Could your patients achieve a greater range of motion and get back sooner? In a clinical study, physical therapists noted that ATTUNE® Knee patients had significantly greater range of motion compared to another leading knee replacement, both two and six weeks post-surgery. It was also noted that ATTUNE Knee patients required significantly less time to meet the necessary criteria to leave the hospital.*

See how the ATTUNE Knee could improve outcomes for your patients by contacting your local DePuy Synthes Companies representative or visiting www.attuneknee.com or www.depuysynthes.com.

* Data on file from Mark Clatworthy, MD. In-hospital study involved 40 ATTUNE Knee vs 40 SIGMA® Knee patients.
THE CODE IS CLEAR.

MONOVISC® High Molecular Weight Hyaluronan

The only FDA-approved, non-avian hyaluronic acid injection for single use now has a J-Code! MONOVISC offers unique product features and benefits for patients and healthcare professionals.

- A unique J-Code to optimize billing processes; J7327, Hyaluronan, or derivative, MONOVISC per dose
- The only FDA approved non-avian HA single injection for the treatment of pain associated with knee OA
- Up to six months of efficacy with a single injection
- Highest concentration of hyaluronic acid (HA) available in a single syringe, 88mg/4mL
- Re-treatment safety profile similar to that of the first injection

MONOVISC Important Safety Information

MONOVISC High Molecular Weight Hyaluronan is indicated in the treatment of pain in osteoarthritis (OA) of the knee in patients who have failed to respond adequately to conservative non-pharmacologic therapy and to simple analgesics, e.g., acetaminophen. In clinical studies, the most commonly reported adverse events were arthralgia, joint swelling and injection site pain. MONOVISC is contraindicated in patients with known hypersensitivity to hyaluronate formulations or known hypersensitivity (allergy) to gram positive bacterial proteins. MONOVISC should not be injected in patients with infections or skin diseases in the area of the injection site or joint. MONOVISC should not be administered to patients with known bleeding disorders.

References: 1. MONOVISC® High Molecular Weight Hyaluronan Full Prescribing Information

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To learn more about the future of proximal femoral fracture treatment, visit DePuy Synthes Booth #4243.

www.tfnadvanced.com

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Special Events

Venetian/Sands EXPO, Venetian Ballroom E

Opening Ceremony
Wednesday, March 25
4:00 – 5:30 PM

Business Meetings
Thursday, March 26, 9:00 AM

Ceremonial Meeting
Thursday, March 26, 10:00 AM

Frederick M. Azar, MD
Presidents Remarks
“Standing United for Our Patients and Our Profession”

David D. Teuscher, MD
Incoming Presidential Address
“The House of Orthopaedics”

Gerald R. Williams, Jr, MD
Incoming First Vice Presidential Remarks
“The Power of Three: Education, Practice Management and Unity”

AAOS Presidential Guest Speaker Benjamin S. Carson, Sr, MD
One Nation: What We Can All Do to Save America’s Future
Thursday, March 26, 11:00 AM

Join us Thursday morning as Benjamin S. Carson, Sr, MD shares his bold plan to stop the country’s slide into fiscal and moral decay. Avoiding the political correctness of politicians and the animosity of Washington lawyers, Dr. Carson calls for respectful discussion and disagreement, with no subjects off limits. Applying the problem-solving skills he honed as a surgeon, he will take on tough issues such as education, health care, family values, race relations, taxes, charity, and the role of faith in public life. In his journey from poverty to the top of his field, Dr. Carson has lived the American dream. He will share with us his thoughts on how we can save that dream for our future generations.

Dr. Carson, is an emeritus professor of neurosurgery, oncology, plastic surgery and pediatrics at the Johns Hopkins School of Medicine, where he directed pediatric neurosurgery for 39 years. He holds more than 60 honorary doctorate degrees. He is a member of the Alpha Omega Alpha Honor Medical Society, the Institute of Medicine/National Academy of Science, and the Horatio Alger Society of Distinguished Americans.

In 2001, Dr. Carson was named by CNN and TIME magazine as one of the nation’s 20 foremost physicians and scientists. That same year, he was selected by the Library of Congress as one of 89 “Living Legends” on the occasion of its 200th anniversary. In June 2008, he was awarded the Presidential Medal of Freedom, the highest civilian honor in the land.

A New York Times bestselling author, he has written six books. Dr. Carson also writes a weekly opinion column for The Washington Times and is a FOX News contributor.
Welcome to Las Vegas

Welcome to Las Vegas for the American Academy of Orthopaedic Surgeons’ 2015 Annual Meeting! Your participation and support is essential to the Academy’s success. We are glad you are here to experience the new ideas and discoveries – and learn the latest research and technology to better care for our patients.

Whether you need to Connect or ReConnect it is all here with new vitality and closer engagement with your colleagues and faculty. 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 William Mihalko, MD, PhD, Central Instructional Course Committee Chair Thomas (Quin) Throckmorton, MD, and Exhibits Committee Chair Joseph Moskal, MD, have produced an exciting selection of educational opportunities—a commitment to education that includes 30 symposia by the world’s experts on exciting and timely topics, over 900 papers and 560 posters on the latest scientific and clinical studies, over 200 instructional courses presented by world-renowned faculty, more than 85 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 area of expertise.

Be sure to visit over 650 technical exhibits displaying 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 China as this year’s Guest Nation. On Thursday, the Ceremonial Meeting incorporates the presentations of the Humanitarian, Diversity, and Tipton Leadership Awards, David Teuscher, MD, incoming president’s address, and the presidential guest speaker, Benjamin S. Carson, Sr, MD.

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!

Frederick M. Azar, MD
President

Welcome to my home town, Las Vegas!

It is my pleasure to welcome you to the entertainment capital of the world!

The AAOS 2015 Annual Meeting should exceed all your expectations with an outstanding educational program and an exhibit hall that showcases products and services related to the specialty of orthopaedics.

After a day full of learning and networking take advantage of all that Las Vegas has to offer. From the most famous singers/groups to cover bands, classic Las Vegas shows like “Jubilee,” extravagant acrobatic Cirque du Soleil productions, comedians, or magicians, we have it all!

Many of the world’s top chefs take pride in their signature restaurants here in Las Vegas. Stop by the restaurant desk in Academy Hall G to make your reservations.

If outdoor activities are your preference, check out the social program. If you love golf, you are in paradise. From Shadow Creek to excellent public courses, tee times are available. For a great view of the city, ride the new LINQ Ferris wheel with its big observation compartments. While we’re talking about getting some fresh air, don’t forget the annual AAOS Playground Build on Tuesday.

After absorbing the latest advances in orthopaedics, have a little fun and enjoy a good meal and a show! Have a good time.

Thank you!

Fred Redfern, MD
Local Chair
AAOS 2015 Annual Meeting

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6 Board of Directors

Frederick M. Azar, MD  
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Memphis, Tennessee

David D. Teuscher, MD  
First Vice-President  
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South Burlington, Vermont

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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.
Annual Business Meetings
All Fellows are urged to attend the 2015 Annual Business Meetings held in the Venetian Ballroom E. The business meetings will be held on Thursday, March 26, 2015, at 9:00 AM. There will be 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. All registrants are welcome to attend, but only Active, Inactive, and Emeritus Fellows may vote.

Agenda for the Business Meeting of the American Academy of Orthopaedic Surgeons
Thursday, March 26, at 9:00 AM
Venetian/Sands EXPO, Venetian Ballroom E
Frederick M. Azar, 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 26, at 9:20 AM
Venetian/Sands EXPO, Venetian Ballroom E
Frederick M. Azar, MD, Presiding
1. Call to Order and Appointments
2. Nominations for the 2016 Nominating Committee. Those ineligible to serve on the 2016 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)
   John A. Bergfeld, MD ('13)
   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)
   Robert W. Buchholz, MD ('13)
   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)
   Charles H. Epps, Jr, MD (elected 3-plus terms)
   Freddie H. Fu, MD (elected 3-plus terms)
   Richard H. Gelberman, MD ('14)
   James D. Heckman, MD ('13)
   Robert N. Hensing, MD ('14)
   James H. Herndon, MD ('13)
   Joseph P. Iannotti, MD (elected 3-plus terms)
   Douglas W. Jackson, Jr, MD (elected 3-plus terms)
   Amy L. Ladd, MD ('15)
   Mark D. Miller, MD ('13)
   Bernard F. Morrey, MD ('14)
   Vincent D. Pellegrini, Jr, MD ('15)
   Chitrnanjan S. Ranawat, MD ('15 and elected 3-plus terms)
   Charles A. Rockwood, Jr, MD (elected 3-plus terms)
   Roy W. Sanders, MD ('15)
   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)
   James R. Urbaniak, MD (elected 3-plus terms)
   Russell E. Warren, MD (elected 3-plus years)
   Augustus A. White III, MD ('13 and 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. Report of the 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 26, 10:00 AM
Venetian/Sands EXPO, Venetian Ballroom E
Frederick M. Azar, MD, Presiding
1. Call to Order
2. Introduction of Board of Directors, Council/Cabinet Chairs and Annual Meeting Chairs
3. Presentation of Awards
   A. Kappa Delta Awards
   B. OREF Award
   C. Diversity Award
   D. Humanitarian Award
   E. William W. Tipton, Jr, MD, Leadership Award
4. Introduction of Gerald R. Williams, Jr, MD, Incoming First Vice President
5. Incoming First Vice-Presidential Remarks – Gerald R. Williams, Jr, MD
6. Introduction of David D. Teuscher, MD, Incoming President
7. Incoming Presidential Address – David D. Teuscher, MD
8. Recognition of Past President Frederick M. Azar, MD, and Presentation of Past President’s Pin, Gavel, and Silver Seal
9. Adjournment

2015 Resolutions Committee
The members of the 2015 Resolutions Committee are:
Michael L. Parks, MD, Chair
Mark E. Fahey, MD
Thomas M. Green, MD

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Patrick J. Halpin, MD
Leslie H. Kim, MD
Paul Levin, MD
Edward A. Toriello, MD

The Resolutions Committee will conduct an Open Hearing on the six resolutions undergoing their five-year review on Wednesday, March 25, beginning at 1:00 PM in Room 3301. During the Open Hearing, all Fellows are invited to discuss the resolutions under consideration. At the business meetings on March 26, the Resolutions Committee will present its recommendations regarding each resolution under consideration. Shortly after the Annual Meeting, these recommendations will be voted on by the Fellowship. To be adopted, a resolution requires that at least twenty percent of the eligible Fellows vote on the resolution and that of those voting, at least fifty percent vote to adopt the resolution as AAOS policy.

2015 Bylaws Committee
The members of the 2015 Bylaws Committee are:
Scott B. Scutchfield, MD, Chair
Joan B. Krajca-Radcliffe, MD
Gerald J. Lang, MD
Alan H. Morris, MD
William M. Strassberg, MD

The Bylaws Committee will conduct an Open Hearing on the proposed three bylaw amendments on Wednesday, March 25, at the conclusion of the Resolutions Committee Open Hearing (estimated time 1:30 pm) in Room 3301. During the Open Hearing, all Fellows are invited to discuss the proposed bylaw amendments under consideration. At the business meetings on March 26, the Bylaws Committee will present its recommendations regarding each bylaw amendment under consideration. Shortly after the Annual Meeting, these recommendations will be voted on by the Fellowship. To be adopted, a bylaw amendment requires that at least twenty percent of the eligible Fellows vote on the resolution and that of those voting, at least two-thirds vote to adopt the bylaw amendment.

2015 Nominating Committee
In May 2014, the Fellowship elected six members of the 2015 Nominating Committee by ballot. The Board of Directors appointed the Chair of the Nominating Committee in March 2014. The members of the 2015 Nominating Committee are:
Daniel J. Berry, MD, Chair
Annunziato (Ned) Amendola, MD
Kevin J. Bozic, MD, MBA
Amy L. Ladd, MD
Vincent D. Pellegrini, Jr, MD
Chitranjan S. Ranawat, MD
Roy W. Sanders, MD

The 2015 Nominating Committee provided its slate of nominees for each vacancy to be filled to the Fellowship in November 2014. This slate is voted on prior to and during the first part of the 2015 Annual Meeting. The results of the voting are announced at the Association Business Meeting on Thursday, March 26, 2015.

Nominations for the 2016 Nominating Committee
At the business meeting of the American Association of Orthopaedic Surgeons on Thursday, March 26, an unlimited number of nominations will be accepted for individuals to serve on the 2016 Nominating Committee; Inactive or Emeritus Fellows or Active Fellows who have been elected to serve on the Nominating Committee more than three terms are not eligible for election. All persons nominated will be sent a notification and a form containing a statement for them to sign regarding their willingness to serve on this Nominating Committee. A ballot containing a list of these nominated and willing to serve will be sent to all Fellows.
## TUESDAY, MARCH 24

<table>
<thead>
<tr>
<th>Education</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posters</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Nursing and Allied Health Courses – NUR1 &amp; NUR2</td>
<td>Room 4403</td>
<td>7:30 AM – 12:00 PM</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>See Schedule or pages 54-232 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 54-232 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>Palazzo Ballroom M</td>
<td>8:00 – 11:00 AM</td>
</tr>
<tr>
<td>Practice Management Seminar for Practicing Orthopaedic Surgeons #199</td>
<td>Palazzo Ballroom E</td>
<td>8:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Poster Tours</td>
<td>Academy Hall G, See page 50</td>
<td>10:00 AM – 5:30 PM</td>
</tr>
<tr>
<td>Practice Management Residents’ Course #191</td>
<td>Palazzo Ballroom M</td>
<td>12:30 – 5:30 PM</td>
</tr>
<tr>
<td>Community Orthopaedic Surgeon Workshop #193</td>
<td>Room 3404</td>
<td>1:30 – 5:30 PM</td>
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<tr>
<td><strong>General</strong></td>
<td><strong>Location: Venetian/Sands EXPO</strong></td>
<td><strong>Time</strong></td>
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<tr>
<td>Ready Rooms</td>
<td>Rooms 2401 and 3601</td>
<td>6:30 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Physician</td>
<td>Academy Hall G</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>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 G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Resource Center</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Guest Nation Booth – China</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Board of Orthopaedic Surgery Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Joint Replacement Registry Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>FDA and International Arthroplasty Registry (AJRR) Meeting</td>
<td>Room 4301</td>
<td>1:30 – 3:30 PM</td>
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</tbody>
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## WEDNESDAY, MARCH 25

<table>
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<tr>
<th>Education</th>
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<tr>
<td>Posters</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Nursing and Allied Health Courses – NUR3 &amp; NUR4</td>
<td>Room 4403</td>
<td>7:30 AM – 12:00 PM</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>See Schedule or pages 54-232 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 54-232 for room numbers</td>
<td>8:00 – 10:00 AM, 10:30 AM – 12:30 PM, 1:30 – 3:30 PM, 4:00 – 5:30 PM</td>
</tr>
<tr>
<td>Effective Surgeon-Patient Communication #290 &amp; #291</td>
<td>Room 4201</td>
<td>8:00 AM - 12:00 PM</td>
</tr>
<tr>
<td>Poster Tours</td>
<td>Academy Hall G, See page 50</td>
<td>8:30 AM – 5:30 PM</td>
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<table>
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<tr>
<th>Exhibit Hall</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
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<tbody>
<tr>
<td>Technical Exhibits</td>
<td>Halls A – D</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Advocacy Booth</td>
<td>Hall B, Booth 2222</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Exhibit Hall Resource Center</td>
<td>Hall A, Booth 1457</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Ask an Expert Sessions</td>
<td>Hall A, Booth 174 See page 381 for schedule</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Electronic Skills Pavilion</td>
<td>Hall C, Booth 4402 See page 382 for schedule</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Learning Center Booth</td>
<td>Hall B, Booth 2220</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Unopposed Exhibit Time*</td>
<td>Halls A – D</td>
<td>12:30 – 1:30 PM</td>
</tr>
<tr>
<td>Complimentary Beverage Break</td>
<td>Halls A-D, Booths 361, 6456 &amp; 6422</td>
<td>3:30 – 4:00 PM</td>
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</table>

<table>
<thead>
<tr>
<th>General</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
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<tbody>
<tr>
<td>Ready Rooms</td>
<td>Rooms 2401 and 3601</td>
<td>6:30 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Physicain</td>
<td>Academy Hall G</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>Career Center</td>
<td>Academy Hall G</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Joint Replacement Registry Update/User Group Meeting</td>
<td>Room 4301</td>
<td>10:30 AM – 12:30 PM</td>
</tr>
<tr>
<td>Resolutions Committee Open Hearing</td>
<td>Room 3301</td>
<td>1:00 PM</td>
</tr>
<tr>
<td>Bylaws Committee Open Hearing</td>
<td>Room 3301</td>
<td>1:30 PM (estimated)</td>
</tr>
<tr>
<td>Opening Ceremony</td>
<td>Venetian Ballroom E</td>
<td>4:00 – 5:30 PM</td>
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**THURSDAY, MARCH 26**

<table>
<thead>
<tr>
<th>Education</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posters</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Instructional Courses</td>
<td>See Schedule or pages 54-232 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 54-232 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>TeamSTEPPS #390 &amp; #391</td>
<td>Room 4201</td>
<td>8:00 AM – 12:00 PM 1:30 – 5:30 PM</td>
</tr>
<tr>
<td>Nursing and Allied Health Course – CAST1</td>
<td>Palazzo Ballroom B</td>
<td>8:15 AM – 5:45 PM</td>
</tr>
<tr>
<td>Poster Tours</td>
<td>Academy Hall G, See page 50</td>
<td>8:30 AM – 5:30 PM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exhibit Hall</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Exhibits</td>
<td>Halls A – D</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Advocacy Booth</td>
<td>Hall B, Booth 2222</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>AAOS Exhibit Hall Resource Center</td>
<td>Hall A, Booth 1457</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Ask an Expert Sessions</td>
<td>Hall A, Booth 174 See page 381 for schedule</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Electronic Skills Pavilion</td>
<td>Hall C, Booth 4402 See page 382 for schedule</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Learning Center Booth</td>
<td>Hall B, Booth 2220</td>
<td>9:00 AM – 5:00 PM</td>
</tr>
<tr>
<td>Unopposed Exhibit Time*</td>
<td>Halls A – D</td>
<td>12:30 – 1:30 PM</td>
</tr>
<tr>
<td>Complimentary Beverage Break</td>
<td>Halls A-D, Booths 361, 6456 &amp; 6422</td>
<td>3:30 – 4:00 PM</td>
</tr>
</tbody>
</table>

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## Daily Schedule

<table>
<thead>
<tr>
<th>General</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready Rooms</td>
<td>Rooms 2401 and 3601</td>
<td>6:30 AM – 6:00 PM</td>
</tr>
<tr>
<td>Registration – Physician</td>
<td>Academy Hall G</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>Career Center</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Resource Center</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Guest Nation Booth – China</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Board of Orthopaedic Surgery Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>American Joint Replacement Registry Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Business Meetings</td>
<td>Venetian Ballroom E</td>
<td>9:00 AM</td>
</tr>
<tr>
<td>Ceremonial Meeting</td>
<td>Venetian Ballroom E</td>
<td>10:00 AM</td>
</tr>
<tr>
<td>Forum for Young Orthopaedic Surgeons</td>
<td>Room 3301</td>
<td>10:30 AM – 12:30 PM</td>
</tr>
<tr>
<td>Presidential Guest Speaker Benjamin S. Carson, Sr, MD</td>
<td>Venetian Ballroom E</td>
<td>11:00 AM</td>
</tr>
<tr>
<td>Resident Assembly</td>
<td>Room 3301</td>
<td>1:30 – 3:30 PM</td>
</tr>
</tbody>
</table>

*No other educational activities are scheduled.*

### FRIDAY, MARCH 27

<table>
<thead>
<tr>
<th>Education</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster Award Ceremony and Breakfast</td>
<td>Academy Hall G</td>
<td>7:00 AM</td>
</tr>
<tr>
<td>Posters</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
</tbody>
</table>
| Instructional Courses                               | See Schedule or pages 54-232 for room numbers | 8:00 – 10:00 AM  
|                                                     |                               | 10:30 AM – 12:30 PM  
|                                                     |                               | 1:30 – 3:30 PM  
|                                                     |                               | 4:00 – 6:00 PM  |
| Symposia & Paper Presentations                      | See pages 54-232 for room numbers | 8:00 – 10:00 AM  
|                                                     |                               | 10:30 AM – 12:30 PM  
|                                                     |                               | 1:30 – 3:30 PM  
|                                                     |                               | 4:00 – 6:00 PM  |
| Orthopaedic Review Course                           | Palazzo Ballroom L            | 8:00 AM – 5:35 PM |
| Nursing and Allied Health Course – CAST2            | Palazzo Ballroom B            | 8:15 AM – 5:45 PM |
| Poster Tours                                        | Academy Hall G, See page 50   | 8:30 AM – 4:00 PM |

### Exhibit Hall

<table>
<thead>
<tr>
<th>Exhibit Hall</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Exhibits</td>
<td>Halls A – D</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>AAOS Advocacy Booth</td>
<td>Hall B, Booth 2222</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>AAOS Exhibit Hall Resource Center</td>
<td>Hall A, Booth 1457</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Ask an Expert Sessions</td>
<td>Hall A, Booth 174 See page 381 for schedule</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Electronic Skills Pavilion</td>
<td>Hall C, Booth 4402 See page 382 for schedule</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Learning Center Booth</td>
<td>Hall B, Booth 2220</td>
<td>9:00 AM – 4:00 PM</td>
</tr>
</tbody>
</table>
| Complimentary Beverage Break                        | Halls A-D, Booths 361, 6456 & 6422 | 10:00 – 10:30 AM  
| Unopposed Exhibit Time*                             | Halls A – D                    | 12:30 – 1:30 PM  |
| Complimentary Biscotti Social                       | Halls A - D, Booths 361, 6422,6456 | 2:30 – 3:30 PM  |

<table>
<thead>
<tr>
<th>General</th>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready Rooms</td>
<td>Rooms 2401 and 3601</td>
<td>6:30 AM – 6:00 PM</td>
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<tr>
<td>Registration – Physician</td>
<td>Academy Hall G</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>Career Center</td>
<td>Academy Hall G</td>
<td>7:00 AM – 6:00 PM</td>
</tr>
</tbody>
</table>

© 2015 American Academy of Orthopaedic Surgeons
### SATURDAY, MARCH 28 - SPECIALTY DAY

<table>
<thead>
<tr>
<th>Education</th>
<th>Location: Venetian/Sands EXPO</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 G</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Scientific Exhibits</td>
<td>Academy Hall G</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Academy Hall G</td>
<td>7:00 AM – 3:00 PM</td>
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</tbody>
</table>

### General

<table>
<thead>
<tr>
<th>Location: Venetian/Sands EXPO</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Ready Rooms</td>
<td>Rooms 2401 and 3601</td>
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<tr>
<td>Registration – Physician</td>
<td>Academy Hall G</td>
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<tr>
<td>Registration – Social Program</td>
<td>Level 1 Lobby</td>
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<tr>
<td>Career Center</td>
<td>Academy Hall G</td>
</tr>
<tr>
<td>Resource Center</td>
<td>Academy Hall G</td>
</tr>
<tr>
<td>Guest Nation Booth – China</td>
<td>Academy Hall G</td>
</tr>
<tr>
<td>American Board of Orthopaedic Registry Booth</td>
<td>Academy Hall G</td>
</tr>
<tr>
<td>American Joint Replacement Surgery Booth</td>
<td>Academy Hall G</td>
</tr>
<tr>
<td>Orthopaedic Research &amp; Education Foundation Booth</td>
<td>Academy Hall G</td>
</tr>
</tbody>
</table>

*No other educational activities are scheduled.*

---

GET MORE From Your Resident Membership

**NEW! AAOS Resident Assembly**

Thursday, March 26
1:30 to 3:30 PM
Room 3301

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 AAOS Resident Assembly.

Meet with AAOS Leadership

Take advantage of this gathering to meet and share your concerns with the AAOS President, Vice Presidents, 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. Plan to attend the inaugural AAOS Resident Assembly, Thursday, March 26, from 1:30 to 3:30 PM Room 3301

**Membership Means More!**
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 35 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 18.5 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 24</td>
<td>Up to 10 Credits</td>
<td>35 Credits</td>
</tr>
<tr>
<td>Wednesday, March 25</td>
<td>Up to 8.5 Credits</td>
<td>25 Credits</td>
</tr>
<tr>
<td>Thursday, March 26</td>
<td>Up to 8.5 Credits</td>
<td>16.5 Credits</td>
</tr>
<tr>
<td>Friday, March 27</td>
<td>Up to 8 Credits</td>
<td>8 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>Basics of Coding for Starting Your Practice #190</td>
<td>Yes</td>
</tr>
<tr>
<td>Annual Meeting Practice Management Resident’s Course #191</td>
<td>Yes</td>
</tr>
<tr>
<td>Community Orthopaedic Surgeon Workshop #193</td>
<td>Yes</td>
</tr>
<tr>
<td>Annual Meeting Practice Management Seminar for Practicing Orthopaedic Surgeons #199</td>
<td>Yes</td>
</tr>
<tr>
<td>AJRR Update/User Group Meeting</td>
<td>Yes</td>
</tr>
<tr>
<td>FDA and AJRR</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>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>Orthopaedic Review Course</td>
<td>Yes</td>
</tr>
<tr>
<td>Orthopaedic Video Theater</td>
<td>Yes</td>
</tr>
<tr>
<td>Specialty Day</td>
<td>Yes</td>
</tr>
<tr>
<td>Symposia</td>
<td>Yes</td>
</tr>
<tr>
<td>Ask an Expert</td>
<td>No</td>
</tr>
<tr>
<td>Electronic Skills Pavilion</td>
<td>No</td>
</tr>
<tr>
<td>Technical Exhibits</td>
<td>No</td>
</tr>
</tbody>
</table>
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 – 8.5 credits
- American Shoulder and Elbow Surgeons – 4.25 credits
- American Society of Surgery of the Hand/ American Association for Hand Surgery – 8.5 credits
- Arthroscopy Association of North America – 5.75 credits
- Federation of Spine Associations – 7.25 credits
- Hip Society/American Association of Hip and Knee Surgeons – 6.75 credits
- Knee Society/American Association of Hip and Knee Surgeons – 6.75 credits
- Limb Lengthening and Reconstruction Society – 6.75 credits
- Musculoskeletal Tumor Society – 6.75 credits
- Orthopaedic Trauma Association – 8.25 credits
- Pediatric Orthopaedic Society of North America – 5.5 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.

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No unapproved surveys, handouts or literature may be distributed at the meeting.

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.

2015 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.

Private Meeting
The AAOS 2015 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.

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Las Vegas Hotels
1. Encore at Wynn
2. Palazzo Resort Hotel
3. Venetian Resort Hotel Casino
4. Wynn Hotel Casino
5. Aria Resort and Casino
6. Bally’s Las Vegas
7. Bellagio
8. Caesars Palace
9. Harrah’s Las Vegas
10. Mirage Las Vegas
11. Paris Las Vegas
12. Planet Hollywood Resort & Casino
13. The Cosmopolitan of Las Vegas
14. Trump International Hotel & Tower
15. Vdara
16. Treasure Island

AAOS 2015 Annual Meeting
Venetian/Sands EXPO
Las Vegas, Nevada

Meeting Dates: March 24-28
Exhibit Dates: March 25-27

AAOS Official Annual Meeting Housing Bureau:
Wyndham Jade
Login to reserve your hotel room at:
AAOS Housing Desk located in Academy Hall G

U.S. and Canada
Phone: (800)931-6026
Fax: (972)349-7715

International
Phone: (972)349-5558
Fax: (972)349-7715
<table>
<thead>
<tr>
<th>Route #</th>
<th>Hotel</th>
<th>Boarding Location at Hotel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 2</td>
<td>Aria</td>
<td>North Valet</td>
</tr>
<tr>
<td>Route 1</td>
<td>Bally's</td>
<td>Tour &amp; Travel Entrance (North Entrance)</td>
</tr>
<tr>
<td>Route 3</td>
<td>Bellagio</td>
<td>Tour Bus Lobby</td>
</tr>
<tr>
<td>Route 4</td>
<td>Caesars Palace</td>
<td>Augustus Tower Entrance</td>
</tr>
<tr>
<td>Route 3</td>
<td>Cosmopolitan</td>
<td>Tour Bus Lobby</td>
</tr>
<tr>
<td>Route 5</td>
<td>Encore</td>
<td>Tour Bus Curb</td>
</tr>
<tr>
<td>Route 1</td>
<td>Harrah's</td>
<td>Tour Bus Lobby</td>
</tr>
<tr>
<td>Route 4</td>
<td>Mirage</td>
<td>North Valet/Tour Lobby</td>
</tr>
<tr>
<td></td>
<td>Palazzo</td>
<td>.28 Miles / 7 Minute Walk</td>
</tr>
<tr>
<td>Route 1</td>
<td>Paris</td>
<td>@ Bally’s Tour &amp; Travel Entrance (North Entrance)</td>
</tr>
<tr>
<td>Route 2</td>
<td>Planet Hollywood</td>
<td>Tour Bus Lobby</td>
</tr>
<tr>
<td>Route 4</td>
<td>Treasure Island</td>
<td>@ Mirage North Valet/Tour Lobby</td>
</tr>
<tr>
<td>Route 5</td>
<td>Trump</td>
<td>Main Entrance Curb (Street Level)</td>
</tr>
<tr>
<td>Route 2</td>
<td>Vdara</td>
<td>@ Aria North Valet</td>
</tr>
<tr>
<td></td>
<td>Venetian / Venezia</td>
<td>.28 Miles / 7 Minute Walk</td>
</tr>
<tr>
<td></td>
<td>Wynn Las Vegas</td>
<td>.32 Miles / 10 Minute Walk</td>
</tr>
</tbody>
</table>

= Passenger Pickup  = Walk to Hotel  = Wheel Chair Accessible Vehicles: Call (702)-604-5560 and allow (1) Hour for service.

### AAOS Hotels

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aria</td>
<td>3730 Las Vegas Boulevard South</td>
<td>(866) 359-7757</td>
</tr>
<tr>
<td>Bally’s Las Vegas</td>
<td>3645 Las Vegas Boulevard South</td>
<td>(877) 603-4390</td>
</tr>
<tr>
<td>Bellagio</td>
<td>3600 Las Vegas Boulevard South</td>
<td>(888) 987-6667</td>
</tr>
<tr>
<td>Caesars Palace</td>
<td>3570 Las Vegas Boulevard South</td>
<td>(866) 227-5938</td>
</tr>
<tr>
<td>The Cosmopolitan of Las Vegas</td>
<td>3708 Las Vegas Boulevard South</td>
<td>(702) 698-7000</td>
</tr>
<tr>
<td>Harrah’s</td>
<td>3475 Las Vegas Boulevard South</td>
<td>(800) 214-9110</td>
</tr>
<tr>
<td>The Mirage Casino-Hotel</td>
<td>3400 Las Vegas Boulevard South</td>
<td>(702) 791-7111</td>
</tr>
<tr>
<td>Paris Las Vegas</td>
<td>3655 Las Vegas Boulevard South</td>
<td>(877) 796-2096</td>
</tr>
<tr>
<td>Planet Hollywood</td>
<td>3667 Las Vegas Boulevard South</td>
<td>(866) 919-7472</td>
</tr>
<tr>
<td>Treasure Island</td>
<td>3300 Las Vegas Boulevard South</td>
<td>(800) 944-7444</td>
</tr>
<tr>
<td>Trump Hotel Las Vegas</td>
<td>2000 Fashion Show Drive</td>
<td>(866) 939-8786</td>
</tr>
<tr>
<td>Vdara Hotel and Spa</td>
<td>2600 W. Harmon Avenue</td>
<td>(866) 745-7677</td>
</tr>
<tr>
<td>The Venetian</td>
<td>The Palazzo</td>
<td>3355 Las Vegas Boulevard South</td>
</tr>
<tr>
<td>Wynn</td>
<td>Encore</td>
<td>3131 Las Vegas Boulevard South</td>
</tr>
</tbody>
</table>

© 2015 American Academy of Orthopaedic Surgeons
Understanding the legislative issues that affect you as an orthopaedic surgeon is a critical first step in becoming more politically active. Political advocacy covers a wide range of activities, including voting in elections, lobbying a Member of Congress, or contributing to the Political Action Committee of the American Association of Orthopaedic Surgeons (Orthopaedic PAC). Formed in 1999, the Orthopaedic PAC works to advance policy issues that face orthopaedic surgeons.

The Orthopaedic PAC supports candidates for Federal office who advocate for the issues that you as orthopaedic surgeons face on a daily basis. It is the only national political action committee in Washington, D.C. representing orthopaedic surgeons before Congress. The Orthopaedic PAC works to build a coalition of pro physician members in Congress who will fight for legislation that supports the practice of medicine.

The Orthopaedic PAC also enhances other advocacy activities of the AAOS, such as the National Orthopaedic Leadership Conference (NOLC), Research Capitol Hill Day, and grassroots outreach programs such as the Washington Health Policy Fellowship. The PAC empowers our advocacy efforts with the additional resources needed to succeed.

It is easy to become frustrated and fatigued by the demands coming out of Washington. But did you know that the AAOS Office of Government Relations in conjunction with the Orthopaedic PAC have protected the in-office ancillary services exception to the Stark Laws from elimination in the fiscal cliff legislation, have worked closely with House and Senate leaders to help craft the Sustainable Growth Rate (SGR) fix legislation and have achieved a 25% increase in funding for the Peer-Reviewed Orthopaedic Research Program in the fiscal year 2012 appropriations bill?

To learn more about AAOS' legislative and regulatory activities and the Orthopaedic PAC, visit the AAOS Advocacy Booth located in Hall B, Booth 2222.

[Website Link] www.aaos.org/PAC
2014-15 Annual Meeting Committee

Paul Tornetta III, MD, Chair
Boston, MA

COL Edward D. Arrington, MD
University Place, WA
BOC Representative

Mathias P. G. Bostrom, MD
New York, NY
ORS Representative

C. Anderson Engh, Jr, MD
Arlington, VA
BOS Representative

James R. Ficke, MD
Baltimore, MD
2016 Central Program Chair

COL (ret) Tad L. Gerlinger, MD
Chicago, IL
2016 Central IC Chair

Harpal Singh Khanuja, MD
Cockeysville, MD
Allied Health Representative

Guido Marra, MD
Chicago, IL
International Committee Representative

William M. Mihalko, MD, PhD
Germantown, TN
2015 Central Program Chair

Joseph T. Moskal, MD
Roanoke, VA
Exhibits Chair

Brett D. Owens, MD
West Point, NY
LFP Member

CDR (ret) Matthew T. Provencher, MD
Boston, MA
Member-At-Large

Jason J. Scalise, MD
Phoenix, AZ
Member-At-Large

Nathan W. Skelley, MD
St. Louis, MO
Resident Member

Thomas (Quin) Throckmorton, MD
Germantown, TN
2015 Central IC Chair

The Academy would like to thank the Annual Meeting Committee for their hard work and contributions to the 2015 Annual Meeting

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GET MORE from your AAOS membership

Learn MORE about the wealth of resources available to you from AAOS Membership Services at the Resource Center, Academy Hall G

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

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 G
Tuesday - Friday: 7:00 AM–6:00 PM  Saturday: 7:00 AM–3:00 PM

For more information, please go to www.aaos.org/member
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. Round 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.

Electronic Skills Pavilion - Hall C
Presentations that showcase current technology, products, and applications that are developed for the orthopaedic surgeon take place here. Handouts will be accessible electronically through QR codes available on-site at the Electronic Skills Pavilion.

ePosters and eScientific Exhibits – Academy Hall G
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 G where attendees can view, hear the audio, play the video and also decide whether or not to view the actual poster or scientific exhibit. The ePosters and eScientific Exhibits create an excellent post meeting opportunity to view this important research in your office or home.

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 Welcome and Information Booths located throughout the Venetian/Sands EXPO 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
Internet Connections stations are located throughout the Venetian/Sands EXPO and offer internet links to the most used email websites, 2016 Annual Meeting Member Housing, the Exhibitor Directory, and Flight Check-in. These new “all-in-one” stations allow you to utilize key connections not just emails.

My Academy App
The My Academy application is available free from the App Store or Google Play. View, search, and schedule scientific programming – including all AAOS educational opportunities – Technical Exhibitor information, Social Program, Committee and Affiliate Meetings, and Special Events. You may even add personal events to your schedule. A mapping program for meeting room location and exhibiting companies within Venetian/Sands EXPO is also included. Need some assistance? Visit the help desk located in the Resource Center, Academy Hall G.

Poster Tours
Poster Tours are guided by experts in each classification and are uniquely viewed using the uTouch screen to create a memorable experience by quizzing selected poster authors, highlighting pearls and answering your questions during the tour.

Proceedings
Be sure to visit our website to view the 2015 Annual Meeting Proceedings. A website will be available to view the Proceedings on a PC, tablet, or mobile device at www.aaos.org/proceedings.

Webcasting
View 11 symposia webcasts as they are simulcast live from the Annual Meeting. Choose from a variety of topics addressing joint replacement procedures including shoulder, hip, and sports. Did you miss the live simulcasts? View the webcasts anytime 24 hours after the start of the symposium through June 30, 2015. Both the www.aaos.org/amwebcasts website and the My Academy app provide access to the webcasts.

AAOS Members and AAOS Residents: Free

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Safety

Emergency Numbers
Fire/Police Emergency: In case of an emergency please use any house phone located throughout the Venetian/Sands EXPO and dial extension 49311.
Venetian Hotel Security 24 hours: (702)414-9311
Sands EXPO Security 24 hours: (702)733-5195
City Police Emergency: 911
City Police Non-Emergency: (702)633-9111
Poison Control: (800)222-1222 (Nationwide)

Nearest Hospitals
Sunrise Hospital and Medical Center 3.5 miles
3186 S. Maryland Pkwy. (702)731-8000
Desert Springs Hospital 3.4 miles
2075 E. Flamingo Rd. (702)733-8800

First Aid – Venetian/Sands EXPO
These stations are fully equipped and staffed by licensed medical professionals and include automated external defibrillators for reviving heart attack victims.
• Room 901 – Hours of Operation:
  Tuesday – Friday.............................7:00 AM – 7:00 PM
  Saturday .............................................7:00 AM – 6:00 PM
• Near Room 301 – Hours of Operation:
  Tuesday – Saturday ...........................7:00 AM – 7:00 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, 3339 S. Las Vegas Blvd. (702)369-8166
(Between the Palazzo & Venetian)
• Hours of Operation & Pharmacy Hours:
  Monday – Sunday........................................ 24 hours

• Healthcare Clinic in Walgreens Hours:
  Monday – Friday.................................8:00 AM – 6:30 PM
  Saturday – Sunday.................................9:30 AM – 5:00 PM

CVS, 3758 S. Las Vegas Blvd. (702)262-9028
(next to the Monte Carlo)
• Hours of Operation:
  Monday – Sunday........................................ 24 hours

• Pharmacy Hours:
  Monday – Friday.................................8:00 AM – 10:00 PM
  Saturday ..................................................9:00 AM – 6:00 PM
  Sunday......................................................10:00 AM – 6:00 PM

• Minute Clinic in CVS Hours:
  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 on the shuttle buses. Each issue contains coverage of events and scientific presentations, news items, and reports on guest speakers and award winners, along with late-breaking news. It’s your source for news during the Annual Meeting!

