delayed closure.

Scientific Exhibit SE81
Update on Fracture Nonunion: State of the Art 2016
Anthony V. Christiano, New York, NY
Abraham M. Goch, New York, NY
Philipp Leucht, MD, New York City, NY
Sanjit R. Konda, MD, Rye, NY
Kenneth A. Egol, MD, New York, NY

The purpose of this scientific exhibit is to investigate the definition of nonunion, optimal treatment options, and patient outcomes after nonunion surgery.
Scientific Exhibit SE82
Reduction of the Ankle Syndesmosis: Indications, Techniques, Assessments, and Outcomes
Stephen J. Warner, MD, New York, NY
Matthew R. Garner, MD, New York, NY
Ashley Levack, MD, New York, NY
Andre D. Shaffer, MD, New York, NY
Elizabeth Gausden, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

This review discusses syndesmotic injuries that occur with ankle fractures and the current concepts for effectively diagnosing and treating these injuries.

Scientific Exhibit SE83
Scapular Fractures: From Bankart to Body
Michael S. Day, MD, New York, NY
William Ryan, BS, New York, NY
Maxwell Weinberg, MD, New York, NY
Michael J. Alaia, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY

Although no consensus exists on indications for surgical management, it is critical for surgeons to be familiar with scapular fractures in order to provide the most appropriate management.

Scientific Exhibit SE84
Extremity War Injuries Project Team: Maintaining Force Readiness During an Era of Military Transition
MAJ Daniel J. Stinner, MD, San Antonio, TX
Andrew H. Schmidt, MD, Minneapolis, MN
Jeffrey N. Davila, MD, Washington, DC
James R. Ficke, MD, Baltimore, MD
Erin L. Ransford, Rosemont, IL

The 2016 EWI exhibit will address readiness of the fighting force, the evolution of the delivery of combat casualty care, and highlight advancements in extremity trauma research.

Scientific Exhibit SE85
Interprosthetic, Peri-implant, and Periprosthetic Fractures in the Hip and Knee: Principles of Fixation
Richard S. Yoon, MD, New York, NY
Mark Gage, MD, New York, NY
Cory A. Collinge, MD, Fort Worth, TX
George J. Haidukewych, MD, Orlando, FL
Frank A. Liporace, MD, Englewood Cliffs, NJ

We aim to present the principles of fixation and strategies to treat complex interprosthetic, peri-implant and periprosthetic fractures.

TUMOR SCIENTIFIC EXHIBITS

Scientific Exhibit SE86
Evaluation and Management of Pediatric Bone Lesions
Alan T. Blank, MD, MS, New York, NY
Yale Fillingham, MD, Chicago, IL

This exhibit will provide an evidence-based review demonstrating an appropriate workup and treatment algorithm for pediatric bone lesions based on history, physical and radiographic findings.

Scientific Exhibit SE87
Practical Guidelines for Treatment of Long Bone Metastases Based on a Systematic Literature Review
Costantino Errani, MD, Bologna, Italy
Maria S. Spinelli, MD, Rome, Italy
Andrea Piccioli, Rome, Italy
Giulio Maccarino, Rome, Italy
Tommaso Frisoni, MD, Bologna, Italy
Luca Cevolani, MD, Bologna, Italy
Nikolin Ali, MD, Bologna, Italy
Roberto Casadei, MD, Bologna, Italy
Davide Donati, MD, Bologna, Italy

Aim of this study was to draw practice guidelines for treatment of long bone metastases based on a systematic review of the literature.

Scientific Exhibit SE88
Unicameral Bone Cyst: Indications, Techniques, and Outcomes
Yale Fillingham, MD, Chicago, IL

This exhibit will provide an evidence-based review of the indications, techniques, and outcomes of treatment for Unicameral Bone Cysts.
ADULT RECONSTRUCTION HIP

**Poster No. P001**
Minimally Invasive Periacetabular Osteotomy Using a Modified Smith-Peterson Approach: Technique & Early Outcomes
Osman H. Khan, MD, London, United Kingdom
Padmanabhan Subramanian, MBBS, London, United Kingdom
David Agolley, BS, FRACS, Coolangatta, Australia
Ajay Malviya, MD, Newcastle Upon Tyne, United Kingdom
Johan Witt, MD, London, United Kingdom

Periacetabular osteotomy is an effective way of treating symptomatic hip dysplasia. We describe a new, safe, minimally invasive technique using a modiﬁcation of the Smith Peterson approach.

**Poster No. P002**
Long-Term Outcomes Following the Bernese Periacetabular Osteotomy
Joel E. Wells, MD, MPH, Newton, MA
Michael B. Millis, MD, West Newton, MA
Young Jo Kim, MD, PhD, Boston, MA
Evgeny Bulat, MA, Brighton, MA
Patricia Miller, MS, Boston, MA
Travis H. Matheney, MD, Boston, MA

The goal of this study was to determine the long-term survivorship of the Bernese periacetabular osteotomy, analyze quality of life and activity-related outcomes, and determine predictors of failure.

**Poster No. P003**
Femoral Derotation Osteotomies in Adults for Version Abnormalities
Robert L. Buly, MD, New York, NY
Elaine Caldwell-Krumins, BS, RN, New York, NY
Brandon R. Sosa, New York, NY
S R. Rozbruch, MD, New York, NY

A subtrochanteric derotation osteotomy of the femur is a safe and effective procedure to treat either femoral retroversion or excessive anteversion. Excellent or good results were obtained in 93%.

**Poster No. P004**
Average 10-Year Clinical Outcomes of the Bernese PAO for the Treatment of Classic Acetabular Dysplasia
Stephen T. Duncan, MD, Lexington, KY
Kayla Thomason, BS, Saint Louis, MO
Geneva Baca, St. Louis, MO
Gail Pashos, St Charles, MO
Perry L. Schoenecker, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

The average ten year results of the PAO for symptomatic acetabular dysplasia demonstrate excellent radiographic deformity correction improved hip function, and low conversion to THA.

**Poster No. P005**
Prognosis Prediction Scoring System for Eccentric Rotational Acetabular Osteotomy
Takafumi Amano, MD, Nagoya, Japan
Yukiharu Hasegawa, MD, Nagoya City, Japan
Taisuke Seki, MD, PhD, Nagoya, Japan
Yasuhiro Takegami, MD, Aichi, Japan

We determined the factors that affect postoperative outcomes in order to develop a scoring system for predicting the prognoses of ERAO patients.

**Poster No. P006**
Predictors for Failure 10 Years After Surgical Hip Dislocation for Femoroacetabular Impingement - An MRI Study
Markus S. Hanke, MD, Bern, Switzerland
Simon D Steppacher, MD, Bern, Switzerland
Helen Annwander, Bern, Switzerland
Stefan Werlen, MD, Bern, Switzerland
Klaus Siebenrock, MD, Bern, Switzerland
Moritz Tannast, Bern, Switzerland

We present six MRI-based features not visible on conventional radiographs that are predictive for an impaired result 10-years after surgical hip dislocation for FAI.

**Poster No. P007**
Novel Serum and Synovial Fluid Biomarker of Periprosthetic Osteolysis
Lester Zambrana, BA, New York, NY
Jonathan Jo, MD, Bridgeport, CT
Samir Trehan, MD, Mahwah, NJ
Michael A. Mont, MD, Baltimore, MD

CHIT1 monitoring may facilitate early diagnosis of total hip replacement periprosthetic osteolysis.

**Poster No. P008**
Effects of Pelvic Tilt and Stem Anteversion on Hip Range of Motion to Impingement
Thomas McCarthy, BS, MBA, Mahwah, NJ
Vincent Alipit, Mahwah, NY
Samir Trehan, MD, Mahwah, NJ
Michael A. Mont, MD, Baltimore, MD

The purpose of this study was to determine the effect of alterations to: (1) neutral pelvic tilt angle; and (2) a femoral stem-neck anteversion angle on hip range-of-motion (ROM) to impingement.

**Poster No. P009**
Increasing Version Decreases Fixation Strength of Cemented Acetabular Liners in a Biomechanical Model
Kieane A. Emnun, MD, MS, Ferndale, MI
Michael Kurdziel, MS, Royal Oak, MI
Kevin C. Baker, PhD, Royal Oak, MI
James J. Verner, MD, Beverly Hills, MI

Maximum f xation strength signifi cantly decreased when liners were cemented at greater than 20° of anteversion. Surgical technique may be inf uenced when cementing new liners into retained shells.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
**Poster No. P010**
Soft-Tissue Impingement with Dual Mobility Liners as a Proposed Mechanism of Intraprosthetic Dislocation
Audrey Nebergall, Boston, MA
Andrew A. Freiberg, MD, Boston, MA
Meridith E. Greene, Boston, MA
Henrik Malchau, MD, Cambridge, MA
Orhun K. Muratoglu, PhD, Boston, MA
Shannon L. Rowell, Boston, MA
Thomas Zumbrunn, Boston, MA
Kartik Varadarajan, MS, PhD, Boston, MA

Impingement of the mobile liner on the surrounding soft-tissue may be an important mechanism for IPD in dual mobility systems.

**Poster No. P011**
Changes in Femoral Head Centroid Mimic Cam Deformity in Patients with Advanced Hip Osteoarthritis
James Beckmann, MD, Menlo Park, CA
Marc Safran, MD, Redwood City, CA
Geoffrey D. Abrams, MD
Nicholas J. Giori, MD, Palo Alto, CA

Advanced hip osteoarthritis shifts the femoral head centroid inferiorly, laterally, and posteriorly due to bony erosion and osteophyte deposition, which mimics a cam deformity.

**Poster No. P012**
Quantitative Assessment of Femoroacetabular Impingement Using Motion Capture and MRI
Stefan Landgraeber, MD, Essen, Germany
Dominik Raab, PhD, Duisburg, Germany
Robert M. Cichon, MSc, Duisburg, Germany
Andrea Lazik, Essen, Germany
Jens M. Theysohn, MD, Essen, Germany
Andre Keskemethy, Duisburg, Germany
Marcus Jager, MD, PhD, Essen, Germany
Wojciech Kowalczyk, Duisburg, Germany

Simulation based on motion capture and MRI is a feasible method for diagnosis and evaluation of femoroacetabular impingement.

**Poster No. P013**
Factors Associated with Trunnionosis in One of the Most Widely Used Metal-on-Metal Hip Replacements in the UK
Harry Hodni, BEng, MSc, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Reshid Berber, MBBS, BS, St Albans, United Kingdom
Jayantilal M. Meswania, PhD, Stanmore, Middx, United Kingdom
Olli Lainiila, MB, Tampere, Finland

This study used a large number of retrieved hips of a single design and size to demonstrate that stem design and time to revision are key variables influencing trunnionosis.

**Poster No. P014**
Monitoring Carbon Dioxide Levels in Modern Total Joint Hoods: Are They Safe?
Michael J. Lim, MD, La Jolla, CA
Suhani Patel, MSc, Cambridgeshire, United Kingdom
Steven Copp, MD, La Jolla, CA
Adam Rosen, DO, La Jolla, CA
Gordon K. Prisk, PhD, La Jolla, CA
John West, MD, PhD, La Jolla, CA

Current modern total joint hoods are widely used, however have not been evaluated independently for safety. Carbon dioxide levels were monitored during simulated physical activity.

**Poster No. P015**
Trunnionosis in Retrieved Bipolar Hemiarthroplasty Implants Compared to Total Hip Arthroplasty?
Christopher Del Balso, MD, London, ON, Canada
Matthew G. Teeter, PhD, London, ON, Canada
Sok Chuen Tan, MD, London, ON, Canada
Brent Lanting, MD, London, ON, Canada
James Howard, MD, London, ON, Canada

Femoral heads retrieved from BH exhibit decreased fretting damage compared to those retrieved from MoP THA.

**Poster No. P016**
Tribocorrosion: Ceramic versus Cobalt Chromium Metal Heads in Total Hip Arthroplasty
Sok Chuen Tan, MD, Singapore, Singapore
Cheng Kiang Adrian Lau, MD, Singapore, Singapore
Christopher Del Balso, MD, London, ON, Canada
James Howard, MD, London, ON, Canada
Brent Lanting, MD, London, ON, Canada
Matthew G. Teeter, PhD, London, ON, Canada

Ceramic head trunnions showed significantly less fretting and corrosion as compared to cobalt-chromium trunnions in this matched cohort study. Taper design also constitutes a significant factor.

**Poster No. P017**
Does Periacetabular Osteotomy have Depth-Related Effects on the Articular Cartilage of the Hip Joint?
Andreas M. Hingsammer, MD, Zürich, Switzerland
Patricia Miller, MS, Boston, MA
Michael B. Mills, MD, Boston, MA
Young Jo Kim, MD, PhD, Boston, MA

This study suggests that PAO modulates the GAG content of the articular cartilage with a greater effect on the superficial zone compared to the deeper acetabular cartilage zone.
ADULT RECONSTRUCTION HIP

Poster No. P018
Pelvic Tilt in the Standing, Supine, and Flexed Seated Positions
Stephen J. McMahon, FRACS(orth), Brighton, Australia
Jim Pierrepont, BS, MS, Cremorne, NS, Australia
Jonathan Bare, Windsor, Australia
Leonard R. Walter, Sydney, Australia
Brad P. Miles, PhD, Croues Nest, Australia
Michael Solomon, MD, Sydney, Australia
Ed Marel, FRACS, MBBS, Bathurst, Australia
Andrew J. Shimmin, MD, Windsor, Australia
Changes in pelvic tilt have a substantial effect on the functional orientation of the acetabulum. This study quantifies the changes in sagittal pelvic tilt between three functional postures.

Poster No. P019
Mutations in Sporadic DDH Patients Uncovered in Genes Linked to Affected Human and Canine Pedigrees
George Feldman, PhD, Philadelphia, PA
Daniel Kendoff, MD, Hamburg, Germany
Christian Lausmann, MD, Hamburg, Germany
Javad Parvizi, MD, FRCS, Philadelphia, PA
The study found that DNA mutations on the Fibrillin2 gene has been strongly linked to canine hip dysplasia and has the potential to be used as a screening test for early detection of DDH.

Poster No. P020
Antimicrobial Effects and Biofilm Inhibition of Iodine-Supported Titanium Implants
Daisuke Inoue, MD, Kanazawa, Japan
Tamon Kabata, MD, Kanazawa, Japan
Toru Maeda, MD, PhD, Kanazawa, Japan
Yoshitomo Kajino, MD, Kanazawa City, Japan
Tomoharu Takagi, MD, Kanazawa, Japan
Takaaki Ohmori, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Iodine-supported implants have good antibacterial effects in vivo and inhibit biofilm formation and growth. Iodine-supported implants have potential as innovative antibacterial implants.

Poster No. P021
Placental-Derived Cell Therapy Improves Functional Regeneration of Hip Abductor Muscles After Hip Arthroplasty
Tobias Winkler, MD, Berlin, Germany
Georg Duda, Dr. Ing, Berlin, Germany
Philipp Von Roth, MD, Berlin, Germany
Alison N. Agres, MSc, Berlin, Germany
Bernd Premnnger, MD, Berlin, Germany
Esther Lukasiewicz-Hagai, Haifa, Israel
Petra Reinken, Berlin, Germany
Carsten Perka, MD, Berlin, Germany
Traumatized gluteus medius muscles of patients undergoing THA treated with allogeneic placental-derived stromal cells showed improved contraction forces and higher volume compared to placebo.

Poster No. P022
Decreased Osteogenic Activity of Stem Cells in Patients with Corticosteroid Induced Osteonecrosis
Matthew Houdek, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
MSCs isolated from control patients possessed a greater proclivity to differentiate into bone than those from patients with AVN.

Poster No. P023
Normal Morphology Precludes the Development of Hip Osteoarthritis - Analysis of a Longitudinal Population Cohort
Geraint E. Thomas, MA, MBBS, Oxford, United Kingdom
Antony Palmer, MA, BMBC, Oxford, United Kingdom
Tamer T. Malak, MB, Oxford, United Kingdom
David W. Murray, MD, Oxford, Australia
Andrew J. Carr, FRCS, Headington Oxford, United Kingdom
Nigel Arden, MD, Oxford, United Kingdom
Sion Glynn-Jones, MA MBBS, Oxford, United Kingdom
20 year analysis of a 1000 patient population cohort reveals hip morphology as the single greatest predictor of OA development. In particular normal morphology essentially precludes end stage OA.

Poster No. P024
Systemic Tranexamic Acid Does Not Affect Cortical Implant Osseointegration in a Large Animal Model
Yadin D. Levy, MD, Sydney, Australia
Gianmarco V. Regazzola, MD, Kensington, Australia
Nicki Bertolino, PhD, Dublin, Ireland
Peter M. Walker, FRCS, Concord, Australia
Warwick Bruce, FRACS, Miller’s Point, Australia
William R. Walsh, PhD, Randwick, Australia
Administration of tranexamic acid did not influence cementless implant osseointegration with respect to mechanical strength, bone ingrowth and histology in a large animal model as compared to control.

Poster No. P025
Trunnionosis: Does Head Diameter Affect Fretting and Corrosion in Total Hip Arthroplasty?
Christopher Del Balso, MD, London, ON, Canada
Matthew G. Teeter, PhD, London, ON, Canada
Sok Chuen Tan, MD, London, ON, Canada
James Howard, MD, London, ON, Canada
Brent Lanting, MD, London, ON, Canada
Increased femoral head diameter in THA may produce greater fretting damage owing to and increased head-neck moment arm.
Poster No. P026  
Teriparatide Prevents Collapse in Non-Traumatic Osteonecrosis of the Femoral Head  
Ryuta Arai, MD, PhD, Sapporo, Japan  
Daisuke Takahashi, MD, Sapporo, Japan  
Masahiro Inoue, MD, Eniwa, Japan  
Tobru Irie, MD, PhD, Sapporo, Japan  
Takuya Konno, MD, Sapporo, Japan  
Tomohiro Onodera, MD, PhD, Sapporo, Japan  
Eiji Kondo, MD, Sapporo, Japan  
Norimasa Iwasaki, Sapporo, Japan  
A retrospective analysis showed that teriparatide treatment reduced the progression of collapse in osteonecrosis of the femoral head, as compared with alendronate treatment.

Poster No. P027  
Patient Reported Outcome Measure Prevalence in Arthroplasty Research: A Review of Major Orthopaedic Journals  
James Fraser, MD, Phoenix, AZ  
Joshua Bingham, MD, Mesa, AZ  
Joshua Hustedt, MD, Phoenix, AZ  
More than fifteen different patient reported outcome measures have been published in the major arthroplasty literature in the past year. However, only seven measures were published more than 10 times.

Poster No. P028  
Total Hip Arthroplasty with the Cementless Zweymüller-Alloclassic System: A Concise Follow Up of a Previous Report  
Ana Cruz-Pardos, Madrid, Spain  
Eduardo Garcia-Rey, MD, Madrid, Spain  
Eduardo Garcia-Cimbrelo, MD, Madrid, Spain  
Total Hip Arthroplasty with Use of the Cementless Zweymüller-Alloclassic System: A Concise Follow-Up, at 24-27 years, Of a Previous Report.

Poster No. P029  
Distal Extension of the Direct Anterior Approach to the Hip - A Cadaveric Feasibility Study  
Stijn Ghijselings, MD, Leuven, Belgium  
Kristoff Corten, MD, PhD, Herselt, Belgium  
The motor nerve to the vastus lateralis has a consistent branching pattern into 2 bundles. Knowledge of these bundles makes distal femoral extension of the direct anterior approach safe and feasible.

Poster No. P030  
Comparison of Results Between Bernese Periacetabular Osteotomy and Modif ed Rectus Femoris Sparing Technique  
Saran Tantavisut, Bangkok, Thailand  
John L. Marsh, MD, Iowa City, IA  
Ryan M. Ilgenfritz, MD, Orlando, FL  
Brian O. Westerlind, BA, Iowa City, IA  
Todd O. McKinley, MD, Indianapolis, IN  
The modif ed Bernese periacetabular osteotomy with rectus femoris sparing technique showed significantly less blood loss, better clinical results, and fewer complications.

Poster No. P031  
KLIC-Score for Predicting Failure in Prosthetic Joint Infections Treated with Debridement and Implant Retention  
Eduard Tornero, MD, Barcelona, Spain  
Laura Morata, Barcelona, Spain  
Silvia A. Acosta Sr, Barcelona, Spain  
Sebastian Garcia Ramiro, PhD, Barcelona, Spain  
Alex Soriano, Barcelona, Spain  
Early prosthetic joint infections: When can be treated with debridement and implant retention? New preoperative KLIC-Score predicting success or failure.

Poster No. P032  
Metal-on-Metal: Making Sense of Blood Cobalt and Chromium Ion Concentrations  
Harlan C. Amstutz, MD, Los Angeles, CA  
Michel J. Le Duff, Los Angeles, CA  
Metal-on-metal bearings require a precise implantation of the acetabular component to maximize functional coverage of the femoral head.

Poster No. P033  
Standing and Sitting Lumbosacral Alignment in Patients Undergoing Hip Arthroplasty - What is Normal?  
Brian Barlow, MD, New York, NY  
Christina I. Esposito, PhD, New York, NY  
Theodore Miller, MD, New York, NY  
Han Jo Kim, MD, New York, NY  
Timothy M. Wright, PhD, New York, NY  
Douglas E. Padgett, MD, New York, NY  
Seth A. Jerabek, MD, Lake Nebagamon, WI  
David J. Mayman, MD, New York, NY  
An imaging study of lumbosacral alignment in standing and sitting positions in patients undergoing THA. Some patients sit with forward-tilting pelvises and may benefit from increased cup anteversion.

Poster No. P034  
Total Hip Arthroplasty Outcomes Directly Associated with Spine Disability  
William C. Schroer, MD, Saint Louis, MO  
Erica M. Diesfeld, St Charles, MO  
Angela LeMarr, RN, Saint Louis, MO  
Diane Morton, MS, Saint Louis, MO  
Mary E. Reedy, RN, Saint Louis, MO  
A majority of THA patients have history of lumbar spine problems. The Oswestry Disability Index, the primary outcome measure of spinal disorders, correlated strongly with poor THA outcomes.
ADULT RECONSTRUCTION HIP

Poster No. P035
Complications in Total Hip Arthroplasty Patients with Parkinson’s Disease: A Medicare Database Review
Travis J. Dekker, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Durham, NC
Timothy R. Randell, MD, Lawtell, LA
Cynthia L. Green, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Abiram Bala, BA, Durham, NC
Michael P. Bolognesi, MD, Durham, NC
Parkinson’s disease (PD) patients undergoing primary THA are medically complex patients at higher risk of post-operative complications and warrant preoperative medical optimization and counseling.

Poster No. P036
Periacetabular Osteotomy for Hip Dysplasia in Adolescents
Tsuyuya Sakamoto, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan
Kouichi Kinoshita, MD, Fukuoka, Japan
We retrospectively reviewed 33 hips of adolescent patients extracted from 474 hips with acetabular dysplasia that underwent CPO. Satisfactory results were obtained clinically and radiographically.

Poster No. P037
In-Hospital Mortality in Patients with Periprosthetic Joint Infection
Alisina Shahi, MD, Philadelphia, PA
Timothy Tan, MD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
PJI is associated with a two-fold increase in mortality for each inpatient admission and have mortality rates comparable to kidney transplantation and carotid surgery.

Poster No. P038
Culture Negative Periprosthetic Joint Infection: An Update on What to Expect
Timothy Tan, MD, Philadelphia, PA
Chilung Chen, MD, Chiayi Hsien, Taiwan
Dean D. Tan, BS, Pleasanton, CA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Culture negative PJI is a relatively frequent finding and demonstrates an unacceptable rate of treatment failure.

Poster No. P039
Missing Data Significantly Affects Results from Total Joint Arthroplasty Database Studies
Bryce A. Basques, MD, Chicago, IL
Jennifer M. Fischer, New Haven, CT
Andre Samuel, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Adam Lukasiewicz, MSc, New Haven, CT
Daniel D. Bohl, MD, MPH, Chicago, IL
Jonathan N. Grauer, MD, New Haven, CT
This study reports the rates of missing data for total joint arthroplasty patients from a national database (NSQIP) and found that study results can vary greatly based on how missing data is treated.

Poster No. P040
Alarmingly High Rate of Implant Fractures in One Modular Femoral Stem Design: A Comparison of Two Implants
Ritesh Shah, MD, Glenview, IL
Jeffrey M. Goldstein, MD, Deerfield, IL
Alexander C. Gordon, MD, Prospect Heights, IL
Matthew L. Jimenez, MD, Morton Grove, IL
Wayne M. Goldstein, MD, Morton Grove, IL
Wayne M. Goldstein, MD, Morton Grove, IL
This study compares the rate of implant failure of two stem-sleeve modular femoral stems.

Poster No. P041
Is Down Syndrome Associated with Short-Term Complications Following Total Hip Arthroplasty?
Matthew R. Boylan, Brooklyn, NY
Bhaveen H. Kapadia, MD, Baltimore, MD
Kimona Issa, MD, Wayne, NJ
Dean C. Perfetti, BA, Brooklyn, NY
Vidushan Nadarajah, Brooklyn, NY
Aditya V. Maheshwari, MD, Brooklyn, NY
Michael A. Mont, MD, Baltimore, MD
Orthopaedic surgeons should be aware of the increased risks of total hip arthroplasty in patients with Down syndrome and should discuss these risks with patients and their families prior to surgery.

Poster No. P042
The Results of Second 2-Stage Reimplantations for Periprosthetic Hip Infection
Keith Febrin, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Tad M. Mahry, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
Expectations following a second two-stage reimplantation for periprosthetic hip infection should be tempered as the failure rate of this procedure is high with considerable patient morbidity.

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* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Poster No. P043
Safe International Normalized Ratio to Avoid Risk of Excessive Bleeding in Total Joint Arthroplasty
Fatih Kucukdurmaz, MD, Istanbul, Turkey
Camilo Restrepo, MD, Philadelphia, PA
Javad Parviz, MD, FRCS, Philadelphia, PA
We were able to define an INR cut-off value that is associated to increased risk of excessive bleeding, and the need for estimated unit of transfusion.

Poster No. P044
Introduction of New Acetabular Designs Does Not Influence Risk of Early Failure in Hip Arthroplasty
Mathias Björk, MS, Gothenburg, Sweden
Johan N. Karrholm, MD, Molndal, Sweden
Szilard Nemes, Goteborg, Sweden
Maziar Mohaddes, MD, Molndal, Sweden
Analyzing 52,903 hip replacements from the Swedish Hip Arthroplasty Register we were not able to find an increased risk for revision when new acetabular implants are introduced in Swedish Hospitals.

Poster No. P045
Doubling of Acute Kidney Injury Associated with a Change in Prophylactic Antibiotic Regime
James Donaldson, FRCS (Ortho), MBBS, London, United Kingdom
Heledd Havard, London, United Kingdom
Teicoplanin and gentamicin use as prophylactic antibiotics in arthroplasty significantly reduces the rate of infection but resulted in a doubling of acute kidney injury cases in a cohort of 7690 cases.

Poster No. P046
Should Joint Registries Publish Surgeon-Level Results? Validation of the UK National Joint Registry
Stefanos Koutsouris, London, United Kingdom
Shiraz Sabah, MD, Middlesex, United Kingdom
Johann Henckel, MD, London, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Harry Hothi, BEng, MSc, Stanmore, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Rita Rajani, Leicestershire, United Kingdom
Alister Hart, FRCS, London, United Kingdom
Registry-Retrieval Linkage was an effective validation tool. As the effect of missing or erroneous data may be amplified for low volume surgeons, we do not support surgeon-level outcome publication.

Poster No. P047
Using the Circle Theorem to Estimate Acetabular Version from a Single Antero-Posterior Hip Radiograph
Vincent M. Moretti, MD, Philadelphia, PA
Samuel J. Chmell, MD, Riverside, IL
The circle theorem provides easy and accurate estimates of acetabular version after total hip arthroplasty using simple instruments (compass and protractor) and readily available plain radiographs.

Poster No. P048
Resource Utilization and Medicare Reimbursement for Conversion and Primary Total Hip Arthroplasty
John C. Bonano, San Francisco, CA
Matthew K. Callahan, MSBA, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Alfred C. Kuo, MD, San Francisco, CA
Conversion of nonarthroplasty hip surgery to total hip arthroplasty (THA) is associated with higher resource utilization than primary THA, but Medicare reimbursements do not account for this.

Poster No. P049
Effect of Smoking on Postoperative Complications after Total Hip Arthroplasty: A Propensity Score Matched Analysis
Shawn Sabota, MD, Chicago, IL
Francis Lovecchio, BA, Chicago, IL
Matthew D. Beal, MD, Elmhurst, IL
David W. Manning, MD, Chicago, IL
Using a propensity adjusted analysis, Smoking is a modifiable factor leading to increased surgical complication, surgical site infection, sepsis, and readmission within 30 days following arthroplasty.

Poster No. P050
Anatomic Hip Center Decreases 20-Year Acetabular Component Loosening in Cemented Crowe-II THAs
Chad Watts, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Arlen D. Hassen, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
An anatomic hip center leads to lower acetabular component loosening and revision rates following cemented THA for Crowe II dysplasia at a mean of 26 year followup.

Poster No. P051
Intraoperative Synovial C-reactive Protein is as Useful as Frozen Section to Detect Periprosthetic Hip Infection
Martin Buttaro, MD, Buenos Aires, Argentina
Gabriel Martorell, MD, Capital Federal, Argentina
Mauro Quinteros, MD, Córdoba, Argentina
Gerardo Zanotti, MD, Buenos Aires, Argentina, Argentina
Francisco Piccaluga, MD, Buenos Aires, Argentina
We found quantitative synovial CRP had similar diagnostic value as intraoperative frozen section, with comparable sensitivity, specificity, and predictive values in revision total hip arthroplasty.

Poster No. P052
Human Immunodeficiency Virus and Total Joint Arthroplasty: The Risk for Infection is Low
Mohammad Ali Ena Yatollahi, Philadelphia, PA
Dermot Murphy, BA, Limerick, Ireland
Mitchell Maltenfort, PhD, Philadelphia, PA
Javad Parviz, MD, FRCS, Philadelphia, PA
The rates of PJIA after TJA in HIV-only patients are not as high as those in patients with both HIV and hemophilia.
ADULT RECONSTRUCTION HIP

Poster No. P053
How Should We Follow Up Asymptomatic Metal-on-Metal Hip Resurfacing Patients? A Prospective Longitudinal Study
Gulraj Matharu, BSc, Birmingham, United Kingdom
Adrian Low, MBBS, PhD, Parramatta, Australia
Simon Ostlere, MD, Oxford, United Kingdom
David W. Murray, MD, Oxford, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom

Asymptomatic metal-on-metal hip resurfacing patients with normal blood metal ions (<2 µg/l) and normal ultrasounds have no risk of developing new pseudotumours within 5 years of initial assessment.

Poster No. P054
Temporal Trends in Metal Ion Levels in Patients with Metal-on-Metal Hip Replacements
Aleksi Reito, MD, PhD, Tampere, Finland
Olli Lainiala, MB, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

Notably different temporal trends are seen in the population level with different metal-on-metal hip replacements. Our findings warrant implant specific risk stratification.

Poster No. P055
Risk Factors for Surgical Site Infections following Primary Total Knee or Hip Arthroplasty for Osteoarthritis
Aditya S. Mazmudar, BA, Fairfax, VA
Francis Lovecchio, BA, Chicago, IL
Matthew D. Beal, MD, Chicago, IL
David W. Manning, MD, Elmhurst, IL

This study analyzed primary total knee and hip arthroplasty in ACS-NSQIP 2006-13 to identify factors that influence rates of surgical site infections for future risk stratification strategies.

Poster No. P056
Risk Factors for Recurrence of Periprosthetic Joint Infections of the Hip and Knee
Georgios Triantafyllopoulos, MD, Astoria, NY
Lazaros A. Poultsides, MD, New York, NY
Stavros G. Memsoudis, MD, PhD, New York, NY
Wei Zhang, PhD, Washington, Dist. of Columbia
YAN MA, PhD, Washington, Dist. of Columbia
Thomas P. Sculco, MD, New York, NY

We determined recurrence rates for periprosthetic joint infections and risk factors for recurrence and persistence of infection in patients previously treated with two-stage exchange arthroplasty.

Poster No. P057
Prior Lumbar Spinal Arthrodesis Increases Prosthetic-Related Complication Risk in Primary Total Hip Arthroplasty
David Sing, San Francisco, CA
Jeffrey Barry, MD, San Francisco, CA
Alexander Theologis, MD, San Francisco, CA
Joseph Patterson, MD, San Francisco, CA
Bobby Tay, MD, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Erik N. Hansen, MD, San Francisco, CA

Patients undergoing primary total hip arthroplasty with history of lumbar fusion have increased incidence of dislocation, loosening, and revision surgery.

Poster No. P058
Minimum 13-Year Multicenter Study of THR with Highly Cross-Linked Polyethylene and Standard Diameter Femoral Heads
Charles R. Bragdon, PhD, Boston, MA
Christopher J. Barr, BS, Boston, MA
Christian Skougaard Nielsen, MD, Voerloese, Denmark
Daniel J. Berry, MD, Rochester, MN
Craig J. De la Valle, MD, Chicago, IL
Kevin L. Garvin, MD, Omaha, NE
Per-Erik Johansson, MD, PhD, Gothenburg, Sweden
John C. Clowisy, MD, Saint Louis, MO
Henrik Malchau, MD, PhD, Cambridge, MA

The mid to long-term wear performance of this form of HXLPE is excellent with no signs of osteolysis at follow-up as long as 16 years.

Poster No. P059
The Impact of Failed New Technology and Surgeon Error on the Revision Burden in Total Hip Arthroplasty
Justin M. Dunn, MD, Del Mar, CA
Samuel Early, San Diego, CA
Sravya T. Challa, BA, BS, La Jolla, CA
Pamela A. Pulido, RN, BSN, La Jolla, CA
Julie C. McCaulery, MPH, La Jolla, CA
Kace A. Ezzet, MD, La Jolla, CA

Roughly 25% of revision THA's were due to introduction of new technologies that subsequently failed, poor surgical technique or learning curve errors. All such cases are potentially avoidable.

Poster No. P060
Efficacy of Venous Thromboembolism Prophylaxis in Total Joint Arthroplasty Based on Risk Stratification
Timothy Tan, MD, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Alisina Shabi, MD, Philadelphia, PA
Carlos A. Higuera Rueda, MD, Bay Village, OH
Marcelo B. Siqueira, MD, Beachwood, OH
Erik N. Hansen, MD, San Francisco, CA
Javad Parvizi, MD, FRCS, Philadelphia, PA
David Sing, San Francisco, CA

Aspirin administered to the higher risk patients for venous thromboembolism seems to be as effective as potent anticoagulation and more effective than warfarin.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
Poster No. P061
Perioperative Surgical Home Pathway for Total Hip Arthroplasty Patients Produces Improved Outcomes
George F. Chimento, MD, New Orleans, LA
Neil L. Duplantier, MD, New Orleans, LA
Gonzalo Sumarriva, BS, Knoxville, TN
Mark S. Meyer, MD, Destrehan, LA
Leslie Thomas, MD, New Orleans, LA
Diedra Dias, MSHCM, Jefferson, LA
Armin Schubert, MD, New Orleans, LA
A Perioperative Surgical Home is a multidisciplinary rapid recovery pathway which decreased length of stay allowing THA patients to be discharged home, without increased complications or readmissions.

Poster No. P062
Chronic Kidney Disease Increases the Risk for Venous Thromboembolism and Periprosthetic Infection Following THA
Bhaveen H. Kapadia, MD, Baltimore, MD
Matthew R. Boylan, Brooklyn, NY
Paul W. Perdue Jr, MD, New York, NY
Aditya V. Maheshwari, MD, Brooklyn, NY
Michael A. Mont, MD, Baltimore, MD
Patients with Chronic Kidney Disease were at an increased risk for postoperative venous thromboembolism and periprosthetic joint infection following primary total hip arthroplasty.

Poster No. P063
Hip Dislocation Prevention in Obese Patients: Dual Mobility Liner versus Preoperative Bariatric Surgery
Philippe Hermigou, PhD, Creteil, France
Charles-Henri Houzat Lachaniette, MD, Créteil Cedex
Pre-operative BMI decrease does not prevent dislocation. Dual mobility or constrained liners in these patients is an effective technique to prevent post operative hip dislocation

Poster No. P064
Total Joint Replacement Registries: Implementation Strategies for a Multi-State, Integrated Health System
Cecily Froemke, MS, Portland, OR
Paul J. Duwelius, MD, Portland, OR
Kevin Fleming, MBA, Maple Valley, WA
Paul Tittel, Renton, WA
Kirsten Juul-Mont, Music, Renton, WA
This site specific examination focuses on the data management strategy necessary to connect PRO data from the physician private practice setting to the hospital-based total joint registry.

Poster No. P065
The Direct Anterior Approach in Total Hip Arthroplasty: A Systematic Review and Meta-analysis of Current Literature
Rishi Das, MBBS, London, United Kingdom
Geert Meermans, MD, Berchem, Belgium
Sujith Konan, London, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom
This systematic review and meta-analysis aims to evaluate the current evidence regarding direct anterior approach in total hip arthroplasty.

Poster No. P066
Risk-Adjusted Outcomes of Total Hip Arthroplasty in Academic Versus Community Hospitals
James Henderson, BS, Cleveland, OH
Jayson D. Zadzilka, MS, Cleveland, OH
Alison K. Klika, MS, Cleveland, OH
Suparna Navale, MPH, MS, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Carlos A. Higuera Rueda, MD, Bay Village, OH
New York and CA State Inpatient Database were used to compare risk-adjusted outcomes of total hip arthroplasty between academic and community hospitals.

Poster No. P067
Residual Symptoms and Function in Young, Active Hip Arthroplasty Patients: Comparable to Controls?
Denis Nam, MD, MSc, St Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Michael E. Berend, MD, Indianapolis, IN
Keith R. Berend, MD, New Albany, OH
Adolph V. Lombardi Jr, MD, New Albany, OH
Robert L. Barrack, MD, Saint Louis, MO
An independent, third party survey demonstrated a substantial percentage of young, active hip arthroplasty patients report residual symptoms, but to a similar degree as controls without prior surgery.

Poster No. P068
Diagnostic Utility of Joint Fluid Metal Ion Measurement in Metal-on-Metal Hip Replacements
Aleksi Reito, MD, PhD, Tampere, Finland
Jyrki Parkkinen, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Jorma Pajamäki, MD, PhD, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland
Based on this study it seems to be clear that routine measurement of joint fluid metal ion levels in patients with MoM hips are neither useful nor advisable.

Poster No. P069
Doubling of Acute Kidney Injury Associated with a Change in Prophylactic Antibiotic Regime
Paul Gunning, MBBS, London, United Kingdom
Heledd Havard, London, United Kingdom
Vijayaraghavan Ramesh, MBBS, Middlesex, United Kingdom
Alexander Sell, MBBS, Stanmore, United Kingdom
John Skinner, FRCS, London, United Kingdom
Richard Carrington, MD, Herts, United Kingdom
Teicoplanin and gentamicin use as prophylactic antibiotics in arthroplasty signif cantly reduces the rate of infection but resulted in a doubling of acute kidney injury cases in a cohort of 7690 cases.
ADULT RECONSTRUCTION HIP

Poster No. P070
Navigation Versus Outrigger to Determine Leg Length Change in Total Hip Arthroplasty: A Randomized Controlled Trial
Jesse I. Wolfstadt, MD, Toronto, ON, Canada
Brandon Girardi, MD, Toronto, ON, Canada
Simcha G. Fichman, MD, Toronto, ON, Canada
David Backstein, MD, Toronto, ON, Canada
Oleg Safar, MD, Toronto, ON, Canada
Paul R. Kuzyk, MD, FRCSC, Toronto, ON, Canada

This randomized, controlled trial compared the accuracy of a computer-navigation tool with an outrigger device for measuring changes in leg length during total hip arthroplasty.

Poster No. P071
Applying Statistical Process Control Surveillance to Monitor Infections After Total Joint Arthroplasty
John Grady-Benson, MD, Farmington, CT
Smitha S. Vellanky, MSc, Hartford, CT
Michael S. Cremins, PA-C, PhD, Hartford, CT

The novel application of a Statistical Process Control method for detecting statistically significant changes in infection rates allows for more precise infection analyses and prevention strategies.

Poster No. P072
Comparison Between Primary THA and Secondary THA After Internal Fixation for Femur Neck Fracture
Kyung Soon Park, MD, Jeonnam, Republic of Korea
Jong-Keun Seon, MD, Hwasungan, Republic of Korea
Young-Min Lee, Guwang Ju, Republic of Korea
Taek R. Yoon, MD, Jeonnam, Republic of Korea

Comparing Primary THA with secondary THA in femur neck fractures, there are no differences in clinical outcomes and radiological results.

Poster No. P073
Is Ultrasound as Useful as MARS MRI in the Longitudinal Surveillance of Metal-on-Metal Hip Patients?
Dimitris Dimitriou, MD, Cambridge, MA
Neil T. Dion, MD, Boston, MA
Valentin Antoci Jr, MD, Cambridge, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Guoan Li, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA

In longitudinal surveillance of MoM patients, ultrasound maintained its high diagnostic characteristics, suggesting that US is a valid diagnostic modality and cost-effective alternative to MARS MRI.

Poster No. P074
Abnormally High Dislocation Rates of Total Hip Replacement Following Contemporary Low Back Surgery
Sean Slaven, MD, Bethesda, MD
Christopher T. Martin, MD, Coralville, IA
Nicholas Bedard, MD, Iowa City, IA
Andrew J. Pugely, MD, Coralville, IA
Steve S. Liu, MD, Iowa City, IA
Sergio A. Mendoza-Lattes, MD, Durham, NC
John J. Callaghan, MD, Iowa City, IA

An alarmingly high hip replacement dislocation prevalence (15%, 7 to 10 times the prevalence in author's general THR population) was documented following contemporary low back surgery.

Poster No. P075
Dual Mobility Articulations for Patients at High Risk for Dislocation
Darren R. Plummer, MBA, MD, Columbus, OH
Jonathan Christy, MD, Savannah, GA
Scott M. Sporer, MD, Winfield, IL
Wayne G. Paprosky, MD, Winfield, IL
Craig J. Della Valle, MD, Chicago, IL

Dual mobility articulations are an excellent option in high risk patients associated with a low rate of failure and no repeat revisions for instability.

Poster No. P076
Risk Factors for Wound Complications following Direct Anterior Approach Hip Arthroplasty
Kenneth Jalby, MD, Loma Linda, CA
Marcel A. Bas, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY
Herbert J. Cooper, MD, New York, NY

We experienced an 11.5% wound complication rate leading to a 1.9% reoperation rate in 651 consecutive DAA hip arthroplasties. Risk factors included obesity, diabetes, and previous hip surgery.

Poster No. P077
Short Stem Cementless Components in Total Hip Replacement: Excellent Fixation, Thigh Pain a Concern!
Richard Amendola, Post Grad, Iowa City, IA
Devin D. Goetz, MD, West Des Moines, IA
Steve S. Liu, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

The patient reported thigh pain rate in a single surgeon experience using a short tapered stem was 8 times the rate of the same surgeon’s experience with a standard length tapered stem.
**Poster No. P078**
MRI Predicts Adverse Local Tissue Reaction Histologic Severity in Modular Neck Total Hip Arthroplasty
Brian Barlow, MD, New York, NY
John Boles, BS, New York, NY
Kara Fields, MS, New York, NY
Alissa J. Burge, MD, New York, NY
Hollis Potter, MD, New York, NY
Geoffrey H. Westrich, MD, New York, NY

MRI is predictive of adverse local tissue reaction (ALTR) histologic severity in a recalled modular neck femoral stem. Serum cobalt and chromium ion levels did not correlate with histologic severity.

**Poster No. P079**
Five-Year RSA Evaluation of Vitamin E Diffused Highly Cross-Linked Polyethylene Wear and Stability of Femoral Stems
Audrey Nebergall, Boston, MA
Ola Rolfson, MD, PhD, Gothenburg, Sweden
Anders Troelsen, MD, PhD, Koeye, Denmark
Harry E. Rubash, MD, Cambridge, MA
Orhun K. Muratoğlu, PhD, Boston, MA
Henrik Malchau, MD, Gothenburg, Sweden
Meridith E. Greene, Boston, MA

RSA showed low wear of the Vitamin E diffused polyethylene at 5 years and no significant migration of the stems. All PROMs improved significantly and the 5 year scores indicate an excellent outcome.

**Poster No. P080**
Prospective, Longitudinal Evaluation of Gender Differences After Total Hip Arthroplasty
Jeffrey J. Cherian, DO, Philadelphia, PA
Alexander Jinnah, MD, Winston Salem, NC
Kristin Robinson, MS, Mahwah, NJ
Mary F. O’Connor, MD, New Haven, CT
Steven F. Harwin, MD, New York, NY
Michael A. Mont, MD, Baltimore, MD

The purpose of this study was to compare temporal trends between men and women following THA in terms of: activity level; pain, hip function, and range of motion; and physical and mental outcomes.

**Poster No. P081**
Comparative Analysis of Simultaneous and Staged Bilateral Total Hip Arthroplasty
Kyung Soon Park, MD, Jeonnam, Republic of Korea
Jong-Keeun Seon, MD, Huwasung, Republic of Korea
Young-Min Lee, Gwang Ju, Republic of Korea
Teak R. Yoon, MD, PhD, Jeonnam, Republic of Korea

Bilateral simultaneous THA is safe and good options for the patients in terms of safety, complications and cost-effectiveness.

**Poster No. P082**
Five-Year Results of a Type 2B Short Femoral Stem Prosthesis
Karhao Teoh, MD, Wales, United Kingdom
Paul Y. Lee, FRCS (Ortho), MSc, Cardiff, United Kingdom
David Woodnutt, MD, Wales, Uk, United Kingdom

This new short stem prosthesis has shown promising survival results in the short term similar to other short stem prosthesis. We describe the largest series in the literature of this prosthesis.

**Poster No. P083**
Highly Cross-Linked Polyethylene for Hip Resurfacing: Results at 10 Years in Patients Under Age 50
James W. Pritchett, MD, Seattle, WA

Hip resurfacing using highly cross-linked polyethylene (PE) acetabular component is a reliable procedure at mid-term follow-up. PE wear is below .1 mm/yr. Kaplan-Meier survivorship in 144 pts was 96%.

**Poster No. P084**
Femoral Head Offset is Associated with Increased Metal Ion Levels in Metal on Polyethylene Total Hip Arthroplasty
John R. Martin, MD, Rochester, MN
Christopher L. Camp, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Michael J. Taunton, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Increased femoral head offset leads to increased metal ion levels in asymptomatic patients with metal on polyethylene total hip arthroplasty.

**Poster No. P085**
Comparison of Complications Following Revisions of Metal on Metal versus Metal on Polyethylene Hip Arthroplasty
Shoji Nishio, MD, Hyogo, Japan
Thomas P. Vail, MD, San Francisco, CA
David Sing, San Francisco, CA
Erik N. Hansen, MD, San Francisco, CA
Shigeo Fukunishi, MD, Nishinomiya, Japan
Shinichi Yoshida, MD, Nishinomiya, Hyogo, Japan

Comparison of Complication Rates Following Revisions of Metal-on-Metal versus Metal-on-Polyethylene Hip Arthroplasty

**Poster No. P086**
Effect of Acetabular Component Positioning on Total Hip Arthroplasty Revisions for Instability
Benjamin R. Coobs, MD, Saint Louis, MO
Anita Sadhu, MD, Saint Louis, MO
Denis Nam, MD, MSc, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO

Based on the findings of this study, it is apparent that factors other than component position play a role in a substantial percentage of THAs revised for instability.
**ADULT RECONSTRUCTION HIP**

**Poster No. P087**
Cluster Hole Versus Solid Cup in Total Hip Arthroplasty: A Randomized Controlled Trial
William Blakeney, MD, Perta, Australia
Riaz Khan, FRCS, Cottesloe, Australia

There was no difference in presence or volume of osteolytic lesions, in 100 patients randomized to either a solid-backed or a cluster-hole acetabular component, at five-year follow-up of primary THA.

**Poster No. P088**
Hip Resurfacing Arthroplasty Outcomes Compared to Total Hip Arthroplasty in the Medicare Population
Lindsay T. Kleeman, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC
Colin T. Penrose, BA, BS, Durham, NC
Abiram Bala, BA, Durham, NC
Cynthia L. Green, Durham, NC
Samuel S. Wellman, MD, Durham, NC
Michael P. Bolognesi, MD, Durham, NC

Hip resurfacing arthroplasty is associated with higher rates of post-operative complications and revision compared to metal-on-metal and metal-on-polyethylene total hip arthroplasty.

**Poster No. P089**
Tranexamic Acid in Total Hip Arthroplasty: Do Drug Formulation and Dosage Determine Efficacy and Safety?
Yale Fillingham, MD, Chicago, IL
Jonathan C. Riboh, MD, Durham, NC
Brandon Erickson, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL

TXA formulation and dosage have a direct effect on measured blood loss, but no difference in the risk of transfusion or thromboembolic events.

**Poster No. P090**
Dual Mobility Hip Cup Migration and Liner Mobility at One Year
Elise Laende, MSc, Halifax, NS, Canada
Michael Dunbar, MD, Halifax, NS, Canada
Christopher G. Richardson, MD, Halifax, NS, Canada

Mobile bearing acetabular components demonstrate favorable fixation patterns but have a wide range of liner mobility during supine frog leg poses assessed using radiostereometric analysis.

**Poster No. P091**
3D-MRI versus 3D-CT in the Evaluation of Osseous Anatomy in Femoroacetabular Impingement and Hip Dysplasia
Jonathan Vigdorchik, MD, New York, NY
Nima Eftekhary, MD, New York, NY
Avner Yemin, MD, New York, NY
Roy Davidovitch, MD, New York, NY
Michael C. Bloom, New York, NY
Soteros Gyftopoulos, MD, Long Is City, NY

Study of the utility of 3D-MRI in lieu of 3D-CT in the evaluation of osseous anatomy and pre-operative planning for femoroacetabular impingement and hip dysplasia.

**Poster No. P092**
A Minimum 10-Year Result of Periacetabular Osteotomy via a Smith Petersen Approach
Kouichi Kinoshita, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan
Takahiko Kiyama, MD, Fukuoka, Japan
Satoshi Kamada, MD, Fukuoka, Japan
Norihiro Watanabe, MD, Fukuoka-Ken, Japan
So Minokawa, MD, Fukuoka-Ken, Japan
Tomohiko Minamikawa, MD, Fukuoka-Ken, Japan
Hajime Seo, MD, Fukuoka, Japan
Shunsuke Akiho, MD, Fukuoka-Ken, Japan

We investigated the result of PAO via a modified Smith-Petersen approach at a minimum 10-years’ follow-up. Ten-year survival rate was 97% with conversion THA as the end point.

**Poster No. P093**
Relationship of Acetabular Cup Position to Dislocation Rate and Patient-Reported Outcomes in THA
Deepak Ramanathan, MBBS, Cleveland, OH
Kyle Walker, BS, MD, Cleveland, OH
Joseph F. Styron, MD, PhD, Westlake, OH
Alison K. Klika, MS, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Carlos A. Higuera Rueda, MD, Bay Village, OH

Outcomes after total hip arthroplasty were associated with cup positioning relative to the native acetabular rim, rather than the broadly defined safe zone for inclination and anteversion.

**Poster No. P094**
Pain Management and its Relationship with Patient Satisfaction in Total Joint Replacement Surgery
Edward Jung, MD, Berkley, MI
Wayne T. North, MD, Berkley, MI
Kalechi Okeoroha, MD, Northville, MI
Karan Srivastava, MD, Detroit, MI
Jason J. Davis, MD, Commerce Township, MI

This study aims to evaluate the relationship between patient perception of pain and their overall satisfaction reported in the HCAHPS survey after joint replacement surgery.

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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*
**Poster No. P095**  
Anterior vs. Posterior Approach for THA: Analysis of LOS, Discharge Destination, Readmission, and Revision  
Aakash Keswani, BA, New York, NY  
Adam C. Fields, BA, New York, NY  
Kristen Meier, MD, New York, NY  
Andree Lovy, MD, MS, New York, NY  
Steven Koehler, MD, New York, NY  
Michael J. Bronson, MD, New York, NY  
Calin S. Moucha, MD, New York, NY  
The purpose of this study was to analyze and compare rate of extended length of stay (LOS), non-home discharge destination, readmission, and revision between anterior and posterior THA patients.

**Poster No. P096**  
Use of Cementless Tapered Femoral Stems for Total Hip Arthroplasty in Octogenarians  
Stephanie Riley, Fisherville, KY  
James R. Spears, BS, Louisville, KY  
Jeffrey J. Cherian, DO, Philadelphia, PA  
Langan S. Smith, BS, Louisville, KY  
Michael A. Mont, MD, Baltimore, MD  
Arthur L. Malkani, MD, Louisville, KY  
Despite compromised bone in the octogenarian, the use of cementless, tapered, femoral stems yielded excellent results with 1.3% loosening, 1.3% dislocation but higher transfusion incidence (42%).

**Poster No. P097**  
Line to Line Reaming of Porous Cups Improves Position and Reduces Variability in Acetabular Component Placement  
Valentin Antoci Jr, MD, Cambridge, MA  
Sebastian Heaven, MD, Hamilton, ON, Canada  
Hany S. Bedair, MD, Boston, MA  
Line to line reaming of highly porous cups reduces variability in cup placement and improves component position.

**Poster No. P098**  
Variation in Use of Blood Transfusion in Primary Total Hip and Knee Arthroplasty  
Mariano Menendez, Boston, MA  
Na Lu, MPH, Boston, MA  
Krista Huybrechts, MS, PhD, Boston, MA  
David C. Ring, MD, West Hartford, CT  
Brian Bateman, MD, MSc, Concord, MA  
We observed wide interhospital variation in the use of blood transfusion among patients undergoing elective TJA that was largely unexplained by patient- and hospital-level characteristics.

**Poster No. P099**  
Outcome Post-Debridement and Implant Retention in Hip Prosthetic Joint Infection: 17-Year Experience  
George A. Grammatopoulos, MRCS, Oxford, United Kingdom  
Benjamin J. Kendrick, MBBS, FRCS (Ortho)  
Bridget Atkins, Oxford, United Kingdom  
Nick Athanasou, MRCP, FRCPath, Oxford, United Kingdom  
Ivor Byren, Oxford, United Kingdom  
Martin McNally, Oxford, United Kingdom  
Peter McLardy-Smith, FRCS, Oxford, United Kingdom  
Roger Gundle, Aylesbury, United Kingdom  
Adrian Taylor, MBBS, FRCS, Oxfordshire, United Kingdom  
Debridement and implant retention of hip prosthetic joint infection, has 80% 10-year implant survival and good function but 22% required re-debridement. Exchange of modular components improved outcome.