Academy Lounges
Academy Hall G; Technical Exhibits Halls A & B, Hall C Lobby
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
Las Vegas has ADA accessible guestrooms at every hotel. The AAOS hotel shuttle is not available from the Wynn Hotel, which is located within walking distance of the Venetian/Sands EXPO. The Las Vegas Convention & Visitors Authority maintains a TTY information line at (800)326-6888. Wheelchairs are available through the following company:
Scootaround – Mobility Scooter & Wheelchair Rental
(888)441-7575 or www.scootaround.com

Advocacy Booth
Hall B, Booth 2222
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 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
Level 1 Lobby
Shuttle service is available to and from the airport to downtown hotels for $11.00 one way and $20 roundtrip (per person, one way). Advance reservations are required 24 hours prior to travel. ADA accessible requests are required 48 hours prior to travel. Ticket booths are located on the lower level in the baggage claim area of the airport. Book online at www.supershuttle.com (Group Code: LCJBC) to receive the AAOS discount or call (800)258-3826 to make a reservation over the phone.
• Airport Shuttle Bus Hours of Operation:
  Wednesday – Saturday 8:00 AM – 6:30 PM

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American Joint Replacement Registry (AJRR): Progress, Collaborative Efforts, Future Directions and User-Group Meeting
Moderator: David E. Mino, MD, MBA
Wednesday, March 25, 10:30 AM - 12:30 PM, Room 4301
AJRR's goal is to optimize patient outcomes by collecting data on 90% of primary and revision hip and knee arthroplasty in the US. Significant gains have been made in evolving and implementing this initiative which includes over 400 hospital participants and over 150,000 procedures. AJRR collects Level II and III data capturing co-morbidities, complications and patient reported outcomes. AJRR is also a Qualified Clinical Data Registry, having the ability to submit Physician Quality Reporting System measures on behalf of surgeons. Upon completion of the registry overview, AJRR will host a one-hour user-group meeting for current participants and/or those interested in greater details pertaining to registry participation.

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.

Audio Sales
Academy Hall G
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
Everyone who attends 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:

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

Badge Stock Colors
Lavender..... Family Badge
Orange..... Commercial Representative
Green...... Technical Exhibitor

Business & Package Center – FedEx Office– (702) 414-4489
Located in the Venetian Hotel on the 2nd floor (near room 2006), the Business & Package 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 .....................................6:00 AM – 6:00 PM

Career Center
Academy Hall G
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.
• 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.
**Cash Station/ATM**
ATMs are located throughout the Venetian and Palazzo Hotels and in the Sands EXPO.

**ATM/Banks within close proximity to the Venetian/Sands EXPO**

**Wells Fargo**
3800 Howard Hughes Pkwy. (702)791-6353

**Hours of Operation:**
Monday – Friday .................................. 9:00 AM – 5:00 PM
ATM .................................................. 24 hours

**Chase**
1340 East Flamingo Rd. (702)369-2090

**Hours of Operation:**
Monday – Friday .................................. 9:00 AM – 6:00 PM
Saturday .......................................... 9:00 AM – 3:00 PM
ATM .................................................. 24 hours

**Bank of America**
4080 Spring Mountain Rd. (702)654-5050

**Hours of Operation:**
Monday – Friday .................................. 9:00 AM – 5:00 PM
Saturday .......................................... 9:00 AM – 1:00 PM
ATM .................................................. 24 hours

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

**Children**
The following guidelines have been approved for the Annual Meeting. Only children 16 or over will be 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, which 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. Please visit the Social Program counter in Level 1 Lobby for information on family friendly events.

**CME Kiosks**
Academy Hall G, Level 1 Lobby & Venetian Foyer West
Print your CME certificate for the Annual Meeting and participating Specialty Societies.

**Coat and Luggage Check**
Level 1 Lobby
For identification, please leave a business card in your pocket.

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

**Disaster Response Course**

**Developed by SOMOS; Co-sponsored by AAOS, OTA, and POSNA; Course Director COL Tad L. Gerlinger, MD; Course Co-Directors: Col. (Ret) Theodore W. Parsons III, MD, and Christopher T. Born, MD**

Monday, March 23 – Tuesday, March 24

**Location:** Merin Lab, Henderson, NV

This hands-on skills course is the central training element for AAOS Fellows to be included in the AAOS Disaster Responder Database. This course covers the application of orthopaedic care techniques critical to disaster-inflicted injuries and treating the wounded in austere environments. Get the important training you need for personal and team preparation to effectively handle the physical, emotional, and care management skills for treating the injured in areas affected by catastrophic events. Day one of lectures is followed by a half day in the cadaveric skills lab. For more information on future Disaster Response Courses, please view our CME Course Calendar online at [www.aaos.org/courses](http://www.aaos.org/courses) or contact Customer Service at (800)626-6726.

**Focus Groups**

Focus Group discussions are being held on the third floor in Rooms 3704 and 3710 on Tuesday, Wednesday, and Thursday. Those who have been invited to observe the discussion groups, please meet in Room 3701 for focus groups taking place in Rooms 3710 and in Room 3703 for focus groups taking place in Rooms 3704. For additional details, please reference the My Academy App. Please note that these are invite-only events.

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

**Food Service**
The Venetian/Sands EXPO has ample food and beverage concession areas to satisfy any appetite. Detailed menu and location information is available at the Welcome & Information Booths located throughout the meeting.

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

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

Thursday, 10:30 AM – 12:30 PM, Room 3301

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 insightful information about Board requirements and procedures. This special program is a “must attend” as it will answer 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 it!

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Guest Nation – China
Help us welcome China as the Guest Nation for the AAOS 2015 Annual Meeting. Look for special events and activities that focus on China and the issues facing the Chinese orthopaedic community, including special Poster Tours given in Chinese and remarks by the president of the Chinese Orthopaedic Association (COA) during the opening ceremony. Please stop by the Guest Nation exhibit, located in Academy Hall G, to learn more.

Handout Sales
Resource Center, Academy Hall G
Selected Instructional Course handout flash drives are available for purchase.
• Hours of Operation:
  Tuesday – Friday ......................................................7:00 AM – 6:00 PM
  Saturday ......................................................................7:00 AM – 5:00 PM

Hotel Shuttle Bus Routes
Complimentary shuttle service runs between AAOS hotels and the Sands EXPO Center.
• Hours of Operation:
  Tuesday – Friday ......................................................6:30 AM – 6:30 PM
  Saturday ......................................................................6:30 AM – 6:00 PM

Items left on the shuttles will be turned in to the Academy Headquarters Office, Room 2501.

Hotel Reservations – 2016 Annual Meeting
AAOS Members attending this year’s Annual Meeting can make hotel reservations for the 2016 Annual Meeting in Orlando. Stop by and book today at the Housing Desk in Academy Hall G or an Internet Connections kiosk located throughout the lobby areas.

Housing Help Desk
Academy Hall G
The official housing bureau, Wyndham Jade, provides housing assistance to all attendees during the meeting. If you have a problem with your reservation or need to change hotels, please go to the Housing Help Desk.
• Hours of Operation:
  Monday .................................................................2:00 – 6:00 PM
  Tuesday – Friday ......................................................7:00 AM – 6:00 PM
  Saturday ......................................................................7:00 AM – 5:30 PM

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.

Instructional Course Ticket Exchange
Academy Hall G
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 302
Academy Staff are available to assist you with inquiries. Please note: Registration inquiries are handled at registration in Academy Hall G. For membership inquiries, please visit the membership desk in the Resource Center.
• Hours of Operation:
  Tuesday – Friday ......................................................7:00 AM – 6:00 PM
  Saturday ......................................................................7:00 AM – 5:30 PM

International Groups Department
Academy Hall G
Hotel and registration assistance is available to international guests who used this service.

International Surgeons Lounge
Room 301
We invite International Surgeons to come to the AAOS International Surgeons Lounge to 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 – 6:00 PM

Internet Connections
Academy Hall G, Levels 2, 3, & 4 Lobbies, Hall C, Booth 4402
These new “all-in-one” stations allow you to utilize the following key connections:
• 2015 Exhibitor Directory
• 2016 Member Housing
• Email sites
• Flight Check-in

Lost and Found
Academy Headquarters Office, Room 2501
• 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

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Media Training
From Insights to Sound bites: Your Orthopaedic Expertise and the News Media
Wednesday, March 25, 8:00 AM – 12:00 PM, AAOS Media Briefing Room 102
This special session is open to Orthopaedic Residents and Resident Members.
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, including how to:
• Create clear and unambiguous key messages and sound bites
• Take control of an interview
• Bridge from an irrelevant question to your message
• Speak clearly and use language friendly to your audience
• Use appropriate gestures and body language
This session is limited to 12 attendees.
Interested? Please e-mail media@aaos.org to register and include your name, e-mail address and hometown.

My Academy App
My Academy App is available free from the App Store or Google Play. View, search, and schedule scientific programming, including all AAOS educational opportunities, Technical Exhibitor information, Social Program, Committee and Affiliate Meetings, and Special Events. You may even add personal events to your schedule. A mapping program for meeting room location and exhibiting companies within Venetian/Sands EXPO also is included. Need some assistance? Visit the help desk located in the Resource Center, Academy Hall G.

Non-Smoking Policy
Smoking is permitted on the casino floor at most resorts, in some guest rooms, and in the bars that don’t serve food. Smoking is not permitted in public areas such as restaurants, hotel lobbies, the Venetian/Sands EXPO, or the McCarran International Airport.

Nursing and Allied Health Program
NUR 1-4, Room 4403
CAST 1 & 2, Palazzo Ballroom B
AAOS, the National Association of Orthopaedic Nurses (NAON), and the National Association of Orthopaedic Technologists (NAOT) have collaborated to develop the Nursing and Allied Health Program. The program consists of six courses (NUR1, NUR2, NUR3, NUR4, CAST1, and CAST2) designed for registered and licensed practical nurses, physician assistants, orthopaedic technologists, and physical and occupational therapists. In addition, 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 the aforementioned courses.
To attend any of the Nursing and Allied Health 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 326-329.

Offices
Academy Headquarters Room 2501 (702)691-8700
Exhibits Office Room 2601 (702)691-8730
International Business Office Room 302 (702)691-8265
Media Briefing Room 103 (702)691-8250
Newspaper Office Room 203 (702)691-8260
Press Office Room 202 (702)691-8250
Ready Rooms Room 2401 (702)691-8720
Room 3601 (702)691-8750

Orthopaedic Video Theater – Featured Presentation Theater
Academy Hall G
This theater offers an intimate setting where you can meet video authors, view programs as part of the live audience, and participate in question and answer sessions. A complete listing of the Orthopaedic Video Theater programs and the Featured Presentation Theater schedule is listed beginning on page 233.
• Hours of Operation:
  Tuesday – Friday ........................................7:00 AM – 6:00 PM
  Saturday ..................................................7:00 AM – 3:00 PM

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

The 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 on the Strip and downtown Las Vegas in hotel lots or parking garages. Virtually every major hotel offers free valet parking; it’s customary to tip valets $2 when they retrieve your car.

Planning Committees
2015 Central Program Committee
William M. Mihalko, MD, PhD, Germantown, TN, Chair
Brian J. Cole, MD, MBA, Chicago, IL
James R. Ficke, MD, Baltimore, MD
Steven L. Frick, MD, Orlando, FL
Alexander Vaccaro, MD, PhD, Gladwyn, PA

2015 Central Instructional Course Committee
Thomas (Quin) Thrackmorton, MD, Germantown, TN, Chair
Craig J. Della Valle, MD, Chicago, IL
Tad L. Gerlinger, MD, San Antonio, TX
Robert A. Hart, MD, Portland, OR
Javad Parvizi, MD, Philadelphia, PA

2015 Exhibits Committee
Joseph T. Moskal, MD, Roanoke, VA, Chair
Jonathan J. Carmouche, MD, Roanoke, VA
Karen S. Duane, MD, Newbury, FL

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Benjamin Goldberg, MD, Chicago, IL
Donald H. Lee, MD, Nashville, TN
John Walter Mann III, MD, Roanoke, VA
James V. Nepola, MD, Iowa City, IA
Rick F. Papandrea, MD, Waukesha, WI
Jeffrey M. Schwartz, MD, FACS, New York, NY
John R. Tenny, MD, Red Oak, TX
Scott D. Weiner, MD, Akron, OH

2015 Orthopaedic Video Theater Committee
James M. Bennett, MD, Houston, TX, Chair
Stephen Bartol, MD, Detroit, MI
Shariff K. Bishai, DO, St. Clair Shores, MI
H. John Cooper, MD, New York, NY
Eric W. Edmonds, MD, San Diego, CA
J. Mark Evans, MD, Mechanicsville, VA
John P. Ketz, MD, Pittsford, NY
Christopher E. Pelt, MD, Salt Lake City, UT
Lee E. Rubin, MD, East Greenwich, RI
Lewis L. Shi, MD, Chicago, IL
J. Michael Wiater, MD, Beverly Hills, MI

Playground Shuttle
AAOS Safe and Accessible Playground Build
Buses depart hourly from the Venetian Transportation Center outside Level 1 Lobby.
Tuesday ........................................................................7:00 AM – 2:30 PM

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 2015 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.

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
The Deuce on the Strip runs 24 hours/day every day and stops at most hotels and casinos along the Strip. The Strip & Downtown Express (SDX) runs from 9:00 AM to midnight every day and stops at limited hotels and casinos. For other route hours, schedules, and frequencies, visit the website at www.rtcsvnv.com.

Ready Rooms
Rooms 2401 and 3601
• Hours of Operation:
  Monday (Room 2401 only) ...........................................2:00 – 6:00 PM
  Tuesday – Friday ......................................................6:30 AM – 6:00 PM
  Saturday .......................................................................6:00 AM – 5:30 PM

Redemption Centers
Booths 162, 6620, and 6658
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

Refund Policy
The Academy does not issue refunds on-site during the meeting. All requests for refunds (registration and/or instructional courses) must have been received in the Academy office on or before February 13, 2015.

Registration On-Site
Academy Hall G
Registration Fees (On-Site)
AAOS Fellows, Members, Resident/Candidate Members in good standing, and International Affiliate Members ......................$150
International Resident Members ..............................................$150
Annual Meeting Official Speakers ......................................... No Fee
Annual Meeting Official Co-Authors .......................................$150
Non-Member Physician or Attendee .......................................$1,000
Non-Member International Medical Attendees –
  Including Canada ................................................................$800
  Non-Member International Residents (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) .....................$250
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. Car reservations can be made via the AAOS website or directly with the rental car companies. Call the number below and mention the discount code listed.

Car Company  Meeting Code  Phone  Internet
Hertz  CV# 02KS0020  (800)654-2240  www.hertz.com

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.
Resident Assembly
Thursday, March 26, 1:30 - 3:30 PM, Room 3301
All residents are invited to attend the inaugural AAOS Resident Assembly. This is your opportunity to make a contribution to AAOS and toward your own professional advancement. Let your voice be heard!

Resource Center
Academy Hall G
Experience a hands-on showcase of Academy education, practice, and membership resources and benefits. Experienced AAOS staff are available to answer questions, help you navigate the meeting app, and walk you through the many publications, e-books, digital media, and interactive multimedia programs that build your clinical skills and challenge your problem-solving aptitude. Plan to visit the Resource Center to experience the future of surgical skills training with virtual reality arthroscopy simulation. Plan to pick up your copy of the new Comprehensive Orthopaedic Review 2 and purchase the new OKU Self-Assessment Examination.

Discover the Academy’s complete line of educational and practice management resources at the Resource Center! Find answers to your AAOS Membership benefits questions, MOC concerns, 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 1457
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>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday</td>
<td>7:00 AM – 6:00 PM</td>
<td>Closed</td>
</tr>
<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 Conciere
Academy Hall G
A local Las Vegas concierge and restaurant selection service is available to assist you in selecting restaurants and evening entertainment venues during your stay in Las Vegas.

• Hours of Operation:
  Tuesday – Friday ........................................ 8:00 AM – 6:00 PM
  Saturday ................................................... 8:00 AM – 1:00 PM

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

Social Media
Follow the AAOS Annual Meeting:
  www.facebook.com/AAOSannual
  www.twitter.com/AAOSannual

Social Program
Level 1 Lobby
Tour and seminar information is listed on page 30.

Specialty Day
Saturday, March 28, Venetian/Sands EXPO
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 $16-$25 (one way) according to the location of your hotel. For service, go to the east side of baggage claim outside door exits 1-4, where airport personnel are available to assist passengers. There is a $2 charge on all fares originating at the airport and most taxis do not accept credit card payments. Fares start with $3.30 on the meter and $2.60 is added for every additional mile.

Technical Exhibits
Halls A-D
• 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 361, 6422 and 6456
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 morning at 10:00 AM.

Electronic Skills Pavilion – It’s Free, No Ticket Needed!
Booth 4402
Presentations that showcase current technology, products, and applications that are developed for the orthopaedic surgeon take place in the Electronic Skills Pavilion. A schedule of the dates and times of presentations can be found on page 382, in the daily edition of AAOS Now, and at Booth 4402.

• Session Hours:
  Wednesday .................................................. 10:30 AM – 4:15 PM
  Thursday .................................................... 9:30 AM – 4:15 PM
  Friday ......................................................... 9:30 AM – 3:15 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.

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Seeking Advice? Ask an Expert
Booth 174
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 381.
• Session Hours:
  Wednesday ......................................................... 10:30 AM – 4:15 PM
  Thursday .......................................................... 9:30 AM – 4:15 PM
  Friday ............................................................. 9:30 AM – 3:15 PM

Unopposed Exhibit Time
One hour of unopposed 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.

The US Food and Drug Administration (FDA) and International Arthroplasty Registry Efforts
Moderators: David G. Lewallen, MD, Art Sedrakyan, MD, PHD, Danica Marina-Dabic, MD, PHD
Tuesday, March 24, 1:30 – 3:30 PM, Room 4301
International and national registries including the American Joint Replacement Registry (AJRR) have ongoing collaboration with the FDA through Medical Device Epidemiology Network (MDEpiNet) and International Consortium of Orthopaedic Registries (ICOR) www.icor-initiative.org. This session will highlight current initiatives that are advancing the missions and goals of registries. Presenters will review the progress with collection of hip and knee arthroplasty registry data and how this data can affect change in practice patterns. These efforts include the harmonization of data across the many registries around the world and identification of uniform standards for cataloging of implants. Some summary findings from registry collaborations will also be presented.

Webcasting
View 11 symposia webcasts as they are simulcast live from the Annual Meeting. Choose from a variety of topics addressing joint replacement procedures including shoulder, hip, and sports. Did you miss the live simulcasts? View the webcasts anytime 24 hours after the start of the symposium during the Annual Meeting through Tuesday, June 30, 2015. Both the www.aaos.org/amwebcasts website and the My Academy App provide access to the webcasts for both meeting attendees and virtual participants.
AAOS Members and AAOS Residents: Free
Non-Members: $79 unlimited viewing through June 30

Wi-Fi
Wireless Internet access – at no charge – is available throughout the Venetian/Sands EXPO Lobbies, Meeting Rooms, Academy Hall, Electronic Skills Pavilion, and the food service areas in the exhibit halls.

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The Social Program is open to all participants registered for the AAOS 2015 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 Venetian/Sands EXPO, Level 1 Lobby to register for Social Program tours and seminars.

**Registration Hours**
Venetian/Sands EXPO, 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 - NEW FOR 2015**
Social Program registrants will *no longer* receive a name badge. For access to Academy Hall Ceremonial Meeting (Guest Speaker), Opening Ceremony, or Technical Exhibits please visit the *Family Badge counter in Academy Hall G.*

Family badges will be available to non-medical spouses or immediate family onsite during registration hours. In order to receive a family badge, guest(s) must be accompanied by a registered attendee. There is a limit of 2 family badges per registered attendee.

As a Family member you cannot purchase Instructional Course tickets and, no CME credits or verification of attendance will be issued to anyone registered in the “Social Program or Family badge” category.

Co-workers and associates accompanying a registered attendee may not register through the Family Badge Program. They will need to go to On-site Physician Registration located in Academy Hall G.

**Tickets**
All pre-registered tickets are available for pick up on-site at Social Program Registration starting Monday, March 23 at 2:00 PM. Tickets were not mailed.

Stop by any time prior to your first tour. 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 6, 2015. 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 Venetian/Sands EXPO, Level 1 Lobby.

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.

### Tuesday, March 24

<table>
<thead>
<tr>
<th>Time</th>
<th>Tour</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:15 PM</td>
<td>Hoover Dam Tour</td>
<td>$80</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Las Vegas City Tour</td>
<td>$55</td>
</tr>
</tbody>
</table>

### Wednesday, March 25

<table>
<thead>
<tr>
<th>Time</th>
<th>Tour</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM</td>
<td>Life After Orthopaedics: 5 Years Less</td>
<td>$70</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Locals Overview of Las Vegas</td>
<td>Complimentary</td>
</tr>
<tr>
<td>8:15 AM</td>
<td>Hoover Dam &amp; Lake Mead Cruise with Lunch</td>
<td>$195</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Sin City Mob Tour</td>
<td>$88</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>“Behind the Curtain” Jubilee Backstage Tour with Lunch</td>
<td>$185</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Life After Orthopaedics: 10 Years More</td>
<td>$70</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>Mon Ami Gabi Cooking Class</td>
<td>$160</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Hoover Dam Tour</td>
<td>$80</td>
</tr>
</tbody>
</table>

### Thursday, March 26

<table>
<thead>
<tr>
<th>Time</th>
<th>Tour</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>Black Canyon River Float</td>
<td>$205</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Eldorado Canyon Trekkers Tour</td>
<td>$180</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Las Vegas Distillery Tour with Lunch</td>
<td>$180</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>Lake Mead Cruise with Lunch</td>
<td>$155</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Beyond the Lights Tour with Lunch</td>
<td>$120</td>
</tr>
</tbody>
</table>

### Friday, March 27

<table>
<thead>
<tr>
<th>Time</th>
<th>Tour</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM</td>
<td>Valley of Fire Trekker Tour with Lunch</td>
<td>$245</td>
</tr>
<tr>
<td>8:15 AM</td>
<td>Hoover Dam &amp; Lake Mead Cruise with Lunch</td>
<td>$195</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Beyond the Lights Tour with Lunch</td>
<td>$120</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Sin City Mob Tour</td>
<td>$88</td>
</tr>
<tr>
<td>1:00 PM</td>
<td>Eldorado Canyon Trekkers Tour</td>
<td>$180</td>
</tr>
</tbody>
</table>

### Saturday, March 28

<table>
<thead>
<tr>
<th>Time</th>
<th>Tour</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15 AM</td>
<td>Hoover Dam Tour</td>
<td>$80</td>
</tr>
<tr>
<td>7:30 AM</td>
<td>Red Rock Canyon Biking</td>
<td>$245</td>
</tr>
</tbody>
</table>
Help us welcome China as the Guest Nation for the Las Vegas meeting. Please stop by the Guest Nation exhibit located in Lobby G to learn about the accomplishments of the Chinese orthopaedic community.

Look for special events and activities including special poster tours given in Chinese and a speech by Professor Wei Tian, President of the Chinese Orthopaedic Association (COA) 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 China as the 2015 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 coming to 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, learn about job search resources coming to the online Career Center, and much more.

Visit us today to learn more!
AAOS Career Center
Academy Hall G
Tuesday – Friday: 7:00 AM to 6:00 PM
Saturday: 7:00 AM to 3:00 PM

Online at:
www.aaos.org/careercenter

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Your Academy educates the public and media about the specialty of orthopaedics and the value YOU bring to society. It’s OUR image. It’s YOUR voice.

How do you want our story told?

FREE resources are available to help YOU promote your practice!

**AAOS Public Relations Enhances the Image of Orthopaedic Surgeons**

**Stop by the AAOS Trending display**

(Grand Foyer, Level 2).

**Each member champions the image of orthopaedics.**

EXPERIENCE

The very best in orthopaedic education, research, and technology

**2016 Annual Meeting**
March 1 – 5
Orlando, Florida

All Academy members will automatically receive an Annual Meeting registration packet in mid-October.

**2017 Annual Meeting**
March 14 – 18
San Diego, California
Audio Podcasts available from over 200 Educational Sessions

Visit the Audio Sales Desk in Academy Hall G to place your order for digital downloads or streaming of selected:
- Symposia
- Instructional Course Lectures
- Paper Presentations
- Orthopaedic Review Course

Save when you order these on-site during the meeting!
- All available audio from the 2015 AAOS Annual Meeting - $199
- Single session - $25 each
- Orthopaedic Review Course - $49

Post Meeting visit www.aaos.org/ampodcasts
- All available audio from the 2015 AAOS Annual Meeting - $249
- Single session - $35 each
- Orthopaedic Review Course - $59

Audio Sales Desk located in Academy Hall G – Convenient Hours:
- Tuesday – Friday: 7:00 AM – 6:00 PM
- Saturday: 7:00 AM – 3:00 PM
FIND SOLUTIONS at the
AAOS Resource Center
Your Source for Lifelong Orthopaedic Learning

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MOC

CME

OrthoPortal

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Coding

ICL Handouts

Patient Education

Academy Programs

Publications

AAOS Resource Center
Academy Hall G

CONVENIENT HOURS
Tuesday – Friday 7:00 AM – 6:00 PM
Saturday 7:00 AM – 3:00 PM

aaos.org/store
Benefit From All Of The Outstanding Courses You May Have Missed!

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

- Head and Spine Injuries in Athletes: When to Worry (#311)
- Lower Extremity Fracture Reduction: Tips, Tricks and Techniques so that You Leave the OR Satisfied (#332)
- Indications and Techniques for Bi- and Unicompartmental Knee Arthroplasty (#343)
- Femoroacetabular Impingement: Pathophysiological Concepts, Treatment, and Outcomes (#361)
- Surgical Management of Articular Cartilage Defects of the Knee (#133)
- Nuts and Bolts of Foot and Ankle Injuries in the Athlete (#224)
- And hundreds more!

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

- Coding and Reimbursement Update #246

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)

Get your Course Handouts at the AAOS Resource Center
Academy Hall G

CONVENIENT Hours:
Tuesday – Friday: 7:00 AM – 6:00 PM
Saturday: 7:00 AM – 3:00 PM
Saturday, March 28, Venetian/Sands EXPO

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**
Palazzo Ballroom L
7:00 AM – 5:00 PM
9 AMA PRA Category 1 credits™

**American Orthopaedic Society for Sports Medicine**
Venetian Ballroom E
7:00 AM – 5:10 PM
*4.75 AMA PRA Category 1 credits™
(Combined AANA/AOSSM/ASES Session)
3.75 AMA PRA Category 1 credits™

**American Shoulder and Elbow Surgeons**
Palazzo Ballroom M
7:00 AM – 5:30 PM
*4.75 AMA PRA Category 1 credits™
(Combined AANA/AOSSM/ASES Session)
4.25 AMA PRA Category 1 credits™

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

**Arthroscopy Association of North America**
Venetian Ballroom D
7:00 AM – 5:00 PM
*4.75 AMA PRA Category 1 credits™
(Combined AANA/AOSSM/ASES Session)
3.75 AMA PRA Category 1 credits™

**Federation of Spine Associations**
- American Spinal Injury Association
- Cervical Spine Research Society
- North American Spine Society
- Scoliosis Research Society
Venetian Ballroom G
8:00 AM – 5:00 PM
7.25 AMA PRA Category 1 credits™

**The Hip Society/American Association of Hip and Knee Surgeons**
Room 2001
7:55 AM – 4:57 PM
6.75 AMA PRA Category 1 credits™

**The Knee Society/American Association of Hip and Knee Surgeons**
Room 2201
7:55 AM – 5:00 PM
6.75 AMA PRA Category 1 credits™

**Limb Lengthening and Reconstruction Society**
Room 3201
8:00 AM – 4:00 PM
6.75 AMA PRA Category 1 credits™

**Musculoskeletal Tumor Society**
Room 3301
7:30 AM – 4:15 PM
6.75 AMA PRA Category 1 credits™

**Orthopaedic Trauma Association**
Room 4403
7:30 AM – 5:10 PM
8.25 AMA PRA Category 1 credits™

**Pediatric Orthopaedic Society of North America**
Room 3401
8:00 AM – 3:00 PM
5.5 AMA PRA Category 1 credits™

*CME certificates for the Combined AANA/AOSSM/ASES Session will be issued by AOSSM within 4-6 weeks after the meeting.

**AAOS Salutes the...**

**American Association of Hip and Knee Surgeons**
25th Anniversary

**Orthopaedic Rehabilitation Association**
25th Anniversary

**Limb Lengthening and Reconstruction Society**
25th Anniversary

**Scoliosis Research Society**
50th Anniversary

© 2015 American Academy of Orthopaedic Surgeons
Collaborating in the Science of Patient Care

Sunday, March 29
ORS 2015 Annual Meeting
MGM Grand Hotel

Make plans to attend the ORS Annual Meeting on Sunday, March 29, when we invite all AAOS Annual Meeting registrants to take advantage of the opportunity for scientists and orthopaedic surgeons to collaborate in the science of patient care.

Complimentary Programs:
- Paper Presentations – 8:00 – 9:00 AM, 9:15 – 10:15 AM, 3:45 – 4:45 PM
- Scientific Posters – 9:00 AM – 6:00 PM
- 2015 Kappa Delta, OREF Clinical Research and CORR® ORS Richard A. Brand Award paper presentations – 11:15 AM – 12:30 PM
- ORS Clinical Research Forum: The Basis for Clinical Decision Making in Orthopaedics - 12:45 – 5:00 PM
- ORS Translational Research Symposium: Cartilage Repair: Is it Possible? – 12:45 – 1:45 PM
- Professional Advancement Session: Finding a Partner in Research – 2:00 – 3:30 PM

Scientific Workshops - 2:00 – 3:30 PM:
- ORS/OTA Systemic Inflammation and Organ Dysfunction in Multiple Injury Patients
- ORS/SOMOS How an Integrated Orthosis and Rehabilitation Initiative has Improved Outcomes for Lower Extremity Limb Salvage Patients
- Improving the Translational Success of Cell-Based Therapies

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 29, 8:00 – 11:15 AM
Registration: www.ors.org/ors2015aaos

HOW TO REGISTER:
A sticker (to be placed on your badge) is required for access to the ORS Annual Meeting on Sunday, March 29. A sticker can be obtained at ORS satellite check-in located at AAOS Registration in the Venetian/Sands EXPO, Academy Hall G on Friday, March 27 or at the ORS Registration Desk at the MGM Grand Hotel on Sunday, March 29.

For more information, please visit www.ors.org/ors2015aaos

See you in Las Vegas!
The American Academy of Orthopaedic Surgeons gratefully acknowledges the following companies, organizations and individuals for their financial support of AAOS programs and projects throughout 2014. (as of 1/29/2015)

**Diamond Level – $200,000 and up**

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<td>AUTO ALLIANCE</td>
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**Platinum Level – $100,000-$199,999**

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**Gold Level – $50,000-$99,999**

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**Silver Level – $10,000-$49,999**

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<td>American Orthopaedic Society for Sports Medicine</td>
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<td>Arthroscopy Association of North America</td>
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<td>Surgical Specialties Corporation</td>
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<td>Wright Medical Technology</td>
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Bronze Level – $1,000-$9,999

Acumed
Alexandra’s Playground
American Association of Orthopaedic Executives
American Orthopaedic Foot and Ankle Society
American Shoulder and Elbow Surgeons
American Society for Surgery of the Hand
American Society of Orthopaedic Assistants
American Spinal Injury Association
Association of Residency Coordinators in Orthopaedic Surgery
Dr. Alan & Mrs. Gittel Hilibrand
Dr. Frank & Mrs. Lawson Kelly
Dr. Richard Gayle
Dr. Stephen & Mrs. Sonny Hurst
Exactech, Inc.
Foundation of Orthopedics and Complex Spine (FOCOS)
Foundation for Orthopedic Trauma
Health Research & Educational Trust
Hospital for Special Surgery
Indonesian Orthopaedic Association
J. Robert Gladden Orthopaedic Society
Japanese Orthopaedic Association
Kinamed, Inc.
Limb Lengthening and Reconstruction Society
Mayo Clinic, Rochester, Minnesota
National Association of Orthopaedic Nurses
New England Baptist Hospital
Newton-Wellesley Hospital Charitable Foundation
NYU Hospital for Joint Diseases
Orchid Orthopedic Solutions
Orthopaedic Foundation
Orthopaedic Nurses Certification Board
Orthopaedic Research Society
Orthopedic Specialists of North America
Paragon Medical
Permanent Medical Group
Ruth Jackson Orthopaedic Society
Société Internationale de Chirurgie Orthopédique et de Traumatologie (SICOT)
Sociedad Chilena de Ortopedia y Traumatologia (SCHOT)
Stanford Orthopaedic Surgery
Stetson Powell Orthopedics and Sports Medicine
Symmetry Medical

Thanks for your support

The Academy would also like to thank the following companies for their support for its 2014 Skills Courses and international activities by providing essential equipment and supplies:

Accu-line Products, Inc.
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Integra
Kinamed, Inc.
Kraft Medical Products, Inc.
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Musculoskeletal Transplant Foundation
NuVasive, Inc.
OrthoPediatrics
Orthosonics
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Stryker Endoscopy
Stryker Instruments
Stryker Joint Preservation
Stryker Orthopaedics
Stryker Spine
Tornier
TriMed, Inc.
Wright Medical Technology
Zimmer
Call for Abstracts

2016 Annual Meeting
Orlando, Florida
March 1-5

Contribute to the advancement of orthopaedic science and practice

Share your research with orthopaedic surgeons from around the world at the 2016 Annual Meeting. Nowhere else will your discoveries reach such a wide-ranging orthopaedic audience.

Submissions open April 1, 2015. 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:

Abstract Submissions due June 1, 2015

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, 2015. Abstracts will not be graded without all disclosures.
Educational Programs
Your Guide to Educational Formats and Highlights

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

Whether you prefer didactic, interactive, or self-directed learning, you will find your most comfortable and productive educational formats.

Cornerstones of Your Academy Meeting

Instructional Course Lectures present tried and true solutions in orthopaedics, “the standard of care,” and insightful opinions from expert surgeons. Indicated by a ticket symbol these courses require a ticket purchase. The prices range from $50 to $400, depending upon the length of the course and whether you purchase the ticket in advance or on site. Several Instructional Courses feature an Audience Response System, noted by this symbol.

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 to facilitate discussion. These two-hour sessions are 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 900 papers in all. Included free with your registration.

Scientific Exhibits are in-depth, graphic illustrations of a study or complex procedure. Audiovisual, presenter-interaction, or other types of enhancement enriches your learning experience. 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 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 249.

Scientific Exhibits have been grouped in the following categories:

- Adult Reconstruction Hip ............................................. SE49-SE61
- Adult Reconstruction Knee ........................................ SE01-SE16
- Basic Research.......................................................... SE27-SE28
- Foot and Ankle ............................................................ SE37-SE38
- Hand and Wrist ............................................................ SE62-SE64
- Pediatrics................................................................. SE29-SE32
- Practice Management ............................................. SE33-SE36
- Shoulder and Elbow ................................................... SE39-SE48
- Spine ................................................................. SE65-SE68
- Sports Medicine and Arthroscopy ......................... SE72-SE88
- Trauma............................................................... SE17-SE26
- Tumor and Metabolic Disease .............................. SE69-SE71

AAOS Committee Scientific Exhibits:
- Extremity War Injury Project Team ............................ SE24
- Women’s Health Issues Advisory Board .................... SE27
- Medical Liability Committee ................................ SE35
- Research and Development Committee ................ SE49

BOS Scientific Exhibits:
- Pediatric Orthopaedic Society of North America .......... SE31

Posters are visual presentations of medical, clinical, or scientific research. Posters are often multi-center or multi-disciplinary studies, exciting new research, or a follow up to a previous study. The poster presenter or co-authors are at their poster daily from 11:30 AM – 12:30 PM to discuss their research and answer your questions. Special focus posters include those by the Orthopaedic Research Society, Board of Specialty Societies, and Allied Health. A complete listing is included beginning on page 260.

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
- Spine ................................................................. P341-P400
- Sports Medicine and Arthroscopy ......................... P401-P475
- Trauma ............................................................... P476-P535
- Tumor and Metabolic Disease .............................. P536-P555
- Orthopaedic Research Society .......................... P556-P562
- BOS Poster ........................................................... P563
- Allied Health ......................................................... P564-P566

ePosters and eScientific Exhibits are interactive video presentations of research to illustrate a study or procedure. Access them on site through your tablet, mobile device, or laptop; during and after the meeting visit the website for access to all ePosters and eScientific Exhibits.

Orthopaedic Review Course: Update for Your Practice and Preparation for Your Test is all new and refocused to help you prepare for the Board Exam. This all-day review of general orthopaedics is presented by an expert from each of these specialties: pediatrics, upper and lower extremities, tumors and metabolic bone disease, and spine.

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.

Also, make plans to attend the Feature Presentation Theater an intimate setting where you can meet video authors, view programs as part of the live audience, and participate in question and answer sessions.

A complete listing of the Orthopaedic Video Theater programs begins on page 233.

- Award Programs ....................................................... Stations 2-5
- Adult Reconstruction Hip ........................................ Stations 6-7
- Adult Reconstruction Knee .................................... Stations 8-11
- Foot and Ankle ......................................................... Stations 12-13
- Hand and Wrist ......................................................... Station 14
- Pediatrics ............................................................... Station 15
- Shoulder and Elbow ................................................ Stations 16-20

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In addition, 10 self-service stations are available for you to view any Orthopaedic Video Theater title online.

Electronics Skills Pavilion showcases the latest technology and applications beneficial to orthopaedic surgeons and their staff. Presentations take place Wednesday through Friday in Booth 4402 in the Technical Exhibit Hall. Sessions are totally free and no ticket is needed to attend.

Technical Skills Courses focus on positioning, approach, and step-by-step technical tips via edited videos, followed by discussion on the pearls. These are noted by (T).

Case Presentation Courses offer a round table discussion led by an expert faculty facilitator. The course moderator presents the case to the participants, sharing images and data via laptop. The facilitator then leads individual table discussion, with individual tables sharing their conclusions. The moderator presents the final solution using evidence-based data and teaching points with references to support the selected treatment. Four to five cases are discussed during each highly interactive two-hour session. These are noted by (C).

Technical Skills Courses benefit everyone who would like to further refine or develop their presentation skills and create an environment beneficial to learning. The Central Instructional Course Committee has developed a themed daily curriculum to help you in your practice, in your community, or in your academic setting. The themes are Leadership and Professional Academic Skills, Scholarship and Research, Education, Communication and Teamwork, and Maintenance of Certification. The sessions are interactive and attendees are encouraged to bring their laptops. These free courses are ticketed and are noted with an FD.

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 174 in the Technical Exhibit Hall. Sessions are totally free and no ticket is needed to attend.

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

- Case Presentation Courses
- Technical Skills Courses
- Faculty Development Courses
- Innovative Education Format - Courses that encourage the use of new and technologically advanced education; featuring the unique use of audiovisual or technology with an educational format other than didactic.
- Symposiums 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

International Paper Session
Tuesday, March 24, 1:30 – 3:30 PM, Venetian Ballroom B
Moderators: Xavier A. Duralde, MD and Scott P. Steinmann, MD
The best papers from countries 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 27, 7:00 AM, Academy Hall G
Join us for a free continental breakfast and the Poster Awards Ceremony. Central Program Committee Chair William M. Mihalko, MD, PhD, presents the winners of the Best Poster in each classification and the best overall poster for the 2015 Annual Meeting.
Educational Programs

Game Changers Paper Session
Friday, March 27, 10:30 AM – 12:30 PM, Room 2001
Moderators: Steven L. Frick, MD and Alexander Vaccaro, MD

The Central Program Committee is pleased to present this very special paper session. The session 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. “Game Changers” includes the most influential and cutting edge research likely to shape the way we practice in the near term.

Annual Meeting Highlights Symposium
Friday, March 27, 1:30 – 3:30 PM, Venetian Ballroom E
Moderators: Brian J. Cole, MD, MBA and James Ficke, MD

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 2015 Annual Meeting. The symposium provides attendees with an opportunity to maximize their Academy experience.

Special Program for Residents
Friday, March 27, 1:30-5:00 PM, Room 2001
Symposium CC – Residency Core Competencies and Surgical Tips and Tricks
Moderator: William M. Mihalko, MD, PhD

This special educational event has been developed especially for residents. It features experts presenting their own tips, tricks, and technical pearls on joints, trauma, hand, pediatrics, spine, and sports medicine. We have added in the core competencies required for completion of an orthopaedic residency program. This highly interactive session is webcast live and the remote audience is encouraged to submit questions via email, text, and 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 G 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.

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

Effective Surgeon-Patient Communication: The Key to Patient Satisfaction, Patient-Centered Care, and Shared Decision Making
Wednesday, March 25, 8:00 AM – 12:00 Noon & 1:30 – 5:30 PM, Room 4201
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.

TeamSTEPPS
Thursday, March 26, 8:00 AM – 12:00 Noon & 1:30 – 5:30 PM, Room 4201
Moderator: Harpal S. Khanuja, 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.

Intellectual Property Special Session
Thursday, March 26, 10:30 – 11:30 AM
Room 4401
Esan Flatow, MD, Ms. Ellen Moore, Ms. Lisa Gates

Informational session to define Intellectual Property (IP) rights especially as relates to copyrights; and identify the differences between various regulations and releases; and learn how to apply in your presentations. Session is free and no ticket is required to attend.

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 9,000 abstracts were submitted for presentation at the 2015 Annual Meeting. Of these, the Program Committee selected the best for presentation in 915 paper presentations and 566 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 30 symposia and the Central Instructional Course Committee presents 230 courses and 21 special sessions.

Applications for Symposia and Instructional Courses were evaluated and rated by the Central Program and Central Instructional Course Committees. Countless hours were spent reviewing and rating these applications resulting in the excellent curriculum featured at the 2015 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 Course Committee are very appreciative of the efforts extended by those who submitted abstracts and applications and congratulates them on the high quality submitted for the 2015 Annual Meeting. They are also grateful for the assistance of the Program and Instructional Course 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 G

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:

- Instructional Course Lecture (ICL) 2-hour: $70.00
- ICL 2-hour US Orthopaedic Resident: $25.00
- Ten Hot ICD-10 and CPT Coding Issues: $80.00
- Effective Surgeon-Patient Communication: $80.00
- 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 ticket fee on-site.

Posters, Scientific Exhibits, and the Orthopaedic Video Theater

Academy Hall G

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. 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.

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.

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No unapproved surveys, handouts, or literature may be distributed at the meeting.

Private Meeting

The AAOS 2015 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 the AAOS sole discretion.

Education Committees

The Central Program, Central Instructional Course, 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.

2015 Exhibits Committee

Joseph T. Moskal, MD, Roanoke, VA, Chair
Jonathan J. Carmouche, MD, Roanoke, VA
Karen S. Duane, MD, Newberry, FL
Benjamin Goldberg, MD, Chicago, IL
Donald H. Lee, MD, Nashville, TN
John Walter Mann III, MD, Roanoke, VA
James V. Nepola, MD, Iowa City, IA
Rick F. Papandrea, MD, Waukesha, WI
Jeffrey M. Schwartz, MD, FACS, New York, NY
Fernando Techy, MD, Chicago, IL
Scott D. Weiner, MD, Akron, OH

2015 Central Instructional Course Committee

Thomas (Quin) Throckmorton, MD, Germantown, TN, Chair
Craig J. Della Valle, MD, Chicago, IL

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2015 Central Program Committee

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Brian J. Cole, MD, MBA, Chicago, IL
James R. Ficke, MD, Baltimore, MD
Steven L. Frick, MD, Orlando, FL
Alexander Vaccaro, MD, PhD, Gladwyn, PA

2015 Orthopaedic Video Theater Committee

James M. Bennett, MD, Houston, TX, Chair
Stephen Bartol, MD, Detroit, MI
Shariff K. Bishai, DO, St. Clair Shores, MI
H. John Cooper, MD, New York, NY
Eric W. Edmonds, MD, San Diego, CA
John P. Kerz, MD, Pittsford, NY
Christopher E. Pelt, MD, Salt Lake City, UT
Lee E. Rubin, MD, East Greenwich, RI
Lewis L. Shi, MD, Chicago, IL
J. Michael Wiater, MD, Beverly Hills, MI

2015 Program Committees

Adult Reconstruction Hip

David C. Ayers, MD, Worcester, MA, Chair
John Antoniou, MD, Montreal, QC, Canada
Michael J. Archibeck, MD, Albuquerque, NM
Paul E. Beaulé, MD, Ottawa, ON, Canada
George F. Chimento, MD, Metairie, LA
John C. Clohisy, MD, Saint Louis, MO
John M. Cuckler, MD, Burnsville, NC
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Harry A. Demos, MD, Charleston, SC
Kevin B. Fricka, MD, Alexandria, VA
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William B. Macaulay, MD, New York, NY
Arthur L. Malkani, MD, Louisville, KY
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David J. Mayman, MD, New York, NY
Richard W. McCalden, MD, London, ON, Canada
Michael A. Mont, MD, Baltimore, MD
Amar S. Ranawat, MD, New York, NY
Peter F. Sharkey, MD, Media, PA
Kipling P. Sharkey, MD, Gilbert, AZ
James D. Slover, MD, New York, NY
Scott M. Sporer, MD, Wheaton, IL
Andrew M. Star, MD, Willow Grove, PA
Edward J. Stolarski, MD, Sarasota, FL
Creighton C. Tubb, MD, Olympia, WA
James P. Waddell, MD, Toronto, ON, Canada
Steven T. Woolson, MD, Palo Alto, CA

Adult Reconstruction Knee

Michael A. Kelly, MD, Hackensack, NJ, Chair
David Backstein, MD, Toronto, ON, Canada
Thomas J. Blumenfeld, MD, Sacramento, CA
Geoffrey F. Dervin, MD, Ottawa, ON, Canada
Thomas H. Eickmann, MD, Longmont, CO
David A. Fisher, MD, Indianapolis, IN
Alejandro Gonzalez Della Valle, MD, New York, NY
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Yair D. Klein, MD, Brooklyn, NY
Gregg R. Klein, MD, Paramus, NJ
Phillip F. Ludkowski, MD, Arlington Heights, IL
Robert A. Malinzak, MD, Mooresville, IN
John L. Masonis, MD, Charlotte, NC
Alexander P. Sah, MD, Fremont, CA
Siraaj A. Sayeed, MD, San Antonio, TX
Vernon F. Sechrest, MD, San Diego, CA
Alfred J. Tria, Jr., MD, Princeton, NJ
Marc E. Umlas, MD, Miami Beach, FL
Russell E. Windsor, MD, New York, NY

Foot and Ankle

Daniel C. Farber, MD, Baltimore, MD, Chair
Jamal Ahmad, MD, Philadelphia, PA
Michael S. Aronow, MD, West Hartford, CT
John A. DiPreta, MD, Albany, NY
Patrick B. Ebeling, MD, Burnsville, MN
Narendra G. Gurbani, MD, Downey, CA
Sandra D. Klein, MD, Saint Louis, MO
Brain C. Toolan, MD, Flossmoor, IL

Hand and Wrist

Fraser J. Leversedge, MD, Durham, NC, Chair
Jeffrey A. Greenberg, MD, Indianapolis, IN
Charles F. Leinberry, MD, Chester Springs, PA
Mark S. Rekant, MD, Cherry Hill, NJ
John S. Taras, MD, Philadelphia, PA

Pediatrics

Ken J. Noonan, MD, Madison, WI, Chair
Amy L. McIntosh, MD, Rochester, MN
William M. Mirenda, MD, Danville, PA
Kristan Pierz, MD, Hartford, CT
Tim Schrader, MD, Atlanta, GA

Practice Management/Rehabilitation

Thomas A. Malvitz, MD, Grand Rapids, MI, Chair
John D. Campbell, MD, Bozeman, MT
Josef K. Eichinger, MD, Gig Harbor, WA
Catherine G. Hawthorne, MD, Gallup, NM
Frederick N. Meyer, MD, Mobile, AL

Shoulder and Elbow

Keith Kenter, MD, Cincinnati, OH, Chair
Joseph A. Abboud, MD, Philadelphia, PA
Kyle Anderson, MD, West Bloomfield, MI
Frank A. Cordasco, MD, New York, NY
John G. Costouros, MD, Los Gatos, CA
Joshua Dines, MD, New York, NY
Donald F. Endrizzi, MD, Falmouth, ME
Reuben Gobezie, MD, Mayfield Heights, OH
Gordon I. Groh, MD, Asheville, NC
Samir S. Hasan, MD, PhD, Cincinnati, OH
Robert B. Litchfield, MD, London, ON, Canada
Wesley M. Nottage, MD, Laguna Hills, CA
Kaveh R. Sajadi, MD, Lexington, KY
Robert Z. Tashjian, MD, Salt Lake City, UT
Brian R. Wolf, MD, Iowa City, IA

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Spine
Norman B. Chutkan, MD, Augusta, GA, Chair
Patrick J. Cahill, MD, Philadelphia, PA
Theodore J. Choma, MD, Columbia, MO
Jason C. Datta, MD, Mesa, AZ
William F. Donaldson III, MD, Pittsburgh, PA
John C. France, MD, Morgantown, WV
Michael C. Gerling, MD, Brooklyn, NY
William Francis Lavelle, MD, East Syracuse, NY
Michael J. Lee, MD, Seattle, WA
Ronald A. Lehman, MD, Potomac, MD
Mark D. Rahm, MD, Temple, TX
Ashish Razi, MD, New York, NY
Vincent J. Silvaggio, MD, Pittsburgh, PA
Kern Singh, MD, Chicago, IL
Joseph D. Smucker, MD, Iowa City, IA
Robert L. Tatsunami, MD, Lake Oswego, OR
F. Todd Wetzell, MD, Wilmington, DE
Burt Yaszay, MD, San Diego, CA

Sports Medicine and Arthroscopy
Dean K. Matsuda, MD, Los Angeles, CA, Chair
Champ Baker III, MD, Columbus, GA
David R. Diduch, MD, Charlottesville, VA
Christopher T. Donaldson, MD, Johnstown, PA
Greg J. Folsom, MD, Lenexa, KS
Peter G. Gerbino II, MD, Monterey, CA
Thomas J. Gill, MD, Boston, MA
John R.T. Green III, MD, Newtown Square, PA
Michael A. Kuhn, MD, Cape Carteret, NC
Christian Lattermann, MD, Lexington, KY
Edward R. McDevitt, MD, Annapolis, MD
Anil S. Ranawat, MD, New York, NY
Stephen R. Soiffer, MD, Wyomissing, PA
Armando E. Vidal, MD, Denver, CO
Rick W. Wright, MD, Saint Louis, MO

Trauma
Ivan S. Tarkin, MD, Pittsburgh, PA, Chair
Jason M. Evans, MD, Franklin, TN
Steven P. Haman, MD, Lima, OH
Eric M. Hammerberg, MD, Boulder, CO
James C. Krieg, MD, Philadelphia, PA
Amer J. Mirza, MD, Portland, OR
Yvonne M. Murtha, MD, Wichita, KS
Gilbert R. Ortega, MD, Scottsdale, AZ
Edward Perez, MD, Memphis, TN
Bogadi R. Prashanth, MD, Mysore Karnataka, India
Frederic B. Wilson, MD, Phoenix, AZ

Tumor and Metabolic Disease
Jeffrey S. Kneisl, MD, Charlotte, NC, Chair
James B. Hayden, MD, Lake Oswego, OR
Francis Young-In Lee, MD, New York, NY
Thomas J. Scharschmidt, MD, Westerville, OH
Felasfa M. Wodajo, MD, Arlington, VA

Orthopaedic Video Theater Committee
James M. Bennett, MD, Houston, TX, Chair
Stephen Bartol, MD, Detroit, MI
Shariff K. Bishai, DO, St. Clair Shores, MI
H. John Cooper, MD, New York, NY
Eric W. Edmonds, MD, San Diego, CA
J. Mark Evans, MD, Mechanicsville, VA
John P. Ketz, MD, Pittsford, NY
Christopher E. Pelt, MD, Salt Lake City, UT
Lee E. Rubin, MD, East Greenwich, RI
Lewis L. Shi, MD, Chicago, IL
J. Michael Wiater, MD, Beverly Hills, MI

2015 Instructional Course 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
Michael Tanzer, MD, Montreal, QC, Canada

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
Brian R. Hamlin, MD, Pittsburgh, PA
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
Paul J. Juliano, MD, Hershey, PA
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
J. Abbott Byrd III, MD, Virginia Beach, VA
David L. Flood, MD, Columbia, MO
Paul A. Marchetto, MD, Philadelphia, PA
Erick M. Santos, MD, PhD, Corpus Christi, TX

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

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Tuesday Highlights

CPT and ICD-10 Coding Fundamentals for Starting Your Practice #190
8:00 – 11:00 AM
Palazzo Ballroom M

You don’t want to miss this fast-paced course introducing the most important coding topics to orthopaedic residents. Margaret Maley from Karen Zupko & Associates brings energy and humor to topics critical to orthopaedic coding and reimbursement. By the end of the course you will:

• Identify how ICD-10 diagnosis coding will impact your documentation for 5 common orthopaedic diagnoses
• Demonstrate how to use technology to find the correct ICD-10 diagnosis in real time
• Understand 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
• Understand what is included in the global surgical package

Join us for this complimentary workshop that will be so important to your career! Due to the nature of this course, it is limited to U.S. Residents only.

Practice Management Residents’ Course #191
12:30 – 5:00 PM
Palazzo Ballroom M

New topics and new faculty this year! This fast-paced session uses didactic lectures and panel discussions to provide the foundation for an effective transition from resident to practicing physician. Course Directors Gail Chorney, MD and Charles Goldfarb, MD, designed this course to cover the most pertinent issues for this daunting transition. This half-day track covers essential elements of practice management not covered in most residency programs and while especially beneficial for fourth-year and fifth-year residents, all residents are welcome. Topics include tips for a successful job search, how to prepare for an interview, negotiating physician employment agreements, how to build a successful practice, managing your orthopaedic practice finances, tips to increase your income, and how to manage personal finances now that you have landed your first job. Best of all, this course is complimentary to all residents!

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.

Community Orthopaedic Surgeon Workshop #193
1:30 – 5:30 PM
Room 3404

This complimentary workshop for the orthopaedic surgeon handles a variety of orthopaedic conditions. Whether in the Emergency Room or in the office setting, this session is designed to educate the community orthopaedist to accepted practices of common conditions. Topics include adult reconstruction hip, cost effectiveness, adult reconstruction knee, trauma surgery, practice management, patient safety, Sports/ACL and shoulder and upper extremity.

Practice Management Seminar for Practicing Orthopaedic Surgeons #199
8:00 AM – 5:00 PM
Palazzo Ballroom E

Position Your Practice to Survive in the Future. Course Directors John Cherf, MD, MPH, MBA; Nicholas Colyvas, MD; and Chris Dugger, MD developed this year’s seminar to provide both didactic lectures and panel discussions to provide the foundation for an effective transition from resident to practicing physician. Margaret Maley from Karen Zupko & Associates brings energy and humor to topics critical to orthopaedic coding and reimbursement. By the end of the course you will:

• Identify how ICD-10 diagnosis coding will impact your documentation for 5 common orthopaedic diagnoses
• Demonstrate how to use technology to find the correct ICD-10 diagnosis in real time
• Understand 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
• Understand what is included in the global surgical package

Join us for this complimentary workshop that will be so important to your career! Due to the nature of this course, it is limited to U.S. Residents only.
FACULTY DEVELOPMENT AT-A-GLANCE
Faculty Development Sessions benefit everyone who would like to further refine or develop their presentation skills and create an environment beneficial to learning. These sessions are offered at no charge and fill up quickly. Descriptions can be found on page numbers listed below.

Tuesday, March 24 – Leadership and Professional Academic Skills
8:00 – 9:00 AM, page 55
FD1 The Art of Using PowerPoint for Effective Presentations
9:30 – 10:30 AM, page 67
FD2 Perspectives on Mentorship
11:00 AM – 12:00 PM, page 78
FD3 Principles of Orthopaedic Leadership: Local, Regional, National
1:30 – 2:30 PM, page 78
FD4 Video Production for Orthopaedic Surgeons: Getting the Award, Making the Difference
3:00 – 4:00 PM, page 78
FD5 How to Assemble a Competitive ICL and Symposium Application
4:30 – 5:30 PM, page 90
FD6 Imagine Them Naked: Public Speaking and Teaching

Wednesday, March 25 – Scholarship and Research
8:00 – 9:00 AM, page 101
FD7 Getting Your Work Published and Achieving the Highest Impact
9:30 – 10:30 AM, page 112
FD8 Writing a Competitive Grant Application
11:00 AM – 12:00 PM, page 123
FD9 Cliff Notes on Clinical Research: What You Need to Get Started
1:30 – 2:30 PM, page 123
FD10 The Bench: Principles of Basic Science and Translational Research
3:00 – 4:00 PM, page 134
FD11 Writing an Abstract that Gets Accepted
4:30 – 5:30 PM, page 135
FD12 The Art and Science of Reviewing Manuscripts for Orthopaedic Journals

Wednesday, March 25 – Outcomes and Maintenance of Certification
8:00 – 10:00 AM, page 102
FD13 Selection, Implementation, and Interpretation of Patient-Centered Orthopaedic Outcomes
10:30 – 11:30 AM, page 112
FD14 Benefits of the Learning Portfolio
1:30 – 2:30 PM, page 123
FD15 Maintenance of Certification: Do’s and Don’ts
3:00 – 4:00 PM, page 134
FD16 Brushing Up On Your Test Taking Skills
4:30 – 5:30 PM, page 135
FD17 Case List Review: Preparation for Your Recertification Exam

Thursday, March 26 – Education Communication and Teamwork
8:00 – 9:00 AM, page 145
FD18 Lifelong Learning: Principles of Peer Education in Orthopaedics
9:30 – 10:30 AM, page 157
FD19 Principles of Teaching Across Differences in Culture and Language
11:00 AM – 12:00 PM, page 169
FD20 Dealing with the Underperforming Orthopaedic Resident
1:30 – 2:30 PM, page 169
FD21 The Art of the Orthopaedic Lecture
3:00 – 5:00 PM, page 181
FD22 The Art of Teaching Orthopaedic Surgery

Friday, March 27 – Communication and Teamwork
8:00 – 9:00 AM, page 190
FD23 Getting Your Ideas Supported: Effective Techniques
9:30 – 10:30 AM, page 201
FD24 Social Media and Orthopaedics: Opportunities and Challenges
11:00 AM – 12:00 PM, page 213
FD25 The Basics of Effective Surgeon-Patient Communication
1:30 – 2:30 PM, page 213
FD26 Collaboration Within and Between Institutions
3:00 – 4:00 PM, page 224
FD27 Cross Cultural Patient Communication
4:30 – 5:30 PM, page 224
FD28 Marketing Yourself and Your Practice

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Guided Poster Tours
Academy Hall G

Guided poster tours provide an opportunity for meeting attendees to ask questions and gain insights while earning CME credit. Each tour will be guided by an expert in the field. The expert will question the presenter, point out highlights and give interesting tips about selected posters in each classification. Poster Tours will be given at the Presentation Stage on the uTouch screen. Registrants should register for the Poster Tours at the Poster and Scientific Exhibit Help Desk.

<table>
<thead>
<tr>
<th>Date</th>
<th>Classification</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, March 24</td>
<td>Adult Reconstruction Knee</td>
<td>Giles R. Scuderi, MD</td>
</tr>
<tr>
<td>10:00 AM – 11:00 AM</td>
<td>Trauma</td>
<td>Edward Perez, MD</td>
</tr>
<tr>
<td>11:30 AM – 12:30 PM</td>
<td>Sports Medicine/Arthroscopy (Japanese)</td>
<td>Shinichi Yoshiya, MD, PhD</td>
</tr>
<tr>
<td>1:30 PM – 2:30 PM</td>
<td>Sports Medicine/Arthroscopy</td>
<td>Kenneth D. DeHaven, MD</td>
</tr>
<tr>
<td>3:00 PM – 4:00 PM</td>
<td>Adult Reconstruction Hip</td>
<td>Joshua J. Jacobs, MD</td>
</tr>
<tr>
<td>Wednesday, March 25</td>
<td>Pediatrics</td>
<td>Stuart L. Weinstein, MD</td>
</tr>
<tr>
<td>8:30 AM – 9:30 AM</td>
<td>Shoulder and Elbow</td>
<td>Quin Throckmorton, MD</td>
</tr>
<tr>
<td>10:00 AM – 11:00 AM</td>
<td>Spine</td>
<td>Alexander Vacarro, MD, PhD</td>
</tr>
<tr>
<td>11:30 AM – 12:30 PM</td>
<td>Trauma (Chinese)</td>
<td>Wei Jie, MD, PhD</td>
</tr>
<tr>
<td>3:00 PM – 4:00 PM</td>
<td>Foot and Ankle</td>
<td>G. Andrew Murphy, MD</td>
</tr>
<tr>
<td>4:30 PM – 5:30 PM</td>
<td>Adult Reconstruction Hip</td>
<td>William M. Mihalko, MD, PhD</td>
</tr>
<tr>
<td>Thursday, March 26</td>
<td>Tumor and Metabolic Disease</td>
<td>Valerae O. Lewis, MD</td>
</tr>
<tr>
<td>8:30 AM – 9:30 AM</td>
<td>Pediatrics</td>
<td>Frank J. Eismont, MD</td>
</tr>
<tr>
<td>10:00 AM – 11:00 AM</td>
<td>Spine</td>
<td>Martin J. Herman, MD</td>
</tr>
<tr>
<td>11:30 AM – 12:30 PM</td>
<td>Pediatrics</td>
<td>Ivan Enclada Diaz, MD</td>
</tr>
<tr>
<td>1:30 PM – 2:30 PM</td>
<td>Sports Medicine/Arthroscopy (Spanish)</td>
<td>Peter J. Stern, MD</td>
</tr>
<tr>
<td>3:00 PM – 4:00 PM</td>
<td>Hand and Wrist</td>
<td>Matthew T. Provencher, MD</td>
</tr>
<tr>
<td>4:30 PM – 5:30 PM</td>
<td>Sports Medicine/Arthroscopy</td>
<td></td>
</tr>
<tr>
<td>Friday, March 27</td>
<td>Adult Reconstruction Knee</td>
<td>Craig J. Della Valle, MD</td>
</tr>
<tr>
<td>8:30 AM – 9:30 AM</td>
<td>Practice Management</td>
<td>Daniel B. Murrey, MD</td>
</tr>
<tr>
<td>10:00 AM – 11:00 AM</td>
<td>Trauma</td>
<td>Stephen Kottmeier, MD</td>
</tr>
<tr>
<td>11:30 AM – 12:30 PM</td>
<td>Sports Medicine/Arthroscopy (Portuguese)</td>
<td>Andre Pedrinelli, MD</td>
</tr>
<tr>
<td>1:30 PM – 2:30 PM</td>
<td>Shoulder and Elbow</td>
<td>Richard J. Hawkins, MD</td>
</tr>
<tr>
<td>3:00 PM – 4:00 PM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

New for 2015: International Poster Tours
One tour a day has been set aside for our international guests. The tour guide expert will give a tour in the specified language discussing posters in the identified classification.

International Poster Tours Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Language</th>
<th>Classification</th>
<th>Tour Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, March 24</td>
<td>1:30-2:30 PM</td>
<td>Japanese</td>
<td>Sports Medicine</td>
<td>Prof. Shinichi Yoshiya</td>
</tr>
<tr>
<td>Wednesday, March 25</td>
<td>1:30-2:30 PM</td>
<td>Chinese</td>
<td>Trauma</td>
<td>Prof. Wei Jie</td>
</tr>
<tr>
<td>Thursday, March 26</td>
<td>1:30-2:30 PM</td>
<td>Spanish</td>
<td>Sports Medicine</td>
<td>Dr. Iván Enclada Diaz</td>
</tr>
<tr>
<td>Friday, March 27</td>
<td>1:30-2:30 PM</td>
<td>Portuguese</td>
<td>Sports Medicine</td>
<td>Dr. André Pedrinelli</td>
</tr>
</tbody>
</table>
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” 11 symposia—anytime and anywhere:

- **During the meeting**, webcasts will be streamed live to your mobile device using the My Academy App or to your computer (www.aaos.org/amwebcasts)
- **On demand streaming will be available through June 30**. Symposia webcasts will be available for on demand streaming from the AAOS website (www.aaos.org/amwebcasts) beginning on the day after the live presentation.

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>
<tbody>
<tr>
<td>Orthopedic Surgery in the Digital Age: Using Social Media and the Internet to Improve Patient Care and Grow Your Practice (A) Moderator: Robert Hyun Cho, MD</td>
<td>Tuesday, 8:00 – 10:00 AM Room 2001</td>
</tr>
<tr>
<td>Why Can’t We All Get Along: Solving a Growing Gap in EMR Satisfaction between Clinicians and IT Professionals (B) Moderator: Khaled J. Saleh, MD, MSc, FRCSC, FACS</td>
<td>Tuesday, 10:30 AM – 12:30 PM Room 2001</td>
</tr>
<tr>
<td>It’s 2015 – Can We Answer Any Controversies in Shoulder Surgery Yet? (H) Moderator: William N. Levine, MD</td>
<td>Wednesday, 8:00 – 10:00 AM Venetian Ballroom E</td>
</tr>
<tr>
<td>Evidence, Quality, Costs, and Reimbursement: Connecting the Dots (K) Moderator: David Jevsevar, MD, MBA</td>
<td>Wednesday, 10:30 AM – 12:30 PM Venetian Ballroom E</td>
</tr>
<tr>
<td>Men, Women, and Quality: Targeting Success in Patient Care and Satisfaction Metrics (N) Moderator: Rachel Samantha Rohde, MD</td>
<td>Wednesday, 1:30 – 3:30 PM Room 2001</td>
</tr>
<tr>
<td>Hand Surgery Update: Treatment Recommendations for Common Hand and Wrist Injuries and Afflictions (U) Moderator: John S. Taras, MD</td>
<td>Thursday, 1:30 – 3:30 PM Room 2001</td>
</tr>
<tr>
<td>Controversies in Shoulder Arthroplasty (X) Moderator: Thomas (Quin) Throckmorton, MD</td>
<td>Thursday, 4:00 – 6:00 PM Room 2001</td>
</tr>
<tr>
<td>Hot Topics and Controversies in Primary Total Hip Arthroplasty (W) Moderator: Paul F Lachiewicz MD</td>
<td>Thursday, 4:00 – 6:00 PM Venetian Ballroom E</td>
</tr>
<tr>
<td>How I Perform a Primary and a Revision Total Knee Arthroplasty (Y) Moderators: Keith R. Berend, MD, and Thomas K. Fehring, MD</td>
<td>Friday, 8:00 – 10:00 AM Venetian Ballroom E</td>
</tr>
<tr>
<td>Articulations in Total Joint Replacement: Have We Lost Our Bearings? (Z) Moderator: William M. Mihalko, MD, PhD</td>
<td>Friday, 10:30 AM – 12:30 PM Venetian Ballroom E</td>
</tr>
</tbody>
</table>
Orthopaedic Review Course:
Update for Your Practice and Preparation for Your Test #490

Friday, March 27
Palazzo Ballroom L
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 pediatrics, upper and lower extremities, tumors and metabolic bone disease and spine
- Each section includes discussion of fractures, complications, infections and trauma with a moderated question and answer period at the end of each section

Question and answer session with faculty

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00-10:00 AM</td>
<td>Lower Extremity</td>
<td>Palazzo Ballroom L</td>
<td>Donald A. Wiss, MD</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>Hip and Knee Reconstruction</td>
<td></td>
<td>Matthew Austin, MD</td>
</tr>
<tr>
<td>8:25 AM</td>
<td>Trauma</td>
<td></td>
<td>Donald A. Wiss, MD</td>
</tr>
<tr>
<td>8:50 AM</td>
<td>Foot and Ankle</td>
<td></td>
<td>Steven L. Haddad, MD</td>
</tr>
<tr>
<td>9:15 AM</td>
<td>Sports Knee</td>
<td></td>
<td>Mark D. Miller, MD</td>
</tr>
<tr>
<td>9:40 AM</td>
<td>Q &amp; A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00-10:15 AM</td>
<td>STRETCH BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15-11:50 AM</td>
<td>Upper Extremity</td>
<td>Palazzo Ballroom L</td>
<td>Leesa M. Galatz, MD</td>
</tr>
<tr>
<td>10:15 AM</td>
<td>Hand and Wrist</td>
<td></td>
<td>Robert J. Strauch, MD</td>
</tr>
<tr>
<td>10:45 AM</td>
<td>Forearm and Elbow</td>
<td></td>
<td>Leesa M. Galatz, MD</td>
</tr>
<tr>
<td>11:10 AM</td>
<td>Shoulder and Humerus</td>
<td></td>
<td>Brian Forsythe, MD</td>
</tr>
<tr>
<td>11:35 AM</td>
<td>Q &amp; A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:50 AM-12:30 PM</td>
<td>LUNCH (box lunch included)</td>
<td>Palazzo Ballroom L</td>
<td></td>
</tr>
<tr>
<td>12:30-2:30 PM</td>
<td>Pediatrics</td>
<td></td>
<td>William C. Warner Jr, MD</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>Hip</td>
<td></td>
<td>William C. Warner Jr, MD</td>
</tr>
<tr>
<td>12:55 PM</td>
<td>Infection, Congenital, Developmental Problems/Miscellaneous</td>
<td>Palazzo Ballroom L</td>
<td>Jeffrey R. Sawyer, MD</td>
</tr>
<tr>
<td>1:20 PM</td>
<td>Fractures of the Upper and Lower Extremities</td>
<td></td>
<td>Amy L. McIntosh, MD</td>
</tr>
<tr>
<td>1:45 PM</td>
<td>Lower Extremity</td>
<td></td>
<td>Todd A. Milbrandt, MD</td>
</tr>
<tr>
<td>2:10 PM</td>
<td>Q &amp; A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:30-2:45 PM</td>
<td>STRETCH BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:45-4:15 PM</td>
<td>Spine</td>
<td>Palazzo Ballroom L</td>
<td>Jens R. Chapman, MD</td>
</tr>
<tr>
<td>2:45 PM</td>
<td>Trauma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:10 PM</td>
<td>Degenerative</td>
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Continental breakfast and a box lunch are included in the fee, which is $300 in advance and $400 on-site.

Attention U.S. Orthopaedic Residents! Discounted tickets are available for the Orthopaedic Review Course. Advance tickets are $120 and tickets purchased on-site are $160.
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<th>Primary Classification</th>
<th>Adult Reconstruction Hip and Knee</th>
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This Cross-Classification Chart shows which Instructional Course Lectures (ICL) and Symposia “crosses” 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 364 has a Primary Classification of Foot and Ankle with a Secondary Classification of Pediatrics. For further details on a session, please go to the descriptions on pages 54-232.
Tuesday, March 24

SPECIAL SESSIONS – PRACTICE MANAGEMENT FOCUS

8:00 AM — 11:00 AM

190 CPT and ICD-10 Coding Fundamentals for Starting Your Practice
Moderator: Margaret Maley, BSN, MS, Chicago, IL

You don’t want to miss this fast-paced course introducing the most important coding topics to orthopaedic residents. Margaret Maley from KarenZupko & Associates brings energy and humor to topics critical to orthopaedic coding and reimbursement. By the end of the course you will:

• 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
• Understand what is included in the global surgical package.

Join us for this complimentary workshop that will be so important to your career! Due to the nature of this course, it is limited to US residents only.

SYMPOSIUM

12:30 PM — 5:00 PM

Palazzo Ballroom M

Practice Management Residents’ Course (191)
Moderator: Gail S. Chorney, MD, New York, NY

I. Show Me The Money - Orthopaedic Practice Finance 101
   Gail S. Chorney, MD, New York, NY

II. How to Build a Successful Practice
    Charles A. Goldfarb, MD, Saint Louis, MO

III. Planning Your Career - What You Need To Know To Select the Right Practice
    Thomas J. Grogan, MD, Los Angeles, CA

IV. Planning Your Career - What You Need To Know To Select the Right Practice
    Stephen W. Shick, MD, Fishers, IN

V. Planning Your Career - What You Need To Know To Select the Right Practice
    Melbourne D. Boynton, MD, Rutland, VT

VI. Tips for a Successful Job Search
    Ryan M. Dopirak, MD, Manitowoc, WI

VII. Understanding Your Employment Contract
    Kathleen L. DeBruhl, Esq, New Orleans, LA

VIII. Tips To Increase Your Income
      Scott W. Trenhaile, MD, Rockford, IL

IX. From The Other Side of the Desk: Preparing for Your Interview
    John Gramer, MD, Saint Louis, MO

X. Personal Finance 101 - An Orthopaedic Surgeon’s Perspective
    Nicholas Colyvas, MD, Campbell, CA

SYMPOSIUM

8:00 AM — 5:00 PM

Palazzo Ballroom E

Practice Management Seminar for Practicing Orthopaedic Surgeons (199)
Co-Moderators: John Cherf, MD, Chicago, IL
Nicholas Colyvas, MD, Campbell, CA
Chris M. Dugger, MD, Springfield, MA

I. Welcome and Introduction / ACA: Impact in Orthopaedic Practice / Practice Trends in Orthopaedics - 2014 AAOS Census Information
   John Cherf, MD, Chicago, IL

II. Welcome and Introduction / Understanding Co-Management Opportunities and Other Physician Alignment Strategies for Orthopaedic Surgeons
    Nicholas Colyvas, MD, Campbell, CA

III. Welcome and Introduction
    Chris M. Dugger, MD, Springfield, MA

IV. Organizational Learning: Applying Principles of Social Organization to Build Learning-Ready Groups, Teams and Organizations
    Ned Smith, MD, Evanston, IL

V. ACA: Impact in Orthopaedic Practice
    Brian Silverstein, MD, Glencoe, IL

VI. ACO’s: Understanding the Future of Payment Models and Insurance Options
    Peggy L. Naas, MD, Chanhassen, MN

VII. Social Media, Texting and Encryption: The World of HIPAA
     Jonathan L. Schaffer, MD, Cleveland, OH

VIII. ICD-10 Update
      Louis F. McIntyre, MD, White Plains, NY

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IX. Navigating Government Mandates: Barriers vs. Benefits to Your Practice
Alexandra E. Page, MD, La Jolla, CA

X. Meeting the Needs of the Contemporary Patient
Kristi Crowe, PT, Denver, CO

XI. Calculating Overhead: What It Really Costs to See a Patient
Thomas J. Grogan, MD, Los Angeles, CA

XII. Leveraging Advanced Care Practitioners in Orthopaedic Practice to Maximize Efficiency
John R. Corsetti, MD, Springfield, Massachusetts

SYMPOSIUM
8:00 AM — 10:00 AM
Room 2001
Orthopedic Surgery in the Digital Age: Using Social Media and the Internet to Improve Patient Care and Grow Your Practice (A)
Moderator: Robert H. Cho, MD, Los Angeles, CA

This symposium provides orthopaedic providers and ancillary staff the tools needed to understand the changing digital world to provide the best and most effective possible care to current and prospective patients.

I. Understanding and Utilizing Social Media Effectively
Robert H. Cho, MD, Los Angeles, CA

II. Using Search Engines and Review Sites to Build Your Practice
Akhilesh Sastry, MD, Portsmouth, NH

III. Principles of Building an Effective Website
Bryan J. Tompkins, MD, Spokane, WA

IV. Applying Digital Principles to Practice
Martin J. Herman, MD, Philadelphia, PA

V. The Importance of Branding and Building an Online Presence
Joy D. Cho, Los Angeles, CA

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 9:00 AM
FD1 The Art of Using PowerPoint for Effective Presentations
Co-Moderators: Roy W. Sanders, MD, Tampa, FL
Paul Tornetta III, MD, Boston, MA
Room 4501

This course focuses on utilizing PowerPoint especially for the medical professional. Learn tips and tricks that you can use to enhance your teaching skills when participating in educational sessions for your colleagues and for patient education – both individually and community wide.

8:00 AM — 10:00 AM
101 Periprosthetic Fractures Around the Hip and Knee: Contemporary Techniques of Internal Fixation and Revision
Moderator: Frank A. Liporace, MD, Englewood Cliffs, NJ
Erik Kubliak, MD, Salt Lake City, UT
Brett R. Levine, MD, Chicago, 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.

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.

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 will be featured in several courses in symposia.

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.

Innovative Education Format - courses that encourage the use of new and technologically advanced education; featuring the unique use of audiovisual or technology with an educational format other than didactic.

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.

Symposia that are being Webcast, you can watch it live on your smart phone, 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.
Management of Common Complications of TKA: 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. Dahley, MD, Baltimore, MD
Brian R. Hamlin, MD, Pittsburgh, PA
Arlen D. Hanssen, MD, Rochester, MN
Adolph V. Lombardi Jr, MD, New Albany, OH
Aaron G. Rosenberg, MD, FACS, Chicago, IL
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.

Don’t Get On My Nerves

Moderator: Ashish Shab, MD, Birmingham, AL
John S. Gould, MD, Birmingham, AL
Vinod K. Panchbhavi, MD, FACS, Galveston, TX
Lew C. Schon, MD, Baltimore, MD

This course reviews clinical and surgical aspects of different nerve problems in foot and ankle, as well as clinical diagnosis, electrophysiological evaluation, medical management, and surgical management. This includes surgical indications, surgical techniques, post-op management, pears and pitfalls, salvage, and innovative techniques of different nerve problems.

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
Khaleel J. Saleh, MD, MS, Springfield, IL

Many times orthopaedic surgeons obtain medical clearance on their patients prior to elective surgery. This course discusses the many systemic, endocrine, and nutritional issues that can affect your patient’s outcome that are not addressed by medical clearance.

Cerebral Palsy: Clinical Decision Making and Current Orthopaedic Surgical Management

Moderator: Jon R. Davids, MD, Sacramento, CA
Robert M. Kay, MD, Los Angeles, CA
Jason T. Rhodes, MD, Aurora, CO

This course offers a comprehensive overview of the management of children with cerebral palsy, emphasizing pathophysiology, natural history, and biomechanics. Treatment through the integration of orthopaedic surgery, tone management, and objective outcomes assessment also are covered.

OCD in the Adolescent Athlete

Moderator: Jeremy S. Frank, MD, Parkland, FL
Donald S. Bae, MD, Boston, MA
Eric W. Edmunds, MD, San Diego, CA
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 review various etiologies and treatment strategies as well as explore potential complications and controversies.

Nontechnical Surgical Skills: What Are They; Why Do They Matter?

Moderator: Dwight W. Burney III, MD, Albuquerque, NM
Mary I. O’Connor, MD, Jacksonville, FL
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.