**Poster No. P100**  
Radiographic Identification of Arthroscopically Relevant Acetabular Structures  
W Andrew Lee, BA, Minneapolis, MN  
Adriana J. Saroki, Birmingham, MI  
Sverre B. Loken, MD, Oslo, Norway  
Christiano Trindade, MD, Vail, CO  
Tyler Cram, Vail, CO  
Robert F. LalPrade, MD, PhD, Vail, CO  
Marc J. Philippon, MD, Vail, CO  
Surgical landmarks had reliable locations on radiographs, were reproducible in both AP and false profile views and could increase the threshold for CT imaging and lower radiation exposure to patients.

**Poster No. P101**  
Topical versus Intravenous Tranexamic Acid in Hip and Knee Arthroplasty: Efficacy and Safety  
Ying-Ying J. Kao, MD, San Francisco, CA  
Brooke L. Prashker, MBA, New York, NY  
Geoffrey H. Westrich, MD, New York, NY  
Tranexamic acid in either intravenous or topical form was effective in decreasing the amount of blood transfusions as well as the number of units of blood transfused in hip and knee arthroplasty.

**Poster No. P102**  
A Prospective, Randomized, Radiostereometric Analysis of Patients Undergoing Cementless THR  
David C. Ayers, MD, Worcester, MA  
Patricia Franklin, MD, MBA, Worcester, MA  
Henrik Malchau, MD, Cambridge, MA  
Charles R. Bradlon, PhD, Boston, MA  
At 5 year follow-up, femoral head penetration was one order of magnitude less in the highly cross-linked polyethylene liners in comparison to the conventional liners. Further follow-up is necessary.
ADULT RECONSTRUCTION HIP

Poster No. P103
Adult Reconstructive Surgery - A High Risk Profession for Work-Related Injuries
Saad Al-Qahtani, MD, Montreal, QC, Canada
Mohammad M. Alzahrami, MD, Montreal, QC, Canada
Michael Tanzer, MD, Hampstead, QC, Canada
The prevalence of work-related injuries in adult reconstructive surgeons was found to be significantly high (66%), leading to them requiring time off work due to these disorders.

Poster No. P104
New Onset Perioperative Atrial Fibrillation during Orthopaedic Surgery Procedures & Incidence of Ischemic Stroke
Sariah Khormaei, MD, PhD, New York, NY
Huong Do, MA, New York, NY
Yevgeniy Mayr, BA, BS, Brooklyn, NY
New onset perioperative atrial fibrillation occurring during orthopedic procedures carries an association with future risk of stroke.

Poster No. P105
Outcomes of Revision Surgery for Recalled Modular Neck Femoral Implants: A Two-Year Follow Up
Christopher P. Walsh, MD, Oak Park, MI
Joseph M. Nessler, BA, Phoenix, AZ
Gerald B. Nelson, OPA-C, Waite Park, MN
Joseph P. Nessler, MD, Saint Cloud, MN
David C. Markel, MD, Novi, MI
The direct lateral approach is associated with severe postoperative abductor deficiency in revision surgery for modular neck femoral implants. The posterolateral approach is recommended.

ADULT RECONSTRUCTION KNEE

Poster No. P106
Hip and Knee Arthroplasty in a Safety Net Hospital: Not So Safe?
Harry E. Jergesen, MD, San Anselmo, CA
Paul H. Yi, MD, San Francisco, CA
Arthroplasties performed in a safety net hospital have more complications and reoperations compared with those performed at a nearby academic center, even when performed by the same surgeon.

Poster No. P107
VEGF and MicroRNA-210 are Induced by Hypoxia and IL-1beta in Fibroblast-like Synoviocytes of Knee Osteoarthritis
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Aree Tanavalee, MD, Bangkok, Thailand
VEGF and microRNA-210 were expressed in fibroblast-like synoviocytes under hypoxia or IL-1beta stimulation and could contribute to the pathogenesis of osteoarthritis.

Poster No. P108
Infflammation and the Discrepancy Between Radiography and Pain in Patients with Knee Osteoarthritis
Duke W. Hasson, MD, Aurora, CO
Andrew Kittelson, Aurora, CO
Craig A. Hogan, MD, Aurora, CO
Frank Somoza, Aurora, CO
Michael R. Dayton, MD, Saint Cloud, MN
Jennifer Stevens-Lapsley, PhD, PT, Aurora, CO
The aim of this study was to investigate systemic markers of inflammation as a possible explanation for discordance between radiographic severity and reports of knee pain.

Poster No. P109
Patient's Perception Between Subvastus and Medial Parapatellar Approach After Knee Replacement is not Different
In Jun Koh, MD, PhD, Seoul, Republic of Korea
Mansoo Kim, Seoul, Republic of Korea
Sung Won Jang, MD, Seoul, Republic of Korea
Yong In, Seoul, Republic of Korea
Patients who received the contemporary perioperative management do not perceive the difference between subvastus and medial parapatellar approach following same-day bilateral total knee arthroplasty.

Poster No. P110
Mid-Term Results of Total Hip and Total Knee Arthroplasty in Patients with HIV
Brian Chalmers, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
In addition to a substantial risk of perioperative complications, patients with HIV who undergo THA or TKA also have a substantial risk of revision or reoperation at 5 and 10 years.

Poster No. P111
Muscular Architecture of the Posterior Knee and the Basic Science Implications
Addison R. Wood, MS, Fort Worth, TX
Russin E. Reeves, PhD
The role of the popliteus muscle in knee mechanics and balancing should not be underestimated and merits inclusion into computational knee models and joint simulations.

Poster No. P112
Secondary Patellar Resurfacing In Total Knee Arthroplasty
Ainhoa Toro, Madrid, Spain
Alfonso C. Prada, Madrid, Spain
Juan Pretell, MD, Miami, Florida
Secondary patellar resurfacing can be used in patients with anterior knee pain after a primary total knee arthroplasty but many patients continue with pain and are dissatisfied with this procedure.
Poster No. P113
Impact of Age on Patient-Reported Outcome Measures in Total Knee Arthroplasty (TKA)
Vinod Dasa, MD, Kenner, LA
Ryan Roubion, Destrehan, LA
Luke A. Townsend, BS, New Orleans, LA
Claudia Leonardi, Hammond, LA
Grant Pollock, BS, Kenner, LA
Devin Bourgeois, BS, Thibodaux, LA
Rabun S. Fox, MD, New Orleans, LA

This study was a chart review that analyzed data from TKA patients to elucidate the effect of age on patient reported outcomes collected at various time intervals following the procedure.

Poster No. P114
Do We Really Need Routine Inpatient Predischarge Radiographs After Simple Primary Total Knee Replacement?
Senthil N. Sambandam, MD, Cheyenne, WY
Vishesh Khanna, MBBS, New Delhi, India

We questioned the practice of obtaining routine predischarge radiographs in patient undergoing TKA. Analysis revealed predischarge X-rays can be safely eliminated with significant cost benefit.

Poster No. P115
The Value of Using a Skin Knife in Orthopaedic Surgery - Myth or Necessity?
Oliver Schindler, FRCS, FRCS (Ortho), Bristol, United Kingdom

The use of separate skin and inside knives should be maintained due to the potential risk of transfer of organisms into deeper tissue layers.

Poster No. P116
Change in Body Mass Index after Primary Unilateral Total Knee Arthroplasty
Hay N. Box, MD, Dallas, TX
Timothy Brown, MD, Dallas, TX
Matthew W. Judd, BS, MS, Dallas, TX
Philip O. Oladeji, BSN, RN, Dallas, TX
Michael H. Hsu, MD, Dallas, TX

Class I obesity, female gender, and age younger than 60 years at time of TKA were patient characteristics associated with the significant increase in BMI at two years after primary unilateral TKA.

Poster No. P117
Wound Healing Problems Seen in Patients Treated with Enhanced Pain and Rehab Protocols Following TKR
David F. Dalury, MD, Baltimore, MD
Danielle M. Chapman, Touson, MD

More wound healing problems are seen in a group of consecutive patients treated with an enhanced pain and rehabilitation protocol.

Poster No. P118
Waterless Rubbing Versus Traditional Scrubbing for Prevention of Orthopaedic Surgical Site Infections
Kentaro Iwakiri, MD, Ikoma, Japan
Akio Kobayashi, MD, Nara, Japan
Yoichi Ohta, Osaka, Japan
Masatoshi Hosihino, MD, PhD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

Waterless hand rubbing with a liquid aqueous alcohol solution may be a safe, quick, and cost-effective alternative to traditional hand scrubbing in orthopedic surgery.

Poster No. P119
The Use of Intra-articular Antibiotic Loaded Calcium Sulfate Beads in Periprosthetic Joint Infection
Alexander Harbin, MD, Albany, NY
Jared T. Roberts, MD, Albany, NY
Daniel Cepela, MD, Albany, NY
Joseph Zimmerman, MD, Troy, NY
Richard Uhl, MD, Albany, NY

Acute infection of total hip and knee prostheses continues to be a great concern; we have studied the use of intra-articular calcium sulfate beads for single stage irrigation and debridement.

Poster No. P120
Do Total Knee Arthroplasty Patients have a Higher Activity Level Compared to Patients with Osteoarthritis?
Timothy L. Kahn, BA, Irvine, CA
Ran Schwarzkopf, MD, Irvine, CA

Post-TKA patients achieve overall physical activity levels similar to other OA patients. This indicates that TKA alone does not improve physical activity levels beyond those of the average OA patient.

Poster No. P121
Incidence, Causes, and Risk Factors for Readmission Following Total Knee Arthroplasty in the Veteran Population
Patrick Horst, MD, San Francisco, CA
Derek Ward, MD, Philadelphia, PA
Lionel Metz, MD, San Francisco, CA
Hubert T. Kim, MD, PhD, San Francisco, CA
Alfred C. Kuo, MD, San Francisco, CA

The article discusses the incidence, causes, and risk factors for readmission following primary total knee arthroplasty in a veterans population.
ADULT RECONSTRUCTION KNEE

Poster No. P122
Pre-operative Quadriceps Activation Deficits are Related to Activation Deficits After Total Knee Arthroplasty
Todd Miner, MD, Denver, CO
Roger Paxton, PhD, Aurora, CO
Raymond H. Kim, MD, Denver, CO
Charlie C. Yang, MD, Denver, CO
Taunya Downing, Aurora, CO
Jeri Forster, PhD, Clemmons, NC
Douglas A. Dennis, MD, Denver, CO
Jennifer Stevens-Lapsley, PhD, PT, Aurora, CO
Quadriceps activation deficits secondary to knee osteoarthritis may be indicative of activation-related declines in strength and function after total knee arthroplasty.

Poster No. P123
Femoral Bowing is Main Determinant of the Proper Alignment to Restore Mechanical Axis in Total Knee Arthroplasty
Romy Megahed, Bellare, TX
Sabir Ismaily, Houston, TX
Philip C. Noble, PhD, Houston, TX
Gregory W. Stock, MD, Houston, TX
Accounting for femoral bowing in the calculation of the VCA allows the surgeon to better restore proper alignment when performing TKA.

Poster No. P124
Chronic Kidney Disease Increases the Risk for Venous Thromboembolism and Periprosthetic Infection Following TKA
Bhaveen H. Kapadia, MD, Baltimore, MD
Matthew R. Boylan, Brooklyn, NY
Paul W. Perdue Jr, MD, New York, NY
Aditya V. Maheshware, MD, Brooklyn, NY
Michael A. Mont, MD, Baltimore, MD
Patients with Chronic Kidney Disease, particularly those with ESRD, were at an increased risk for postoperative venous thromboembolism and periprosthetic joint infection following a primary THA.

Poster No. P125
Cost Savings Associated with Reducing Post-Anesthesia Care Unit Discharge Delays After Total Joint Replacement
Steven F. Schutzer, MD, Hartford, CT
Christopher Weigert, BS, RN, Hartford, CT
Michael S. Cremins, PA-C, PhD, Hartford, CT
Maureen Geary, Hartford, CT
John Grady-Benson, MD, Farmington, CT
Smitha S. Vellanky, MSc, Hartford, CT
Time-Driven Activity-Based Costing, coupled with ISO 9001:2008 principles, readily identifies post-anesthesia care unit discharge delays and results in major cost savings.

Poster No. P126
Utilization and Cost of Hyaluronic Acid Injections in Advanced Osteoarthritis of the Knee
Jack W. Weick, BS, Chicago, IL
Harpreet Bawa, MD, Chicago, IL
Douglas R. Dirschl, MD, Chicago, IL
Despite the controversy of hyaluronic acid, utilization remained high and costs of injections accounted for a significant portion of end-stage knee osteoarthritis-related payments from 2005-2012.

Poster No. P127
Sequentially Irradiated and Annealed Highly Cross-Linked Polyethylene Inserts Thinner than 8mm in TKA
Siraj A. Sayeed, MD, San Antonio, TX
Julio J. Jauregui, Baltimore, MD
Laryssa Korduba-Rodriguez, Mahwah, NJ
Aaron Essner, MS, Mahwah, NJ
Steven F. Harwin, MD, New York, NY
Ronald E. Delanois, MD, Baltimore, MD
The aim of the present study was to evaluate if thin, sequentially-irradiated, and annealed highly cross-linked UHMWPE tibial inserts would have improved wear properties.

Poster No. P128
Descriptive Analysis of Operating Room Airborne Particles During Total Joint Arthroplasty
John Grady-Benson, MD, Farmington, CT
Smita S. Vellanky, MSc, Hartford, CT
Michael S. Cremins, PA-C, PhD, Hartford, CT
This is the largest descriptive study of TJR operating room small airborne particle debris, demonstrating significant differences between surgeons, operating rooms, TKA vs. THA, and patient gender.

Poster No. P129
Evaluation of Topical Ultrasound for Bacterial Biofilm Removal
Peter M. Bonutti, MD, Effingham, IL
Justin Beyers, Effingham, IL
Tonya Bierman, BS, Effingham, IL
Michael A. Mont, MD, Baltimore, MD
Jeffrey J. Cherian, DO, Philadelphia, PA
In this study we evaluated the effect of ultrasound on bacterial colony counts and specifically the effect on biofilm formation.

Poster No. P130
Prospective, Randomized Evaluation of the Quality of Wound Closure with Barbed Versus Standard Suture after TJA
Alexander P. Sah, MD, Fremont, CA
Barbed suture provided better watertight incision closure, is strong enough to withstand rapid mobilization, and is associated with fewer postoperative wound complications than standard sutures.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
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Poster No. P131
Factors Contributing to Failed Two-Stage Reimplantation Procedures of Infected TKA
David H. So, MD, Philadelphia, PA
Gerald Andah, B.S., Philadelphia, PA
Andre He Milby, MD, Jenkintown, PA
John M. Hardcastle, MD, Philadelphia, PA
Guo-Chin Lee, MD, Philadelphia, PA
The purpose of this study is to evaluate the factors contributing to failed two-stage reimplantation procedures for infected total knee arthroplasty.

Poster No. P132
Liposomal Bupivacaine Suspension Can Reduce Lengths of Stay and Improve Discharge Status of Patients Undergoing TKA
Jeffrey J. Cherian, DO, Philadelphia, PA
John W. Barrington, MD, Plano, TX
Michael A. Mont, MD, Baltimore, MD
The purpose of this study was to assess length of hospital stay and discharge status among patients undergoing TKA with or without the use of a liposomal bupivacaine suspension injection.

Poster No. P133
The Risk of an Infection Associated with Intra-Articular Injections Prior to Total Knee Arthroplasty
Nirav H. Amin, MD, New York, NY
Didi Omiyi, MD, Effingham, IL
Bozena Kuczynski, RPA-C, New York, NY
Fred D. Cusner, MD, New York, NY
Giles R. Scuderi, MD, New York, NY
There does not appear to be a correlation with the timing of intra-articular injections and an increased risk of a deep infection with steroid and/or viscosupplementation injections prior to a TKA.

Poster No. P134
The Impact of Previous Ipsilateral Knee Surgery on Outcomes Following Primary Total Knee Arthroplasty
Marcus A. Rothermich, MD, Saint Louis, MO
Robert H. Brophy, MD, St Louis, MO
Denis Nam, MD, MSc, St Louis, MO
Kevin K. Li, BS, Saint Louis, MO
John C. Kloosy, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO
A history of prior ipsilateral knee surgery does not negatively impact functional outcomes in patients undergoing primary total knee arthroplasty.

Poster No. P135
Outcomes of Cementless Total Knee Arthroplasty
Steven F. Harwin, MD, New York, NY
Jeffrey J. Cherian, DO, Philadelphia, PA
Julio J. Jauregui, Baltimore, MD
Randa K. Elmullah, Baltimore, MD
Todd Pierce, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD
Our study demonstrated excellent clinical and patient-reported outcomes of cementless total knee arthroplasty.

Poster No. P136
Novel Alignment Measurement Technique for Total Knee Arthroplasty using Patient-Specific Instrumentation
Kazumasa Yamamura, MD, Osaka City Osaka, Japan
Yukishige Minoda, MD, Osaka, Japan
Suguru Nakamura, MD, Osaka-city, Osaka, Japan
Maki Ikotaku, MD, Osaka, Japan
Yoichi Ohta, Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan
To assess the accuracy of PSL, preoperative 3D plan and postoperative 3D CT data were superimposed using computer software. The accuracy of tibial rotation was lower than other prosthetic alignment.

Poster No. P137
Early Corrective Collateral Ligament Release as a Cause of Flexion Instability during Total Knee Arthroplasty
Sam Hakki, MD, Saint Petersburg, FL
Mousanad M. Al-Othmani, MD, Springfield, IL
Khaled J. Saleh, MD, MSc, Springfield, IL
William M. Mihalko, MD, PhD, Germantown, TN
Reversal of coronal knee deformity takes place in 12% of our TKA. Early collateral ligament release in such cases needs to be avoided; otherwise postoperative flexion instability may be inevitable.

Poster No. P138
Establishing a Pragmatic Knee Preservation Registry to Follow Patients with Degenerative Joint Disease
Stephen Yu, M.D., New York City, NY
Alexandra Szulc, MA, New York, NY
Elisha Lee, New York, NY
Xiang Zhou, PhD, New York, NY
Raj Karia, MPH, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazawin, MD, New York, NY
Richard Iorio, MD, New Rochelle, NY
Philip Band, PhD, New York, NY
The Joint Preservation Registry is a prospective, pragmatic, observational study, designed to identify clinical and biochemical markers of osteoarthritis phenotype, status and progression.

Poster No. P139
Distal Femoral Morphology: Does Ethnicity, Gender, or Body Size Play a Role?
Brian E. Schwartz, MD, Des Plaines, IL
Yi-Loong C. Woon, MD, Chicago, IL
Ritesh Shah, MD, Glenview, IL
Jeffrey M. Goldstein, MD, Morton Grove, IL
This study demonstrates that the angle between the transepicondylar axis and posterior condylar axis does not vary significantly based on ethnicity, gender, height, or BMI.

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Poster No. P140
Successful Ambulation following Knee Arthrodesis: A Salvage Procedure for Persistent Prosthetic Joint Infection
Amanda Schroeder, Cincinnati, OH
Todd C. Kelley, MD, Cincinnati, OH
Nancy Heink, Williamsburg, OH
Richard A. Freiberg, MD, Cincinnati, OH

Our series demonstrates that knee arthrodesis is a reasonable salvage option for resistant infections following revision total knee arthroplasty, with a majority of patients returning to ambulation.

Poster No. P141
Is Knee Arthritis Inherited? A Familial Aggregation Study of 1,000 Patients
Luke Jones, MRCS, Oxford, UK, United Kingdom
William Jackson, FRCS, Oxford, United Kingdom
Nicholas Bottomley, Oxford, United Kingdom
Jonathan Palmer, MBBS, Southampton, United Kingdom
Antony Palmer, MA, BMBC, Oxford, United Kingdom
George A. Grammatopoulos, MRCS, Oxford, United Kingdom
Andrew P. Monk, FRCS, PhD, Oxford, United Kingdom
David J. Beard, MA, MSc, Swansea, United Kingdom
Andrew J. Price, FRCS, Oxford, United Kingdom

The genetics and inheritance of knee OA is poorly defined. This is the largest familial aggregation study ever performed and shows that the earliest structural changes occur after 46 years of age.

Poster No. P142
Can Medial Collateral Ligament Pie-Crusting Lead to Predictable Opening in Total Knee Arthroplasty?
Thomas A. Herschmiller, MD, New York, NY
Gregory Cunn, BS, New York, NY
Taylor Murtaugh, BS, New York, NY
Thomas R. Gardner, MCE, New York, NY
Jeffrey A. Geller, MD, New York, NY

Pie-crusting of the MCL in TKA leads to a significant reliable decrease in medial tension over the first 15 punctures while blade perforation warrants caution.

Poster No. P143
96.7% Five-Year Survivorship of Primary Total Knee Arthroplasty with Moderately Crosslinked Polyethylene Bearing
Richard W. Parkinson, FRCS, Merseyside, United Kingdom
Ivan Brenkel, FM, Dunfermline, United Kingdom
Heiko Graichen, MD, Schwandorf, Germany
Sam Himden, BA, Warsaw, IN
Jeffrey A. Murphy, MS, Warsaw, IN

The 96.7% Kaplan-Meier 5-year survivorship demonstrates excellent longevity consistent with a recently published report (Kindsfater 2015, J Arthroplasty) on the same device and polyethylene bearing.

Poster No. P144
Causes and Outcomes of Aseptic Persistent Pain after Total Knee Arthroplasty
Seung Hun Lee, Hwasun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Jeollanam-Do, Republic of Korea
Jong-Keun Seon, MD, Hwasun-Gun, Republic of Korea
Hana An Lim, MD, Gwangju, Republic of Korea
Young-Joo Shin, MD, Gwangju, Republic of Korea

A number of causes of aseptic persistent pain after TKA should be identified.

Poster No. P145
Does the Use of Navigation by an Experienced Surgeon Improve the Outcomes of Primary Total Knee Arthroplasty
Kiran Kumar GN, MS, Goravale, India
NIMESH P. JAIN, MBBS, MS, MUMBAI, India
Sung Yup Lee, Seoul, Republic of Korea
Yeongui Kang, Seongnam-Si, Republic of Korea
Sang Wook Lee, Seongnam, Republic of Korea
Seon Woo Lee, MD, Seongnams, Republic of Korea
Souri Chong, Seong-Nam City, Republic of Korea
Tae Kyun Kim, MD, Seongnam-si, Republic of Korea

The use of navigation improves results in terms of blood management, adverse complications with better limb and prosthesis alignment with lesser proportion of outliers.

Poster No. P146
The Effect of Total Knee Replacement on the Non-Operated Lower Extremity Joints
Kristi Collins, PA-C, Lewisburg, PA
David J. Kolessar, MD, Shavertown, PA
James Gotoff, BA, Danville, PA
Patricia Franklin, MD, MBA, MPH, Worcester, MA
Celeste Lemay, RN, MPH, Worcester, MA
Elie S. Ghanem, MD, Danville, PA

Patients who undergo TKA can be expected to achieve pain relief in their non-operated hip and knee joints.

Poster No. P147
Greater Medial Compartment Forces during Total Knee Arthroplasty Associated with Improved Patient Satisfaction
Cale Jacobs, PhD, Lexington, KY
Christian P. Christensen, MD, Lexington, KY

Recreating greater forces in the medial compartment like that of the native knee may yield improved patient-reported outcomes and increased patient satisfaction.

Poster No. P148
Early Functional Outcomes of Cruciate Retaining Total Knee Arthroplasty using Smart Tibial Insert Trial Technology
Clark Judge, BA, New York, NY
Taylor Murtaugh, BS, New York, NY
Jeffrey A. Geller, MD, New York, NY

Smart tibial insert trial technology aids surgeons balance compartmental loads and femoral-tibial rotational congruency and lead to improved short-term physical and functional outcomes in CR-TKA.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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Poster No. P149
Risk Factors of the DVT and PE after TKA - Multivariate Analysis in 1,100 Cases Evaluated by Venography
Koh Shimizu, MD, Chiba, Japan
Masatsune Yamagata, MD, PhD, Ichihara, Japan
Takuro Moriya, Ichihara, Japan
Koh Shimizu, MD, Chiba, Japan
Among the various risk factors of DVT, BMI and gender statistically correlated with the occurrence of DVT by multivariate analysis. An adequate prophylaxis method is a necessity for the obese female.

Poster No. P150
Major Outcome Goals at a Total Joint Replacement Center of Excellence: Impact of Surgeon Compliance and Case Volume
William Kim, M.D., Torrance, CA
Timothy L. Kahn, BA, Irvine, CA
John V. Tiberi, MD, Redondo Beach, CA
Douglas E. Garland, MD, Long Beach, CA
Major cost-contributing outcomes were improved by adherence to JRC protocols in a single large hospital, both in high-volume and low-volume surgeons.

Poster No. P151
Do We Have to Resurface the Patellar in Total Knee Arthroplasty for Rheumatoid Arthritis All the Time?
Choong H. Choi, MD, Seoul, Republic of Korea
Jin Kyu Lee, MD, Seoul, Republic of Korea
Rae Hyeong Lee, Seoul, Republic of Korea
Chang Hoon Lee, MD, Seoul, Republic of Korea
Equivalent results after TKA were obtained with or without patellar resurfacing in patients with rheumatoid arthritis.

Poster No. P152
Recurrent Hemarthrosis following Knee Arthroplasty Treated with Arterial Embolization
Zachary D. Weidner, MD, New York, NY
William G. Hamilton, MD, Alexandria, VA
John B. Smirniotopoulos, MD, MS, McLean, VA
Sandeep Bagla, MD, Alexandria, VA
Selective geniculate arterial embolization is an effective and safe treatment modality for recurrent hemarthrosis after knee arthroplasty.

Poster No. P153
Real Effect of Anterior Femoral Notch in Periprosthetic Fractures Around the Knee
Jose Carlos Minarro, MD, Cordoba, Spain
Maite Urbano-Luque, PhD, Cordoba, Spain
Manuel C. Escalante, MD, Cordoba, Spain
Manuel Jesus Lopez - Pulido, Cordoba, Spain
Rafael A. Quevedo Reinoso Sr, Cordoba, Spain
Alberto D. Delgado-Martinez, Jaen, Spain
Anterior Femoral Notch after Total Knee Arthroplasty lesser than 3mm do not determine a higher risk of Periprosthetic fracture. When the notch is filled by callus it may act as a protective factor

Poster No. P154
Knee Arthroscopy in the Setting of Degenerative Arthritis
Jason P. Hochfelder, MD, Hawthorne, NY
Jibo Han, New York, NY
W N. Scott, MD, Key Largo, FL
William J. Long, MD, New York, NY
Most patients with degenerative changes at the time of knee arthroscopy do not go on to arthroplasty at an average of six years.

Poster No. P155
Does In Vivo Contact Kinematics of Bi-Cruciate Retaining Total Knee Arthroplasty Mimic Normal Knee during Gait?
Young-Min Kwon, MD, PhD, Boston, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Dimitris Dimitriou, MD, Cambridge, MA
Ali Hosseini, PhD, Boston, MA
Jeffrey H. DeClaire, MD, Rochester, MI
Andrew A. Freiberg, MD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Guoan Li, PhD, Boston, MA
Bi-cruciate retaining TKA exhibited in-vivo femoral rollback, axial rotation, and lateral-pivoting pattern during gait, suggesting it has the potential to preserve more ‘normal’ kinematic features.

Poster No. P156
UKA Achieves Greater Flexion with No Difference in Satisfaction at Two Years vs. TKA in Patients Younger than 55
Graham S. Gob, Singapore, Singapore
Hamid Rahmatullah Bin Abd Razak, MBBS, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, FRCS (Ortho), Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore
Advantages of UKA were not shown, other than greater flexion up to 2 years postop. However, this did not result in greater satisfaction and fulfilled expectations in younger higher-demand individuals.

Poster No. P157
Accuracy of Distal Femoral Resection by Accelerometer-Based, Portable Navigation in Total Knee Arthroplasty
Tessyu Ikawa, MD, Osaka, Japan
Yoshinori Kadoya, MD, Osaka, Japan
Mitsunari Kim, MD, Sakai, Japan
Susumu Takeshita, Osaka, Japan
Ryo Sugawara, MD, Osaka, Japan
Hirotake Yo, MD, Sakai, Japan
Hirotugu Ohashi, MD, Osaka, Japan
The portable navigation system provides the technically straightforward method for the detection of the femoral head and performing accurate bone cut in the distal femur.
**ADULT RECONSTRUCTION KNEE**

**Poster No. P158**
Unicondylar Knee Arthroplasty Reduces Hospital Stay and 30-Day Readmission Compared to Total Knee Arthroplasty
Justin Drager, MD, Montreal, QC, Canada
Adam Hart, MD, Montreal, QC, Canada
Jad Abou Khalil, MD, MS, Montreal, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
David Zukor, MD, Montreal, QC, Canada
Stephane Bergeron, MD, Kirkland, QC, Canada
John Antoniou, MD, FRCSC, Montreal, QC, Canada

Through analysis of 37,000 cases, this study demonstrates that undergoing a UKA shortens hospital stay and results in a 50% reduction of unplanned 30-day hospital readmissions compared to TKA.

**Poster No. P159**
Can You Crosswalk Original Knee Society Scores to the New 2011 Knee Society Score?
Susan M. Odum, PhD, Charlotte, NC
Thomas K. Fehring, MD, Charlotte, NC

Clinicians and researchers can input their historical KSS with demographic data into these equations to crosswalk to the 2011 KSS objective and function scores if all key variables are available.

**Poster No. P160**
Accelerometer-Based Navigation Improves the Accuracy of Mechanical Axis and Component Alignment in TKA
Graham S. Goh, Singapore, Singapore
Ming Han Liew, MD, MBBS, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-lu Chia, MBBS, FRCS (Ortho), Singapore, Singapore
Nga-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Accelerometer-based navigation improves the accuracy of mechanical alignment in TKA, despite a slight increase in operative time.

**Poster No. P161**
Pre-Opioid Use: Is There an Association with Outcomes Following Total Knee Arthroplasty?
Nicholas Bedard, MD, Iowa City, IA
Nicholas Bedard, MD, Iowa City, IA
Andrew J. Pugely, MD, Coralville, IA
Christopher T. Martin, MD, Coralville, IA
Kyle Duchman, MD, Iowa City, IA
Robert W. Westermann, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Opioid users had prolonged opioid use following TKA with more comorbidities and higher rates of complications. Opioid users did decrease opioid use status-post TKA, but rates remained high.

**Poster No. P162**
Lateral Meniscus Transplantation: Evaluation of Kinematics, Stain, and Tibiofemoral Contact Pressures
Donald Dolce, MD, Grapevine, TX
Hugh L. Jones, Houston, TX
Andrea Gale, MD, Houston, TX
Michael Hogen, BA, Houston, TX
Jason Alder, MD, Houston, TX
Philip C. Noble, PhD, Houston, TX
Patrick C. McCalloch, MD, Houston, TX

This study demonstrates increased posterior and superior meniscal constraint after transplantation, which is further increased at high flexion angles.

**Poster No. P163**
Morbidity and Mortality After Simultaneous Bilateral Total Knee Arthroplasty in a Fast-Track Set Up
Kirill Gromov, MD, PhD, Copenhagen, Denmark
Anders Troelsen, MD, PhD, Koeg, Denmark
Thue Oersnes, MD, Copenhagen, Denmark
Kristian S. Otte, MD, Heidouvre, Denmark
Henrik Hustet, MD, Charlottenlund, Denmark

In this retrospective single center study we found simultaneous bilateral TKA in a well-described fast-track setup to be safe with respect to early postoperative morbidity and mortality.

**Poster No. P164**
Warfarin Anticoagulation after Primary Total Joint Arthroplasty: Does the International Normalized Ratio Matter?
Michael Rutter, MD, Danville, PA
Nathaniel C. Wingert, MD, Danville, PA
Michael P. Podobinski, PA-C, Marion Heights, PA
Jove Graham, PhD, Danville, PA
James Gotta, BA, Danville, PA
Elie S. Ghaneem, MD, Danville, PA

The majority of patients discharged from the hospital after primary TJA will fail to achieve a sustained INR ≥2. However, this does not predispose these patients to higher symptomatic VTE rates.

**Poster No. P165**
Outcome of Total Knee Arthroplasty in Patients with Cerebral Palsy: A Matched Cohort Analysis
Matthew Houdek, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Todd A. Milbrandt, MD, Rochester, MN
Michael J. Taunton, MD, Rochester, MN

TKA provides patients with CP significant pain relief and functional improvement. Patients with CP should expect similar outcome to those with a primary diagnosis of OA.

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*

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Poster No. P166
Accelerometer-Based Navigation is as Accurate as Optical CAS in Restoring the Joint Line and Mechanical Axis
Graham S. Goh, Singapore, Singapore
Ming Han Liao, MD, MBBS, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-lu Chia, MBBS, FRCS (Ortho), Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore
Mann-Hong Tan, Singapore, Singapore

Accelerometer-based navigation is as accurate as CAS in achieving a neutral mechanical axis and restoring the joint line after TKA, while reducing the duration of surgery.

Poster No. P167
How Accurate are Orthopaedic Surgeons in Diagnosing Periprosthetic Joint Infection After Knee Replacement?
In Jun Koh, MD, PhD, Seoul, Republic of Korea
Yong In, Seoul, Republic of Korea
Kwang J. Oh, MD, Seoul, Republic of Korea
Byung June Chung, MD, Seoul, Republic of Korea
Sae Kwang Kwon, MD, Bucheon-Si, Republic of Korea
Jae-eun Park, MD, Gladdewyne, PA

Only 65% of 303 periprosthetic joint infection from 17 centers in Korea satisfied the new diagnostic criteria of MSIS, and in 35%, the diagnosis was made based on clinical judgment.

Poster No. P168
Polyethylene Wear in Mobile Bearing Unicompartmental Knee Replacement: A Retrieval Study
Kun Tao, London, ON, Canada
Matthew G. Teeter, PhD, London, ON, Canada
James Howard, MD, London, ON, Canada
Richard W. McCalder, MD, London, ON, Canada
Douglas Naudie, MD, FRCSC, London, ON, Canada

Retrieved mobile bearing unicompartmental components were examined using damage scoring and micro-CT. Articular and backside penetration was equal, while damage was greater on the articular surface.

Poster No. P169
The Correction of Flexion Contracture in TKA: The Surgeon Should Know How Much Degree They Get in Each Step
Han-Jun Lee, MD, Seoul, Republic of Korea
Jae Sung Lee, M.D, PhD, Seoul, Republic of Korea
Seong Hwan Kim, MD, Seoul, Republic of Korea
Dai-Ung Ham, Seoul, Republic of Korea
Hyeok Bin Kwon, Seoul, Republic of Korea

Our finding indicated that appropriate soft tissue release could correct fexion contracture efficiently. The medial release and additional bone cutting could correct majority of fexion contracture.

Poster No. P170
Polyethylene Thickness Affects Rotation and Kinematics in Unicompartmental Knee Arthroplasty
Lucian C. Warth, MD, Fisher, IN
Mohammad Kia, New York, NY
Carl W. Imhauser, PhD, New York, NY
Timothy M. Wright, PhD, New York, NY
Geoffrey H. Westrich, MD, New York, NY
Michael B. Cross, MD, New York, NY
David Mayman, New York, NY
Andrew D. Pearle, MD, Rye, NY

In a computational knee model, understuffing the polyethylene thickness of a medial UKA resulted in an abrupt change from external to internal rotation of the tibia in at approximately 30° fexion.

Poster No. P171
Cementless Total Knee Arthroplasty in Patients Older than 75 Years: A Comparative Study
Steven F. Harwin, MD, New York, NY
Julio J. Jaurigui, Baltimore, MD
Jeffrey J. Cherian, DO, Philadelphia, PA
Randa K. Elmallah, Baltimore, MD
Todd Pierce, MD, Baltimore, MD
Robert Borzio, MD, Brooklyn, NY
Bhaveen K. Kapadia, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

Patients > 75 years have improvements in knee scores and range-of-motion, with excellent aseptic survivorship, which are on par with their younger counterparts at a mean follow-up of 3 years.

Poster No. P172
Preoperative Intravenous Dexamethasone Reduced Pain after Total Knee Arthroplasty
Nattapol Tammachote, MD, Bangkok, Thailand
Supakit Kanitnate, MD, Pathumtani, Thailand

Preoperative intravenous dexamethasone did not only reduce pain at rest and on motion up to 21 hours after operation but also decrease rate of nausea or vomiting.

Poster No. P173
A Meta-Analysis Comparing Intra-Articular Versus Intravenous Tranexamic Acid in Total Knee Arthroplasty
Yongqiang Jerry Chen, MBBS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Intra-articular tranexamic acid is an alternative to intravenous administration for patients undergoing total knee arthroplasty.

Poster No. P174
The Fate of Revision TKA with Preoperative Abnormalities in Either Sedimentation Rate or C-Reactive Protein
John M. Hardcastle, MD, Tuxedo Park, NY
David H. So, MD, Detroit, MI
Gwo-Chin Lee, MD, Philadelphia, PA

A single preoperative abnormal CRP or ESR in revision TKA is associated with a 5.6-fold increased risk of subsequent infection and 3.8-fold increased risk of re-revision for all causes.
ADULT RECONSTRUCTION KNEE

Poster No. P175
Quantification of Corrosion in Modular Interfaces of Knee Implants
Kirsten Seagers, BS, West Chester, PA
Audrey Martin, BS, Lebanon, NH
Eric Henderson, MD, Hanover, NH
Douglas Van Citters, PhD, Hanover, NH
Maximum depth of corrosion in modular interfaces of knee implants is correlated with duration in vivo. This corrosive volumetric material loss is unlikely to result in a negative patient outcome.

Poster No. P176
Cemented versus Cementless Total Knee Arthroplasty in Morbidly Obese Patients
Deren T. Bagsby, MD, Indianapolis, IN
Kimona Issa, MD, Little Falls, NJ
Langan S. Smith, BS, Louisville, KY
Steven F. Harwin, MD, New York, NY
Michael A. Mont, MD, Baltimore, MD
Arthur L. Malkani, MD, Louisville, KY
Morbidly obese (BMI>40) primary TKA patients have increased stress across bone-cement and implant-cement interfaces. This study shows cementless implants can reduce aseptic loosening revision rates.

Poster No. P177
Initial Experience with Next Day Discharge After Total Knee Arthroplasty
Alexander P. Sah, MD, Fremont, CA
In this initial experience, 72% of unselected TKA patients were able to be discharged the day after surgery with better knee motion and without increase in complications.

Poster No. P178
Vancomycin Administration for Reported Penicillin Allergy Increases Gram Negative Joint Infection
Timothy Tan, MD, Philadelphia, PA
Bryan D. Springer, MD, Charlotte, NC
John Ruder, MD, Charlotte, NC
Michael Raffolo, MD, Charlotte, NC
Claudio Diaz, MD, Santiago, Chile
Javad Parvizi, MD, FRCS, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Administration of vancomycin monotherapy for total joint arthroplasty increases the rate of gram negative periprosthetic joint infection in patients with a reported penicillin allergy.

Poster No. P179
Does Prior Cartilage Restoration Impact Outcomes of Knee Arthroplasty?
Rachel M. Frank, MD, Chicago, IL
Darren R. Plummer, MBA, Chicago, IL
Peter N. Chalmers, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
While patients with a failed prior cartilage procedure derive benefit from knee arthroplasty, the magnitude of improvement and final scores are lower than matched controls.

Poster No. P180
Regional Intraosseous Delivery of Prophylactic Antibiotics Effective in a Mouse Model of Total Knee Arthroplasty
Simon Young, MD, FRACS, Auckland, New Zealand
Timothy Roberts, Auckland, New Zealand
Brendan Coleman, MD, Wellington, New Zealand
Siouxsie Wiles, PhD, Auckland, New Zealand
In this animal model of TKA, intraosseous regional delivery of prophylactic cefazolin and vancomycin was more effective than the same dose of antibiotic given systemically.

Poster No. P181
What is the Role of Dual Diagnosis in Primary Total Knee Arthroplasty?
Mitchell R. Klement, MD, Durham, NC
Brian T. Nickel, MD, Durham, NC
Colin T. Penrose, BA, BS, Durham, NC
Daniel J. Blizzard, MD, Durham, NC
Abram Bala, BA, Durham, NC
Michael P. Bolognesi, MD, Durham, NC
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC
“Dual diagnosis” triples the risk of periprosthetic infection and TKA revision after total knee arthroplasty and these patients should be carefully screened and counseled accordingly.

Poster No. P182
Unexplained Pain Following Total Knee Arthroplasty - Is Rotational Malalignment the Problem?
Simon Young, MD, FRACS, Auckland, New Zealand
Mark J. Spangehl, MD, Phoenix, AZ
Henry D. Clarke, MD, Phoenix, AZ
In the largest study yet reported on component rotation in TKA, we found no difference in the incidence of tibial or femoral component malalignment in painful versus well functioning TKAs.
Poster No. P183
High-Intensity versus Low-Intensity Rehabilitation after Total Knee Arthroplasty: A Randomized Controlled Trial
Douglas A. Dennis, MD, Denver, CO
Michael Bade, PhD, PT, Denver, CO
Jared R. Foran, MD, Golden, CO
Raymond H. Kim, MD, Denver, CO
Todd Miner, MD, Denver, CO
Michael R. Dayton, MD, Aurora, CO
Tamara Struessel, PT, Aurora, CO
Jennifer Stevens-Lapsley, PhD, PT, Aurora, CO
This randomized clinical trial examines the efficacy of a high-intensity progressive rehabilitation protocol compared to a lower intensity protocol in individuals after total knee arthroplasty.

Poster No. P184
Is Outpatient Arthroplasty as Safe as Fast-Track Inpatient Arthroplasty? A Propensity Score Analysis
Francis Lovecchio, BA, Chicago, IL
Shawn Sahota, MD, Chicago, IL
Hasham M. Alvi, MD, Chicago, IL
Matthew D. Beal, MD, Elmhurst, IL
David W. Manning, MD, Chicago, IL
Outpatients experience higher rates of post-discharge complications, thus outpatient THA/TKA requires quality improvements before being considered a routine alternative to fast track arthroplasty.

Poster No. P185
Primary Constrained Total Knee Arthroplasty without Stem Extension in Severe Valgus Deformity
Bertrand W. Parcells, MD, Maplewood, NJ
Donald R. Polakoff, MD, Monroe Township, NJ
Retrospective review of 43 primary constrained TKA without stem extension with average 19° degrees preoperative valgus with 2-11 year follow-up. No aspetic loosening or recurrent deformity.

Poster No. P186
Mid-Term Results of Minimally Invasive Cementless Oxford Phase 3 Unicompartamental Knee Replacement
Hemant G. Pandit, FRCS, Oxford, United Kingdom
Stefano Campi, MD, Rome, Italy
Cathy Jenkins, MA, Oxford, United Kingdom
Athanasios Pollalis, MD, Poole, United Kingdom
Thomas Hamilton, MBChB, BSc (Hons), Oxford, United Kingdom
Omowumi Doyinsola Dada, Milton Keynes, United Kingdom
Stephen J. Mellon, MD, Oxford, United Kingdom
This prospective case series describes the outcome of the first consecutive 513 cementless Oxford phase 3 medial UKR for treating symptomatic end-stage anteromedial osteoarthritis.

Poster No. P187
Patients Improve Less after Revision TKA for Flexion Instability vs. Failures Related to Infection or Osteolysis
Chris Grayson, MD, Indianapolis, IN
R M. Meneghini, MD, Fishers, IN
Outcomes following revision TKA for flexion instability relative to revisions for other failure etiologies are largely unknown. This study compared revision outcomes based on the cause of failure.

Poster No. P188
Positive Cultures during Reimplantation Increase the Risk of Subsequent Failure
Timothy Tan, MD, Philadelphia, PA
Miguel M. Gomez, MD, Bogota, Colombia
Jorge Manrique, MD, Bogota, Colombia
Antonia Chen, MD, MBA, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Positive intraoperative cultures during reimplantation, regardless of the number, were independently associated with two times the risk of subsequent infection and earlier treatment failure.

Poster No. P189
Peroneal Nerve Decompression Following Total Knee Arthroplasty
Nicholas M. Brown, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Michael D. Hellman, MD, Chicago, IL
Bryan Haughom, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL
John J. Fernandez, MD, Winnetka, IL
Decompression of the peroneal nerve after TKA resulted in no complications, quick recovery of dysfunction symptoms, and equivalent improvement in motor symptoms as compared to a control group.

Poster No. P190
Effectiveness of Liposomal versus Plain Bupivicaine in Total Knee Arthroplasty
Brian R. Hamlin, MD, Pittsburgh, PA
Anton Y. Plakseychuk, MD, Pittsburgh, PA
Kenneth Urish, MD, PhD, Pittsburgh, PA
Anthony M. DiGioia III, MD, Pittsburgh, PA
The periarticular injection of liposomal bupivicaine did not provide significant benefit over plain bupivicaine in the perioperative pain management of patients undergoing total knee arthroplasty.
ADULT RECONSTRUCTION KNEE

Poster No. P191
The Effect of Age on Postoperative Outcomes following Total Knee Arthroplasty
Randa K. Elmallah, Baltimore, MD
Julio J. Jauregui, Baltimore, MD
Jeffrey J. Cherian, DO, Philadelphia, PA
Todd Pierce, MD, Baltimore, MD
Steven F. Harwin, MD, New York, NY
Michael A. Mont, MD, Baltimore, MD

What are the effects of patient age on range of motion (ROM), pain and function, physical and mental status, and activity levels following total knee arthroplasty.

Poster No. P192
Efficacy of Allogeneic Human Chondrocytes Expressing TGF-β1 in Patients with Knee Arthritis
Jeffrey J. Cherian, DO, Philadelphia, PA
Randa K. Elmallah, Baltimore, MD
Javad Parvizi, MD, FRCS, Philadelphia, PA
Dale G. Bramlet, MD, Pinellas Park, FL
David W. Romness, MD, Arlington, VA
Michael A. Mont, MD, Baltimore, MD

The aim of this study was to evaluate the efficacy and outcomes of injectable genetically engineered chondrocytes compared to placebo on patients with knee osteoarthritis.

Poster No. P193
A Joint Retrieval Registry Does Not Represent the United States Population for Primary Reason for Revision in TKA
Ryan M. Chapman, MS, Hanover, NH
Michael B. Mayor, MD, Hanover, NH
Douglas Van Citters, PhD, Hanover, NH

A statistical analysis was completed comparing the primary reason for retrieval in total knee arthroplasty of the entire US population with a single joint retrieval registry over the same time period.

Poster No. P194
Are Cementless Total Knee Arthroplasties a Feasible Option in Rheumatoid Arthritis Patients?
Steven F. Harwin, MD, New York, NY
Randa K. Elmallah, Baltimore, MD
Julio J. Jauregui, Baltimore, MD
Jeffrey J. Cherian, DO, Philadelphia, PA
Todd Pierce, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

Despite concerns regarding poor bone and soft tissue quality, RA patients who underwent cementless TKA had excellent aseptic survivorship and functional outcomes.

Poster No. P195
Effect of Tourniquet Use in Primary Total Knee Arthroplasty
Shaber Hasanain, Dubai, United Arab Emirates
Samih Tarabichi, MD, Dubai, United Arab Emirates
Usama H. Saleh, Dubai, United Arab Emirates
Attaalabb Alrefaee SR, MD, Dubai, United Arab Emirates

we conducted a prospective randomized controlled trial to clarify the difference between tourniquet vs non-tourniquet in simultaneous bilateral TKA in term of blood loss pain postoperative course

Poster No. P196
Surgical and Functional Outcomes in Patients Undergoing TKA with PSI Compared to Off-the-Shelf Implants
Ran Schwarzkopf, MD, Irvine, CA
Merrick Brodsky, BA, BS, Long Beach, CA
Giancarlo A. Garcia, Irvine, CA
Andreas H. Gomoll, MD, Chestnut Hill, MA

PSI is associated with decreased estimated blood loss, decreased length of stay, decreased range of motion, and no discernible difference in surgical or tourniquet time.

Poster No. P197
Histopathological Evaluation of the ACL in Patients Undergoing Primary Total Knee Arthroplasty
Bhaveen H. Kapadia, MD, Baltimore, MD
Samik Banerjee, MD, Albany, NY
Qais Naziri, MD, Brooklyn, NY
Jeffrey J. Cherian, DO, Philadelphia, PA
Todd Pierce, MD, Baltimore, MD
Aditya V. Mabeshwar, MD, Brooklyn, NY
Peter M. Bonetti, MD, Effingham, IL
Michael A. Mont, MD, Baltimore, MD

Our aim was to assess gross (macroscopic) and histopathological ACL changes in arthritic knees undergoing TKA.

Poster No. P198
Does Lupus Affect the Clinical and Patient-Reported Outcomes of Total Knee Arthroplasty at Mean Six-year Follow Up?
Kimona Issa, MD, Wayne, NJ
Steven F. Harwin, MD, New York, NY
Vincent K. McInerney, MD, Paterson, NJ
Todd Pierce, MD, Baltimore, MD
Randa K. Elmallah, Baltimore, MD
Julio J. Jauregui, Baltimore, MD
Jeffrey J. Cherian, DO, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

We evaluated the clinical, patient-reported, and radiographic outcomes of total knee arthroplasty in a cohort of patients who had SLE.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
**Poster No. P199**  
Routine Postoperative Lab Tests are Unnecessary After Partial Knee Arthroplasty  
Julie L. Shaner, MD, Philadelphia, PA  
Ammar Karim, DO, Stratford, NJ  
David Casper, MD, Philadelphia, PA  
Christopher Ball, MS, Simi Valley, CA  
Eric M. Padegimas, MD, Philadelphia, PA  
Jess H. Lonner, MD, Wynnewood, PA  
Julie L. Shaner, MD, Philadelphia, PA

Routine order postoperative labs are unnecessary after partial knee arthroplasty; including unicompartamental, bicompartamental, and patellofemoral arthroplasty.

**Poster No. P200**  
Decreased Range of Motion Following Total Knee Arthroplasty is Predicted by the Tampa Scale of Kinesiophobia (TSK)  
Matthew L. Brown, MD, Winston Salem, NC  
Johannes F. Plate, MD, Winston Salem, NC  
Sarah Von Thaer, BS, Winston Salem, NC  
Beth P. Smith, PhD, Winston-Salem, NC  
Thorsten M. Seyler, MD, PhD, Winston-Salem, NC  
Jason E. Lang, MD, Bermuda Run, NC

Knee ROM after TKA negatively correlated with Tampa Scale of Kinesiophobia scores and was not influence by showing patients a photo of their knee in maximum flexion after surgery.

**Poster No. P201**  
Comparing γ-Aminocaproic and Tranexamic Acid in Reducing Postoperative Transfusions in Total Knee Arthroplasty  
Jessica Churchill, BS, Norfolk, VA  
Kathleen E. Puca, MD, Milwaukee, WI  
Matthew Carleton, West Allis, WI  
Melissa J. Dahlgren, Milwaukee, WI  
Susan Truchan, BSN, RN, Grafton, WI  
Elizabeth Vermeulen, MPH, Milwaukee, WI  
Michael J. Anderson, MD, Mequon, WI

Administration of EACA or TXA significantly decreased postoperative transfusion rates. Utilization of EACA for unilateral TKA proved to be comparable to TXA in all studied aspects at a lower cost

**Poster No. P202**  
Causes for the Failure of Unicompartmental Knee Replacements  
Yusuf H. Mirza, MuDR, London, United Kingdom  
Sujit Konan, London, United Kingdom  
Fares S. Haddad, FRCS, London, United Kingdom

An analysis of risk factors for failure of a unicompartmental knee replacement

**Poster No. P203**  
Six Years Minimum Follow Up Of an Off loading Knee Brace for Unicompartmental Knee Osteoarthritis  
Paul Y. Lee, FRCS (Ortho), MSc, Cardiff, United Kingdom  
Amit Chandratheya, FRCS, Cardiff, United Kingdom  
Emerald Storey, Welshpool, United Kingdom

Off loading knee braces can promote patients’ return to work prior to surgery. Patients tolerating the use of brace for more than 3 yrs were unlikely to require surgery at 6 yrs minimum follow up.

**Poster No. P204**  
The Results of Second 2-stage Reimplantations for Periprosthetic Knee Infection  
Keith Fehring, MD, Rochester, MN  
Matthew P. Abdel, MD, Rochester, MN  
Tad M. Mabry, MD, Rochester, MN  
Arlen D. Hanssen, MD, Rochester, MN

Expectations following a second two-stage exchange knee arthroplasty should be tempered as the failure rate of this procedure is high with considerable patient morbidity.

**Poster No. P205**  
Randomized Prospective Trial Comparing the Use of IV versus PO Acetaminophen with Total Joint Arthroplasty  
Joel R. Politi, MD, Columbus, OH  
Alexis Matrka, BS, Columbus, OH  
Richard L. Davis II, MD, Columbus, OH

The use of IV compared to PO Acetaminophen decreased initial pain following surgery but did not provide benefit following that, and had no difference on narcotic use postoperatively.

**FOOT AND ANKLE**

**Poster No. P206**  
Tranexamic Acid Reduces Postoperative Morbidity in Patients Undergoing Foot and Ankle Surgery  
Nicholas A. Abidi, MD, Capitola, CA  
Ashish Govan, B.S., Bakersfield, CA  
Clay Christensen, B.S., Capitola, CA  
Jess Gifford, B.S., Capitola, CA

Tranexamic Acid (TXA) Reduces Ecchymosis, Edema and Incisional Bleeding after Foot and Ankle Surgery, Preliminary Results

**Poster No. P207**  
Orthopaedic Foot and Ankle Surgeons’ Approach to Elective Surgery in the Smoking Patient Population: A Survey Study  
Michael A. Hames, MD, Memphis, TN  
Erin M. Dean, MD, Hudson, OH  
Susan N. Ishikawa, MD, Cordova, TN  
Garnett A. Murphy, MD, Germantown, TN  
David R. Richardson, MD, Memphis, TN

Foot and ankle surgeons recognize smoking cessation improves outcomes and most give verbal counsel, though many do not use other options (i.e. supervised cessation programs) to achieve this goal

An alphabetical faculty financial disclosure list can be found starting on page 334.
Posters

FOOT AND ANKLE

Poster No. P208
Short-Term Follow Up of a Novel, Minimally-Invasive Technique for Calcaneal Fractures
William K. Whiteside, MD, Pawleys Island, SC
Daniel E. Mierauski, MD, Gulf Breeze, FL

We describe favorable 6 month outcomes using a novel two incision approach for treatment of displaced calcaneal fractures.

Poster No. P209
Short-Term Outcomes and Influencing Factors After Ankle Fracture Surgery
Hyunsoo Jung, Seoul, Republic of Korea
Seung Yeol Lee, MD, Seoul, Republic of Korea
Soonsoo Kwon, PhD, Seongnam-Si, Republic of Korea
Ki Hyuk Sung, MD, Kyungki, Republic of Korea
Ki Hyuk Sung, MD, Kyungki, Republic of Korea

The results support the hypothesis that Lauge-Hansen and AO classification system can be prognostic. Postoperative articular incongruity correlated with inferior early clinical outcomes.

Poster No. P210
Increasing Stiffness of Syndesmosis Causes Abnormal Talar Displacement and Joint Contact in Cadaveric Model
Chamnanni Rungprai, MD, Iowa City, IA
Jessica Goetz, PhD, Iowa City, IA
Phinit Phisitkul, MD, Coralville, IA

Over-tightening of the syndesmosis can cause syndesmotic overcompression in cadaveric model leading to talar displacement and alteration of tibiotalar joint contact.

Poster No. P211
The Reliability of Size Measurement in Osteochondral Talar Lesion: MRI versus CT
Ichiro Yoshimura, MD, Fukuoka, Japan
Tomonobu Hagio, MD, Fukuoka, Japan
Kazuki Kanazawa, MD, Fukuoka, Japan
So Minokawa, MD, Fukuoka-Ken, Japan
Masahiro Noda, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan

It is important to accurately measure the size of an OLT before surgery to achieve good clinical outcomes. This study investigated the reliability of size measurement using MRI and CT.

Poster No. P212
Weight Bearing Computed Tomography of Asymmetric Medial Ankle Osteoarthritis: The Axial Rotation of Talus
Ji-Beom Kim, Seoul, Republic of Korea
Woo Chun Lee, Seoul, Republic of Korea
Young Yi, MD, Seoul, Republic of Korea
Jae Young Kim, MD, Seoul, Republic of Korea
Jae Young Kim, MD, Seoul, Republic of Korea

In WBCT, the ankles of asymmetric medial osteoarthritis showed more talus internal rotation in axial plane compared to the normal ankles.

Poster No. P213
Total Ankle Replacement (TAR): Results at 5 to 10 Years Follow Up
Matteo Romagnoli, MD, Bologna, Italy
Valentina Persiani, Bologna, Italy
Andrea Ensini, MD, Bologna, Italy
Alberto Leardini, PhD, Bologna, Italy
Laura Ramponi, MD, Bologna, Italy
Paola Capra, Lugo, Italy
Sandro Giannini, MD, Bologna, Italy

Total Ankle Replacement can be considered a valuable option instead of ankle arthrodesis in order to obtain pain relief and preserve the range of motion of the joint.

Poster No. P214
Fixed Bearing Versus Mobile Bearing Total Ankle Replacement: A Comparative Study in 179 Patients
Chamnanni Rungprai, MD, Iowa City, IA
Phinit Phisitkul, MD, Coralville, IA
John E. Femino, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA

Fixed bearing versus mobile bearing total ankle replacement: A comparative study in 179 patients.

Poster No. P215
Outcomes and Complications of Four Total Ankle Replacement: A Comparative Study
Chamnanni Rungprai, MD, Iowa City, IA
Phinit Phisitkul, MD, Coralville, IA
Taylor Den Hartog, BS, Iowa City, IA
John E. Femino, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA

To compare outcomes and complications of commonly used four type of total ankle replacement; STAR, SALTO, INBONE, and ZIMMER implants.

Poster No. P216
Comparison Outcomes of Total Ankle Replacement With and Without Achilles Tendon Lengthening
Chamnanni Rungprai, MD, Iowa City, IA
Phinit Phisitkul, MD, Coralville, IA
John E. Femino, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA

Comparison Outcomes, complications, and ankle range of motion of Total Ankle Replacement with and without Achilles tendon lengthening.

Poster No. P217
A Treatment Strategy for Salvage Arthrodesis of Infected Total Ankle Arthroplasty According to Size of Bone Defect
Young Yi, MD, Seoul, Republic of Korea
Youngba Woo, Iksan, Republic of Korea

In majority cases of infected total ankle arthroplasty, ipsilateral fular structural bone graft may be a solution of overcoming large size bone defect after implant removal in salvage ankle fusion.

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Poster No. P218
Early Recovery After Arthroscopic Repair of Anterior Talofibular Ligament
Kentaro Matsui, MD, Tokyo, Japan
Masato Takao, MD, Itabashi, Japan
Wataru Miyamoto, Tokyo, Japan
Hirotaka Kawano, MD, PhD, Tokyo, Japan

We retrospectively compared the result of arthroscopic and open repair of the anterior talofibular ligament. Arthroscopic surgery showed faster recovery after surgery.

Poster No. P219
Comparison Outcomes and Complications of Patients Who Underwent Haglund’s Deformity Correction
Channanni Rungprai, MD, Iowa City, IA
John E. Femino, MD, Berne, Switzerland
Annunziato Amendola, MD, Iowa City, IA
Phnit Phisitkul, MD, Coralville, IA

Comparison outcomes and complications of patients underwent Haglund's deformity correction.

Poster No. P220
Does High Velocity Rimming Increase the Risk for Non-Union in First Metatarsophalangeal Joint Arthrodesis?
Assaf Kadar, MD, Givaatayim, Israel

Our study shows that high velocity joint preperation in first metatarsophalangeal joint arthrodesis is frequently complicated by non-unions (30%) and revision surgery (40%).

Poster No. P221
Driving and Emergency Braking May Be Impaired after Foot Arthrodesis: Conclusions after a Case Series
Stefan Schwienbacher, Zürich, Switzerland
Emin Aghayev, MD, Berne, Switzerland
Maurice Jordan, Weil Im Schoenbuch, Germany
Antongiulio Marmotti, MD, Torino, Italy

Emergency braking for an emergency stop is an important measure for safe driving. Significantly more patients exceeding the safe driving threshold were observed after a tibiotalar-joint arthrodesis.

Poster No. P222
The Effect of Obesity on Forefoot Surgery
Matthew G. Stewart, MD, Memphis, TN
Clayton C. Bettin, MD, Holladay, UT
David R. Richardson, MD, Memphis, TN
Susan N. Ishikawa, MD, Cordova, TN
Matthew L. Ramsey, MD, Philadelphia, PA

Obesity was not shown to lead to more frequent complications after forefoot surgery. Diabetes was associated with significantly higher rates of infection after forefoot surgery, regardless of weight.

Poster No. P223
A Novel Way to Treat Morton’s Neuroma
Joaquim K. Barbosa, MBBS, FRCS (Ortho), Macclesfield, United Kingdom
Amer Shoaib, dr, Manchester, United Kingdom

Weil's Osteotomy is an effective way of treating Morton's neuroma as shown in this prospective study of 14 patients assessed clinically and AOFOS scores at 12 weeks post op.

Poster No. P224
Novel Use for Osteoporosis Drug Alendronate in Skeletal Muscle Atrophy Treatment
Rong-Sen Yang, MD, Taipei, Taiwan
Shing-Hwa Liu, PhD, Taipei, Taiwan

Osteoporosis drug alendronate promoted myotube formation and inhibited muscle atrophy in vitro and in vivo. Alendronate possesses a therapeutic potential in skeletal muscle atrophy or sarcopenia.

Poster No. P225
The Basset Ligament is NOT Abnormal
James W. Bogener, MD, Kansas City, MO
Adam Shaw, MD, Kansas City, MO
Michael Lilyquist, MD, Kansas City, MO
Brock Wentz, MD, Las Vegas, NV
Kevin H. Latz, MD, Kansas City, MO

Ten fresh frozen cadaver ankles were examined looking at the anterior inferior tibiotalar ligament; all had 3 distinct bands, including what has previously been described as the Basset ligament.

Hand and Wrist

Poster No. P226
Outcome Assessment after Aptis Distal Radioulnar Joint (DRUJ) Implant Arthroplasty
Amir Reza Kachooei, MD, Boston, MA
Samantha M. Chase, MD, Boston, MA
Jesse B. Jupiter, MD, Boston, MA

Distal radioulnar joint prosthesis has shown satisfactory results with 100% survival rate in all reports. The constrained design gives enough stability to prevent painful subluxation.

Poster No. P227
Optimal Position for Fusion of the Proximal Interphalangeal Joint of the Border Digits
Daniel Seigerman, MD, Philadelphia, PA
Michael Rivlin, MD, Philadelphia, PA
Emilia Kaczynska, MS, OTR/L, Philadelphia, PA
Mary Grace Maggiano, MS, OTR/L, Philadelphia, PA
Pedro K. Beredjiklian, MD, Philadelphia, PA

When performing arthrodesis of the proximal interphalangeal joint, the optimal position for the index finger is variable, while the optimal position of the small finger is 30 degrees.
HAND AND WRIST

Poster No. P228
Which Immobilization is Better for Distal Radius Fracture? A Prospective Randomized Study
Carlo Gamba, MD, Esplugues De Llobregat, Spain
Felipe Mingo, MD, Barcelona, Spain
Marta Cuenca-Llavall, Barcelona, Spain
Xavier Lizano-Diez SR, MD, Barcelona, Spain
Fernando Santana Perez SR, MD, Barcelona, Spain

There is no evidence supporting ideal immobilization for DRF. A prospective randomized study is conducted to compare above and below-the elbow cast in term of reduction loss. No differences are found.

Poster No. P229
Novel Sigmoid Notch Radiographic View: Evaluating the Articular Surface of the DRUJ and Preventing Screw Breach
Jason S. Klein, MD, Miami, FL
David Chen, MD, Miami, FL
Jorge L. Orbay, MD, Miami, FL
David C. Landy, MD, Chicago, IL
Patrick W. Owens, MD, Miami, FL

Description of a novel radiographic view that evaluates the sigmoid notch articular surface in distal radius fractures and improves visualization of the DRUJ to avoid intra-articular screw placement.

Poster No. P230
Deformity and Disability in Rheumatoid Hand Progress Despite Disease Control: 10-Year Follow Up
Shogo Toyama, Kyoto, Japan
Ryo Oda, MD, Kawaramachi-Hirokoji, Kiyamigyo-ku, Kyoto, Japan
Daigo Taniguchi, MD, Kawaramachi-Hirokoji, Kamigyo-ku, Kyoto, Japan
Maki Asada, Kyodo, Japan
Satoru Nakamura, Kyoto, Japan
Tosikazu Kubo, MD, Kyoto, Japan

Advances in drug therapy for rheumatoid arthritis can improve disease control, but not hand function. In order to preserve hand function, surgical treatment still has certain significance.

Poster No. P231
Adherence to AAOS and ARHQ Quality Guidelines is Not Required for Successful Treatment of Carpal Tunnel Syndrome
Steven Zhang, BA, Stanford, CA
Robin N. Kamal, MD, Palo Alto, CA

The American Academy of Orthopaedic Surgeons has created guidelines to improve outcomes in treating carpal tunnel syndrome (CTS). This study measured adherence to guidelines in CTS surgery.

Poster No. P232
Do Distal Radius Fractures Shift After External Fixation?
Regina Meis, MD, Boston, MA
Andrew Jawa, MD, Cambridge, MA
Paul Tornetta III, MD, Boston, MA

We sought to evaluate the final alignment of patients with unstable distal radius fractures treated with external fixation and determined if the initial reduction is held until final follow up.

Poster No. P233
VEGF-Mediated Angiogenesis and Vascularization of a 3D Printed Polymer Scaffold
Eric R. Wagner, MD, Rochester, MN
Dalibel M. Bravo, MD, San Juan, Puerto Rico
Sanjeev Kakar, MD, Rochester, MN
Michael J. Yaszemski, MD, PhD, Rochester, MN

We developed a novel 3D printed scaffold that can be utilized as a framework for vascular ingrowth and regeneration of multiple types of tissue.

Poster No. P234
Biomechanical Evaluation of Four Internal Fixation Constructs for Scaphoid Fractures
Bryan Beutel, MD, New York, NY
Eitan Melamed, MD, Baltimore, MD
Richard M. Hinds, MD, New York, NY
Michael B. Gottschalk, MD, Dallas, TX
John T. Capo, MD, New York, NY

Using a synthetic bone axial loading model, we found that a single central screw of smaller diameter may be biomechanically superior to larger screws, dual screws, or plating of scaphoid fractures.

Poster No. P235
The Effect of Decentralization in Digital Replantation: A Study of the National Inpatient Sample
Joshua Hustedt, MD, Phoenix, AZ
Daniel D. Bohl, MD, MPH, Chicago, IL
Alexander C. McLaren, MD, Phoenix, AZ
Lloyd Champagne, MD, Phoenix, AZ

One possible reason for decreased success rates of digital replantation in the United States is the decentralization of digital replantation away from high volume centers.

Poster No. P236
The Rate of Hardware-Related Complications with Radial Column Plates for Distal Radius Fractures
Samuel Galle, MD, Irvine, CA
Neil G. Harness, MD, Anaheim, CA
Jacques H. Hacquebord, MD, Seattle, WA
Brett M. Peterson, MD, Orange, CA

Radial column plating for distal radius fractures was evaluated in a prospective cohort of patients for hardware removal and complications.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
**Poster No. P237**  
Morphometry of the Peripheral Insertion of the Distal Radioulnar Ligament using Micro-Computed Tomography  
Won Jeong Shin, MS, Cheonan-Si, Chungnam, Republic of Korea  
Jong-Pil Kim, MD, PhD, Cheonan, Republic of Korea  
Midum Jegal, MD, Cheonan, Republic of Korea  
Morphometric analysis of the peripheral insertion of the distal radioulnar ligament provides useful information for understanding of distal radioulnar ligament-related pathology.

**Poster No. P238**  
Baseline Characteristics of the Median Nerve on Ultrasound Examination  
Tiffany Pan, MD, Pittsburgh, PA  
Richard White, BS, Wexford, PA  
Caiyan Zhang, MS, Pittsburgh, PA  
William C. Hagberg, MD, Wexford, PA  
Joseph E. Imbriglia, MD, Wexford, PA  
John R. Fowler, MD, Gibsonia, PA  
This study aims to define the cross sectional area of the median nerve as measured by ultrasound in a large cohort of patients using a clinical diagnostic tool as the reference standard.

**Poster No. P239**  
Vascularized Bone Grafting in Scaphoid Nonunion: A Review of Patient-Centered Outcomes  
Ram Alluri, MD, Los Angeles, CA  
Christine Yin, BS, Los Angeles, CA  
Matthew L. Iorio, MD, Boston, MA  
Lakshmanan Sivasundaram, BS, Granada Hills, CA  
Aliadad Ghiassi, MD, Pacifc Plsades, CA  
Ketan M. Patel, MD, Los Angeles, CA  
Vascularized bone grafting for scaphoid nonunion results in significant improvement of functionality and pain, resulting in excellent return to preinjury activity levels and patient satisfaction.

**Poster No. P240**  
The Arkansas Hand Trauma Telemedicine System: A Review of the First Year  
Wesley S. Green, MD, Little Rock, AR  
John W. Bracey, MD, Little Rock, AR  
Mark A. Tait, MD, Little Rock, AR  
Sophie B. Hollenberg, BS, Little Rock, AR  
John M. Stephenson, MD, Little Rock, AR  
Theresa O. Wyrick, MD, Little Rock, AR  
The Arkansas Hand Trauma Telemedicine system provides video evaluation and treatment recommendations of hand injuries allowing for appropriate management and use of resources.
**Pediatrics**

**Poster No. P244**
Effect of Scoliosis Surgery on Pulmonary Functions in Adolescent Idiopathic Scoliosis Patients: A Meta-Analysis
Andy C. Lee, BS, Charlottesville, VA
Mark Feger, ATC, MEd, Charlottesville, VA
Anuj Singla, MD, Charlottesville, VA
Mark F Abel, MD, Earlysville, VA

Effect of Scoliosis Surgery on Absolute Pulmonary Functions in Adolescent Idiopathic Scoliosis Patients: A Systematic Review and Meta-analysis

**Poster No. P245**
3D-MRI Analyses of Femoral Head Sphericity in Patients with Developmental Dysplasia of the Hip Under Two Years Old
Yuta Tsukagoshi, MD, Tsukuba-City, Ibaraki, Japan
Hiroshi Kamada, MD, PhD, Tsukuba, Japan
Hajime Mishima, MD, PhD, Ibaraki, Japan
Ryoko Abe, MD, Aminimachi, Inashiki, Japan
Shogo Nakagawa, Tsukuba City, Ibaraki Prefecture, Japan
Yoji Tomaru, MD, Tsukuba-City, Ibaraki, Japan
Yoshikazu Okamoto, MD, Tsukuba, Japan
Masashi Yamazaki, MD, PhD, Tsukuba, Japan

We assessed the sphericity of the femoral head cartilage in DDH under 2 years old by using 3D-MRI. The growth failure of dislocated femoral head is observed at the proximal posteromedial area.

**Poster No. P246**
Correlation Between Hip Arthroscopy and Magnetic Resonance Imaging (MRI) in Children with Perthes Disease
Vivek Tiwari, MBBS, MS, New Delhi, India
Shah A. Khan, MD, New Delhi, India

In children with Perthes disease, hip arthroscopy as a diagnostic procedure can be helpful in cases of doubt regarding the pathology and in cases of persistence of pain.

**Poster No. P247**
Reliability and Validity of the Duncan-Ely Test for Assessing Rectus Femoris Spasticity in Cerebral Palsy
Seung Yeol Lee, MD, Seoul, Republic of Korea
Ki Hyuk Sung, MD, Kyungki, Republic of Korea
Chin Y. Chung, MD, PhD, Seongnam, Republic of Korea
Kyojin Min Lee, MD, Sungnam, Republic of Korea
Soonsum Kwon, PhD, Seongnam-Si, Republic of Korea
Tae Gyun Kim, Seongnam-Si, Gyeonggi-Do, Republic of Korea
Sang Hyeong Lee, Goyang-Si, Republic of Korea
In Hyok Lee, Seongnam-Si, Gyeonggi-Do, Republic of Korea
Moon Seok Park, MD, Sungnam, Republic of Korea

The Duncan-Ely test shows excellent reliability in fast knee-extension velocity, and good sensitivity and specificity as a preoperative assessment of rectus femoris spasticity in patients with CP.

**Poster No. P248**
Surgical Treatment of Displaced Lateral Condyle Fractures of the Humerus via the Posterior Approach
William K. Conaway, Hershey, PA
William L. Hemmikers Jr, MD, Hershey, PA
John Mahajan, MD, San Francisco, CA

Although the posterior approach to pediatric distal humeral fractures has been criticized due to potential blood supply damage, we report 15 cases with good functional and radiographic outcomes.

**Poster No. P249**
Stress Fracture at the Ischio-Pubic Junction after Periacetabular Osteotomy in a Pediatric Population
Matthew Swann, MD, BA, Dallas, TX
Jose A. Romero, MD, Dallas, TX
Daniel J. Sucato, MD, MS, Dallas, TX
David A. Podeszwa, MD, Dallas, TX

A single institution review of the incidence and clinical significance of stress fracture at the ischio-pubic junction (IPJ) after a Ganz type PAO in a pediatric population.

**Poster No. P250**
Effect of Tunnel Angle and Reamer Size on Physeal Defect in Transphyseal Anterior Cruciate Ligament Reconstruction
Charles M. Chan, MD, Stanford, CA

Increase in horizontal obliquity of the femoral tunnel in anterior cruciate ligament reconstruction results in an exponentially larger physeal defect. The critical threshold of 7% is rarely reached.

**Poster No. P251**
Pavlik Method Failure Rises Over Age Three Months and in Severe Hip Types in Developmental Hip Dysplasia
Hakan Omeroglu, MD, Eskisehir, Turkey
Nusret Kose, MD, Eskisehir, Turkey
Anil Akceylan, MD, Eskisehir, Turkey

Failure rate of Pavlik method significantly increases in infants older than 3 months, in Graf type III and IV (dislocated) hips and in hips having an initial alpha angle less than 47 degrees in DDH.

**Poster No. P252**
Vascular Examination Predicts Functional Outcomes in Supracondylar Humerus Fractures: A Prospective Study
Justin J. Ernat, MD, Tripler AMC, HI
Anthony I. Riccio, MD, Dallas, TX
Robert L. Wimberly, MD, Dallas, TX
David A. Podeszwa, MD, Dallas, TX
Christine A. Ho, MD, Dallas, TX

In children with operative supracondylar humerus fractures, an abnormal vascular examination at presentation is predictive of poorer outcomes in pain and upper extremity function.

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**Poster No. P253**

Biplanar X-rays with Chest Volumetry Predict Preoperative Pulmonary Function in Adolescent Idiopathic Scoliosis  
Houssam Bouloussa, MD, Paris, France  
Raphaël Pietton, MD, Paris  
Thomas-Xavier Haen, MD, Garches, France  
Wafa Skalli, PhD, Paris, France  
Raphaël Vialle, MD, PhD, Paris, France  
Claudio Vergari, PhD, Paris, France  

Biplanar stereography can predict preoperative pulmonary function in adolescent idiopathic scoliosis: rib cage volume is the best predictive factor in this preliminary prospective cohort study.

**Poster No. P254**

Patients’ Perceptions of Breast Asymmetry Improve after Spinal Fusion for Adolescent Idiopathic Scoliosis  
Megan Mignemi, MD, Dallas, TX  
Kaitlyn Brown, B.S., Dallas, TX  
Amy L. McIntosh, MD, Dallas, TX  

Breast asymmetry is a significant concern for many patients with AIS. Spinal fusion significantly improves patients’ perceptions about their breasts.

**Poster No. P255**

Femoral Version and Tibial Torsion are Not Associated with Hip or Knee Arthritis in a Large Osteological Collection  
Douglas S. Weinberg, MD, Cleveland, OH  
Paul Park, BA, Cleveland Heights, OH  
William Z. Morris, MD, Cleveland Hts, OH  
Raymond W. Liu, MD, Cleveland, OH  

Neither tibial torsion nor femoral anteversion had a significant influence on the development of arthritis of the hip or knee.

**Poster No. P256**

Simple Sagittal Pediatric Patellar Localization with Blumensaat-Epiphysyal Containment of the Knee (BECK) Angle  
Jennifer Beck, MD, Los Angeles, CA  
Richard E. Bowen, MD, Los Angeles, CA  
Daniel Boguszewski, PhD, Los Angeles, CA  
William L. Oppenheim, MD, Marina Del Rey, CA  

Pediatric patellar localization is simplified using the BECK Angle as opposed to alternative ratio methods. Over 50% of the patella is contained within the BECK Angle in 95% of patients aged 7-16yo.

**Poster No. P257**

Superior Extension of UIV in Distraction-Based Surgery: A Surrogate for Clinically Significant PJK  
Tricia St. Hilaire, MPH, Valley Forge, PA  
Ron El-Hawary, MD, Halifax, NS, Canada  
Ozren Kubat, MD, Zagreb, Croatia  
John A. Heflin, MD, Salt Lake City, UT  
Nadim Joukhadar, BS, Halifax, NS, Canada  
Mohamad S. Yasin, MD, Halifax, NS, Canada  
Anna McClung, RN, Dallas, TX  
Tara Flynn, Valley Forge, PA  
David L. Skaggs, MD, Los Angeles, CA  

Patients treated with distraction-based surgery have a 25% risk of clinically significant PJK. Pre-op PJA >10o is a significant risk for PJK.

**Poster No. P258**

Adolescents Maintain Hip Strength and Function Five Years Following a Ganz Periacetabular Osteotomy  
Daniel J. Sucato, MD, MS, Dallas, TX  
Kirsten Tuftin-Francois, PhD, Dallas, TX  
Adriana De La Rocha, PhD, Dallas, TX  
Wilshaw Stevens JR, BS, Dallas, TX  
David A. Podeszwa, MD, Dallas, TX  

The Ganz PAO is effective in treating hip dysplasia in adolescents with maintenance of correction, functional outcomes, and hip abductor and flexor strength at a minimum 5 yrs post-op.

**Poster No. P259**

Curve Severity is Associated with Worsening Thoraco-Pelvic Coordination in Adolescent Idiopathic Scoliosis  
Ashish Patel, MD, Brooklyn, NY  
Robert Pivec, MD, Brooklyn, NY  
Dante M. Leven, DO, Brooklyn, NY  
Bhaveen H. Kapadia, MD, Baltimore, MD  
Arie G. Troua, MD, Brooklyn, NY  
Colin S. Cooper, MD, Brooklyn, NY  
Patrick Narcisse, BS, Brooklyn, NY  
Shikha Sheth, BA, Brooklyn, NY  
Carl B. Paulino, MD, Brooklyn, NY  

Our findings demonstrate an association between increasing curve severity and loss of normal physiologic motion in the axial plane.

**Poster No. P260**

Implant Complications After Magnetic-controlled Growing Rods for Early Onset Scoliosis  
Edmund Choi, MD, La Jolla, CA  
Pooria Hosseini, MD, MSc, San Diego, CA  
Gregory M. Mundis, MD, San Diego, CA  
Jeff Pawelek, La Jolla, CA  
Behrooz A. Akbarnia, MD, San Diego, CA  
Ilkka J. Helenius, MD, Turku, Finland  
John A. Ferguson, FRACS, Auckland, New Zealand  
Kenneth M. Cheung, MD, Hong Kong, China  
Burt Yaszay, MD, San Diego, CA  

Early results demonstrate that the magnetic-controlled growing rods have a lower infection rate but have similar implant related complications as compared to traditional growing rods.
PRACTICE MANAGEMENT/REHABILITATION

Poster No. P261
Academic Characteristics of Orthopaedic Surgery Residency Applicants from 2007 to 2014
John M. Depasse, MD, Providence, RI
Mark A. Palumbo, MD, East Greenwich, RI
Craig P. Eberson, MD, Cumberland, RI
Alan H. Daniels, MD, Providence, RI

We analyzed National Resident Matching Program data from 2007 to 2014 and found that board scores and the number of publications have significantly increased despite a consistent match rate.

Poster No. P262
End Tidal Carbon Dioxide (ETCO2) Predicts Pulmonary Embolism in Postoperative Orthopaedic Patients
Austin Ramme, MD, PhD, New York, NY
Alana Sigmund, New York, NY
Eduardo Iturrate, MD, New York, NY
Lorraine Hutzel, BA, New York, NY
Ezra E. Dweck, New York, NY
David J. Steiger, MD, New York, NY
Joseph A. Bosco III, MD, New York, NY

We evaluate End Tidal CO2 (ETCO2) measurement as a method to identify patients who are at high risk for pulmonary embolism (PE) that should undergo a CT pulmonary angiogram (CTA).

Poster No. P263
Integrating Musculoskeletal Education and Patient Care at Medical Student-Run Free Clinics
Thomas J. McQuillan III, BA, Palo Alto, CA
Nathaniel D. Wilcox-Fogel, BA, MS, Woodside, CA
Max B. Liu, BA, Hercules, CA
Emily A. Krans, MD, Omaha, NE
Amy L. Ladd, MD, Redwood City, CA

Student-run free clinics represent an opportunity to improve musculoskeletal education at US medical schools, while delivering essential specialty care to underserved populations.

Poster No. P264
Large Disparities in Industry Payments to Orthopaedic Surgeons Seen in Sunshine Act Data
Andre Samuel, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Adam Lukasiewicz, MSc, New Haven, CT
Daniel D. Bobl, MD, MPH, Chicago, IL
Bryce A. Basques, MD, Chicago, IL
Glenn Russo, MD, New Haven, CT
Vinay K. Ratbi, BA, Reston, VA
Jonathan N. Grauer, MD, New Haven, CT

While orthopaedic surgeons receive the highest total and average payments from industry of any medical specialty, the highest 10th percentile of recipient surgeons account for 95% of all payments.

Poster No. P265
Falls Among Hospitalized Orthopaedic Patients: A Prospective Case-Control Study
Michael L. Parks, MD, New York, NY
Lisa A. Mandl, MD, MPH, New York, NY
Ting-Jung Pan, MPH, New York, NY
Meng Zhang, PhD, New York, NY
Mayu Sasaki, MPH, New York, NY
Tina L. Bailey, MS, New York, NY
Eric J. Greenberg, PharmD, CGP, New York, NY
Patricia Quinlan, PhD, New York, NY
Steven Magid, MD, New York, NY

This study evaluated rates and predictors of falls among adult orthopedic in-patients at a musculoskeletal specialty hospital.

Poster No. P266
Alignment of Venous Thromboembolism Prophylaxis Guidelines: Impact on Surgeon Prescribing for Knee Arthroplasty
Sarav Shab, MD, New Hyde Park, NY
James Mullen, MD, Brooklyn, NY
Alexander Satin, MD, New Hyde Park, NY
Sara Merwin, MPH, New Hyde Park, NY
Martin Lesser, PhD, Manhasset, NY
Mark Goldin, New Hyde Park, NY
Nicholas A. Sgaglione, MD, Great Neck, NY

After alignment of Venous Thromboembolism prophylaxis guidelines, it appears that orthopaedic providers readily and rapidly incorporated aspirin into clinical practice.

Poster No. P267
Psychiatric Conditions Impact 90-Day Hospital Readmission Rates Following Total Joint Replacement
Heather Gold, Ny City, NY
James D. Slover, MD, New York, NY
Lijin Joo, MA, New York, NY
Joseph A. Bosco III, MD, New York, NY
Richard Iorio, MD, New Rochelle, NY
Cheongeon Oh, PhD, New York, NY

Depression and alcohol and drug abuse are associated with substantial statistically significant increased probabilities of readmission following TKA and THR.

Poster No. P268
Does Resident Involvement Increase Complications in Orthopaedic Trauma?
Phillip Mitchell, MD, Nashville, TN
Sarah Greenberg, BA, Nashville, TN
Catherine Bulka, MPH, Nashville, TN
Frank Avilucea, MD, Salt Lake City, UT
Hassan R. Mir, MD, MBA, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
William T. Ohbremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

Our data is the first to show that resident involvement does not negatively impact patient care in orthopaedic trauma.
**Poster No. P269**  
What is it that Orthopaedics Residents Do All Day?  
Wenjing Zeng, MD, Rochester, NY  
Lindsey Caldwel, MD, Worcester, MA  
Kiran Nandigam, BS, Rochester, NY  
Gregg T. Nicandri, MD, Webster, NY  
This study evaluated and quantified the time junior and senior orthopaedic surgery residents on the orthopaedic trauma service spent performing various tasks during their workday.

**Poster No. P270**  
A 20-Year Retrospective Review of the Infection and Quality Control of a Hospital-Based Allogenic Bone Bank  
Shau-Huai Fu, MD, Yunlin County, Taiwan  
Chih-Chien Hung, MD, Taipei City, Taiwan  
Chun-Liang Wang, MD, Taipei, Taiwan  
Ming Hung Chiang, MD, Taipei, Taiwan  
Tzu-Hao Tseng, Taipei City, Taiwan  
Jyh-You Liu, Taipei, Taiwan  
De-Kai Syu, Taipei City, Taiwan  
Rong-Sen Yang, MD, Taipei, Taiwan  
Chun-Han Hou, MD, PhD, Taipei, Taiwan  
The positive after thawing cultures associated with higher infection rate afterwards, but the microorganism does not correlate with the pathogen found on the patients’ wound.

**Poster No. P271**  
Socioeconomic Status Independently Affects HCAHPS Scores  
Brandon Shulman, MD, New York, NY  
Brooks Crowe, BA, New York, NY  
Lorraine Hutzler, BA, New York, NY  
Joseph A. Bosco III, MD, New York, NY  
Although the HCAHPS survey attempts to correct for many factors that may affect scoring, socioeconomic factors are not considered in score weighting.

**Poster No. P272**  
Is Aspirin Enough? Rate of Asymptomatic and Symptomatic DVT and PE After Total Joint Arthroplasty  
Ritesh Shah, MD, Glenview, IL  
Jeffrey M. Goldstein, MD, Deerfield, IL  
Wayne M. Goldstein, MD, Morton Grove, IL  
Brandon Pardi, MD, Chicago, IL  
Brian E. Schwartz, MD, Des Plaines, IL  
Jose A. Rodriguez, MD, Chicago, IL  
David Savin, MD, Chicago, IL  
The goal of this study was to evaluate the efficacy of four different anticoagulants at preventing deep venous thrombosis and pulmonary embolism after total joint arthroplasty.

**Poster No. P273**  
Adverse Events, Readmission Rates, and Unplanned Access to Care Following Outpatient Total Joint Arthroplasty  
Daniel P. Hoefel, MD, Woodbury, MN  
Faith Myers, BS, MS, Woodbury, MN  
Brandon J. Kelly, Saint Paul, MN  
Peter J. Daly, MD, Woodbury, MN  
M. R. Giveans, PhD, Eden Prairie, MN  
Jay Scott, BA, Woodbury, MN  
Rate of adverse events within 30 days of outpatient TJA was 2.8%. Hospital readmission rate was 1.2%. TJAs were performed in an ambulatory surgery center. Rate of unplanned access to care was 10.9%.

**Poster No. P274**  
Are Rates of Blood Utilization Decreasing Following Primary TKA? A Look at 2008-2014  
Nicholas Bedard, MD, Iowa City, IA  
Andrew J. Pugely, MD, Coralville, IA  
Jacob Elkins, MD, PhD, Iowa City, IA  
Kyle Duchman, MD, Iowa City, IA  
Jesse E. Otero, MD, Iowa City, IA  
Yubo Gao, PhD, Iowa City, IA  
John J. Callaghan, MD, Iowa City, IA  
With blood management strategies instituted over the last 7 years, a 57.5% reduction in transfusion following TKA was seen within a large multicenter database.

**Poster No. P275**  
Bisphosphonates Reduced the Risk of Total Knee Arthroplasty in Patients with Osteoarthritis  
Shau-Huai Fu, MD, Yunlin County, Taiwan  
Chen-Yu Wang, Yunlin, Taiwan  
Chih-Chien Hung, MD, Taipei City, Taiwan  
Chuan-Ching Huang, Douliu City, Yunlin County, Taiwan  
Tzu-Hao Tseng, Taipei City, Taiwan  
Ming Hung Chiang, MD, Taipei, Taiwan  
Chun-Liang Wang, MD, Taipei, Taiwan  
Rong-Sen Yang, MD, Taipei, Taiwan  
Fei-Yuan Hsiao, PhD, Taipei, Taiwan  
This pioneering cohort study suggests that the use of bisphosphonate may reduce the risk of total knee arthroplasty and the consumption of pain medications in knee osteoarthritis patients.

**Poster No. P276**  
A Validation Study of Patient-Reported Outcome Measures for Patients with Upper Extremity Morbidity  
Susan M. Odum, PhD, Charlotte, NC  
Bryce A. Van Doren, MA, MPH, Charlotte, NC  
Nady Hamid, MD, Charlotte, NC  
Raymond G. Gaston, MD, Charlotte, NC  
A psychometric evaluation of the DASH, ASES, EQ5D and VR6D indicate superiority of the VR6D as a health utility and a tradeoff between DASH and ASES as regional PROMS for upper extremity morbidity.
**PRACTICE MANAGEMENT/REHABILITATION**

**Poster No. P277**
Electronic Medical Record Implementation Results in Decreased Patient-Physician Interaction  
Daniel J. Scott, MBA, MD, Durham, NC  
Eva Labro, PhD, Chapel Hill, NC  
Colin T. Penrose, BA, BS, Durham, NC  
Michael P. Bolognesi, MD, Durham, NC  
Samuel S. Wellman, MD, Durham, NC  
Richard C. Mather III, MD, Durham, NC

Electronic medical record implementation showed no change in total labor costs but increased documentation time 6 after implementation in an arthroplasty clinic.

**Poster No. P278**
Triple Prophylaxis for Prevention of Surgical Site Infections in Total Joint Arthroplasty Decreases Deep Infection  
Eric L. Smith, MD, Boston, MA  
Kurt J. Hofmann, MD, Norwood, MA  
Qingwu Kong, MS, Boston, MA  
Brett Hayden, MD, Boston, MA  
Michael Baratz, MD, Brookline, MA  
Mary E. Peverar, Boston, MA  
Charles Cassidy, MD, Natick, MA

The purpose of this retrospective cohort study was to determine the success of a triple prophylaxis protocol in reducing rates on infection.

**Poster No. P279**
Nasal Decolonization of <i>S. aureus</i> Reduces Surgical Site Infections in TJA Patients: A Meta-Analysis  
Bryce A. Van Doren, MA, MPH, Charlotte, NC  
Susan M. Odum, PhD, Charlotte, NC  
Mason Haber, PhD, Charlotte, NC  
Michael Baratz, MD, Brookline, MA  
Bryan D. Springer, MD, Charlotte, NC

A meta-analysis of 17 studies demonstrated that prophylactic nasal decolonization of S. aureus reduces the odds of surgical site infections in total joint arthroplasty patients by 40.5%.

**Poster No. P280**
Clinical Outcomes and Cost Implications of Rapid Discharge Versus Traditional Pathways after Knee Replacement  
Craig M. McAllister, MD, Kirkland, WA  
Ira H. Kirschenbaum, Bronx, NY  
Jeff Stephanian, PA-C, Kirkland, WA  
Craig M. McAllister, Kirkland, WA

This study compares clinical and patient reported outcomes of a traditional and outpatient pathways after knee replacement. Outpatient knee replacement is safe in properly selected patients.

**SHOULDER AND ELBOW**

**Poster No. P281**
Quantitative Localization of the Humeral Anterior Circumflex Artery’s Entry Point: A High-Definition CT Scan Study  
Amelie Sergent, Montréal, QC, Canada  
Jeremie Menard, MSc, Montréal, QC, Canada  
Yvan Petit, PhD, Montreal, QC, Canada  
Dominique Rouleau, MD, Montreal, QC, Canada

This study wants to identify the exact localization of entry point of humeral anterior circumflex artery to help surgeons to preserve it during proximal humerus fracture fixation.

**Poster No. P282**
The Daily Shoulder Motion of Healthy Subjects  
G Daniel G. Langobor, MSc, London, ON, Canada  
John Havestock, MD, London, ON, Canada  
George S. Athwal, MD, London, ON, Canada  
James A. Johnson, PhD, London, ON, Canada

The most common elevation angle was <40° in forward elevation. Shoulder elevations greater than 100° occurred about 20 times per hour and tended to be slightly more frequent on the dominant side.

**Poster No. P283**
Surface Glenoid Area in Latarjet-Patte and Congruent Arc in Virtual Model  
Bruno B. Gobbato, MD, Jaragua Do Sul, SC, Brazil

The Latarjet procedure for shoulder instability, there are two different ways. The purpose of this study is to evaluate the percentage of increase in surface area of the glenoid in a virtual model.

**Poster No. P284**
Ultrasound-Guided Double Needle Aspiration Versus Blind Corticosteroid Injection in Calcific Tendinosis  
Michael A. Malahias Jr, MD, Nea Ionia, Greece, Greece  
Vassilios Nikolaou, MD, PhD, Maroussi - Athens, Greece  
Maria Kasetta, MD, Athens, Greece  
Efstathios Chronopoulos, MD, Athens, Greece  
Emmanouel Fandridis, MD, Athens, Greece  
George Babis, MD, Athens, Greece

Double needle dissolution -and aspiration- with N/S represents better long-term results than blind corticosteroid injection in the treatment of chronic symptomatic calcific tendinosis.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off-label use). For full information refer to page 15.

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**Poster No. P285**

Lipid Accumulation is Related to Local and Load-Dependent Expression of Androgen Receptor

Martin Flück, Zurich, Switzerland
Severin Ruoss, MSc, Zurich, Switzerland
Céline Ferrié, Zurich, Switzerland
Mario Benn, Zurich, Switzerland
Brigette von Rechenberg, MD, Zurich, Switzerland
Mazda Farshad, MD, Zurich, Switzerland
Karl Wieser, MD, Zollikerberg, Switzerland
Dominik C. Meyer, MD, Zurich, Switzerland
Christian Gerber, MD, Zurich, Switzerland

Using osteotomy of infraspinatus muscle in sheep, we show that the fat mobilizing effect of nandrolone relates to load-dependent expression of the androgen receptor but not adipocyte differentiation.

**Poster No. P286**

Accuracy of Fluoroscopy Guided Subacromial Injection between Anterolateral and Posterolateral Approach

Joon Yub Kim, MD, Gyeonggi-Do, Republic of Korea

We recommend to avoid the anterolateral approach during fluoroscopy-guided subacromial injections in muscular patients and old aged patients more than 70 years of age.

**Poster No. P287**

Graft Size Affects Shoulder Stability after Superior Capsule Reconstruction for Irreparable Rotator Cuff Tear

Teruhisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Michelle H. McCarty, MD, Long Beach, CA
Timothy L. Kahn, BA, Irvine, CA
Masashi Neo, Takatsuki, Japan
Thay Q. Lee, PhD, Long Beach, CA

Superior capsule reconstruction using 8mm graft completely normalized superior translation while 4mm graft provided partial restoration although humeral head did not migrated superiorly.

**Poster No. P288**

Effect of Acromioplasty on Superior Capsule Reconstruction for Irreparable Rotator Cuff Tear

Teruhisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Michelle H. McCarty, MD, Long Beach, CA
Timothy L. Kahn, BA, Irvine, CA
Masashi Neo, Takatsuki, Japan
Thay Q. Lee, PhD, Long Beach, CA

Acromioplasty decreased contact area between graft and undersurface of the acromion after superior capsule reconstruction without shifting humeral head superiorly.

**Poster No. P289**

Arthroscopic Debridement of the Shoulder for the Treatment of Dialysis-Related Amyloidosis

Teruaki Izaki, MD, PhD, Fukuoka, Japan
Yozo Shibata, MD, Chikushino, Japan
Satoshi Miyake, MD, Fukuoka, Japan
Makoto Sakurai, MD, Fukuoka, Japan
Daisuke Kuroda, MD, PhD, Chikushino City, Japan
Masatoshi Naito, MD, Fukuoka, Japan

A middle-term postoperative result of arthroscopic debridement of the shoulder for the treatments of dialysis-related amyloidosis and analysis of factors inducing poor outcomes are discussed.

**Poster No. P290**

Posterior Capsular Tightness Does Not Account for Glenohumeral Internal Rotation Deficit in Baseball Players

Hiroaki Inui, MD, Tatsuno City, Japan
Hiroshi Tanaka, MS, Hyogo, Japan
Katsuya Nobuhara, MD, Hyogo, Japan

Shoulder ranges of motion in 180 baseball players were examined and arthrography was performed for 15 players. The study indicated GIRD was not affected by posterior capsule tightness.

**Poster No. P291**

Preoperative Planning with 3D Printed Models in Shoulder and Elbow Surgery

Karl B. Scheidt, MD, Racine, WI
John M. Itamura, MD, Los Angeles, CA
Eric Limcaco, Porter Ranch, CA

Appreciation of bony deformity and deficiency in complex shoulder and elbow surgery can be difficult. 3D printed life size models can help with preoperative planning.

**Poster No. P292**

Interactions between Reverse Shoulder Arthroplasty Implant Variables and their Effects on Muscle and Joint Load

Josh W. Giles, PhD, London, United Kingdom
G Daniel G. Langobr, MSc, London, ON, Canada
James A. Johnson, PhD, London, ON, Canada
George S. Athwal, MD, London, ON, Canada

This study elucidates the positive effects of humeral offset and negative of glenosphere offset & humeral thickness.

**Poster No. P293**

Is There an Association Between the “Critical Shoulder Angle” and Clinical Outcome after Rotator Cuff Repair?

Jacob Kirsch, MD, Ann Arbor, MI
Amit Nathani, MD, Ann Arbor, MI
Christopher B. Robbins, Ann Arbor, MI
Joel J. Gagnier, PhD, Ann Arbor, MI
Ashesh Bedi, MD, Ann Arbor, MI
Bruce S. Miller, MD, MS, Ann Arbor, MI

A critical shoulder angle less than 38 degrees is associated with better ASES, WORC and VAS scores in patients following surgical repair of atraumatic full-thickness rotator cuff tears.
**SHOULDER AND ELBOW**

**Poster No. P294**
Comparison of 3D Scapular Glenohumeral Kinematics of Symptomatic and Asymptomatic Rotator Cuff Tears
Takehiro Kijima, Chiba, Japan
Keisuke Matsuki, MD, Funabashi, Japan
Nobuyasu Ochiai, MD, PhD, Chiba City, Japan
Tomonori Kenmoku, MD, Minami-Ku, Sagamihara, Japan
Yu Sasaki, MD, Chiba, Japan
Takeshi Yamaguchi, MD, Inohana, Chuo-Ku, Chiba, Japan
Yasuhito Sasaki, Chiba, Japan

There were significant differences in posterior tilt angles of the scapula. Less posterior tilt angles were related to development of the symptoms in RCTs because of provocation of impingement.

**Poster No. P295**
Assessment of the Tear Progression of Symptomatic Rotator Cuff Tear: A Prospective Study of 150 Shoulders
Nobuyuki Yamamoto, MD, Sendai, Japan
Jun Kawakami, MD, Sendai, Miyagi, Japan
Yuki Shiota, MD, Sendai, Japan
Mitsuyoshi Mineta, Sendai, Japan
Hirotaka Sano, MD, PhD, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan

Tear progression in 150 rotator cuff tears was investigated. The tear size progressed by 55% in 1.5 years. The risk factors were smoking, full-thickness tears, and the tear length of 1 - 2 cm.

**Poster No. P296**
Strain of the Tendon After Transosseous Equivalent Repair: A Cadaveric Study
Hideki Nagamoto, MD, Sendai, Japan
Nobuyuki Yamamoto, MD, Sendai, Japan
Yuki Shiota, MD, Sendai, Japan
Jun Kawakami, MD, Sendai, Miyagi, Japan
Takayuki Muraki, PhD, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan

The strain of the tendon at the footprint after repair by transosseous equivalent technique decreased, although it increased at the medial row level compared to the intact rotator cuff tendon.

**Poster No. P297**
Influence of Electromagnetic Fields in Reparative Processes of Rotator Cuff: Preliminary Results
Francesco Franceschi, MD, Rome, Italy
Luca La Verde, MD, Messina, Italy
Edoardo Franseschetti, MD, Roma, Italy
Alessio Palumbo, MD, Roma, Italy
Michele Paciotti, MD, Arezzo, Italy
Rocco Papalia, MD, PhD, Rome, Italy
Domenico Fenga, MD, Messina, Italy
Michele Attilio Rosa, MD, PhD, Messina, Italy
Vincenzo Denaro, MD, Rome, Italy

Authors present a clinical trial with preoperatively application of PEMFs in patients with rotator cuff tear, resulting in an increased shoulder function, pain impairment and a better tendon quality.

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*

**Poster No. P298**
Effects of Tear Size and Concomitant Shoulder Stiffness in Conservative Treatment for Rotator Cuff Tears (RCT)
Takuya Sekiguchi, MD, Sendai, Japan
Junichiro Hamada, MD, PhD, Koriyama, Japan
Yoshihiro Hagiwara, MD, Sendai, Japan

We examined the patients with atraumatic RCT whether tear patterns and/or size and concomitant stiffness were correlated with clinical outcomes of conservative treatment.

**Poster No. P299**
Diagnostic Accuracy of Radial Slice MRI for Subscapularis Tendon Tears
Yuji Shibayama, Sapporo, Japan
Toshiaki Hirose, Sapporo, Japan
Takayuki Dobke, MD, Hokkaido Sapporo City, Japan
Toshikazu Yamashita, MD, Sapporo, Japan
Emi Mizushima, MD, Muroran, Japan
Kenji Okamura, Sapporo, Japan

 Diagnostic accuracy of partial-thickness SSC tear was 78%, that of full-thickness tear was 97% using radial MRI. We got better diagnostic rate than standard MRI, so radial MRI is useful for diagnosis.

**Poster No. P300**
The Deep Layer of the Rotator Cuff Tendon Becomes Stiffer with Age: A Possible Cause of Cuff Tear
Nobuyuki Yamamoto, MD, Sendai, Japan
Takayuki Muraki, PhD, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan

The rotator cuff tendons of 210 shoulders were examined with use of ultrasound elastography. The deep layer became stiffer with age. This decrease in the elasticity may be related to an onset of tear.

**Poster No. P301**
Double-Layer, Double-Row Repair versus Suture Bridge Fixation for Rotator Cuff Tears
Hironori Kakoi, MD, Kagoshima, Japan
Hiroyuki Tominaga, MD, PhD, Kagoshima, Japan
Takao Setoguchi, MD, PhD, Kagoshima, Japan
Ichiro Kawamura, MD, PhD, Kagoshima, Japan
Setsuro Komiya, MD, Kagoshima, Japan

The clinical outcome and the re-tear rate of the Double-layer, Double-row method were equivalent to SB method.
**Poster No. P302**
Quantitative Evaluation of Temporal Changes in Fatty Infarction after Rotator Cuff Repair by IDEAL Sequence MRI

Eiko Hashimoto, Chiba, Japan
Nobuyasu Ochiai, MD, PhD, Chiba City, Japan
Yu Sasaki, MD, Chiba, Japan
Takeshi Yamaguchi, MD, Inohana, Chuo-Ku, Chiba, Japan
Takehiro Kijima, Chiba, Japan
Yasuhiro Sasaki, Chiba, Japan

IDEAL technique might be useful to evaluate fatty infarction of cuff muscle quantitatively. The fatty infarction and the muscle atrophy were irreversible even after successful arthroscopic repair.

**Poster No. P303**
Arthroscopic Repair of a Significant (>50%) Subscapularis Partial Tear Concomitant with a Supraspinatus Tear

Sung-Jae Kim, MD, Seoul, Republic of Korea
Yun-Rak Choi, MD, PhD, Seoul, Republic of Korea
Sung-Hwan Kim, MD, Seoul, Republic of Korea
Min Jung, MD, Seoul, Republic of Korea
Yong-Min Chun, MD, PhD, Seoul, Republic of Korea

After arthroscopic repair of subscapularis partial tear using the trans-tendon technique, some patients may have decreased external rotation.

**Poster No. P304**
The Changes of Fatty Degeneration and Shoulder Strengths in Nonsurgically Treated Rotator Cuff Tears

Yoshihiro Nakamura, Otake, Japan
Shin Yokoya, MD, Hiroshima, Japan
Yohhei Harada, MD, Hiroshima, Japan
Katsunori Shiraiishi, Hiroshima, Japan
Yoshihiro Nagata, MD, Otake, Japan
Yu Mochizuki, MD, Hiroshima, Japan
Mitsuo Ochi, MD, PhD, Hiroshima, Japan

We evaluated relationship of fatty degeneration in rotator cuff muscle and shoulder strength, and these changes in nonsurgically treated rotator cuff tears.

**Poster No. P305**
The Safe Zone for Avoiding Iatrogenic Suprascapular Nerve Injury During Reverse Shoulder Arthroplasty

Satoshi Miyake, MD, Fukuoka, Japan
Tennaki Izaki, MD, PhD, Fukuoka, Japan
Yozo Shibata, MD, Chikushino, Japan
Makoto Sakurai, MD, Fukuoka, Japan
Daisuke Kuroda, MD, PhD, Chikushino City, Japan
Masatoshi Natto, MD, Fukuoka, Japan

With three-dimensional computed tomography, a safe zone to avoid suprascapular nerve injury on the glenoid face of the intraoperative surgical field was obtained.

**Poster No. P306**
Excellent Outcomes of Primary Reverse Total Shoulder Arthroplasty in Patients with Glenohumeral Instability

Brian Chalmers, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Robert H. Cofield, MD, Rochester, MN

Reverse shoulder arthroplasty results in excellent clinical outcomes and a low complication rate without evidence of a substantial rate of postoperative instability.

**Poster No. P307**
Multi-Center Prospective Study of a Reverse Shoulder Prosthesis with a Lateralized Glenosphere

Samer S. Hasan, MD, PhD, Cincinnati, OH
Jonathan C. Levy, MD, Ft Lauderdale, FL
Zachary R. Leitz, MD, Saint George, UT
Avni N. Kumar, MD, Bradenton, FL
Gary D. Harter, MD, Lewisburg, PA
Ryan J. Krupp, MD, Louisville, KY

Reverse shoulder arthroplasty has revolutionized the treatment of patients with arthritis and can be performed with implants employing medialized or lateralized glenospheres.

**Poster No. P308**
Effect of Prior Rotator Cuff Repair on Clinical Outcomes Following Reverse Shoulder Arthroplasty

Taku Hatta, MD, Rochester, MN
Jean-David Werthel, Paris, France
Eric R. Wagner, MD, Rochester, MN
Lukas Ernstbrunner, Salzburg, Austria
John W. Sperling, MD, MBA, Rochester, MN
Scott P. Steinnmann, MD, Rochester, MN
Eiji Itoi, MD, Sendai, Japan
Robert H. Cofield, MD, Rochester, MN

Reverse shoulder arthroplasty for patients with cuff tear arthropathy who underwent prior rotator cuff repair provides significant improvement of symptoms and shoulder function over 2-year follow-up.

**Poster No. P309**
Reverse Total Shoulder Replacement in Patients with ‘Weight-bearing’ Shoulders on Wheelchair or Walking Aids

Ofer Levy, MD, Henley-On-Thames, United Kingdom
George Arealis, MD, Athens, Greece
Oren Tsvieli, MD, Reading, United Kingdom
Ruben Abraham, MD, FRCS, Reading, United Kingdom
Oren Tsvieli, MD, Reading, United Kingdom
Ehud Atoun, MD, Kochav Michael, Israel

rTSA can be used successfully & safely in patients with ‘weight-bearing’ shoulders (wheelchair or crutches). Return to almost full & pain free movement, resume daily activities & high satisfaction.
SHOULDER AND ELBOW

Poster No. P310
The Role of Glenoid Implant in Reverse Shoulder Prosthesis: A Clinical and Radiological Study
Alessandro Ciompi, MD, Roma, Italy
Angelo De Carli, MD, Rome, Italy
Riccardo Maria Lanzetti, Rome, Italy
Edoardo Gaj, Rome, Italy
Domenico Lupariello, Roma, Italy
Antonio Vadala, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

A range of medialization of the center of rotation and a deltoid length between had a significant better clinical outcome. Neutral position of the base-plate, could offer better ROM.

Poster No. P311
Patient Activity Levels After Reverse Total Shoulder Arthroplasty: What are Patients Doing?
Grant Garcia, MD, New York, NY
Samuel A. Taylor, MD, New York, NY
Gregory T. Mabony, BA, New York, NY
Joshua S. Dines, MD, New York, NY
David M. Dines, MD, Old Westbury, NY
Russell F. Warren, MD, New York, NY
Edward V. Craig, MD, New Canaan, CT
Lawrence V. Gulotta, MD, Chappaqua, NY

RTSA Patients had an 85% rate of return to one or more sporting activities at an average of 5.3 months following surgery. This study offers valuable information to manage patient expectations.

Poster No. P312
The Rotator Cuff is an Antagonist Following Reverse TSA: A Biomechanical Study of Differing Implant Configurations
Josh W. Giles, PhD, London, United Kingdom
G Daniel G. Langohr, MSc, London, ON, Canada
James A. Johnson, PhD, London, ON, Canada
George S. Athwal, MD, London, ON, Canada

Cuff repair with RSA increases deltoid & joint loading and may negatively affect muscle fatigue and implant survival. Glenosphere offset exacerbates these effects while humeral offset mitigates them.

Poster No. P313
Hypophosphatasia: A Possible Misdiagnosis Cause of Femoral Diaphyseal Stress Fractures
Luca Labianca, MD, Rome, Italy
Cosma Calderaro, Rome, Italy
Francesco Tartuero, MD, Rome, Italy
Antonello Montanaro, MD, Rome, Italy
Francesca Manfroni, Roma, Italy
Andrea Ferretti, MD, Rome, Italy

Risk of fracture further increases in the presence of systemic conditions reducing quality of bone such as hypophosphatasia, that should be considered in Femur Diaphyseal Stress Fractures.