Elbow Arthroscopy: Indications, Techniques, Outcomes and Complications

Moderator: Julie E. Adams, MD, Minneapolis, MN
Larry D. Field, MD, Jackson, MS
Graham J. W. King, MD, London, ON, Canada
Scott P. Steinmann, MD, Rochester, MN

This course 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 emphasis on how to avoid them.

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Tuesday, March 24

109 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

This course 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 of the course is to understand and apply the tools that are available to treat glenoid defects.

110 Adult Lumbar Scoliosis: State-of-the-Art Treatment (Operative and Non-Operative)
Moderator: Munish C. Gupta, MD, Sacramento, CA
Serena S. Hu, MD, Redwood City, CA
Themistocles S. Protopsaltis, MD, New York, NY
Rajiv K. Sethi, MD, Seattle, WA

Utilizing lecture and case discussion, this course focuses on the definition of adult lumbar scoliosis and includes discussion on the radiographic, clinical, and surgical indications for correction.

111 Current Concepts in Cervical Spine Trauma
Moderator: Richard J. Bransford, MD, Seattle, WA
Carlo Bellabarba, MD, MDS, Seattle, WA
Robert W. Molinari, MD, Pittsford, NY
Timothy A. Moore, MD, Shaker Heights, OH

This course reviews current concepts in the evaluation and treatment of cervical spine trauma to include upper and subaxial cervical fractures and spinal cord injuries.

112 ACL Revision Reconstruction Technical Issues: A Case-Based Approach
Moderator: Michael J. Stuart, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
Robert G. Marx, MD, New York, NY
Peter B. MacDonald, MD, Winnipeg, MB, Canada

This course 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.

113 High Tibial Osteotomy and Distal Femoral Osteotomy: Indications, Techniques, and Postoperative Management for the Treatment of Arthritis and Cartilage Deficiency
Moderator: Chadwick C. Prodromos, MD, Glenview, IL
Ammunziato Amendola, MD, Iowa City, IA
Roland P. Jakob, MD, Möst, Switzerland

The course offers complete guidelines on how to use high tibial osteotomy and distal femoral osteotomy as primary treatment for arthritis and as a necessary adjunct to unweight the knee in conjunction with cartilage restoration procedures.

114 Management of Pelvic Fractures
Moderator: Michael D. Stover, MD, Chicago, IL
Kelly Lefaivre, MD, Vancouver, BC, Canada
Keith A. Mayo, MD, Gig Harbor, WA
Stephen H. Sims, MD, Charlotte, NC

Current standards of pelvic ring injury evaluation, acute management, decision making, surgical techniques, and complication avoidance are presented in depth.

115 Talus and Calcaneus Fractures: Current Treatment
Moderator: Mark Adams, MD, Newark, NJ
Stephen K. Benirschke, MD, Seattle, WA
Reza Firoozabadi, MD, Seattle, WA
John W. Munz, MD, Houston, TX

This course reviews current concepts on management of complex fractures of the talus and calcaneus.

PAPER PRESENTATION

8:00 AM — 10:00 AM
Venetian Ballroom B

Adult Reconstruction Hip I: Hip Arthroplasty I: Bearing Surfaces
Moderator(s): Andrew Glassman, MD, Columbus, OH
Kevin L. Garvin, MD, Omaha, NE

PAPER: 001

Cementless Acetabular Component and Cross-linked Poly in Patients Under 50 at Minimum 10 Years
Nicholas Bedard, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Devon D. Goetz, MD, West Des Moines, IA
Justin J. Greiner, Iowa City, IA
Steve S. Liu, MD, Coralville, IA
Nicolas O. Noiseux, MD, Iowa City, IA
Douglas R. Pedersen, PhD, Iowa City, IA

THA using a third generation cementless acetabular component with cross-linked poly in a younger population proved durable at minimum 10 years with linear rate of 0.03 mm/yr and no acetabular lysis.
Tuesday, March 24

8:06 AM  PAPER: 002
First Generation Once Annealed Highly Cross-linked Polyethylene Exhibits Low Wear at 12 Years
James A. D’Antonio, MD, Naples, FL
Rama Ramakrishnan, Mahwah, NJ

48 patients (50 hips) were implanted with a first generation once annealed highly crosslinked polyethylene. At 12 years linear wear was 0.018 mm/yr. with no mechanical failures or osteolysis.

8:12 AM  PAPER: 003
Wear and Osteolysis of Highly Cross-linked Polyethylene at 10-14 Years: The Effect of Femoral Head Size
Paul F. Lachiewicz, MD, Chapel Hill, NC
John M. Martell, MD, Chicago, IL
Elizabeth S. Soileau, RN, Chapel Hill, NC

This uncemented acetabular component and this XLPE had low rates of linear and volumetric wear. Small osteolytic lesions were noted, but were not related to heasize or wear rates.

8:24 AM  PAPER: 004
Midterm Survivorship of Modern Bearing Surface Options for Total Hip Arthroplasty in Young Patients
Jose H. Jimenez-Almonte, BA, Rochester, MN
Miguel E. Cabanela, MD, Rochester, MN
German A. Norambuena, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN

Network meta-analysis of randomized clinical trials demonstrates that no statistically significant differences exist in midterm survivorship of modern low-wear bearing surface options.

8:30 AM  PAPER: 005
Highly Cross-linked Polyethylene Significantly Lowers Wear and Osteolysis following Total Hip Arthroplasty
Burak Beksaç, MD, Istanbul, Turkey
Alejandro Gonzalez Della Valle, MD, New York, NY
Eduardo A. Salvati, MD, New York, NY

Our study reports significantly lower wear and osteolysis at average 11.3 years followup and support the use of HCLPE liners for THA in order to reduce wear and osteolysis-related radiographic failure.

8:36 AM  PAPER: 006
Minimum 10-Year Wear Analysis of Highly Cross-linked Polyethylene of Cementless Total Hip Arthroplasty
Koji Goto, MD, PhD, Sakyo-Ku Kyoto, Japan
Yutaka Kuroda, MD, PhD, Kyoto, Japan
Shuichi Matsuda, MD, Kyoto, Japan
Kazutaka So, MD, PhD, Kyoto, Japan

Highly cross-linked polyethylene had excellent wear resistance for more than 10 years when used in combination with 22 mm zirconia heads.

8:48 AM  PAPER: 007
10 Year Results of Total Hip Arthroplasty with Highly Cross-linked Polyethylene in Patients 50 years and Less
Frank C. Bohnenkamp, MD, Lake In the Hills, IL
John C. Clohisy, MD, Saint Louis, MO
James A. Keeney, MD, Saint Louis, MO
John M. Martell, MD, Chicago, IL
Gail Pasbos, Saint Louis, MO
Jeffrey B. Stambough, MD, Saint Louis, MO

Ten year results of this less than 50 year old cohort indicates CoCr on HXLPE bearing surface is associated with excellent clinical results and marked reduction of polyethylene wear and osteolysis.

8:54 AM  PAPER: 008
RCT Comparison After a Minimal 3-year Follow Up of Vitamin E Doped Versus Conventional Polyethylene in THA
Philippe Anract, MD, Paris, France
Antoine Babinet, MD, Paris, France
Jean-Pierre Courpied, PhD, Paris, France
Valerie Dumaine, New York, NY
Moussa Hamadouche, PhD, Paris, France
Caroline Scemama, Issy Les Moulineaux, France

This study, the first RCT evaluating Vitamin E doped highly cross-linked polyethylene, found significant reduced when compared to conventional polyethylene.

9:00 AM  PAPER: 009
In Vivo Oxidation in Remelted Highly Cross-linked Acetabular Bearings: A Clinical Concern?
Douglas Van Citters, PhD, Hanover, NH
Barbara H. Carrier, MChE, Hanover, NH
Rayna Levine, BA, Hanover, NH
Michael B. Mayor, MD, Hanover, NH
Steven D. Reinitz, BA, Hanover, NH

In vivo oxidation is occurring in remelted HXL acetabular bearing materials, but given its current rate, it may not represent a clinical concern.

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Tuesday, March 24

9:12 AM  PAPER: 010
Wear Analysis and Outcomes of Total Hip Arthroplasty Using Three Different Bearing Couples in Young Patients
Frank C. Bobenekamp, MD, Lake In the Hills, IL
John C. Clohisy, MD, Saint Louis, MO
John M. Martell, MD, Chicago, IL
Gail Pasbos, St Louis, MO

Clinical, radiographic and wear analysis on young total hip patients. Three bearing groups analyzed include metal on conventional polyethylene, metal and ceramic on highly cross-linked polyethylene.

9:18 AM  PAPER: 011
Hip Dislocation Increases Roughness of Oxidized Zirconium Femoral Heads in Total Hip Arthroplasty
Marcella Elpers, BS, New York, NY
Christina I. Esposito, PhD, New York, NY
Mohamed E. Moussa, MD, Irvine, CA
Douglas E. Padgett, MD, New York, NY
Timothy M. Wright, PhD, New York, NY

This large-scale retrieval analysis of oxidized zirconium femoral heads demonstrates markedly increased surface roughness of the bearing material compared to a modern ceramic bearing after dislocation.

9:24 AM  PAPER: 012
RCT Comparison of Oxinium Versus Metal Against Conventional Polyethylene and XLPE in THA
Samer El Hage, MD, Chiyah, Beirut, Lebanon
Moussa Hamadouche, PhD, Paris, France
Jean Langlois, MD, Paris, France
Jean-Pierre Coperpied, PhD, Paris, France
Caroline Scemama, Issy Les Moulineaux, France
Amine Zouari, Paris, France

This prospective RCT demonstrated that between 4 and 8-year follow-up, femoral head penetration was significantly reduced by oxinium when compared to metal femoral head on both conventional and XLPE.

9:36 AM  PAPER: 013
Comparing Ceramic-on-metal to Metal-on-metal in a Prospective Randomized Trial
C. Anderson Engh Jr, MD, Arlington, VA
Steven J. MacDonald, MD, London, ON, Canada
Supatra Sritulanondha, MPH, Alexandria, VA

In a prospective clinical study comparing COM and MOM total hip arthroplasty, there were 2 MOM wear related revisions. Although median metal levels were low the MOM serum cobalt increased with time.

9:42 AM  PAPER: 014
Long-term Results of Alumina-on-Alumina Total Hip Arthroplasty in Patients Younger than 20 Years
Flore Devriese, MD, Paris, France
Didier Hannouche, MD, PhD, Paris, France
Remy S. Nizard, MD, PhD, Paris, France
Laurent S. Sedel, MD, PhD, Paris, France
Idriss Tourabaly, MD, MSc, Paris, France

Alumina-on-Alumina hip arthroplasty provides satisfactory results in patients younger than 20 years at ten years follow-up.

9:48 AM  PAPER: 015
Are Ceramic Heads Worth the Price? A Cost-effectiveness Analysis
Keith Carnes, Concord, NC
Thomas K. Fehring, MD, Charlotte, NC
Susan M. Odum, PhD, Charlotte, NC
Jennifer Troyer, PhD, Charlotte, NC

Ceramic heads are cost effective in all patients under the age of 70 years.

PAPER PRESENTATION

8:00 AM — 10:00 AM
Venetian Ballroom D
Shoulder and Elbow I: Basic Science
Moderator(s): Keith Kenter, Cincinnati, OH
Brian R. Wolf, MD, Iowa City, IA

8:00 AM  PAPER: 016
Glenoid Resurfacing with Allografts from the Medial Tibial Plateau: Technique, Feasibility, and Biomechanics
Tyler C. Collins, MD, Phoenix, AZ
Grant Dornan, MSc, Vail, CO
Max P. Michalski, MSc, Los Angeles, CA
Peter J. Millett, MD, MSc, Vail, CO
Sean Smith, MSc, Vail, CO
Ulrich J. Spiegl, MD, Leipzig, Germany
Coen A. Wijdicks, PhD, Vail, CO

Osteochondral grafting from the medial tibial plateau to the glenoid is technically feasible and reproducible with excellent qualitative stability.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Tuesday, March 24

8:06 AM  PAPER: 017
Comparison of Axial Length and Version Measurements of Standard 2D and Anatomically Aligned CT Scans
Guillaume D. Dumont, MD, Columbia, SC
Petar Golijanin, BS, Boston, MA
Daniel Gross, MD, New York, NY
Stephen A. Parada, MD, Grovetown, GA
Matthew T. Provencher, MD, Weston, MA
Anthony A. Romeo, MD, Chicago, IL

The orientation of 2-dimensional (2D) CT scans performed in standard CT protocols is not optimized, resulting in substantial differences in glenoid AP length and version measurements.

8:12 AM  PAPER: 018
A Murine Model of Rotator Cuff Arthropathy
John Elfar, MD, Rochester, NY
Michael Geary, BA, Rochester, NY
Haian Li, Rochester, NY
Alissa M. Zingman, MD, Rochester, NY
Michael Zuscik, PhD, Rochester, NY

A murine model of cuff arthropathy was created with isolated surgical injury to the rotator cuff followed by free cage activity. Changes were characterized using histomorphometric and CT analyses.

8:24 AM  PAPER: 019
Evaluation of a Novel Greater Tuberosity Fracture Classification
Joseph A. Abboud, MD, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Usman Ali M. Syed, BS, Philadelphia, PA
Justin Wong, MD, Philadelphia, PA

Variations of greater tuberosity fractures have not been well defined. This study explores a novel classification system that offers agreement on these fractures.

8:30 AM  PAPER: 020
Impaired Longitudinal Muscle Growth Associated with Contracture in Rat Model of Brachial Plexus Birth Palsy (BPBP)
Dustin L. Crouch, PhD, Cary, NC
Ian Hutchinson, MD, Winston-Salem, NC
Zhongyu J. Li, MD, Winston-Salem, NC
Johannes E. Plate, MD, Winston-Salem, NC
Katherine R. Saul, PhD, Raleigh, NC

Sprague Dawley rat groups that underwent upper trunk neurotomy developed external rotation contractures, while botox-induced strength imbalance conditions did not.

8:36 AM  PAPER: 021
Result After Rehabilitation of Scapular Dyskinesis in Overhead Athletes
Jin-Young Bang, MD, Busan, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
Kyung-Soo Oh, MD, Seoul, Republic of Korea
Jin-Yong Park, MD, Seoul, Republic of Korea

This is to evaluate relation between improvement of symptom and change of scapular position after scapular stabilizing muscle rehabilitation in overhead athletes with shoulder and elbow lesions.

8:48 AM  PAPER: 022
Are Serum Lipids Involved in Primary Frozen Shoulder? A Case-Control Study
Tae Sik Jung, MD, Ph.D., Jinju, Republic of Korea
Hyung B. Park, MD, Jinju, Republic of Korea
Chang-Meen Sung, MD, Jinju City, Republic of Korea

Hypercholesterolemia and inflammatory lipoproteinemias, particularly hyper-LDL lipoproteinemia and hyper-non-HDL cholesterol, have significant association with primary frozen shoulder.

8:54 AM  PAPER: 023
Corticosteroid Injections Accelerate Pain Relief and Function Recovery in Patients with Adhesive Capsulitis
Santiago Bongiovanni SR, MD, Buenos Aires, Argentina
Maximiliano Ranalletta, MD, Buenos Aires, Argentina
Luciano A. Rossi, MD, Buenos Aires, Argentina

Prospective randomized controlled study analyzing the efficacy of single injections applied blindly to accelerate pain and function improvement.

9:00 AM  PAPER: 024
Cryotherapy With and Without Compression: A Randomized Study on Postoperative Pain Following Shoulder Arthroscopy
Matthew J. Kraeutler, BS, Dunbar, WV
Cyndi Long, CCRC, Boulder, CO
Eric C. McCarty, MD, Boulder, CO
Kirk A. Reynolds, MD, Little Rock, AR

The purpose of this study was to compare the effect of the Game Ready cold compression device versus standard ice wraps on postoperative pain in patients undergoing shoulder arthroscopy.

* 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.
9:12 AM  
**PAPER: 025**  
**Effect of Systemic Administration of Recombinant Growth Hormone on Rotator Cuff Repair: A Rat Model Study**  
Sang-hoon Lhee, MD PhD, Seoul, Republic of Korea  
Systemic injection of Growth-hormone might enhance faster healing of tendon-to-bone after rotator cuff repair.

9:18 AM  
**PAPER: 026**  
**The Effect of Subacromial Corticosteroids Injections on Rotator Cuff: Biomechanical and Imaging Study in Rats**  
Ofir Chechik, MD, Ramat Hasharon, Israel  
Oleg Dolkart, PhD, Tel Aviv, Israel  
Eran Maman, MD, Tel Aviv, Israel  
Haim Yehuda, MD, Tel Aviv, Israel  
Yaron Zarfatti, MD, Ramat Gan, Israel  
Repeated dose of corticosteroids significantly weakens rat RC. Repeated MTA injections negatively affect bone quality and may deteriorate tendon to bone insertion site.

9:24 AM  
**PAPER: 027**  
**Which Method Is More Effective in Treatment of Calcific Tendinitis Between US-guided Needling and ESWT**  
Sung-Ho Bae, Seoul, Republic of Korea  
Hyung-Lae Cho, MD, Busan, Republic of Korea  
Hyunwoo Jung, Seoul, Republic of Korea  
Sung-Eun Kim, Seoul, Republic of Korea  
Yang-So Kim, MD, Seoul, Republic of Korea  
Hyo-Jin Lee, Gunpo, Republic of Korea  
In Park, Seoul, Republic of Korea  
US-guided needling is more effective method for function restoration, pain relief and eradication of calcium deposit than ESWT in short term observation.

9:36 AM  
**PAPER: 028**  
**Genomewide Association Study for Rotator Cuff Tears Identifies Two Significant SNPs**  
Lisa Cannon-Albright, PhD, Salt Lake City, UT  
Robert Z. Tsahjian, MD, Salt Lake City, UT  
Craig C. Teerlink, PhD, Salt Lake City, UT  
Two SNPs have been identified associated with rotator cuff tearing utilizing a genome wide association study.

9:42 AM  
**PAPER: 029**  
**Articular and Bursal Layers of Rotator Cuff Tendons: A Biomechanical Cadaver Study**  
Angelo De Carli, MD, Rome, Italy  
Alessandro Cionipi, MD, Roma, Italy  
Andrea Ferretti, MD, Rome, Italy  
Luca Labianca, MD, Rome, Italy  
Riccardo Maria Lanzetti, Roma, Italy  
Edoardo Monaco, MD, Rome, Italy  
Antonio Vadala, MD, Rome, Italy  
supraspinatus tendon has better biomechanical properties respect to infraspinatus and teres minor tendons.

9:48 AM  
**PAPER: 030**  
**Optimum Tension for the Bridging Sutures in Transosseous Equivalent Rotator Cuff Repair**  
Sean Campbell, BS, Palo Alto, CA  
Seok Won Chung, MD, Seoul, Republic of Korea  
Sae Hoon Kim, MD, Seoul, Republic of Korea  
Thay Q. Lee, PhD, Long Beach, CA  
Michelle H. McGarry, MD, Long Beach, CA  
Joo Han Oh, Prof, Seoul, Republic of Korea  
Jisoon Park, MD, Seoul, Republic of Korea  
Hyuk Jun Seo, MD, PhD, Daegu, Republic of Korea  
Jong Pil Yoon, MD, Daegu, Republic of Korea  
Considering risks for over-tensioning of bridging suture, it might be better to set the bridging suture tension between 90N and 120N.

8:00 AM — 10:00 AM  
**Room 3304**  
**Trauma I: Geriatric**  
**Moderator(s):** Bogadi R. Prashanth, MD, Mysore, Karnataka, India  
John L. Marsh, MD, Iowa City, IA  
**8:00 AM**  
**PAPER: 031**  
**Surgical Delay Increases Early Mortality for Patients with Proximal Femoral Fractures**  
Michael Brix, MD, Fredericia, Denmark  
Kirill Gromov, MD, PhD, Copenhagen, Denmark  
Thomas Kallemsose, MSc, Vanlase, Denmark  
Anne Marie Nyholm, MD, Bronshoj, Denmark  
Henrik Palm, MD, Hvidovre, Denmark  
Anders Troelsen, MD, PhD, Koege, Denmark  
In this registry based study we found surgical delay >12 hours and educational level of the surgeon “below attending” to significantly increase early mortality after proximal femoral fracture.
Tuesday, March 24

8:06 AM  PAPER: 032
Predictors of Delay for Time-to-Surgery in Geriatric Hip Fractures: Results and Outcomes
Derek Berglund, BA, Saint Louis, MO
Joseph Flaherty, MD, Saint Louis, MO
Theodore K. Malmstrom, PhD, Saint Louis, MO
J. Tracy Watson, MD, Saint Louis, MO
Weekend admission, non-dedicated Ortho/Geriatric service admission, high Comorbidity Index, and preop cardiac testing were all significant predictors for delay to surgery and poor outcome.

8:12 AM  PAPER: 033
Racial and Socioeconomic Disparities in Hip Fracture Timing of Care, Complications, and Mortality
Christopher J. Dy, MD, Saint Louis, MO
Joseph M. Lane, MD, New York, NY
Stephen Lyman, PhD, New York, NY
Ting-Jung Pan, MPH, New York, NY
Michael L. Parks, MD, New York, NY
Black patients, Medicaid patients, and patients from impoverished communities are at increased risk for poor outcomes after hip fracture management.

8:24 AM  PAPER: 034
General Versus Spinal Anesthesia for Geriatric Hip Fractures
Bryce A. Basques, BS, New Haven, CT
Daniel D. Bobl, MPH, New Haven, CT
Nicholas Golimaux, BA, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT
This study characterized the differences in specific perioperative outcomes between general and spinal anesthesia for geriatric hip fracture surgery.

8:30 AM  PAPER: 035
Short-Term Complications in Hip Fracture Surgery using Spinal versus General Anesthesia
James Dieterich, BA, New York, NY
Adam C. Fields, BA, New York, NY
Calin S. Moucha, MD, New York, NY
6,133 patients undergoing hip fracture repair in the NSQIP database showed significantly fewer complications when receiving spinal anesthesia compared to general, after controlling for selection bias.

8:36 AM  PAPER: 036
Risk Factors for Increased Length of Stay and Readmission Following Geriatric Hip Fracture
Bryce A. Basques, BS, New Haven, CT
Michael R. Baumgaertner, MD, New Haven, CT
Daniel D. Bobl, MPH, New Haven, CT
Nicholas Golimaux, BA, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT
Michael P. Leslie, DO, New Haven, CT
Risk factors for increased length of stay and readmission within the first 30 days following surgery for geriatric hip fracture were characterized.

8:48 AM  PAPER: 037
Anticoagulation Reversal for Warfarinized Hip Fracture Patients: Could We Do Better? A Matched Cohort Study
Alastair Beaven, MBChB, Birmingham, United Kingdom
Andrew Cattell, MBChB, MRCS, Plymouth, United Kingdom
Benjamin Dougal Chatterton, BSc, BM, Surrey, United Kingdom
Haroon Majeed, MBBS, England, United Kingdom
Thomas S. Moores, BSc, MBChB, Shropshire, United Kingdom
Philip John Roberts, BSc, MB, Staffordshire, United Kingdom
Titrated IV low dose vitamin K reversal protocol has improved outcome for this frailger subset of hip fracture patients.

8:54 AM  PAPER: 038
The Health Economic Implications of Perioperative Delirium in Older Patients with Low-energy Hip Fractures
Peter C. Coyte, PhD, Toronto, ON, Canada
Rebecca Hancock-Howard, MSc, PhD, Toronto, ON, Canada
Richard Hurley, MD, Fall River, NS, Canada
Anthony Perruccio, PhD, Toronto, ON, Canada
Y. Raja Rampersaud, MD, FRSC(C), Toronto, ON, Canada
Michael G. Zywiel, MD, Mississauga, ON, Canada
Perioperative delirium is associated with significant incremental in-hospital length of stay and episode of care costs in older patients with hip fractures.

* 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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9:00 AM  PAPER: 039
Is Scheduled Intravenous Acetaminophen Effective in the Pain Management Protocol of Geriatric Hip Fractures?
Alexander Bollinger, MD, Grand Rapids, MI
Paul Butler, MD, Grand Rapids, MI
Terrence J. Endres, MD, Grand Rapids, MI
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Matthew S. Nies, BS, Madison, WI
Debra Sietsema, PhD, Byron Center, MI

Scheduled perioperative IV acetaminophen for operative geriatric hip fractures is efficacious for decreasing LOS and pain, and for increasing physical therapy participation and home discharge rate.

Discussion – 6 Minutes

9:12 AM  PAPER: 040
Economic and Outcomes Analysis of Bisphosphonate Use after Distal Radius Fracture for Prevention of Hip Fracture
Suneel B. Bhat, MD, Philadelphia, PA
Asif M. Ilyas, MD, Wayne, PA
Constantinos Ketonis, MD, PhD, Philadelphia, PA

Routine treatment of all women over 65 suffering distal radius fractures with bisphosphonates reduces the overall hip fracture burden at a substantial cost of over $200,000 per fracture averted.

9:18 AM  PAPER: 041
Pubic Ramus Fractures - Financial Implications of Eliminating Medicare’s Three-Day Hospital Stay Requirement
Peter Derman, MD, MBA, New York, NY
Joseph M. Lane, MD, New York, NY
Alexander S. Mclauhorn, MD, MBA, New York, NY

Excluding pubic rami fractures from Medicare’s required minimum three-day hospital stay prior to discharge to a skilled nursing facility would save approximately $600 million over a one-decade period.

9:24 AM  PAPER: 042
Assessing Bone Mineral Density Following Acute Hip Fractures: The Role of CT Attenuation
Osa Emohare, MBBS, PhD, Saint Paul, MN
Pouya Hemmati, BS, Minneapolis, MN
Julie A. Switzer, MD, Saint Paul, MN
Molly Wiggin, BA, Apple Valley, MN

Reductions in BMD underlie a large proportion of hips fractures; CT attenuation may provide an approach that allows for the rapid assessment of underlying BMD.

Discussion – 6 Minutes

9:36 AM  PAPER: 043
A Comprehensive Analysis of the Causes and Predictors of Early Mortality Following Hip Fractures
Babawande Akinbamijo, Leeds, United Kingdom
Hawar Akrawi, Leeds, United Kingdom
Adeel Agil, MBCoB, MRCS Ed, London, United Kingdom
Fabad S. Hossain, MBBS, MRCS, Leeds, United Kingdom
Harish Kapoor, FRCS, Dublin, Ireland
Hassaan Q. Sheikh, Dewsbury, United Kingdom

A study analysing early mortality risk factors in the fractured hip population.

9:42 AM  PAPER: 044
Incentivized Multidisciplinary Care Improves Outcomes After Hip Fracture: An Eight-Year Retrospective Analysis
Sarfaz Ahmad, MBCoB, Scotland, United Kingdom
Andrew Cattell, MBChB, MRCS, Plymouth, United Kingdom
Benjamin Dougal Chatterton, BSc, BM, Surrey, United Kingdom
Thomas S. Moores, BSc, MBCoB, Shropshire, United Kingdom
Phillip John Roberts, BSc, MB BS, Staffordshire, United Kingdom

Incentivised holistic, multi-disciplinary assessment of patients with a hip fracture is essential in improving outcomes and has had a positive impact on 30-day mortality at our centre.

9:48 AM  PAPER: 045
Management of Hip Fractures in the Elderly: AAOS Evidence-Based Clinical Practice Guideline
William T. Brox, MD, Fresno, CA
Deborah Cummins, PhD, Rosemont, IL
David Jevsevar, MD, MBA, Lebanon, NH
Jayson Murray, MA, Rosemont, IL
Karl C. Roberts, MD, Grand Rapids, MI

This CPG addresses the management of hip fractures in the elderly. Using rigorous methodology, a multidisciplinary team of experts was used to create recommendations based on best available evidence.

Discussion – 6 Minutes
Tuesday, March 24

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room 3105

Spine I: Cervical
Moderator(s): Robert L. Tatsumi, MD, Tualatin, OR
F. Todd Wetzel, MD, Wilmington, DE

8:00 AM
Incidence and Clinical Significance of Hypermobility in Cervical Artificial Disc Replacements
Kenneth A. Pettine, MD, Johnstown, CO
Nicholas Schraut, MD, Worcester, MA
Fernando Techy, MD, Fort Collins, CO

The average flexion and extension at 2 years was substantially less than the normal range of motion.

8:12 AM
Mesenchymal Stem Cell Allograft in One and Two Level ACDFs: A Matched Cohort Analysis
Islam Elboghdady, Darien, IL
Alejandro Marquez-Lara, MD, Winston Salem, NC
Steven McAnany, MD, New York, NY
Mohamed Noureldeen, MD, Chicago, IL
Samuel Overley, MD, New York, NY
Sheeraz Qureshi, MD, New York, NY
Kern Singh, MD, Chicago, IL
Branko Skovrlj, MD, New York City, NY

A matched cohort study was performed to assess the relative fusion rate using MSC’s in one and two level ACDF’s. Overall, the cohort with MSC’s was found to have a lower fusion rate.

Discussion – 6 Minutes

8:24 AM
Anterior versus Posterior Approach for Cervical Myelopathy: Comparative Effectiveness and Cost-Utility Analysis
Stephen K. Mendenhall, BS, Nashville, TN
Scott L. Parker, MD, Nashville, TN
Sheyan Armaghani, MD, Nashville, TN
John Sielatycki, MD, Nashville, TN
Priya Sivasubramaniam, BS, Nashville, TN
Clinton J. Devin, MD, Nashville, TN

In our comparative effectiveness study comparing anterior and posterior approaches for cervical myelopathy, the anterior approach had less blood loss, fewer complications, and was more cost-effective.

Discussion – 6 Minutes

8:30 AM
Emergent Reintubation After Anterior Cervical Surgery
Joshua Schroeder, MD, New York, NY
Federico P. Girardi, MD, New York, NY
Darren R. Lebl, MD, New York, NY
Andrew A. Sama, MD, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
James Beckman, MD, New York, NY
Alexander P. Hughes, MD, New York, NY

Patients with prolonged or large ACS procedures ought to be watched carefully for respiratory insufficiency after ACF.

8:36 AM
Atlantoaxial Distraction Arthrodesis for Intractable Occipital Neuralgia Caused by C2 Root Compression
Jun-Sup Yeom, MD, Sungnam, Republic of Korea
Sung Shik Kang, MD, Yangsan, Republic of Korea
Quan You Li, MD, Sungnam, Republic of Korea
Je-Min Yi, MD, Chuncheon, Republic of Korea
Gun Woo Lee, MD, Yangju, Republic of Korea
Ho-Joong Kim, MD, PhD, Sungnam, Republic of Korea
Bong-Soon Chang, MD, PhD, Seoul, Republic of Korea
Choon-Ki Lee, MD, PhD, Seoul, Republic of Korea
K. Daniel Riew, MD, Saint Louis, MO

Our results suggest that our novel technique of atlantoaxial distraction arthrodesis can be an effective option for the management of intractable occipital neuralgia caused by C2 root compression.

Discussion – 6 Minutes

8:48 AM
Perioperative Complications of Cervical Spine Surgery: Analysis of a Prospectively Gathered Database
Steven Leckie, MD, Plymouth, MA
Sangwook T. Yoon, MD, PhD, Atlanta, GA
Robert Isaacs, MD, Durham, NC
Kristen E. Radcliff, MD, Egg Harbor Township, NJ

An analysis of perioperative complications in cervical spine surgery, stratified by approach, number of levels involved, and revision status.
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8:54 AM  PAPER: 053
Persistent Axial Neck Pain after Cervical Disc Arthroplasty: A Radiographic Analysis
Scott Wagner, MD, Rockville, MD
Daniel Kang, MD, Saint Louis, MO
Gregory Van Blarcum, MD, Bethesda, MD
Peter Formby, MD, WA, Dist. of Columbia
Robert W. Tracey, MD, Great Falls, VA
John Cody, MD, WA, Dist. of Columbia
Ronald A. Lehman Jr, MD, Creve Coeur, MO
Posterior, axial neck pain is relatively frequent after cervical disc arthroplasty, and is associated with heterotopic ossification and osteolysis.

9:00 AM  PAPER: 054
Factors of Postoperative Paralysis from Thoracic Ossification of Posterior Longitudinal Ligament (OPLL) Surgery
Zeny Ato, PhD, Nagoya, Japan
Yukihiro Matsuyma, MD, Hamamatsu, Japan
Muneharu Ando, MD, Wakayama, Japan
Shigenori Kawabata, PhD, Tokyo, Japan
Tsukasa Kanchiku, MD, Ube, Japan
Kazunobu Kida, MD, Nankoku, Japan
Sho Kobayashi, MD, Hamamatsu, Japan
Yasushi Fujiiwara, MD, Hiroshima, Japan
Kei Yamada, MD, Fukuoka, Japan
The risk factors of paralysis in OPLL are a short duration of disease, a small correction angle of kyphosis and ratios below 50% of Tc-MEP derivation.

9:12 AM  PAPER: 055
Nonoperative Management of Isolated, Unilateral Cervical Facet Fractures
Stephen Pehler, MD, Birmingham, AL
James R. Bowman, MD PhD, Birmingham, AL
William Neway, DO, Birmingham, AL
Steven M. Theiss, MD, Birmingham, AL
Isolated, unilateral cervical facet fractures in the neurologically intact patient can be successfully treated nonoperatively. At this time, our data supports a trial period of nonoperative management.

9:18 AM  PAPER: 056
The Impact of Advanced Age on Peri-Operative Outcomes in the Surgical Treatment of Cervical Spondylotic Myelopathy
Angel Macagno, MD, Great Neck, NY
Bryan Marascalchi, MD, New York, NY
Peter G. Passias, MD, Brooklyn, NY
Sun Yang, BA, New York, NY
Anthony J. Boniello, BS, Philadelphia, PA
Kristina Bianco, New York, NY
Michael C. Gerling, MD, Brooklyn, NY
John A. Bendo, MD, New York, NY
Patients 65+ undergoing surgery for cervical spondylisis with myelopathy have higher risk of mortality, more complications, higher comorbidity burden, longer hospital course, and higher total charges.

9:24 AM  PAPER: 057
Occipital Condyle Fractures: A Single Institution Experience Over 15 Years and Treatment Recommendations
Sheyan Armanah, MD, Nashville, TN
John Sielatycki, MD, Nashville, TN
Stephen K. Mendenhall, BS, Nashville, TN
Akshatm Kumar Mistry, MD, Nashville, TN
Priya Sivasubramaniam, BS, Nashville, TN
Clinton J. Devlin, MD, Nashville, TN
Use of rigid cervical immobilization in traumatic occipital condyle fractures is highly effective at promoting healing and preventing neurologic sequelae regardless classification.

9:36 AM  PAPER: 058
Dysphagia After Anterior Cervical Fusions with rhBMP-2 Reduced with Local Methylprednisolone Acetate Application
Charles C. Edwards II, MD, Towson, MD
David Phillips, BS, Baltimore, MD
Charles Edwards, MD, Baltimore, MD
Charles Lin, MD, Wiligton, MD
This prospective, randomized, double-blind study shows with statistical significance that dysphagia after anterior cervical fusions with rhBMP-2 is reduced following local Depomedrol application.
Tuesday, March 24

9:42 AM  PAPER: 059
Dynamic Alignment, Motion, and Center of Rotation in Cervical Spondylotic Myelopathy
Shian Liu, BS, New York, NY
Renaud Lafage
Justin S. Smith, MD, Charlottesville, VA
Paul M. Arnold, MD, FACS, Kansas City, KS
Jens R. Chapman, MD, Seattle, WA
Eric Massicotte, MD, Toronto, ON, Canada
Sangwook T. Yoon, MD, PhD, Atlanta, GA
Michael Fehlings, MD, Toronto, ON, Canada
Christopher Ames, MD, San Francisco, CA

Elements of stenosis in cervical spondylotic myelopathy are dynamic. Reduced motion cones correlated with worse myelopathy and dynamic radiographic parameters correlated with worse health scores.

9:48 AM  PAPER: 060
A Randomized Controlled Trial of Collar Fixation after Cervical Laminoplasty
Tetsuro Hida, MD, Nagoya, Japan
Yoshihito Sakai, PhD, Obu, Japan
Shiro Imagama, MD, Nagoya, Japan
Naoki Ishiguro, MD, Nagoya, Japan

Patients exhibited good neurological symptoms and recovery of ADL with or without collar fixation after cervical laminoplasty in a RCT with patients with myelopathy.

Discussion – 6 Minutes

SYMPOSIUM  
10:30 AM — 12:30 PM
Room 2001

Why Can’t We All Get Along: Solving a Growing Gap in EMR Satisfaction between Clinicians and IT Professionals (B)
Moderator: Khaled J. Saleh, MD, MSc, Springfield, IL
This symposium explores the recent transition to a more technologically advanced reliant healthcare system. It also covers the associated concerns of clinicians, focusing on electronic medical and health records (EMRs and EHRs).

I. The Pre-EHR Era: Paper-based Record
Wendy Novicoff, PhD, Charlottesville, VA

II. Economics of EHR
James S. Shaha, MD, Kailua, HI

III. EHR Is Great—Here’s What It Has Delivered
Jamal Saleh, BSc, San Francisco, CA

IV. EHR Is Great—Here’s What It Has Delivered
Mouhanad El-Othmani, Springfield, IL

V. EHR Through the Eyes of Researchers
Marc F. Swiontkowski, MD, Minneapolis, MN

VI. While EHR Is Great, It Has Not Fully Delivered In Certain Areas—Here They Are
John M. Tokish, MD, Simpsonville, SC

VII. Current EHR Issues
James G. Wright, MD, Toronto, ON, Canada

VIII. Solutions
Steve Shaha, Draper, UT

SYMPOSIUM  
10:30 AM — 12:30 PM
Making It Through the Night (C)
Room 2201

Moderator: Lisa K. Cannada, MD, Saint Louis, MO

During this symposium, faculty members discuss clinical situations necessitating urgent or emergent management by the on call orthopaedic surgeon. The target audience is any orthopaedic surgeon taking call. This is an interactive session with case-based scenarios.

I. Open Tibia Fracture
Robert P. Dunbar, MD, Mercer Island, WA

II. Femoral Neck Fracture
Samir Mehta, MD, Philadelphia, PA

III. Compartment Syndrome
Lisa K. Cannada, MD, Saint Louis, MO

IV. Knee Dislocations
James P. Stannard, MD, Columbia, MO

* 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 24

INSTRUCTIONAL COURSE LECTURE

9:30 AM — 10:30 AM
FD2 Perspectives on Mentorship
Moderator: Robert A. Hart, MD, Portland, OR
James H. Beatty, MD, Memphis, TN
Edward N. Hanley Jr, MD, Charlotte, NC
Vernon T. Tolo, MD, Los Angeles, CA

History, definition, and description of the mentoring process are presented, emphasizing the importance of good mentorship to career and personal satisfaction. Specific examples of successful and less successful approaches to mentoring are described.

10:30 AM — 12:30 PM
121 Safe Adaptation of Anterior THA With and Without a Specialized Table
Moderator: J. Bohannon Mason, MD, Charlotte, NC
John L. Masonis, MD, Charlotte, NC
Joseph T. Moskal, MD, Roanoke, VA
Michael M. Nogler, MD, Innsbruck, Austria

This course utilizes video and didactic material to introduce the audience to direct anterior total hip arthroplasty and outlines best practice strategies for adaptation including discussion of risks and pitfalls of the procedure.