Poster No. P314
Comparison of Outcomes of Reverse Total Shoulder Arthroplasty With or Without Subscapularis Repair
Jason Vourazeris, MD, Gainesville, FL
Thomas W. Wright, MD, Gainesville, FL
Kevin W. Farmer, MD, Gainesville, FL
Joseph J. King III, MD, Gainesville, FL
Aimee Struk, MEd, MBA, ATC, Gainesville, FL

Subscap

Poster No. P315
Pain Control after Total and Reverse Shoulder Arthroplasty: Interscalene Block vs. Liposomal Bupivacaine
Jeffery D. Angel, MD, Batesville, AR
Chris Steel, Batesville, AR
Kevin Ong, PhD, Philadelphia, PA
Heather Watson, PhD, Menlo Park, CA
Scott T. Lovald, PhD, MBA, Menlo Park, CA

The current study found that shoulder arthroplasty patients treated with liposomal bupivacaine had significantly less pain at 1 day postop compared to patients treated with an interscalene block.

Poster No. P316
General or Regional Anesthesia for Total Shoulder Arthroplasty: A Comparison of Perioperative Outcomes
Siddharth A. Malhure, MD, New York, NY
David Y. Ding, MD, New York, NY
Brent Mollon, MD, FRCSC, Toronto, ON, Canada
Joseph D. Zuckerman, MD, New York, NY
Young W. Kwon, MD, PhD, New York, NY

Regional anesthesia is associated with less perioperative complications and mortality than general anesthesia after TSA.

Poster No. P317
Cardiovascular Complication Following Shoulder Arthroplasty: Incidence, Associated Factors, and Mortality
Nigel Hsu, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Kartheekyan E. Ponnamusu, MD, Baltimore, MD
Umashanth Srikumaran, MD, MBA, Clarksville, MD
Edward G. McFarland, MD, Lutherville, MD

The incidence and risk factors for cardiovascular complications after primary shoulder arthroplasty is studied through the Nationwide Inpatient Sample database.

Poster No. P318
Value of Validated Complications in a Shoulder Arthroplasty Registry
Ronald A. Navarro, MD, Rolling Hills, CA
Liz Paxton, MA, Ribo Santa Fe, CA
Jessica Harris, MS, San Diego, CA
Mark T. Dillon, MD, Sacramento, CA
Anshuman Singh, MD, San Diego, CA
Edward Yian, MD, Anaheim, CA

The reporting and acting on validated complications is critical to our aim for continuous improvement and is a differentiator of this registry.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for off-label use). For full information refer to page 15.

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**Poster No. P319**  
Surgical Treatment of Infected Shoulder Arthroplasty: A Systematic Review  
Giulio Maria Marcheggiani Muccioli, MD, Bologna, Italy  
Gazi Huri, MD, Baltimore, MD  
Alberto Grassi, MD, Bologna, Italy  
Mahmut N. Doral, MD, Ankara, Turkey  
Stefano Zaffagnini, MD, Bologna, Italy  
Maurilio Marcacci, MD, Bologna, Italy  

One-stage revision reported better outcomes when compared with other procedures in the treatment of infected shoulder arthroplasty.

**Poster No. P320**  
Unexpected Positive Cultures in Primary Shoulder Arthroplasty Patients without Prior Arthroplasty  
Katherine A. Burns, MD, Saint Louis, MO  
Lynn Robbins, PA-C, Bridgeton, MO  
Melissa L. Wilson, Los Angeles, CA  
Angela LeMarr, RN, Brighton, IL  
Amber Childress, RN, Saint Louis, MO  
Diane Morton, MS, Saint Louis, MO  

Increasing number of prior surgeries and male gender associated with unexpected positive culture (UPC) in primary shoulder arthroplasty patients.

**Poster No. P321**  
Radiographic Measurements of Shoulder Arthroplasty: Can We Assess Anatomic Restoration?  
Javier E. Sanchez, BS  
Jonathan Watling, MD, New York, NY  
Prakash Gorroochurn, PhD, New York, NY  
Christopher S. Ahmad, MD, New York, NY  
William N. Levine, MD, New York, NY  
Charles M. Jobin, MD, New York, NY  

Routine radiographic measurements of TSA are reliable over serial X-rays and between observers with different levels of training.

**Poster No. P322**  
Differential Effect of Insulin Dependence on Shoulder Arthroplasty Outcomes  
Charles Qin, BA, Chicago, IL  
Jason L. Koh, MD, Winnetka, IL  

Insulin dependence is associated with increased medical and surgical morbidity following shoulder arthroplasty.

**Poster No. P323**  
Long-Term Outcomes of Cemented versus Cementless Humeral Stems in Shoulder Arthroplasty  
Jean-David Werthel, Paris, France  
Suenghwan Jo, MD, PhD, Rochester, MN  
Robert H. Cof e, MD, Rochester, MN  
John W. Sperling, MD, MBA, Rochester, MN  
Bassem T. Elkassam, MD, Rochester, MN  

The long-term risk of loosening of cementless humeral stems is significantly higher than cemented stems, especially when stems designed for cement fixation are used uncemented.

**Poster No. P324**  
Primary Shoulder Arthroplasty in Immunosuppressed Patients Following Solid Organ Transplantation  
Taku Hatta, MD, Rochester, MN  
Eric R. Wagner, MD, Rochester, MN  
Jean-David Werthel, Paris, France  
Lukas Ernstbrunner, MS, Salzburg, Austria  
John W. Sperling, MD, MBA, Rochester, MN  
Scott P. Steinmann, MD, Rochester, MN  
Eiji Itoi, MD, Sendai, Japan  
Robert H. Cof e, MD, Rochester, MN  

Shoulder arthroplasty in immunosuppressed patients with solid organ transplantation could be a successful procedure, excepting an increased mortality and risk of periprosthetic fractures.

**Poster No. P325**  
Shoulder Arthroplasty for Locked Anterior Dislocation of the Shoulder  
Joseph Statz, MD, Rochester, MN  
Bradley S. Schoch, MD, Rochester, MN  
John W. Sperling, MD, MBA, Rochester, MN  
Joaquin Sanchez-Sotelo, MD, Rochester, MN  
Robert H. Cof e, MD, Rochester, MN  

Reverse shoulder arthroplasty should be considered whenever the glenoid allows for placement of a baseplate in the setting of a locked anterior shoulder dislocation.

**Poster No. P326**  
Comparison of Asymmetric Reaming versus a Posteriorly Augmented Component  
Jia-Wei Kevin Ko, MD, Seattle, WA  
Usman Ali M. Syed, BS, Philadelphia, PA  
Bryan J. Loeff er, MD, Charlotte, NC  
E S. Paxton, MD, Providence, RI  
Jonathan D. Barlow, MD, Philadelphia, PA  
Joseph A. Abboud, MD, Bryn Mawr, PA  
Gerald R. Williams Jr, MD, Philadelphia, PA  
Charles L. Getz, MD, Newton Square, PA  

Radiographic outcomes of a series of patients with posterior glenoid wear who were treated with either asymmetric reaming of the glenoid or treated with a posteriorly augmented glenoid.

**Poster No. P327**  
Does an Increase in Modularity Improve the Outcomes of Total Shoulder Replacement?  
Bradley S. Schoch, MD, Rochester, MN  
Jean-David Werthel, Paris, France  
Cathy D. Schleck, Rochester, MN  
John W. Sperling, MD, MBA, Rochester, MN  
Robert H. Cof e, MD, Rochester, MN  

2nd generation TSA provides reliable improvement in pain and range of motion with outcomes similar to an older non-modular system and to a newer system with different humeral head offsets.
**SHOULDER AND ELBOW**

**Poster No. P328**
Periprosthetic Shoulder Infection: One-Stage Better Than Two-Stage?
Geoffrey P. Stone, MD, Houma, LA
Rachel Clark, BA, Tampa, FL
Kathleen C. O’Brien, BS, Tampa, FL
Lisa Vaccaro, Tampa, FL
Richard S. Tannenbaum, BS, Tampa, FL
Benjamin J. Cottrell, BS, Tampa, FL
Brent Stephens, MD, Decatur, GA
Adam Lorenzetti, MD, Loma Linda, CA
Mark A. Frankle, MD, Temple Terrace, FL

One-stage revision arthroplasty for periprosthetic shoulder infection results in lower reoperation rates for infection and similar clinical outcomes compared to two-stage revision in our series.

**Poster No. P329**
Shoulder Arthroplasty Restores Daily Shoulder Motion Levels Similar to the Contralateral Normal Side
G Daniel G. Langloir, MSc, London, ON, Canada
John Haverstock, MD, London, ON, Canada
James A. Johnson, PhD, London, ON, Canada
George S. Athwal, MD, London, ON, Canada

Mean shoulder motion after arthroplasty is not significantly different than the contralateral normal side. The number of shoulder arthroplasty elevations greater than 60° approach 1.5 Mc per year.

**Poster No. P330**
CT And MRI are Equally Reliable in the Assessment of Glenohumeral Arthritis and Glenoid Version
Christopher M. Hopkins, MD, Memphis, TN
Frederick M. Azar, MD, Memphis, TN
Ryan P. Mulligan, MD, Memphis, TN
Anthony M. Hollins, MD, Memphis, TN
Richard A. Smith, PhD, Memphis, TN
Thomas W. Throckmorton, MD, Germantown, TN

We conclude both CT and MRI can be reliably used as pre-operative planning tools for assessment of glenoid deformity in shoulder arthroplasty.

**Poster No. P331**
Biomechanical Effects of Rotator Interval Closure in Shoulder Arthroplasty
Charles A. Daly, MD, Atlanta, GA
William C. Hutton, DSC, Atlanta, GA
Claudius Jarrett, MD, Atlanta, GA

Shoulder arthroplasty performed on ten matched cadaveric shoulders randomized to interval closure demonstrates superior subscapularis strength with interval closure and no significant cant motion deficits.

**Poster No. P332**
Modification of the Walch Classification: Defining New Types of Glenoid Pathology in Advanced Osteoarthritis
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Bong-Jae Jun, PhD, Cleveland, OH
Eric T. Ricchetti, MD, Cleveland, OH

CT imaging analysis was used to define new subtypes of glenoid pathology in the Walch classification based on patterns of joint line medialization, premorbid anatomy, and glenohumeral alignment.

**Poster No. P333**
The V-Shaped Subscapularis Tenotomy for Anatomic Total Shoulder Arthroplasty
Thomas Christensen, MD, Reno, NV
Austin Vo, MBBS, FRCS (Ortho), Kew, Australia
Laurent Lafosse, MD, Annecy, France

The subscapularis V-shaped tenotomy provides excellent visualization for total shoulder arthroplasty, without differences in outcomes compared to a subscapularis sparing control group.

**Poster No. P334**
Shoulder Arthroplasty in Patients with Osteo-Chondrodysplasias
Bradley S. Schoch, MD, Rochester, MN
Jean-David Werthel, Paris, France
John W. Sperling, MD, MBA, Rochester, MN
Mark E. Morrey, MD, Rochester, MN

Shoulder arthroplasty for patients with osteochondrodysplasias remains challenging due to altered patient anatomy, but reliably improves pain and function with a low incidence of early reoperation.

**Poster No. P335**
Ultrasonic Tenotomy for Recalcitrant Tennis Elbow - Sustainability and Sonographic Progression at Three Years
Chu Sheng Seng, MBBS, MRCS, Singapore, Singapore
Yee Gen Lim, MBBS, ChB, Singapore, Singapore
Joyce S. Koh, MD, Singapore, Singapore
Tet S. Howe, MD, Singapore, Singapore
Brian P. Lee, MD, Singapore, Singapore
P Chandra Mohan, MBBS, Singapore, Singapore
Bernard F. Morrey, MD, Fayetteville, TX

Ultrasonic percutaneous tenotomy for recalcitrant tennis elbow shows good sustainability and sonographic progression at 3 years and is a promising option as an alternative to surgical intervention.

**Poster No. P336**
The Prevention and Early Detection for Osteochondritis Dissecans of the Elbow in Niigata Challenge Since 2006
Tomoharu Mochizuki, MD, Niigata City, Japan
Norioaki Yamamoto, MD, Niigata City, Japan
Osamu Tanifuji, MD, Niigata City, Japan
Kazuaki Suzuki, MD, Niigata, Japan
Naoto Endo, MD, Niigata, Japan

The osteochondritis dissecans of the elbow in young baseball players can be prevented and early detected.
Poster No. P337

Treatments of Non-Septic Olecranon Bursitis among Observation, Aspiration, and Aspiration with Steroid Injection
Joon Yub Kim, MD, Gyeonggi-Do, Republic of Korea

We do not recommend simple aspiration treatment for non-septic olecranon bursitis.

Poster No. P338

Regional Ulnar Nerve Strain Following Simple Decompression and Anterior Transposition in Cubital Tunnel Syndrome
Ian Foran, MD, San Diego, CA
Kenneth Vaz, MD, San Diego, CA
Eric R. Hentzen, MD, PhD, San Diego, CA
Sameer B. Shab, PhD, La Jolla, CA

In patients with cubital tunnel syndrome, anterior transposition and simple decompression result in different regional ulnar nerve strain profiles that are dependent upon elbow and wrist position.

Poster No. P339

Cyclic Stability of Proximal Humeral Fractures Fixed by Locked Plate Combined with Intramedullary Strut
Chih-Kun Hsiao, Kaohsiung, Taiwan
Yuan-Kun Tu, MD, PhD, Kaohsiung, Taiwan
Yi-Jung Tsai, PhD, Tainan City, Taiwan

The results emphasize the importance of medial support for stability of the humeral head, especially in osteoporotic bone subjected to cyclic loading.

Poster No. P340

Biomechanical Evaluation of Scapular Body and Neck Fracture Fixation
Christiane G. Kruppa, Bochum, Germany
Travis Burgers, PhD, Grand Rapids, MI
Martin Hoffmann, MD, Bochum, Germany
Barth Williams, PhD, Grand Rapids, MI
Debra Sietsema, PhD, Grand Rapids, MI
Clifford B. Jones, MD, FACS, Grand Rapids, MI

Scapular body fracture xation with a lateral plate was stiffer than a lateral-posterior plate. Scapular neck fracture xation with a lateral-posterior plate was stiffer than a lateral plate.

Poster No. P341

Predictors for Hospital Readmission Within Two Years Following Adult Spinal Deformity Surgery
Peter G. Passias, MD, Westbury, NY
Eric O. Klineberg, MD, Dvais, CA
Cyrus Jalali, BA, New York, NY
Nancy Worley, MS, New York, NY
Alexandra Soroceanu, MD, Halifax, Canada
Themistocles S. Protopsaltis, MD, Closter, NJ
Virginie Lafage, PhD, New York, NY
International Spine Study Group, Brighton, CO

Readmission predictors after ASD surgery included major peri-op, radiographic, implant, and infection complications. All patients improved in HRQL at 2-years but readmitted patients improved less.

Poster No. P342

Does Cage Subsidence Affect Clinical Outcomes After Transforaminal Lumbar Interbody Fusion?
Peter Formby, MD, Washington, Dist. of Columbia
Scott Wagner, MD, Rockville, MD
Daniel Kang, MD, Tacoma, WA
Melvin D. Helgeson, MD, North Potomac, MD

Our findings suggest interbody cage subsidence has no effect on persistence or recurrence of preoperative symptoms after TLIF.

Poster No. P343

Improving Response to Treatment for Patients with Degenerative Disc Disease by the Use of Molecular Markers
Gaetano J. Scuderi, MD, Jupiter, FL
Pasquale X. Montesano, MD, Stuart, FL
Jason M. Cuellar, MD PhD, Los Angeles, CA

Patients who are “FAC+” are more likely to demonstrate improvement from intradiscal autologous A2M injection. This study bridges the gap between the presence of a biomarker and clinical outcomes.

Poster No. P344

Unilateral versus Bilateral Instrumentation in Transforaminal Lumbar Interbody Fusion: A Meta-Analysis
Thomas Cheriyan, New York, NY
Sonali Narang, BA, Muttontown, NY
Steven Samrock, BA, New York, NY
Bradley Y. Harris, JD, New York, NY
Jeffrey A. Goldstein, MD, New York, NY
John A. Bendo, MD, New York, NY
Frank J. Schemel, MD, New York, NY
Thomas J. Errico, MD, New York, NY

This meta-analysis shows that bilateral instrumentation in TLIF might be superior to unilateral instrumentation in respect to fusion rates. There were no differences in patient reported outcomes.

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SPINE

**Poster No. P345**
Variation in Care for Lumbar Stenosis
Olivier Van Wulfften Palthe, MD, Cambridge, MA
Christine Park, BS, Cambridge, MA
Teun Teunis, MD, Amsterdam, Netherlands
Joseph H. Schwab, MD, Boston, MA
Christopher M. Bono, MD, Boston, MA
Thomas D. Cha, MD, Boston, MA

Variation in treatment and costs in 8597 lumbar stenosis patients treated by 16 surgeons from 7 different institutes. What are predictors for higher costs and different treatments?

**Poster No. P346**
Spino-Pelvic Sagittal Imbalance Predisposes to Adjacent Segment Disease After Posterior Lumbar Interbody Fusion
Tomiya Matsumoto, MD, PhD, Sakai, Japan
Shinya Okuda, Sakai, Japan
Takafumi Maeno, MD, PhD, Sakai, Japan
Tomoya Yamashita, Osaka, Japan
Tsunoshi Sugitai, Sakai, Japan
Motoki Iwasaki, MD, MSc, Sakai, Osaka, Japan

Pre-operative lower LL and higher PI-LL might cause abnormal mechanical force adjacent to the fused segment and predispose to ASD after PLIF.

**Poster No. P347**
Hypertension Correlates Global Alignment and the Health-Related Quality of Life
Hideyuki Arima, MD, Fujinomiya, Shizuoka, Japan
Daisuke Togawa, MD, Hamamatsu, Japan
Tomohiko Hasegawa, MD, Shizuoka, Japan
Yu Yamato, MD, PhD, Hamamatsu, Japan
Sho Kobayashi, MD, Hamamatsu, Japan
Tatsuya Yasuda, MD, Hamamatsu, Japan
Tomohiro Banjo, MD, Shizuoka, Japan
Shin Oe, MD, Hamamatsu, Japan
Yukibiro Matsuyama, MD, PhD, Hamamatsu, Japan

This study showed the relationship between lifestyle-related diseases and spinopelvic parameters. The results showed that hypertension was associated with global sagittal malalignment.

**Poster No. P348**
The Differences in Clinical Outcomes of Cervical Spine Surgery Procedures in Professional Athletes
Harry Mai, BS, Manhattan Beach, CA
Robert Burgmeier, MD, Los Angeles, CA
Jason W. Savage, MD, Chicago, IL
Alpesh A. Patel, MD, River Forest, IL
Andrew C. Hecht, MD, New York, NY
Joseph C. Maroon, FACS, MD, Pittsburgh, PA
Wellington K. Hsu, MD, Chicago, IL

A comparative study of outcomes of operative management techniques in professional athletes with cervical disc herniation.

**Poster No. P349**
Outcomes and Revision Rates following Multilevel Anterior Cervical Discectomy and Fusion
Roger K. Owens II, MD, Prospect, KY
Kelly Bratcher, RN, Louisville, KY
Katlyn E. McGraw SR, BA, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY

Patients undergoing three- to four-level ACDF demonstrate substantial improvement in outcomes at two years after surgery, but have a 35% revision rate mostly for non-union.

**Poster No. P350**
A Cost-Utility Analysis of Open Versus Minimally Invasive Microdiscectomy: A Markov Model
Steven McAnany, MD, New York, NY
Diana Patterson, MD, New York, NY
Kristen Meier, MD, New York, NY
Samuel Overley, MD, New York, NY
Holt Cedler, New York, NY
Samuel K. Cho, MD, Englewood Cliffs, NJ
Andrew C. Hecht, MD, New York, NY
Sheeraz Qureshi, MD, New York, NY

At five years, there is no difference in the relative cost-effectiveness of open vs minimally invasive lumbar microdiscectomy and both are cost-effective at five years.

**Poster No. P351**
Sacral-Alar-Iliac (SAI) Fixation in Children with Neuromuscular Scoliosis: Minimum Five-Year Follow Up
Amit Jain, MD, Baltimore, MD
Anne Kiwabara, BA, Baltimore, MD
Khaled Kebaish, MD, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD

Sacral-Alar-iliac screws are safe and effective pelvic anchors for use in children with neuromuscular scoliosis undergoing spinal fusion surgery with good results over a 5-year follow-up.

**Poster No. P352**
Predicting Extended Length of Hospital Stay in an Adult Spinal Deformity Surgical Population
Eric O. Klineberg, MD, Sacramento, CA
Peter G. Passias, MD, Westbury, NY
Cyrus Jafar, BA, New York, NY
Nancy Worley, MS, New York, NY
Robert A. Hart, MD, Portland, OR
Daniel Scuibba, MD, Baltimore, MD
Douglas C. Burton, MD, Kansas City, KS
International Spine Study Group, Brighton, CO

ASD patient LOS is affected by baseline comorbidities and number of intra-operative, not peri-operative, complications. ExtLOS patients improved, albeit less than normal LOS cases, at 2-years post-op.

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*
Posters

**Poster No. P353**
Development of New Onset Cervical Deformity in Non-Operative ASD Patients With Three-Year Follow Up

Peter G. Passias, MD, Westbury, NY
Cyrus Jalai, BA, New York, NY
Nancy Worley, MS, New York, NY
Renaud Lafage, New York, NY
Virginie Lafage, PhD, New York, NY
Christopher Ames, MD, San Francisco, CA
Eric O. Klineberg, MD, Divaís, CA

International Spine Study Group, Brighton, CO

New onset CD rate in non-op ASD patients was 44.8% over 3-years follow up, and baseline C2 slope severity was associated with this. CD patients had decreased SF-36 MCS compared to aligned patients.

**Poster No. P354**
Impact of Obesity on Cost per Quality Adjusted Life Years Gained Following Lumbar Spine Surgery

John Sielatycki, MD, Nashville, TN
Silky Chotai, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
Abilan Sivaganasan, MD, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Matthew McGirt, Charlotte, NC

Lumbar surgery provided significant improvement in health state utility for obese patients. Severely obese patients (BMI ≥ 40) experience less improvement than non-obese patients.

**Poster No. P355**
2-week vs. 6-week Postoperative Restrictions Following Lumbar Discectomy: A Prospective Randomized Control Study

Dana A. Leonard, BA, Boston, MA
Andrew J. Schoenfeld, MD, Medfield, MA
Mitchel B. Harris, MD, Boston, MA
Joseph H. Schubah, MD, Boston, MA
Kirkham B. Wood, MD, Boston, MA
Thomas D. Cha, MD, Boston, MA
Christopher M. Bono, MD, Boston, MA

Continuing postoperative restrictions through 6 weeks after lumbar discectomy does not significantly decrease the rate of reherniations.

**Poster No. P356**
Does Number of Reported Drug Allergies Affect Patient-Reported Outcomes Following Lumbar Spine Surgery?

Harrison F. Kay, BS, Nashville, TN
Silky Chotai, Nashville, TN
Joseph B. Wick, BA, Nashville, TN
David Stonko, BS, MS, Nashville, TN
Anthony Asher, Charlotte, NC
Matthew McGirt, Charlotte, NC

Continuing postoperative restrictions through 6 weeks after lumbar discectomy does not significantly decrease the rate of reherniations.

**Poster No. P357**
Can Occult Infection be Demonstrated in the Setting of Pain in Patients Who Have Undergone Spinal Surgery?

Darren R. Lebl, MD, New York, NY
Tucker C. Callanan, BS, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Celeste Abjornson, PhD, New York, NY
Tucker C. Callanan, BS, New York, NY

Occult infections are more prevalent in patients requiring revision spinal surgery than previously identified.

**Poster No. P358**
Spontaneous Derotation of Lumbar Curve after Selective Thoracic Fusion in Adolescent Idiopathic Scoliosis

Satoru Demura, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Noritaka Yonezawa, Kanazawa, Japan
Naoki Takahashi, MD, Kanazawa-Shi, Japan
Hiroyuki Tsuichiya, MD, Kanazawa, Japan

A greater derotation of compensatory lumbar curve could be achieved with maximizing axial correction of the thoracic spine in AIS.

**Poster No. P359**
The Epidemiology, Economic, and Mortality of Vertebral Osteomyelitis in the US: Database Study of 283,022 Cases

Kimona Issa, MD, Little Falls, NJ
Qais Naziri, MD, Brooklyn, NY
Matthew R. Boylan, Brooklyn, NY
Michael Faloon, MD, Wayne, NJ
Sina Pourtaheri, MD, Cleveland, OH
Kumar G. Sinha, MD, Miami, FL
Ki S. Hwang, MD, New York, NY
Carl B. Paulino, MD, Brooklyn, NY
Arash Emami, MD, Wayne, NJ

The incidence of vertebral osteomyelitis has been increasing in the United States, and various factors were identified to affect the inpatient mortality rate, length-of-stay, and admission costs.

**Poster No. P350**
The Unpredictability of Primary Adult Spinal Deformity Patients Undergoing Sagittal Realignment

Jensen Henry, BA, New York, NY
Frank J. Schubah, MD, New York, NY
Michael P. Kelly, MD, Saint Louis, MO
Jeffrey Gum, MD, Crestwood, KY
Gregory M. Mundis, MD, San Diego, CA
Gregory M. Mundis, MD, San Diego, CA
Robert S. Bess, MD, Denver, CO
Virginie Lafage, PhD, New York, NY

Primary adult spinal deformity patients, especially those undergoing long fusions to the upper thoracic spine, have more unpredictable post-operative sagittal alignments than revision patients.

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Poster No. P361
CSM Surgery Complication Rates, Predictors of Their Development, and Effect on Outcomes at Two Years
Michael C. Gerling, MD, Manhattan, NY
Peter G. Passias, MD, Westbury, NY
Shaleen Vira, MD, Silver Spring, MD
Kristina Bianco, New York, NY
Nancy Worley, MS, New York, NY
Cyrus Jalali, BA, New York, NY
Cheongeun Oh, PhD, New York, NY
Alexander Vaccaro, MD, PhD, Philadelphia, PA

In the setting of CSM surgery, complications predictors, including prior cervical surgical history, and impact of surgery on patient-reported outcomes, up to 2-years post-operative, are reported.

Poster No. P362
Sagittal Spinal Alignment and Balance in Diffuse Idiopathic Skeletal Hyperostosis: A Population based Cohort Study
Ryohei Kagotani, MD, Wakayama City, Japan
Munehito Yoshida, MD, Wakayama, Japan
Shigeyuki Muraki, PhD, MD, Tokyo, Japan
Hiroyuki Oka, MD
Hiroshi Hashizume, MD, Wakayama, Japan
Hiroshi Yamada, MD, Wakayama, Japan
Shunji Tsutsui, MD, PhD, Wakayama, Japan
Toru Akune, MD, Tokyo, Japan
Noriko Yoshimura, MD, Tokyo, Japan

We investigated sagittal spinal alignment and balance in a population-based cohort and found that thoracic hyperkyphosis is a primary contributor to PSI in DISH.

Poster No. P363
Clinically Significant Psychological Problems Detected in 32% of Adolescent Idiopathic Scoliosis Patients
Stephanie Iantorno, BA, Los Angeles, CA
Austin Sanders, BA, Los Angeles, CA
Lindsay M. Andras, MD, Los Angeles, CA
Anita H. Hamilton, PhD, Los Angeles, CA
Paul D. Clous, MD, Los Angeles, CA
David L. Skaggs, MD, Los Angeles, CA

About 1 in 3 patients with AIS experience clinically significant psychological problems. Two-thirds of parents did not recognize when their child was having psychological problems.

Poster No. P364
Cervical Vertebral Body Dimension Increase with Age and Male Sex: A CT Analysis
Zakk Walterscheid, BS, Roanoke, VA
Conor O’Neill, Roanoke, VA
Jonathan J. Carmouche, MD, Roanoke, VA

CT scans of 60 patients, ages 20-78, were examined and height, width, and depths of vertebral bodies of C3-C7 were measured to determine average dimensions in age groups stratified by decade.

Poster No. P365
Super Obesity (BMI > 50kg/m2) and Complications after Posterior Lumbar Spine Fusion
Jourdan M. Cancienne, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
Scott S. Yang, MD, Charlottesville, VA
Anuj Singla, MD, Charlottesville, VA
Adam L. Shimer, MD, Charlottesville, VA
Francis H. Shen, MD, Charlottesville, VA
Hamid Hassanzadeh, MD, Charlottesville, VA

Super obese patients had significantly higher rates of post-operative complications compared to even morbidly obese patients following PSF.

Poster No. P366
Predicting Medical Complications - Are the Forecasted Risks Realistic in Daily Practice?
Maximilain Kasparek, MD, Vienna, Austria
Anna C. Rienmüller, Zürich, Switzerland
Michael Weber, Vienna, Austria
Irene Sigmund, MD, Vienna, Austria
Philipp Funovics, MD, Vienna, Austria
Petra Krepler, MD, Vienna, Austria
Reinhard Windhager, MD, Vienna, Austria
Josef G. Grohs, MD, Vienna, Austria

Predicting medical complications proves to be realistic and clinically helpful in daily routine. It assists in the preoperative decision making process and helps to not underestimate patient’s risk.

Poster No. P367
Validation of the “Substantially” Touched Vertebra as the LIV in Thoracic Major Curves with AR Lumbar Modifiers
Joshua S. Murphy, MD, Atlanta, GA
Vidyadhar V. Upasani, MD, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Carrie Bartley, MA, San Diego, CA
Amer Samdani, MD, Philadelphia, PA
Lawrence G. Lenke, MD, Saint Louis, MO
Peter O. Newton, MD, San Diego, CA

Choosing the substantially touched vertebra as the lowest instrumented vertebra in all thoracic major curves with an AR lumbar modifier signifies a significantly decreased risk of distal adding-on.

Poster No. P368
Predictive Factors for a Distal Adjacent Disorder with L3 Lowest Instrumented Vertebrae in Lenke 5C Patients
Kei Ando, MD, Nagoya, Japan

In Lenke 5C AIS patients who underwent surgery fused to L3 vertebra as LIV, preoperative L3, L4 translation and L3/4 disc angle were very important parameters.
Poster No. P369
Spinal Metastases from Differentiated Thyroid Carcinoma: Long-Term Surgical Results and Treatment Strategy
Satoshi Kato, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Katsuhito Yoshikawa, MD, Kanazawa, Japan
Noriaki Yokogawa, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Noritaka Yonezawa, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Curative resection of isolated spinal metastases from differentiated thyroid carcinomas has the potential not only to maintain performance status, but also to prolong survival.

Poster No. P370
Chronic Conditions Associated with Reoperation After Adult Lumbar Fusion Surgery
Justin Paul, MD, New York, NY
Baron Lonner, MD, New York, NY
Thomas J. Errico, MD, New York, NY
Analysis of the New York State Inpatient Database identified several chronic conditions associated with a risk for reoperation for infection or revision fusion.

Poster No. P371
Risk Factors for Incidental Durotomy During Total En Bloc Spondylectomy
Noriaki Yokogawa, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshikawa, MD, Kanazawa, Japan
Moriyuki Fujii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Noritaka Yonezawa, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
We examined the risk factors for incidental durotomy during TES. In a multivariate analysis, older age, preoperative radiotherapy, and revision surgery were significant independent risk factors.

Poster No. P372
Analysis of Actual Segmental Lordosis Obtained with Lordotic and Hyperlordotic Lateral cages- Analysis of 172 levels
Neel Anand, MD, Los Angeles, CA
Babak Khandehroo, MD, Los Angeles, CA
Zeeshan Sardar, MD, Plano, TX
Andrea Simmons, MD, Vancouver, Canada
Sheila Kabuwa, PA-C, Valencia, CA
Eli M. Baron, MD, Los Angeles, CA
This retrospective analysis shows that the amount of segmental lordosis achieved via lateral interbody fusion depends on the lordosis angle and the position of the cage in the intervertebral space.

Poster No. P373
Does C2 Dome Decompression with Preserving C2 Attached Muscles Affect ADL Disturbance and Cervical Alignment?
Futoshi Suetsuna, MD, Hachinohe City, Amori, Japan
C2 dome decompression and C3-6 (7) laminoplasty preserving C2 attached muscles did not newly affect alignment and ROM of cervical spine, neck pain and ADL disturbance compared to only laminoplasty.

Poster No. P374
Predicting Cervical Curvature Required for Horizontal Gaze; Implication for Cervical and Thoracolumbar Surgeons
Bassel Diebo, MD, New York City, NY
Shaleen Vira, MD, Silver Spring, MD
Jonathan H. Oren, MD, New York, NY
Barthelemy Liabaud, MD, New York, NY
Renaud Lafage, New York, NY
Themistocles S. Protopsaltis, MD, Closter, NJ
Thomas J. Errico, MD, New York, NY
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY
A formula to predict cervical curvature required to maintain the horizontal gaze from underlying thoracolumbar alignment was derived and validated in 1905 patient visits.

Poster No. P375
Predictive Model for Cervical Alignment Following Surgical Correction of Adult Spinal Deformity
Peter G. Passias, MD, Westbury, NY
Cheongeon Oh, PhD, New York, NY
Cyrus Jalai, BA, New York, NY
Nancy Worley, MS, New York, NY
Renaud Lafage, New York, NY
Virginie Lafage, PhD, New York, NY
Christopher Ames, MD, San Francisco, CA
International Spine Study Group, Brighton, CO
A statistical model was produced to evaluate cervical alignment after ASD correction, and identified osteotomy use and baseline cervical malalignment as predictors of poor post-op cervical alignment.

Poster No. P376
Analysis of Optimal Screw Density for the Patient with Adolescent Idiopathic Scoliosis
Kensuke Shinohara, Okayama, Japan
Yoshihisa Sugimoto, MD, Okayama, Japan
Masato Tanaka, MD, Okayama, Japan
Shinya Arataki, MD, PhD, Okayama, Japan
Tomoyuki Takigawa, MD, PhD, Okayama, Japan
Toshifumi Ozaki, MD, Okayama, Japan
Optimal screw density for correction of AIS is unknown. The purpose of this study is to analyze optimal screw density of AIS based on flexibility of spinal curve and investigate the cost of surgery.
**Poster No. P377**

**Does Transforaminal Lumbar Interbody Fusion Protect Against Early Pedicle Screw Loosening?**

David H. Kim, MD, Boston, MA  
Riya Joshi, MBBS, MPH, Boston, MA  
Gyu-Ho Lee, Boston, MA  
Kevin C. Baker, PhD, Royal Oak, MI  
Paul M. Arnold, MD, FACS, Kansas City, KS  
Daniel K. Park, MD, Bloomfield Hills, MI  
Rick C. Sasso, MD, Carmel, IN  
Jeffrey S. Fischgrund, MD, Southfield, MI

Prospective CT-based data from a randomized clinical trial of 241 patients shows TLIF associated with 50% reduction in rate of early pedicle screw loosening versus posterolateral fusion alone.

**Poster No. P378**

**Head-Sagittal Vertical Axis (hSVA) is Better Predictor of Adult Spinal Deformity Clinical Outcomes**

Yong-Chan Kim, MD, Anyangsi, Republic of Korea  
Lawrence G. Lenke, MD, Saint Louis, MO  
Jeffrey Gum, MD, Louisville, KY  
Cheol-Jung Yang, Hwaseong-Si, Gyeonggi-Do, Republic of Korea  
Kathy Blanke, RN, Saint Louis, MO

The head-SVA is a better predictor of HRQOL outcomes in adult spinal deformity patients than the C7-SVA. The head-to-ankle SVA has strong correlations with ODI and SRS domain scores.

**Poster No. P379**

**A Prospective Analysis of the Supine and Sitting Straight Leg Raise Test and its Performance in Litigation Patients**

Olukemi Fajolu, MD, Fort Lauderdale, FL  
Fabio Pencle, MBBS, Fort Lauderdale, FL  
Samuel Rosas, MD, Fort Lauderdale, FL  
Elijah Hoeben, MD, Columbus, OH  
Kingsley R. Chin, MD, Lake Worth, FL

This study assesses the equivalence of the sitting and supine straight leg raise in patients with litigation cases compared to a control group.

**Poster No. P380**

**Cost-Utility Associated with Occurrence of Complications within 90-days after Degenerative Lumbar Spine Surgery**

Harrison F. Kay, BS, Nashville, TN  
Silky Chotai, Nashville, TN  
Abilan Siruganesan, MD, Nashville, TN  
Scott L. Parker, MD, Nashville, TN  
Matthew McGirt, Charlotte, NC  
Clinton J. Devin, MD, Nashville, TN

Lumbar spine surgery provided a significant gain in health state utility regardless of complications. Cost-utility was higher in patients with complication compared to those without, $57471 to $41791.

**Poster No. P381**

**Does Age Influence the Efficacy of Demineralized Bone Matrix Enriched with Bone Marrow Aspirate in Lumbar Fusion?**

Remi Ajiboye, MD, MPH, Santa Monica, CA  
Mark A. Eckardt, BA, Los Angeles, CA  
Jason T. Hamamoto, BS, Los Angeles, CA  
Adam Khan, BS, Los Angeles, CA  
Jeffrey C. Wang, MD, Sherman Oaks, CA

Demineralized bone matrix and allograft enriched with concentrated bone marrow aspirate is associated with decreased fusion success in elderly patients undergoing posterolateral lumbar fusion.

**Poster No. P382**

**Fusion Rates in Transforaminal Lumbar Interbody Fusion: Bone Morphogenetic Protein or Mesenchymal Stem Cells?**

Samuel Overley, MD, New York, NY  
Steven McAnany, MD, New York, NY  
Muhammad A. Anwar, MBBS, New Orleans, LA  
Andrew Loy, MS, New York, NY  
Javier Guzman Tejero, MD, New York, NY  
Sheeraz Qureshi, MD, New York, NY

No difference in fusion rates, patient-reported outcomes, complications, or re-operations were observed between BMP and Mesenchymal stem cell-containing adjuncts in MI-TLIF.

**Poster No. P383**

**Substantial Clinical Benefit Threshold for SRS-22R Domains after Surgery of Adult Spinal Deformity**

Charles H. Crawford III, MD, Prospect, KY  
Steven D. Glassman, MD, Louisville, KY  
Keith H. Bridwell, MD, Saint Louis, MO  
Leah Y. Carreon, MD, Louisville, KY

In an adult spinal deformity population undergoing surgical treatment show Substantial Clinical Benefit values of 1.60 for Appearance, 0.87 for Activity, 0.69 for Subscore, and 0.94 for Total score.

**Poster No. P384**

**Does Poor Post-op SVA Really Correlate With Poor Functional Outcomes Of CMIS Correction of Adult Spinal Deformity?**

Neel Anand, MD, Los Angeles, CA  
Babak Khondebroo, MD, Los Angeles, CA  
Andrea Simmonds, MD, Vancouver, Canada  
Zeeshan Sardar, MD, Los Angeles, CA  
Sheila Kahwaty, PA-C, Valencia, CA  
Eli M. Baron, MD, Los Angeles, CA

The clinical outcomes of CMIS correction of adult spinal deformity may not be really poor for patients who could not acquire sufficient SVA value (SVA<50mm) postoperatively.
Posters

Poster No. P385
Is the SRS Membership Accurately Reporting M&M Data?: A Comparison of the SRS and NSQIP Databases
Christopher T. Martin, MD, Coralville, IA
Andrew J. Pugely, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
Branko Skovrlj, MD, New York City, NY
Nathan J. Lee, BS, New York, NY
Samuel K. Cho, MD, New York, NY
Sergio A. Mendoza-Lattes, MD, Durham, NC
We compared the incidence of complications between similar cohorts from the SRS and NSQIP databases and found few differences.

Poster No. P386
Adult Spinal Deformity: National Trends in the Treatment and Perioperative Outcomes from 2003-2010
Peter G. Passias, MD, Westbury, NY
Cyrus Jalai, BA, New York, NY
Nancy Worley, MS, New York, NY
Shaleen Vira, MD, Silver Spring, MD
Bryan J. Marascalchi, MD, New York, NY
Virginie Lafage, PhD, New York, NY
Thomas J. Errico, MD, New York, NY
ASD surgeries increased in frequency and complexity from 2003-2010, and were observed in greater frequency for patients >65. Patient morbidity increased while mortality was unchanged.

Poster No. P387
The American College of Surgeons Risk Model Poorly Predicts Outcomes after Anterior Lumbar Surgery
Adam Lukasiewicz, MSc, New Haven, CT
Andre Samuel, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Daniel D. Bohl, MD, MPH, Chicago, IL
Bryce A. Basques, MD, Chicago, IL
Jonathan N. Grauer, MD
The American College of Surgeons Universal Surgical Risk Calculator performs no better than chance in predicting complications of anterior interbody lumbar fusion.

Poster No. P388
Vancomycin Failures in High Risk Surgical Patients
Michael Van Hal, MD, Pittsburgh, PA
Dann Lauermilch, MD, Pittsburgh, PA
Chinedu Nwaisike, MD, Pittsburgh, PA
James Kang, MD, Boston, MA
Joon Y. Lee, MD, Pittsburgh, PA
Retrospective cohort at a tertiary care teaching hospital. 496 charts with diabetic or revision spine surgical patients using local vancomycin powder as prophylaxis versus a comparative cohort.

Poster No. P389
Lumbar Discography’s Impact On Return To Work Status Following Lumbar Fusion In A Workers’ Compensation Setting
Joshua T. Anderson, BS, Cleveland Heights, OH
Jay M. Levin, BA, Newport Coast, CA
Mhamad Faour, MD, Cleveland, OH
Nicholas U. Ahn, MD, Shaker Heights, OH
A retrospective cohort study that finds lumbar discography to be a negative predictor of return to work status in workers’ compensation patients undergoing lumbar fusion surgery for DDD.

Poster No. P390
The Limits of Single Level Posterior Lumbar Interbody Fusion for Lumbar Spinal Stenosis with Adult Spinal Deformity
Ryoji Yamasaki, MD, PhD, Osaka, Japan
Shinya Okuda, Sakai, Japan
The greater pre-operative coronal Cobb angle caused the worsened clinical outcomes after single level posterior lumbar interbody fusion for lumbar spinal stenosis with adult spinal deformity.

Poster No. P391
Novel Index to Quantify the Surgical Risk in Adult Spinal Deformity: 10,912 Patients from National Inpatient Sample
Bassel Diebo, MD, New York City, NY
Vincent Challier, MD, New York, NY
Bryan J. Marascalchi, MD, New York, NY
Nancy Worley, MS, New York, NY
Virginie Lafage, PhD, New York, NY
Peter G. Passias, MD, Westbury, NY
This study used the NIS to determine independent risk factors for increasing the medical and surgical complications, revisions and mortality rates following ASD surgical treatment.

Poster No. P392
Cost per Quality Adjusted Life Years Gained of Degenerative Lumbar Spine Surgery in Elderly Patients
Clinton J. Devin, MD, Nashville, TN
Silky Chotai, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Lindsay Tetreault, BS, Oakville, ON, Canada
Michael Feblings, MD, Toronto, ON, Canada
Matthew McGirt, Charlotte, NC
Lumbar decompression and fusion surgery provided a significant improvement in outcomes and gain in health state utility in elderly patients with degenerative lumbar diseases.
Poster No. P393
Increased Periostin Expression is Associated with Hypertrophy of Ligamentum Flavum in Lumbar Spinal Stenosis
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Worawat Limthongkul, MD, Bangkok, Thailand
Wicharn Yingksamrongkol, MD, Bangkok, Thailand
The elevated expression of periostin was associated with the hypertrophic ligamentum flavum, indicating that periostin could play a key role in pathogenesis in lumbar spinal stenosis patients.

Poster No. P394
The Effect of Local Intraoperative Steroid Administration on the Rate of Postoperative Dysphagia Following ACDF
Jourdan M. Cancienne, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
Scott S. Yang, MD, Charlottesville, VA
Hamid Hassanzadeh, MD, Charlottesville, VA
Anuj Singla, MD, Charlottesville, VA
Francis H. Shen, MD, Charlottesville, VA
Adam L. Shimer, MD, Charlottesville, VA
Use of local intraoperative steroid is associated with a significantly reduced rate of postoperative dysphagia and length of stay after ACDF.

Poster No. P395
Does Low Back Pain Improve After Lumbar Discectomy for Disc Herniations?
Michael H. Moghimi, MD, Houston, TX
Kempland C. Walley, BS, Boston, MA
Rishabh D. Phukan, BA, Boston, MA
Dana A. Leonard, BA, Boston, MA
Christopher M. Bono, MD, Boston, MA
Kevin J. McGuire, MD, Needham Hgts, MA
Our data provide evidence that improvement can be expected in back pain in a proportion of patients after lumbar discectomy, albeit less likely than improvement in leg pain.

Poster No. P396
Outcomes and Revision Rates in Normal, Overweight, and Obese Patients Five Years After Lumbar Fusion
Roger K. Owens II, MD, Prospect, KY
Ikemefuna Onyekwelu, MD, Louisville, KY
Mladen Djurasovic, MD, Louisville, KY
Kelly Bratcher, KN, Louisville, KY
Kathryn E. McGraw SR, BA, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY
Overweight and obese patients achieved similar improvements in outcomes and have similar rates of revision to normal patients five years after posterior instrumented lumbar fusion.

Poster No. P397
Expectations of Pain Improvement and Actual Pain Improvement: A Prospective Comparison for Lumbar Spine Surgery
Carole A. Mancuso, MD, New York, NY
M Carrington Reid, MD, PhD, New York, NY
Roland Duculan, MD, NY City, New York
Frank P. Cammisa Jr, MD, New York, NY
Andrew A. Sama, MD, New York, NY
Alexander P. Hughes, MD, New York, NY
Darren R. Lebl, MD, New York, NY
Federico P. Girardi, MD, New York, NY
Back pain is common 2 years after lumbar surgery with most patients having less pain improvement than expected preoperatively; expectations are also associated with patients’ ratings of outcome.

Poster No. P398
Vancomycin Tissue Concentrations during Posterior Spinal Fusions in Neuromuscular Scoliosis
James R. Gregory, MD, Oklahoma City, OK
June C. Smith, MPH, Saint Louis, MO
Sarah M. Broun, Saint Louis, MO
Alexis Elward, MD, MPH, Saint Louis, MO
Scott J. Lubmann, MD, Ladue, MO
Median serum vancomycin levels were above Minimum Inhibitory Concentration (MIC) up to 4 hours after incision, however median tissue levels failed to reach MIC levels at any of the time points.

Poster No. P399
The Pathoanatomy of Congenital Cervical Stenosis: The Triangle Model
Harry Mai, BS, Manhattan Beach, CA
Tyler J. Jenkins, MD, Chicago, IL
Robert Burgmeier, BS, Chicago, IL
Jason W. Savage, MD, Chicago, IL
Alpesh A. Patel, MD, River Forest, IL
Wellington K. Hsu, MD, Chicago, IL
The global changes in congenital cervical stenosis are illustrated by the triangle model and are driven by the posterior elements of the cervical spine.

Poster No. P400
Cost per Quality Adjusted Life Years Gained for Anterior Cervical Discectomy and Fusion in Elderly Population
Harrison F. Kay, BS, Nashville, TN
Silky Chotai, Nashville, TN
Joseph B. Wick, BA, Nashville, TN
David Stonko, BS, MS, Nashville, TN
Matthew McGirt, Charlotte, NC
Clintom J. Devlin, MD, Nashville, TN
ACDF provided a significant gain in health state utility in elderly patients with degenerative cervical pathology, with a mean cumulative 2-year cost per QALY gained of $75,703/QALY.
**SPORTS MEDICINE/ARTHROSCOPY**

**Poster No. P401**
Can Meniscal Geometry be Predictive of Meniscal Tears in Patients With or Without Concomitant ACL Injury?
Damon A. Greene, MD, Brooklyn, NY
Robert Pivec, MD, Brooklyn, NY
Bhaveen H. Kapadia, MD, Baltimore, MD
Preston W. Greico, MD, Brooklyn, NY
Qais Naziri, MD, Brooklyn, NY
Alexander H. Tejani, MD, Brooklyn, NY
William P. Urban, MD, Belle Harbor, NY

This study demonstrates that meniscal cross-sectional area may play a role in the natural history of knee injury.

**Poster No. P402**
All-Inside vs. Inside-Out Meniscal Repair with Concurrent ACL Reconstruction: A Meta-Regression Analysis
Robert W. Westermann, MD, Iowa City, IA
Kyle Duchman, MD, Iowa City, IA
Natalie A. Glass, PhD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA

A systematic review and meta-regression analysis identified inside-out meniscal repairs may have fewer clinical failures than all-inside repairs when performed concurrently with ACLR.

**Poster No. P403**
The Effects of Anterior Cruciate Ligament Deficiency on the Meniscus and Articular Cartilage: A Novel Model
Justin W. Arner, MD, Pittsburgh, PA
Liying Zheng, PhD, Pittsburgh, PA
Tom Gale, MS, Pittsburgh, PA
James Irvine, MD, Pittsburgh, PA
Eric Thorhauer, Pittsburgh, PA
Ermias Abebe, MD, Pittsburgh, PA
Scott Taslman, PhD, Pittsburgh, PA
Xudong Zhang, Pittsburgh, PA
Christopher D. Harner, MD, Houston, TX

With ACL-deficiency, cartilage contact location translates more posteriorly than meniscal translation, lateral more than medial and vertical meniscal deformation increases.

**Poster No. P404**
A Biomechanical and In Vivo Evaluation of A Novel Cryopreserved Viable Meniscal Allograft
Thomas R. Carter, MD, Phoenix, AZ
S. Michael Sinclair, PhD, Columbia, MD
Jun-Qiang Kuang, MD, Columbia, MD
Sandra Geraghty, PhD, Columbia, MD
C.T. Vangsness Jr, MD, Los Angeles, CA
Alla Danilkovitch, PhD, Columbia, MD

Implantation of a cryopreserved viable meniscal allograft after partial meniscectomy reduced contact pressures in cadaveric knees and integrated with host meniscus in sheep.

**Poster No. P405**
Cartilage Changes after Subtotal Lateral Meniscectomy and the Effect of Meniscal Transplantation on Radiographs
Seongil Bin, MD, PhD, Seoul, Republic of Korea
Jongmin Kim, MD, Seoul, Republic of Korea
Bum-Sik Lee, MD, Incheon, Republic of Korea

At the time of subtotal/total lateral meniscectomy, patients had substantial articular cartilage degeneration which progressed thereafter. Radiographic arthritic changes were delayed after Lateral MAT.

**Poster No. P406**
Body Mass Index Predicts Anatomic Locations of Nearby Neurovascular Bundles in Meniscus Repairs
Jonathan Yin, MD, Milton, MA
Vincent M. Moretti, MD, Chicago, IL
Samuel J. Chmell, MD, Riverside, IL

In an anatomic study using axial knee MRIs, patient BMI is found to be highly correlated with the distances of the peroneal nerve to the suture tracks used in meniscus repairs.

**Poster No. P407**
Arthroscopic Meniscal Allograft Transplantation without Bone Plugs: Survival Analysis of 147 Patients
Stefano Zaffagnini, MD, Bologna, Italy
Alberto Grassi, MD, Bologna, Italy
Giulio Maria Marchegiani Muccioli, MD, Bologna, Italy
Francesco Iacono, MD, Bologna, Italy
Maria Pia Neri, MD, Bologna, Italy
Tommaso Bonanzinga, MD, Bologna, Italy
Maurilio Marcacci, MD, Bologna, Italy

Arthroscopic transplantation of a fresh-frozen meniscal allograft without bone plugs can significantly relieve pain and improve function of the knee joint in 80% of patients at six years.

**Poster No. P408**
Autologous Chondrocyte Implantation in the Military: Increased Surgical Failure with Prior Marrow Stimulation
Nicholas Zarkadis, DO, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
E‘Stephan J. Garcia, MD, West Point, NY
Brian R. Waterman, MD, El Paso, TX

Tobacco use, junior enlisted, and patients with previous marrow stimulation technique procedures were more likely to fail after undergoing ACI for a focal chondral lesion of the knee.

**Poster No. P409**
Influence of Donor Age and Graft Storage Duration on Outcomes of Osteochondral Allografting of the Knee
Clayton W. Nuelle, MD, Columbia, MO
Julia Vetter Nuelle, MD, Columbia, MO
James L. Cook, DVM, PhD, Columbia, MO
James P. Stannard, MD, Columbia, MO

This study correlates final patient clinical outcomes to fresh osteochondral allograft donor chronological age and graft storage duration.
Poster No. P410
Focal Articular Surface Replacement for Femoral Lesions: Results at Five Years
Turlough O’Donnell, MD, Dublin 14, Ireland
Focal Articular Surface Replacement is a successful alternative to biological regeneration for the treatment of focal articular lesions of the knee

Poster No. P411
Cell-Free Biomimetic Osteochondral Scaffold: A Pilot Prospective Clinical Study at 96 Months of Follow Up
Elizaveta Kon, MD, Italy, Italy
Giuseppe Filardo, MD, Bologna, Italy
Stefano Zaffagnini, MD, Bologna, Italy
Francesco Tentoni, Bologna, Italy
Luca Andriolo, MD, Bologna, Italy
Berardo Di Matteo, Med Student, Bologna, Italy
Maurilio Marcacci, MD, Bologna, Italy
This one-step surgery is an effective procedure for chondral and osteochondral lesions of the knee, showing satisfactory and stable outcomes over mid-term of follow-up

Poster No. P412
Matrix-Assisted Autologous Chondrocyte Transplantation Versus Mosaicplasty: A Long-Term Comparison
Elizaveta Kon, MD, Italy, Italy
Giuseppe Filardo, MD, Bologna, Italy
Alessandro Di Martino, MD, Bologna, Italy
Francesco Perdina, MD, Bologna, Italy
Luca Andriolo, MD, Bologna, Italy
Francesca De Caro, Parma, Italy
Maurilio Marcacci, MD, Bologna, Italy
This study showed that both ACI and MP are suitable surgical options for knee articular defects, with significant improvement up to long-term follow-up.

Poster No. P413
Methylparaben Preservative in Multi-dose Vials of Local Anesthetics Negatively Affects Cartilage Health
Grigory Gershkovich, MD, Philadelphia, PA
Dillon Arango, MD, Philadelphia, PA
Katharine T. Criner, MD, Bryn Mau, PA
Solomon Samuel, Philadelphia, PA
Local anesthetics contain the preservative methylparaben. This chemical negatively affects cartilage and tendon health. It is beneficial to avoid these medications to minimize negative outcomes.

Poster No. P414
Return to Active Duty After Autologous Chondrocyte Implantation for Knee Cartilage Defects in US Marines
Michael A. Kuhn, MD, Cape Carteret, NC
Kevin Wilson, MD, Emerald Isle, NC
In the largest series among US service members, ACI was shown to reduce pain and allow a return to duty in 72% of patients treated.

Poster No. P415
Valgus Extension Overload Syndrome of the Elbow in Baseball Players: Who Returns to Play Earlier?
Jin-Young Park, MD, Seoul, Republic of Korea
Jang Eun Kim, MD, Seoul, Republic of Korea
Arthroscopic treatment of VEOS can lead to good clinical results and a high rate of return to sports. The recovery period was 3.8 months; professional players exhibited faster returns to sport.