122 Complex Cases Controversies in Primary and Revision Total Knee Arthroplasty
Moderator: Bryan D. Springer, MD, Charlotte, NC
Thomas K. Febring, MD, Charlotte, NC
William J. Long, MD, New York, NY
R. Michael Meneghini, MD, Fishers, IN

Experts in the field focus on controversial issues in primary, complex primary, and revision total knee arthroplasty.

123 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

The course 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.

124 Opportunities for American Orthopaedists in the Developing World: Home and Abroad
Moderator: David A. Spiegel, MD, Philadelphia, PA
Dino Aguilar, MD, MBA, Managua, Nicaragua
Derek J. Donegan, MD, Philadelphia, PA
Kaye E. Wilkins, MD, San Antonio, TX

Course faculty discuss barriers to the delivery of orthopaedic care in both developed and underdeveloped environments and highlight opportunities for American orthopaedists to become involved in outreach activities.

125 Soft Tissue Coverage Every Orthoped Should Know
Moderator: Nader Paksiina, DO, New York, NY
Jeffrey A. Greenberg, MD, Indianapolis, IN
Kevin R. Knox, MD, Indianapolis, IN
Susan C. Scott, MD, Key Largo, FL

This course highlights techniques such as negative pressure wound therapy using a wound vacuum assisted closure (VAC), the most current postoperative dressings for prevention of drainage and wound infections. Synthetic skin grafting materials commonly employed also are covered. Topics include fingertip injuries, managing soft tissue injuries associated with high and low energy trauma, and approaches to treating postoperative wound complications. Simple and complex cases are utilized for open discussion and audience questions.

126 The Management of Thumb Basilar Joint Arthritis
Moderator: Sanjeev Kakar, MD, Rochester, MN
Amy L. Ladd, MD, Palo Alto, CA
A. Lee Osterman, MD, Villanova, PA
Marco Rizzo, MD, Rochester, MN

This course 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.
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.

Educational Programs

Tuesday, March 24

127  Flexible IM 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 L. Riccio, MD, Dallas, TX
Robert L. Wimberly, MD, Dallas, TX

This course 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-pediatric and pediatric orthopaedic surgeon.

128  Assembling the Orthopaedic Team
Moderator: Harpal S. Khambuja, MD, Cockeysville, MD
C. Lowery Barnes, MD, Little Rock, AR
Timothy S. Johnson, MD, Lansdowne, VA
Tricia Marrriott PA-C, Alexandria, VA

Various allied health professionals can improve the services delivered by an orthopaedic practice. These include MAs, NPs, PAs, and athletic trainers. Understanding the potential roles of these team members can maximize utilization and efficiency.

129  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 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. This Instructional Course Lecture presents current concepts in the diagnosis, treatment, and prevention of complications in a case presentation format. This course is directed to both less and more experienced surgeons.

130  Acute Elbow Trauma: A Logical Evidence-Based Approach to Complex Elbow Injuries
Moderator: Mark A. Migbell, MD, Tampa, FL
Frank A. Liporace, MD, Englewood Cliffs, NJ
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Roger P. van Riet, MD, Wilrijk, Belgium

This course is designed to advance the understanding of complex elbow injuries and help physicians make appropriate decisions on patients with such injuries.

131  Adult Lumbar Disc Herniation: Treatment, Complications, Outcomes, and Evidence-Based Data for Patient and Health Professional Counseling
Moderator: Robert S. Bess, MD, Castle Rock, CO
Douglas C. Burton, MD, Kansas City, KS
Alexander C. Ching, MD, Portland, OR
Gregory M. Mundis, MD, San Diego, CA

This course provides evidence-based treatment options for adult patients with lumbar disc herniation to aid surgeons in counseling patients and healthcare professionals.

132  International Perspective in Revision ACL Reconstruction: What Have We Been Missing?
Moderator: Aaron J. Krych, MD, Rochester, MN
Steven A. Claes, MD, PhD, Herentals Belgium
Philippe Neyret, MD, Lyon, France
Michael J. Stuart, MD, Rochester, MN

This course provides international perspective on treatment strategies for revision anterior cruciate ligament (ACL) reconstruction. Surgical indications, anatomy, and techniques are reviewed for anterolateral ligament reconstruction, osteotomy, concomitant meniscus/cartilage injury, and technical considerations.

133  Surgical Management of Articular Cartilage Defects of the Knee
Moderator: Andreas H. Gomoll, MD, Chestnut Hill, MA
William Bugbee, MD, La Jolla, CA
Christian Lattermann, MD, Lexington, KY
Adam B. Yance, MD, Chicago, IL

This course provides an overview of the indications and results of the current and near-term treatment options as alternatives for patients presenting with chondral defects, meniscal deficiency, and malalignment. Case-based discussion encourages audience participation.

134  Tips and Tricks for Problem Fractures
Moderator: Daniel S. Horwitz, MD, Danville, PA
Erik Kubiak, MD, Salt Lake City, UT
Frank A. Liporace, MD, Englewood Cliffs, NJ
Bruce Zirkin, MD, Atlanta, GA

The course focus is on common fractures which present technical challenges to the practicing orthopaedic surgeon. It presents operative techniques, tips, and tricks to be applied in order to aid and simplify the surgical procedure and improve clinical outcomes.

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135  Acetabular Fractures: A Problem-Oriented, Case-Based Approach

Moderator: Berton R. Moed, MD, Saint Louis, MO
Philip J. Kregor, MD, Nashville, TN
Michael D. Stover, MD, Chicago, IL
Mark S. Vrabas, MD, Boston, MA

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.

PAPER PRESENTATION

10:30 AM — 12:30 PM
Venetian Ballroom B

Adult Reconstruction Knee I: Outcomes in TKA
Moderator(s): Stephen M. Howell, MD, Sacramento, CA
Mark E. Umlas, MD, Miami Beach, FL

10:30 AM  PAPER: 061
Posttraumatic Total Knee Arthroplasty Continues to Have Worse Outcome than Total Knee for Osteoarthritis
Matthew Houdek, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Steven F. Shannon, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Stephen A. Sems, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

Patients with TKA following a periarthritis fracture have worse survival compared to those undergoing TKA for OA. Complications are high, with 1 in 4 patients requiring revision.

10:42 AM  PAPER: 063
Functional Outcomes of Total Knee Arthroplasty in Active Duty Soldiers
Brian Waterman, MD, El Paso, TX
Kenneth Heida, MD, El Paso, TX
Robert Burks, PhD, Seaside, CA
Philip J. Belmont Jr, MD, El Paso, TX

At 2-6 years after TKA, 82% of servicemembers reMed on active duty or completed their military service. Age

10:54 AM  PAPER: 064
Losing Weight Following Total Knee Arthroplasty and its Influence on Outcome: Debunking the Myth
Yong Qiang Jerry Chen, MBBS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Hwei Chi Chong, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, PhD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Losing weight following total knee arthroplasty does not lead to a greater improvement in functional outcome.

11:00 AM  PAPER: 065
Mortality and Morbidity for Sickle Cell Patients Undergoing a Primary Total Knee Arthroplasty
Karthekeyan E. Ponnusamy, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Savyasachi C. Thakkar, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khanuja, MD, Cockeysville, MD

Compared to the general total knee arthroplasty population, sickle cell patients are younger, have more osteonecrosis, and longer hospitalizations with greater inpatient mortality but not morbidity.

11:06 AM  PAPER: 066
Are Super-Obese Patients at Increased Risk Following Total Knee Arthroplasty?
Julio J. Jauregui, MD, Baltimore, MD
Jeffrey J. Cherian, DO, Baltimore, MD
Bhavesh N. Kapadia, MD, Baltimore, MD
Randa K. Elmallah, Baltimore, MD
Samik Banerjee, MBBS, MS, Albany, NY
Kimona Issa, MD, Wayne, NJ
Michael A. Mont, MD, Baltimore, MD

Super-obese patients are at an increased risk of certain complications following TKA.

Discussion – 6 Minutes
Tuesday, March 24

11:18 AM  PAPER: 067
Reasons and Factors Behind Post-Total Knee Arthroplasty Dissatisfaction in an Asian Population
Yilun Huang, MD, Singapore, Singapore
Merrill Lee, MBBS, Singapore, Singapore
Hwee Chi Chong, MBBS, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-lu Chia, MBBS, PhD, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Pain, stiffness and weakness were the top three reasons for post total knee arthroplasty dissatisfaction in our Asian population, with few variables identified to be good predictors of outcome.

11:24 AM  PAPER: 068
Conventional Versus Computer-assisted Surgery in Total Knee Arthroplasty: Comparisons at 10-year Follow Up
Andrea Ensini, MD, Bologna, Italy
Claudio Belvedere, PhD, Bologna, Italy
Alberto Leardini, PhD, Bologna, Italy
Michele D’Amato, MD, Bologna, Italy
Alessandro Feliciangeli, MD, Bologna, Italy
Paolo Barbadoro, MD, Bologna, Italy
Sandro Giannini, MD, Bologna, Italy

A comparison between computer-assisted and standard total knee arthroplasty at 10 years follow-up was performed, the former resulting in better mechanical behavior than the latter.

11:30 AM  PAPER: 069
A Prospective, Longitudinal Study of Outcomes Following Total Knee Arthroplasty Stratified by Gender
Jeffrey J. Cherian, DO, Baltimore, MD
Bhaveen H. Kapadia, MD, Baltimore, MD
Julio J. Jauregui, Baltimore, MD
Samik Banerjee, MBBS, MS, Albany, NY
Kristin Given, MS, Mahwah, NJ
Mary I. O’Connor, MD, Jacksonville, FL
Michael A. Mont, MD, Baltimore, MD

There were significant differences in several outcomes when stratified by gender, which suggest women have functional differences preoperatively that never approach the levels of menender.

11:42 AM  PAPER: 070
Perioperative Outcomes Following Unilateral versus Bilateral Total Knee Arthroplasty
Linda Suleiman, MD, Chicago, IL
Adam Edelstein, MD, Chicago, IL
Rachel E. Mednick, MD, Chicago, IL
Hasham M. Alvi, MD, Chicago, IL
Mary J. Kwasny, PhD, Chicago, IL
Matthew D. Beal, MD, Elmhurst, IL
David W. Manning, MD, Chicago, IL

Bilateral total knee arthroplasty is associated with an increased risk of post-operative complication, reoperation and overall longer hospital stays compared to unilateral total knee arthroplasty.

11:48 AM  PAPER: 071
Radiographic Severity of Arthritis and Correlation with Patient Satisfaction in Total Knee Arthroplasty
Katie Rooks, MD, Saskatoon, SK, Canada
Devon Houdek, BSc, Saskatoon, SK, Canada
Haroon Obaid, MD, Saskatoon, SK, Canada
William N. Dust, MD, Saskatoon, SK, Canada

There is a trend to lower satisfaction rates if TKA is done with less severe radiographic evidence of arthritis.

11:54 AM  PAPER: 072
Rapid Recovery Protocol in Total Knee Arthroplasty
Erik P. Severson, MD, Crosby, MN
Mark Gujer, MD, Deerwood, MN
Adam English, RN, BS, Crosby, MN
Fawn Atchison, MD, Crosby, MN

This study shows the potential advantage of an easily translatable protocol by strategically using non-narcotic medicines during the perioperative period in total knee arthroplasty.

Discussion – 6 Minutes

12:06 PM  PAPER: 073
Effect of Discharge Destination on Primary Total Knee Replacement Outcomes
Douglas E. Padgett, MD, New York, NY
Amethia Holmes, BA, New York, NY
Yuo-Yu Lee, MS, New York, NY
Steven B. Haas, MD, New York, NY
Stephen Lyman, PhD, New York, NY

This study confirms that patients may be safely and effectively discharged home following TKR dispelling the notion that in-patient rehabilitation is essential for successful recovery.

* 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.
12:12 PM  PAPER: 074
Reducing Readmission Rates and Improving the Care Pathway for Hip and Knee Arthroplasty Patients
Samira Qadir, MD, Chicago, IL
David Dickerson, MD, Chicago, IL
Diane Davis, PT, Chicago, IL
Antoinette Gillespie, RN, BSN, Chicago, MO
Janet Vandermolen, RN, Chicago, IL
Barbara Passman, LCSW, ACSW, Chicago, IL
Rebecca Vandersluis, MS, Chicago, IL
Aditi Kumar, MPP, Chicago, IL
Hue H. Luu, MD, Chicago, IL

A multidisciplinary group implemented improvements on the total joint pathway to minimize variation, reduce readmission rates and length of stay, and better prepare patients for discharge and recovery.

12:18 PM  PAPER: 075
Factors that Influence Patient-centered Outcomes Scores in Patients with Knee Osteoarthritis
Karen K. Briggs, MPH, Vail, CO
Lauren M. Matthey, Vail, CO
Steven B. Singleton, MD, Vail, CO
J. Richard Steadman, MD, Vail, CO

Function and pain were worse in patients with severe osteoarthritis. Patients with loss of extension or flexion had decreased function, increased pain and increased disability.

Discussion – 6 Minutes

10:36 AM  PAPER: 077
Radio-Capitellar Osteochondral Defects: A Shift from Open to Arthroscopic Articular Reconstruction
Stephanie M. Gancarczyk, MD, New York, NY
Eric C. Makhni, MD, New York, NY
Joseph M. Lombardi, MD, New York, NY
Charles A. Popkin, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY

Most clinically relevant large, high grade osteochondral lesions of the capitellum can be successfully treated with arthroscopic capitellar osteochondral allograft or autograft transplantation.

10:42 AM  PAPER: 078
Correlates with Injury in Youth and Adolescent Pitchers
Peter N. Chalmers, MD, Chicago, IL
Terrance Sgroi, DPT, Chicago, IL
Andrew J. Riff, MD, Chicago, IL
Eli Sayegh, BS, New York, NY
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Matt Lesniak, DPT, Chicago, IL

In this cross-sectional study with 420 pitchers, pitch velocity, pitcher height, and pitching for more than one team correlate with a history of shoulder and elbow injury.

Discussion – 6 Minutes

11:00 AM  PAPER: 080
Autologous Osteochondral Mosaicplasty for Osteochondritis Dissecans of the Elbow: Minimum Five-year Follow Up
Atsushi Urita, MD, PhD, Sapporo, Japan
Tadanao Funakoshi, MD, Sapporo, Japan
Nobimasa Iwasaki, Sapporo, Japan

Autologous osteochondral mosaicplasty for capitellar osteochondritis dissecans provided satisfactory long-term clinical results and an acceptable condition of hyaline cartilage.
**Tuesday, March 24**

**11:06 AM**

**PAPER: 081**

**Distal Biceps Repair: A Meta-Analysis of a Single Incision Versus Double Incision Surgical Technique**

Nirav H. Amin, MD, New York, NY  
Alex Volpi, MS, Philadelphia, PA  
Thomas S. Lynch, MD, New York, NY  
Ronak M. Patel, MD, Naperville, IL  
Kirk A. McCullough, MD, Leawood, KS  
Mark S. Schickendantz, MD, Cleveland, OH  
Morgan H. Jones, MD, Cleveland Heights, OH

The overall frequency of reported complications is higher for single incision distal biceps repair than for double incision repair.

**Discussion – 6 Minutes**

**11:18 AM**

**PAPER: 082**

**Arthroscopic Assisted Operation of Coronoid Process Fracture**

Jeung Woo Kim, MD, Iksan-Si, Republic of Korea  
Johnsel Espinosa, Marikina City, Philippines  
Young Yi, MD, Iksan, Republic of Korea  
Byung-Taek Kwon, MD, Ik-San, Republic of Korea

Arthroscopic reduction of coronoid fractures with percutaneous k-wire and ethibond fixation can achieve good fracture healing and show excellent functional results.

**11:24 AM**

**PAPER: 083**

**Pitching Performance of Major League Baseball Players after Revision Ulnar Collateral Ligament Reconstruction**

Robert A. Keller, MD, Detroit, MI  
Nathan E. Marshall, MD, Detroit, MI  
Jonathan Lynch, MD, Royal Oak, MI  
Vasilios Moutzouros, MD, Northville, MI

After revision UCL reconstruction major league pitchers have limited careers and have statistically worse pitching performance when compared to pre-revision surgery performance.

**11:30 AM**

**PAPER: 084**

**Glenohumeral Motion in 102 Baseball Players Undergoing Ulnar Collateral Ligament Reconstruction**

Ryan W. Hess, MD, Columbia, SC  
Kevin Witte, DO, Lenexa, KS  
Roger V. Ostrander, MD, Gulf Breeze, FL  
James R. Andrews, MD, Gulf Breeze, FL

Shoulder motion of 102 baseball players was examined prior to UCL reconstruction. 53% of subjects met criteria for GIRD, TAMD or both. Mean GIRD was 19.7 degrees, mean TAMD was 5.3 degrees.

**Discussion – 6 Minutes**

**11:42 AM**

**PAPER: 085**

**Effects of Fragments with Ulnar Collateral Ligament Injuries of Baseball Players**

Kozo Furushima, MD, PhD, Tatebayashi, Gunma, Japan  
Daigo Urata, PT, Gunma, Japan  
Azusa Miyamoto, PT, Gunma, Japan  
Shohei Iwabu, MD, PhD, Tatebayashi, Gunma, Japan  
Yasuhiro Mitsu, Tatebayashi, Japan  
Ryuji Koga, MD, Tatebayashi, Japan  
Masaki Shimizu, MD, Tatebayashi, Gunma, Japan  
Yoshiyasu Itoh, MD, Tatebayashi, Japan

This prospective study of 220 patients with ulnar collateral ligament (UCL) injuries demonstrated that UCL injuries with persistent fragments can worsen and become resistant to conservative treatment.

**11:48 AM**

**PAPER: 086**

**MRI-Based Classification System for Ulnar Collateral Ligament Injuries**

Patrick W. Joyner, MD, Chesapeake, VA  
Jeremy Bruce, MD, Chattanooga, TN  
Ryan W. Hess, MD, Columbia, SC  
Aaron K. Mates, MD, Mobile, AL  
James R. Andrews, MD, Gulf Breeze, FL

This ulnar collateral ligament classification system helps to classify low-grade partial tears, high-grade partial tears, complete tears, and UCL injuries with tears in more than one location.

**11:54 AM**

**PAPER: 087**

**Assessment of Lacertus Fibrosis Integrity Following a Distal Biceps Tendon Rupture**

Joseph Brunkhorst, MD, Lexington, KY  
Rueben Nair, MD, Chicago, IL  
David M. Kalainov, MD, Chicago, IL  
Matthew D. Saltzman, MD, Chicago, IL  
Guido Marra, MD, Chicago, IL

The majority of distal biceps tendon tears are associated with a disrupted lacertus fibrosis and the amount of distal biceps tendon retraction correlates to the integrity of the lacertus fibrosis.

**Discussion – 6 Minutes**

**12:06 PM**

**PAPER: 088**

**Can a Balance Wristband Influence Postural Control?**

Hans-George Palm, MD, MBA, Ulm, Germany  
Patricia Lang, MD, Ulm, Germany  
Benedikt Friemert, MD, Ulm, Germany

Effects of Balance wristbands on posture that are demonstrated in product presentations have not yet been investigated using an objective method. We showed that they do not improve postural stability.

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Tuesday, March 24

12:12 PM  PAPER: 089
Osteochondral Allograft Transplantation for the Treatment of Unstable Capitellar Osteochondritis Dissecans
Raffy Mirzayan, MD, Baldwin Park, CA
Michael J. Lim, MD, Los Angeles, CA

Patients underwent osteochondral allograft transplantation of capitellar OCD with significant improvement in pain scores, and elbow outcomes scores and were able to return to throwing.

12:18 PM  PAPER: 090
Arthroscopic Ulnar Collateral Ligament Repair
Jeung Woo Kim, MD, Iksan-Si, Republic of Korea
Young Yi, MD, Iksan, Republic of Korea
Byung-Taek Kwon, MD, Ik-San, Republic of Korea
Johnsuel Espinosa, Marikina City, Philippines

Arthroscopic reconstruction proved to be an effective technique in lateral collateral ligament injuries of the elbow.

10:30 AM — 12:30 PM
Room 3304
Pediatrics I: Pediatric Spine
Moderator(s): Amy L. McIntosh, MD, Dallas, TX
John C. Tuffley, MD, Spring Hill, Australia

10:30 AM  PAPER: 091
Do Crosslinks Improve Outcomes of Posterior Spinal Fusion in Adolescent Idiopathic Scoliosis?
Sumeet Garg, MD, Aurora, CO
Cameron R. Niswander, BA, Aurora, CO
Zhaoxing Pan, Aurora, CO
Mark A. Erickson, MD, Aurora, CO

A comparative analysis found similar outcomes between adolescent idiopathic scoliosis (AIS) patients who underwent posterior spinal fusion (PSF) with pedicle screws with and without crosslinks.

12:42 AM  PAPER: 093
Incidence and Risk Factors for Early Wound Complications After Spinal Arthrodesis in Children
Christopher T. Martin, MD, Coralville, IA
Andrew J. Pugely, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Ryan M. Ilgenfritz, MD, Iowa City, IA
Stuart L. Weinstein, MD, Iowa City, IA

In a prospectively collected cohort of 1,915 pediatric spinal fusions the incidence of 30-day wound complications was 3.5%. Risk factors were an elevated BMI, pelvic fusion, and cardiac comorbidities.

Discussion – 6 Minutes

10:54 AM  PAPER: 094
Preoperative MRSA Screening in Pediatric Spine Surgery: A Helpful Tool or a Waste of Time and Money?
June C. O’Donnell, Ladue, MO
Scott J. Luhmann, MD, Ladue, MO

The use of pre-operative MRSA screening allowed adjustment of the preoperative antibiotic regimen in 7.2% of patients undergoing spine surgery.

11:00 AM  PAPER: 095
Antibiotic Compliance Decreases Infection Rates in Pediatric Spine Surgery: A Retrospective Case-Control Study
Curtis D. VandenBerg, MD, New York, NY
Cameron R. Niswander, BA, Aurora, CO
Patrick Carty, Aurora, CO
Zhaoxing Pan, Aurora, CO
Mark A. Erickson, MD, Aurora, CO
Sumeet Garg, MD, Aurora, CO

A retrospective review revealed that compliance with a multidisciplinary antibiotic protocol reduced the number of surgical site infections in pediatric spine surgery.

11:06 AM  PAPER: 096
Can You Retain Spinal Hardware in Acute Postoperative Infections? A Multicenter Study
Michael P. Glotzbecker, MD, Boston, MA
Jaime A. Gomez, MD, New York, NY
Patricia Miller, MS, Boston, MA
Michael J. Troy, BS, Boston, MA
David L. Skaggs, MD, Los Angeles, CA
Michael G. Vitale, MD, MPH, Irvington, NY
Kody K. Barrett, BA, Los Angeles, CA
Gregory I. Pace, BA, New York, NY
Daniel J. Hedequist, MD, Boston, MA

Acute postoperative spinal infections can often be treated with retention of implants. Patients with stainless steel instrumentation are more likely to present with a late recurrent infection.

Discussion – 6 Minutes

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11:18 AM  
**PAPER: 097**  
Switching to a Pediatric Dose O-arm Protocol in Spine Surgery Significantly Reduced Patient Radiation Exposure  
Tianyi D. Luo, MD, Rochester, MN  
Amy L. McIntosh, MD, Dallas, TX  
Beth Schueler, Rochester, MN  
Jennifer A. Winkler, Rochester, MN  
Anthony A. Stans, MD, Rochester, MN  
Annalise N. Larson, MD, Rochester, MN

We successfully changed to a low-dose O-arm protocol in clinical practice, reducing the dose per scan from 2.52 to 0.65 mSv. This is an acceptable level of radiation to ensure accurate screw placement.

11:24 AM  
**PAPER: 098**  
Factors Predicting When L3 is Not Distal Enough for an “Ideal” Result in Lenke 5 Curves  
Lee G. Phillips, MD, Dallas, TX  
Burt Yaszaz, MD, San Diego, CA  
Suken A. Shah, MD, Wilmington, DE  
Firoz Miyanji, MD, Vancouver, BC, Canada  
Amer Samdani, MD, Philadelphia, PA  
Stefan Parent, MD, Montreal, QC, Canada  
Jahangir Asghar, MD, Coral Gables, FL  
Patrick J. Cahill, MD, Philadelphia, PA  
Peter O. Newton, MD, San Diego, CA

When determining to fuse to L3 or L4 in Lenke 5 curves, preop L3 translation was the most important predictor of success, with a translation < 3.5cm being a potential threshold for selecting L3.

11:30 AM  
**PAPER: 099**  
An Analysis of Anterior vs. Posterior Spinal Fusion for Lenke 5 Adolescent Idiopathic Scoliosis  
Mark A. Erickson, MD, Aurora, CO  
Cameron R. Niswander, BA, Aurora, CO  
Sumeet Garg, MD, Aurora, CO  
Brendan Caprio, BS, Mason, OH  
Zhaoxing Pan, Aurora, CO  
John B. Emans, MD, Boston, MA

A comparative analysis found similar outcomes between adolescent idiopathic scoliosis (AIS) patients undergoing treatment for Lenke 5 curve with anterior or posterior spinal fusion.

11:42 AM  
**PAPER: 100**  
Surgical Results of Magnet-driven Growing Rods for Early-onset Scoliosis at Two Years  
Nanjundappa S. Harshavardhana, MD, Minneapolis, MN  
Hilali H. Noordeen, FRCS, London, United Kingdom

We report promising early clinico-radiological results in a series of 17 EOS patients treated by a novel MdGR with a minimum follow-up of two years highlighting the complications encountered.

11:48 AM  
**PAPER: 101**  
Case-Matched Comparison of Spinal Fusion vs. Growing Rods for Idiopathic Scoliosis in Skeletally Immature Patients  
Jeff Pawelek, La Jolla, CA  
Burt Yaszaz, MD, San Diego, CA  
Stacie Nguyen, MPH, La Jolla, CA  
Peter O. Newton, MD, San Diego, CA  
Gregory M. Mundis, MD, San Diego, CA  
Bebrooz A. Akbarinia, MD, La Jolla, CA  
Harms Study Group, San Diego, CA  
Growing Spine Study Group, Milwaukee, WI

Skeletally immature spinal fusion patients experienced similar gains in spinal and thoracic height, better curve correction and fewer surgical procedures than their case-matched growing rod cohorts.

11:54 AM  
**PAPER: 102**  
Final Fusion After Growing Rod Treatment for Early Onset Scoliosis: Is it Really Final?  
Connie Poe-Kochert, RN, Cleveland, OH  
Claire Shannon, MD, Cleveland, OH  
Jeff Pawelek, La Jolla, CA  
George H. Thompson, MD, Cleveland, OH  
Christina K. Hardesty, MD, Cleveland, OH  
David S. Marks, FRCS, Birmingham, England, United Kingdom  
Bebrooz A. Akbarinia, MD, La Jolla, CA  
Richard E. McCarthy, MD, Little Rock, AR  
John B. Emans, MD, Boston, MA

Final Fusion was not the final surgery for 22 of 100 (22%) early onset scoliosis (EOS) patients who completed growing rod (GR) treatment and had a minimum of 2 years follow up.

12:06 PM  
**PAPER: 103**  
Using Dystrophic Index to Predict Outcome and Complications in NF-1 Patients and Operative Spinal Deformity  
Yavuz Saglam, MD, Istanbul, Turkey  
Anna McClung, RN, Dallas, TX  
Daniel J. Sucato, MD, MS, Dallas, TX

A high dystrophic index in operative NF-1 patients were younger, had greater surgical time, intraoperative blood products, implant density, and a greater incidence of complications.

12:12 PM  
**PAPER: 104**  
Defining Parasol Rib Deformity in Hypotonic Neuromuscular Scoliosis: Rib-Based vs. Spine-Based Instrumentation  
Kristin O. Livingston, MD, Boston, MA  
David Zurakowski, PhD, Boston, MA  
Brian Snyder, MD, PhD, Boston, MA

In low tone neuromuscular scoliosis, parasol rib deformity, measured by (T6 width convex/T6 width concave)* (T6 width/ T12 width), did not improve with rib-based or spine-based instrumentation.
Relationship of Calcaneal Staging and the Sanders Simplified Hand Scores to Peak Height Velocity Timing in Children  
Allen Nicholson, New Haven, CT  
James O. Sanders, MD, Rochester, NY  
Raymond W. Liu, MD, Cleveland, OH  
Daniel R. Cooperman, MD, Trumbull, CT

We compare two methods of assessing skeletal maturity, the Sanders simplified hand scores and calcaneal apophyseal ossification, and examine their relationship to timing of Peak Height Velocity.

Discussion – 6 Minutes

Long-Term Patient Reported Outcomes Following Bennett's Fractures  
Scott Middleton, MD, Edinburgh, United Kingdom  
Emma J. Griffin, Glasgow, United Kingdom  
Neil D. McNiven, MD, Carlisle, United Kingdom  
Raymond E. Anakwe, MRCS Ed, Edinburgh, United Kingdom  
Christopher W. Oliver, MD, MBBS, Edinburgh, United Kingdom

This study defines the long-term outcomes following Bennett's fractures treated with K-wire fixation. No patients underwent subsequent surgery. Patient reported outcomes and satisfaction were excellent.

Discussion – 6 Minutes

Radiographic Stage Does Not Correlate with Symptom Severity in Thumb Basilar Joint Arthritis  
Charles E. Hoffler II, MD, Miami, FL  
Jonas L. Matzon, MD, Philadelphia, PA  
Kevin E. Lutsky, MD, Egg Harbor Township, NJ  
Nayoung Kim, Philadelphia, PA  
Pedro K. Beredjiklian, MD, Philadelphia, PA

We hypothesize that basilar thumb arthritis radiographic stage does not correlate with validated outcome measures of symptom severity.

Discussion – 6 Minutes

Outcome of Trapezioectomy and Abductor Longus to Flexor Carpi Radialis Tenodesis Suspension Arthroplasty  
Bradley S. Schoch, MD, Rochester, MN  
Jean-David Werthel, Paris, France  
Bassem T. Elhassan, MD, Rochester, MN

We describe a novel technique and report its outcome in the management of symptomatic trapeziometacarpal arthritis.

Discussion – 6 Minutes

The Effect of MCP Hyperextension on Outcomes in the Surgical Treatment of CMC Arthritis  
David M. Brogan, MD, Durham, NC  
Rose van Hogezaand, Amsterdam, Netherlands  
Nikola Babovic, MD, Rochester, MN  
Brian Carlsen, MD, Rochester, MN  
Sanjeev Kakar, MD, Rochester, MN

We found no difference in functional outcomes of patients undergoing surgical treatment of CMC arthritis when comparing patients with and without pre-operative MCP hyperextension.

Discussion – 6 Minutes

Acute Metacarpophalangeal Joint Arthroplasty in the Setting of Trauma  
Matthew Houdek, MD, Rochester, MN  
Eric R. Wagner, MD, Rochester, MN  
Robert Van Demark, MD, Rochester, MN  
Marco Rizzo, MD, Rochester, MN  
Steven L. Moran, MD, Rochester, MN

Metacarpophalangeal arthroplasty improves patient’s pain in the acute setting of a traumatic laceration or dislocation.

Discussion – 6 Minutes

Revision Metacarpophalangeal Arthroplasty; 128 Consecutive 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

Revision MCP arthroplasty has a 5-year survival of 80% and relatively high rate of complications. Worse outcomes are seen in patients with a history of MCP dislocations, smokers, and SRA implants.

Discussion – 6 Minutes
Tuesday, March 24

11:18 AM  PAPER: 112
Pyrocarbon in Proximal Interphalangeal Arthroplasty: A Longitudinal Analysis of 193 Cases
Eric R. Wagner, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Tianyi D. Luo, MD, Rochester, MN
Steven L. Moran, MD, Rochester, MN
Marco Rizzo, MD, Rochester, MN

PIP arthroplasty with a pyrocarbon implant has nearly 80% 5-year survival with a relatively low overall rate of complications, with those treated for OA with lower risk for revision surgery.

11:24 AM  PAPER: 113
Infection Rate in Hand Surgery Involving the Bone, Joint, and Implants and the Effect of Antibiotic Prophylaxis
Katharine T. Criner, MD, Philadelphia, PA
Christopher Klifto, MD, New York, NY
Anthony Sapienza, MD, New York, NY
Nader Paksima, DO, New York, NY
Alexandra Soroceanu, MD, Halifax, NS, Canada

Surgical site infection rate and the effect of prophylactic antibiotics in elective hand surgery that involves bone and joint work, and the use of implants.

11:42 AM  PAPER: 115
Results of Operative Intervention for Post-Traumatic Finger Stiffness
Joseph Dwyer, MD, Philadelphia, PA
Jonas L. Matzon, MD, Philadelphia, PA
Kevin F. Lutsky, MD, Egg Harbor Township, NJ
Nayoung Kim, BS, Philadelphia, PA
Pedro K. Beredjiklian, MD, Philadelphia, PA

We hypothesized that the results of tenolysis and joint contracture release for post-traumatic digital stiffness are suboptimal.

* 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 24**

### 12:18 PM  
**PAPER: 120**  
**Effect of Platelet-rich Plasma, Autologous Blood, and Steroid on Induced Tendinopathy in a Rat Model**  
Drew Wodowski, BS, MD, Memphis, TN  
Tyler A. Cannon, MD, Memphis, TN  
Byron F. Stephens II, MD, Memphis, TN  
James H. Calandruccio, MD, Germantown, TN

After inducing a tendinopathy, platelet rich plasma, autologous blood, and steroid were introduced into rat Achilles tendons and their effects were measured mechanically and histologically.

**Discussion – 6 Minutes**

### SYMPOSIUM

**1:30 PM — 3:30 PM**  
**Room 2001**

**Introducing Spine Imaging and Navigation Technology to Your Practice – What is Available, Why Do I Need it, How Do I Pay for it? (E)**

**Moderator:** Matthew E. Oetgen, MD, Chevy Chase, MD

New technology in spine surgery is rapidly coming to market. Limited data exist to guide decisions on which improve patient outcomes in a cost-effective manner. This symposium discusses these new technologies and how physicians should assess their utility.

I. 2. Navigation/Intraoperative CT  
*John M. Flynn, MD, Philadelphia, PA*

II. 3. Robotics  
*Dennis P. Devito, MD, Atlanta, GA*

III. 4. EOS/Biplanar Slot Scanning Technology  
*Peter O. Newton, MD, San Diego, CA*

IV. 5. Cost/Benefit Assessment for Hospitals and Physicians  
*Annalise N. Larson, MD, Rochester, MN*

V. 6. Debate – How Essential is this New Technology or Are We Just Driving Up the Cost of Care?  
*David W. Polly Jr, MD, Minneapolis, MN*

VI. 6. Debate – How Essential is this New Technology or Are We Just Driving Up the Cost of Care?  
*Daniel J. Sucato, MD, MS, Dallas, TX*

### SYMPOSIUM

**1:30 PM — 3:30 PM**  
**Room 2001**

**Contemporary Strategies in Rapid Recovery Total Joint Arthroplasty (D)**

**Moderator:** John C. Clohisy, MD, Saint Louis, MO

This symposium provides contemporary information and addresses controversies regarding rapid recovery total joint arthroplasty.

I. Worldwide trends in TJA Recovery Protocols  
*John C. Clohisy, MD, Saint Louis, MO*

II. Patient Selection for Rapid Recovery Surgery  
*Gregory Golladay, MD, Richmond, VA*

III. Surgical Approach - Does it Matter?  
*Micahel Leung, PhD, Zurich, Switzerland*

IV. Perioperative Blood Management and DVT Prophylaxis  
*James A. Keeney, MD, Saint Louis, MO*

V. Preparation for Patient Discharge from the Hospital (Wound Care, Physical Therapy, and Discharge Disposition)  
*Ryan Nunley, MD, Saint Louis, MO*

VI. How do We Measure Rapid Recovery Clinical Outcomes?  
*Paul E. Beaulé, MD, Ottawa, ON, Canada*

VII. Financial Impact of Rapid Recovery TJA  
*Kevin J. Bozic, MD, MBA, San Francisco, CA*

VIII. Is Rapid Recovery Total Joint Arthroplasty Associated with Higher Complication/Readmission Rates?  
*William J. Maloney III, MD, Redwood City, CA*

IX. The Disadvantages of Rapid Recovery Total Joint Arthroplasty  
*Kevin L. Garvin, MD, Omaha, NE*

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Tuesday, March 24

**INSTRUCTIONAL COURSE LECTURE**

11:00 AM — 12:00 PM

**FD3**

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

Room 4501

Moderator: Joshua J. Jacobs, MD, Chicago, IL

Daniel J. Berry, MD, Rochester, MN

J. Lawrence Marsh, MD, Iowa City, IA

Joseph D. Zuckerman, MD, New York, NY

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

1:30 PM — 2:30 PM

**FD4**

**Video Production for Orthopaedic Surgeons: Getting the Award, Making the Difference**

Room 4501

Moderator: James M. Bennett, MD, Houston, TX

Stephen Bartol, MD, Detroit, 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.

3:00 PM — 4:00 PM

**FD5**

**How to Assemble a Competitive ICL and Symposium Application**

Room 4501

Co-Moderators: James R. Ficke, MD, Baltimore, MD and Thomas (Quin) Throckmorton, MD, Germantown, TN

William M. Mihalko, MD, PhD, Germantown, TN

This course covers foot and ankle fusions. Indications, surgical techniques, current controversies, as well as pearls and pitfalls.

1:30 PM — 3:30 PM

**141 Complications after Total Hip Arthroplasty: Current Strategies for Prevention and Treatment**

Moderator: Craig J. Della Valle, MD, Chicago, IL

Fares S. Haddad, FRCS, London, United Kingdom

David J. Jacofsky, MD, Peoria, AZ

R. Michael Meneghini, MD, Fishers, IN

Learn to avoid and optimize the management of complications associated with total hip arthroplasty including dislocation and leg length discrepancy, infection, symptomatic deep vein thrombosis, and periprosthetic fractures.

**142 Update on Unicondylar Knee Replacement**

Moderator: David F. Dalury, MD, Baltimore, MD

Jean-Noel A. Argenson, MD, Marseille, France

William G. Hamilton, MD, Alexandria, VA

William A. Jiranek, MD, Richmond, VA

This course reviews the most current information on partial knee replacement and addresses its role in the treatment of arthritis of the knee in 2015.

**143 Foot and Ankle Fusions: You Can’t Always Replace Us**

Moderator: Christopher P. Chiolo, MD, Boston, MA

Donald R. Bobay, MD, Grand Rapids, MI

Christopher W. DiGioiaII, MD, Boston, MA

Jeremy T. Smith, MD, Newton, MA

This course covers foot and ankle fusions. Indications, surgical techniques, current controversies, as well as pearls and pitfalls.

**144 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 Díaz, MD, Santiago, Chile

Carlos J. Lavernia, MD, Coral Gables, FL

Fabio Orozco, MD, Linwood, NJ

Camilo 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 la práctica quirúrgica en otros países de habla hispana. (Intended for Spanish speaking international attendees. The aim of the course is to share US 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.)

**145 The Lost and Found Art of Percutaneous Pinning in the Hand and Wrist**

Moderator: O. Alton Barron, MD, 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

The purpose of this course is to describe 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. There is ample time for interactive discussion with the audience members.

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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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### Educational Programs

**Tuesday, March 24**

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<td>Current Perspectives on the Diagnosis and Management of DDH through Early Adulthood</td>
<td>Stuart L. Weinstein, MD, Iowa City, IA; Dennis R. Wenger, MD, San Diego, CA; Pablo Castaneda, MD, Mexico; Klaus Siebenrock, MD, Bern, Switzerland</td>
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<td>147</td>
<td>Elbow Arthroplasty: Lessons Learned from the Past and Directions for the Future</td>
<td>Joaquin Sanchez-Sotelo, MD, Rochester, MN; Theodore A. Blaine, MD, New Haven, CT; Graham J.W. King, MD, London, ON, Canada; Mark E. Morrey, MD, Rochester, MN</td>
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<td>148</td>
<td>International Perspective on Preventing and Dealing with Complications in Reverse Shoulder Arthroplasty</td>
<td>Pascal Boileau, MD, Nice, France; Gregory P. Nicholson, MD, Chicago, IL; Gilles Walch, MD, Lyon, France; Jon J.P. Warner, MD, Boston, MA</td>
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<td>149</td>
<td>Modern Techniques in the Treatment of Patients with Metastatic Spine Disease</td>
<td>Rex A. Marco, MD, Bellaire, TX; Justin Bird, MD, Houston, TX; Peter S. Rose, MD, Rochester, MN; Joseph H. Schub, MD, Boston, MA</td>
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<td>150</td>
<td>Articular Cartilage Disease and Meniscal Deficiency</td>
<td>Andreas H. Gomoll, MD, Chestnut Hill, MA; Jack M. Bert, MD, Woodbury, MN; Robert T. Burks, MD, Salt Lake City, UT; Christian Lattermann, MD, Lexington, KY</td>
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<td>International Perspectives on the Masquelet Technique for the Treatment of Segmental Defects in Bone</td>
<td>Laurent Obert, MD, Besancon, France; Peter Giannoudis, MD, FRCS, Leeds, United Kingdom</td>
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<td>Metastatic Disease for the General Orthopaedist: How to Avoid Conflict and Controversy</td>
<td>John E. Ready, MD, Boston, MA; Megan E. Anderson, MD, Boston, MA; Marco Ferrone, MD, FRCSC, Boston, MA; Kevin A. Raskin, MD, Boston, MA</td>
<td>4303</td>
</tr>
</tbody>
</table>

This course provides the international perspective to the diagnosis and management of developmental hip dysplasia and dislocation from birth through early adulthood.

This course 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.

This course helps surgeons prevent and manage complications in reverse shoulder arthroplasty.

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 corticalization.

This course prepares the general orthopaedist to effectively manage patients with metastatic disease in a rational fashion. Lectures focus on a case-based discussion of the contemporary treatment principles. Participants are encouraged to bring relevant cases for discussion.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Tuesday, March 24

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 will be 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.

WORKSHOP
1:30 PM — 5:30 PM
193 Community Orthopaedic Surgeon Workshop
Moderator: Dwight W. Barney III, MD, Albuquerque, NM
Annunziato Amendola, MD, Iowa City, IA
Daniel J. Berry, MD, Rochester, MN
Thomas K. Fehring, MD, Charlotte, NC
Anthony Petrosini, MD, Spring Lake, NJ
William J. Robb III, MD, Winnetka, IL
George V. Russell Jr, MD, Jackson, MS
John R. Tongue, MD, Tualatin, OR
Ken Yamaguchi, MD, Saint Louis, MO

This complimentary workshop for the orthopaedic surgeon handles a variety of orthopaedic conditions. Whether in the Emergency Room or in the office setting, this session is designed to educate the community orthopaedist to accepted practices of common conditions. Topics include adult reconstruction hip, cost effectiveness, adult reconstruction knee, trauma, practice management, patient safety, and shoulder and elbow.

PAPER PRESENTATION
1:30 PM — 3:30 PM
Venetian Ballroom D
Trauma II: Foot and Ankle
Moderator(s): Eric M. Hammerberg, MD, Boulder, CO

1:30 PM PAPER: 121 Are Postoperative Antibiotics Needed After ORIF? A Prospective Randomized Placebo-controlled Trial
Brett D. Crist, MD, Columbia, MO
David D. Greenberg, MD, Saint Louis, MO
Gregory J. Della Rocca, MD, PhD, Columbia, MO
Yvonne M. Murtha, MD, Wichita, KS
David A. Volgas, MD, Columbia, MO
James P. Stannard, MD, Columbia, MO

Postoperative prophylactic cefazolin significantly decreased the risk of postoperative deep infections in patients undergoing ORIF for closed fractures and complies with the SCIP initiative.

1:36 PM PAPER: 122 Negative Pressure Wound Boot Following Fixation of Pilon, Talus, and Calcaneus Fractures: Preliminary Results
Mark Gage, MD, New York, NY
Richard S. Yoon, MD, New York, NY
Derek J. Donegan, MD, Philadelphia, PA
Frank A. Liporace, MD, Englewood Cliffs, NJ

This study summarizes outcomes utilizing a negative pressure wound boot as a standard post-operative dressing, following operative fixation of pilon, talus, and calcaneus fractures.

1:42 PM PAPER: 123 Risk Factors for Thromboembolic Events after Surgery for Ankle Fractures
Bryce A. Basques, BS, New Haven, CT
Christopher Miller, MD, New Haven, CT
Nicholas Golimvzaux, BA, New Haven, CT
Daniel D. Bohl, MPH, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT

Patients with increased body mass index, heart disease, or dependent functional status were found to be at increased risk of thromboembolism following ankle fracture surgery.

Discussion – 6 Minutes
Tuesday, March 24

1:54 PM  |  PAPER: 124
**Correlation between the Lauge-Hansen Classification and Ligament Injury in Ankle Fracture**
Stephen J. Warner, MD, New York, NY
Matthew R. Garner, MD, New York, NY
Richard M. Hinds, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

In our large cohort of patients, comparing injury radiographs, preoperative MRI, and intraoperative findings suggested that the Lauge-Hansen system is an accurate predictor of ligamentous injuries.

2:00 PM  |  PAPER: 125
**Syndesmotic Morphology as a Risk Factor for Malreduction**
Steven M. Cherney, MD, Saint Louis, MO
Amanda Spraggs-Hughes, MA, Saint Louis, MO
Christopher McAndrew, MD, Saint Louis, MO
William M. Ricci, MD, St Louis, MO
Michael J. Gardner, MD, Saint Louis, MO

The depth of the syndesmotic incisura correlates to both rotational and sagittal plane malreduction.

2:06 PM  |  PAPER: 126
**Fixation of Ankle Syndesmosis: Is Implant Removal Essential?**
Hemil H. Maniar, MD, Danville, PA
David G. Fanelli, BS, Danville, PA
Gerard J. Casby Jr, MD, Danville, PA
Daniel S. Horwitz, MD, Danville, PA

One fifth of patients treated with screw fixation for an ankle syndesmotic injury end up with a broken screw. A majority of these patients are asymptomatic.

2:18 PM  |  PAPER: 127
**Outcomes a Decade after Surgery for Unstable Ankle Fracture: Functional Recovery Does Not Decay with Time**
Stephen Gould, MD, New York, NY
Deirdre Regan, BA, Garden City, NY
Arthur Manoli III, BS, New York, NY
Kenneth A. Egol, MD, New York, NY

Over a decade after ankle fracture fixation, the majority of patients are doing well; patient’s long-term functional outcomes are not significantly different than their outcomes at 1 year.

2:24 PM  |  PAPER: 128
**Effect of Arthroscopic Evaluation of Acute Ankle Fractures on PROMIS Intermediate-Term Functional Outcomes**
Daniel J. Fuchs, MD, Chicago, IL
Bryant Ho, MD, Chicago, IL
Mark Labelle, BS, Wheaton, IL
Armen S. Kelikian, MD, Chicago, IL

An analysis of patient reported functional outcomes following ankle fracture shows that ankle arthroscopy is not associated with improved scores but also causes no additional complications.

2:30 PM  |  PAPER: 129
**A Novel Algorithm for Isolated Weber B Ankle Fractures: A Retrospective Review of 51 Nonoperatively Treated Patients**
William B. Acker, MD, Ann Arbor, MI
Todd A. Irwin, MD, Ann Arbor, MI
Amy McKinney, MA, Ann Arbor, MI
Joshua Murphy, MD, Cincinnati, OH
James R. Holmes, MD, Ann Arbor, MI

Initial weight bearing ankle radiographs are predictive of isolated Weber B fracture stability. These common injuries can be successfully treated with immediate functional protected weight bearing.

2:42 PM  |  PAPER: 130
**Fracture Specific Implant Design Avoids Unnecessary Incisions and Hardware for OTA 43C3 Tibia Pilon Fractures**
Peter A. Cole, MD, Saint Paul, MN
Brian W. Hill, MD, Saint Louis, MO
Amir R. Rizkala, MD, Saint Paul, MN

Observational study of OTA 43C pilon fractures treated with a fracture-specific plate had a significantly lower need for additional hardware, infections rates, and need for a second incision.

2:48 PM  |  PAPER: 131
**Fixation of Tibial Pilon Fractures: Which is the Correct Side to Plate?**
Gennadiy Busel, MD, Saint Louis, MO
J. Tracy Watson, MD, Saint Louis, MO
Heidi Israel, PhD, RN, St Louis, MO

Pilon fracture plate location determined by the specific fibular fracture configuration, demonstrated significant reductions in mechanical failure and non/malunion rates.

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2:54 PM

PAPER: 132
Clinical Outcomes of Patients with Pilon Fractures Treated with Ilizarov External Fixation
Ashwin Unnithan, MBBS, MSc, Surrey, United Kingdom
Joshua T. Jacob, FRCS (Ortho), Bucks, United Kingdom
Arshad Khaleel, MSc, FRCS, Chertsey, United Kingdom

Retrospective review of clinical outcomes of 97 patients treated with Ilizarov external fixation for Pilon fractures. Outcome was assessed using Foot & Ankle Disability index.

Discussion – 6 Minutes

3:06 PM

PAPER: 133
Pes Cavus in Talar Neck Fractures: An Anatomic Predisposition?
Christopher Wong, MD, Miami, FL
Michael P. Clare, MD, MD, Tampa, FL

The normal, uninjured limbs of patients with talar neck fractures were examined to determine whether foot morphology predisposes patients to developing fractures of the talar neck.

3:12 PM

PAPER: 134
Posttraumatic Avascular Necrosis in Talar Neck Fractures with Extension into the Talar Body
Kevin A. Murr, MD, Lexington, KY
Richard Z. Unger, MD, Lexington, KY
Jeremy M. Burnham, MD, Lexington, KY
Eric S. Moghadamian, MD, Lexington, KY
Raymond D. Wright Jr, MD, Lexington, KY

Talar neck fractures with proximal extension of the fracture into the talar body increases the risk of developing avascular necrosis.

Discussion – 6 Minutes

3:18 PM

PAPER: 135
Does Timing from Injury to Surgical Reduction of Talar Fracture-Dislocations Matter?
Robert W. Westermann, MD, Iowa City, IA
Joseph A. Buckwalter, MD, Iowa City, IA
Matthew D. Karam, MD, Iowa City, IA
Brian Moore, BA, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA

We reviewed operatively managed talus fracture-dislocations (tibiotalar & subtalar) and determined the time from injury to surgical reduction did not predict AVN or future arthrodesis.

3:24 PM

PAPER: 920
Development and Evaluation of a Biofilm-Dispersive Scaffold
Chad A. Krueger, MD, San Antonio, TX
Carlos J. Sanchez Jr, PhD, Fort Sam Houston, TX
Kevin Akers, MD, Fort Sam Houston, TX
Katarzyna Zienkiewicz, MS, Nashville, TN
Scott Guelcher, PhD, Nashville, TN
Joseph C. Wenke, PhD, San Antonio, TX

D-Amino Acids are safe at therapeutic levels, their local delivery significantly reduces biofilm after bacterial contamination and they work synergistically with antibiotics.

Discussion – 6 Minutes

1:30 PM — 3:30 PM
Room 3304

Tumor/Metabolic Disease I: Soft Tissue: Tumors, Outcomes and Research
Moderator(s): Felasfa M. Wodajo, MD, Arlington, VA
Jeffrey S. Kneisl, MD, FACS, Charlotte, NC

1:30 PM

PAPER: 136
Preoperative Evaluation Prior to Soft Tissue Sarcoma Excision - Why Can't We Get It Right?
Nathan W. Mesko, MD, Cleveland, OH
Robert J. Wilson II, MD, Nashville, TN
Jeanette Mathieu, Nashville, TN
Michael K. Ghiam, BA, Nashville, TN
Li Wang, Nashville, TN
Jennifer L. Halpern, MD, Nashville, TN
Herbert S. Schwartz, MD, Nashville, TN
Ginger E. Holt, MD, Nashville, TN

Incomplete soft tissue sarcoma excision continues to be heralded by a troubling prevalence of inadequate pre-operative imaging and biopsy, leading to increased morbidity and cost.

1:36 PM

PAPER: 137
Adjuvant Surgery in High Grade Soft Tissue Sarcoma of Limbs: Is it Effective?
Daniel A. Mueller, MD, Zürich, Switzerland
Giovanni Beltrami, MD, Firenze, Italy
Guido Scoccianti, MD, Firenze, Italy
Domenico Andrea Campanacci, MD, Firenze, Italy
Rodolfo Capanna, Firenze, Italy

For the local control of a high grade soft tissue sarcoma of the limb after more than 10 years, neoadjuvant surgery seems to be superior to neoadjuvant radiation therapy or surgery alone.
Tuesday, March 24

1:42 PM PAPER: 138
Wide Re-Excision of Unplanned Surgery for Synovial Sarcoma of the Upper Extremity Demonstrates Good Outcomes
Joel Post, DO, Holland, MI
Benjamin Wilke, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Andrew Folpe, Rochester, MN
Sanjeev Kakar, MD, Rochester, MN
Peter S. Rose, MD, Rochester, MN
The aim of this study was to examine synovial sarcoma of the upper extremity to identify recurrence rates, disease free and overall survival, and associated prognostic variables.

Discussion – 6 Minutes

1:54 PM PAPER: 139
Coagulation and Fibrinolysis in 100 Soft Tissue Tumor Patients
Kunihiro Asanuma, MD, PhD, Tsu, Japan
Akihiko Matsumine, MD, PhD, Tsu City, Mie, Japan
Tomoki Nakamura, MD, PhD, Tsu-City, Mie, Japan
Takao Matsuebara, MD, Tsu City, Mie, Japan
Akibiro Sudo, MD, Tsu City, Mie, Japan
From the data of 100 soft tissue tumor patients, plasmin-plasmin inhibitor complex level is worth to distinguish malignancy by the cut-off point of 0.7 ug/ml (sensitivity 0.722, specificity 0.721).

2:00 PM PAPER: 140
Venous Thromboembolism in Soft Tissue Sarcoma Patients Treated Without Chemoprophylaxis
Brock W. Adams, MD, WA, Dist. of Columbia
Matthew T. Wallace, MD, WA, Dist. of Columbia
Morteza Meftah, MD, New York, NY
Robert M. Henshaw, MD, WA, Dist. of Columbia
This is a retrospective review of patients who underwent surgery for soft tissue sarcoma of the lower extremity who received no perioperative chemoprophylaxis.

2:06 PM PAPER: 141
Multiple Anticoagulant Use Increases Postoperative Wound Complications in Patients with Soft Tissue Sarcomas
David M. King, MD, Pewaukee, WI
John C. Neilson, MD, Milwaukee, WI
Donald A. Hackbarth Jr, MD, Milwaukee, WI
Meena Bedi, MD, Milwaukee, WI
Coumadin and multiple anticoagulant use for medical comorbidities significantly increases the risk of wound complications following lower extremity soft tissue sarcoma resections.

Discussion – 6 Minutes

2:18 PM PAPER: 142
Transcutaneous Oximetry Can Predict Wound Healing in Preoperatively Radiated Soft Tissue Sarcoma
Lukas M. Nystrom, MD, Maywood, IL
Benjamin J. Miller, MD, Iowa City, IA
Preoperatively radiated soft tissue sarcoma carries a high risk of wound complications. Transcutaneous oximetry can predict wounds at risk and allow for interventions to minimize complications.

2:24 PM PAPER: 143
Treatment Algorithm for Sporadic Desmoid Tumors Based on CTNNB1 Mutational Status
Yoshihiro Nishida, Associate Prof, Nagoya, Japan
Satoshi Tsukushi, MD, Nagoya, Japan
Shunsuke Hamada, Nagoya City, Japan
Hiroshi Urakawa, Nagoya, Japan
Eiji Kozawa, MD, Nagoya, Japan
Kunihiro Ikuta, Nagoya, Japan
Naoki Ishiguro, MD, Nagoya, Japan
Mutational status of CTNNB1 effectively predicts efficacy of meloxicam treatment, and possibly allows planned marginal resection with microscopic positive margin for patients with desmoid tumors.

2:30 PM PAPER: 144
Antitumor Effect of Zaltoprofen for Pigmented Villonodular Synovitis Cells with PPAR Activation
Akihiko Takeuchi, MD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Toshiharu Shirai, MD, Kanazawa, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Katsuhiro Hayashi, MD, Kanazawa, Japan
Hiroaki Kimura, MD, PhD, Kanazawa, Japan
Takashi Higuchi, Kanazawa, Japan
Yasuhiro Yamamoto, MD, Kanazawa, Japan
Hiroyuki Tsujiya, MD, Kanazawa, Japan
Zaltorpfen was found to inhibit a cell proliferation, induce apoptosis in PVNS cells with activation of PPARγ, suggesting its therapeutic effect on PVNS.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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# Educational Programs

## Tuesday, March 24

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper: 145</th>
<th>Title</th>
<th>Authors</th>
<th>Abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:42 PM</td>
<td></td>
<td>Osteoclast Inhibition Prevents Chondrosarcoma-mediated Bone Loss and Impairs Growth of the Tumor in Bone</td>
<td>Jesse E. Otero, MD, Iowa City, IA Jeff W. Stevens, MD, Iowa City, IA Douglas C. Fredericks, MD, Coralville, IA Allison Malandra, DVM, Coralville, IA Paul R. Odgren, PhD, Worcester, MA Joseph A. Buckwalter, MD, Iowa City, IA Jose A. Morcuende, MD, Iowa City, IA</td>
<td>Using a mammal for CHS in the setting of pharmacologic and genetic OC inhibition, that osteoclasts play a crucial role in CHS-mediated bone destruction and tumor growth in bone.</td>
</tr>
<tr>
<td>2:48 PM</td>
<td></td>
<td>Does Radiation Therapy Affect Survival and Functional Outcomes of Non-Hodgkin Lymphoma of Bone?</td>
<td>Ishaq Ibrahim, BS, Chicago, IL Bryan Hargham, MD, Chicago, IL Yale Fillingham, MD, Chicago, IL Steven Gitelis, MD, Chicago, IL</td>
<td>Use of chemotherapy and radiation as compared to only chemotherapy in treatment of Non-Hodgkin Lymphoma of bone does not alter survival and leads to an increase in orthopaedic related complications.</td>
</tr>
<tr>
<td>2:54 PM</td>
<td></td>
<td>Early Versus Late Referral for Proton Radiation After Surgery for Spine Chordoma and Chondrosarcoma</td>
<td>Emma B. Holliady, MD, Houston, TX Hari Mitra, BS, San Antonio, TX Jeremy S. Somerson, MD, San Antonio, TX David Grosshans, MD, Houston, TX</td>
<td>The authors report better local control in patients receiving early proton radiation after resection of spine chordomas and chondrosarcomas compared to those with late referrals for salvage radiation.</td>
</tr>
<tr>
<td>3:06 PM</td>
<td></td>
<td>Survival After Complete Surgical Resection of Isolated Spinal Metastases from Renal Cell Carcinoma</td>
<td>Satoshi Kato, MD, Kanazawa, Japan Hideki Morakami, MD, Kanazawa, Japan Satoru Demura, MD, Kanazawa, Japan Katsuhito Yoshio, MD, Kanazawa, Japan Takayoshi Ishii, MD, Kanazawa, Japan Takashi Igarashi, MD, Kanazawa, Japan Hiroyuki Tsuchiya, MD, Kanazawa, Japan</td>
<td>Survival after complete resection of spinal metastases from renal cell carcinoma was 70% at 5 years, and 55% at 10 years. For the selected patients, curative resection can prolong the survival.</td>
</tr>
</tbody>
</table>

*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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Tuesday, March 24

1:36 PM  |  PAPER: 152
Hospital Based Acute Care Following Total Hip and Knee Arthroplasty: Implications for Quality Measurement
Roman Trimba, MD, Beavercreek, OH
Richard T. Laughlin, MD, Dayton, OH
Anil Krishnamurthy, MD, Dayton, OH
Joseph Ross, MD, M.H.S., New Haven, CT
Justin Fox, MD, M.H.S., Ardmore, PA

Emergency Department visits and hospital readmissions after total hip/knee arthroplasty with comparison of performance across hospitals in the context of post-discharge quality measurement efforts.

1:42 PM  |  PAPER: 153
Changes in Charges by DRG Severity of Illness Level for the Top 10 Medicare Procedures
Lorraine Hutzler, BA, New York, NY
James D. Slover, MD, New York, NY
Joseph A. Bosco III, MD, New York, NY

Analysis of the New York State database is consistent with the fact that sicker patients are more expensive to treat.

1:54 PM  |  PAPER: 154
Is Hemoglobin A1c Predictive of Periprosthetic Joint Infection or Death Following Primary Total Joint Replacement?
Christopher E. Pelt, MD, Salt Lake City, UT
Jesse Chrestil, MD, Lone Tree, CO
Mike Anderson, MS, ATC, Salt Lake City, UT
Vanessa Stevens, PhD, Salt Lake City, UT
Rahul Anand, MD, Salt Lake City, UT
Scott DuVall, PhD, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT

HbA1c remains a test that may help the surgeon predict overall risk of complications, including death, following TJA, but does not appear to be a direct marker that predicts PJI.

2:06 PM  |  PAPER: 156
Identifying Near-Miss Errors in Total Hip Arthroplasty (THA) and Total Knee Arthroplasty (TKA)
Michael P. Ast, MD, Lawrenceville, NJ
David J. Mayman, MD, New York, NY
Alejandro Gonzalez Della Valle, MD, New York, NY
Mathias P. Boström, MD, New York, NY
Steven B. Haas, MD, New York, NY

Over 2% of THA and TKA reviewed had a near-miss incident of implant-related errors. Identification of these events remains paramount for hospitals, surgeons and patients alike.

2:06 PM  |  PAPER: 157
Internet Enhanced, Patient-Centered Orthopaedic Care: A Prospective, Randomized, Controlled Pilot Trial
Jonathan J. Paul, MD, Charlotte, NC
Kasey Rolfe, ATC, Charlotte, NC
Bryan R. Herron, MD, Prince Frederick, MD

The outcomes of this pilot study suggest that Internet-based home exercise programs may be a viable option to standard physical therapy for some patient populations.

2:24 PM  |  PAPER: 158
Electronic Collection of Patient Reported Outcomes More Efficient Than Paper Methods
Troy Miles, MD, Portland, OR
Adam Mirarchi, MD, Lake Oswego, OR
Alyssa Lorzano, BA, Portland, OR

Tablets, with the use of online research database tools, appear to be a superior method for gathering patient reported outcomes data when compared to traditional paper methods.

2:30 PM  |  PAPER: 159
Current Quality Measurement Tools are Insufficient for Orthopaedic Surgery
Arjun Sebastian, MD, Rochester, MN
Elizabeth Habermann, PhD, MPH, Rochester, MN
Amy Wagie, Rochester, MN
Sanjeev Kakar, MD, Rochester, MN

Adverse events were recorded for 3374 patients following orthopedic surgery at a single institution using ACS-NSQIP and AHRQ-PSI. A large discrepancy was found in reported adverse events.
Tuesday, March 24

2:42 PM PAPER: 160
Changes in Inpatient Physical Therapy Staffing Leads to Improvements in Quality and Decreases in Costs
Christopher E. Pelt, MD, Salt Lake City, UT
Robert Pendleton, MD, Salt Lake City, UT
Mike Anderson, MS, ATC, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT
The change to physical therapists work hours represents one simple change that has led to increased value, with decreases in costs and improvements in quality.

2:48 PM PAPER: 161
The Effective Use of an Arthroplasty Database Registry to Drive Quality Transfusion Practices
Mark Allen, DO, Madison Heights, MI
Nicole Zappa, DO, Madison Heights, MI
David C. Markel, MD, Southfield, MI
The use of patient registries allows for simple education and awareness of quality practices, therefore, improving safety and compliance.

2:54 PM PAPER: 162
Total Joint Perioperative Surgical Home: A Cost Analysis
Darren Raphael, MD, MBA, Orange, CA
Maxime Cannesson, Prof, Orange, CA
Ran Schwartzkopf, MD, Irvine, CA
Leslie Garson, MD, Orange, CA
Schermeen Vakharia, MD, MBA, Orange, CA
Ranjan Gupta, MD, Orange, CA
Zeev Kain, MD, MBA, Irvine, CA
Direct hospital costs can be driven substantially below benchmark levels using the Total Joint-Perioperative Surgical Home pathway.

3:06 PM PAPER: 163
Time Driven Activity Based Costing (TDABC) for Rotator Cuff Disease at an Academic Medical Center
Erin Padden, MBA, Boston, MA
Jon J.P. Warner, MD, Boston, MA
Laurence D. Higgins, MD, Boston, MA
The TDABC method provides critical financial and process data which allows for optimization of this kind of lean process management improvement.

3:12 PM PAPER: 164
Is Smartphone Technology Effective and Reliable for Diagnosis and Treatment Planning in Pediatric Elbow Injuries?
Ebrahim Paryavi, MD, MPH, Baltimore, MD
Brandon Schwartz, MPH, Baltimore, MD
Carissa L. Meyer, MD, Dallas, TX
Martin J. Herman, MD, Philadelphia, PA
Joshua M. Abzug, MD, Timonium, MD
As MMS images become increasingly prevalent in communication between providers, we have demonstrated that this commonly practice can be effective in establishing a diagnosis and directing treatment.

3:18 PM PAPER: 165
Patient Preferences for Treatment of a First Time Anterior Shoulder Dislocation
Benjamin D. Streufert, BS, Durham, NC
Shelby Reed, PhD, Durham, NC
Joel Huber, PhD, Durham, NC
Lori A. Orlando, MD, Durham, NC
Dean C. Taylor, COL, MD, Durham, NC
Richard C. Mather III, MD, Durham, NC
A survey, administered to examine patient preferences about treatment options after a first time anterior shoulder dislocation, showed stronger than expected preferences for operative management.

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Tuesday, March 24

1:42 PM  Paper 579  Outcomes of Surgical Treatment of Complex Distal Radius Fractures: A Comparison of Volar Plate and External Fixation
Young Hak Roh, MD, Incheon, Republic of Korea
Jung Ho Nob, MD, PhD, Chuncheon-Si, Republic of Korea
Jong Ryoon Baek, Incheon, Republic of Korea
Do Hyun Moon, Incheon, Republic of Korea
Beom Koo Lee, MD, Incheon, Republic of Korea

Comminuted and displaced intra-articular fractures of the distal radius are challenging to treat because of their intra-articular and unstable nature. This study compares surgical outcomes of volar locking plates (VP) and external fixation (EF) specifically in complex articular AO-type C2 and C3 fractures of the distal radius. This study hypothesizes that open reduction and fixation using VP would provide better clinical and radiologic results than EF without additional complications for 12 months after surgery.

1:48 PM  Paper 197  Intramedullary Versus Extramedullary Fixation of Clavicle Shaft Fractures: A One-Year Follow-up Study
Reginald P. King, MD, Melkbossstrand, South Africa
Ajmal Ikram, MD, Cape Town, South Africa
Robert Lamberts, PhD, Tygerberg, Cape Town, South Africa

Displaced and shortened clavicle shaft fractures can be treated operatively by intra- or extramedullary fixation. The aim of the study was to compare the effectiveness of these two treatment modalities.

2:00 PM  Paper 823  Temporal Trends in Revision Total Hip Arthroplasty Over a 10-Year Period Using National Joint Registry Data
Jeya Palan, MD, Market Harborough, United Kingdom
Michèle Smith, PhD, Bristol, United Kingdom
Keith Tucker, MD, FRCS Orth, Norwich, United Kingdom
Ashwin Kulkarni, MD, FRCS Orth, Leicester, United Kingdom
Colin Esler, MD, FRCS, Leicester, United Kingdom
Paul J. Gregg, Prof, Cleveland, United Kingdom
Ashley Blom, PhD, Bristol, United Kingdom

There remains a paucity of information on patient characteristics and reasons for revision following total hip arthroplasty (THA). The aim of this study was to describe trends in patient demographics and reasons for revision over 10 years.

2:06 PM  Paper 172  Tranexamic Acid Reduce the Blood Loss and Transfusion Requirements following Periacetabular Osteotomy
Georgi Wassilew, MD, Berlin, Germany
Viktor Janz, MD, Berlin, Germany
Carsten Perka, MD, Berlin, Germany

The efficacy of tranexamic acid (TXA) to reduce blood loss in various surgical procedures has been proven. However, there is little data about the effect of TXA on total blood loss, rate of blood transfusion, and thromboembolic events during the Bernese periacetabular osteotomy (PAO). The reduction of total blood loss during PAO promotes the postoperative patient mobilization and reduces the risk of complications associated with blood transfusions. The aim of the following study was to determine if a continuous intraoperative TXA-infusion can reduce both blood loss and the rate of blood transfusions. Additionally, the rate of possible complications, associated with the administration of TXA, such as an increased risk of thromboembolic events was analyzed.

2:18PM  Paper 807  Congenital Radioulnar Synostosis, A Novel Operation in 27 Cases
Ahmad S. Allam, Prof, Banha, Egypt

Congenital radioulnar synostosis (CRUS) is difficult to treat. For Wilkie type I, many techniques have been tried in an effort to restore forearm rotation. However, they have not been successful, because of the initial extensive soft tissue and bony involvement and postoperative scarring. It is inadvisable by many surgeons to perform any operation with the hope of obtaining pronation and supination.

2:24 PM  Paper735  Comparison Between Anterior and Posterior Surgical Approaches for Cervical Myelopathy Due to C3-4 Stenosis
Koji Tamar, MD, Osaka, Japan
Hidetomi Terai, MD, Osaka, Japan
Akinobu Suzuki, MD, PhD, Osaka, Japan
Hiromitsu Toyoda, Osaka, Japan
Sho Dohzono, MD, Osaka, Japan
Shinji Takahashi, MD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

C3-4 cervical spondylotic myelopathy (C3-4 CSM) is uncommon in young and middle-aged patients but occurs frequently in elderly patients. Previous literature suggests that a decreased range of motion (ROM) at the middle or lower cervical level can increase mechanical stress to C3-4 and may contribute to the occurrence of C3-4 CSM. Anterior cervical decompression and fusion (ACDF) and laminoplasty are the two main treatment options for CSM. To date, only a few reports have compared these techniques in the treatment of CSM, and little is known regarding potential differences in their clinical results, particularly for one-level stenosis. The purpose of this study was to compare the clinical outcomes produced by ACDF and laminoplasty in patients with C3-4 CSM and to investigate mobility-related factors that might contribute to differing outcomes.

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Tuesday, March 24

2:30 PM  Paper 519
Osteosarcoma of the Pelvis: Change in Outcomes Over 40 Years
Hernan A. Prieto Saavedra, MD, Ibague, Colombia
Melissa M. Earles, MD, Spartanburg, SC
Andre R. Spiguel, MD, Gainesville, FL
Mark T. Scarborough, MD, Gainesville, FL
Timothy Gooldy, BS, Orlando, FL
C. Parker Gibbs Jr, MD, Gainesville, FL

Pelvic osteosarcoma has a low survival rate explained by multiple factors (advanced patient age, inconsistent use of chemotherapy, delay in diagnosis, lack of major anatomical barriers to tumor growth, large tumor volume, and local extension that make wide resection difficult). We review our more recent experience treating pelvic osteosarcoma and evaluate whether modern imaging, chemotherapy, and surgical technique have had an impact on patient survival by comparing patients treated before and after 1990.

Discussion – 6 minutes

2:42 PM  Paper 206
Olecranon Fractures: Is Nonoperative Treatment Appropriate in those Aged Over 75 Years?
Nimesh Patel, MRCS, MBBS, London, United Kingdom
Paul Birdsall, FRCS, Devon, United Kingdom
Timothy Batten, MRCS, Torquay, United Kingdom

Operative treatment is the most widely described method for treating displaced olecranon fractures. Due to surgical risks, and risks of failure in certain patients, nonoperative treatment may be more suitable. Our objectives were to compare the outcomes of operative versus nonoperative treatment of displaced olecranon fractures.

Discussion – 6 minutes

2:48 PM  Paper 346
Reverse Total Shoulder Arthroplasty: Results of 240 Consecutive Prosthesis with a Follow Up of Ten Years
Guillaume Bacle, MD, Chambray-Les Tours, France
Laurent Nove Josserand, MD, Lyon, France
Gilles Walch, MD, Lyon, France

Long-term follow-up outcomes and survivorship of reverse shoulder arthroplasty (RSA) are limited. The goal of this study was to provide long-term results, survivorship, and late complications of a monocentric reverse prosthesis cohort at 10 years minimum follow up.

METHODS: A total of 240 RSA had been performed before June 2003 in a single surgical center. The outcomes and complications at two years of follow up had already been published in 2007. The same set of patients had been studied with a minimum of 10 years follow up. Clinical and radiographic evaluations were mainly based on the Constant score, prosthesis loosening, and scapular notching. The number and type of late complications were assessed.

3:06 PM  Paper 741
Metal Resurfacing Implant for Osteochondral Talar Defects after Failed Surgery: A Prospective Study
Rogier Gerards, Amsterdam, Netherlands
Christiaan J. Van Bergen, MD, Amsterdam, Netherlands
Mikel Reilingh, MD, Amsterdam, Netherlands
C. Niek Van Dijk, MD, Abcoude, Netherlands

Osteochondral ankle defects (OCDs) mainly occur in a young, active population. In 63% of cases, the defect is located on the medial talar dome. Arthroscopic debridement and microfracture is considered the primary treatment for defects up to 15 mm. To treat patients with a secondary OCD of the medial talar dome and avoid donor site morbidity, a 15-mm diameter metal resurfacing inlay implant was developed. The present study aimed to evaluate the clinical effectiveness of the metal implant for OCDs of the medial talar dome.

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3:12 PM  
**Paper 708**  
15 Year Survival of Endoscopic Anterior Cruciate Ligament Reconstruction in Patients Aged 18 and Under  
Justin P. Roe, MD, Sydney, Australia  
Matthew Morgan, MBBS, Sydney, Australia  
Lucy J. Salmon, PhD, Sydney, Australia  
Alison Waller, BAppSci, Sydney, Australia  
Simon Thompson, FRACS, Guildford, United Kingdom  
Leo A. Pinczewski, FRACS, Wollstonecraft, Australia  
The incidence and risk factors for further anterior cruciate ligament (ACL) injury after ACL reconstruction have been examined in adults but not in juveniles. The aim of this study was to determine the long-term survival of the ACL graft and the contralateral ACL (CACL) after primary reconstruction in those 18 years and under, and to identify the factors that increase the odds of subsequent ACL injury.

3:18 PM  
**Paper 404**  
Realignment Osteotomy in Fibular Malunion: Mid-term Results in 19 Consecutive Patients  
Alexej Barg, MD, Basel, Switzerland  
Martin Wiewiorski, MD, Hedingen, Switzerland  
Heath Henninger, PhD, Salt Lake City, UT  
Victor Valderrabano, MD, Hofstetten, Switzerland  
The incidence of fibula fractures continues to increase. The exact incidence of distal fibula malunions after fibular reconstructions is not known, but incidence up to 33% is described in the literature. The most frequent malunions of the fibula are shortening and malrotation, resulting in the widening of the ankle mortise and talar instability. It has been demonstrated that substantial fibular displacement may substantially increase the contact pressures in the ankle joint. Therefore distal fibular malunion is a risk factor for development of posttraumatic ankle osteoarthritis. The objectives of this study were to (1) describe our treatment algorithm and surgical technique in patients with posttraumatic fibula malunions; (2) determine intra- and postoperative complications rates, and (3) to describe mid-term clinical and radiological outcomes and quality of life.

**SYMPOSIUM**  
4:00 PM — 6:00 PM  
Venetian Ballroom E  
Reverse Total Shoulder Arthroplasty in the USA: The First 10 Years; Where We Started, Where We Are, and Where We Are Going (G)  
Moderator: David M. Dines, MD, Uniondale, NY  
Reverse shoulder arthroplasty has been utilized in the USA for 10 years. Many of the technological advances developed here that have improved results and increased indications are discussed.

I. The Biomechanical Principles of RSA in the Development of Improved Technology  
*Mark A. Frankle, MD, Temple Terrace, FL*

II. Historical Perspectives of the Grammont RSA Principles  
*Gilles Walch, MD, Lyon, France*

III. Instability after RSA; Is it still a problem  
*Gregory P. Nicholson, MD, Chicago, IL*

IV. Scapular notching in RSA is it still a problem  
*Edward V. Craig, MD, New York, NY*

V. The Glenoid Component in RSA. New Technology in Glenosphere and Baseplate Design. Is Baseplate Fixation a Problem?  
*John W. Sperling, MD, MBA, Rochester, MN*

VI. Revision of RSA What Can be Done? What is our Bailout?  
*Thomas W. Wright, MD, Gainesville, FL*

VII. How to Deal with Glenoid Bone Loss in RSA  
*Tom R. Norris, MD, San Francisco, CA*

VIII. The Convertible Humeral Platform for Reverse Total Shoulder Systems- Is it Necessary  
*David M. Dines, MD, Uniondale, NY*

IX. Emerging Indications of RSA  
*Joshua Dines, MD, New York, NY*

X. RSA for Failed and or Irreparable RC Tears  
*Joseph P. Iannotti, MD, PhD, Cleveland, OH*

XI. RSA for Trauma Current Concepts: Where, When and How  
*Thomas B. Edwards, MD, Houston, TX*
Tuesday, March 24

INSTRUCTIONAL COURSE LECTURE

4:00 PM — 6:00 PM

161 Innovative Techniques in Revision Total Hip Arthroplasty

Moderator: Paul F. Lachiewicz, MD, Chapel Hill, NC
Keith R. Berend, MD, New Albany, OH
Michael P. Bolognesi, MD, Durham, NC
Scott M. Sporer, MD, Wheaton, IL

This course 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 ceramicceramic hip are covered in video vignettes and case presentations.

162 Bearing Surfaces and Total Hip Arthroplasty: Clinical Outcomes and Avoidance; Management of Adverse Events

Moderator: Jay R. Lieberman, MD, Los Angeles, CA
William J. Hozack, MD, Philadelphia, PA
William J. Maloney III, MD, Redwood City, CA
Steven J. MacDonald, MD, London, ON, Canada

Clinical outcomes, strategies to optimally manage these adverse events, and selection of the appropriate bearing surface for your patients are reviewed.

163 Five Options for Performing a TKA

Moderator: Robert E. Booth Jr, MD, Philadelphia, PA
Frederick Buechel Jr, MD, Naples, FL
Douglas A. Dennis, MD, Denver, CO
Andreas M. Halder, MD, Kremmen, Germany
Adolph V. Lombardi Jr, MD, New Albany, OH

The success of a total knee arthroplasty (TKA) is more dependent upon surgical technique than prosthetic design. The goal is to identify the advantages, as well as the shortcomings, of each style of surgery.

164 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 their care for TKA patients.