Poster No. P416
The Moving Valgus Stress Test Produces More Strain at the Ulnar Collateral Ligament: A Biomechanical Study
Michael D. Wighton, MD, Winston-Salem, NC
Mark Carl Miller, PhD, Pittsburgh, PA
Patrick Schimoler, Pittsburgh, PA
Alexander Kharlamov, MD, PhD, Pittsburgh, PA
Darren Frank, MD, Pittsburgh, PA
Sam Akhavan, MD, Pittsburgh, PA
Patrick J. DeMeeo, MD, Sewickley, PA
A cadaveric biomechanical study compared the moving valgus stress test to static valgus stress, finding more strain of the ulnar collateral ligament within the shear zone during the moving test.

Poster No. P417
Media Perceptions of Tommy John Surgery
Stan A. Conte, PT, DPT, San Carlos, CA
Justin L. Hodgins, MD, Toronto, ON, Canada
Nancy Patterson-Flynn, MS, ATC, Clinton, NY
Christopher S. Ahmad, MD, New York, NY
Common misconceptions exist regarding UCL reconstruction within the professional baseball media and efforts for physicians to educate the media on overuse throwing injuries are encouraged.

Poster No. P418
Elbow Valgus Laxity after Ulnar Collateral Ligament Reconstruction in Competitive Athletes
Teruhisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Yasuo Itami, MD, Ibaraki, Osaka, Japan
Masashi Neo, Takatsuki, Japan
Elbow valgus laxity restored to the intact level after UCLR. The restored elbow valgus stability after UCLR has been kept until return to sports.

Poster No. P419
Elbow Arthroscopy for the Treatment of Rheumatoid Arthritis: Functional Outcomes and Complications
Peter L. Kok, MD, Rochester, MN
Ian J. Barrett, MD, Rochester, MN
George F. Bonadurer III, BS, Rochester, MN
Julie E. Adams, MD, Hixson, TN
Scott P. Steinmann, MD, Rochester, MN
Elbow arthroscopy for rheumatoid arthritis improves range of motion and function there but 40% of patients suffer a complication and 33% of patients require repeat surgery.arthritis.
Poster No. P420
The Cost-Effectiveness of Anterior Cruciate Ligament Reconstruction in Competitive Athletes
Bruce A. Stewart, MD, Holland, MI
Amit Momaya, MD, Homewood, AL
Marc D. Silverstein, MD, Mashpee, MA
David M. Lintner, MD, Houston, TX
ACL reconstruction has high success rates but studies indicate that many patients may do well with nonsurgical treatment. Our cost analysis shows that ACL reconstruction is a cost-effective strategy.

Poster No. P421
Comparison of Outcomes and Graft Healing Between Outside-In and Transportal Techniques in ACL Reconstruction
Jaeeang Sim, MD, Incheon, Republic of Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Jeollanam-Do, Republic of Korea
The acute graft bending angle at the femoral tunnel in ACL reconstruction using outside-in technique did not give any adverse effect on graft healing or failure in the clinical study.

Poster No. P422
ACL Reconstruction: Is There a Difference in Graft Motion for Bone-Tendon-Bone and Hamstring Autograft?
Justin W. Arner, MD, Pittsburgh, PA
Eric Thorhauer, Pittsburgh, PA
James Irvine, MD, Pittsburgh, PA
Ermias Abebe, MD, Pittsburgh, PA
Verena M. Schreiber, MD, Pittsburgh, PA
Jennifer L. D'Auria, MD, Pittsburgh, PA
Scott Tashman, PhD, Pittsburgh, PA
Christopher D. Harner, MD, Houston, TX
During walking and stair descent, there was no difference between BTB or hamstring grafts in femoral or tibial tunnel motion at 6 weeks or 1 year.

Poster No. P423
High Hip Abductor Muscle Strength is Risk Factor for Non-Contact ACL Injury in Female High School Athletes
Junsuke Nakase, MD, Kanazawa, Japan
Katsubiko Kitaoka, MD, Kanazawa, Japan
Yosuke Shima, PhD, MD, Kanazawa City, Japan
Hitoaki Numata, MD, Ishikawa, Japan
Takeshi Oshima, Kanazawa-City, Japan
Yasushi Takata, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
We performed prospective 3-year cohort study assessed to determine risk factors for non-contact ACL injury. The high hip abductor muscle power was identified as risk factor for non-contact ACL injury.

Poster No. P424
Improving Diagnostic Accuracy in Detecting Anterior Cruciate Ligament Rupture
Alessandro Lelli, MD, Bologna, Italy
Rita Paola Di Turi, Bologna, Italy
Marcello Domini, MD, Bologna, Italy
Francesco Pegreff, MD, PhD, Bologna, Italy
The purpose of this prospective study is to measure the sensitivity of a new test, the Lever Test, comparing the test outcomes with MRI findings.

Poster No. P425
Analysis of 2,019 ACL Reconstruction Revisions from a Community-Based Registry
Afshin Arianjam, MD, Irvine, CA
Maria C. Inacio, PhD, Adelaide, Australia
Tadashi T. Funahashi, MD, Irvine, CA
Gregory B. Maletis, MD, Baldwin Park, CA
Large community based ACLRR are useful in informing surgeons of current treatment practices and show that revision ACLR can be performed successfully with a low revision rate and few complications.

Poster No. P426
Liposomal Bupivacaine Versus Femoral Nerve Block in Managing Pain After Anterior Cruciate Ligament Reconstruction
Kelechi Okoroha, MD, Northville, MI
Robert A. Keller, MD, Detroit, MI
Edward Jung, MD, Berkley, MI
Nima Mehran, MD, Pacific Palisades, CA
Eric T. Owashi, MD, Detroit, MI
Vasilios Moutzouros, MD, Northville, MI
Following a randomized clinical trial we found Liposomal Bupivacaine is at least as effective as FNB and can be used as a primary method to manage pain control post-ACL reconstruction.

Poster No. P427
Adding an Extra-Articular Tenodesis to Intra-Articular ACL Reconstruction Results in Higher Infection Rate
Domenico Lupariello, Roma, Italy
Priscilla Di Sette, Rome, Italy
Angelo De Carli, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy
Adding lateral tenodesis to arthroscopic assisted intra-articular ACL reconstruction with hamstrings results in statistically higher rate of infection as compared with intra-articular procedure alone
SPORTS MEDICINE/ARTHROSCOPY

Poster No. P428
Knee Stability Provided by Anterolateral Structures
Daniel Guenther, MD, Pittsburgh, PA
Amir Ata Rahnemai Azar, MD, Pittsburgh, PA
Kevin M. Bell, MS, Pittsburgh, PA
Sebastian Irarrazaval, Santiago, Chile
Freddie H. Fu, MD, Pittsburgh, PA
Volker Musahl, MD, Pittsburgh, PA
Richard E. Debski, PhD, Pittsburgh, PA
At low flexion angles in the ACL deficient knee, the anterolateral capsule is a primary restraint to anterior tibial load. LCL and anterolateral capsule are restraints to internal tibial torque.

Poster No. P429
The Prevalence of Hip Abnormalities Associated with FAI in Asymptomatic Asian Volunteers - Is It Really Low?
Pil Whan Yoon, MD, Seoul, Republic of Korea
Taesoo Ahn, MD, Seoul, Republic of Korea
Mi Yeon Jeong, Seoul, Republic of Korea
Kang Sup Yoon, MD, Seoul, Republic of Korea
Hee J. Kim, MD, Seoul, Republic of Korea
Jae Suk Chang, MD, PhD, Seoul, Republic of Korea
The prevalence of FAI features in asymptomatic Korean volunteers is high, so it is also important to determine whether FAI is a cause of hip pain when considering surgery in Asian patients.

Poster No. P430
Anterior Cruciate Ligament Graft Metabolic Activity Assessed by PET-MRI
Robert A. Magnussen, MD, Columbus, OH
Katherine Binzel, PhD, Columbus, OH
Jun Zhang, PhD, Columbus, OH
WENBO WEI, PhD, Columbus, OH
David C. Flanigan, MD, Columbus, OH
Timothy E. Hewett, PhD, Columbus, OH
Christopher C. Kaeding, MD, Powell, OH
Michael V. Knopp, MD, PhD, Columbus, OH
Significantly lower PET signal was noted in ACL grafts that had been in place for greater than 24 months compared to grafts in place for shorter periods of time (p < 0.02).

Poster No. P431
Synovialization and Clinical Outcomes after Stem Cell Implantation for Anterior Cruciate Ligament Reconstruction
Dong Beom Heo, MD, Seoul, Republic of Korea
Dae Hyun Tak, MD, Seoul, Republic of Korea
Yun-Jin Choi, Seoul, Republic of Korea
Dong Suk Lee, Seoul, Republic of Korea
Oh-Ryong Kwon, MD, Seoul, Republic of Korea
Yong-Gon Koh, Seoul, Republic of Korea
Second-look arthroscopic synovialization and clinical outcomes after mesenchymal stem cell implantation for anterior cruciate ligament reconstruction

Poster No. P432
Altered Tibiofemoral Kinematics After Anterior Cruciate Ligament Injury Lead to Early Cartilage Matrix Changes
Keiko Amano, MD, San Francisco, CA
Valentina Pedaio, PhD, San Francisco, CA
Drew Lansdown, MD, San Francisco, CA
Favian Su, BS, Milpitas, CA
Musa Zaid, MD, Palo Alto, CA
Richard Souza, ATC, PhD, San Francisco, CA
Xiaojuan Li, PhD, San Francisco, CA
ChunBong B. Ma, MD, San Francisco, CA
Quantitative MRI can be used to measure subtle changes in kinematics and cartilage matrix after ACL reconstruction, years before the onset of post-traumatic osteoarthritis.

Poster No. P433
ACL Outcome Measures: A Comparison Between Preinjury, Preoperative Post-injury, and 2 Years Postoperative Scores
Ayman Gabr, MBBCh, MRCS, London, United Kingdom
Mohsin Khan, Essex, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom
The aim of this study was to compare the pre-injury functional scores with the post-injury preoperative score and postoperative outcome scores following ACL reconstruction.

Poster No. P434
Increased Risk of Second Anterior Cruciate Ligament Injury for Female Soccer Players
Melissa M. Allen, MD, Rochester, MN
Alexander H. King, BS, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
Diane L. Dahn, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Female soccer players treated with ACL reconstruction had an increased rate of both graft retear and contralateral ACL injury, compared to a similar group of non-soccer female athletes.

Poster No. P435
A Randomized Controlled Trial with 16-Year Follow Up After Anterior Cruciate Ligament Reconstruction
Kristian Samuelsson, MD, PhD, MSc, Molndal, Sweden
Haukur Bjornsson, MD, Reykjavik, Iceland
David Sundemo, MD, Gothenburg, Sweden
Neel Desai, Molndal, Sweden
Ninni Sernert, RPT, Trollhattan, Sweden
Juri Kartus, MD, Trollhattan, Sweden
Only minor and mostly insignificant differences were found between the patellar and hamstrings tendon autograft groups in this true long term randomized controlled trial on ACL reconstruction.
Poster No. P436
Short Semi-tendinosis ACL Reconstruction And Return To Sport. Experience Of A Non-inventor Team.
Jean-Yves Jenny, MD, Illkirch, France
A short graft with only one hamstring tendon may be an attractive alternative to conventional transplant using two hamstring tendons for ACL reconstruction.

Poster No. P437
◆ Can We Prevent Muscle Atrophy after ACL Tears? A Novel Biological Approach
Caroline Wolfe, MD, Ann Arbor, MI
Jonathan P. Gumucio, BS, Ann Arbor, MI
Jeremy Grekin III, MS, Ann Arbor, MI
Roger K. Khouri, Ann Arbor, MI
Stuart M. Roche, BS, Ann Arbor, MI
Asheesh Bedi, MD, Ann Arbor, MI
Christopher L. Mendias, PhD, ATC, Ann Arbor, MI
In a preclinical rat model, targeted inhibition of myostatin protected leg muscles from muscle atrophy and improved force production after ACL tear.

Poster No. P438
Knee Hyperextension as a Predictor of Failure in Revision ACL Reconstruction: A Prospective Cohort Study
Daniel E. Cooper, MD, Dallas, TX
Warren Dunn, MD, MPH, Madison, WI
Rick W. Wright, MD, Saint Louis, MO
Amanda Haas, MA, Waterloo, IL
Laura J. Huston, MS, Nashville, TN
This is the first study to investigate and confirm knee physiologic hyperextension as a risk factor (over 2X odds ratio) of graft rupture in a large prospectively studied revision ACL surgery cohort.

Poster No. P439
Periarticular Injection Versus Femoral Nerve Block for Pain Control After ACL Reconstruction
Kenji Kurosaka, MD, Nishinomiya Hyogo, Japan
Hiroshi Nakayama, MD, Nishinomiya, Japan
Kaori Kashiwa, MD, Hyogo, Japan
Tomoya Iseki, Hyogo, Japan
Ryo Kanto, MD, Hyogo, Japan
Shinichi Yoshiba, MD, Nishinomiya, Hyogo, Japan
Periarticular multimodal drug injection was safe and signficantly more effective than femoral nerve block as a pain control measure following double-bundle hamstring ACL reconstruction.

Poster No. P440
The Effect of Hamstring Autograft Diameter on Likelihood for Revision of Anterior Cruciate Ligament Reconstruction
Lindsey M. Spragg, MD, Manhattan Beach, CA
Jason Chen, MA, San Diego, CA
Raffy Mirzayan, MD, Baldwin Park, CA
Rebecca Loiz, BSN, RN, San Diego, CA
Gregory B. Maletis, MD, Baldwin Park, CA
In this case-control study, the likelihood of a patient being a case (i.e revision of primary ACL Reconstruction) was 0.82 times lower for every 0.5mm increase in graft diameter from 7.0mm to 9.0mm.

Poster No. P441
Donor Age Does Not Effect Clinical Outcomes of Allograft Anterior Cruciate Ligament Reconstruction
COL Edward D. Arrington, MD, University Place, WA
Jason A. Grassbaugh, MD, Tacoma, WA
Josef K. Eichinger, MD, Gig Harbor, WA
Joseph W. Galvin, DO, Dupont, WA
Joseph H. Dannenbaum IV, MD, Spokane, WA
Betsey K. Bean, DO, Dupont, WA
Bryant Marchant, MD, DuPont, WA
Reconstruction of the ACL can utilize a variety of allograft tissues. There was no difference in donor age or clinical outcomes between the allograft ACL treatment groups.

Poster No. P442
Increased Risk of ACLR Revision with Soft Tissue Allograft: Time and Graft Processing Make a Difference
Gregory B. Maletis, MD, Baldwin Park, CA
Jason Chen, MA, San Diego, CA
Maria C. Inciac, PhD, Adelaide, Australia
Rebecca Loiz, BSN, RN, San Diego, CA
Tadashi T. Funahashi, MD, Irvine, CA
Soft tissue allografts are at increased risk of revision compared to autografts which is both time and graft processing dependent.

Poster No. P443
ACL Reconstructed Patients Have Persistent Hip Strength and Functional Deficits After Return-to-Play
Jeremy M. Burnham, MD, Lexington, KY
Michael C. Yonz, MD, Lexington, KY
Darren L. Johnson, MD, Lexington, KY
Mary L. Ireland, MD, Lexington, KY
Brian Noehren, PT, PhD, Lexington, KY
ACL reconstructed patients had hip strength, step down test, and hop test deficits, even after being cleared to return to sports.

Poster No. P444
Tibial Tunnel Location in Posterior Cruciate Ligament Reconstruction on Three-dimensional Computed Tomography
Yun-Liang Chang, MD, Taipei, Taiwan
Jyh-Horng Wang, MD, PhD, Taipei, Taiwan
We compared two different methods for tibial tunnel drilling in PCL reconstruction. Post-op 3DCT was used for analysis of tibial tunnel location. Significant differences were found between the two groups.

Poster No. P445
Intervention for Arthrofrosis after Anterior Cruciate Ligament Reconstruction: Trends over Two Decades
Thomas L. Sanders, MD, Rochester, MN
Andrew J. Bryan, MD, Rochester, MN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Walter K. Kremers, PhD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Arthrofrosis is a rare complication after ACL reconstruction and occurs in roughly 2% of patients.
**SPORTS MEDICINE/ARTHROSCOPY**

**Poster No. P446**
Predictors of Revision Surgery Following Anterior Cruciate Ligament Reconstruction
William M. Pullen, MD, Portsmouth, VA
Brandon J. Bryant, MD, Chesapeake, VA
Amber Evans, Trevose, PA
Nicholas Sicignano, Trevose, PA
Marlene DeMaio, MD, Huntington, WV
Trevor R. Gaskill, MD, Portsmouth, VA

In a large cohort study, the overall revision rate following ACL reconstruction was 3.6% with increased risk of revision associated with age younger than 35 years and use of NSAIDs and COX2 inhibitors.

**Poster No. P447**
Performance Outcomes After Metacarpal Fractures in National Basketball Association Players
Michael S. Guss, MD, New York, NY
John Begly, MD, New York, NY
Austin Ramme, MD, PhD, New York, NY
Richard M. Hinds, MD, New York, NY
Raj Karia, MPH, New York, NY
John T. Capo, MD, Jersey City, NJ

NBA players sustaining metacarpal fractures can reasonably expect to return to their pre-injury performance levels following appropriate treatment.

**Poster No. P448**
Landmarks of the Graft Placement in the Anatomical Reconstruction of the Lateral Ankle Ligaments
Satoru Ozeki, MD, Koshigaya, Japan
Yuki Tochigi, MD, PhD, Koshigaya, Japan
Yoko Masuda, MD, Saitama Koshigaya City, Japan
Masataka Kakibana, MD, Koshigoya, Japan

The ideal reconstructive site for ATFL and CFL in the lateral malleolus should be the tip of the facet joint. This point is in the anterior site of the lateral malleolus.

**Poster No. P449**
Posterior Ankle Pain Originating from Sural Nerve Lateral Calcaneal Branch
Young Yi, MD, Seoul, Republic of Korea
Jae Young Kim, MD, Seoul, Republic of Korea
Je-Beom Kim, Seoul, Republic of Korea
Woo Chun Lee, Seoul, Republic of Korea

The lesions of lateral calcaneal branch of the sural nerve should be considered as a clinical entity since this can result in a painful posterior ankle.

**Poster No. P450**
Comparison of Outcomes of Hip Arthroscopy in Patients with Tönnis Grade 0, 1, and 2
Sivashankar Chandrasekaran, Denham Court, Australia
Nader Darwish, BS, Westmont, IL
Carlos E. Suarez, MD, Mexico City, Mexico
Parth Lodhia, MD, Westmont, IL
Benjamin G. Domb, MD, Oak Brook, IL

We conducted a matched pair analysis with minimum two year follow-up to evaluate the outcomes of hip arthroscopy in patients with Tönnis grade 2 OA with matched control groups of Tönnis 0 and 1.

**Poster No. P451**
Preoperative DGERMIC Scores are Predictive of Magnitude of Improvement of Patients Undergoing Hip Arthroscopy
Sivashankar Chandrasekaran, Denham Court, Australia
S Pavan Vemula, Naperville, IL
Dror Lindner, MD, Hinsdale, IL
Parth Lodhia, MD, Westmont, IL
Carlos E. Suarez, MD, Mexico City, Mexico
Benjamin G. Domb, MD, Oak Brook, IL

This study aims to determine whether dGEMRIC indices are predictive of two-year patient reported outcomes (PRO) and pain scores in hip arthroscopy.

**Poster No. P452**
Clinical Outcomes of Hip Arthroscopy: A Prospective Survival Analysis of Primary and Revision Surgeries
Parth Lodhia, MD, Westmont, IL
Chengcheng Gui, BS, Westmont, IL
Mark R. Hutchinson, MD, Elmhurst, IL
Shane J. Nho, MD, Chicago, IL
Michael A. Terry, MD, Chicago, IL
Benjamin G. Domb, MD, Oak Brook, IL

These are the clinical outcomes of surgery in a high volume hip arthroscopy referral surgery center. We have follow-up greater than 2 years, for over a thousand cases.

**Poster No. P453**
Labral Repair and Treatment of Impingement in Borderline Dysplastic Patients with Femoroacetabular Impingement
Kiyokazu Fukui, MD, Kaboku-gun, Japan
Karen K. Briggs, MPH, Vail, CO
Christiano Trindade, MD, Vail, CO
Marc J. Philipson, MD, Vail, CO

Our 2-year outcomes showed treatment using modern arthroscopic technique for intra-articular hip pathology allowed patients with borderline dysplasia and symptomatic hips to improve their function.

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*
**Poster No. P454**

Hip Arthroscopy Failure in the Setting of Acetabular Dysplasia: A Concerning Trend?

Tonya W. An, BS, Saint Louis, MO  
Jacob Haynes, MD, Saint Louis, MO  
Jeffrey Nepple, MD, Saint Louis, MO  
ANCHOR Group, Saint Louis, MO  
John C. Clohisy, MD, Saint Louis, MO

The incidence of failed hip arthroscopy in patients with acetabular dysplasia requiring PAO has doubled from 2009 to 2014. This shows a need for refined arthroscopy indications in dysplastic patients.

**Poster No. P455**

Combined MPFL Reconstruction and Tibial Tubercle Osteotomy: A Retrospective Comparative Analysis

Christopher J. Hadley, BS, Barnegat, NJ  
Fotios P. Tjoumakaris, MD, Ocean View, NJ  
Brandon Eck, DO, Egg Harbor Township, NJ  
Nicholas J. Lombardi, BS, Egg Harbor Township, NJ  
Matthew D. Pepe, MD, Linwood, NJ  
Luke S. Austin, MD, Linwood, NJ  
Robert W. Frederick, MD, Villanova, PA  
Bradford S. Tucker, MD, Ocean City, NJ

MPFL reconstruction combined with tibial tubercle transfer has a high rate of success for patients presenting with patellar instability and extensor mechanism mal-alignment.

**Poster No. P456**

A Safe Surgical Technique Performed For Thoracic Outlet Syndrome In Athletes

Kozo Furushima, MD, PhD, Tatebayashi, Gunma, Japan  
Ryuji Koga, MD, Tatebayashi, Japan  
Yasuhiro Mitsui, Kurume, Japan  
Yoshiyasu Itoh, MD, Tatebayashi, Japan

The objective of this study was to report first-rib resection with the combined use of an endoscope in 124 athletes with TOS. 88.7% were able to return to their original sports activities.

**Poster No. P457**

Four Chemical Agents for Pain: Are They Cytotoxic for Osteoarthritic Human Chondrocytes?

Christopher Cooke, MD, Troy, MI  
Nancy M. Jackson, Southfield, MI  
Patrick Keating, BS, Warren, MI  
Jeffrey Flynn, Southfield, MI  
David C. Markel, MD, Southfield, MI  
Stephen E. Lemos, MD, PhD, Warren, MI

Chondrotoxicity of Bupivacaine, Toradol, Duramorph, and Acetaminophen are measured and compared in an osteoarthritic environment.

**Poster No. P458**

Do Patient Populations from High Quality Prospective Sports and Shoulder Studies and National Databases Differ?

Gregory L. Cvetanovich, MD, Chicago, IL  
Daniel D. Bohl, MD, MPH, Chicago, IL  
Peter N. Chalmers, MD, Chicago, IL  
Anthony A. Romeo, MD, Chicago, IL  
Brian J. Cole, MD, MBA, Chicago, IL  
Bernard R. Bach Jr, MD, River Forest, IL

There were significant differences in patient age, gender, and BMI between patients included in major sports medicine and shoulder clinical studies and a nationwide database.

**Poster No. P459**

Return to Play Protocols in Youth Sports: Are There Guidelines for Coaches?

Kathryn D. Dwight, BS, Philadelphia, PA  
Sommer Hammoud, MD, Philadelphia, PA  
Katherine M. Bagnato, OTC, ATC, Egg Harbor Township, NJ  
John L. Moyer JR, ATC, Wyomissing, PA  
Michael G. Ciccotti, MD, Philadelphia, PA  
Kevin B. Freedman, MD, Bryn Mawr, PA

This study is aimed at analyzing the current system for determining return to play after any injury within youth soccer clubs.

**Poster No. P460**

Medial Opening Wedge High Tibial Osteotomy: A Retrospective Review of Patient Outcomes over 10 Years

Fotios P. Tjoumakaris, MD, Ocean View, NJ  
Nicholas J. Lombardi, BS, Egg Harbor Township, NJ  
Bradford S. Tucker, MD, Ocean City, NJ  
Matthew D. Pepe, MD, Linwood, NJ

Following high tibial osteotomy, a majority of patients reported positive outcomes and few complications. In our analysis, obese patients fared equally as well as their non-obese counterparts.

**Poster No. P461**

Second-Look Arthroscopic Findings after Periacetabular Osteotomy in Patients with Hip Dysplasia

Norihito Watanabe, MD, Fukuoka, Japan  
Masatoshi Naito, MD, Fukuoka, Japan  
Kouichi Kinoshita, MD, Fukuoka, Japan  
So Minokawa, MD, Fukuoka-Ken, Japan  
Hajime Seo, MD, Fukuoka, Japan  
Tomohiko Minamikawa, MD, Fukuoka-Ken, Japan  
Tetsuro Ishimatsu, Fukuoka, Japan  
Satoshi Ishii, MD, Fukuoka, Japan  
Ayumi Matsunaga, MD, Fukuoka-Ken, Japan

Thirty-six hips underwent second-look arthroscopy after primary surgery consisting of arthroscopy and PAO. Upon the second-look arthroscopy, we did not find any substantial changes in labral tears.
Poster No. P462
Radiostereometric Evaluation of Tendon Elongation after Distal Biceps Repair
Nathan E. Marshall, MD, Detroit, MI
Robert A. Keller, MD, Detroit, MI
John M. Guest, Grosse Pointe Woods, MI
Vasilios Moutzouros, MD, Northville, MI
Radiostereometric evaluation of distal biceps tendon repair was performed to evaluate for tendon elongation at different healing stages, showing significant tendon lengthening after surgery.

Poster No. P463
Hip Arthroscopy Outcomes with Respect to Minimal Clinically Important Difference (MCID): A Systematic Review
David M. Levy, MD, Chicago, IL
Benjamin Kubns, Chicago, IL
Jaskarndip Chahal, MD, Mississauga, ON, Canada
Marc J. Philippon, MD, Vail, CO
Bryan T. Kelly, MD, New York, NY
Shane J. Nho, MD, Chicago, IL
This systematic review of 9,317 hip arthroscopies reveals statistically and clinically significant improvements in over 90% of studies, as measured by minimal clinically important difference (MCID).

Poster No. P464
Comparison of Reconstructive Methods for Shoulder Instability with Glenoid Bone Loss - Latarjet vs. Bristow
Sang-hoon Lhee, Seoul, Republic of Korea
Do Young Lee, MD, PhD, Seoul, Republic of Korea
Yoon Gi Kim, MD, Seoul, Republic of Korea
Bristow and Latarjet procedure are good treatment options for recurrent shoulder dislocation with severe glenoid defect. Bristow group showed better external rotation compared to Latarjet group.

Poster No. P465
Bennett Lesions in Baseball Players: Identification and Evaluation Using Magnetic Resonance Imaging
Youngmin Noh, MD, Seoul, Republic of Korea
The length of time that the patient had played baseball, and the size of the glenoid versions seem to be smaller in those found with Bennett lesions.

Poster No. P466
Anterior Bone Block Augmentation for Complex Anterior Shoulder Instability in a Military Population
Brian R. Waterman, MD, El Paso, TX
Philip Chandler, MD, El Paso, TX
CDR (ret) Matthew T. Provencher, MD, Boston, MA
John M. Tokish, MD, Simpsonville, SC
Mark P. Pallis, DO, El Paso, TX
Servicemembers undergoing open bone block glenoid augmentation for recurrent anterior shoulder instability can successfully return to military duty at short-term follow-up.

Poster No. P467
Trends in the National Utilization of Latarjet versus Bankart Repair: Analysis of 26,573 Patients
Rachel M. Frank, MD, Chicago, IL
Samuel Rosas, MD, Fort Lauderdale, FL
Tsun Yee Lau, MD, Fort Lauderdale, FL
Alexander Weber, MD, Ann Arbor, MI
CDR (ret) Matthew T. Provencher, MD, Boston, MA
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Frank McCormick, MD, Pompano Beach, FL
Within a large United States private payer database from 2007 to 2011, the rate of utilization of Latarjet as a treatment for anterior shoulder instability doubled.

Poster No. P468
SLAP Repair with Combined Procedures have Lower Failure Rates than Isolated SLAP Repairs
William Arroyo, MD, El Paso, TX
Kenneth Heida, MD, El Paso, TX
Robert Burks, PhD, Seaside, CA
Mark P. Pallis, DO, El Paso, TX
Brian R. Waterman, MD, El Paso, TX
Favorable outcomes can be anticipated in the majority of military service members after arthroscopic SLAP repair, particularly with combined or traumatic injuries.

Poster No. P469
Abduction Angle Affects Stability and Internal Impingement in a Cadaveric Model of the Throwing Shoulder
Masaki Akeda, MD, Redondo Beach, CA
Terubisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Woongkyo Jeong, Seoul, Republic of Korea
Michelle H. McGarry, MD, Long Beach, CA
Tetsuya Yamazaki, Yokohama, Japan
Thay Q. Lee, PhD, Long Beach, CA
For throwers with unstable shoulders, higher abduction may increase stability during throwing, while lower abduction angle may decrease risk of rotator cuff injuries through internal impingement.

Poster No. P470
Return to Play in Major League Baseball Pitchers Following Superior Labral Anterior Posterior Repair
Charles Frank, Applegate, MI
Gannon Curtiss, BS, Royal Oak, MI
Drew Schupbach, BS, Clarkston, MI
Ryan Smith, MD, Taylor, MI
Daniel Lombardo, MD, Taylor, MI
Vani J. Sabesan, MD, Kalamazoo, MI
Elite overhead athletes have poor outcomes following superior labrum anterior posterior repair, this study will evaluate the return to play rates in MLB pitchers.
**Poster No. P471**

**Athletes with Shoulder Instability: Prospective Study of Player Attitudes on Operative vs. Nonoperative Treatment**

Leslie F. Barnes, MD, Philadelphia, PA  
Timothy J. Luchetti, MD, Chicago, IL  
John Buza, MD, New York, NY  
Charles M. Jobin, MD, New York, NY  
Christopher S. Ahmad, MD, New York, NY

For athletes with shoulder instability, treatment decisions were more strongly related to perceptions of injury severity and influence of the treating surgeon than to seasonal or career consideration.

**Poster No. P472**

**The Relationship Between Range of Motion of the Lead Hip in Baseball Pitchers and Prior Arm Injury**

Donna Scarborough, MS, PT, Boston, MA  
Ryan T. Fallon, South Berwick, ME  
Clifford L. Hancock, MS, Natick, MA  
Luke S. Oh, MD, Foxborough, MA  
Eric M. Berkson, MD, Boston, MA

Pitchers with a history of throwing arm injury present with greater functional internal rotation of the lead hip.

**Poster No. P473**

**Can Ultrasound guided Nerve Block be a Useful Method of Anesthesia for Arthroscopic Knee Surgery?**

Young-Mo Kim, Prof, Dae Jeon, Republic of Korea  
Chan Kang, MD, Daejeon, Republic of Korea  
Yong Bum Joo, Daejeon, Republic of Korea  
Woo-Yong Lee, Daejeon, Republic of Korea  
Chang-Kyun Noh, Daejeon, Republic of Korea  
Il Young Park, Daejeon, Republic of Korea  
Dong-Yeol Kim, MD, Dae-Jeon, Republic of Korea  
Je Hyung Jeon, Daejeon, Republic of Korea

This study was performed to compare general anesthesia, spinal anesthesia, and ultrasound-guided nerve block for knee arthroscopic surgery.

**Poster No. P474**

**Evaluation of the Diagnostic Yield of Initial Shoulder Radiographs in a Sports Medicine Practice**

Hayley Ennis, Miami, FL  
Samuel R. Huntley, BS, Miami Beach, FL  
Alberto Caban-Martinez, BS, PhD, Miami, FL  
Ross A. Wodicka, MD, Miami, FL  
Michael G. Baraga, MD, Miami, FL

Shoulder radiographs in the initial evaluation of patients in a sports medicine practice setting may yield limited information and should not be regarded as the only initial imaging option.

**Poster No. P475**

**What are Complications and Risk Factors for Morbidity in Elective Hip Arthroscopy? A Review of 1,325 Patients**

Christopher Anthony, MD, Iowa City, IA  
Andrew J. Pugely, MD, Coralville, IA  
Yubo Gao, PhD, Iowa City, IA  
Robert W. Westermann, MD, Iowa City, IA  
Christopher T. Martin, MD, Coralville, IA  
Brian R. Wolf, MD, Iowa City, IA  
Annunziato Amendola, MD, Iowa City, IA

Among 1,325 patients who underwent elective hip arthroscopy, 1.21% of patients experienced a complication; age greater than 65 years was an independent predictor of complication.

**TRAUMA**

**Poster No. P476**

**Management of Severe Open Tibial Fractures Using Circular Hexapod Frames**

Konstantinos J. Doudoulakis, MD, MSc, London, United Kingdom  
Satyajit Naique, FRCS, Northwood, Middlesex, United Kingdom

A look at outcomes of severe open fractures treated in a combined orthoplastic approach using circular hexapod fixators

**Poster No. P477**

**Phonomyography: A Noninvasive Continuous Monitoring Technique to Diagnose Acute Compartment Syndrome**

Adriana P. Martinez, MD, MSc, Montreal, QC, Canada  
Neil Saran, MD, FRCS, Montreal, QC, Canada  
Marilene Paquet, DVM, MSc, St-Hyacinthe, QC, Canada  
Thomas Hemmerling, Montreal, QC, Canada  
Gregory Berry, MD, Montreal, QC, Canada

Changes in phonomyography signals were able to detect early ischemic injury in the setting of ACS prior to the onset of nerve or muscle necrosis.

**Poster No. P478**

**A Comparison of Femur Lengthening with a Magnetic Internal Lengthening Nail versus Lengthening Over a Nail**

Anton Kurtz, MD, New York, NY  
Jonathan Barclay, BS, New York, NY  
Joseph Nguyen, MPH, New York, NY  
Austin T. Pragomen, MD, New York, NY  
S R. Rozbruch, MD, New York, NY

A comparison of femur lengthening with a magnetic internal lengthening nail demonstrates this technique is more accurate, heals faster, and is better tolerated than lengthening over a nail.
**TRAUMA**

**Poster No. P479**  
How Can We Discriminate between Periprosthetic Fracture and Nutrient Artery Canal of the Femur following THA?  
Kwang Woo Nam, MD, PhD, Jeju, Republic of Korea  
Sang-Rim Kim, MD, Jeju, Republic of Korea  
Sung-Wook Choi, Jeju, Republic of Korea  
Kyu-Bum Seo, MD, Jeju, Republic of Korea  
Hee J. Kim, MD, Seoul, Republic of Korea  
Harry E. Rubash, MD, Boston, MA  
Guoan Li, PhD, Boston, MA  
Dimitris Dimitriou, MD, Cambridge, MA  
Kee H. Rhyu, MD, Seoul, Republic of Korea  

This study evaluated the radiographic parameters of nutrient artery canal to distinguish them from periprosthetic fractures following Total Hip Arthroplasty.

**Poster No. P480**  
The Natural History of Cortical Stress Reactions on the Femur: Do All of Them Evolve to Atypical Femoral Fractures?  
Kwang Woo Nam, MD, PhD, Jeju, Republic of Korea  
Sang-Rim Kim, MD, Jeju, Republic of Korea  
Sung-Wook Choi, Jeju, Republic of Korea  
Kyu-Bum Seo, MD, Jeju, Republic of Korea  
Han-Jun Lee, MD, Seoul, Republic of Korea  
Seung B. Han, MD, Seoul, Republic of Korea  
Guoan Li, PhD, Boston, MA  
Mark S. Vrabas, MD, Boston, MA  

This study provide insight into the pathogenesis of atypical femoral fractures, in which a localized cortical thickening eventually evolved to complete fractures over time.

**Poster No. P481**  
Fracture Repair in Hemodialysis Patients is Associated with Higher Complication Rate and Worse Quality Measures  
Ravi Vaswani, BS, New York, NY  
Arthur Manoli III, MD, Detroit, MI  
Kenneth A. Egol, MD, New York, NY  

Surgical fracture repair in HD patients is associated with a higher risk of complications, longer lengths of stay and a lower likelihood of being discharged to home as compared to those without ESRD.

**Poster No. P482**  
Microdialysis Detects Ischemic Change Early in the Evolution of Acute Compartment Syndrome  
Alexander Crespo, MD, New York, NY  
Sanjit R. Konda, MD, Rye, NY  
Abraham M. Goch, New York, NY  
Kenneth A. Egol, MD, New York, NY  

Microdialysis is capable of detecting local ischemia in acute compartment syndrome. This technology may serve as a new diagnostic modality.

**Poster No. P483**  
Sagittal Alignment Measurements in Operatively Treated Distal Femur Fractures  
Patrick B. Horrigan, MD, Saint Paul, MN  
Joshua Olson, Saint Paul, MN  
Paul M. Lafferty, MD, Woodbury, MN  

This study was performed in search of a reliable measurement of distal femoral anatomy following fracture fixation, and found that two angular measurements are reproducible in over 90% of patients.

**Poster No. P484**  
Healing of Long Bone Fractures in Vitamin D Deficient Patients Treated with High-Dose Vitamin D Supplementation  
Nikkole M. Haines, MD, Charlotte, NC  
Laurence Kempton, MD, Indianapolis, IN  
Rachel Seymour, PhD, Charlotte, NC  
Madhav A. Karunakar, MD, Charlotte, NC  

This randomized double-blind placebo-controlled trial investigates nonunion rates in vitamin D deficient patients with long bone fractures and evaluates the utility of vitamin D supplementation.

**Poster No. P485**  
Bone Repair is Impaired in Diabetes via an Increased Formation of Methylglyoxal  
Takao Aikawa, Kanazawa-Shi, Japan  
Yasuhiko Yamamoto, MD, Kanazawa, Japan  
Hidenori Matsubara, MD, Kanazawa, Japan  
Yasuhisa Yoshida, Kanazawa, Japan  
Shogo Shimbashi, Kanazawa-Shi, Ishikawa, Japan  
Shuhei Ugaji, PhD, Kanazawa City, Japan  
Hiroyuki Tsuchiya, MD, Kanazawa, Japan  

Methylglyoxal was increased in diabetes mouse and acted directly to inhibit differentiation/proliferation of osteoblast resulting in delayed bone formation in diabetes.

**Poster No. P486**  
Decreasing Infection in Traumatic Wounds with Local Antibiotics: A Contaminated Fracture Model  
David J. Turrent, MD, San Antonio, TX  
Stefanie Shiel, PhD, Fort Sam Houston, TX  
Carlos J. Sanchez JR, PhD, JBSA Ft Sam Houston, TX  
Krista Niece, PhD, Charlottesville, VA  
Kevin Akers, MD, Fort Sam Houston, TX  
MAJ Daniel J. Stimmer, MD, San Antonio, TX  
Josef C. Wenke, PhD, San Antonio, TX  

Whereas Vancomycin and Rifampin powder effectively decrease infection when treatment is performed early, only Rifampin is effective when treatment is delayed.

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* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.

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**Poster No. P487**
Thrombin-Antithrombin III Complexes as a Useful Predictor of Venous Thromboembolism after Fracture Surgery
Sang Y. Lee, MD, Kobe, Japan
Takahiro Niikura, MD, PhD, Kobe, Japan
Takashi lwakura, MD, PhD, Kobe, Japan
Yoshitada Sakai, MD, PhD, Kobe, Japan
Ryosuke Kuroda, MD, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan

In 96 patients with pelvic and/or lower extremity fractures, both the TAT and D-dimer tests measured 7 days after surgery have excellent diagnostic power for predicting VTE.

**Poster No. P488**
The Impact of Orthopaedic Implants on Airport Security Screening in a Post 9/11 World
Robert Hymes, MD, Falls Church, VA
Lolita Ramsey, RN, PhD, Falls Church, VA
John Marcel JR, MD, Washington, D.C., District of Columbia
Jibui Li, PhD, Burke, VA, Annandale, VA
Tricia Brannan, BSN, MS, RN, Falls Church, VA
A S. Malekzadeh, MD, Great Falls, VA
Cary C. Schwartzbach, MD, Annandale, VA
Michael Holzman, MD, Fairfax, VA
Jeff E. Schulman, MD, Annandale, VA

The rate of detection of intramedullary nails and plate/screw constructs is low; however, when given an option, patients prefer to travel with a medical device card.

**Poster No. P489**
A Novel Method for the Diagnosis of Traumatic Knee Arthroscopy
Roman Trimba, MD, Beavercreek, OH
Eric Szymanski, BS, Fairborn, OH
Brandon R. Horne, MD, Dayton, OH
Indresh Venkatarayappa, MD, Dayton, OH

Exploratory Study of a Novel Method for Detection of a Traumatic Knee Arthroscopy

**Poster No. P490**
Fewer Complications with Hemiarthroplasty Compared to Total Hip Arthroplasty for Femoral Neck Fractures
Scott Eskildsen, MD, Chapel Hill, NC
R Carter Clement, MD, MBA, Durham, NC
Ganesh V. Kamath, MD, Chapel Hill, NC
Daniel J. Del Gaizo, MD, Chapel Hill, NC

Patients that underwent THA for femoral neck fractures had a higher rate of complications and increased rates of revision than those who underwent HA in a national database of Medicare patients.

**Poster No. P491**
Comparison of Callus Detection using 2D Computerized Radiographic Image Analysis and 3D Computed Tomography Scans
Hannah L. Dailey, PhD, Bethlehem, PA
Katherine A. Hollar, Boise, ID
Stephen M. Porter, Meridian, ID
James A. Harty, MD, Cork, Ireland

Projected callus area measured from plane radiographs using a validated Java-based software application had a strong positive correlation with callus volume from micro-CT scans of the same fractures.

**Poster No. P492**
Knee Injury Associated with Acetabular Fractures: A Multicenter Study of 1,273 Patients
Harish Kempegowda, MD, Danville, PA
Hemil H. Mamin, MD, Danville, PA
Akhil Tawari, MBBS, MD, Danville, PA
Gregory C. Fanelli, MD, Danville, PA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Yelena Bogdan, MD, Boston, MA
Paul Tornetta III, MD, Boston, MA
Andrew J. Marcantonio, DO, Wellesley, MA
Daniel S. Horwitz, MD, Danville, PA

We conclude that knee injuries associated with high energy acetabular fractures constitute a significant portion of the patient population.

**Poster No. P493**
Comparing the Reliability of Two Different Radiographs to Assess Midshaft Clavicle Fracture Shortening
Ryan P. Ponton, MD, San Diego, CA
Andrew Johnson, MD, San Diego, CA
Patrick B. Morrissey, MD, San Diego, CA
Dean Asher, MD, San Diego, CA

When assessing midshaft clavicle fracture shortening, panoramic shoulder girdle films produced a statistically significant improvement in intra-observer and inter-observer reliability.

**Poster No. P494**
Complication Profile of Enoxaparin Use in Orthopaedic Trauma Patients
Herman Johal, MD, Waterdown, ON, Canada
Timothy Costales, Baltimore, MD
Max Coale, BA, Baltimore, MD
Matthew Christian, MD, Baltimore, MD
Robert V. O’Toole, MD, Baltimore, MD
Theodore T. Manson, MD, Bel Air, MD

In orthopaedic trauma patients, we found a low incidence of venous thromboembolism (3.5%), and a significant number of bleeding complications (14.7%) associated with low molecular weight heparin use.

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TRAUMA

**Poster No. P495**
Is this Autograft Worth It? The Blood Loss and Transfusion Rates Associated with RIA Bone Graft Harvest
Lucas S. Marchand, MD, Salt Lake City, UT
Erik Kubik, MD, Salt Lake City, UT
David Rothberg, MD, Salt Lake City, UT
Thomas F. Higgins, MD, Salt Lake City, UT

Reamer Irrigator Aspirator (RIA) has gained popularity as a method of bone graft harvest. We identified a large hematocrit drop and high transfusion rate associated with this procedure.

**Poster No. P496**
Beyond Survival - Results and Functional Outcome following Operative Treatment of Necrotizing Fasciitis in Adults
Marlon O. Coulibaly, MD, Bochum, Germany
Daniel J. Hutter, Witten, Germany
Matthias Koeningshausen, Bochum, Germany
Jan Gessler, MD, Bochum, Germany
Dominik Seybold, MD, Bochum, Germany
Thomas A. Schildhauer, MD, Bochum, Germany

Mortality and morbidity in the adult population after necrotizing fasciitis is still high. However, patients surviving NF show persistent functional impairment in the long-run.

**Poster No. P497**
Comparison of Three Methods for Maintaining Inter-Fragmentary Compression After Fracture Fixation
Brigham K. Au, MD, Coppell, TX
John Groundland, MD, Tampa, FL
Brandon G. Santoni, PhD, Tampa, FL
Kyle Stoops, MD, Tampa, FL
Henry C. Sagi, MD, Tampa, FL

The purpose of this study is to compare three different methods of maintaining inter-fragmentary compression using a sawbone model.

**Poster No. P498**
Short versus Long Intramedullary Nail Fixation for Treatment of Unstable Intertracochetanic Hip Fractures
Vamsi Kancherla, MD, Bethlehem, PA
Paul N. Morton, MD, Fountain Hill, PA
Chinenye O. Nwachuku, MD, Randolph, NJ
William G. DeLong Jr, MD, Bethlehem, PA

Unstable intertracochetanic hip fractures treated with short intramedullary nails may offer less surgical morbidity and increased complications when compared to long intramedullary nail fixation.

**Poster No. P499**
Suprapatellar Intramedullary Nail Technique Improves Rate of Malalignment of Distal Tibia Fractures
Frank Avilucea, MD, Salt Lake City, UT
Konstantinos Triantaf ilou, MD, Memphis, TN
Paul S. Whiting, MD, Nashville, TN
Edward Perez, MD, Memphis, TN
Hassan R. Mir, MD, MBA, Nashville, TN

Superpatellar IMN technique results in lower rates of malalignment following surgical treatment of distal tibia fractures compared to infrapatellar IMN insertion.

**Poster No. P500**
Predicting the Postoperative Length of Stay for the Orthopaedic Trauma Patient
Sarah Greenberg, BA, Nashville, TN
Catherine Bulka, MPH, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
Hassan R. Mir, MD, MBA, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

We created the first personalized LOS calculator for orthopaedic trauma patients based on preoperative comorbidities, postoperative complications and location of surgery.

**Poster No. P501**
A New Algorithm Reduces Mortality in Patients Selected for Total Hip Replacements with Femoral Neck Fractures
James Pegrum, MBBS, BSc, Oxford, United Kingdom
Geraint E. Thomas, MA, MBBS, Oxford, United Kingdom
Reza Mayahi, MD, East Riding of Yorkshire, United Kingdom
Gregoris Kambouroglou, MD, London, United Kingdom

A new algorithm with 3 year follow up provides clinicians with a mortality based outcome to select patients for a total hip replacement versus hemiarthroplasty in displaced femoral neck fractures.

**Poster No. P502**
Removal of Painful Hardware in Surgically Managed Bimalleolar Ankle Fractures
Senthil N. Sambandam, MD, Cheyenne, WY
Vishesh Khanna, MBBS, New Delhi, India

Painful hardware in surgically treated complex bimalleolar ankle fractures often necessitates removal which produces predictable improvement in pain and function.

**Poster No. P503**
OTA Best Poster of the 2015 Annual Meeting
Manish K. Sethi, MD, Nashville, TN

This poster will be the top rated clinical poster of the 2015 OTA Annual Meeting chosen by the OTA program committee.

*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*

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**Poster No. P504**
Readability of Online Orthopaedic Trauma-Related Patient Educational Materials
Rohith Mohan, BA, Fremont, CA
Paul H. Yi, MD, San Francisco, CA
Saam Morshed, MD, San Francisco, CA
The majority of orthopaedic trauma-related patient education materials are written at a level too high to be comprehended by the average patient.

**Poster No. P505**
Outcomes and Complications of Anterior Subcutaneous Pelvic Fixation: A Single Center Study
Rahul Vaidya, MD, Ann Arbor, MI
Adam Martin, MD, Worthington, OH
Frederick E. Tonmos, DO, Novi, MI
Bryant W. Oliphant, MD, Detroit, MI
Jon B. Carlson, MD, Detroit, MI
Anil Sethi, MD, Detroit, MI
The Anterior Internal Pelvic Fixator is Effective. Outcomes Depend on Time from Injury and Severity of Associated Injuries

**Poster No. P506**
Lawn Mower Injuries in Pediatric Patients in the State of PA from 2002 to 2013
Mariano Garay, BS, Hummelstown, PA
Joseph Hess, RN, Hershey, PA
William L. Hemmikus Jr, MD, Hershey, PA
Douglas G. Armstrong, MD, Hummelstown, PA
If the current guidelines on prevention of pediatric lawn mower injuries had been followed, 69% of the cases in this cohort would have been prevented.

**Poster No. P507**
The Risk Factors of Mortality and Infection Following Open Pelvic Ring Fractures
Andrew G. Dubina, MD, Millersville, MD
Julie A. Taylor, MD, MPH, Pikesville, MD
Robert V. O'Toole, MD, Baltimore, MD
Theodore T. Manson, MD, Bel Air, MD
The primary objective of this study was to assess if pelvic ring fracture pattern or wound location predicts mortality or infection.

**Poster No. P508**
Outcomes in the Treatment of Femur Fractures in Patients with Pre-Existing Spinal Cord Injury
Crystal A. Perkins, MD, Charlotte, NC
Madhav A. Karunakar, MD, Charlotte, NC
Non-operative treatment of femur fractures in patients with preexisting spinal cord injury results in superior outcomes as compared to operative treatment.

**Poster No. P509**
The Amplitude of the Intramuscular Pressure Oscillations in Simulated Acute Compartment Syndrome
Andreas Nilsson, MSc, Gothenburg, Sweden
Qiu Xia Zhang, MD, Goteborg, Sweden
Jorma Styfl, MD, Goteborg, Sweden
The amplitude of oscillations in the intramuscular pressure originating from arterial pulsations was recorded at IMP levels corresponding to the levels seen in patients with acute compartment syndrome.

**Poster No. P510**
Hip Fracture Treatment at Orthopaedic Teaching Hospitals: Better Care at a Lower Cost
Sanjit R. Konda, MD, Rye, NY
Arthur Manoli III, MD, Detroit, MI
Karan S. Patel, New York, NY
Kenneth A. Ego, MD, New York, NY
When controlling for hospital bed number, OTH status is associated with lower hospital charges, LOS and lower in-hospital mortality.

**Poster No. P511**
CT-Based Metric of Tibial Plateau Fracture Energy Corresponds Well to Clinician Assessment of Fracture Severity
Laurence Kempton, MD, Indianapolis, IN
Kevin Dibbern, BS, Iowa City, IA
Donald D. Anderson, PhD, Iowa City, IA
Saam Morshed, MD, Berkeley, CA
Thomas F. Higgins, MD, Salt Lake City, UT
John L. Marsh, MD, Iowa City, IA
Todd O. McKinley, MD, Indianapolis, IN
CT-based calculation of tibial plateau fracture energy corresponds to surgeon assessment of fracture severity.

**Poster No. P512**
Experimental Modification of Masquelet's Technique by Use of Conditioned Media Produced by Mesenchymal Stem Cells
Gabriel F. Fletcher, MD, Cali, Colombia
Ricardo A. Gaona, Bogota, Colombia
Enrique Vergara, MD, Bogota DC, Colombia
Experimental modification of masquelet's technique

**Poster No. P513**
Fixation Failure Related Risk Factor of Cephalomedullary Proximal Femoral Nailing for Intertrochanteric Fracture
Kwang J. Oh, MD, Seoul, Republic of Korea
Young-Bong Ko, Seoul, Republic of Korea
The large neck shaft angle difference (varus reduction), screw type lag screw and anterior placement of lag screw are the risk factors of fixation failure in patient undergone cephalomedullary nailing...
TRJMA

Poster No. P514
Fatigue Strength of the Proximal Tibia Donor Site after Extensive Bone Grafting
Chin Tat Lim, MD, Singapore, Singapore
David Q. Ng, Singapore, Singapore
Amit K. Ramruttun, MSc, Singapore, Singapore
Fucai Han, MD, Singapore, Singapore
Ken Jin Tan, Singapore, Singapore
Desmond Y. Chong, PhD, Singapore, Singapore

The likelihood of fatigue fractures occurring at the proximal tibia after extensive bone grafting was investigated through a biomechanical cadaveric experiment.

Poster No. P515
Is a Postoperative Chest X-ray Needed After Fixation of Clavicle Fractures in Trauma Patients?
Benjamin Service, MD, Orlando, FL
Geoffrey Hancy, MD, Orlando, FL
Robert C. Palmer, MD, Jacksonville, FL
Joshua Langford, MD, Orlando, FL
George J. Haidukewych, MD, Orlando, FL
Kenneth J. Koval, MD, Belle Isle, FL

76 patients were retrospectively reviewed after ORIF of a clavicle fracture to determine when and if a postoperative CXR was needed by comparing trauma patients and isolated clavicle injury groups.

Poster No. P516
Vancomycin and Cef pime antibiotic prophylaxis for open fractures is as effective as Cefazolin and Gentamicin
Benjamin Maxson, DO, Dayton, OH
Rafael Serrano-Riera, MD, Tampa, FL
Mark I. Bender, DC, Lutz, FL
Henry C. Sagi, MD, Tampa, FL

Vancomycin and Cef pime antibiotic prophylaxis for open fractures is as effective as Cefazolin and Gentamicin, avoids potential nephrotoxicity, and does not result in antibiotic resistance with MRSA.

Poster No. P517
Topical Vancomycin Powder Decreases the Incidence of S. aureus in Operatively Treated Fractures
Rabah Qadir, MD, The Woodlands, TX
Timothy Costales, Baltimore, MD
Max Coale, BA, Baltimore, MD
Timothy J. Zerhusen Jr, BS, Baltimore, MD
Manjari Joshi, Baltimore, MD
Robert V. O’Toole, MD, Baltimore, MD

Vancomycin powder decreases the incidence of S. aureus in operatively treated fractures. These findings may prompt a change in our infection prevention strategies for fracture fixation surgery.

Poster No. P518
Posterior Malleolar Fractures Associated with Tibia Fractures: Incidence and the Sequence of Fixation
Harish Kempegowda, MD, Danville, PA
Hemil H. Maniar, MD, Danville, PA
Raveesh Richard, MD, Danville, PA
Akhil Tawari, MBBS, MD, Danville, PA
Jove Graham, PhD, Danville, PA
Chris Han, MD, Boston, MA
Paul Tornetta III, MD, Boston, MA
Erik Kubiak, MD, Salt Lake City, UT
Daniel S. Horwitz, MD, Danville, PA

A posterior malleolus fracture is commonly associated with a spiral fracture of the distal tibia and we recommend f xation of malleolus prior to nailing of tibia in associated fracture patterns.

Poster No. P519
An Osseointegrated Percutaneous Prosthetic System for Treatment of Transfemoral Amputees: A Prospective Follow Up
Orjan K. Berlin, MD, Goteborg, Sweden
Kerstin Hagberg, PT, Goteborg, Sweden
Katarzyna Kulbacka-Ortiz, Goteborg, Sweden
Rickard Branemark, MD, Goteborg, Sweden

An osseointegrated percutaneous prosthetic system for treatment of transfemoral amputees (OPRA): clinical and functional results from prospective study

Poster No. P520
Effect of Electrical Stimulators for Bone Healing: A Meta-Analysis of Sham-Controlled Randomized Trials
Ilyas Aleem, MD, Rochester, MN
Iqra Aleem, MSc, Pickering, ON, Canada
Nathan Evaniew, MD, Hamilton, ON, Canada
Michael J. Yasemsinki, MD, PhD, Rochester, MN
Thomas A. Einhorn, MD, New York, NY
Mohit Bhandari, MD, FRCS, Hamilton, ON, Canada

Patients treated with electrical stimulation as an adjunct for bone healing have a reduced risk of radiographic nonunion and less pain compared to a sham device.

Poster No. P521
A Dedicated Orthopaedic Trauma Room Decreases Patient Hospital Length of Stay (LOS) and After-Hours Surgery
Carlos A. Sagebien, MD, Skillman, NJ
Amy Smith, MS, RN, Martinsville, NJ
Mark S. Ayoub, MD, New Brunswick, NJ
Howard Bar-Eli, MD, New Brunswick, NJ

The designation of a daily orthopaedic trauma room resulted in a significant decrease in after-hours surgery as well as a significant decrease in patient length of stay. Utilization was high.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
**Poster No. P522**
Do We Really Understand the Patient Populations in National Database When Doing Trauma Research?
Andre Samuel, New Haven, CT
Adam Lukasiewicz, MSc, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Daniel D. Bohl, MD, MPH, Chicago, IL
Daniel D. Bohl, MD, MPH, Chicago, IL
Bryce A. Basques, MD, Chicago, IL
Arya G. Varthi, MD, New Haven, CT
Michael P. Leslie, DO, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT

Three commonly used national databases have very different populations of femoral shaft fracture patients, potentially biasing implications of studies that do not acknowledge these differences.

**Poster No. P523**
Does Radiation Therapy Decrease Heterotopic Ossification After Posterior Approach for Acetabular Fracture?
Jason A. Davis, MD, Houston, TX
Brennan A. Roper, MS, Houston, TX
Matthew C. Galpin, Houston, TX
Timothy S. Achor, MD, Bellaire, TX
Andrew M. Choo, MD, Houston, TX
John W. Manz, MD, Bellaire, TX
Joshua L. Gary, MD, Houston, TX

Radiation therapy after posterior approach for acetabular fracture significantly decreased HO formation compared with gluteus minimus debridement alone.

**Poster No. P524**
Does Intraoperative Antibiotic Powder Decrease Infection in Combat-Related Lower Extremity Amputations?
Gabriel Pavey, MD, Bethesda, MD
Peter Formby, MD, Washington, Dist. of Columbia
Scott Wagner, MD, Rockville, MD
Benjamin K. Potter, MD, Bethesda, MD

Combat-related amputations are wrought with infection, often requiring late debridement causing delay in rehabilitation; efforts to decrease this risk include the use of intraobserver antibiotic powder.

**Poster No. P525**
Aspirin Utilized for DVT Chemoprophylaxis Increases Non-Unions in Tibial Shaft and Plafond Fractures
John P. Eggers, MD, PhD, Kansas City, MO
Jordan P. Barker, MD, Kansas City, MO
Mark Bernhardt, MD, Kansas City, MO
Jonathan Dubin, MD, Leawood, KS

Aspirin utilized for DVT chemoprophylaxis significa ntly delayed tibial shaft and plafond fractures healing and increased non-unions compared to other anti-coagulation modalities.

**Poster No. P526**
An Analysis of Patient-Reported Outcome Measures in Trauma and Influences on Return to Work in Trauma Patients
Samuel Folkard, Hampshire, United Kingdom
Thomas Bloomfield, MBBS, Brighton, United Kingdom
Piers R. Page, MBBS, Camberley, United Kingdom
Daniel Wilson, MD, Maidstone, United Kingdom
Benedict Rogers, MBBS, Ardingly, United Kingdom

In our MTC PROMs study, lower socio-economic groups responded best. The self-rated health status scores were correlated with predicted return to work, dignity, and satisfaction.

**Poster No. P527**
Use of Partial Weight Bearing Treadmill for Early Rehabilitation Following Lower Extremity Trauma
Aaron E. Barrow, MD, Fort Sam Houston, TX
MAJ Daniel J. Stinner, MD, San Antonio, TX
Johnny Owens, San Antonio, TX
Jason M. Wilken, PhD, PT, Fort Sam Houston, TX
Joseph R. Hsu, MD, Charlotte, NC

Pilot study to establish the safety and of using an “anti-gravity” treadmill in an early weight bearing rehabilitation protocol following operative treatment of lower extremity trauma.

**Poster No. P528**
Outcomes of Patients with Successful Flap Coverage After Skeletal Trauma of the Lower Extremity
Daniel Choi, MD, New York, NY
Bensen B. Fan, MD, Princeton, NJ
Mark Paiste, DO, Conshohocken, PA
Virak Tan, MD, Newark, NJ

There is a high rate of complications after successful flap coverage of lower extremity trauma, similar to high complication rates reported in prior patient cohorts that included failed flaps.

**Poster No. P529**
Is Radiation Exposure Killing Our Residents?
Peter Boyle, DO, Swedesboro, NJ
Fabio Orozco, MD, Egg Harbor Township, NJ
Zachary D. Post, MD, Egg Harbor Township, NJ
Eric Buxbaum, DO, Glassboro, NJ
Victor H. Hernandez, MD, MS, Miami, FL
Alvin C. Ong, MD, Philadelphia, PA

Orthopaedic surgery residents and attending surgeons need to remain aware of the harmful effects of ionizing radiation.

**Poster No. P530**
A Teachable Moment after Orthopaedic Fracture in the Smoking Patient: A Randomized Controlled Trial
Matthew D. Baron, MD, Seattle, WA
Christopher J. De Francesco, BS, Philadelphia, PA
Tiffany C. Liu, BA, Philadelphia, PA
Frank T. Leone, MD, MS, Philadelphia, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA

This randomized, controlled trial suggests that smokers may benet from a brief intervention in the hospital after sustaining a fracture.
**TRAUMA**

**Poster No. P531**
Femoral Nerve Catheters After Open Reduction Internal Fixation of Tibial Plateau Fractures: A Randomized Trial
Paul Tornetta III, MD, Boston, MA
Margaret Cooke, MD, Boston, MA
Tyler Welch, MD, Santa Monica, CA
Oleg Gusakov, Boston, MA

The purpose of this study was to determine whether a continuous femoral nerve block after ORIF of tibial plateau fractures would diminish VAS scores and / or systemic narcotic intake.

**Poster No. P532**
Fluoroquinolone-Associated Tendon Rupture is Age and Time Dependent
Jessica Phillips, Philadelphia, PA
Rowena McBeath, MD, Philadelphia, PA
Richard Light, MD, Yardley, PA

6013 cases of fluoroquinolone-associated tendon rupture and disorders were reviewed from 4/1997 to 1/2014 and revealed trends in upper middle-aged adults, maximal within 14 days of therapy initiation.

**Poster No. P533**
Field Tourniquet Use for Severe Extremity Trauma
Capt. Dana C. Covey, MD, MSc, San Diego, CA
Christopher E. Gentchos, MD, Concord, NH

Tourniquets applied for extremity injuries with severe bleeding can significantly reduce hemorrhage. Tourniquets do not result in amputation or affect immediate amputation level in mangled limbs.

**Poster No. P534**
Factors Influencing Rates of Infection and Nonunion After Open Fractures of the Humerus
Brian Cash, MD, Santa Monica, CA
Justin Zumsteg, MD, Nashville, TN
Donald H. Lee, MD, Nashville, TN
Nicholas D. Pappas, MD, New Orleans, LA

The Gustilo-Anderson type and fracture location have a greater influence on rates of infection and nonunion of open humerus fractures than does the time to operative debridement.

**Poster No. P535**
A Novel Method of Percutaneous Reduction for Type C Pelvic Ring Injuries: Technique and Radiographic Results
Bradley C. Johnson, MD, West Hollywood, CA
Kyle Mombell, MD, San Diego, CA
Paul Merkle, MD, Frisco, TX
Geoffrey Marecek, MD, Los Angeles, CA

The study presents the results and complications of 32 patients with complete disruptions of the posterior pelvic ring treated with a novel percutaneous reduction technique.

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**TUMOR/METABOLIC DISEASE**

**Poster No. P536**
Five-Aminolevulinic (5-ALA) Tumor Paint in Myxofibrosarcoma: An In Vitro Study
Shachar Kenan, MD, NY
Andrew Jacobs, Hillsdale, NJ
Daniel A. Grande, PhD, Manhasset, NY
Haixiang Liang, MD, MS, Manhasset, NY
Amanda Chan, PhD, Manhasset, NY
Adam S. Levin, MD, Baltimore, MD

Myxofibrosarcoma is known to have high local recurrence rates. Tumor paint using 5-ALA may aid in intraoperative margin assessment. This study assesses 5-ALA’s capacity to fluoresce MFS cells.

**Poster No. P537**
Custom Orthopaedic Oncology Implants: One Institution’s Experience with Meeting Current IRB and FDA Requirements
Alexander Willis, MD, Belle Mead, NJ
Joseph A. Ippolito, BA, West Orange, NJ
Joseph Benevenia, MD, Newark, NJ
Francis R. Patterson, MD, Newark, NJ
Kathleen S. Beebe, MD, Montclair, NJ

This study discusses the use of an institutional protocol to facilitate acquisition of custom orthopaedic implants for limb salvage in oncology patients.

**Poster No. P538**
Percutaneous Image-Guided Bone Biopsy in Diagnosis of Neoplastic Bony Lesions
Adel R. Ahmed, MBBS, PhD, Alexandria, Egypt

Percutaneous image guided bone biopsy is a safe, easy and effective technique for the diagnosis of neoplastic bony lesion.

**Poster No. P539**
Efficacy of Fluorescence-Guided Surgery of Retroperitoneal Implanted Human Fibrosarcoma in Nude Mice
Fuminari Uehara, MD, San Diego, CA
Shinji Miwa, MD, Ishikawa, Japan
Yasunori Tome, MD, PhD, Okinawa, Japan
Hiroki Maehara, PhD, Nishihara, Japan
Kazuhiko Tanaka, MD, PhD, Nishihara, Okinawa, Japan
Robert M. Hoffman, PhD, San Diego, CA
Fuminori Kanaya, MD, Okinawa-Ken, Japan

FGS improve outcomes in a retroperitoneal-implanted nude-mouse model of human fibrosarcoma, reducing residual tumor tissue, thereby decreasing tumor recurrence and increasing disease-free survival.

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*The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.*

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Poster No. P540
Can Targeted Therapy Improve Postoperative Survival in Inoperable Lung Cancer with Spinal Metastasis?
Hsi-Hsien Lin, Taipei City, Taiwan
Shih-Tien Wang, MD, Taipei, Taiwan
Chau-Wei Huang, MD, Taipei City, Taiwan
Po-Hsin Chou, MD, Taipei, Taiwan
Szu-Han Ying, MD, New Taipei City, Taiwan
Surgical treatment for spinal metastasis of inoperable NSCLC yielded a better clinical outcome after operation. EGFR-TKI was not related to longer postoperative survival compared with chemotherapy.

Poster No. P541
Ten Years of Cases from Recently Trained Tumor Fellows: An Analysis of the ABOS Part II Database
Kyle Duchman, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Josef N. Tofte, MD, Iowa City, IA
Benjamin J. Miller, MD, Iowa City, IA
The proportion of tumor procedures performed by fellowship trained orthopaedic oncologists has decreased in recent years while trauma and adult reconstruction cases have increased.

Poster No. P542
Joint-Preserving Reconstruction of Osteosarcoma with Tumor-Bearing Bone Treated by Liquid Nitrogen
Takashi Higuchi, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Katsuhiko Hayashi, MD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Shinji Miwa, MD, Ishikawa, Japan
Hiroyuki Inatani, MD, Nagoya, Japan
Yu Aoki, Kanazawa, Japan
Kensaku Abe, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
We evaluated the results of joint-preserving reconstruction using tumor-bearing autografts treated with liquid nitrogen and excellent function were obtained in patients with osteosarcoma.

Poster No. P543
Minimally Invasive Surgery Using a Hydroxyapatite Cannulated Pin for Simple Bone Cysts
Takashi Higuchi, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Katsuhiko Hayashi, MD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Shinji Miwa, MD, Ishikawa, Japan
Hiroyuki Inatani, MD, Nagoya, Japan
Yu Aoki, Kanazawa, Japan
Kensaku Abe, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
We evaluated the outcomes of cannulation with HA cannulated pins for simple bone cysts. The surgical technique had a high cure rate and minimal invasiveness compared with artificial bone filling.

Poster No. P544
Usefulness of Increased Fluorodeoxyglucose Uptake for Detecting Local Recurrence in Osteosarcoma
Chang-Bae KONG, MD, Seoul, Republic of Korea
Byung Hyun Byun, Seoul, Republic of Korea
The combination of SUV2 and SUV change was more useful than the SUV2 or SUV change used alone for the prediction of local recurrence.

Poster No. P545
Bone Bank, Allobone Graft, Bone Bank Processing
Om Prakash Lakhwani, MBBS, MS, New Delhi, India
The effect of bone bank processing on Allobone graft on biomechanical properties of bone.

Poster No. P546
Symptomatic Small Schwannoma Is A Risk Factor For Postoperative Neurological Deficits: Retrospective Cohort Study
Kensaku Abe, MD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Katsuhiko Hayashi, MD, Kanazawa, Japan
Shinji Miwa, MD, Ishikawa, Japan
Hiroyuki Inatani, MD, Nagoya, Japan
Yu Aoki, Kanazawa, Japan
Takashi Higuchi, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Symptomatic schwannomas were usually detected within the small size. Numbness of small tumors was significant correlated with postoperative neurological deficits, which may be a novel risk factor.

Poster No. P547
Salvage of Aggressive Giant Cell Tumor of Bones (GCTB) with Denosumab
Raju Vaishya, MD, MBBS, New Delhi, India
Amit K. Agarwal, MBBS, MS, New Delhi, India
Vipul Vijay, MBBS, MS, New Delhi, India
Unsalvagable and recurrent giant cell tumours which are not immediately amenable to surgery can be treated with Denosumab with significant reduction in tumour load.

Poster No. P548
A Prospective Surgical Treatment Protocol of Pathological Proximal Femur Fractures
Bulent Erol, MD, Istanbul, Turkey
Mert O. Topkar, MD, Istanbul, Turkey
We aimed to evaluate a prospective treatment protocol and develop a treatment strategy for pathological fractures of the proximal femur through benign bone lesions in children.

Poster No. P549
Prognostic Factors and Outcomes of Dedifferentiated Chondrosarcoma - A Single Institution Experience
Christopher Matthews, MD, Gainesville, FL
Andre R. Spiguel, MD, Gainesville, FL
C.P. Gibbs Jr, MD, Gainesville, FL
The prognosis of dedifferentiated chondrosarcoma is universally poor. Adjuvant therapy, surgical margins, and tumor size do not effect disease free survival, which is 15.7% at five years.

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An alphabetical faculty financial disclosure list can be found starting on page 334.
TUMOR/METABOLIC DISEASE

Poster No. P550
Socioeconomic Measures Influence Survival in Osteosarcoma: An Analysis of the National Cancer Data Base
Benjamin J. Miller, MD, Iowa City, IA
Josef N. Tofte, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Kyle Duckman, MD, Iowa City, IA

A review of the NCDB demonstrated decreased survival in osteosarcoma in patients with metastasis, axial primary, positive margins, >10 cm, >18 years, and lowest socioeconomic status.

Poster No. P551
Outcomes of Distal Femur Replacement with or without Patellar Resurfacing After Resection of the Distal Femur
Mauricio Etchebehere, MD, PhD, Campinas, Brazil
Justin E. Bird, MD, Houston, TX
Patrick P. Lin, MD, Bellaire, TX
Robert L. Satcher Jr, MD, Houston, TX
Bryan S. Moon, MD, Houston, TX
JUN YU, MS, Houston, TX
Liang Li, Ph.D., Houston, TX
Valereae O. Lewis, MD, Houston, TX

The outcomes of patients who underwent distal femur resection and endoprosthesis reconstruction were studied. Resurfaced patellas were compared to non-resurfaced in terms of function and complications.

Poster No. P552
Comparison of Bone Scintigraphy and PET/CT To Predict Histologic Response To Neoadjuvant Chemotherapy.
Chang-Bae Kong, MD, Seoul, Republic of Korea
Byung Hyun Byun, Seoul, Republic of Korea

This study shows that both 99mTc-MDP bone scintigraphy and 18F-FDG PET/CT are useful for predicting histologic response in osteosarcoma.

Poster No. P553
Diagnosis of Septic Arthritis in Immunocompromised Patients
Alan H. Lee, MD, Menlo Park, CA
Martha Pemberton Heath, B.A., Charlotte, NC
Kevin A. Raskin, MD, Boston, MA

Immunocompromised patients are unable to mount the same immune response to septic arthritis as non-immunocompromised patients. Blood and synovial WBC count is lower in these patients.

Poster No. P554
Assessing Physical Function in Patients with Lower Extremity Bone Metastases
Stein Jasper Janssen, MD, Cambridge, MA
Nuno Rui Cools Paulino Pereira, MD, Boston, MA
Kevin A. Raskin, MD, Boston, MA
Marco Ferrone, MD, FRCS, Boston, MA
Francis J. Hornicek, MD, Boston, MA
Santiago Lozano Calderon, MD, PhD, Boston, MA
Joseph H. Schwab, MD, Boston, MA

The PROMIS Physical Function questionnaire is superior to the PROMIS Mobility, TESS, LEFS, and MSTS as a result of its reliability, validity, brevity, and coverage through Computer Adaptive Testing.

Poster No. P555
Tumor Recurrence After the Use of Frozen Tumor-Bearing Autograft During Total En Bloc Spondylectomy
Takashi Igarashi, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshiba, MD, Kanazawa, Japan
Noritaka Yonezawa, MD, Kanazawa, Japan
Hirokazu Tsuchiya, MD, Kanazawa, Japan

In frozen-autograft TEB, we do not need to be concerned about local recurrence from tumor-bearing autografts frozen with liquid nitrogen.

GUEST NATION

Poster No. P556
Clinical validation of Hamstring Biped Extension Test (HBET) for the differential diagnosis of mechanical origin low back pain
Juan M. Herrea, MD, Bogotá, Colombia
Eduardo A. Reina, MD, Bogotá, Colombia
Nicolas Hernandez, MD, Bogotá, Colombia

The mechanical origin low back pain (MLBP) is the leading cause of work disability and the largest generator of direct and indirect care costs of any described health system. There is no medical test to diagnose MLBP. In 2.004 a test was designed for clinical diagnosis of MLBP.

Poster No. P557
Cerebral Fat Embolism in Revision Hip Surgery: Case Report
Miguel Fabian Mantilla Duran, MD, Cucuta, Colombia
Julio Cesar Palacio, MD, Cali, Colombia
Andres A. Echeverri, MD, Bogotá, Colombia
Willy Paul Stangl, MD, Cali, Colombia

We report a case of an forty two years old female patient, who underwent a scheduled revision hip surgery suffering a cerebral fat embolism.

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
**Poster No. P558**
Surgical Treatment of Carpal Tunnel Syndrome. Endoscopic Versus Open Carpel Tunnel Release
Jhon Freddy Castañeda López, MD, Cali, Colombia
Alvaro Antonio Kafury Goeta, MD, Cali, Colombia
Juliana Andrea Rojas Neira, MD, Cali, Colombia
Diego Fernando Rincon Cardozo, MD, Cali, Colombia

To compare the clinics and functional results of the surgical treatment of carpal tunnel syndrome evaluating the endoscopic versus the open carpel tunnel release techniques.

**Poster No. P559**
Anatomical Description of the Tendon and Muscle-Tendon Junction Portion of the Long Head of the Biceps Brachial
Luis Fernando Calixto, MD, Bogotá, Colombia
Diego Alejandro Dávalos, MD, Bogotá, Colombia
Luis Alejandro Satizábal, MD, Bogotá, Colombia

Pathologies of the long head of biceps tendon are a source of pain. Tenodesis has proved to be an elective procedure in the management of this condition in patients under 50 years old. There is no evidence to define the ideal level to perform an open subpectoral tenodesis.

**Poster No. P560**
A Novel Device for Taking Accurate Xrays of Infant Hips
Arturo Sarmiento, MD, Bogotá, Colombia
Vanessa Salinas Álvarez, MD, Bogotá, Colombia

The diagnostic work-up of Developmental dysplasia of the hip (DDH) begins in 3 to 4 months of age infants with an initial AP pelvic X-Ray screening. We designed a device that maximizes the quality of the X-Ray for infants while standardizing the hip angle and reducing the number of X-Ray shots required.

**Poster No. P561**
Anterior Approach to the Elbow: Description of a Novel New Approach
Alejandro Ramírez, MD, Bogotá, Colombia
Luis Fernando Calixto, MD, Bogotá, Colombia
Jairo Fernando Gómez, MD, Bogotá, Colombia

We describe a new anterior approach. A single transverse incision to the elbow flexion crease grants access to the anterior articular surface through three neurovascular intervals.

**Poster No. P562**
Geriatric Orthopedics meetings in Colombia: A 6 year experience
Miguel Ángel González, MD, Bogotá, Colombia
Carlos Manuel Pereira, MD, Cartagena, Colombia
Luis Antonio Solano, MD, Barranquilla, Colombia

Population aging leads to a higher incidence of fragility fractures and degenerative diseases taking into account the specific characteristics of older adults. A program of continuing medical education in order to deepen the understanding and proper management of these patients is required. The purpose of this paper is to present our experience in conducting these courses.

**Poster No. P563**
Patellar Osteosynthesis with the Dog-Bone System: Report of a Case and Surgical Technique Description
Daniel Saavedra, MD, Bogotá, Colombia
Angela Guinard, MD, Bogotá, Colombia
Angela Almanza, MD, Bogotá, Colombia

**Poster No. P564**
Orlando Ramos, MD, Bogotá, Colombia
Eduardo Antonio Reina, MD, Bogotá, Colombia

ACL injuries represent the most common knee ligament injuries in athletes, with an incidence of 38%. Partial ACL tears diagnosis is difficult because of the absence of Lachman and pivot shift signs and its poor correlation within the diagnostic images. In 2.010 an endoscopic test was designed for the diagnosis of partial ACL injuries.

**Poster No. P565**
Behavior of the Mechanical Loads in the Brachial Biceps after Tenodesis. Analysis Dimensional Finite Element Model
Luis Fernando Calixto, MD, Bogotá, Colombia
Diego Alejandro Dávalos, MD, Bogotá, Colombia

Forces involved in the normal contraction of biceps and the participation of each of the heads were simulated using the finite element method of a coronal section of the assembly of muscle tendon entire length of the brachial biceps muscle.

**Poster No. P566**
Multi-segmental Foot Kinematics During Walking In Subjects With Medial Tibial Stress Syndrome
Takumi Okunuki, PT, Sapporo, Japan
Yuta Koshino, PT, PhD, Sapporo, Japan
Harukazu Tobiyama, MD, PhD, Sapporo, Japan
Masato Igarashi, PT, Sapporo, Japan
Yuya Ezawa, PT, MS, Sapporo, Japan
Mina Samukawa, PT, PhD, Sapporo, Japan
Hiroshi Saito, PT, PhD, Sapporo, Japan
Masanori Yamanaka, PT, PhD, Sapporo, Japan

The present study showed that the subjects with the MTSS have increased eversion and abduction in the forefoot during walking.

**Poster No. P567**
In Vivo Reduction in Carpal Tunnel Pressure during Radioulnar Wrist Compression
Zong-Ming Li, Cleveland, OH
Tamara L. Marquardt, Cleveland, OH
Joseph N. Gabra, Cleveland, OH
Peter J. Evans, Cleveland, OH
William H. Seitz, Cleveland, OH
Edward Diao, San Francisco, CA

Radioulnar wrist compression decreased carpal tunnel pressure in carpal tunnel syndrome patients and has the potential for median nerve decompression.
Poster No. 568
A Novel Ceramic Coating for Reduced Metal Ion Release in Metal-on-Metal Hip Surgery
Melanie Coathup PhD, Stanmore, UK
Robert Ferro-De-Godoy, PhD, Stanmore, UK
Jay Meswania, Stanmore, PhD, UK
Tim Briggs, FRCS, Stanmore, UK
Philippa Tyler, FRCS, Stanmore, UK
Hannah Wilson, Swindon, PhD, UK
Imran Khan, Swindon, PhD, UK
Gordon Blunn, PhD, Stanmore, UK
The use of a ceramic coating reduced metal ion release and offers the potential to increase metal-on-metal bearing implant survival.

Poster No. 569
Relationship Between Patella Alta, MPFL Elongation, and Patellar Dislocation
Clare Fitzpatrick, PhD, Denver, CO
Robert Steensen, MD, Columbus, OH
Paul Ruilkkoetter, PhD, Denver, CO
The effect of MPFL reconstruction and patella re-positioning was evaluated to assist with surgical decisions on a subject-specific basis.

Poster No. 570
Bone Quality Variations in Osteoarthritic B2 Glenoids Following Eccentric Reaming during Total Shoulder Arthroplasty
Akhil Reddy, New York, NY
Xiang Chen, New York, NY
Andreas Kontaxis, New York, NY
Daniel Choi, New York, NY
David Dines, New York, NY
Russell Warren, New York, NY
Lawrence Gulotta, New York, NY
An investigation of eccentric reaming on B2 glenoids and how it effects bone quality metrics.

Poster No. 571
Spinal Correction And Fusion Surgery Improves The Asymmetrical Trunk Kinematics During Gait Of Adolescent Idiopathic Scoliosis With Thoracic Single Major Curve
Mitsuhiro Nishida, Tokyo, Japan
Takeo Nagura, Tokyo, Japan
Nobuyuki Fujita, Tokyo, Japan
Masaya Nakamura, Tokyo, Japan
Mori Matsumoto, Tokyo, Japan
Kota Watanabe, Tokyo, Japan
The posterior spinal correction and fusion surgery was effective for improving the asymmetrical trunk kinematics in patients with AIS.

Poster No. 572
Round Cell-specific Microrna Contributes to Malignancy and Morphological Change In Myxoid Liposarcoma
Yutaka Nezu, Tokyo, Japan
Keitaro Hagiuara, Tokyo, Japan
Tomohiro Fujisawa, Yokohama, Japan
Akira Kawai, Tokyo, Japan
Kosuke Matsumo, Yokohama, Japan
Tomoyuki Saito, Yokohama, Japan
Takahiro Ochiya, Tokyo, Japan
Round cell-specific miR-135b impacts tumor progression and histopathological change, and is also linked to poor prognosis in human myxoid liposarcoma.

Poster No. P573
SOMOS: The Research Year in Orthopaedic Residencies: Does it Impact Research Productivity?
Chad A. Krueger, MD, Southern Pines, NC
George C. Balazs, MD, Elkridge, MD
Jeffrey Hoffmann, MD, El Paso, TX
Benjamin K. Potter, MD, Bethesda, MD
Anthony E. Johnson, MD, Fort Sam Houston, TX
Philip J. Belmont Jr, MD, El Paso, TX
Adding an elective or mandatory research year increases the research productivity of a residency department.

Poster No. P574
American Association for Hand Surgery: Does SLAC IV exist? A Radiographic and MRI Analysis
Alexia Hernandez-Soria, MD, New York, NY
Steve K. Lee, MD, New York, NY
Lauren E. Lamont, MD, Dallas, TX
Nadja A. Farshad-Amaker, Zurich, Switzerland
Holli Potter, MD, New York, NY
Scott W. Wolfe, MD, New York, NY
MRI with cartilage sensitive sequencing may be used to more accurately grade SLAC/SNAC arthritis as the findings and location of radiolunate cartilage loss may influence treatment decisions.

Poster No. P575
American Fracture Association
Diana D. Carr, MD, Sebring, FL
Judy L. Wright, MD, Bloomington, IL
Alfonso E. Pino, MD, Dublin, TX
Geoffrey M. Miller, MD, El Segundo, CA
Jose G. Ramon, MD, Miami, FL
Maxime Coles, MD, Coffeyville, KS
The American Fracture Association was founded in 1838 to improve fracture care. There is an emphasis on practical solutions to difficult cases seen by the community orthopedist.
Nursing and Allied Health Program Continuing Education

Nurses
A total of 32 contact hours are being offered through NAON; 4.0 contact hours for each NUR course and for the 8.0 each for the CAST1 and CAST2 courses. Each session is provider approved by the California Board of Registered Nursing, Provider Number CEP3432, for 16.00 total contact hours for all of the NUR courses and 16.00 contact hours both the CAST1 and the CAST2 courses. The National Association of Orthopaedic Nurses is accredited as a provider of continuing nursing education by the American Nurses’ Credentialing Center’s Commission on Accreditation.

Orthopaedic Technologists
Applying to the National Board for Certification of Orthopaedic Technologists for approval of a total of 32 contact hours or 4 contact hours for each NUR session and 8 contact hours each for the CAST1 and CAST2 courses.

Physician Assistants
Applying to the American Academy of Physician Assistants (AAPA) for Category 1 CME credit from the AOA Council on Continuing Medical Education, Prescribed credit from the AAFP and AMA Category 1 CME credit for the PRA from organizations accredited by the ACCME. Total number of contact hours: 32.

Orthopaedic Physician Assistants
Applying to the National Board for Certification of Orthopaedic Physician Assistants for approval of a total of 32 contact hours for orthopaedic physician assistants or 4 contact hours for each NUR session and 8 contact hours each for the CAST1 and CAST2 courses.

General
Certificates for sessions will be available online once a participant completes a session. A link to the evaluation will be distributed to participants via email following each session. Please be sure to give your correct e-mail address when registering for the courses. Once participants complete the evaluation, a contact hour certificate will be available to print. To receive any certificate other than nursing, please visit the registration counter in front of the session. For credit that may be acceptable to state medical associations, specialty societies or state boards of medical licensure, please contact those organizations. NAON, AAOS and NAOT make every effort to have the course approved for credit prior to the course dates. It is not always possible to obtain approval in advance of a program.

CAST1 - Casting and Splinting: Fundamentals
Tuesday, March 1
8:15 AM – 5:45 PM
Rosen Centre Hotel, Junior Ballroom G

Course Co-Chairs:
Cynthia Henderson, OTC, CO
Harpal S. Khanuja, MD

Overview
This course will feature presentations about innovations in immobilization, casting complication causes and solutions, and the casting procedure. Demonstration and return demonstration will include application and removal of a short arm cast, thumb-spica cast, short leg cast, and a sugar tong splint. Intended Audience Orthopaedic allied healthcare professionals, including orthopaedic technologists, orthopaedic physician’s assistants, orthopaedic nurses, physician extenders, athletic trainers and orthotists.

Program
8:15 AM Casting Complications
Cynthia Henderson, OTC, CO
Identify causes and solutions of common casting complications.

8:45 AM Demonstration: Short Arm Cast
Cynthia Henderson, OTC, CO
Demonstrate the steps involved in the application and removal of a short arm cast.

9:05 AM Demonstration: Thumb Spica Cast
Nicole Williams, OTC, MBA
Demonstrate the steps involved in the application and removal of a thumb spica cast.

9:30 AM Break

9:45 AM Demonstration: Sugar Tong Splint
Kristie Woolems, OTC
Demonstrate the steps involved in the application and removal of a sugar tong splint.

11:45 AM Demonstration: Sugar Tong Splint
Kristie Woolems, OTC

12:05 PM Demonstration: Sugar Tong Splint
Cynthia Henderson, OTC, CO
Sean Conkle, OTC
Nicole Williams, OTC, MBA
Robyn Masseth, OTC
Kristie Woolems, OTC
Samuel A. Brown, MS, OTC

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An alphabetical faculty financial disclosure list can be found starting on page 334.
12:30 PM  Lunch
1:30 PM  Demonstration: Short Leg Cast
         Robyn Masseth, OTC
2:15 PM  Break
2:30 PM  Casting Return Demonstration: Short Leg Cast
         Cynthia Henderson, OTC, CO
         Sean Conkle, OTC
         Nicole Williams, OTC, MBA
         Robyn Masseth, OTC
         Kristie Woolems, OTC
         Samuel A. Brown, MS, OTC
5:00 PM  History & Innovations in Immobilization
         Sean Conkle, OTC
5:45 PM  Adjournment

CAST 2 - Casting and Splinting - Advanced
Wednesday, March 2
8:15 AM – 5:45 PM
Rosen Centre Hotel, Junior Ballroom G
Course Co-Chairs:
Cynthia Henderson, OTC, CO
Sean Conkle, OTC
Nicole Williams, OTC, MBA
Robyn Masseth, OTC
Kristie Woolems, OTC
Samuel A. Brown, MS, OTC

Overview
This course will feature presentations about necessary supplies and procedures for advanced casting. Demonstration and return demonstration will include Muenster, PTB, and Total Contact Casting. Intended Audience Orthopaedic allied healthcare professionals, including orthopaedic technologists, orthopaedic physician’s assistants, orthopaedic nurses, physician extenders, athletic trainers and orthotists.

Program
8:15 AM  Demonstration: Muenster Cast
         Nicole Williams, OTC, MBA
         Demonstrate the steps involved in the application and removal of a Muenster Cast.
9:00 AM  Demonstration: Patellar Tendon-Bearing Cast (PTB)
         Cynthia Henderson, OTC, CO
         Demonstrate the steps involved in the application and removal of a Patellar Tendon-Bearing Cast (PTB).
9:45 AM  Break
10:00 AM  Casting Return Demonstration: Muenster and PTB Casts
          Cynthia Henderson, OTC, CO
          Sean Conkle, OTC

12:30 PM  Lunch
1:30 PM  Total Contact Casting History & Treatment Options
         Cynthia Henderson, OTC, CO
2:00 PM  Break
2:15 PM  Demonstration: Total Contact Cast
         Cynthia Henderson, OTC, CO
3:00 PM  Casting Return Demonstration: Total Contact Cast
         Cynthia Henderson, OTC, CO
         Sean Conkle, OTC
         Nicole Williams, OTC, MBA
         Robyn Masseth, OTC
         Kristie Woolems, OTC
         Samuel A. Brown, MS, OTC
5:45 PM  Adjournment

NUR1 - Best Practices for the Patient Experience, Pain Management, and Hand Trauma
Thursday, March 3
7:30 AM – 12:00 PM
Rosen Centre Hotel, Junior Ballroom F
Course Chair:
Crystal Heishman MSN, RN, CIC, ONC

Overview
The collective expertise of the inter-professional team is highlighted in this Best Practices Course. Discussions will entail a look at the outpatient experience for patients and families, providing patient-centered care at end-of-life, pain management modalities for specialty populations, and team member contributions in the care of the severely injured hand. Intended Audience Nurses, orthopaedic technologists, physician assistants, physicians, physical and occupational therapists and other allied health professionals who care for orthopaedic patients in the acute care setting, office and outpatient clinics.

Program
7:30 AM  Welcome
          Tandy Gabbert, MSN, RN, ONC
          NAON Director of Education
          Harpal S. Khanuja, MD
          AAOS Allied Health Program Director
          Robert Lonadier, MSN, RN, BN, ONC
          2015-2016 NAON President

          Introduction
          Crystal Heishman MSN, RN, CIC, ONC

* The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 15.
7:45 AM  Cultivating Patient Experience in Outpatient Orthopaedics using Design Thinking and Quality Improvement Methods
Andrea Shaffer Ellis, MSN, RN, CPN
Julia Elkus, BA, MBA

8:30 AM  The Elephant in the (Hospital) Room: Tools for Talking About Palliative Care with Orthopaedic Patients and Providers
James Hayden, MD, PhD
Heidi Funke, RN, BSN, MA
Kimberly Rich, MS, RN, GNP-BC, FNP-BC

9:15 AM  Break

9:30 AM  Pain Protocols: A Rational Approach For Change
Jennifer E Quastler, RN, BSHA, ONC, CLSSGB
Daniel M. Adair, MD

10:15 AM  Improving Post-Operative Pain Control for Opioid Tolerant Patients Undergoing Orthopaedic Spine Surgery
Robin Lynne Evans, RN, MSN
Mary Beth Pais, RN, MNEd, ONC

11:00 AM  Pharmacology of Orthopaedic Surgery: Pain Management, Minimizing Postoperative Anemia, Venous Thromboprophylaxis, Preventing Postoperative Complications
MaryAnne Cronin, MS, PharmD, BCPS
Ayal Segal, MD

11:30 AM  The Severely Injured Hand
Michael Nancollas, MD

12:00 PM  Adjournment

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**NUR2 - The Inter-Professional Team in Orthopaedic Trauma and Spine Pathology**

**Thursday, March 3**
**1:30 PM – 6:00 PM**
**Rosen Centre Hotel, Junior Ballroom F**

**Course Chair:**
Crystal Heishman MSN, RN, CIC, ONC

**Overview**
Patients who sustain Orthopaedic Trauma or experience spine conditions are treated in diverse settings throughout the healthcare continuum. This course highlights current innovative approaches and various team members’ contributions. Intended Audience Nurses, orthopaedic technologists, physician assistants, physicians, physical and occupational therapists and other allied health professionals who care for orthopaedic patients in the acute care setting, off ce and outpatient clinics.

**Program**

1:30 PM  Welcome
Tandy Gabbert, MSN, RN, ONC
NAON Director of Education
Harpal S. Khanuja, MD

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**NUR3 - Innovations in Care: New Approaches with Pelvic Fractures and Total Joint Patients**

**Friday, March 4**
**7:30 AM – 12:00 PM**
**Rosen Centre Hotel, Junior Ballroom F**

**Course Co-Chairs:**
Elizabeth Turcotte, MSN RN-BC, ONC
Walter Leclair, MD

**Overview**
Healthcare Reform has generated opportunities to explore and create best practices for best outcomes. Discussions will include improving outcomes following pelvic fracture, improving bone health, improving population health, improving collaboration and bundled payments. Intended Audience Nurses, orthopaedic technologists, physician assistants, physicians, physical and occupational therapists and other allied health professionals who
Program 7:30 AM Welcome  
Tandy Gabbert, MSN, RN, ONC  
NAON Director of Education  
Harpal S. Khanauja, MD  
AAOS Allied Health Program Director  
Robert Lonadier, MSN, RN, BN, ONC  
2015-2016 NAON President  
Introduction  
Elizabeth Turcotte, MSN RN-BC, ONC  
Walter Leclair, MD  

7:45 AM Pelvic Fractures Made Simple  
Miki Patterson, PhD, NP, ONP-C  
Walter Leclair, MD  

8:30 AM Incorporating Strong Bones Program into the Total Joint Arthroplasty Population  
Stephanie Fegley, MSN, FNP-BC  
Angela Godek, BSN, RN-BC  
James Rubano, MD  

9:15 AM Break  

9:30 AM Patient Centered Population Health  
Michelle Giarrusso, RN, BSN, MS, MBA  
Sarah Clayton, MIS, RHIA  

10:30 AM Navigating Bundle Payments: One Health System’s Success Story  
Jennifer Smith, MSN, APRN, BC  
Kate S Gillespie, RN, MBA, NE-BC  

11:15 AM JOINT-ing Together - How We Brought Multiple Surgical Practices To The Table and Created a Successful Joint Replacement Program With Impressive Outcomes  
Barbara J Brush, CNS-BC, MSN, RN  
Matthew W Lawless, MD  
Scott Johnson, PT  

12:00 PM Adjourment  

NUR4 - Total Joint Outcomes and Specialty Orthopaedic Topics  
Friday, March 4  
1:30 PM – 6:00 PM  
Rosen Centre Hotel, Junior Ballroom F  
Course Co-Chairs:  
Elizabeth Turcotte, MSN RN-BC, ONC  
Miho Tanaka, MD  

Overview  
This session highlights research and practice outcomes that have improved the quality of Total Joint care. Sessions on Sports Medicine and Radiographic Interpretation will enhance  

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Scott D. Weiner, MD, Member
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MedShape Solutions: Stock or stock Options
Musculoskeletal Transplant Foundation: Other financial or material support; Research support; Unpaid consultant
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Institutional Unrestricted Grant - Imirax Corp: Other financial or material support

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Medtronic: Paid consultant
Orthofx, Inc.: Research support
Osseus: Unpaid consultant
Stryker: Other f nancial or material support; Paid consultant
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Integra: Paid consultant; Paid presenter or speaker; Research support
Stryker: Paid consultant; Paid presenter or speaker; Research support
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croptherapeutics: Research support
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vector medical: Stock or stock Options
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Stryker: Research support
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Zimmer, CD Diagnostics: Research support
Gregory K. Deirmengian, MD
CD Diagnostics: Research support
CD Diagnostics: Biostar ventures:

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Think, Surgical, Inc.: Paid consultant
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Biomedical Enterprises: Paid consultant
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Arthrex, Inc: IP royalties; Paid consultant; Paid presenter or speaker; Research support
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Smith & Nephew: Paid consultant
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OREF, Omega, and AOSpine: Research support
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St. John’s Council on Aging (Board of Trustees): Unpaid consultant
UCF College of Medicine, Professor of Orthopaedic Surgery, MS3 Surgical Clerkship Site Director: Unpaid consultant
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Research support
Giovanni Di Giacomo, MD
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Springer: Publishing royalties, f nancial or material support
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Zimmer: Research support

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Paragon 28: Stock or stock Options  
Saunders/Mosby-Elsevier: Publishing royalties, f nancial or material support  
Springer: Publishing royalties, f nancial or material support  
Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, f nancial or material support  
Wright Medical Technology, Inc: Paid consultant; Paid presenter or speaker

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Oxford University Press: Publishing royalties, f nancial or material support  
Stryker, Biomet, Zimmer: Research support

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ATI: Paid presenter or speaker; Research support  
Breg: Research support  
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Orthomerica: IP royalties  
Pacira: Paid consultant; Research support  
Stryker: Paid consultant; Research support; Stock or stock Options  
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Mosby: Publishing royalties, f nancial or material support

Grant Dornan, MSc  
The institution has received f nancial support not related to this research from the following: Siemens Medical Solutions USA, Smith & Nephew Endoscopy, Arthrex, Inc., Ossur Americas, Small Bone Innovations, ConMed Linvatec, Opedix: Research support

Oxford University Press: Publishing royalties, f nancial or material support

Opedix: Research support

Oxford University Press: Publishing royalties, f nancial or material support

Oxford University Press: Publishing royalties, f nancial or material support

Oxford University Press: Publishing royalties, f nancial or material support
Disclosures

Faustine Lauren Dufka, BA
This individual reported nothing to disclose

Naven Duggal, MD
This individual reported nothing to disclose

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This individual reported nothing to disclose

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This individual reported nothing to disclose

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Research support

Kinduct: Research support

Stryker: IP royalties; Paid consultant; Research support

Zimmer: Research support

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innovision Corp.: Other financial or material support

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Mitek: Paid consultant

Morph: Unpaid consultant

Smith & Nephew: Paid consultant

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Xavier A. Durande, MD
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Ani K. Dutta, MD
Ortho Helix: IP royalties

Tornier: Paid consultant; Paid presenter or speaker

Paul J. Duwelius, MD
Journal of Bone and Joint Surgery - American: Publishing royalties, f nancial or material support

Providence Orthopedic Foundation & Director of Providence Orthopedic Institute: Research support

Signature Health Care: Paid presenter or speaker

UniteOR: Stock or stock Options

Zimmer: IP royalties; Paid consultant; Research support

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Acumed, LLC: Research support

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Exactech, Inc: Paid consultant

Orthofx, Inc.: Paid presenter or speaker

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SBE: Paid consultant

Stryker: Paid consultant; Paid presenter or speaker

Tornier: Paid consultant; Paid presenter or speaker

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Research support

Wolters Kluwer Health - Lippincott

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Arthrex, Inc: Research support

Biomet: Research support

Corin U.S.A.: Paid consultant

Extremity Medical: Research support

iSpace: Research support

Synthes: Research support

Tri-Med: Research support

Zimmer: Research support

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Kinamed: Paid consultant

Royalities received from Tornier, Orthohelex, and Shoulder Options.: IP royalties

Saunders/Mosby-Elsevier: Publishing royalties, f nancial or material support

Smith & Nephew: Paid consultant

Tornier: Other f nancial or material support;

Paid consultant; Paid presenter or speaker; Research support

Wright Medical Technology, Inc.: IP royalties; Other f nancial or material support;

Paid consultant; Paid presenter or speaker; Resea

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SLACK Incorporated: Publishing royalties, f nancial or material support

Synthes: Research support

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Wolters Kluwer Health - Lippincott Williams & Wilkins, DJOrtho:
Publishing royalties, financial or material support

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Wolters Kluwer Health - Lippincott Williams & Wilkins: Editorial Royalties

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Medtriss, Integra: Paid consultant
Springer: Publishing royalties, f nancial or material support

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Glubus Medical: IP royalties

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Smith & Nephew: Paid consultant; Research support

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Zimmer: IP royalties; Paid presenter or speaker

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Musculoskeletal Transplant Foundation: Research support
SEB Inc: Paid consultant
Smith & Nephew: Paid presenter or speaker

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OBERD: Stock or stock options
Rotation Medical: Research support
Zimmer: Paid presenter or speaker; Research support; Unpaid consultant

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DePuy, A Johnson & Johnson Company: Paid presenter or speaker; Research support
Injury Journal: Publishing royalties, financial or material support
Medtronic: Paid presenter or speaker
Stryker: Paid consultant; Research support

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VisionScope Technologies: Stock or stock options

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Ferring Pharmaceuticals: Paid presenter or speaker; Research support

Children's Orthopedic Research Foundation: Research support

DePuy Synthes, Via Chest Wall and Spinal Deformity Group: Research support

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Bayer - Xaralto talk: Paid presenter or speaker

Microport: Paid consultant

Synthes - institutional research support: Other financial or material support

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Smith & Nephew, Innomed: IP royalties

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SLACK Incorporated: Publishing royalties, f nancial or material support
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Regeneration Technologies, Inc.: IP royalties; Paid consultant

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Current Opinion in Pediatrics: Publishing royalties, f nancial or material support

Pega Medical: IP royalties
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Lima Corporate: Research support
Intellirod: Research support
ImplantCast: Research support

Zimmer: Research support

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Intellirod: Research support
Lima Corporate: Research support
MatOrtho: Research support
Maxx Orthopedics: Research support
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Seminars in Arthroplasty: Publishing royalties, f nancial or material support
Smith & Nephew: Research support
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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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This individual reported nothing to disclose

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Elsevier: Publishing royalties, f nancial or material support

Stryker: IP royalties

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Smith & Nephew: Research support

Stryker: Research support

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Stryker: IP royalties

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Theieme, Inc., Journal of Knee Surgery: Publishing royalties, f nancial or material support

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NextSens: Stock or stock Options

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Research support

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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.
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This individual reported nothing to disclose

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This individual reported nothing to disclose

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Tornier, Baxter: Research support

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Smith & Nephew: Paid consultant

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Ortho Xt, Inc.: Paid consultant
OrthoPediatrics: Paid consultant
Smith & Nephew: Paid consultant

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Benvenue Medical: Stock or stock options
Biomet: IP royalties
Lifespine: Stock or stock options
Nexgen: Stock or stock options
Paradigm Spine: Stock or stock options
PSD: Stock or stock options
Spinal Ventures: Stock or stock options
Stryker: IP royalties
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Stryker: Research support

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Biomet: IP royalties; Other financial or material support
Stryker: Research support

DJ Orthopaedics: Other financial or material support
Smith & Nephew: fellowship support through OREF: Other financial or material support
Support for Annual Orthopedics Course: Breg: Other financial or material support

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Siemens Medical Solutions USA: Research support
Smith & Nephew: Research support

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Johnson & Johnson: Stock or stock Options

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BioMedValley Discoveries: Paid consultant
Biomet: Other financial or material support
Mckinley Hill: Publishing royalties, financial or material support
Stryker: Paid consultant; Research support
UpToDate: Publishing royalties, financial or material support
Wiley: Publishing royalties, financial or material support

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Naviscan: Research support
Seeger: Research support

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Microport: Other financial or material support
Smith & Nephew: Other financial or material support
Stryker: Other financial or material support; Paid consultant; Paid presenter or speaker
Zimmer: Other financial or material support

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Saunders/Mosby-Elsevier: Publishing royalties, financial or material support

Thinksurgical: Paid consultant

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Endo Pharmaceuticals: Paid consultant
LIMA: Paid presenter or speaker
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Pacira Pharmaceuticals: Research support
Zimmer Biomet: Paid consultant; Research support
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SLACK Incorporated: Publishing royalties, financial or material support
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CPIRF: Research support
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DJ Orthopaedics: Paid presenter or speaker
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Zimmer: IP royalties
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Biomet: IP royalties
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Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, financial or material support

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Orthosensor: Research support
Ferring Pharmaceuticals: Research support
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Elsevier: Publishing royalties, f nancial or material support
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Faculty disclosure list as entered in the AAOS Disclosure Database as of 10/1/2015.

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Medtronic Sofamor Danek: Research support
Nuvasive: Research support
Zimmer: Research support

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Secure Independence: Stock or stock options
SLACK Incorporated: Publishing royalties, financial or material support

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Atrium, LLC: Other financial or material support
Aesculap/B.Braun: Other financial or material support

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Springer: Publishing royalties, financial or material support

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Elsevier: Publishing royalties, financial or material support

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Elsevier - book royalties: Publishing royalties, financial or material support
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Arthrex, Inc: Institutional Support for Fellowship: Other financial or material support

Crossroads Medical: Stock or stock options

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Saunders/Mosby-Elsevier: Publishing royalties, financial or material support

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This individual reported nothing to disclose

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DJ Orthopaedics: IP royalties; Paid consultant

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Sang-Rim Kim, MD
This individual reported nothing to disclose

Seong Jin Kim, MD
This individual reported nothing to disclose

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Stryker: Research support

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<td>Kapil Kumar, FRCS, MCh</td>
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<td>Circle Biologics: Stock or stock options</td>
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Springer: Publishing royalties, financial or material support

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Smith & Nephew: Paid presenter or speaker; Research support; Stock or stock options

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Kinamed: Research support
Orthosensor: IP royalties; Paid consultant; Research support
Pacira Pharmaceuticals, Inc.: Paid consultant; Research support
Zimmer Biomet: IP royalties; Paid consultant; Research support

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f inancial or material support
Ortho Development: Paid consultant
Ortho Janssen Mc.Niel: Paid consultant; Paid presenter or speaker
Pacira: Paid consultant; Paid presenter or speaker
Zimmer: Paid consultant; Paid presenter or speaker

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DePuy, A Johnson & Johnson Company: IP royalties; Paid consultant; Paid presenter or speaker
Grant from Depuy Synthes to Setting Scoliosis Straight Foundation: Research support
John and Marcella Fox Fund: Research support
K2M: Paid presenter or speaker
OREF: Research support
Paradigm Spine: Stock or stock options
Spine: Stock or stock options

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Blue Belt Technologies: IP royalties; Paid consultant; Paid presenter or speaker; Stock or stock options
CD Diagnostics: Paid consultant; Stock or stock options
Healthpoint Capital: Stock or stock options
Saunders/Mosby-Elsevier: Publishing royalties, financial or material support
Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, financial or material support
Zimmer: IP royalties; Paid consultant; Paid presenter or speaker; Research support
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ISTO Technologies: Spinal Motion
Relevant/NoNiced/BimpericaSpinal Restoration/SMC Biotech: Stock or stock options
Ortho x, Inc: Relevant: Research support

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Zimmer: Stock or stock options

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ASIP, ISD: Stock or stock options

Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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DePuy, A Johnson & Johnson
Company: IP royalties; Paid consultant; Paid presenter or speaker
Globus Medical: Paid consultant; Research support
K2Medical: Paid consultant
Synthes: Paid consultant; Paid presenter or speaker
Thieme, QMP: Publishing royalties, f nancial or material support

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Maximed: Research support
SLACK Incorporated: Publishing royalties, f nancial or material support
Zimmer: Paid consultant; Research support

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Conmed Linvatec: Research support

Ossur: Research support

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Hip Innovations Technology, JointVUE: Stock or stock Options

Smith & Nephew: Research support

Stryker: Research support

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Ceramtec: Paid consultant

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RSA Biomedical Inc: Stock or stock Options

Smith & Nephew: Research support

Stryker: IP royalties

Zimmer: Research support

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Three Rivers Orthopaedic and Spine, Inc: Brother is employee: Employee

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Flexion Therapeutics, Inc. -- Scientific Advisory Board; Paid consultant  
Flexion Therapeutics, Inc. -- Stock or stock Options

Gilead: Stock or stock Options  
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Genzyme, zimmer, smith and nephew, arthrex, alter G, game ready: Paid consultant

Johnson & Johnson: Paid consultant  
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Up-To-Date: Publishing royalties, financial or material support

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Springer: Publishing royalties, financial or material support

Stryker: Published grants.

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Journal of Arthroplasty: Publishing royalties, financial or material support

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Zimmer: IP royalties; Paid consultant; Research support

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Research Support: Children’s Spine Foundation, SRS, POSNA, CIFR: Other financial or material support
Stryker: Other financial or material support
Synthes: Other financial or material support

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Pacira: Paid presenter or speaker;
Stock or stock Options
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Elsevier: Publishing royalties, financial or material support
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Smith & Nephew: Paid presenter or speaker; Unpaid consultant

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Synthes: Paid presenter or speaker

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Research support elsewhere: Publishing royalties, financial or material support

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Stryker/Knight: Research support

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Midwest Stone Institute: Research support

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Medtronic: Research support.

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Synthes: Paid consultant.