165 Management of Complex Foot and Ankle Injuries in the Athlete

Moderator: James A. Nunley II, MD, Durham, NC
John G. Kennedy, MD, New York, NY
Robert B. Anderson, MD, Charlotte, NC
Annunziato Amendola, MD, Iowa City, IA

Treating foot and ankle injuries in the athlete requires an understanding of their unique mechanism, surgical options, and rehabilitation issues. These are addressed for stress fractures, ligament injuries, achilles/peroneal tendon disorders, and the syndesmosis.

166 Shared Decision Making and Informed Consent: Understanding the Goals and the Responsibility of the Orthopaedic Surgeon

Moderator: Paul Levin, MD, Bronx, NY
Kevin J. Bozin, MD, MBA, San Francisco, CA
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.

167 Legg Clave Perthes Disease: The Beginning and The End

Co-Moderators: Kishore Mulpuri, MD, Vancouver, BC, Canada
Harish S. Hosalkar, MD, San Diego, CA
Harry K. Kim, MD, Dallas, TX
Klaus Siebenrock, MD, Bern, Switzerland

This course presents approaches to the diagnosis and management of Perthes disease.

168 Challenges and Controversies in Treating Massive Rotator Cuff Tears

Moderator: Leesa M. Galatz, MD, Saint Louis, MO
Stephen S. Burkhart, MD, San Antonio, TX
William N. Levine, MD, New York, NY
Eric T. Ricchetti, MD, Cleveland, OH

Massive cuff tears pose a significant clinical challenge. This course comprehensively reviews treatment options and controversies surrounding repair, tendon transfer, arthroplasty, and biologic augmentation.

4:30 PM — 5:30 PM

FD6 Imagine Them Naked: Public Speaking and Teaching

Moderator: Amy Ayoub, Las Vegas, NV

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.

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169  Is it the Back or the Hip? Differentiating Lumbar Spine from Hip Pathologies: Key Points of Evaluation and Treatment
Moderator: Afshin Razi, MD, New York, NY
Ryan G. Miyamoto, MD, Arlington, VA
Rakesh Patel, MD, Ann Arbor, MI
James D. Slover, MD, New York, NY
This course 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.

170  Evidence-Based Treatment for OCD of the Knee in Young Patient
Moderator: Matthew Milewski, MD, Farmington, CT
Carl W. Nissen, MD, Farmington, CT
John D. Polousky, MD, Greenwood Village, CO
Kevin G. Shea, MD, Boise, ID
Osteochondritis dissecans (OCD) of the knee has a peak incidence in pediatric and adolescent patients, with a high percentage of patients developing degenerative osteoarthritis by the 4th decade. Higher quality/lower bias outcomes studies are emphasized, with a focus upon patient-centered decision making. About 45% of the time is for case presentation and audience discussion.

171  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, Atlanta, GA
This course discusses intra-and-extra-articular proximal tibia fracture evaluation and management, including soft tissue injuries, surgical approaches, and reduction and fixation strategies.

172  Treatment of Periprosthetic Fractures
Moderator: Jeremy Hall, MD, FRCS, Toronto, ON, Canada
Richard Jenkinson, MD, Toronto, ON, Canada
Aaron Nauth, MD, Toronto, ON, Canada
Markku Nousiainen, MD, Toronto, ON, Canada
Practical treatment of upper and lower extremity periprosthetic fractures are illustrated and discussed using a case-based approach.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Venetian Ballroom B

Adult Reconstruction Hip II: Non-Arthroplasty Management; Basic Science
Moderator(s): Paul E. Beaule, MD, Ottawa, ON, Canada
John C. Clohisy, MD, Saint Louis, MO

4:00 PM  PAPER: 166
Are the Clinical Results of the Periacetabular Osteotomy Generalizable?
Geneva Baca, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
Michael B. Millis, MD, Boston, MA
Ira Zaltz, MD, Royal Oak, MI
Paul E. Beaule, MD, Ottawa, ON, Canada
Rafael J. Sierra, MD, Rochester, MN
Daniel J. Sucato, MD, MS, Dallas, TX
Perry L. Schoenecker, MD, Saint Louis, MO
ANCHOR Group, Saint Louis, MO
This multicenter cohort demonstrates that at early follow-up the PAO provides reliable pain relief and improved function in the treatment of symptomatic acetabular dysplasia.

4:06 PM  PAPER: 167
Does Previous Failed Hip Arthroscopy Compromise the Clinical Outcomes of the Periacetabular Osteotomy in Dysplasia
John C. Clohisy, MD, Saint Louis, MO
Michael B. Millis, MD, Boston, MA
Young Jo Kim, MD, PhD, Boston, MA
Ira Zaltz, MD, Royal Oak, MI
Robert T. Trousdale, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Gail Pashos, St Louis, MO
ANCHOR Group, Saint Louis, MO
Treatment of acetabular dysplasia with a PAO after a failed hip arthroscopy provides significant improvement in pain and function.

4:12 PM  PAPER: 168
Evaluation of Articular Cartilage with T2 Mapping MRI After Rotational Acetabular Osteotomy for Hip Osteoarthritis
Takeshi Shoji, MD, PhD, Hiroshima, Japan
Yuuji Yasunaga, MD, Higashi-Hiroshima, Japan
Takuma Yamasaki, MD, Hiroshima, Japan
Soutarou Izumi, MD, Hiroshima, Japan
Susumu Hachisuka, MD, Hiroshima, Japan
Mitsuho Ochi, MD, PhD, Hiroshima, Japan
Cartilage evaluation with T2 mapping MRI after rotational acetabular osteotomy (RAO) and microfracture in RAO reveals that these procedures are effective for the early remodeling of articular cartilage.

Discussion – 6 Minutes
Tuesday, March 24

4:24 PM  PAPER: 169
Does Previous Pelvic Osteotomy Surgery Compromise the Outcomes of the Periacetabular Osteotomy?
Jeffrey B. Stambough, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
Geneva Baca, Saint Louis, MO
Perry L. Schoenecker, MD, Saint Louis, MO

Residual dysplastic deformities can be reliably corrected using the periacetabular osteotomy (PAO); however the amount of clinical improvement is significantly less than that of a primary PAO.

4:30 PM  PAPER: 170
Utilization of Hip Arthroplasty after Hip Arthroscopy: The Influence of Age and Arthritis
William W. Schairer, MD, New York, NY
Benedict U. Nwachukwu, MD, MBA, New York, NY
Frank McCormick, MD, Pompano Beach, FL
Stephen Lyman, PhD, New York, NY
David J. Mayman, MD, New York, NY

This study evaluated the rates of primary total hip arthroplasty within one year of hip arthroscopy.

4:36 PM  PAPER: 171
Outcomes of Total Hip Arthroplasty after Hip Arthroscopy are Inferior
Jonathan Vigdorchik, MD, New York, NY
Michael P. Ast, MD, Laurenceville, NJ
Stephen Lyman, PhD, New York, NY
Douglas E. Padgett, MD, New York, NY
Amar S. Ranawat, MD, New York, NY

Patients who undergo hip arthroscopy prior to THA appear to have significantly worse overall physical function, as well as an increased incidence of joint stiffness.

4:48 PM  PAPER: 172
Tranexamic Acid Reduce the Blood Loss and Transfusion Requirements following Periacetabular Osteotomy
Georgi Wassilev, MD, Berlin, Germany
Viktor Jänz, MD, Berlin, Germany
Carsten Perka, MD, Berlin, Germany

This study investigate how tranexamic acid could reduced the transfusion rate and blood loss, without important additional adverse effects.

5:00 PM  PAPER: 173
Tranexamic Acid Reduces Transfusions in Periacetabular Osteotomy
Andrew J. Bryan, MD, Edina, MN
Rafael J. Sierra, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Tranexamic acid is associated with significantly decreased transfusion rates and no increased risk of thromboembolic disease in patients undergoing periacetabular osteotomy.

5:00 PM  PAPER: 174
Chlorhexidine Eradicates In-vitro Staphylococcus epidermidis Biofilm at Low Concentrations and Short Dwell Times
Kenneth Schmidt, MD, Scottsdale, AZ
Mark J. Spangel, MD, Phoenix, AZ
Luke Hosack, MD, Phoenix, AZ
Ryan Mclemore, PhD, Phoenix, AZ
Francis M. Calara, Phoenix, AZ
Alexander C. McLaren, MD, Phoenix, AZ

Chlorhexidine, at low concentrations and dwell times, successfully eradicated in-vitro biofilms. The other solutions tested were far less effective.

5:18 PM  PAPER: 175
Rheumatoid Arthritis and Ankylosing Spondylitis: Trends in Drug Use, Disease Severity, and Surgical Procedures
Alma B. Pedersen, MD, Risskov, Denmark
Anil Mor, MD, MPH, Aarhus N, Denmark
Frank Mehnert, MSc, Aarhus N, Denmark
Reimar W. Thomsen, MD, PhD, Aarhus, Denmark
Søren P. Johnsen, MD, PhD, Aarhus N, Denmark
Mette Nørgaard, MD, PhD, Aarhus N, Denmark

Rheumatoid Arthritis and Ankylosing Spondylitis: Trends in Drug Use, Disease Severity, and Surgical ProceduresA Danish annual cross-section study from 1996 through 2012

5:18 PM  PAPER: 176
A Heritable Predisposition for the Need to Undergo Total Hip Arthroplasty
Christopher E. Pelt, MD, Salt Lake City, UT
Jill Erickson, PA, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT
Mike Anderson, MS, ATC, Salt Lake City, UT
Lisa Cannon-Albright, Salt Lake City, UT

Excess relatedness of affected individuals and elevated risks to relatives were observed, strongly supporting a heritable contribution for the necessity to proceed with hip arthroplasty.
Tuesday, March 24

5:24 PM  PAPER: 177
Identifying Potential Genetic and Epigenetic Markers for Susceptibility to Avascular Necrosis
Cody Wyles, BS, Rochester, MN
Matthew Houdek, MD, Rochester, MN
German A. Norambuena, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
This genome-wide association study identified unique genetic markers that may be predictive for the risk of the development of AVN as well as epigenetic sensitivity to steroid therapy resulting in AVN.

Discussion – 6 Minutes

5:36 PM  PAPER: 178
In Vivo Assessment of Conventional Versus First and Second Generation XLPE Particles Induced Inflammation
Camille Rodaix, MD, Paris, France
Amine Zaoui, Paris, France
Jean Langlois, MD, Paris, France
Christophe Nich, MD, PhD, Paris, France
Morad Bensidhoum, PhD, Paris, France
Delphine Logeart-Aramoglu, PhD, Paris, France
Herve Petite, PhD, Paris, France
Monissa Hamadouche, PhD, Paris, France
This in vivo study demonstrated that the inflammatory reaction to vitamin E doped polyethylene particles 10 days after implantation was lower than conventional and XLPE in a murine calvarial bone model.

5:42 PM  PAPER: 179
Intra-Articular Corticosteroid/Local Anesthetic Hip Injections and Rapidly Progressing Joint Degeneration
Matthew Horn, Chapel Hill, NC
David Berkoff, Chapel Hill, NC
Daniel J. Del Gaizo, MD, Chapel Hill, NC
Investigation of hip joint degeneration after intra-articular corticosteroid/ lidocaine injection revealed that within 6 months nearly all patients developed significant progression of joint disease.

5:48 PM  PAPER: 180
Methyl Methacrylate Exposure During Simulated Total Hip Arthroplasty and Fabrication of Antibiotic Beads
Amy L. Speekaert, MD, Danville, PA
Nathaniel C. Wingert, MD, Danville, PA
Justin Brothers, MD, Danville, PA
Joel C. Klena, MD, Danville, PA
During simulated total hip arthroplasty peak and cumulative levels of methyl methacrylate were markedly less than The Occupational Health and Safety Agency recommended limits.

Discussion – 6 Minutes

4:00 PM — 6:00 PM
Venetian Ballroom D
Adult Reconstruction Knee II: Infection in TKA
Moderator(s): David Backstein, MD, Toronto, ON, Canada
Marc Umlas, MD, Miami Beach, FL

4:00 PM  PAPER: 181
The Alpha-Defensin Biomarker for Periprosthetic Joint Infection Responds to a Wide Spectrum of Organisms
Carl A. Deirmengian, MD, Wynnewood, PA
Keith Kardos, PhD, Wynnewood, PA
Patrick Kilmartin, BS, MS, Wynnewood, PA
Simmi Gulati, Baltimore, MD
Patrick Citrano, Baltimore, MD
Robert E. Booth Jr, MD, Philadelphia, PA
The Alpha-Defensin Biomarker for Periprosthetic Joint Infection Responds to a Wide Spectrum of Organisms.

4:06 PM  PAPER: 182
Synovial Fluid Alpha-Defensin Levels Return to Normal After Treatment of a PJI with a Cement Spacer
Carl A. Deirmengian, MD, Wynnewood, PA
Gregory K. Deirmengian, MD, Broomall, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Robert E. Booth Jr, MD, Philadelphia, PA
Joshua Bingham, Mesa, AZ
Christopher P. Beauchamp, MD, FRCS (Ortho), Phoenix, AZ
Carlos A. Higuera, MD, Bay Village, OH
Synovial Fluid Alpha-Defensin Levels Return to Normal After Treatment of a PJI with a Cement Spacer.

4:12 PM  PAPER: 183
Synovial Fluid Cytokines Changes between 1st and 2nd Stage Revision Arthroplasty
Salvatore J. Frangiamore, MD, MS, Cleveland, OH
Nicholas Gajewski, BA, Cleveland Heights, OH
Anas Saleh, MD, Beachwood, OH
Mario Farias-Kovac, MD, Cleveland, OH
Alison K. Klika, MS, Cleveland, OH
Thomas Daly, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Carlos A. Higuera, MD, Bay Village, OH
IL-6 and IL-1β had the greatest change between 1st and 2nd stages, and may be appropriate targets to further study as indicators of infection eradication and optimized timing of reimplantation.

Discussion – 6 Minutes
Tuesday, March 24

4:24 PM  PAPER: 184
Microbiological Profiles of Prosthetic Knee Infections as Predictors of Exchange Arthroplasty Outcome
Sanjeev Agarwal, FRCS (Ortho), Cardiff, United Kingdom
Ammar Abbas, MD, Collooney, Ireland
A retrospective review of 40 patients treated with exchange arthroplasty for infection after total knee replacement. Polymicrobial and gram negative infections were associated with a poor outcome.

4:30 PM  PAPER: 185
Factors Associated with 20-Year Cumulative Risk of Infection after Aseptic Index Revision TKA
Oliver B. Nikolaus, MD, Rochester, MN
Paul McLendon, MD, Rochester, MN
Cathy D. Schleck, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
Ted M. Mabry, MD, Rochester, MN
Elie Berbari, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Following aseptic revision TKA, the cumulative risk of infection was 5.6% at 20 years.

4:36 PM  PAPER: 186
Seronegative Periprosthetic Joint Infections: Aspiration is Still the Gold Standard
Benjamin A. McArthur, MD, WA, Dist. of Columbia
Matthew P. Abdel, MD, Rochester, MN
Michael J. Tauntt, MD, Rochester, MN
Douglas R. Osmon, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
Preoperative aspiration remains the gold standard, particularly when attempting to diagnose seronegative cases, which occur with a frequency of 4%.

4:48 PM  PAPER: 187
Aspirin as Prophylaxis Against Venous Thromboembolism Leads to Lower Incidence of Periprosthetic Joint Infection
Ronald Huang, MD, Philadelphia, PA
Patrick S. Buckley, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
Aspirin deep venous thrombosis prophylaxis is associated with decreased incidence of periprosthetic joint infection and MRSA infections following primary TJA when compared to Warfarin prophylaxis.

4:54 PM  PAPER: 188
Do Prior Intra-articular Corticosteroid Injections Increase Risk of Infections after Total Knee Arthroplasty?
Samik Banerjee, MBBS, MS, Albany, NY
Guneet S. Sodhi, BS, Fulton, MD
Ronald E. Delanois, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD
Harpal S. Khanuja, MD, Cockeysville, MD
Intraarticular knee steroid infiltration is safe and does not increase the rate of post-operative infections in patients who have received between 2 and 12 months prior to undergoing TKA.

5:00 PM  PAPER: 189
Patients with Abnormal Infection Parameters Need to be Investigated Prior to Revision Arthroplasty
Priscilla K. Cavanaugh, MS, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Anthony T. Tokarski, BS, Philadelphia, PA
Camilo Restrepo, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Report the results of PJI work-up as a part of revision arthroplasty in patients deemed aseptic or septic according to MSIS and determine the implications of minor criteria results within this cohort.

5:12 PM  PAPER: 190
Dual Antibiotic Prophylaxis is Associated with Acute Kidney Injury after Primary Joint Arthroplasty
Paul M. Courtney, MD, Philadelphia, PA
Christopher M. Melnic, MD, Philadelphia, PA
Zachary R. Zimmer, MD, Philadelphia, PA
Jason B. Anari, MD, Philadelphia, PA
Gwo-Chin Lee, MD, Philadelphia, PA
Dual antibiotic prophylaxis with Cefazolin plus Vancomycin is an independent risk factor for AKI following primary TJA with no statistically significant improvement in surgical site infection.

5:18 PM  PAPER: 191
Activation of the Biofilm Persister Population: A Potential New Adjunct Therapy to Periprosthetic Joint Infection
Kenneth Urish, MD, PhD, Sewickley, PA
Peter W. Demuth, BS, Hummelstown, PA
Brian Kwan, BS, State College, PA
David W. Craft, PhD, Hershey, PA
Thomas Wood, PhD, University Park, PA
Hani Haider, PhD, Omaha, NE
Charles M. Davis III, MD, Hershey, PA
A persister population of biofilm remains on the surface of TKA components after extended antibiotic treatment and can be removed after activation of the persister population.
Tuesday, March 24

5:24 PM  PAPER: 192
Intrawound Vancomycin Powder Reduces Surgical Site Infections in Total Hip and Knee Arthroplasty
Jeffrey Otte, MD, Columbus, OH
Joel R. Politi, MD, Columbus, OH
Bryan Chambers, MD, Columbus, OH
Craig Smith, MD, Columbus, OH
Evidence has shown a reduction in surgical site infections (SSIs) using intrawound vancomycin powder. This study is the first to demonstrate a reduction in SSIs after total hip and knee arthroplasty.

Discussion – 6 Minutes

5:36 PM  PAPER: 193
Static Knee Spacers: Do They Yield Inferior Flexion Compared to Articulating Spacers?
Paul Lichstein, MD, Redwood City, CA
Sharlene Su, BS, Baltimore, MD
Hakan B. Hedlund, MD, Huddinge, Sweden
Gina Sub, MD, Stanford, CA
William J. Maloney III, MD, Redwood City, CA
Stuart B. Goodman, MD, Redwood City, CA
James I. Huddleston III, MD, Redwood City, CA
Our two-stage exchange protocol with static spacers yielded comparable flexion and cure rates when compared to historical controls using articulating spacers.

5:42 PM  PAPER: 194
Predictors of Staphylococcus Aureus Colonization and Results after Decolonization
Tenison Malcolm, BS, Orange, CA
Le D. Robinson, MD, Atlanta, GA
Carlos A. Higuera, MD, Bay Village, OH
Trevor G. Murray, MD, Avon Lake, OH
Mupirocin decolonization of Staphylococcus aureus did not reduce failure compared with chlorohexidine body wipes and standard preoperative antibiotics in 6966 total hip and knee arthroplasty patients.

5:48 PM  PAPER: 195
Research and Recommendations on the Diagnosis of PJI have Failed to Reach a Cross-section of Arthroplasty Surgeons
Carl A. Deirmengian, MD, Wynnewood, PA
William Ramsey, DO, Philadelphia, PA
Andrew Ebhame, DO, Philadelphia, PA
Eric Kim, DO, Philadelphia, PA
Erick Kazarian, BA, Ann Arbor, MI
Jenny Cai, Philadelphia, PA
Brett R. Levine, MD, Chicago, IL
Research and Recommendations on the Diagnosis of PJI have Failed to Reach a Cross-section of Arthroplasty Surgeons.

5:54 PM  PAPER: 917
Diabetes, Hemoglobin A1c, and Complications in Revision Hip and Knee Arthroplasty
Mathew J. Mazoch, MD, Little Rock, AR
Kasa Cooper, BS, Little Rock, AR
Marty K. Bushmaier, ANP, Little Rock, AR
C. Lowry Barnes, MD, Little Rock, AR
Diabetics undergoing revision arthroplasty have a higher risk of infections, extensor mechanism complications, arthrofibrosis, peri-prosthetic fractures, and rare events than non-diabetics.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room 3304
Trauma III: Upper Extremity
Moderator(s): Steven P. Haman, MD, Lima, OH

4:00 PM  PAPER: 196
Grade III Acromio-clavicular Joint Dislocation: Conservative Treatment Compared to Hook Plate Fixation
Stephane Pelet, MD, PhD, Quebec, QC, Canada
Luc Bedard, MD, Quebec, QC, Canada
Conservative treatment of acute grade III AC joint dislocations gives similar functional results with a faster rehabilitation and a lower complication rate than surgical management with hook plate.

4:06 PM  PAPER: 197
Intramedullary Versus Extramedullary Fixation of Clavicle Shaft Fractures: A One-Year Follow-up Study
Reginald P. King, MD, Melkbosstrand, South Africa
Ajmal Ikram, MD, Cape Town, South Africa
Robert Lamberts, PhD, Tygerberg, Cape Town, South Africa
Locked intramedullary fixation was found to give superior functional and cosmetic results 1 year post-operatively compared to extramedullary fixation in a randomized controlled trial.

4:12 PM  PAPER: 198
Vascular Thoracic Outlet Syndrome Following Clavicle and Adjacent Joint Trauma
Alexander Weber, MD, Ann Arbor, MI
Enrique Criado, MD, Ann Arbor, MI
The purpose of this study is to describe a case series of vascular TOS associated with clavicular malunion, clavicular nonunion, and sternoclavicular (SC) or acromioclavicular (AC) dislocations.

Discussion – 6 Minutes
Tuesday, March 24

4:24 PM  PAPER: 199
Narcotic Pain Medication Usage after Operative vs. Nonoperative Treatment of Proximal Humerus Fractures
Cory M. Stewart, MD, Chicago, IL
Harpreet Batea, MD, Chicago, IL
Lewis L. Shi, MD, Chicago, IL
Sandra Ham, Chicago, IL
Beatriz Choi, New York, NY
Douglas R. Dirschl, MD, Chicago, IL
Comparison between non-operative and operative treatment of proximal humerus fractures with regards to narcotic pain medication use, complications, and readmission rates.

4:30 PM  PAPER: 200
Effect of Chronic Heavy Smoking on Proximal Humerus Fractures
Waseem Jerjes, MBBS, PhD, London, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom
Chronic heavy smokers with proximal humerus fractures, requiring surgical fixation, are likely to suffer from delayed fracture union and poor wound healing.

4:36 PM  PAPER: 201
Novel Arthroplasty Strategies for Proximal Humeral Fracture/Dislocations
Sarah Henry, MD, Temple Terrace, FL
Ivan S. Tarkin, MD, Pittsburgh, PA
Daiji Kano, BS, Pittsburgh, PA
Dana J. Farrell, BS, Pittsburgh, PA
The best treatment for proximal humeral fracture/dislocations is not yet determined. RTSA improves functional outcomes compared to hemiarthroplasty but long term durability should be considered.

4:48 PM  PAPER: 202
Surgical Treatment of Diaphyseal Humeral Fracture in the Elderly
Nimrod Snir, MD, Zofit, Israel
Ron Batash, MD, Tel Aviv, Israel
Yani Warschauski, MD, Tel Aviv, Israel
Ely L. Steinberg, MD, Rishon LeZion, Israel
Surgical approach to a diaphyseal humeral fracture in elderly patients facilitates fast return to normal function and quality of life.

4:54 PM  PAPER: 203
Neuropathy Following Open Reduction Internal Fixation of Distal Humerus Fractures: Risk Factors and Outcomes
Stuart Goudie, MD, Edinburgh, United Kingdom
Andrew D. Duckworth, MSc, MB, Edinburgh, United Kingdom
David Gamble, MD, Glasgow, United Kingdom
Samuel Molyneux, FRCS (Ortho), MSc, Scotland, United Kingdom
A study of patients developing neuropathy after ORIF of distal humerus fractures demonstrating the association with high energy injuries and resulting significantly worse short and long-term outcomes.

5:00 PM  PAPER: 204
Initial Humerus Shaft Fracture Treatment Predicts Difficulty with Humerus Shaft Nonunion Surgery
Sanjit R. Konda, MD, Closter, NJ
Roy Davidovitch, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Development of humeral diaphyseal NUs following operative fixation is more resistant to achieving union when compared to those nonunions that originated after initial nonoperative treatment.

5:12 PM  PAPER: 205
Comminuted Olecranon Fractures: Biomechanical Testing of Locked Versus Minifragment Plate Fixation
David Wellman, MD, New York, NY
Scott M. Tucker, MS, BS, New York, NY
Josh R. Baxter, PhD, New York, NY
Nadine Pardee, BS, New York, NY
Lionel E. Lazaro, MD, New York, NY
Christopher S. Smith, MD, Virginia Beach, VA
Timothy M. Wright, PhD, New York, NY
Dean G. Lorich, MD, New York, NY
David L. Helfet, MD, New York, NY
Cyclic loading and 3-d motion capture techniques were used to test a comminuted olecranon cadaver model. No significant differences were detected between 3.5mm locking and 2.7mm minifragment plates.

5:18 PM  PAPER: 206
Olecranon Fractures: Is Nonoperative Treatment Appropriate in those Aged Over 75 Years?
Nimesh Patel, MRCS, MBBS, London, United Kingdom
Paul Birdsall, FRCS, Devon, United Kingdom
Timothy Batten, MRCS, Torquay, United Kingdom
Non-operative management of displaced olecranon fractures in the older patient population is an acceptable option and can result in a good level of function with low reported pain.

* 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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5:24 PM  PAPER: 207
Distribution of Coronoid Fracture Lines by Specific Patterns of Traumatic Elbow Instability
Jos Mellema, MD, Somerville, MA
Job N. Doornberg, MS, Amsterdam, Netherlands
George S. Dyer, MD, Boston, MA
David C. Ring, MD, Boston, MA

Our fracture maps and heat maps support the observation that specific patterns of traumatic elbow instability have correspondingly specific coronoid fracture patterns.

Discussion – 6 Minutes

5:36 PM  PAPER: 208
Pronator Quadratus Sparing Approach for Volar Plating of Distal Radius Fractures
Minoo K. Patel, MD, Richmond, Australia

The Pronator Quadratus sparing approach for volar distal radius plating minimizes flexor tendon injury.

5:42 PM  PAPER: 209
Flouroscopic Radiation Exposure: Are We Protecting Ourselves Adequately?
Charles E. Hoffler II, MD, Miami, FL
Asif M. Ilyas, MD, Wayne, PA

In this model, it was found that surgeons’ hands receive the most radiation exposure. Eyes are also exposed, but less. Thyroid, chest and groin exposure is minimal, although most routinely protected.

5:48 PM  PAPER: 210
The Role of Depression in Outcomes in Patients Over 55 with Isolated Distal Radius Fractures
Jane Yeoh, MD, Vancouver, BC, Canada
Jeffrey Pike, MD, Vancouver, BC, Canada
Peter J. O’Brien, MD, FRCSC, Vancouver, BC, Canada
Henry M. Broekhuysen, MD, Vancouver, BC, Canada
Kelly A. Lefaivre, MD, Vancouver, BC, Canada

This study describes the effect of depression on functional outcome, complications, and the occurrence of complex regional pain syndrome in patients over 55 with isolated distal radius fractures.

Discussion – 6 Minutes

4:00 PM — 6:00 PM
Room 3105

Spine II: Adult Deformity
Moderator(s): Norman B. Chutkan, MD, Agusta, GA
Patrick J. Cahill, MD, Philadelphia, PA

4:00 PM  PAPER: 211
Demands on S2AI Sacral and Pelvic Instrumentation in Long Fusions with and without Interbody Supplementation
Robert S. Bess, MD, Castle Rock, CO
William Camisa, MS, San Francisco, CA
Jeremi M. Leasure, MS, San Francisco, CA
Seong Yi, MD, PhD, Palo Alto, CA
Douglas C. Burton, MD, Kansas City, KS
Khaled M. Kebaish, MD, Baltimore, MD
Christopher Ames, MD, San Francisco, CA

The goal of our study is to investigate the demands on iliac and S2AI screws during range of motion.

4:06 PM  PAPER: 212
Prognosis of Significant Intraoperative Neurophysiologic Monitoring Events in Severe Spinal Deformity Surgery
Benjamin Bjerke-Kroll, MD, New York, NY
Daniel Zuchelli, BS, Sag Harbor, NY
Venu Nemani, MD, PhD, New York, NY
Ronald Emerson, MD, New York, NY
Oheneba Boachie-Adjei, MD, New York, NY

Intraoperative neurophysiologic monitoring has become a standard tool during spinal deformity surgery. This study correlates neuromonitoring events with neurologic injury and prognosis.

4:12 PM  PAPER: 213
Long-term Cost-effectiveness of Adult Spinal Deformity (ASD) Surgery
Ian McCarthy, PhD, Plano, TX
Michael F. O’Brien, MD, Plano, TX
Richard A. Hostin, MD, Plano, TX
Chessie Robinson, MA, Plano, TX

The analysis simulates costs and outcomes for surgical and nonsurgical treatment of ASD to estimate incremental cost-effectiveness ratios after 10 and 20 year follow-up.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Tuesday, March 24

4:24 PM  
**PAPER: 214**

**Sex-life and the Impact of Operative Intervention for Degenerative Spinal Conditions: An Analysis of the SPORT Study**

Patrick Horst, MD, San Francisco, CA  
Linda Racine, San Francisco, CA  
Alexander Theologis, MD, San Francisco, CA  
Wenyuan Zhao, PhD, Hanover, NH  
Jonathan Lurie, MD, Lebanon, NH  
Shane Burch, MD, San Anselmo, CA

Sex-life is an important consideration for patients with degenerative spine conditions. Operative intervention improves pain related to sex-life more than non-operative treatment.

4:30 PM  
**PAPER: 215**

**Global Sagittal Angle (GSA): A Novel Parameter to Address Sagittal Alignment and Compensatory Mechanisms in the Body**

Bassel G. Diebo, MD, New York City, NY  
Shian Liu, BS, New York, NY  
Renaud Lafage  
Vincent Chiollier, MD, New York City, NY  
Emmanuelle Ferrero, Franconville, France  
Themistocles S. Protopsaltis, MD, New York, NY  
Thomas J. Errico, MD, New York, NY  
Frank J. Schwab, PhD, New York, NY  
Virginie Lafage, PhD, New York, NY

The Global Sagittal Angle (GSA) is a novel, clinically relevant angle which accounts for spinal deformity, spino-pelvic and lower extremity compensatory mechanisms is possible.

4:36 PM  
**PAPER: 216**

**SRS-22R Minimum Clinically Important Difference After Adult Spinal Deformity Surgery**

Charles H. Crawford III, MD, Louisville, KY  
Steven D. Glassman, MD, Louisville, KY  
Keith H. Bridwell, MD, Saint Louis, MO  
Sigurd H. Berven, MD, San Francisco, CA  
Leah Y. Carreon, MD, Louisville, KY

SRS22R MCID was 0.46-1.23 for Appearance, 0.24-0.60 for Activity, 0.34-0.79 for Pain, and 0.47-0.71 for Total in patients undergoing surgical correction of adult spinal deformity.

4:48 PM  
**PAPER: 217**

**Outcomes of Operative and Nonoperative Treatment for Adult Spinal Deformity (ASD)**

Justin S. Smith, MD, Charlottesville, VA  
Virgirne Lafage, PhD, New York, NY  
Christopher I. Shaffrey, MD, Charlottesville, VA  
Frank J. Schwab, MD, New York, NY  
Justin Scheer, BS, Chicago, IL  
Vedat Deviren, MD, San Francisco, CA  
Robert A. Hart, MD, Portland, OR  
Robert S. Bess, MD, Castle Rock, CO  
Christopher Ames, MD, San Francisco, CA

At min 2-yr follow-up, op patients demonstrated significant improvement in health-related quality of life measures whereas nonop treatment appears to maintain presenting levels of pain and disability.

4:54 PM  
**PAPER: 218**

**Proximal Junctional Failure in Patients with Preoperative Sagittal Imbalance**

Micah Smith, MD, Fort Wayne, IN  
Prokopis Annis, MD, Salt Lake City, UT  
Brandon D. Lawrence, MD, Salt Lake Cty, UT  
Michael D. Daubs, MD, Las Vegas, NV  
Darrel S. Brodke, MD, Salt Lake City, UT

Acute proximal junctional failure is more common in patients with pre-operative sagittal imbalance (35%) than the general adult deformity population, and 37% of those with APJF require revision.

5:00 PM  
**PAPER: 219**

**Revision Rate in Adult Spinal Deformity Surgery**

Steven D. Glassman, MD, Louisville, KY  
Leah Y. Carreon, MD, Louisville, KY  
John R. Dimar II, MD, Louisville, KY

Analysis of national insurance claims databases showed that the cumulative revision rate after adult deformity surgery was 18% at 4 years postop, tending to occur earlier in younger patients.

Discussion – 6 Minutes
Tuesday, March 24

5:12 PM

PAPER: 220

Postoperative Blood Salvage and Autotransfusion for Adult Spinal Deformity: A Randomized Controlled Trial
Venu Nemani, MD, PhD, New York, NY
Han Jo Kim, MD, New York, NY
Curtis Mina, MD, Louisville, KY
Benjamin Bjerke-Kroll, MD, New York, NY
Peter Derman, MD, New York, NY
Thomas Ross, RN, New York, NY
Matthew E. Cunningham, MD, PhD, New York, NY
Obeneba Boachie-Adjei, MD, New York, NY

Use of post-op blood salvage and autotransfusion vs. standard closed suction drainage resulted in higher hemoglobin levels, but did not significantly affect the rate of homologous blood transfusion.

5:18 PM

PAPER: 221

Incremental Cost-effectiveness of Adult Spinal Deformity Surgery by Classification of Deformity
Chessie Robinson, MA, Plano, TX
Richard A. Hostin, MD, Plano, TX
Michael F. O’Brien, MD, Plano, TX
Ian McCarthy, PhD, Plano, TX

We estimate the cost effectiveness of surgical treatment for Adult Spinal Deformity (ASD) among surgical and nonsurgical patients with similar Schwab classifications.

5:24 PM

PAPER: 222

Adverse Events Have Limited Impact on Clinical Outcome following Surgery for Adult Spinal Deformity
D. Kojo Hamilton, Portland, OR
Jayme Hiratzka, MPH, Lake Oswego, OR
Shannon Hiratzka, MPH, Lake Oswego, OR
Justin S. Smith, MD, Charlottesville, VA
Robert S. Bess, MD, Castle Rock, CO
Virginia Lafage, PhD, New York, NY
Frank J. Schwab, MD, New York, NY
Robert A. Hart, MD, Portland, OR
International Spine Study Group, Brighton, CO

After fusion for adult deformity the presence of a major complication was not associated with differences in change from baseline of HRQL scores; patient satisfaction was not affected by complications.

5:36 PM

PAPER: 223

Risk Factors of Proximal Junctional Kyphosis in Adolescent Idiopathic Scoliosis - Pelvis and Other Considerations
Baron Lonner, MD, New York, NY
Yuan Ren, PhD, MS, New York, NY
Peter O. Newton, MD, San Diego, CA
Suken A. Shah, MD, Wilmington, DE
Amer Samdani, MD, Philadelphia, PA
Harry L. Shufflebarger, MD, Miami, FL
Paul D. Sponseller, MD, Baltimore, MD
Randal R. Betz, MD, Lawrenceville, NJ
Burt Yasay, MD, San Diego, CA

Independent risk factors for PJK development for all curve types included loss of kyphosis, post-op lordosis-PI mismatch, UIV caudal to CEV (except for Lenke 5), and increased rod contour angle.

5:42 PM

PAPER: 224

Does Planned Staging for Vertebral Column Resections Increase Perioperative Complications?
Jeffrey Gum, MD, Louisville, KY
Lawrence G. Lenke, MD, Saint Louis, MO
Keith H. Bridwell, MD, Saint Louis, MO
Johnny Zhao, Saint Louis, MO
David B. Bumpass, MD, Saint Louis, MO
Patrick A. Sugrue, MD, St Louis, MO
Isaac O. Karikari, MD, Durham, NC
Leah Y. Carreon, MD, Louisville, KY

In a consecutive series of 183 VCRs, propensity-matching and binary logistic regression analysis demonstrate that staging does not lead to increased complications.

5:48 PM

PAPER: 225

Efficiency in Adult Spinal Deformity (ASD) Surgery:
A Multi-Center Comparison of Resource Use
Ian McCarthy, PhD, Plano, TX
Michael F. O’Brien, MD, Plano, TX
Richard A. Hostin, MD, Plano, TX
Chessie Robinson, MA, Plano, TX

This study examines multi-center variability in surgical resource use and health-related quality-of-life outcomes for spine deformity surgery.
SYMPOSIUM
8:00 AM — 10:00 AM
Venetian Ballroom E

It’s 2015 – Can We Answer Any Controversies in Shoulder Surgery Yet? (H)
Moderator: William N. Levine, MD, New York, NY

This symposium highlights commonly encountered pathologies that most orthopaedic surgeons managing shoulder problems face on a daily basis. Designed for both the novice and the experienced surgeon, it provides practical pearls and pitfalls from an internationally recognized “Who’s Who” of shoulder surgery. The casebased format is an outstanding method to engage the audience in an entertaining yet educational manner. Very short lectures are delivered to introduce the topic but the majority of the symposium focuses on real-life case presentations to allow the audience participants to share in the decision-making processes of the esteemed faculty.

I. Biceps Tendon: Just Cut It!
Pascal Boileau, MD, Nice, France

II. Tenodesis - Supra, Sub Where Should I Put It?
Anthony A. Romeo, MD, Chicago, IL

III. Forget the Labrum - Use Bone!
Thomas B. Edwards, MD, Houston, TX

IV. Double Row Labral Repair: Here’s How to Do It
Christopher S. Ahmad, MD, New York, NY

V. Percutaneous Pinning - I Can Make it Work for You Too
Leesa M. Galatz, MD, Saint Louis, MO

VI. Plates, Pins, and Sutures How do I Decide?
Guido Marra, MD, Chicago, IL

VII. Cuff Repairs - Can We Really Get Them to Heal? Yes, with Biologic Augmentation
Ashish Bedi, MD, Ann Arbor, MI

VIII. Cuff Repairs - Can We Get Them to Heal? No!
Ken Yamaguchi, MD, Saint Louis, MO

IX. Does Putting Plastic in Really Make Arthroplasty Better?
Evan L. Flatou, MD, New York NY

X. Reverse for 4-Part Fractures - Should We Worry About Those 10 Year Declining Outcomes?
Gilles Walch, MD, Lyon, France

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Wednesday, March 25

VIII. Adolescent Clavicle Fractures
John D. Polousky, MD, Greenwood Village, CO

IX. Patellar Instability
Jennifer M. Weiss, MD, Los Angeles, CA

X. Tibial Spine Fractures
Michael T. Busch, MD, Atlanta, GA

XI. Patellar Instability
Lawrence Wells, MD, Philadelphia, PA

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 9:00 AM

201  The Failed Pilon Fracture
Moderator: S. Robert Rozbruch, MD, New York, NY
Austin T. Fragomen, MD, New York, NY
Joseph R. Hsu, MD, Charlotte, NC
David S. Levine, MD, Bedford, NY

This course addresses the failed pilon fracture. Speakers discuss strategies during acute management for preventing failure, treatment with joint preservation and realignment, and treatment with ankle fusion reconstruction for infections and bone loss.