Rotters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, fnancial or material support.
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<th>Name</th>
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Farrah A. Monibi, DVM 
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Francisco Javier Monsalve, MD 
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Scott Montgomery, MD 
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William Randolph Mook, MD 
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Timothy A. Moore, MD 
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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.
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This individual reported nothing to disclose

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Aston Medical: IP royalties
Biomet: Other financial or material support; Paid presenter or speaker
Cambridge Polymer Group: Stock or stock options
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Iconacy: IP royalties
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Orthopedic Technology Group: Stock or stock options
Renovis: IP royalties
Stryker: IP royalties; Research support
Zimmer Biomet: IP royalties

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Biomimetic: Research support
Saunders/Mosby–Elsevier: Publishing royalties, financial or material support
Smith & Nephew: Research support
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OrthoMedFlex: Stock or stock options; Unpaid consultant
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Integra Orthopaedics: IP royalties; Paid consultant
Journal of Bone and Joint Surgery: American: Publishing royalties, financial or material support
Zimmer: Paid consultant

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NIH: Paid consultant

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Elsevier: Publishing royalties, financial or material support
Torino: IP royalties; Paid consultant; Unpaid consultant

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Integra: Research support
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Saunders/Mosby–Elsevier: Publishing royalties, financial or material support
Zimmer: Research support

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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.
Disclosures

Peter Noback, BA
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DePuy, A Johnson & Johnson Company: Paid consultant
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Omnis Sciences, Inc.: Paid consultant
Omnis Sciences, Inc.: Springer: IP royalties
Springer: Publishing royalties, financial or material support
Stryker: IP royalties
Zimmer: IP royalties; Paid consultant; Paid presenter or speaker; Research support

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DJO Orthopaedics: Other financial or material support
Mitek: Other financial or material support
Saunders/Mosby-Elsevier, Hillcrest Media: Publishing royalties, financial or material support
Smith & Nephew, Arthrex: IP royalties

Synthes: Research support

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Johnson & Johnson: Stock or stock Options
Merk: Stock or stock Options
OREF: Research support
Orthofx, Inc.: Paid presenter or speaker
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Stryker: Paid consultant

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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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Disclosures

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iMDS: Paid consultant
Smith & Nephew: Paid consultant
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Synthes: Research support
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Stryker: IP royalties; Paid consultant
Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties; t nancial or material support
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INTegra: IP royalties; Paid consultant
Invuity: Stock or stock Options
Jaypee publishers: Publishing royalties, t nancial or material support
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EOS-Imaging: Paid consultant; Research support
OREF: Research support
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Spinologics: Stock or stock Options
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Greybox Healthcare: Unpaid consultant
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CemarTec: Research support  
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OREF: Research support  
PRN: Stock or stock Options  
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Tornier: Other financial or material support; Paid consultant

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Saunders/Mosby-Elsevier: Publishing royalties, financial or material support
Smith & Nephew: Paid presenter or speaker
Stryker: Stock or stock options

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Smith & Nephew: IP royalties; Paid consultant; Paid presenter or speaker
Smith & Nephew, Pluristem, Aesculap/BR.Braun: Research support
Zimmer: Paid consultant; Paid presenter or speaker

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Smith & Nephew: IP royalties; Paid consultant; Paid presenter or speaker
Smith & Nephew, Pluristem, Aesculap/BR.Braun: Research support
Zimmer: Paid consultant; Paid presenter or speaker

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Saunders/Mosby-Elsevier: Publishing royalties, financial or material support

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Biomimetic,arlton: Research support

DJ Orthopaedics: Research support

Pfzer: Research support

Sonoma: IP royalties

Springer: Publishing royalties, financial or material support

Stryker: Paid consultant; Paid presenter or speaker; Stock or stock options

Tornier: IP royalties; Paid consultant; Paid presenter or speaker; Stock or stock options

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Arthrosurface,Hipco,MIS: Stock or stock options

CONMED Linvatec: IP royalties

Ossur, Siemens, Smith & Nephew, Vail Valley Medical Center: Research support

SLACK Incorporated,Elsevier: Publishing royalties, financial or material support

Smith & Nephew: Other financial or material support

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Vail Valley Surgical Center: Other financial or material support

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Blue Belt Technology: Paid consultant; Stock or stock options; Unpaid consultant

CMU: IP royalties

Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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Zimmer: Research support
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Joint Restoration Foundation (Allosource): Paid consultant
SLACK Incorporated: Publishing royalties, financial or material support

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Stryker: Stock or stock options

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Bio-Rad Laboratories, Inc.: Paid presenter or speaker

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Zimmer: Other financial or material support
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Globus Medical: IP royalties; Paid consultant; Research support
LDR: Unpaid consultant
Medtronic: Paid consultant; Research support
NEXXT Spine: Other financial or material support

Nuvasive: Other financial or material support
Orthofx, Inc.: Paid consultant
Orthopedic Science, Inc: Paid consultant
Pacira Pharmaceuticals: Research support
Paradigm Spine: Research support
Stryker: Other financial or material support

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Hansen Medical: Stock or stock options

Arthritis Foundation–Langone Medical Center: AO Foundation

Zimmer: Research support

Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, financial or material support

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Research or Institutional Support—Department of Orthopaedic Surgery–Hospital for Joint Diseases at NYU Langone Medical Center–AO Foundation

Biomet (Integra): Ascension: IP royalties

Integra (Ascension): Paid presenter or speaker

Stryker: Paid presenter or speaker

Trice Medical: Stock or stock options

Williams Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, financial or material support

Stryker: Other financial or material support

Johns Hopkins Hospital: Stock or stock options

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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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This individual reported nothing to disclose

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K2M: Unpaid consultant
Matt Therapeutics: Stock or stock Options

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Stryker: Research support
Zimmer: Other f nancial or material support; Paid consultant; Paid presenter or speaker; Research support

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Zimmer: Research support

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Encore Medical: Paid consultant

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Lifecell Integra: Paid presenter or speaker

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Sanofi-Aventis: Paid presenter or speaker

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BiometSynthes: Paid consultant
DePuy, A Johnson & Johnson CompanyKinef exMedtronic: Research support
Phygen: Stock or stock Options
Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, f nancial or material support
Zimmer: Paid presenter or speaker

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Emfix Medical: Other f nancial or material support
Journal of Bone and Joint Surgery - American: Publishing royalties, f nancial or material support
McGinley Orthopaedics: Other f nancial or material support
MicroPort: IP royalties
Smith & Nephew: IP royalties; Paid consultant; Research support
Stryker: Paid consultant
Synthes: Research support
Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, f nancial or material support
Wright Medical Technology, Inc.: IP royalties

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Saunders/Mosby-Elsevier: Publishing royalties, f nancial or material support
Synthes: Research support

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Elsevier: Publishing royalties, f nancial or material support
Synthes: Research support

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3M: Stock or stock Options
Abbott Laboratories: Stock or stock Options
Abbvie Inc: Stock or stock Options
Biomet: Employee
Bristol-Myers Squibb: Stock or stock Options
Johnson & Johnson: Stock or stock Options
Merck: Stock or stock Options
Procter & Gamble: Stock or stock Options
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Stryker: Paid presenter or speaker; Research support
Disclosures

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Extremity Medical: Paid consultant
Olympus Medical: Paid consultant
Saunders/Mosby-Elsevier: Publishing royalties, financial or material support

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Broadwater: Other financial or material support
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Expanding Orthopedics, PSD: Stock or stock Options
Medtronic: IP royalties
Medtronic Sofamor Danek: Research support
Neogen Spine: Stock or stock Options
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DePuy, A Johnson & Johnson Company: Research support
Exponent, Inc.: Research support

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Skeletal Dynamics: IP royalties

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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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DJ Orthopaedics: Research support
Osur: Research support
Saunders/Mosby-Elsevier: Publishing royalties, f nancial or material support
SLACK Incorporated: Publishing royalties, f nancial or material support
Smith & Nephew: Research support
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McGraw-Hill: Publishing royalties, f nancial or material support
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Wolters Kluwer Health - Lippincott: Publishing royalties, f nancial or material support
Zimmer: IP royalties; Paid consultant; Paid presenter or speaker; Stock or stock Options
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Journal of the American Medical Association: Publishing royalties, f nancial or material support
Medtronic: Research support
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Journal of Arthroplasty: Publishing royalties, f nancial or material support
Stryker: IP royalties; Paid consultant
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KCI: Research support
Smith & Nephew: Other f nancial or material support; Paid presenter or speaker; Research support
Stryker: Research support
Synthes: Research support
Tornier: Other f nancial or material support; Research support
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Signal Medical Corp.: Unpaid consultant
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Informa: Publishing royalties, f nancial or material support
Small Bone Innovations: IP royalties
Small Bone Innovations Smith and Nephew: Paid consultant
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Springer: Publishing royalties, f nancial or material support
Stryker: Paid consultant; Paid presenter or speaker
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Ceramtec: IP royalties
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Pacira: Paid consultant
Stryker: IP royalties
Wolters Kluwer Health - Lippincott: Williams & Wilkins: Publishing royalties, f nancial or material support
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Zimmer: Stock or stock Options
Zimmer, Stock Options, < 5%: Stock or stock Options
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Smith & Nephew: IP royalties
Wolters Kluwer Health - Lippincott: Williams & Wilkins: Publishing royalties, f nancial or material support
Zimmer: Other f nancial or material support; Paid consultant
Ellipse Innovision, Inc: Employee
Skeletal Kinetics: Other f nancial or material support
Wolters Kluwer Health - Lippincott: Williams & Wilkins: Publishing royalties, f nancial or material support
Nephew: Stock or stock Options
ETEX, Innovision: Stock or stock Options
Innomed: Stock or stock Options
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Ryno: Stock or stock Options
Zimmer: Stock or stock Options, < 5%: Stock or stock Options
Wolters Kluwer Health - Lippincott: Williams & Wilkins: Publishing royalties, f nancial or material support
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Astellas Pharma Inc: Other f nancial or material support
Chugai Pharmaceutical Co., Ltd: Other f nancial or material support
CO2BE Medical Engineering: Stock or stock Options
Eisai Co., Ltd: Other f nancial or material support
GlaxoSmithKline: Other f nancial or material support
Mitsubishi Tanabe Pharma Corporation: Other f nancial or material support
MSD: Other f nancial or material support
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Takeda Pharmaceuticals Company Ltd.: Other f nancial or material support
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Elsevier Science - Book royalties: Publishing royalties, f nancial or material support
Memorial Medical Center Co-Management Orthopaedic Board: Paid consultant
NIH NIAMS (R01): Research support
OREF: Research support
Smith & Nephew: Research support
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Nova Science Publishers: Publishing royalties, f nancial or material support
Postgraduate Institute for Medicine: Publishing royalties, f nancial or material support
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DJ Orthopaedics: Paid consultant
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Tatrixis, LLC: Unpaid consultant
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Orthodevelopment corporation: IP royalties; Paid consultant
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Spinal Kinetics: Research support
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This individual reported nothing to disclose

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This individual reported nothing to disclose

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Elsevier: Publishing royalties, financial or material support
Journal of Shoulder and Elbow Surgery: Publishing royalties, financial or material support
Merc: Paid presenter or speaker
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Canadian Institutes of Health Research (CIHR): Other financial or material support
Celgene: Paid consultant
OMEGA: Other financial or material support

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Synthes: Other financial or material support

Zimmer: Other financial or material support

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Bayer Healthcare: Paid presenter or speaker
Stryker: Paid presenter or speaker

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Epion: Stock or stock Options
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International Spine and Orthopaedics Institute: Stock or stock Options
St. Jude Medical: Paid consultant
Thieme, Inc.: Publishing royalties, financial or material support
Twin Star Medical: Stock or stock Options; Unpaid consultant

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Tornier: IP royalties; Paid consultant; Paid presenter or speaker; Stock or stock Options
Wright Medical Technology, Inc.: Paid consultant; Paid presenter or speaker
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Medtronic: Paid consultant
Medtronic Sofamor Danek: IP royalties; Paid presenter or speaker; Research support
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MedImmune: Paid consultant; Research support
Musculoskeletal Transplant Foundation: Paid consultant
Regeneron: Paid consultant
Telephus: Other financial or material support; Research support
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American Journal of Orthopaedics: Publishing royalties, financial or material support

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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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Globus Medical: IP royalties
Medtronic: Research support
Musculoskeletal Transplant Foundation: Research support
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Zimmer: IP royalties; Paid consultant; Paid presenter or speaker

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Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, financial or material support

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Growing Spine Study Group  
Growing Spine Foundation: Research support  
Harms Study Group  
DePuy Synthes Spine, a Johnson & Johnson Co.: Research support  
EOS Imaging: Research support  
K2M: Research support  
OREF: Research support  
SRS: Research support  
International Spine Study Group  
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Aexogen, Inc: Providing research funding for a study.
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Synthes: Paid presenter or speaker; Research support
Zimmer: Paid presenter or speaker; Research support

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Smith & Nephew: IP royalties; Other f nancial or material support; Research support

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Jaypee: Publishing royalties, f nancial or material support
Medacta: IP royalties; Paid presenter or speaker
Tigex, Boston Scientiﬁc: Stock or stock Options
Zimmer: IP royalties; Paid presenter or speaker

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Medtronic - travel expenses: Other f nancial or material support
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OrthoPediatrics: Unpaid consultant
OrthoPediatrics - travel expenses and per diem: Other f nancial or material support
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Orthoheal: IP royalties
Paragon 28: Paid consultant; Stock or stock Options
Stryker: Paid consultant
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Williams & Wilkins: Publishing royalties, f nancial or material support

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MEDICAL VIEW CO., LTD.: Publishing royalties, f nancial or material support
MEDIUS SHUPPAN, Publishers Co., Ltd.: Publishing royalties, f nancial or material support
NHK Educational Corp.: Publishing royalties, f nancial or material support
Nishimurasayoten: Publishing royalties, f nancial or material support
Shizenkagakushya: Publishing royalties, f nancial or material support

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Springer: Publishing royalties, f nancial or material support

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North American Spine Society: Research support

Stryker: Other f nancial or material support

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Faculty disclosure listed as entered in the AAOS Disclosures Database as of 10/1/2015.

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Intrinsic Therapeutics: Paid consultant
Spinal Motion: Paid consultant
Wright Medical Technology, Inc.: Paid consultant; Research support
Zimmer: Research support

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Gerson Lehman Group: Paid consultant
Globus Medical: Stock or stock Options
Advanced Spinal Intellectual Properties: Stock or stock Options
Aesculap: IP royalties
AO Spine: Research support
Avaz Surgical: Stock or stock Options
Biomate Spine: IP royalties
Bonovo Orthopaedics: Stock or stock Options
Computational Biodynamics: Stock or stock Options
Crosscurrent: Stock or stock Options
Cytonics: Stock or stock Options
DePuy: IP royalties
Depuy-Synthes: Paid consultant
Electrocore: Stock or stock Options
Ellipse: Paid consultant
Flagship surgical: Stock or stock Options
Flowpharma: Stock or stock Options
Gamma Spine: Stock or stock Options
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Globus:Stryker:Medtronic: Paid consultant
Guidepoint Global: Paid consultant
In vivo: Stock or stock Options
Innovative Surgical Design: Stock or stock Options
Jaypee: Publishing royalties, f nancial or material support
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RSE: Stock or stock Options
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Spine Design: Stock or stock Options
Spine logo: Stock or stock Options
Stout Medical: Stock or stock Options
Stryker Spine: IP royalties
Taylor and Francis/ Hodder and Stoughton: Publishing royalties, f nancial or material support
Thieme: Publishing royalties, f nancial or material support
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Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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Disclosures

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This individual reported nothing to disclose

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Materialise NV: Research support
Springer: Publishing royalties,
financial or material support

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Arthroscopy: Publishing royalties,
financial or material support

ArthroSurgeon: Research support
Cymedica: Stock or stock Options
DJO Orthopaedics: Research support
Minvasive: Paid consultant; Stock or stock Options
Others: Stock or stock Options
Orthospace: Paid consultant
Smith & Nephew: IP royalties; Paid consultant
Smith & Nephew: IP royalties; Paid consultant
Mitek: Research support
Vindico Medical-Orthopedics
Hyperguide: Publishing royalties,
financial or material support

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Childrens Spine Foundation: Research support
DePuy, A Johnson & Johnson Company: Other financial or material support

FOX, Children’s Spine Foundation: Other financial or material support
Medtronic: Other financial or material support
Medtronic Sofamor Danek: Paid consultant

OMEGA: Other financial or material support
OREF: Research support
SRS, POSNA, OREF: Research support

Stryker: Paid consultant
Synthes: Other financial or material support

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ForMD: Stock or stock Options

In Vivo Therapeutics: Stock or stock Options

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Johnson & Johnson, Depuy, Stryker: Research support

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This individual reported nothing to disclose
Gerardo Zanotti Sr
This individual reported nothing to disclose
Nicholas Zarkadis, DO
This individual reported nothing to disclose
Joseph M. Zavatsky, MD
Ameriaca: Paid consultant
Biomet: IP royalties; Paid consultant
DePuy, A Johnson & Johnson Company: Paid consultant
Innovative Surgical Solutions: Stock or stock Options
Safe Wire: Stock or stock Options
Mohamed Zhaeda, MBChB
This individual reported nothing to disclose
Ian M. Zeller, MS
This individual reported nothing to disclose
David Steven Zelouf, MD
This individual reported nothing to disclose
Wenjing Zeng, MD
This individual reported nothing to disclose
Timothy James Ziphusen Jr, BS
This individual reported nothing to disclose
Miltiadis H. Zgonis, MD
This individual reported nothing to disclose
Alan Zhang, MD
This individual reported nothing to disclose
Caivan Zhang, MS
This individual reported nothing to disclose
Jun Zhang, PhD
This individual reported nothing to disclose
Meng Zhang, PhD
This individual reported nothing to disclose
Quiuxia Zhang, MD
This individual reported nothing to disclose
Steven Zhang, BA
This individual reported nothing to disclose
Wei Zhang, PhD
This individual reported nothing to disclose
Xudong Zhang
This individual reported nothing to disclose
Yue Zhang
This individual reported nothing to disclose
Chunfeng Zhao, MD
This individual reported nothing to disclose
Huajing Zhao, PhD
This individual reported nothing to disclose
Kristin D. Zhao
This individual reported nothing to disclose
Liyeng Zheng, PhD
This individual reported nothing to disclose
Xuanlin Zheng, MD
This individual reported nothing to disclose
Hanbing Zhou, MD
This individual reported nothing to disclose
Xiang Zhou, PhD
This individual reported nothing to disclose
Mark Zhu
This individual reported nothing to disclose
Sweii Zhu, PhD
Grandhope Biotech: Employee; IP royalties; Stock or stock Options
Max Zhukovsky, BS
This individual reported nothing to disclose
Bashar A. Zikria, MD, MSc
This individual reported nothing to disclose
Joseph Zimmerman, MD
This individual reported nothing to disclose
Lewis Evan Zions, MD
This individual reported nothing to disclose
Bruce Ziran, MD, FACS
Acumed, LLC: Paid consultant
Powers Medical Group: Stock or stock Options
Synthes: Paid consultant
Teknitis: Stock or stock Options
Jianchun Zong, PhD
This individual reported nothing to disclose
Joseph D. Zuckerman, MD
AposTherapy, Inc.: Stock or stock Options
Exactech, Inc: IP royalties
Gold Humanism Foundation: Unpaid consultant

Faculty disclosure listed as entered in the AAOS Disclosure Database as of 10/1/2015.

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Hip Innovation Technology: Stock or stock Options
J3Personica/Residency Select: Unpaid consultant
Musculoskeletal Transplant Foundation: Paid consultant
SLACK Incorporated: Publishing royalties, financial or material support
Thieme, Inc.: Publishing royalties, financial or material support

Wolters Kluwer Health - Lippincott Williams & Wilkins: Publishing royalties, financial or material support
David Zukor, MD
This individual reported nothing to disclose

Thomas Zumbrunn
This individual reported nothing to disclose

Justin Zumsteg, MD
This individual reported nothing to disclose

Matthias Zumstein, MD
Medacta International: Paid consultant

David Zurakowski, PhD
This individual reported nothing to disclose

Corinne Andrea Zurmuehle, MD
Mathys Ltd: Employee

Annual Meeting of the American Academy of Orthopaedic Surgeons

Plan now to join us!

2017 Annual Meeting
March 14 – 18
San Diego, California

All Academy members will automatically receive an Annual Meeting Registration Packet in mid-October.

2018 Annual Meeting
March 6 – 10
New Orleans, Louisiana

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I learn by watching, testing myself, doing, teaching, reviewing.

AAOS meets my educational needs and learning style at every stage in my career.

- OITE, Board Part I, Board Part II and MOC study tools and CME courses build my test-taking confidence.
- Orthopaedic Video Theater, AAOS eBooks, Self-Assessment Exams, Webinars and CME Courses keep me at the top of my game.
- AAOS coding products, AAOS Member advantage programs, OrthoInfo and patient education resources keep my office running smoothly and my patients informed.

To fill your lifelong education needs, visit the AAOS Resource Center
Academy Hall C and Booth#1933 in Hall B
aaos.org/store
Technical Exhibits
Technical Exhibits
Halls A – B
The Technical Exhibits provide you with the opportunity to:
• View and discuss the most current technologies.
• Evaluate products and services first-hand.
• Attend product demonstrations.
• Plan your purchases of products and services.

Visiting the Technical Exhibits assists you in providing a higher level of care to your patients and effectively managing your practice. Over 700 companies are displaying their products and services.

Exhibit Hours
Wednesday and Thursday
9:00 AM – 5:00 PM
Friday
9:00 AM – 4:00 PM
Unopposed Exhibit Time
Wednesday through Friday
12:30 – 1:30 PM
Complimentary Beverage Breaks
Booths 1509, 2493, 3209
Wednesday and Thursday
3:30 – 4:00 PM
Friday
10:00 – 10:30 AM
While in the Exhibit Hall
AAOS Redemption Centers
Booths 538, 2593 and 4195
Visit the Redemption Centers to pick up a complimentary tote bag and AAOS T-shirt. Enter to win an iPad, GoPro camera, and more! Check your registration packet for special coupons, redeemable exclusively at AAOS Redemption Centers.

Beverage Breaks
Booths 1509, 2493 and 3209
Complimentary beverages are served in the exhibit hall on Wednesday and Thursday from 3:30 to 4:00 PM between scientific sessions, and on Friday at 10:00-10:30 AM

Food Service
Enjoy complimentary food and beverage items supplied by many of the exhibitors in their booth. Food service areas located throughout the exhibit hall will offer a variety of food and beverage options for purchase.

AAOS Bistro
The AAOS Bistro provides a comfortable setting for exhibitors and attendees to eat, meet and network. Located directly on the show floor with an all-inclusive buffet lunch and available table reservations, Wednesday through Friday from 11:00 AM to 2:30 PM. Tickets can be purchased in Academy Hall C or at the AAOS Bistro.

Exhibit Hall Social
Booths 1509, 2493 and 3209
Be sure to stop by the exhibit hall on Friday from 2:30-3:30 PM to enjoy a favorite treat – warm mini donuts, or an apple or banana. Complimentary beverages will also be available.

Seating Areas
Park benches are placed throughout the exhibit hall and additional seating is available at the food service areas and in the lounges located in Exhibit Halls A-B.

Navigating the Exhibit Hall
• Stop at Internet Connections kiosks located in the lobby areas to view a listing of all exhibitors, their contact and product information, and create and print your personal My Expo Plan.
• Pick up an updated floor plan and exhibitor listing at the You Are Here signs located at select entrances to the Exhibit Hall. These signs and maps are color coded to help you find your way around the exhibit hall.
• Booth numbers are located on the aisle carpet and aisle numbers are on signs hanging overhead.
• There’s no need to tote a bulging bag or cram papers in your suitcase when you leave. Simply present your badge to exhibitors whose literature you want to receive. After scanning the QR code, exhibitors will be able to mail materials directly to you after the meeting, enabling you to spend more time in face-to-face discussions with vendors.

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<table>
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<tr>
<th>TIME</th>
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<tr>
<td>Wednesday, March 2</td>
<td>KNEE</td>
<td>Giles R. Scuderi, MD</td>
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<tr>
<td>10:30 – 11:15 AM</td>
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<td>Kelly Vince, MD</td>
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<td>HIP ARTHROSCOPY AND</td>
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<td>JOINT PRESERVATION</td>
<td>Marc J. Philippon, MD</td>
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<td>1:30 – 2:15 PM</td>
<td>HAND</td>
<td>David L. Nelson, MD</td>
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<td>2:30 – 3:15 PM</td>
<td>SPORTS MEDICINE</td>
<td>James R. Andrews, MD</td>
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<td>HIP AND KNEE</td>
<td>David G. Lewallen, MD</td>
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<td>Wayne G. Paprosky, MD</td>
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<td>Thursday, March 3</td>
<td>SHOULDER</td>
<td>Mark A. Frankle, MD</td>
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<td>9:30 – 10:15 AM</td>
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<td>Scott P. Steinmann, MD</td>
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<td>Sheeraz Qureshi, MD</td>
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<td>Brian Snyder, MD, PhD</td>
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<td>TUMOR</td>
<td>Joel Mayerson, MD</td>
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<td>Benjamin J. Miller, MD</td>
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<td>Friday, March 4</td>
<td>HIP</td>
<td>Clive P. Duncan, MD, MSc, FRCSC</td>
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<td>9:30 – 10:15 AM</td>
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<td>Douglas E. Padgett, MD</td>
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<td>10:30 – 11:15 AM</td>
<td>FOOT AND ANKLE</td>
<td>Lew C. Schon, MD</td>
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<td>HIP AND KNEE</td>
<td>Daniel J. Berry, MD</td>
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<td>2:30 – 3:15 PM</td>
<td>TRAUMA</td>
<td>Kenneth J. Koval, MD</td>
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<tr>
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<td>Christian Krettek, MD</td>
</tr>
</tbody>
</table>

Take this opportunity to present a perplexing case to an expert in orthopaedics. We invite you to bring your HIPAA-compliant case challenges on a flash drive 10 minutes prior to the start of the session and present them for diagnosis and recommendation. We encourage audience participation to complement the exchange of ideas. Pick a session and participate. No ticket needed, sessions are totally free!
Technical Theater Schedule – Booth 2987, Hall B
(formerly known as the Electronic Skills Pavilion)

Presentations that showcase the latest technology and applications beneficial to orthopaedic surgeons and their staffs. Totally free, no ticket needed!

Wednesday, March 2 10:30 – 11:30 AM
The Way I See It....
How Social Media is Changing Healthcare
Building Your Practice
Managing Your Online Reputation
Presenters: Howard Luks, MD, Bill Champion, MD, Roger Holstein, MD
No podiums, but plenty of passion. Learn the “whys” behind what the experts do. Benefit from the inside story—what each presenter wants to know about a top-of-mind issue.

Wednesday, March 2 11:45 AM – 12:30 PM
Digital Templating – Make the Move
Presenter: A. Herbert Alexander, MD
PACS is widespread though not all have adapted digital templating. Presentation highlights: features of good digital templating software, techniques common to templating software, template libraries, PACS integration.

Wednesday, March 2 1:30 – 2:15 PM
Incorporating Smartphone Apps into Your Sports Medicine Practice: Linking Community With Providers to Provide Real-time Care
Presenters: Eric C. Makhni, MD, MBA and Vasilios Montzouros, MD
In sports medicine, timely care of athletes’ injuries is of utmost importance. Learn how we connect trainers, therapists, and physicians right when the injury occurs.

Wednesday, March 2 2:30 – 3:15 PM
Incorporating Electronic Outcomes Reporting into Your Orthopaedic Practice
Presenters: Eric C. Makhni, MD, MBA and Nikhil N. Verma, MD
Want to track clinical outcomes but don’t have the manpower? Learn how electronic systems can help you track outcomes AND improve practice efficiency as well.

Wednesday, March 2 3:30 – 4:15 PM
Video Tech for the Orthopaedic Practice: A Comprehensive Review
Presenter: Ryan J. Grabow, MD
Don’t miss your opportunity to experience this introduction to the latest video tech and accessories available for your practice. Recording, Streaming, Storage - We cover it all.
Thursday, March 3  
**9:30 – 10:15 AM**  
*Seeing Is Believing: Making Polished Videos for Presentation*
*Presenter: Randipsingh R. Bindra, MD*
This course will demonstrate the technique of trimming and joining high-definition clips captured on your camera or smartphone to make a slick educational video with voice-over.

Thursday, March 3  
**10:30 – 11:15 AM**  
*Incorporating Wearable Video Capture Technology into Your Practice: Education, Coaching, and Self-Improvement*
*Presenter: Eric C. Makhni, MD, MBA and Charles M. Jobin, MD*
Join us in learning how you can incorporate wearable video recording technology into your practice! This session will review pertinent technical pearls, as well as how wearable technology can be a valuable coaching tool for you and your colleagues.

Thursday, March 3  
**11:30 AM – 12:15 PM**  
*Open Up for Patient Reported Outcomes in Orthopaedics*
*Presenter: Christian Veillette, MD*
Several barriers limit the widespread collection, management, sharing and integration into clinical decisions of patient reported outcome measures across the orthopaedic community. Learn about open source tools and initiatives including RedCAP, NIHPromis, and DADOS that can provide flexible solutions for your electronic data capture needs but not break your budget.

Thursday, March 3  
**1:30 – 2:15 PM**  
*The Future of Video Use in Your Practice: How to Use Video to Increase Clinic Efficiency and Patient Satisfaction*
*Presenter: Ryan J. Grabow, MD*
In the age of YouTube, video is everywhere – Is your practice ready? Learn how to use video to increase staff productivity, maximize clinic efficiency, and make your patients happy. Welcome to the future.

Thursday, March 3  
**2:30 – 3:15 PM**  
*HIPAA Without the Hassle – Integrating Compliant Habits*
*Presenter: Orrin Franko, MD*
A surgeon’s perspective on how to integrate HIPAA into your practice without excessive inconvenience: keeping case logs, communicating with staff and colleagues.

Thursday, March 3  
**3:30 – 4:15 PM**  
*HOTTEST New Apps for 2016*
*Presenter: Orrin Franko, MD*
2016 Update of the “must-have” iPhone and iPad apps for orthopaedic surgeons. Will highlight the newest technologies for your practice and personal life.

Friday, March 4  
**9:30 – 10:15 AM**  
*Defending Your Internet Reputation*
*Presenter: David L. Nelson, MD*
You are being rated on many online forums that are backed by Wall Street firms, whether you like it or not. You need to take charge or risk losing the battle for your reputation.

Friday, March 4  
**10:30 – 11:15 AM**  
*Office Websites: Optimize Yours to Save You Time and Money*
*Presenter: David L. Nelson, MD*
Websites are much more than advertising; they are a way to save money and time. Learn how to put your site to work for you.

Friday, March 4  
**11:30 AM – 12:15 PM**  
*Trends in Wearable Technology in Orthopaedic Surgery*
*Presenter: Christian Veillette, MD*
Learn about the challenges involved with the adoption of wearable technologies, recent developments in the wearables market and a conceptual framework for understanding the potential of wearable technology to revolutionize your surgical practice.

Friday, March 4  
**1:30 – 2:15 PM**  
*How 3D Anatomy Will Change Surgeon Education*
*Presenter: Orrin Franko, MD*
An overview of existing and upcoming 3D anatomy iPad apps that will revolutionize the training, continuing education, and certification of surgeons.

Friday, March 4  
**2:30 – 3:15 PM**  
*HOTTEST New Apps for 2016*
*Presenter: Orrin Franko, MD*
2016 Update of the “must-have” iPhone and iPad apps for orthopaedic surgeons. Will highlight the newest technologies for your practice and personal life.

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CONTINUING MEDICAL EDUCATION

AAOS is the sole provider of Continuing Medical Education (CME) credits at the annual meeting between the hours of 7:30 AM to 6:00 PM. CME credit is not provided for presentations in the exhibit hall or time spent viewing the technical exhibits.

AAOS EXHIBITS COMMITTEE

The Exhibits Committee is responsible for evaluating the companies that exhibit at the annual meeting. The committee also reviews the exhibits on-site for content, presentation and compliance with FDA guidelines. During the annual meeting, Joseph T. Moskal, MD, chair of the committee, can be reached onsite at the AAOS Exhibits Office located in Lobby C of Orange County Convention Center.

Joseph T. Moskal, MD, Roanoke, VA, Chair
Jonathan J. Carmouche, MD, Roanoke, VA
Karen S. Duane, MD, Newberry, FL
Steven I. Grindel, MD Milwaukee, WI
Tim P. Lovell, MD, Spokane, WA
Vivek Mohan, MD, Naperville, IL
Jeffrey M. Schwartz, MD, FACS, New York, NY
Fernando Techy, MD, Johnstown, CO
Scott D. Weiner, MD Akron, OH
Dean Ziegler, MD, Milwaukee, WI

EXHIBITORS’ ADVISORY COUNCIL

A Technical Exhibitors’ Advisory Council has been established to serve in an advisory capacity to the Academy on issues affecting exhibitors. You are encouraged to contact the Council members with your concerns.

Melanie Schimmer, DJO Global, Chair
Marie Bukowski, Wright Medical Technology
Christina Cruz, LocumTenens.com
Steven Marchese, FUJIFILM Medical Systems USA
Brent Mellecker, FusionOne, Inc.
Renee Power, Arthrex
Ana Sermeno-DeJesus, Hospital for Joint Diseases at NYU Langone Medical Center
Barbara Sharpe, Stryker Instruments
Tommy Thompson, Smith & Nephew Inc.

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Stryker
Think Surgical
Zimmer Biomet

PRODUCT LISTINGS

For your convenience, the technical exhibiting companies are listed alphabetically and the products/services they offer are identified by the following codes.

AM Anatomical Model
AO Allied Organizations
AS Arthroscopic Systems
BLD Blood Products
BNE Bone Products
BB Business to Business/OEM
CS Casting Supplies & Equipment
COM Computer Hardware/Software
DEV Devices
DI Diagnostic Equipment
EDU Education – Patient and Physician
EMR Electronic Medical Records
FPD Facility Planning & Design
FIN Financial Planning/Investments
FRST First-Time Exhibitor
IMG Image Guiding/Navigation Systems
I Implants
MKT Market Research Services
MS Medical Supplies
MRI MRI
O Orthoses
OTH Other
PH Pharmaceuticals
PR Physician Recruitment
PM Practice/Office Management
P Prostheses
PUB Publishers
REHB Rehabilitation/Exercise Equipment
SF Shoes & Foot Supplies
SG Soft Goods (Supports)
SURG Surgical Equipment
SI Surgical Instruments
T Tissue Products
XRAY X-Ray

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The American Academy of Orthopaedic Surgeons invites you to visit the technical exhibits as a part of your educational experience at the annual meeting. The products displayed in the technical exhibits area and the uses suggested by the manufacturer do not represent an endorsement nor imply that the products have been evaluated or approved by the American Academy of Orthopaedic Surgeons.

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>BOOTH NO.</th>
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<tr>
<td>3D Systems</td>
<td>1015</td>
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<tr>
<td>Golden, CO</td>
<td></td>
</tr>
<tr>
<td>Phone: 303-273-5344</td>
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<td>3M Health Care</td>
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<td>Phone: 800-228-3957</td>
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<td>Web: <a href="http://www.3m.com/mobilization">www.3m.com/mobilization</a></td>
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<td>AAOS Advocacy Booth</td>
<td>2137</td>
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<tr>
<td>Washington, DC</td>
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<tr>
<td>Phone: 202-548-4150</td>
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<tr>
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Celling Biosciences  1281
Austin, TX
Phone: 512-206-0770
Web: www.cellingbiosciences.com
Product Codes: BLD, BNE, DEV, I, O, T

Cellright Technologies, LLC  4122
Universal City, TX
Phone: 210-659-9353
Web: www.cellrighttechnologies.com
Product Codes: BNE, I, T

CERAMED S.A.  565
Loures
Portugal
Phone: 35-1217151959
Web: www.ceramed.pt
Product Codes: FRST, I

CeramTec Medical Products  1581
Plochingen
Germany
Phone: 49 7153611828
Web: www.biolox.com
Product Codes: DEV, I, OTH, SI

Cerapedics, Inc.  4109
Royal Oak, MI
Phone: 303-974-6275
Web: www.cerapedics.com
Product Codes: BNE, DEV

CES, Inc.  4237
Springfield, IL
Phone: 856-366-3156
Web: www.cesplip.com
Product Codes: FIN

Ceterix Orthopaedics  3769
Menlo Park, CA
Phone: 650-209-7270
Web: www.ceterix.com
Product Codes: DEV, SI, T

Champion Medical Solutions  2711
Northridge, CA
Phone: 858-345-7260
Web: www.championmed.net
Product Codes: BB, PH, PM

Changzhou Hengjie Medical Devices Co., Ltd.  2708
Changzhou
China
Phone: 86 13775080393
Web: www.hjyl.cn
Product Codes: I, MS, SI

Changzhou Nanxiang Medical Device Co., Ltd.  1073
Changzhou, Jiangsu
China
Phone: 86 51986380098
Web: www.cnxianxiang.cn
Product Codes: FRST, I

Changzhou Waston Medical Appliance Co., Ltd.  2455
Changzhou, Jiangsu
China
Phone: 86 51986522226
Web: www.wastonmedical.com
Product Codes: BNE, BB, I, MS, SI

ChartLogic, Inc.  2677
Salt Lake City, UT
Phone: 801-365-1800
Web: www.chartlogic.com
Product Codes: COM, EMR, PM

Checkpoint Surgical, LLC  2089
Cleveland, OH
Phone: 216-378-9115
Web: www.checkpointsurgical.com
Product Codes: DEV, SURG, SI

ChM Sp. z o.o.  1775
Juchnowiec Koscienly
Poland
Phone: 48 857131320
Web: www.chm.eu
Product Codes: I, SI

CID Management  3615
Westlake Village, CA
Phone: 866-301-6568
Web: www.cidmcorp.com/corporate/careers/
Product Codes: FRST, PR

Citieffe S.r.l.  4035
Bologna
Italy
Phone: 39 3666446930
Web: www.citieffe.com
Product Codes: DEV, I, SI

CME/1st-dragon  2894
St. Petersburg, FL
Phone: 877-272-8280
Web: www.1st-dragon.com
Product Codes: COM

Collagen Matrix, Inc.  2729
Oakland, NJ
Phone: 201-405-1477
Web: www.collagenmatrix.com
Product Codes: DEV

Community Health Network  568
Indianapolis, IN
Phone: 317-621-7347
Web: www.communityhospitals.com
Product Codes: FRST, PR

Community Health Systems  2887
Franklin, TN
Phone: 615-465-7478
Web: www.chsmedcareers.com
Product Codes: PR

Community Tissue Services  3236
Kettering, OH
Phone: 937-461-3364
Web: www.communitytissue.org
Product Codes: T

CompHealth  3319
Salt Lake City, UT
Phone: 800-453-3030
Web: www.complead.com
Product Codes: PR

Compression Solutions, Inc.  664
Tulsa, OK
Phone: 918-744-1078
Web: www.compressionsolutions.us
Product Codes: FRST, MS

Compulink Business Systems, Inc.  2589
Thousand Oaks, CA
Phone: 800-456-4522
Web: www.compulinkadvantage.com
Product Codes: COM, EMR, PM

CoNextions Medical  761
Sandy, UT
Phone: 385-351-1461
Web: www.conextionsmed.com
Product Codes: DEV, FRST, I

ConforMIS  2181
Bedford, MA
Phone: 781-345-9001
Web: www.conformis.com
Product Codes: I

CONMED  3831
Largo, FL
Phone: 727-399-5327
Web: CONMED.com
Product Codes: AS, COM, DEV, EDU, I, SURG, SI, T

Consensus Medical System Inc.  4184
Richmond, BC
Canada
Phone: 604-369-3964
Web: www.consensusmed.com
Product Codes: COM, FRST

Consensus Orthopedics  2961
El Dorado Hills, CA
Phone: 916-355-7125
Web: www.consensusortho.com
Product Codes: DEV, I, SI

ContainMed, Inc.  1409
Speedway, IN
Phone: 317-487-8800
Web: www.containmed.com
Product Codes: BB, DEV, SURG

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<td>Phone: 508-944-0371</td>
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<td>Phone: 215-394-8909</td>
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<td>Mokena, IL</td>
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<td>Phone: 815-531-4424</td>
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<td>Phone: 813-910-3667</td>
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<tr>
<td>West Des Moines, IA</td>
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<tr>
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<td>Phone: 714-300-0540</td>
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<td>Phone: 203-602-3625</td>
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<td>Phone: 805-546-0610</td>
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<td>Phone: 414-721-2611</td>
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<td>San Antonio, TX</td>
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<td>Hapad, Inc.</td>
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<td>Bethel Park, PA</td>
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<tr>
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<td>Healthgrades</td>
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<td>Denver, CO</td>
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<td>North Palm Beach, FL</td>
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<td>New York, NY</td>
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<td>Toyohashi, Japan, Phone: 81 532321543, Web: <a href="http://www.showaika.com">www.showaika.com</a>, Product Codes: I, SI</td>
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<td>Louisville, KY</td>
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### Anatomical Models
- 3D Systems ........................................ 1015
- AccellAB Inc. ....................................... 1245
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<td>Apex Tools and Orthopedics</td>
</tr>
<tr>
<td>Applied Medical</td>
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<tr>
<td>ARC Korea Co., Ltd.</td>
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<td>Artrocyte Medical Systems</td>
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<tr>
<td>Artrex, Inc.</td>
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<td>ArtroPlastics, Inc.</td>
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<td>Artrosurface, Inc.</td>
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<td>Autocam Medical</td>
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<td>Auxein Medical</td>
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<td>Avalign Technologies</td>
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<td>Beijing Chunzhengda Medical Instruments Co., Ltd.</td>
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<td>Beijing Fule Science &amp; Technology Development Co., Ltd.</td>
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<td>BioAccess</td>
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<td>BioPro, Inc.</td>
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<td>Biopsybell S.r.l.</td>
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<td>Bird &amp; Cronin, Inc.</td>
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<td>BK Meditec Co., Ltd.</td>
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<td>BM Korea Co., Ltd.</td>
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<td>Boston Engineering Corporation</td>
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<td>Bovie Medical Corporation</td>
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<td>Bradshaw Medical, Inc.</td>
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<td>Brainlab</td>
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<td>Brasseler USA</td>
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<td>Buxton BioMedical, Inc.</td>
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<td>C&amp;A Tool Engineering, Inc.</td>
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<td>C2F Implants</td>
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<td>Canwell Medical Co., Ltd.</td>
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<td>Captiva Spine, Inc.</td>
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<td>Cayenne Medical</td>
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<td>CeramTec Medical Products</td>
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<td>Ceterix Orthopaedics</td>
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<tr>
<td>Changzhou Hengjie Medical Devices Co., Ltd.</td>
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470  TECHNICAL EXHIBITS

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**Exhibit Hours:**

Wednesday and Thursday 9:00 AM – 5:00 PM
Friday 9:00 AM – 4:00 PM

**Unopposed Exhibit Time:**

Wednesday through Friday 12:30 – 1:30 PM

**Complimentary Beverage Breaks**

Booths 1509, 2493, 3209
Wednesday and Thursday 3:30 – 4:00 PM
Friday 10:00 – 10:30 AM

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Convenient Hours:
Tuesday – Friday 7:00 AM – 6:00 PM
Saturday 7:00 AM – 3:00 PM
About our Members and Volunteers

“I volunteer for the AAOS because it is the single best way for me to give back to the profession that has given so much to me.”
### AAOS Committee Meetings

**All events will take place at the Orange County Convention Center unless noted otherwise.**

**AAOS New Member Welcome Luncheon**
- Luncheon: Friday, March 4
  - 11:30 AM - 1:30 PM
  - Room W224

**AAOS Women’s Health Issues Advisory Board**
- Luncheon: Wednesday, March 2
  - 12:30 - 3:00 PM
  - Room W107

**Annual Meeting Committee**
- Breakfast Meeting: Saturday, March 5
  - 6:15 - 7:30 AM
  - Room W303B

**Biological Implants Committee**
- Breakfast Meeting: Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W303B

**Biomedical Engineering Committee**
- Breakfast Meeting: Friday, March 4
  - 6:00 - 8:00 AM
  - Room W105A

**Board of Councilors**
- Executive Committee: Wednesday, March 2
  - 1:00 - 2:00 PM
  - Room W101B
- Orientation: Wednesday, March 2
  - 2:30 - 4:00 PM
  - Room W110A
- Committee on Economic Issues: Thursday, March 3
  - 2:00 - 4:00 PM
  - Room W109B
- State Legislative and Regulatory Issues Committee: Thursday, March 3
  - 4:00 - 6:00 PM
  - Room W109A
- Business Meeting: Friday, March 4
  - 7:30 - 11:00 AM
  - Room W311E

**Board of Specialty Societies**
- Communications Committee: Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W101A
- Education Committee: Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W101B

**Fellowship Match**
- Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W108A

**Oversight Committee**
- Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W108A

**Health Policy Committee**
- Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W102B

**Research & Quality Committee**
- Thursday, March 3
  - 6:00 - 8:00 AM
  - Room W107

**Business Meeting**
- Friday, March 4
  - 6:00 - 8:00 AM
  - Room W311A

**Candidate, Resident and Fellow Committee**
- Breakfast Meeting: Thursday, March 3
  - 6:30 - 8:30 AM
  - Room W108B

**Central Evaluation Committee**
- Business Meeting: Thursday, March 3
  - 12:00 - 1:30 PM
  - Room W110B

**Central Instructional Courses Committee**
- Breakfast Meeting: Saturday, March 5
  - 7:30 - 9:00 AM
  - Room W303A

**Communications Cabinet Meeting**
- Business Meeting: Thursday, March 3
  - 2:00 - 4:00 PM
  - Room W110A

**Diversity Advisory Board**
- Business Meeting: Thursday, March 3
  - 3:30 - 5:30 PM
  - Room W109B

**Evaluation Committees (OSIE)**
- Business Meeting: Friday, March 4
  - 12:00 - 1:30 PM
  - Room W110A

**Evaluation Leadership**
- Meeting & Luncheon: Wednesday, March 2
  - 11:30 AM - 12:30 PM
  - Room W110B

**Evaluation New Member Item Writing Workshop**
- Seminar: Wednesday, March 2
  - 1:00 - 3:00 PM
  - Room W110B

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All events will take place at the Orange County Convention Center unless noted otherwise.

**Exhibitors Advisory Council**
- Business Meeting: Friday, March 4, 11:30 AM - 1:30 PM, Room W105B

**Exhibits Committee**
- Business Meeting: Tuesday, March 1, 4:00 - 6:00 PM, Room W105B
- Breakfast Meeting: Wednesday, March 2, 7:00 - 9:00 AM, Room W105B

**Health Care Systems Committee**
- Luncheon: Wednesday, March 2, 10:30 AM - 12:30 PM, Room W109B

**JAAOS Deputy Editors Breakfast Meeting**
- Breakfast Meeting: Friday, March 4, 7:00 AM - 9:00 AM, Room W102B

**Journal Editors Meeting**
- Business Meeting: Thursday, March 3, 4:00 - 6:00 PM, Room W102B

**Journal Readership Metrics Meeting**
- Business Meeting: Tuesday, March 1, 8:00 - 9:00 AM, Room 102B

**Leadership Development Committee**
- Luncheon: Friday, March 4, 12:00 - 2:00 PM, Room W108B

**Leadership Fellows Program**
- Graduation and Orientation: Friday, March 4, 6:00 - 8:00 AM, Room W103A
- Reception: Friday, March 4, 6:00 - 7:00 PM, Plaza International Ballroom K

**Medical Liability Committee**
- Business Meeting: Wednesday, March 2, 1:00 - 3:00 PM, Room 101A

**Membership Committee**
- Breakfast Meeting: Thursday, March 3, 8:00 - 10:00 AM, Room W106

**OrthoGuidelines: Presented by the AAOS Committee on Evidence-Based Quality and Value**
- Reception: Thursday, March 3, 11:00 AM - 2:00 PM, Room W104B

**OrthoInfo Editorial Board**
- Luncheon: Wednesday, March 2, 12:30 - 2:30 PM, Room W108B

**Orthopaedic Learning Center**
- Industry Forum: Tuesday, March 1, 2:00 - 3:00 PM, Room W106
- Board of Directors Meeting: Friday, March 4, 6:00 - 8:00 AM, Room W108B

**Orthopaedic PAC Donor Luncheon**
- Luncheon: Wednesday, March 2, 11:30 AM - 1:30 PM, Room W224

**PAC Resident Networking Reception**
- Reception: Thursday, March 3, 6:30 - 7:30 PM, Hyatt Regency Orlando, Plaza International Ballroom K

**Patient Education Committee**
- Breakfast Meeting: Thursday, March 3, 7:00 - 9:00 AM, Room W311D

**Patient Safety/Section on Safety Education Committee**
- Breakfast Meeting: Wednesday, March 2, 6:00 - 8:00 AM, Room W108B

**Periodicals Reception**
- Reception: Friday, March 4, 6:00 - 8:00 PM, Hyatt Regency Orlando, Plaza International Ballroom F

**Program Committees**
- Breakfast Meeting: Wednesday, March 2, 7:00 - 8:00 AM, Room W109A
All events will take place at the Orange County Convention Center unless noted otherwise.

Resident Assembly
Education Committee  Thursday, March 3 6:30 - 7:30 AM  Room W105A
Health Policy Committee  Thursday, March 3 6:30 - 7:30 AM  Room W104A
Practice Management Committee  Thursday, March 3 6:30 - 7:30 AM  Room W103A
Research Committee  Thursday, March 3 6:30 - 7:30 AM  Room W103B
Technology Committee  Thursday, March 3 6:30 - 7:30 AM  Room W104B

State Orthopaedic Society Executive Director Luncheon
Luncheon  Friday, March 4  11:00 AM - 1:00 PM  Room W101B

Affiliate Hotels
Doubletree by Hilton Orlando at SeaWorld 10100 International Drive Orlando, Florida 32821 Ph: (407) 352-1100
Hilton Orlando 6001 Destination Parkway Orlando, Florida 32819 Ph: (407) 313-4300
Rosen Centre Hotel 9840 International Drive Orlando, Florida 32819 Ph: (407) 996-9840
Rosen Plaza 9700 International Drive Orlando, Florida 32819 Ph: (407) 996-9700
Rosen Shingle Creek 9939 Universal Boulevard Orlando, Florida 32819 Ph: (407) 996-9939

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<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>Allegheny General Hospital</strong></td>
<td>March 3, 2016</td>
<td>6:30 - 8:30 PM</td>
<td>Rosen Centre, Salon 10</td>
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<tr>
<td><strong>American Association of Hip and Knee Surgeons (AAHKS)</strong></td>
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<tr>
<td>AAHKS Committee Member Breakfast Meetings</td>
<td>Wednesday, March 2</td>
<td>6:00 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Plaza International Ballroom I</td>
</tr>
<tr>
<td>JOA Editorial Meeting</td>
<td>Wednesday, March 2</td>
<td>3:30 - 5:30 PM</td>
<td>Hyatt Regency Orlando, Plaza International Ballroom K</td>
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<tr>
<td>AAHKS BOD Meeting</td>
<td>Wednesday, March 2</td>
<td>5:30 - 8:00 PM</td>
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<tr>
<td>Industry Breakfast</td>
<td>Thursday, March 3</td>
<td>6:00 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Rock Spring</td>
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<tr>
<td>International Reception</td>
<td>Thursday, March 3</td>
<td>4:30 - 8:00 PM</td>
<td>Hyatt Regency Orlando, Barrel Spring</td>
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<tr>
<td><strong>American Association of Latino Orthopaedic Surgeons (AALOS)</strong></td>
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<td>Luncheon</td>
<td>Friday, March 04</td>
<td>12:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Plaza International Ballroom D</td>
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<tr>
<td><strong>American Joint Replacement Registry (AJRR)</strong></td>
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<tr>
<td>AJRR Board Meeting</td>
<td>Monday, February 29</td>
<td>6:00 AM - 3:00 PM</td>
<td>Hyatt Regency Orlando, Manatee Spring</td>
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<tr>
<td>AJRR Update and User Group</td>
<td>Wednesday, March 2</td>
<td>12:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Silver Spring</td>
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<tr>
<td><strong>American Orthopaedic Association (AOA)</strong></td>
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<tr>
<td>Officer's Meeting</td>
<td>Tuesday, March 1</td>
<td>3:00 - 4:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 11</td>
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<tr>
<td>Own the Bone Steering Committee Meeting</td>
<td>Tuesday, March 1</td>
<td>4:00 - 6:30 PM</td>
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</tr>
<tr>
<td>Nominating Committee Meeting</td>
<td>Wednesday, March 2</td>
<td>10:00 AM - 12:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 16</td>
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<tr>
<td>Membership Committee Meeting</td>
<td>Wednesday, March 2</td>
<td>11:30 AM - 1:30 PM</td>
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<tr>
<td>Finance and Investment Committee Meetings</td>
<td>Wednesday, March 2</td>
<td>1:30 - 3:30 PM</td>
<td>Hyatt Regency Orlando, Manatee Spring 2</td>
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<tr>
<td>Fellowships Coordinating Committee Meeting</td>
<td>Wednesday, March 2</td>
<td>2:00 - 3:00 PM</td>
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<tr>
<td>Young Leaders Committee Meeting</td>
<td>Wednesday, March 2</td>
<td>3:00 - 4:30 PM</td>
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<tr>
<td>Development Committee Meeting</td>
<td>Wednesday, March 2</td>
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<tr>
<td>Leadership Development Committee Meeting</td>
<td>Wednesday, March 2</td>
<td>4:30 - 6:30 PM</td>
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<tr>
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<td>Wednesday, March 2</td>
<td>6:00 - 7:00 PM</td>
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<tr>
<td>Critical Issues Committee Meeting</td>
<td>Thursday, March 3</td>
<td>11:00 AM - 1:30 PM</td>
<td>Hyatt Regency Orlando, Coral Spring</td>
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<tr>
<td>CORD Governing Committee Meeting</td>
<td>Thursday, March 3</td>
<td>1:00 - 2:30 PM</td>
<td>Hyatt Regency Orlando, Manatee Spring 1</td>
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<td>Academic Leadership Committee Meeting</td>
<td>Thursday, March 3</td>
<td>3:00 PM - 5:00 PM</td>
<td>Hyatt Regency Orlando, Coral Spring</td>
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<td>Council for Residency Directors (CORD) Conference</td>
<td>Friday, March 4</td>
<td>7:00 - 10:00 AM</td>
<td>Hyatt Regency Orlando, Orlando Ballroom</td>
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<td>Friday, March 4</td>
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</tr>
<tr>
<td>OMeGA Board Meeting</td>
<td>Friday, March 4</td>
<td>1:00 - 2:30 PM</td>
<td>Hyatt Regency Orlando, Blue Spring</td>
</tr>
<tr>
<td>OMeGA Board and Review Committee Meeting</td>
<td>Friday, March 4</td>
<td>2:30 - 3:30 PM</td>
<td>Hyatt Regency Orlando, Blue Spring</td>
</tr>
<tr>
<td>IFFAS Council Luncheon Meeting</td>
<td>Thursday, March 3</td>
<td>12:00 - 1:30 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>Education Committee Luncheon</td>
<td>Thursday, March 3</td>
<td>12:30 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Boardroom</td>
</tr>
<tr>
<td>OFAR Managerial Board Meeting</td>
<td>Thursday, March 3</td>
<td>1:30 - 3:30 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>Membership Committee</td>
<td>Friday, March 4</td>
<td>2:30 - 3:30 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>Evidence Based Medicine Committee</td>
<td>Thursday, March 3</td>
<td>3:30 - 4:30 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>FAI Managerial Board</td>
<td>Thursday, March 3</td>
<td>4:30 - 5:30 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>Young Physicians Committee</td>
<td>Friday, March 4</td>
<td>6:30 - 7:30 AM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>Post Graduate Education &amp; Training Committee</td>
<td>Friday, March 4</td>
<td>7:30 - 8:30 AM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>FAI CME Committee</td>
<td>Friday, March 4</td>
<td>8:30 - 9:30 AM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>FAI Reviewers</td>
<td>Friday, March 4</td>
<td>9:30 - 10:30 AM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>CPT/RUC Committee</td>
<td>Friday, March 4</td>
<td>10:15 - 11:15 AM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>Research Committee/Luncheon</td>
<td>Friday, March 4</td>
<td>12:00 - 1:00 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>Health Policy Committee</td>
<td>Friday, March 4</td>
<td>1:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>Public Education Committee</td>
<td>Friday, March 4</td>
<td>1:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Bayhill 31/32</td>
</tr>
<tr>
<td>Humanitarian Services Committee</td>
<td>Friday, March 4</td>
<td>2:30 - 3:30 PM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>AOFAS Board of Directors</td>
<td>Friday, March 4</td>
<td>4:00 - 5:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>(AOFAS) Ortho Foot &amp; Ankle Foundation Board</td>
<td>Friday, March 4</td>
<td>5:00 - 6:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 9 &amp; 10</td>
</tr>
<tr>
<td>Foot &amp; Ankle Fellowship Directors Meeting</td>
<td>Saturday, March 5</td>
<td>6:00 - 7:00 AM</td>
<td>Orange County Convention Center, Room W208C</td>
</tr>
</tbody>
</table>

**American Orthopaedic Society for Sports Medicine (AOSSM)**

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<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Corporate Relations Committee</td>
<td>Thursday, March 3</td>
<td>6:45 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Columbia 37</td>
</tr>
<tr>
<td>Accreditation Task Force</td>
<td>Thursday, March 3</td>
<td>7:00 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Columbia 36</td>
</tr>
<tr>
<td>Fellowship Match Committee</td>
<td>Thursday, March 3</td>
<td>11:30 AM - 12:15 PM</td>
<td>Hyatt Regency Orlando, Columbia 36</td>
</tr>
</tbody>
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© 2016 American Academy of Orthopaedic Surgeons
Fellowship Committee  
Thursday, March 3  
12:15 - 1:00 PM  
Hyatt Regency Orlando,  
Celebration 11

Orthopaedic Surgery  
Friday, March 4  
1:00 - 2:30 PM  
Hyatt Regency  
Orlando, Florida Ballroom A

Enduring Education Committee  
Friday, March 4  
6:30 - 8:00 AM  
Hyatt Regency Orlando,  
Columbia 36

Stop Advisory Committee  
Friday, March 4  
1:30 - 2:30 PM  
Hyatt Regency Orlando,  
Columbia 34

Legislative and Regulatory Advocacy Committee  
Friday, March 4  
7:00 - 8:00 AM  
Hyatt Regency Orlando,  
Columbia 36

Education Committee  
Friday, March 4  
3:00 - 4:30 PM  
Hyatt Regency Orlando,  
Rock Spring

PICME Committee  
Friday, March 4  
9:00 - 10:00 AM  
Hyatt Regency Orlando,  
Challenger 39

American Shoulder and Elbow Surgeons (ASES)  
JSES Board of Trustees Meeting  
Friday, March 4  
10:00 AM - 12:30 PM  
Hyatt Regency Orlando,  
Coral Spring

Team Physician Committee  
Friday, March 4  
9:00 - 10:00 AM  
Hyatt Regency Orlando,  
Columbia 36

Executive Committee Meeting  
Friday, March 4  
12:30 - 4:00 PM  
Hyatt Regency Orlando,  
Coral Spring

Nominating Committee  
Friday, March 4  
10:30 AM - 12:00 PM  
Hyatt Regency Orlando,  
Columbia 34

American Sports Medicine Fellowship Society /Andrews Education & Research Foundation  
Alumni Reception  
Friday, March 4  
6:00 - 8:00 PM  
Hilton Orlando, Lake Sheen A

Publications Committee  
Friday, March 4  
10:30 - 12:00 PM  
Hyatt Regency Orlando,  
Celebration 16

ARCO International  
Meeting  
Monday, February 29  
8:00 AM - 6:00 PM  
Rosen Plaza, Salon 8

Research Committee  
Friday, March 4  
11:00 AM - 1:00 PM  
Hyatt Regency Orlando,  
Rock Spring

Arthroscopy Association of North America (AANA)  
Membership Committee  
Thursday, March 3  
7:00 - 8:00 AM  
Hyatt Regency Orlando,  
Peacock Spring

Council of Delegates  
Friday, March 4  
11:30 AM - 1:00 PM  
Hyatt Regency Orlando,  
Barrel Spring

AANA/ISAKOS Meeting  
Thursday, March 3  
10:00 - 11:30 AM  
Hyatt Regency Orlando,  
Boardroom

Hall of Fame Committee  
Friday, March 4  
12:00 - 1:00 PM  
Hyatt Regency Orlando,  
Celebration 11

Association of Residency Coordinators - 13th ARCONS Conference  
New Coordinators Welcome  
Tuesday, March 01  
4:00 - 5:30 PM  
Rosen Centre, Salon 6

OJSM Editorial Board  
Friday, March 4  
12:00 - 1:30 PM  
Hyatt Regency Orlando,  
Celebration 7 & 8

Welcome Reception  
Tuesday, March 01  
6:00 - 8:00 PM  
Rosen Centre, Salon 1

Public Relations Committee  
Friday, March 4  
12:00 - 1:00 PM  
Hyatt Regency Orlando,  
Columbia 36

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<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>Business Meeting</strong></td>
<td>Wednesday, March 02</td>
<td>7:00 AM - 5:00 PM</td>
<td>Rosen Centre, Salon 9/10</td>
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<tr>
<td><strong>Business Meeting</strong></td>
<td>Thursday, March 03</td>
<td>7:00 AM - 5:00 PM</td>
<td>Rosen Centre, Salon 9/10</td>
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<tr>
<td><strong>Business Meeting</strong></td>
<td>Friday, March 04</td>
<td>7:00 AM - 5:00 PM</td>
<td>Rosen Centre, Salon 9/10</td>
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<tr>
<td><strong>Association of VA Orthopedic Surgeons</strong></td>
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<tr>
<td>Luncheon Meeting</td>
<td>Thursday, March 03</td>
<td>12:00 - 2:00 PM</td>
<td>Rosen Centre, Salon 5/6</td>
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<tr>
<td><strong>Balboa Navy Alumni</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:30 - 9:00 PM</td>
<td>Rosen Centre, Salon 6</td>
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<tr>
<td><strong>Boston Medical Center</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 9:00 PM</td>
<td>Hilton Orlando, Clear Lake</td>
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<tr>
<td><strong>Brown University</strong></td>
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<tr>
<td>2017 Spine Fellowship Interviews</td>
<td>Thursday, March 03</td>
<td>6:00 - 9:00 PM</td>
<td>Hilton Orlando, Spring Lake</td>
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<tr>
<td><strong>California Orthopaedic Association</strong></td>
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<tr>
<td>Board of Directors Meeting</td>
<td>Thursday, March 03</td>
<td>6:30 - 9:00 AM</td>
<td>Rosen Centre, Salon 13</td>
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<tr>
<td><strong>Canadian Orthopaedic Association</strong></td>
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<tr>
<td>Members’ Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 9:00 PM</td>
<td>Hilton Orlando, Orange Ballroom AB</td>
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<tr>
<td><strong>Carolinas Medical Center</strong></td>
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<tr>
<td>Orthopaedic Surgery Residency Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:30 - 9:00 PM</td>
<td>Rosen Plaza, Salon 13</td>
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<tr>
<td><strong>Center for Advanced Speciality Surgery</strong></td>
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<tr>
<td>Nigerian Orthopaedic Surgeons Luncheon</td>
<td>Wednesday, March 02</td>
<td>11:00 AM - 2:00 PM</td>
<td>Rosen Centre, Salon 4</td>
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<tr>
<td>Nigerian Orthopaedic Surgeons Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 10:00 PM</td>
<td>Rosen Centre, Salon 3</td>
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<tr>
<td><strong>Charles R. Drew University</strong></td>
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<tr>
<td>Alumni Meeting and Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 8:00 PM</td>
<td>Residence Inn by Marriott, 8800 Universal Blvd</td>
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<tr>
<td><strong>Cincinnati Sports Medicine and Orthopaedic Center</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 9:00 PM</td>
<td>Rosen Centre, Salon 13</td>
</tr>
<tr>
<td><strong>Cleveland Clinic</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 8:00 PM</td>
<td>Rosen Centre, Salon 16</td>
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<tr>
<td><strong>Drexel Orthopaedic Surgery</strong></td>
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<tr>
<td>Alumni Reunion</td>
<td>Thursday, March 03</td>
<td>6:00 - 7:30 PM</td>
<td>Hilton Orlando, Orange Ballroom C</td>
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<tr>
<td><strong>Emory University</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 8:00 PM</td>
<td>Hilton Orlando, Orange Ballroom C</td>
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<tr>
<td><strong>FOSA Executive Board Meeting (FOSA)</strong></td>
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<tr>
<td>Board of Directors Meeting</td>
<td>Saturday, March 5</td>
<td>6:00 - 7:30 AM</td>
<td>Orange County Convention Center, Room W305A</td>
</tr>
<tr>
<td><strong>Foundation for Orthopaedic Trauma</strong></td>
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<tr>
<td>Business Meeting</td>
<td>Thursday, March 03</td>
<td>4:30 - 6:30 PM</td>
<td>Rosen Centre, Salon 5</td>
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<tr>
<td><strong>George Washington University Orthopaedics</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:30 - 8:30 PM</td>
<td>Copper Canyon Grill, 9101 International Drive</td>
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<tr>
<td><strong>Girdlestone Orthopaedic Society</strong></td>
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<tr>
<td>Reception</td>
<td>Wednesday, March 02</td>
<td>6:00 - 8:00 PM</td>
<td>Rosen Centre, Pool Balcony</td>
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<tr>
<td><strong>Harvard Combined Orthopaedics Residency Program</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 8:00 PM</td>
<td>Hyatt Regency Orlando, Rocks Lounge</td>
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<thead>
<tr>
<th><strong>Henry Ford Health System-Orthopaedic Surgery</strong></th>
<th>ISTA</th>
</tr>
</thead>
</table>
| Alumni Reception  
Friday, March 04  
6:00 - 8:00 PM  
Fogo de Chao Brazilian Steakhouse, 8282 International Drive | Board of Directors Meeting  
Wednesday, March 02  
4:00 - 7:00 PM  
Rosen Centre, Salon 5 |
| **Hospital for Special Surgery** | J. Robert Glidden Orthopaedic Society (JRGOS) |
| Alumni Luncheon  
Thursday, March 03  
11:30 AM - 1:30 PM  
Rosen Plaza, Salon 13 | Board of Directors Meeting  
Thursday, March 03  
6:00 - 9:00 AM  
Hyatt Regency Orlando, Orlando Ballroom M |
| Alumni Luncheon  
Friday, March 04  
11:30 AM - 1:30 PM  
Rosen Plaza, Salon 13 | Annual Luncheon Registration  
Thursday, March 03  
11:30 AM - 12:30 PM  
Hyatt Regency Orlando, Plaza International Ballroom H |
| Class Representative & International Ambassador Meeting  
Friday, March 04  
5:00 - 6:00 PM  
Itta Bena, Pointe Orlando, Upper Level | Annual Luncheon  
Thursday, March 03  
12:30 - 2:30 PM  
Hyatt Regency Orlando, Plaza International Ballroom H |
| Alumni Reception  
Friday, March 04  
6:00 - 8:00 PM  
Itta Bena, Pointe Orlando, Upper Level | Medical Student Mentoring Program  
Thursday, March 03  
3:30 - 6:30 PM  
Hyatt Regency Orlando, Celebration 9 & 10 |

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<thead>
<tr>
<th><strong>International Congress for Joint Reconstruction</strong></th>
<th><strong>International Geriatric Fracture Society</strong></th>
</tr>
</thead>
</table>
| Outpatient Hip & Knee Replacement - The Changing Landscape: What You Need to Know  
Friday, March 04  
5:30 - 7:30 AM  
Rosen Centre, Grand Ballroom D | Breakfast Meeting  
Thursday, March 03  
6:30 - 8:00 AM  
Hilton Orlando, Lake Sheen A |

<table>
<thead>
<tr>
<th><strong>International Society of Arthroplasty Registries</strong></th>
<th><strong>International Geriatric Fracture Society</strong></th>
</tr>
</thead>
</table>
| Steering Committee Meeting  
Thursday, March 03  
4:30 - 5:30 PM  
Rosen Plaza, Salon 8 | Breakfast Meeting  
Thursday, March 03  
6:30 - 8:00 AM  
Hilton Orlando, Lake Sheen A |
| General Meeting  
Thursday, March 03  
5:30 - 8:30 PM  
Rosen Plaza, Salon 13/14 | **International Society of Arthroplasty Registries** |

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<tr>
<th><strong>Iranian-American Orthopaedic Association</strong></th>
<th><strong>ISTA</strong></th>
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</table>
| Alumni Dinner  
Thursday, March 03  
6:30 - 9:30 PM  
Charley’s Steakhouse, 8255 International Drive | Board of Directors Meeting  
Wednesday, March 02  
4:00 - 7:00 PM  
Rosen Centre, Salon 5 |
| **Irish-American Orthopaedic Society (IAOS)** | J. Robert Glidden Orthopaedic Society (JRGOS) |
| Cocktail Reception  
Friday, March 04  
6:30 - 9:00 PM  
Rosen Centre, Pool Balcony | Board of Directors Meeting  
Thursday, March 03  
6:00 - 9:00 AM  
Hyatt Regency Orlando, Orlando Ballroom M |
| **Johns Hopkins** | Annual Luncheon Registration  
Thursday, March 03  
11:30 AM - 12:30 PM  
Hyatt Regency Orlando, Plaza International Ballroom H |
| Alumni Reception  
Thursday, March 03  
6:00 - 8:30 PM  
Rosen Centre, Salon 3 | Annual Luncheon  
Thursday, March 03  
12:30 - 2:30 PM  
Hyatt Regency Orlando, Plaza International Ballroom H |
| **Lenox Hill Hospital** | Medical Student Mentoring Program  
Thursday, March 03  
3:30 - 6:30 PM  
Hyatt Regency Orlando, Celebration 9 & 10 |
| Staff and Alumni Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Rosen Plaza, Salon 10 | Medical Student Mentoring Reception  
Thursday, March 03  
6:00 - 7:00 PM  
Hyatt Regency Orlando, Plaza International Ballroom F |
| **Long Island Jewish Medical Center** | Trilogy Breakfast  
Friday, March 4  
7:00 - 8:00 AM  
Hyatt Regency Orlando, Florida Ballroom B |
| Alumni Reception  
Friday, March 04  
6:00 - 7:30 PM  
Hilton Orlando, Lake Highland B | Trilogy Breakfast  
Friday, March 4  
7:00 - 8:00 AM  
Hyatt Regency Orlando, Florida Ballroom B |
| **Loyola University Medical Center** | **ISTA** |
| Reception  
Friday, March 04  
6:00 - 8:00 PM  
Rosen Centre, Salon 2 | Board of Directors Meeting  
Wednesday, March 02  
4:00 - 7:00 PM  
Rosen Centre, Salon 5 |

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## Mayo Clinic Orthopedic Alumni Association
Reception  
Friday, March 04  
6:00 - 9:00 PM  
Hilton Orlando, Lake Mizell A

## Medical College of Wisconsin
Alumni Reception  
Friday, March 04  
6:00 - 8:00 PM  
The Ritz-Carlton Orlando, Grand Lakes, 4012 Central Florida Parkway

## Medical University of South Carolina (MUSC)
Alumni Reception  
Friday, March 04  
7:00 - 10:00 PM  
Rosen Centre, Salon 18

## Meniscus Transplantation Study Group
Meeting  
Thursday, March 03  
1:30 - 4:00 PM  
Rosen Centre, Salon 1

## Montefiore Medical Center
Alumni Association Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Rosen Centre, Salon 6

## MOON Shoulder Group
Research Meeting  
Friday, March 04  
5:00 - 7:00 PM  
Rosen Centre, Salon 8

## Mount Sinai Hospital
Alumni Reception  
Thursday, March 03  
6:30 - 8:30 PM  
Hilton Orlando, Conway Lake

## Musculoskeletal Tumor Society (MSTS)
MSTS Executive Committee Meeting  
Friday, March 04  
1:00 - 4:30 PM  
Plaza International Ballroom I

## Naval Medical Center Portsmouth
Alumni Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Hilton Orlando, Sand Lake

## Northwestern University, Feinberg School of Medicine
Alumni Reception  
Thursday, March 03  
6:00 - 8:30 PM  
Hilton Orlando, Lake Nona A

## NYOH Alumni Association / Columbia Orthopedics
Cocktail Reception  
Friday, March 04  
6:00 - 9:00 PM  
Hilton Orlando, Lake Sheen B

## NYU Langone Hospital for Joint Diseases
Alumni Reception  
Friday, March 04  
6:00 - 9:00 PM  
Hilton Orlando, Orange Ballroom B

## Oregon Health & Science University
Alumni Reception  
Thursday, March 03  
6:00 - 10:00 PM  
Rosen Centre, Salon 15

## Orthopaedic Laser Society of North America
Meeting  
Friday, March 04  
6:00 - 8:00 AM  
Rosen Plaza, Salon 8

## Orthopaedic Trauma Association (OTA)
Military Committee  
Wednesday, March 2  
7:00 - 8:00 AM  
Hyatt Regency Orlando, Celebration 11

Classifcation & Outcomes Committee  
Wednesday, March 2  
8:00 - 10:00 AM  
Hyatt Regency Orlando, Columbia 34

Research Committee Meeting  
Wednesday, March 2  
8:00 - 10:30 AM  
Hyatt Regency Orlando, Blue Spring

Fellowship Committee  
Wednesday, March 2  
9:00 - 10:00 AM  
Hyatt Regency Orlando, Celebration 7 & 8

Fellowship Directors Meeting  
Wednesday, March 2  
10:00 - 11:00 AM  
Hyatt Regency Orlando, Celebration 7 & 8

OTA/AO Classification (part 1 of 3)  
Wednesday, March 2  
10:00 AM - 1:00 PM  
Hyatt Regency Orlando, Celebration 15

Public Relations Committee Meeting  
Wednesday, March 2  
10:30 - 11:30 AM  
Hyatt Regency Orlando, Rock Spring

SRI Task Force Meeting  
Wednesday, March 2  
1:00 - 2:30 PM  
Hyatt Regency Orlando, Celebration 11

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<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Board of Directors Meeting</td>
<td>Wednesday, March 2</td>
<td>6:00 - 8:00 PM</td>
<td>Hyatt Regency Orlando, Florida Ballroom A</td>
</tr>
<tr>
<td>HWB Meeting</td>
<td>Thursday, March 3</td>
<td>6:00 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Manatee Spring</td>
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<tr>
<td>Membership Committee Meeting</td>
<td>Thursday, March 3</td>
<td>6:30 - 7:30 AM</td>
<td>Hyatt Regency Orlando, Challenger 39</td>
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<tr>
<td>COTA Board Meeting</td>
<td>Thursday, March 3</td>
<td>9:00 - 11:00 AM</td>
<td>Hyatt Regency Orlando, Celebration 16</td>
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<tr>
<td>OTA/AO Classification (part 2 of 3)</td>
<td>Thursday, March 3</td>
<td>10:00 AM - 1:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 15</td>
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<tr>
<td>Education Committee Meeting</td>
<td>Thursday, March 3</td>
<td>10:30 AM - 12:00 PM</td>
<td>Hyatt Regency Orlando, Blue Spring</td>
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<tr>
<td>Disaster Management Committee Meeting</td>
<td>Thursday, March 3</td>
<td>1:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Columbia 34</td>
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<tr>
<td>OTA/AO Project Team Meeting</td>
<td>Thursday, March 3</td>
<td>4:00 - 5:00 PM</td>
<td>Hyatt Regency Orlando, Peacock Spring</td>
</tr>
<tr>
<td>Video Library Project Team Meeting</td>
<td>Friday, March 4</td>
<td>6:30 - 7:30 AM</td>
<td>Hyatt Regency Orlando, Coral Spring</td>
</tr>
<tr>
<td>OTA/AO Classification (part 3 of 3)</td>
<td>Friday, March 4</td>
<td>7:00 - 10:00 AM</td>
<td>Hyatt Regency Orlando, Celebration 15</td>
</tr>
<tr>
<td>International Relations</td>
<td>Friday, March 4</td>
<td>8:00 - 9:00 AM</td>
<td>Hyatt Regency Orlando, Celebration 16</td>
</tr>
<tr>
<td>Humanitarian Committee</td>
<td>Friday, March 4</td>
<td>9:00 - 10:00 AM</td>
<td>Hyatt Regency Orlando, Celebration 11</td>
</tr>
<tr>
<td>EBVQ Committee</td>
<td>Friday, March 4</td>
<td>10:00 - 11:00 AM</td>
<td>Hyatt Regency Orlando, Challenger 41</td>
</tr>
<tr>
<td>Database Project Team Meeting</td>
<td>Friday, March 4</td>
<td>11:00 AM - 12:00 PM</td>
<td>Hyatt Regency Orlando, Challenger 40</td>
</tr>
<tr>
<td>Health Policy &amp; Planning Committee</td>
<td>Friday, March 4</td>
<td>12:00 - 1:00 PM</td>
<td>Hyatt Regency Orlando, Manatee Spring 1</td>
</tr>
<tr>
<td>ACS COT</td>
<td>Friday, March 4</td>
<td>1:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Boardroom</td>
</tr>
<tr>
<td>Basic Science Committee Meeting</td>
<td>Saturday, March 5</td>
<td>6:30 - 7:30 AM</td>
<td>Orange County Convention Center Room, W105B</td>
</tr>
<tr>
<td>Orthopaedics Overseas</td>
<td>Luncheon</td>
<td>Friday, March 4</td>
<td>12:00 - 2:00 PM</td>
</tr>
<tr>
<td>Pediatric Orthopaedic Society of North America (POSNA)</td>
<td>Board of Directors Meeting</td>
<td>Wednesday, March 2</td>
<td>9:00 AM - 3:00 PM</td>
</tr>
<tr>
<td>Penn State Hershey Bone and Joint Institute</td>
<td>Reception</td>
<td>Friday, March 4</td>
<td>6:30 - 8:30 PM</td>
</tr>
<tr>
<td>Piedmont Orthopedic Society</td>
<td>Mid-Winter Meeting / Reception</td>
<td>Friday, March 4</td>
<td>6:30 - 8:30 PM</td>
</tr>
<tr>
<td>Rhode Island Hospital / Brown Medical School</td>
<td>Alumni Reception</td>
<td>Thursday, March 3</td>
<td>6:00 - 9:00 PM</td>
</tr>
<tr>
<td>Rush University Medical Center</td>
<td>Orthopaedic Alumni</td>
<td>Friday, March 4</td>
<td>6:00 - 9:00 PM</td>
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<tr>
<td></td>
<td>Association Reception</td>
<td>Friday, March 4</td>
<td>6:00 - 9:00 PM</td>
</tr>
<tr>
<td>Event Description</td>
<td>Date</td>
<td>Time</td>
<td>Location</td>
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<tr>
<td><strong>Rutgers New Jersey Medical School</strong></td>
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<tr>
<td>Alumni Dinner</td>
<td>Friday, March 04</td>
<td>7:00 - 10:00 PM</td>
<td>Roy’s Orlando, 7760 West Sand Lake Road</td>
</tr>
<tr>
<td><strong>Ruth Jackson Orthopaedic Society (RJOS)</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Board of Directors Meeting</td>
<td>Tuesday, March 1</td>
<td>1:00 - 4:00 PM</td>
<td>Hyatt Regency Orlando, Coral Spring</td>
</tr>
<tr>
<td>Annual &amp; Member Business Meetings</td>
<td>Tuesday, March 1</td>
<td>5:00 - 9:30 PM</td>
<td>Hyatt Regency Orlando, Regency Ballroom O</td>
</tr>
<tr>
<td>Breakfast Book Club</td>
<td>Wednesday, March 2</td>
<td>7:00 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Peacock Spring</td>
</tr>
<tr>
<td>RJOS/Perry Initiative Outreach Program</td>
<td>Wednesday, March 2</td>
<td>8:00 - 11:30 AM</td>
<td>Orange County Convention Center, Room W311A</td>
</tr>
<tr>
<td><strong>Saint Louis University School of Medicine</strong></td>
<td></td>
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</tr>
<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 8:30 PM</td>
<td>Rosen Centre, Salon 15</td>
</tr>
<tr>
<td><strong>Scoliosis Research Society (SRS)</strong></td>
<td></td>
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</tr>
<tr>
<td>5th Annual POSNA/SRS Kids Forum</td>
<td>Thursday, March 3</td>
<td>12:00 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 7 &amp; 8</td>
</tr>
<tr>
<td><strong>Société Internationale de Chirurgie Orthopédique et de Traumatologie (SICOT)</strong></td>
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<tr>
<td>US Section Luncheon</td>
<td>Friday, March 4</td>
<td>12:30 - 2:00 PM</td>
<td>Hyatt Regency Orlando, Peacock Spring</td>
</tr>
<tr>
<td><strong>Society of Military Orthopaedic Surgeons (SOMOS)</strong></td>
<td></td>
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<tr>
<td>Board of Director’s Meeting</td>
<td>Thursday, March 3</td>
<td>3:00 - 7:00 PM</td>
<td>Hyatt Regency Orlando, Orlando Ballroom L</td>
</tr>
<tr>
<td>Member Reception</td>
<td>Thursday, March 3</td>
<td>7:00 - 10:00 PM</td>
<td>Hyatt Regency Orlando, Regency Ballroom P</td>
</tr>
<tr>
<td><strong>Southern California Orthopedic Institute</strong></td>
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</tr>
<tr>
<td>Sports Medicine Fellowship Reception</td>
<td>Friday, March 04</td>
<td>8:00 - 11:00 PM</td>
<td>Rosen Centre, Salon 13</td>
</tr>
<tr>
<td><strong>St. Mary’s Medical Center-SFORP</strong></td>
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</tr>
<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 7:30 PM</td>
<td>Vines Grille and Wine Bar, 7533 Sand Lake Road</td>
</tr>
<tr>
<td><strong>Summa Health System, Department of Orthopaedics</strong></td>
<td></td>
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</tr>
<tr>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 9:00 PM</td>
<td>Hilton Orlando, Pocket Lake</td>
</tr>
<tr>
<td><strong>SUNY Downstate Medical Center</strong></td>
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<tr>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>7:00 - 10:00 PM</td>
<td>Rosen Centre, Salon 14</td>
</tr>
<tr>
<td><strong>SUNY Stony Brook Department of Orthopaedics</strong></td>
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</tr>
<tr>
<td>Alumni Association Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 8:00 PM</td>
<td>Hilton Orlando, Clear Lake</td>
</tr>
<tr>
<td><strong>The Association of Bone and Joint Surgeons (ABJS)</strong></td>
<td></td>
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</tr>
<tr>
<td>CORR® Editorial Advisory Board Meeting</td>
<td>Wednesday, March 2</td>
<td>7:00 - 8:00 AM</td>
<td>Hyatt Regency Orlando, Barrel Spring 1</td>
</tr>
<tr>
<td>CORR® Publishers Meeting</td>
<td>Wednesday, March 2</td>
<td>8:30 - 11:30 AM</td>
<td>Hyatt Regency Orlando, Celebration 9</td>
</tr>
<tr>
<td>CORR® Board of Trustees Meeting</td>
<td>Wednesday, March 2</td>
<td>11:30 AM - 3:30 PM</td>
<td>Hyatt Regency Orlando, Celebration 9</td>
</tr>
<tr>
<td>ABJS Executive Committee Meeting</td>
<td>Thursday, March 3</td>
<td>12:00 - 4:00 PM</td>
<td>Hyatt Regency Orlando, Celebration 16</td>
</tr>
<tr>
<td><strong>The Herodicus Society</strong></td>
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<tr>
<td>Reception</td>
<td>Friday, March 04</td>
<td>7:00 - 9:00 PM</td>
<td>Hilton Orlando, Lake Mizell B</td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>The Hip Society</strong></th>
<th><strong>University of California, San Diego Orthopaedic Alumni Association</strong></th>
</tr>
</thead>
</table>
| Board of Directors Meeting | Reception  
Thursday, March 3  
6:00 - 7:40 AM  
Hyatt Regency Orlando,  
Barrel Spring 1 |

<table>
<thead>
<tr>
<th><strong>The Knee Society</strong></th>
<th><strong>University of California, San Francisco</strong></th>
</tr>
</thead>
</table>
| Executive Board Meeting | Alumni Cocktail Reception  
Thursday, March 03  
6:00 - 9:00 PM  
Tommy Bahama Restaurant and Bar, 9101 International Drive |

<table>
<thead>
<tr>
<th><strong>The Ohio State University</strong></th>
<th><strong>University of Cincinnati - Freiberg Society</strong></th>
</tr>
</thead>
</table>
| Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Rosen Centre, Salon 2 | Reception  
Friday, March 04  
6:30 - 9:00 PM  
Rosen Shingle Creek,  
Suwannee 16 |

<table>
<thead>
<tr>
<th><strong>The University of Chicago</strong></th>
<th><strong>University of Connecticut Health</strong></th>
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</thead>
</table>
| Alumni Reception  
Friday, March 04  
6:30 - 8:30 PM  
Doubletree SeaWorld, Coral B | Alumni Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Hilton Orlando, Ruby Lake |

<table>
<thead>
<tr>
<th><strong>Thomas Jefferson University</strong></th>
<th><strong>University of Florida</strong></th>
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</thead>
</table>
| Alumni Reception  
Friday, March 04  
6:00 - 8:00 PM  
Hilton Orlando,  
Orange Ballroom G | Alumni Reception  
Friday, March 04  
6:30 - 9:30 PM  
Cuba Libre Restaurant, 9101 International Drive |

<table>
<thead>
<tr>
<th><strong>Tufts Medical Center</strong></th>
<th><strong>University of Illinois at Chicago</strong></th>
</tr>
</thead>
</table>
| Alumni Reception  
Friday, March 04  
6:30 - 9:00 PM  
Rosen Shingle Creek,  
Suwannee 18/19 | Alumni Reception  
Thursday, March 03  
7:00 - 9:00 PM  
Rosen Centre, Salon 20 |

<table>
<thead>
<tr>
<th><strong>Tulane Medical School</strong></th>
<th><strong>University of Iowa Healthcare / Orthopaedic Surgery</strong></th>
</tr>
</thead>
</table>
| Caldwell Society Reception  
Thursday, March 03  
6:30 - 8:30 PM  
Rosen Centre, Salon 18 | Alumni Reception  
Friday, March 04  
6:00 - 8:00 PM  
Rosen Shingle Creek,  
Suwannee 11/12 |

<table>
<thead>
<tr>
<th><strong>UCLA Orthopaedic Surgery</strong></th>
<th><strong>University of Kansas</strong></th>
</tr>
</thead>
</table>
| Alumni Reception  
Friday, March 04  
6:00 - 8:00 PM  
Hilton Orlando, Lake Hart B | Orthopedics Alumni Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Itta Bena,  
9101 International Drive |

<table>
<thead>
<tr>
<th><strong>University at Buffalo</strong></th>
<th><strong>University of Kansas-Wichita Orthopaedics</strong></th>
</tr>
</thead>
</table>
| Alumni Reception  
Friday, March 04  
7:00 - 10:00 PM  
Hilton Orlando, Ruby Lake | Alumni Reception  
Thursday, March 03  
6:30 - 8:00 PM  
Hilton Orlando, Lake Highland A |

<table>
<thead>
<tr>
<th><strong>University of Alabama at Birmingham</strong></th>
<th><strong>University of Louisville</strong></th>
</tr>
</thead>
</table>
| Alumni Reception  
Thursday, March 03  
6:00 - 8:00 PM  
Hilton Orlando,  
Orange Ballroom C | Alumni Reception  
Thursday, March 03  
6:00 - 9:00 PM  
Rosen Plaza, Salon 17 |

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<table>
<thead>
<tr>
<th>University</th>
<th>Alumni Event</th>
<th>Date</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Maryland</td>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>7:00 - 10:00 PM</td>
<td>Hilton Orlando, Lake Hart B</td>
</tr>
<tr>
<td>University of Massachusetts</td>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 9:00 PM</td>
<td>Doubletree SeaWorld, Mediterranean B</td>
</tr>
<tr>
<td>University of Miami</td>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 8:00 PM</td>
<td>Doubletree SeaWorld, Mediterranean BC</td>
</tr>
<tr>
<td>University of Michigan</td>
<td>Badgley Alumni Society Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 8:00 PM</td>
<td>Hilton Orlando, Lake Sheen A</td>
</tr>
<tr>
<td>University of Missouri Orthopedic Association</td>
<td>Reception</td>
<td>Thursday, March 03</td>
<td>6:30 - 8:30 PM</td>
<td>Hilton Orlando, Lake Highland B</td>
</tr>
<tr>
<td>University of Missouri-Kansas City</td>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:30 - 8:30 PM</td>
<td>Tommy Bahama Restaurant and Bar, 9101 International Drive</td>
</tr>
<tr>
<td>University of Nebraska Medical Center</td>
<td>Alumni Gathering</td>
<td>Thursday, March 03</td>
<td>6:30 - 8:30 PM</td>
<td>Copper Canyon Grill, 9101 International Drive</td>
</tr>
<tr>
<td>University of New Mexico - Sandia Orthopaedic Alumni Society</td>
<td>Reception</td>
<td>Friday, March 04</td>
<td>6:30 - 9:30 PM</td>
<td>Rosen Centre, Salon 4</td>
</tr>
<tr>
<td>University of North Carolina Orthopaedics</td>
<td>Alumni Dinner</td>
<td>Thursday, March 03</td>
<td>6:00 - 8:00 PM</td>
<td>Hard Rock Café, Woodstock Room &amp; Terrace, 6050 Universal Blvd</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 9:00 PM</td>
<td>Hilton Orlando, Lake Nona A</td>
</tr>
<tr>
<td>University of Rochester</td>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>7:00 - 10:00 PM</td>
<td>Hilton Orlando, Sand Lake</td>
</tr>
<tr>
<td>University Of Southern California Graduate Orthopedic Surgeons (SOGOS)</td>
<td>Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 9:30 PM</td>
<td>Tommy Bahama Restaurant and Bar, 9101 International Drive</td>
</tr>
<tr>
<td>University of Texas Medical Branch, Orthopaedic Surgery at Galveston</td>
<td>Alumni Reception</td>
<td>Wednesday, March 02</td>
<td>6:00 - 8:00 PM</td>
<td>Rosen Shingle Creek, Suwannee 11</td>
</tr>
<tr>
<td>University of Toronto</td>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:00 - 8:00 PM</td>
<td>Rosen Plaza, Salon 8</td>
</tr>
<tr>
<td>University of Virginia</td>
<td>Alumni Reception</td>
<td>March 3, 2016</td>
<td>6:30 - 9:00 PM</td>
<td>Rosen Centre, Salon 9</td>
</tr>
<tr>
<td>University of Wisconsin</td>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:00 - 8:00 PM</td>
<td>Rosen Centre, Salon 9</td>
</tr>
<tr>
<td>Wake Forest</td>
<td>Alumni Reception</td>
<td>Thursday, March 03</td>
<td>6:30 - 8:30 PM</td>
<td>Rosen Centre, Salon 7</td>
</tr>
<tr>
<td>Walter Reed Bethesda Orthopaedic Alumni Association</td>
<td>Member Reception</td>
<td>Thursday, March 3</td>
<td>6:00 - 7:00 PM</td>
<td>Regency Ballroom P</td>
</tr>
<tr>
<td>Washington State Orthopaedic Association</td>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:30 - 8:30 PM</td>
<td>Rosen Centre, Salon 17</td>
</tr>
<tr>
<td>Washington University</td>
<td>Alumni Reception</td>
<td>Friday, March 04</td>
<td>6:30 - 8:30 PM</td>
<td>Rosen Centre, Salon 11</td>
</tr>
</tbody>
</table>
West Virginia University
Alumni Reception Friday, March 04
6:00 - 7:30 PM
Doubletree SeaWorld, Mediterranean C

William Beaumont Hospital
Alumni Reception Friday, March 04
6:30 - 10:00 PM
Texas de Brazil, 5259 International Drive

Willis C. Campbell Club
Alumni Reception Friday, March 04
6:00 - 8:00 PM
Hilton Orlando, Orange Ballroom E

Wright State Orthopaedics
Alumni Reception Friday, March 04
7:00 - 10:00 PM
Hilton Orlando, Pocket Lake

Yale Orthopedic Association
Reception Thursday, March 03
6:00 - 8:00 PM
Doubletree SeaWorld, Caribbean AB

AAOS: Distraction City
CITIZENS BEWARE!

Distractions are everywhere and we are all guilty, but did you know they are causing unnecessary injuries and orthopaedic traumas? Too frequently, we hear about distracted driving-related crashes, or about pedestrians tripping, falling or colliding with another person, object or traffic because of distracted walking.

Orthopaedists want to educate patients and the public about ways to keep their bones and joints safe from harm and injury. Are you doing your part?

The Academy has two multimedia campaigns—Decide to Drive and Digital Deadwalkers—to help you promote this effort in your local markets and offices.

Take a walk through Distraction City during Annual Meeting, located in Academy Hall. Can you make it through with little to no distractions?

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ACTIVE FELLOWS

A
Alexander Martin Aboka, MD
Samuel Bruce Adams, Jr, MD
Brook Andrew Adams, MD
Scott McDowell Adams, MD
Uzondu Francis Agochukwu, MD
David A. Ajibade, MD
Michael Alapatt, MD
Anthony S. Albert, MD
Mohaned Al-Humadi, MD
Yuehuei Huey An, MD
David W. Anderson, MD, MS
Lindsay Manning Andras, MD
Michael Edward Angelina, MD
Adam William Anz, MD
Steve Appleton, Jr, MD
Jason David Archibald, MD
Sameh Arebi, MD
Evon Henry Argintar, MD
Sameh Arebi, MD
Jason David Archibald, MD

B
Jeffrey M. Bair, MD
Joshua Bales, MD
B. Christian Balldin, MD
Michael Brian Banfry, MD
Michael G. Baraga, MD
Richard Brian Barber, MD
Jennifer Sobeski Barr, MD
Julie Giadden Barré, MD
James F. Barwick, MD
Eric D. Bava, MD
Andrea Sesko Bauer, MD
Emil Azer, MD
Hasan Elias Baydoun, MD
Benjamin Beecher, MD
Joseph Edward Bellamy, MD
Rodney W. Benner, MD
Grant Whitby Bennett, MD
Brent Luke Berger, MD
Adam Gary Bergeson, MD
Rishi Bhatnagar, MD
Damien Grant Billow, MD
Jessica Christine Bilotta, MD
Justin Earl Bird, MD
Michael V. Birman, MD
Gavin B. Bishop, MD
Adam D. Bloemke, MD
John J. Bottros, MD
Jennifer Katherine Bow, MD
Karl Frederick Bowman, MD
Melissa Mahiquez Boyette, MD
Brian Braaksma, MD
John Brady, MD
Steven Brantley, MD
Luke Flynn Bremmer, MD
Andrew David Bries, MD
Hugh Brock, MD
Chad Brockardt, MD
Scott Brotherton, MD
Kimberly K. Broughton, MD
Christopher A. Brown, MD
David Grif n Brown, MD
Jeffrey Allen Brunelli, MD
Matthew Daniel Budge, MD
Tuan L. Bui, MD
Julia A. Bulkeley, MD
Christopher Michael Burket, MD
Jeffrey Alan Burns, MD
Sean Thomas Burns, MD
R. Bryan Butler, MD
Ian R. Byram, MD

C
Joseph M. Caldwell II MD
Kevin Standley Caperton, MD
Robert Michael Cercek, MD
Christina Cervieri, MD
David Holmes Chafey III, MD
Shaun E. Chandran, MD
Bernardo J. Checo, Jr, MD
Morgan Chen, MD
Michael Li Ho Chen, MD
Darwin D. Chen, MD
James L. Chen, MD
WeiChin Chen, MD
Yeukkei Cheung, MD
Samuel Kang-Wook Cho, MD
Walter Stephen Choate, MD
Nikhil K. Chokshi, MD
Paul Y. Chong, MD
Andrew Moon Choo, MD
Franklin H. Chou, MD
Dimitrios C. Christoforou, MD
Brandon A. Cincere, MD
Randy R. Clark, MD
Ashley C. Cogar, MD
Michael A. Cohn, MD
Alexander C. Coleman, MD
Miriysa Colon-Martinez, MD
Andrew J. Cooper, MD
Herbert John Cooper, MD
Jonathan B. Courtney, MD
David Anthony Crawford, MD
Allison Elizabeth Crepeau, MD
Francis P. Cyran, MD

D
Miguel S. Daccarett, MD
Robert J. Daher, MD
Brian Keith Daines, MD
Hussein Fadi Darwiche, MD
Darin Justyn Davidson, MD
Joel Mark Davis, MD
Sayan De, MD
Jaime Rice Denning, MD
James Guido Di Stefano, MD
Douglas Dickson, MD
Brian D. Dierckman, MD
Jon-Paul Philip DiMauro, MD
Jeremy Paul Doak, MD
David M. Doman, MD
Donald Dean Dominy III, MD
Derek James Donegan
Jonathan A. Donigan, MD
Keith C. Douglas, MD
John D. Duerden, MD
Andrew Richard Duffee, MD
Bryan Duncan, MD
Ian Charles Duncan, MD
Thomas Christopher Durbin, MD
Shakeel Farrukh Durrani, MD
Sergey S. Dzugan, MD
Matthew A. Frank, MD
Corinna C. D. Franklin, MD
Justin O. Franz, MD
Michael Thomas Freehill, MD
Carl R. Freeman, MD
Seth West Frenzen, MD
John Marshal Froelich, MD
Nathan Lee Frost, MD

G
Evan Bradley Gaines, MD
Jason M. Gallina, MD
Eric James Gardner, MD
Jeffrey Paul Garrett, MD
Jeffrey Gates, MD
Dustin Phillip Gay, MD
Albert Ooguen Gee, MD
Benjamin Geer, MD
Jacqueline Amy Geissler, MD
Martin Konrad Gelbke, MD
Vlad Gendelman, MD
Mark B. Gibbs, MD
Thomas V. Giel III, MD
Robert J. Gillespie, MD
George S. Gluck, MD
Rahul Gokhale, MD
Andrew David Goodwillie, MD
Matthew Philip Gordon, MD
Hilton Philip Gottschalk, MD
Nitin Goyal, MD
John Andrew Grant, MD, PhD
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<td>Col. (ret) B. Hudson Berrey, MD, FACS</td>
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<td>Hari Bezwada, MD</td>
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<td>Ryan T. Bicknell, MD</td>
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<td>Alex Johnson</td>
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<td>Randy Steven Schwartzberg, MD</td>
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<td>Ran Schwarzkopf, MD</td>
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Alexander Theologis, MD
Emmanuel Thienpont, MD
Claudia L. Thomas, MD
Ruth Lourdes Thomas, MD
Capt. (ret) Michael A. Thompson, MD
George H. Thompson, MD
Stephen Thompson, MD
Terry L. Thompson, MD
Brian Thomson, MD
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Vidyadhav V. Upasani, MD
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Norman Waldrop III, MD
Larry Waldrop, MD
Gilles Walch, MD
Larry Waldrop, MD
Norman Waldrop III, MD
Kristina Sinacori Walick, MD
Brett Walker, DO
Peter S. Walker, PhD
Bryan T. Wall, MD
Eric J. Wall, MD
Maegen Wallace, MD
Roxanne E. Wallace, MD
W. Angus Wallace, MD, ChB, FRCS, FRCS (Ortho)
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Russell F. Warren, MD
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Hugh Godfrey Watts, MD
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Antonio J. Webb, MD
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Kristy L. WEBER, MD
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Adam Wegner, MD, PhD
David H. WEI, MD
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Robb Matthew Weir, MD
Mitchell Weiser, MD
Arnold-Peter C. Weiss, MD
David B. Weiss, MD
Arnold-Peter C. Weiss, MD
Mitchell Weiser, MD
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Jennifer M. Weiss, MD
Jason Scott Weisstein, MD
Joseph K. Weistroffer, MD
Richard B. Welch, MD
William Jacob Weller, MD
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<th>Member Name</th>
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<th>City, State</th>
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<tr>
<td>Daniel M. Adair, MD</td>
<td>9/7/2015</td>
<td>Springfield, IL</td>
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<tr>
<td>Tony Nguyen Aram, MD</td>
<td>6/23/2014</td>
<td>Bethesda, MD</td>
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<td>Frank T. Barranco, Sr, MD</td>
<td>3/21/2015</td>
<td>Parkville, MD</td>
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<td>Marco Berard, MD</td>
<td>9/10/2015</td>
<td>Potsdam, NY</td>
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<td>Leslie M. Bodnar, MD</td>
<td>12/16/2014</td>
<td>South Bend, IN</td>
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<td>John Charles Bouillon, MD</td>
<td>8/12/2012</td>
<td>Great Barrington, MA</td>
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<td>Christopher M. Brian, MD</td>
<td>6/30/2014</td>
<td>Littleton, CO</td>
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<td>1/14/2014</td>
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<td>G. David Casper, MD</td>
<td>12/19/2014</td>
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<td>Antonio E. Castelv, MD</td>
<td>2/8/2014</td>
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<td>9/18/2013</td>
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<td>8/24/2014</td>
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<td>9/29/2015</td>
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<td>8/17/2015</td>
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<td>Karl Robert Hamson, MD</td>
<td>10/31/2014</td>
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<td>J. Paul Harvey, Jr, MD</td>
<td>8/12/2010</td>
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<td>Harry E. Hoerner, MD</td>
<td>6/27/2014</td>
<td>New Orleans, LA</td>
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<td>12/27/2013</td>
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<td>J. Thomas Huvelve, MD</td>
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<td>3/27/2015</td>
<td>Minneapolis, MN</td>
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<td>4/23/2015</td>
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<td>Leon Levine, MD</td>
<td>4/1/2015</td>
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<td>Ralph Lusskin, MD</td>
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<td>8/21/2013</td>
<td>Traverse City, MI</td>
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<td>James M. Marlowe, MD</td>
<td>12/16/2014</td>
<td>High Point, NC</td>
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<td>E. Thomas Marquardt, MD</td>
<td>9/3/2015</td>
<td>Green Lake, WI</td>
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<td>William C. Martin, MD</td>
<td>1/15/2015</td>
<td>Bay City, MI</td>
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<td>Malcolm A. Meyn, Jr, MD</td>
<td>11/17/2014</td>
<td>Cincinnati, OH</td>
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<td>Francisco J. Miranda, MD</td>
<td>5/6/2014</td>
<td>Scotch Plains, NJ</td>
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<td>Michael E. Moore, MD</td>
<td>8/23/2015</td>
<td>Novelty, OH</td>
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<td>Robert Delevan Mussey, MD</td>
<td>3/18/2015</td>
<td>Urbana, IL</td>
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<td>Gerald M. Paul, MD</td>
<td>10/25/2013</td>
<td>Encino, CA</td>
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<tr>
<td>Richard B. Peoples, MD</td>
<td>12/11/2014</td>
<td>Fort Worth, TX</td>
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STANDARDS OF PROFESSIONALISM
Orthopaedic Surgeon-Industry Relationships
Adopted April 18, 2007; Amended April 23, 2012
AAOS Standards of Professionalism (SOPs) establish the minimum standards of acceptable conduct for orthopaedic surgeons. Violations of any SOP may result in professional compliance actions against an AAOS Fellow or Member found in violation. Not prepared using a systematic review, SOPs are developed through a consensus process and are ultimately adopted as official AAOS statements by the two-thirds vote of the AAOS Fellowship casting ballots.

The primary focus of the orthopaedic profession is care of the patient. As part of their lifetime commitment to patients, orthopaedic surgeons must maintain specialized knowledge and skills through participation in continuing medical education (CME) programs, seminars, and professional meetings. Often, these professional functions are sponsored by the manufacturers of medical devices, biologics, drugs and other items use in the care of the patient (Product). These businesses play an important role in the support of CME events and the development of new technologies. This collaborative effort ensures that patients have the best outcomes through the invention and testing of new technology, research and evaluation of existing technology, and continued education of orthopaedic surgeons.

Cooperative relationships between orthopaedic surgeons and industry benefit patients. Orthopaedic surgeons are best qualified to provide innovative ideas and feedback, conduct research trials, serve on scientific advisory boards, and serve as faculty to teach the use of new technology. Orthopaedic surgeons, in an effort to improve patient care, rely on industry to bring their creative ideas to fruition. A collaborative relationship between orthopaedic surgeons and industry is necessary to improve patient care, but must be carefully scrutinized to avoid pitfalls of improper inducements, whether real or perceived.

A potential conflict of interest exists when professional judgment concerning the well being of the patient has a reasonable chance of being influenced by other interests of the physician. Disclosure of a conflict of interest is required in communications to patients, the public and colleagues. Orthopaedic surgeons, like all physicians, have an ethical obligation to present themselves and the services they provide to patients in a clear and accurate manner.

When faced with a potential conflict of interest that cannot be resolved, an orthopaedic surgeon should consult with colleagues or an institutional ethics committee to determine whether there is an actual or potential conflict of interest and how to address it.

These Standards of professionalism draw from the aspirational Code of Medical Ethics and Professionalism for Orthopaedic Surgeons that appears in bold italics. The statements that follow the aspirational Code establish the mandatory minimum standards of acceptable conduct for orthopaedic surgeons when engaged in relationships with industry. Violations of these minimum standards may serve as grounds for a formal complaint to and action by the AAOS as outlined in the AAOS Bylaws Article VIII.

The Standards of Professionalism on Orthopaedic Surgeon-Industry Relationships apply to all AAOS Fellows and Members. Only an AAOS Fellow or Member may file complaints of an alleged violation of these Standards of Professionalism regarding another AAOS Fellow or Member.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, I.A.:
The orthopaedic profession exists for the primary purpose of caring for the patient. The physician-patient relationship is the central focus of all ethical concerns.

Mandatory Standards:
1. An orthopaedic surgeon shall, while caring for and treating a patient, regard his or her responsibility to the patient as paramount.
2. An orthopaedic surgeon shall prescribe products or other treatments primarily on the basis of medical considerations and patient needs, regardless of any direct or indirect interests in or benefit from industry.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, II.C.:
The orthopaedic surgeon should obey all laws, uphold the dignity and honor of the profession, and accept the profession’s self-imposed discipline. Within legal and other constraints, if the orthopaedic surgeon has a reasonable basis for believing that a physician or other health care provider has been involved in any unethical or illegal activity, he or she should attempt to prevent the continuation of this activity by communicating with that person and/or identifying that person to a duly constituted peer review authority or the appropriate regulatory agency. In addition, the orthopaedic surgeon should cooperate with peer review and other authorities in their professional and legal efforts to prevent the continuation of unethical or illegal conduct.

Mandatory Standard:
3. An orthopaedic surgeon shall comply with all relevant federal and state conflict of interest and fraud and abuse laws.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, III.A.:
The practice of medicine inherently presents potential conflicts of interest. When a conflict of interest arises, it must be resolved in the best interest of the patient. The orthopaedic surgeon should exercise all reasonable alternatives to ensure that the most appropriate care is provided to the patient. If the conflict of interest cannot be resolved, the orthopaedic surgeon should notify the patient of his or her intention to withdraw from the relationship.

Mandatory Standards:
4. An orthopaedic surgeon shall, when treating a patient, resolve conflicts of interest in accordance with the best interest of the patient, respecting a patient’s autonomy to make health care decisions.
5. An orthopaedic surgeon shall notify the patient of his or her intention to withdraw from the patient-physician relationship, in a manner consistent with state law, if a conflict of interest cannot be resolved in the best interest of the patient.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, III.C.:
When an orthopaedic surgeon receives anything of significant value from industry, a potential conflict exists which should be disclosed to the patient. When an orthopaedic surgeon receives inventor royalties from industry, the orthopaedic surgeon should
Orthopaedic Surgeon-Industry Relationships

Mandatory Standards:

6. An orthopaedic surgeon shall decline subsidies or other financial support from industry, except that an orthopaedic surgeon may accept non-monetary items which benefit patients or serve an educational function and which have a fair market value of less than $100.

7. An orthopaedic surgeon who has influence in selecting a particular product or service for an entity shall disclose any relationship with industry to colleagues, the institution and other affected entities.

8. An orthopaedic surgeon shall disclose to the patient any financial arrangements with industry that relate to the patient's treatment, including the receipt of inventor royalties, stock options or paid consulting arrangements with industry.

9. An orthopaedic surgeon shall accept no direct financial inducements from industry for utilizing a particular product or for switching from one manufacturer's product to another.

10. An orthopaedic surgeon shall enter into consulting agreements with industry only when such arrangements are established in advance and in writing to include evidence:

   • That there is an actual need for the service;
   • That the provision of the service will be verified;
   • That the compensation for services provided by the orthopaedic surgeon is based on fair market value;
   • That the compensation for services provided by the orthopaedic surgeon is not based on the volume or value of business he or she generates; and
   • That reimbursement for reasonable and actual expenses, such as modest meals, travel and lodging, incurred by the orthopaedic surgeon is based on appropriate need and accurate documentation.

11. An orthopaedic surgeon shall consult at only those meetings that are conducted in clinical, educational, or conference settings conducive to the effective exchange of basic science and/or clinical information.

12. An orthopaedic surgeon shall accept no financial support from industry to attend industry-related social functions where there is no educational element.

13. An orthopaedic surgeon who is attending a CME event shall accept no financial support for attendance at a CME event. Residents and orthopaedists-in-training may accept an industry grant to attend a CME event if they are selected by their training institution or CME sponsor and the payment is made by the training program or CME sponsor. The industry entity funding the grant shall have no influence in the selection of the individual recipients.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, III.D.:

The orthopaedic surgeon reporting on clinical research or experience with a given procedure or product must disclose any financial interest in that procedure or product if the orthopaedic surgeon or any institution with which that orthopaedic surgeon is connected has received anything of value from its inventor or manufacturer.

Mandatory Standards:

14. An orthopaedic surgeon, when attending an industry-sponsored non-CME educational event, shall accept only tuition, travel and modest hospitality, including meals and receptions. The time and focus of the event must be for the presentation of bona fide scientific, educational or business information or training.

15. An orthopaedic surgeon, when attending an industry-sponsored non-CME educational event, shall accept no financial support for meals, hospitality, travel, or other expenses for his or her guests or for any other person who does not have a bona fide professional interest in the information being shared at the meeting.

16. An orthopaedic surgeon, when reporting on clinical research or experience with a given procedure or product, shall disclose any financial interest in that procedure or product if he or she or any institution with which he or she is connected has received anything of value from its inventor, manufacturer, or distributor.

17. An orthopaedic surgeon who is an investigator shall make his or her best efforts to ensure at the completion of an industry-sponsored study that relevant research results are reported and reported truthfully and honestly with no bias or influence from funding sources, regardless of positive or negative findings.
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