Room 3201

202  Distal Radius Fractures: From Pediatrics to Geriatrics
Moderator: A. Lee Osterman, MD, Villanova, PA
Joshua M. Abzug, MD, Timonium, MD
Jose A. Rodriguez, MD, New York, NY

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.

Room 4101

8:00 AM — 10:00 AM

203  Let’s Do a Direct Anterior Hip Replacement
Moderator: William J. Hozack, MD, Philadelphia, PA
Kristoff Corten, MD, PhD, Genk, Belgium
Michael Leunig, PhD, Zurich, Switzerland
Jese A. Rodriguez, MD, New York, NY

This is a video-based program 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.

Room 4105

204  Office Pediatric Orthopaedics for the General Orthopaedic Surgeon: Staying Current, Avoiding Mistakes
Moderator: Bernard D. Horn, MD, Philadelphia, PA
Martin J. Herman, MD, Philadelphia, PA
Richard W. Kruse, DO, Wilmington, DE
Todd A. Milbrandt, MD, Rochester, MN

This course, geared toward the generalist, introduces current concepts for managing common pediatric orthopaedic problems that are seen in the office. The faculty discusses preferred treatment strategies, avoiding mistakes, and managing complications.

Room 3101

205  The Difficult Primary Total Knee Arthroplasty
Moderator: Arthur L. Malkani, MD, Louisville, KY
Kirby Hitt, MD, Temple, TX
Courtland G. Lewis, MD, Farmington, CT
Michael A. Mont, MD, Baltimore, MD

Identify and plan for the difficult primary total knee arthroplasty in patients with deformity, bone loss, post traumatic arthritis, muscular, ligamentous, neurologic compromise, and complex medical problems.

Room 3101

206  Evolving Healthcare Delivery and Payment Systems: Attempts to Visualize into the “Crystal Ball”
Moderator: Kevin J. Bozic, MD, MBA, San Francisco, CA
Paul J. Duvelius, MD, Portland, OR
Michael Suk, MD, Danville, PA
Joseph Tomaro, PhD, Canonsburg, PA

This course provides orthopaedic surgeons with the basic tools necessary to evaluate options for participation in accountable care organizations (ACO) and bundled payments and forecasts implications of these trends on the US healthcare system.

Room 4101

An alphabetical faculty financial disclosure list can be found starting on page 332.
Wednesday, March 25

207 Life After Orthopaedics: Five Years or Less, Then What?
Moderator: Dempsey S. Springer, MD, Palm Coast, FL
Joseph S. Barr Jr, MD, Boston, MA
Cynthia K. Hinds, CLU, Lakewood, CO
Michael McCaslin, CPA, Indianapolis, IN

This course is for orthopaedic surgeons (and their spouses) who plan to practice full time for five years or less. It addresses the issues that must be solved between now and leaving full time practice. There is not much time to prepare but with the advice offered in this course, the psychological and financial transition can be successfully made. No CME credit.

208 The Unstable Elbow: Current Concepts in Diagnosis and Treatment
Moderator: Robert Z. Tashjian, MD, Salt Lake City, UT
Scott P. Steinmann, MD, Rochester, MN
Roger P. van Riet, MD, Wilrijk, Belgium
Brian R. Wolf, MD, Iowa City, IA

The evaluation and treatment of ulnar collateral ligament (UCL) insufficiency, posterolateral rotatory instability (PLRI), and complex elbow instability (posterosmedial varus rotatory instability (PMRI), terrible triads, transolecranon fracture dislocations, posterior Monteggia fracture-dislocations) are reviewed.

209 Infected Shoulder Arthroplasty: Diagnostic Dilemmas, Treatment Challenges and Current Controversies
Moderator: Surena J. Namdari, MD, MSc, Philadelphia, PA
Mark A. Franklin, MD, Temple Terrace, FL
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Frederick A. Matsen III, MD, Seattle, WA

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.

210 MRI-Arthroscopy Correlations of the Knee and Shoulder: A Case-Based Approach
Moderator: Stephen E. Brockmeier, MD, Charlotteville, VA
Steven B. Cohen, MD, Media, PA
Winston Guathney, MD, Charlottsville, VA
Darren Johnson, MD, Lexington, KY
Robert G. Marx, MD, New York, NY
Eric McCarty, MD, Boulder, CO
Mark Miller, MD, Charlottsville, VA
Michael J. O’Brien, MD, New Orleans, LA
Frank Petrigliano, 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.

211 Current Plating Techniques and Definitive Treatment Options for Fractures of the Tibial Plafond and Treatment of the Late and Failed Pilon
Moderator: Anthony S. Rhorer, MD, Scottsdale, AZ
Michael T. Archdeacon, MD, Cincinnati, OH
Gilbert R. Ort, MD, MPH, Scottsdale, AZ

This course is on staged treatment of tibial pilon 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.

212 Fractures of the Proximal Femur: A Case-Based Approach
Moderator: Kenneth A. Ego, MD, New York, NY
Roy Davidson, MD, New York, NY
Mark S. Vrba, MD, Boston, MA

This case-based course focuses on the management of femoral neck and pertrochanteric fracture. Attention is given to surgical tips and tricks.

FD13 Selection, Implementation, and Interpretation of Patient-Centered Orthopaedic Outcomes
Moderator: Richard J. Hawkins, MD, Greenville, SC
John E. Kuhn, MD, Nashville, TN
Robert B. Litchfield, MD, London, ON, Canada
Nick G. Mohtad, MD, Calgary, AB, Canada

This course covers model strategies for tool selection, implementation, and interpretation to optimize musculoskeletal patient care and practice sustainability.

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

Newly revised and updated, 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.

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Wednesday, March 25

PAPER PRESENTATION

8:00 AM — 10:00 AM
Venetian Ballroom B

Adult Reconstruction Knee III: Primary TKA
Moderator(s): David A. Fisher, MD, Indianapolis, IN
                  Phillip F. Ludkowski, MD, Arlington Heights, IL

8:00 AM
Long-term Clinical Outcome and Survivorship of PFC Sigma
Fixed-and Mobile-bearing TKAs in the Same Patients
Young-Hoo Kim, MD, Seoul, Republic of Korea
      Jangwon Park, MD, Seoul, Republic of Korea
      Jun S. Kim, MD, Seoul, Republic of Korea
      Yoon-Hong Kim, MD, Gwangju
B: PAPER: 226
PFC Sigma mobile-and fixed-bearing TKA achieved excellent
results in 444 patients (888 knees), but no difference in outcome
between 2 groups.

8:06 AM
Rotating Platform Posterior Stabilized Total Knee Arthroplasty:
Long-term Outcomes
John R. Martin, MD, Rochester, MN
      Matthew Houdek, MD, Rochester, MN
      Eric R. Wagner, MD, Rochester, MN
      Robert T. Trousdale, MD, Rochester, MN
B: PAPER: 227
Rotating platform posterior stabilized total knee arthroplasty has
not outperformed standard fixed bearing total knee arthroplasty
at ten years.

8:12 AM
All Polyethylene Tibias: A Survival and Infection Analysis
Compared to Metal-backed Tibias
Matthew Houdek, MD, Rochester, MN
      Eric R. Wagner, MD, Rochester, MN
      Clint J. Wooten, MD, Rochester, MN
      Cody Wyles, BS, Rochester, MN
      John R. Martin, MD, Rochester, MN
      Robert T. Trousdale, MD, Rochester, MN
      Joseph R. Cass, MD, Rochester, MN
B: PAPER: 228
All-polyethylene tibias had significantly improved survival, as
well as reduced rates of postoperative infection, fracture and
tibial component failure compared to metal backed tibias.

8:24 AM
Increased Non-stemmed Tibial Failures in Patients with a BMI ≥ 35 Undergoing Total Knee Arthroplasty
George F. Bonadurer III, BS, Rochester, MN
      Matthew P. Abdel, MD, Rochester, MN
      Arlen D. Hanssen, MD, Rochester, MN
B: PAPER: 229
Risk for revision TKA due to aseptic tibial component failure
is 2X greater in those with a BMI of ≥ 35 kg/m2; consideration
should be given to additional fixation with a short cemented stem.

8:30 AM
Ten-year Comparison of Oxidized Zirconium and Cobalt-Chromium Femoral Components in Total Knee Arthroplasty
Justin P. Roe, MD, Sydney, Australia
      Mihai H. Vioreanu, MD, Sydney, Australia
      Lucy J. Salmon, PhD, Sydney, Australia
      Alison Waller, BAppSci, Sydney, Australia
      Leo A. Pinczewski, FRACS, Wollstonecraft, Australia
B: PAPER: 230
Ten-year outcomes of total knee arthroplasty with oxidized
zirconium and cobalt-chromium femoral components showed
no significant differences in clinical, subjective, and radiographic outcomes.

8:36 AM
Fifteen-year Results of Total Knee Arthroplasties after a Tibial Plateau Fracture
Matthew P. Abdel, MD, Rochester, MN
      Philipp Von Roth, MD, Berlin, Germany
      William W. Cross III, MD, Rochester, MN
      Daniel J. Berry, MD, Rochester, MN
      Robert T. Trousdale, MD, Rochester, MN
      David G. Lewallen, MD, Rochester, MN
B: PAPER: 231
The 15 year results of TKA for a tibial plateau fracture
reveal excellent clinical outcomes, radiographic results, and
survivorship, but an increased risk of early perioperative complications.

8:48 AM
Inpatient Mortality and Morbidity for Transplant Patients Undergoing a Primary Total Knee Arthroplasty
Karthikeyan E. Ponnusamy, MD, Baltimore, MD
      Amit Jain, MD, Baltimore, MD
      Savyasachi C. Thakkar, MD, Baltimore, MD
      Richard L. Skolasky Jr, ScD, Baltimore, MD
      Harpal S. Khamuia, MD, Cockeysville, MD
B: PAPER: 232
Transplant patients undergoing a primary knee arthroplasty had
no mortality difference, but had longer hospitalizations with
more complications.
Wednesday, March 25

8:54 AM PAPER: 233
Total Joint Arthroplasty in Patients with Chronic Renal Disease: Is It Worth the Risk?
Andrew J. Pugely, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
Nicolas O. Noisieux, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

In 74,300 patients undergoing Total Joint Arthroplasty, the risk of short-term morbidity increased dramatically with worsening kidney disease.

9:00 AM PAPER: 234
Prior Patella Fracture Has No Effect on Long-term Survivorship of Total Knee Arthroplasty
Matthew Houdek, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Steven F. Shannon, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Stephen A. Sems, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

Patients undergoing TKA following a patella fracture have similar implant survival compared to those with OA. However they have increased rates of complications related to motion and patella loosening.

Discussion – 6 Minutes

9:12 AM PAPER: 235
Is Selective Patellar Resurfacing an Acceptable Practice in Patients Undergoing Primary Total Knee Arthroplasty?
Omar Haque, Rochester, MN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Walter K. Kremers, PhD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
David G. Leuallen, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

This research suggests that selective patellar resurfacing provides similar complication and revision rates when compared to routine resurfacing if a patella-friendly femoral component is used.

9:18 AM PAPER: 236
Influence of Component Alignment on Clinical Outcome after Total Knee Arthroplasty in Varus Knees
Thomas Luyckx, MD, Bertem, Belgium
Fabrizio Matassi, MD, Firenze, Italy
Luc Vanlommel, MD, Pellenberg, Belgium
Johan Bellemans, MD, Langdorp, Belgium

In patients with pre-operative varus osteo-arthritis of the knee, a slight undercorrection of the alignment resulted in a better clinical outcome after TKA.

9:24 AM PAPER: 237
To Cement or Not? A Prospective, Randomized Study Comparing Cemented vs. Cementless Total Knee Arthroplasty
Kevin B. Fricka, MD, Alexandria, VA
Craig J. McAssey, MD, Maywood, IL
Supatra Sritulanondha, MPH, Alexandria, VA

Comparable outcomes and survivorship between cemented and cementless total knee arthroplasty (TKA) at 2 years follow up were demonstrated by this prospective, randomized clinical study.

Discussion – 6 Minutes

9:36 AM PAPER: 238
Is Synovectomy Necessary in Total Knee Arthroplasty with Severe Chondrocalcinosis?
Philippe Hernigou, PhD, Creteil, France
Alexandre Poignard, MD, Creteil, France

Knees with severe chondrocalcinosis and with complete synovectomy had lower knee flexion and inferior KS pain scores, and more complications as compared with contralateral knees without synovectomy

9:42 AM PAPER: 239
New Total Knee Arthroplasty Designs: Do Young Patients Notice?
Ryan Nunley, MD, Saint Louis, MO
Denis Nam, MD, Saint Louis, MO
Keith R. Berend, MD, New Albany, OH
Adolph V. Lombardi Jr, MD, New Albany, OH
Douglas A. Dennis, MD, Denver, CO
Craig J. Della Valle, MD, Chicago, IL
Robert L. Barrack, MD, Saint Louis, MO

When interviewed by an independent, blinded third party, the use of newer implant designs did not improve patient satisfaction compared with patients who received a traditional, CR design.

9:48 AM PAPER: 240
Does Patient Satisfaction Change Over Time Following Total Knee Replacement?
Odei Shannak, MB BS, Leicester, United Kingdom
Jeya Palan, MD, Market Harborough, United Kingdom
Colin Esler, MD, FRCS, Leicester, United Kingdom

Patient satisfaction improves over time at a mean follow up of 9 years following a primary total knee replacement.

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.
EDUCATIONAL PROGRAMS 105

Wednesday, March 25

PAPER PRESENTATION

8:00 AM — 10:00 AM

Venetian Ballroom D

Sports Medicine/Arthroscopy II: Knee 1
Moderator(s): Rick W. Wright, MD, Saint Louis, MO
Thomas J. Gill, MD, Dedham, MA

8:00 AM

Efficacy of Intravenous Ibuprofen for Pain Control Following Arthroscopic Knee Surgery: A Pilot Study
David C. Flanigan, MD, Columbus, OH
Christopher C. Kaeding, MD, Columbus, OH
Alberto Uribe, MD, Columbus, OH
John Norton, DO, Columbus, OH
Charles Hamilton, MD, Columbus, OH
Andrew Roth, MD, Columbus, OH
Sergio Arbona, MD, Columbus, OH
Peter DeSocio, MD, Columbus, OH

This study showed that patients that received ibuprofen compared to those that received ketorolac reported significantly less pain and required less narcotic in the 24 hours following surgery.

8:06 AM

A Biomechanical Analysis of Tibial ACL Reconstruction in the Case of Graft Length Mismatch
Diana G. Lau, MD, Laguna Niguel, CA
Qais Naziri, MD, Brooklyn, NY
Westley Hayes, MS, Brooklyn, NY
Robert Pivec, MD, Brooklyn, NY
William P. Urban, MD, Brooklyn, NY

Direct screw fixation offers the strongest construct in comparison to the use of sutures tied over a post, bone staples, and soft tissue conversion with interference screw.

8:12 AM

Adipose Derived Mesenchymal Stem Cell with Microfracture versus Microfracture Alone
Yun-Jin Choi, Seoul, Republic of Korea
Yong-Gon Koh, Seoul, Republic of Korea
Yong Sang Kim, MD, Seoul, Republic of Korea

The treatment of symptomatic cartilage knee defects using ADSC and MFX treatment was clinically and statistically significantly better than with MFX alone.

8:24 AM

The Outcome of Outerbridge II Articular Cartilage Defects of the Knee: A Natural History Study
Koushik Ghosh, MBBS, Surrey, United Kingdom
Syed Nawaz, MRCS, Surrey, United Kingdom
Jono Quayle, BSC, Ascot, United Kingdom
Roozbeh Shafafy, MBBS MRCS, Guildford, United Kingdom
Mark Williamson, Prumley, United Kingdom
Hugh R. Chissell, MD, Farnham, Surrey, United Kingdom

We prospectively reviewed 357 patients with symptomatic grade 2 chondral defects. The average follow-up was 10 years. The overall intervention rate for all patients was 27%.

8:30 AM

Comparison of Post-operative Meniscal Tears in the ACL Reconstructed Knee and the Contralateral Knee
Brent R. Davis, MD, Irvine, CA
Jason Chen, MA, San Diego, CA
Maria C. Inacio, PhD, San Diego, CA
Rebecca Love, BSN, RN, San Diego, CA
Gregory B. Maletis, MD, Baldwin Park, CA

Subsequent meniscal surgery is more common in an ACL reconstructed knee than in the contra-lateral knee. Post-operative meniscal surgery was less likely with BPTB autograft than with other graft types.

8:36 AM

Revision Risk After Allograft Anterior Cruciate Ligament Reconstruction: Graft and Patient Associations
Sam G. Tejwani, MD, Corona Del Mar, CA
Jason Chen, MA, San Diego, CA
Tadashi T. Funahashi, MD, Irvine, CA
Rebecca Love, BSN, RN, San Diego, CA
Maria C. Inacio, PhD, San Diego, CA
Gregory B. Maletis, MD, Baldwin Park, CA

Graft irradiation over 1.8 Mrad, BioCleanse processing, younger patient age and BPTB allograft were associated with higher risk of revision after allograft anterior cruciate ligament reconstruction.

8:48 AM

Medial Femoral Condyle Cartilage Defect Biomechanics: Effect of Obesity, Defect Size, and Cartilage Thickness
Kyle W. Lacy, MD, Ferndale, MI
Allison M. Cracchiolo, BS, Madison Heights, MI
Stephen Yu, MD, Garden City, MI
Henry T. Goitz, MD, Warren, MI

Medial femoral condyle cartilage defects showed greater force transmission at the defect base, and decreased containment for loads of BMI ≥ 30, defect size ≥ 2 cm², and cartilage thicknesses < 2 mm.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Wednesday, March 25

8:54 AM  PAPER: 248
Intra-articular PRP vs. Hyaluronic Acid to Treat Degenerative Knee Pathology: A Randomized Controlled Trial
Giuseppe Filardo, MD, Bologna, Italy
Elizaveta Kon, MD, Bologna, Italy
Berardo Di Matteo, MD, Bologna, Italy
Francesca De Caro, Parma, Italy
Alessandro Di Martino, MD, Bologna, Italy
Maria Letizia Merli, MD, Bologna, Italy
Maurilio Marcacci, MD, Bologna, Italy

Present study revealed that PRP was not able to provide superior clinical outcome with respect to HA at 12 months follow-up evaluation in the treatment of knee chondropathy/osteoarthritis.

9:00 AM  PAPER: 249
The Fate of Meniscus Tears Left Untreated at the Time of ACL Reconstruction: A Prospective Six-year Follow-up Study
Kyle Duchman, MD, Iowa City, IA
Robert W. Westermann, MD, Iowa City, IA
Kurt P. Spindler, MD, Garfield Heights, OH
Annunziato Amendola, MD, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA

Lateral and medial meniscus tears left untreated at the time of ACL reconstruction were clinically successful at minimum 6-year follow-up in 95.7% and 82.4% of patients, respectively.

9:12 AM  PAPER: 250
Combined ACL/MPFL Tears in Pediatric and Adolescent Patients Rarely Lead to Recurrent Patellar Instability
Tianyi D. Luo, MD, Rochester, MN
Amy L. McIntosh, MD, Dallas, TX
Mark Collins, Rochester, MN
Diane L. Dahm, MD, Rochester, MN

Adolescent patients with combined ACL/MPFL injuries rarely undergo MPFL reconstruction and does not show recurrent patellar instability.

9:18 AM  PAPER: 251
Femoral Nerve Block Use in Adolescent Anterior Cruciate Ligament Reconstruction Leads to Slower Return to Sports
Tianyi D. Luo, MD, Rochester, MN
Ali Ashraf, MD, Lubbock, TX
Diane L. Dahm, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Amy L. McIntosh, MD, Dallas, TX

Pediatric patients who did not receive a femoral nerve block with ACL reconstruction were 4 to 6 times more likely to be cleared for return to sports at 6 months postoperatively.

9:24 AM  PAPER: 252
Long-Term Follow Up of Meniscal Allograft Transplantation
Catherine Van Der Straeten, MD, Ghent, Belgium
Jan M. Victor, MD, GENT, Belgium

Long-term survivorship of meniscal allograft transplantation was 13.8% at 24 years. Age >30 years and cartilage Outerbridge grade >III had significantly worse outcomes.

9:24 AM  PAPER: 253
Long Term Follow Up of Pediatric ACL Reconstruction in New York State: High Rates of Subsequent ACL Reconstruction
Emily Dodwell, MD, New York, NY
Moira M. McCarthy, MD, New York, NY
Ting-Jung Pan, MPH, New York, NY
Daniel W. Green, MD, New York, NY
Stephen Lyman, PhD, New York, NY

This study is the first to evaluate the rate of revision ACL and return to the OR in the pediatric population. The revision rate for ACL reconstructions in pediatric patients is 8.2%.

9:42 AM  PAPER: 254
Posterior Cruciate Ligament with Posterior Meniscofemoral Ligament Reconstruction Improves Knee Stability
Melissa Bickett, MD, Akron, OH
Uche Osadebe, MD, Jersey City, NJ
George R. Malik, BS, Houston, TX
Ardavan A. Saadat, Houston, TX
Sabir Ismaily, Houston, TX
Philip C. Noble, PhD, Houston, TX
Walter R. Lowe, MD, Houston, TX

When considering doing PCLR, the addition of pMFL reconstruction improves posterior knee stability. Reconstruction of pMFL may be applicable in all patients and not just those with PCL/pMFL rupture.

9:48 AM  PAPER: 255
Comparative Outcomes after Reconstruction of Posterolateral Corner Injuries in Multiligament Knee Injuries
Brian C. Werner, MD, Charlottesville, VA
Sean T. Higgins, Charlottesville, VA
F. Winston Gwathmey, MD, Charlottesville, VA
Mark D. Miller, MD, Charlottesville, VA

Reconstruction of the posterolateral corner in multiligament knee injuries, in addition to primary repair of injured structures, provides a reliable method to achieve reasonable clinical outcomes.
Wednesday, March 25

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room 3304

Foot and Ankle I: Arthritis, Arthrodesis, Arthroplasty 1
Moderator(s): Michael S. Aronou, MD, West Hartford, CT
Sandra E. Klein, MD, Saint Louis, MO

8:00 AM
PAPER: 256
Abnormalities of Gait Caused by Ankle Arthritis are Improved by Ankle Arthrodesis
Shay A. Tenenbaum, MD, Herzliya, Israel
Jason T. Bariteau, MD, Atlanta, GA
Scott Coleman, MS, MBA, Dallas, TX
James W. Brodsky, MD, Dallas, TX

In patients with end-stage ankle arthritis, ankle arthrodesis improves function as measured by gait analysis. Following arthrodesis there was no significant difference in total sagittal plane motion.

8:06 AM
PAPER: 257
Gait Analysis of Total Ankle Arthroplasty in Geriatric Patients
Jason T. Bariteau, MD, Atlanta, GA
Shay A. Tenenbaum, MD, Herzliya, Israel
Scott Coleman, MS, MBA, Dallas, TX
James W. Brodsky, MD, Dallas, TX

In this comparative gait analysis study, patients over the age of 70 demonstrated equivalent gait parameters to patients aged 50-60 following ankle arthroplasty.

8:12 AM
PAPER: 258
Gait and Balance in Total Ankle Arthroplasty versus Ankle Arthrodesis at 12 to 36 Months after Surgery
Brandon King, MD, Ypsilanti, MI
Todd A. Irwin, MD, Ann Arbor, MI
James Wrobel, DPM, Ann Arbor, MI
James R. Holmes, MD, Ann Arbor, MI
Markus Byron, BS, Brighton, MI

This is a single center study comparing objective gait and balance variables in patients who were 12 to 36 months post-op from an ankle arthroplasty versus fusion.

8:24 AM
PAPER: 259
Effect of a Supramalleolar Osteotomy in a Novel Asymmetric Ankle Arthritis Model
Jack Anavian, MD, Providence, RI
Todd A. Fellars, MD, MBA, PT, San Diego, CA
Heather Gotha, MD, Providence, RI
Sarah C. Korupolu, MS, Providence, RI
Ryan R. Rich, Providence, RI
Christopher W. DiGiovanni, MD, Boston, MA

We employ a novel cadaveric model of asymmetric ankle arthritis that reapproximates the in-vivo scenario and better elucidate the effect of a supramalleolar osteotomy on ankle joint contact pressures.

8:30 AM
PAPER: 260
Joint Preserving Surgery with a Novel Osteotomy Concept for End-stage Ankle Osteoarthritis
Koji Watanabe, MD, PhD, Kanazawa, Japan
Hidenori Matsubara, MD, Kanazawa, Japan
Issei Nomura, Kanazawa, Japan
Takao Aikawa, Kanazawa-Shi, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We performed a novel osteotomy consisting of mechanical axis realignment, talar tilt correction, and stable mortise-tenon joint reconstruction for end-stage ankle arthritis.

8:36 AM
PAPER: 261
Long-term Follow-up of Patients with Ankle Distraction as a Treatment for End Stage Osteoarthritis
Mai P. Nguyen, MD, Iowa City, IA
Douglas R. Pedersen, PhD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Charles L. Saltzman, MD, Salt Lake City, UT
Annunziato Amendola, MD, Iowa City, IA

We prospectively followed our cohort of ankle distraction patients and report their clinical results at 5-10 years follow-up.

8:48 AM
PAPER: 262
Subtalar Impingement in Patients with Varus Ankle Osteoarthritis
Koji Watanabe, MD, PhD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Yasuhiro Tanaka, MD, Kashihara, Nara, Japan

The subtalar impingement due to compensation in varus ankle osteoarthritis occurred frequently with exacerbation of clinical disease stage, and that might be responsible for lateral pain in the ankle.
Wednesday, March 25

8:54 AM  
**PAPER: 263**

**Outcomes of Tibiotalocalcaneal Arthrodesis Through a Posterior Achilles Tendon-Splitting Approach**

Manuel J. Pellegrini, MD, Santiago, Chile  
Adam P. Schiff, MD, Highland Park, IL  
Samuel B. Adams Jr, MD, Durham, NC  
Mark E. Easley, MD, Durham, NC  
James K. DeOrio, MD, Durham, NC  
James A. Nunley II, MD, Durham, NC

A posterior Achilles tendon-splitting approach is as safe and effective as previously described methods for performing tibiotalocalcaneal arthrodesis.

9:00 AM  
**PAPER: 264**

**Does a Fibula-Sparing Approach Improve Outcomes in Tibiotalocalcaneal Arthrodesis?**

Adam P. Schiff, MD, Highland Park, IL  
Manuel J. Pellegrini, MD, Santiago, Chile  
Samuel B. Adams Jr, MD, Durham, NC  
Mark E. Easley, MD, Durham, NC  
James K. DeOrio, MD, Durham, NC  
James A. Nunley II, MD, Durham, NC

Tibiotalocalcaneal arthrodesis with or without fibular resection demonstrates no difference in union and complication rate.

9:12 AM  
**PAPER: 265**

**The Role of Tibiotalocalcaneal Fusion in Hindfoot Problems: Clinical Outcome and Prognostic Factor**

Moses Lee, MD, Seoul, Republic of Korea  
Woo Jin Choi, MD, Seoul, Republic of Korea  
Seung Huan Han, MD, Seoul, Republic of Korea  
Kwang H. Park, MD, Seodaemun-Gu  
Jaewan Suh, MD, Seoul, Republic of Korea  
Jin Woo Lee, MD, Seoul, Republic of Korea  
Hang Seob Yoon, MD, Seoul, Republic of Korea

Tibiotalocalcaneal fusion using a retrograde intramedullary nail should be used judiciously in patients with uncontrolled DM, as a risk of failure increases.

9:18 AM  
**PAPER: 266**

**Tibiotalar Arthrodesis Takedown with Total Ankle Arthroplasty**

Manuel J. Pellegrini, MD, Santiago, Chile  
Adam P. Schiff, MD, Highland Park, IL  
Samuel B. Adams Jr, MD, Durham, NC  
Robin M. Queen, PhD, Durham, NC  
James K. DeOrio, MD, Durham, NC  
Mark E. Easley, MD, Durham, NC  
James A. Nunley II, MD, Durham, NC

Conversion of a painful ankle arthrodesis to total ankle arthroplasties can lead to pain relief and improved function in a majority of patients.

9:24 AM  
**PAPER: 267**

**Early Patient Satisfaction Results on a Modern Generation Fixed-Bearing Total Ankle Arthroplasty**

J. Chris Coetzee, MD, Edina, MN  
Shelley M. Oliver, MD, Fort Collins, CO  
Kathryn Samuelson, BS, Edina, MN  
Rebecca M. Stone, ATC, Edina, MN  
Jacquelyn Fritz, BS, Edina, MN  
M. Russell Giveans, PhD, Eden Prairie, MN

This study presents early results on the largest series of U.S. patients undergoing implantation of a modern fixed-bearing total ankle arthroplasty.

9:36 AM  
**PAPER: 268**

**Comparison of Two Generations of Fixed-Bearing Total Ankle Replacement with a Modular Intramedullary Component**

John S. Lewis Jr, MD, Durham, NC  
Samuel B. Adams Jr, MD, Durham, NC  
James K. DeOrio, MD, Durham, NC  
Mark E. Easley, MD, Durham, NC  
James A. Nunley II, MD, Durham, NC

Total ankle replacement with both first- and second-generations of a modern fixed-bearing prosthesis showed significant improvements in pain, outcome, and coronal plane deformity correction.

9:42 AM  
**PAPER: 269**

**Perioperative Outcomes after Ankle Arthroplasty for Patients with Osteoarthritis versus Rheumatoid Arthritis**

Oliver Schipper, MD, Chicago, IL  
Jimmy Jiang, MD, Chicago, IL  
Jason L. Koh, MD, Winnetka, IL  
Lan Chen, MD, Chicago, IL  
Brian C. Toolan, MD, Flossmoor, IL

The purpose of this study was to compare perioperative complications outcomes after total ankle arthroplasty between patients with osteoarthritis and rheumatoid arthritis using a validated database.

9:48 AM  
**PAPER: 270**

**Reduction in Wound Complications After Total Ankle Arthroplasty Using a Compression Wrap Protocol**

Andrew R. Hsu, MD, Huntersville, NC  
Steven L. Haddad, MD, Glenview, IL

The purpose of this study was to evaluate the effects of a unique compression wrap protocol on the incidence of total ankle arthroplasty wound complications.
**PAPER PRESENTATION**

**8:00 AM — 10:00 AM**

**Room 3105**

**Hand and Wrist II: Tendon & Nerve**

*Moderator(s): Jeffrey A. Greenberg, MD, Indianapolis, IN*

*John S. Taras, MD, Philadelphia, PA*

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**8:00 AM**

**PAPER: 271**

**Functional Improvement After Peripheral Nerve Crush Injury: A Sweet Spot for Erythropoietin**

*Alissa M. Zingman, MD, Rochester, NY*

*Hanyan Li, Rochester, NY*

*John Elfar, MD, Rochester, NY*

We created sciatic nerve crush injuries of varying intensities in a murine model to characterize micro structural properties of crush injury using immunohistochemistry and functional analyses.

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**8:06 AM**

**PAPER: 272**

**Predictors of Outcome after Motor Nerve Transfer in Management of Paralytic Hand: A Prospective Observational Study**

*Asser Sallam, MD, Ismailia, Egypt*

*Mohamed El-Deeb, MD, Ismaillia, Egypt*

*Mohamed A. Imam, MSc, MD, London, United Kingdom*

The loss of grip and pinch strengths, age, delay to surgery, educational level, hand dominance, compliance to hand therapy and BMI are possible predictors of patients' outcome after nerve transfer.

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**8:12 AM**

**PAPER: 273**

**Functional Outcome Following Oberlin Procedure: Results from a Study of Dynamometer and Quality of Life Outcomes**

*Ashok Singh, MRCS, London, United Kingdom*

*Tom Quick, MD, London, United Kingdom*

*Michael Fox, FRCS (Ortho), Stammore, Middlesex, United Kingdom*

*Marco M. Sinisi, London, United Kingdom*

*Antony MacQuillan, FRCS, Middlesex, United Kingdom*

*Sara Boutong, London, United Kingdom*

Functional Outcome Following Oberlin Procedure: Results from a study of dynamometer and quality of life outcomes for nerve transfer to restore elbow flexion after brachial plexus injury.

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**8:24 AM**

**PAPER: 274**

**Cortical Changes After Contralateral Cervical Seventh Nerve Root Transfer in Brachial Plexus Injuries**

*Ryosuke Kakinoki, MD, Kyoto, Japan*

*Ryosuke Ikeguchi, MD, Kyoto, Japan*

*Takashi Noguchi, MD, Kyoto City, Japan*

*Yukitoshi Kaizawa, MD, Kyoto, Japan*

*Shuichi Matsuda, MD, Kyoto, Japan*

*Masao Akagi, Prof, Osaka-Sayama, Japan*

The functions in the affected limbs reconstructed by CC7 correlated increasingly with the contralossional brain cortices, which had originally mediated the functions of the affected limbs before BPI.

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**8:30 AM**

**PAPER: 275**

**Prospective Evaluation of Sensitivity and Specificity of CTS-6 for Diagnosis of Carpal Tunnel Syndrome**

*Brian Gander, MD, Pittsburgh, PA*

*Joseph E. Imbriglia, MD, Wexford, PA*

*John R. Fowler, MD, Gibsonia, PA*

*William C. Hagberg, MD, Wexford, PA*

CTS-6 has been proposed as an alternative to the use of electrodiagnostic testing for diagnosis of carpal tunnel syndrome.

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**8:36 AM**

**PAPER: 276**

**Accuracy of Ultrasound-Guided Carpal Tunnel Injection: A Study in 50 Cadavers**

*Eric W. Aungermeier, MD, Charleston, SC*

*Iley Cotterell, MD, Richmond, VA*

*Megan S. Gommer, MD, Durham, NC*

*Hanci Zhang, BA, Durham, NC*

*Subail K. Mithani, MD, Durham, NC*

*Fraser J. Leversedge, MD, Durham, NC*

This study demonstrated a safe and reproducible method for ultrasound-guided carpal tunnel injection in 50 cadaveric wrists, with 100% accuracy of needle tip placement within the carpal tunnel.

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**8:48 AM**

**PAPER: 277**

**Does Cross-sectional Area of the Median Nerve Correlate with Severity of Carpal Tunnel Syndrome?**

*Rafael Diaz-Garcia, MD, Pittsburgh, PA*

*Joseph E. Imbriglia, MD, Wexford, PA*

*William C. Hagberg, MD, Wexford, PA*

*John R. Fowler, MD, Gibsonia, PA*

Cross-sectional area of the median nerve on ultrasound correlates with disease severity based on nerve conduction studies.
Wednesday, March 25

**8:54 AM**

**PAPER: 278**

**Musculoskeletal Literacy in Patients Undergoing Carpal Tunnel Release: A Cross-sectional Survey of Comprehension**

Andrew Rosenbaum, MD, Albany, NY  
Richard Ubl, MD, Albany, NY  
Michael T. Mulligan, MD, Slingerlands, NY  
John Saunders, MD, York, PA  
Daniel Pauze, MD, Albany, NY  
Denis R. Pauze, MD, Albany, NY  
Nancy R. Robak, RN, MPH, Albany, NY

This study evaluates musculoskeletal health literacy in patients undergoing elective carpal tunnel release.

**9:00 AM**

**PAPER: 279**

**Should Carpal Tunnel Syndrome be Operated Despite Negative Neuropsychological Studies?**

Olga D. Savvidou, MD, Athens, Greece  
Vasilios I. Sakellarion, MD, Nea Smirni Attica, Greece  
Andreas Maurogenis, MD, Holargos, Athens, Greece  
Nikolaos Stavropoulos, MD, Zografou Athens, Greece  
Vasilios Kontogiorgakos, MD, XALANDRI, ATHENS, Greece  
Panayiotis J. Papagelopoulos, MD, Athens, Greece

Negative neuropsychological studies should not discourage for surgery intervention.

Discussion – 6 Minutes

**9:12 AM**

**PAPER: 280**

**Biomechanical Comparison of Barbed Suture Repair of Zone II Flexor Tendon Laceration**

Aniruddh Nayak, MS, Tampa, FL  
Dzi-Vet Nguyen, DO, Warner Robins, GA  
Robert C. Brabender, MD, Pittsburgh, PA  
Jeremy Miles, MD, Tampa, FL  
Ian Smithson, MD, Tampa, FL  
Brandon G. Santoni, PhD, Tampa, FL  
Matthew Hiro, MD, Tampa, FL  
Jeffrey D. Stone, MD, Tampa, FL  
Alfred V. Hess, MD, Temple Terrace, FL

A comparative biomechanical study of zone II flexor tendon repair using knotless barbed suture to evaluate the effect on tendon bulk, gliding resistance, and work of flexion.

**9:18 AM**

**PAPER: 281**

**Functional Outcomes of Replantation for Complete Radiocarpal Amputations**

Amar A. Patel, MD, Miami, FL  
Andrew Blount, MD, Tempe, AZ  
Patrice S. Owens, MD, Miami, FL  
Morad Askari, MD, Miami, FL

Replantation after amputation at the radiocarpal level provides high patient satisfaction despite moderate patient disability.

**9:24 AM**

**PAPER: 282**

**Midterm Functional Outcomes of the Entire Upper Limb Replantation**

Tokio Kasai, MD, Takamatsu, Kagawa, Japan

We evaluated a total of 57 patients (60 limbs and fingers) who underwent replantation during a 10-year period. The overall survival rate was 85.5%.

Discussion – 6 Minutes

**9:36 AM**

**PAPER: 283**

**Acquired Upper Extremity Growth Arrest**

Erich M. Gauger, MD, St Paul, MN  
Lauren Smith, Woodbury, MN  
Deborah C. Bohn, MD, Saint Paul, MN  
Ann E. Van Heest, MD, Minneapolis, MN

Acquired upper extremity growth arrest is most commonly caused by trauma or infection and can effectively be treated by epiphyseodesis or osteotomy.

**9:42 AM**

**PAPER: 284**

**Ulnar Distraction Osteogenesis for Treatment of Ulnar-based Forearm Deformities in Multiple Hereditary Exostoses**

Stephen A. Reifsland, MD, Philadelphia, PA  
Scott H. Kozin, MD, Philadelphia, PA  
Dan A. Zlotolow, MD, Philadelphia, PA

A retrospective review of the results of treatment of MHE forearm deformities using distraction osteogenesis at our institution over the past 10 years.

**9:48 AM**

**PAPER: 285**

**Long-term Outcomes Free Toe Phalanx Transfer Used for Congenital Hand Reconstruction**

William H. Seitz Jr, MD, Cleveland, OH  
Noah M. Raizman, MD, WA, Dist. of Columbia  
Adam F. Meisel, MD, West Hollywood, CA

Free toe phalangeal transfer using the 2nd and 3rd toes of one or both feet can provide needed functional bone stock to congenitally hypoplastic digits with minimal foot morbidity.

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 25

SYMPOSIUM
10:30 AM — 12:30 PM
Venetian Ballroom E

Evidence, Quality, Costs, and Reimbursement: Connecting the Dots (K)
Moderator: David Jevsevar, MD, MBA, Lebanon, NH
Orthopaedic surgeons, struggle to understand the relationship of evidence-based medicine, quality initiatives, and cost management to their reimbursement and payor decisions. The purpose of this symposium is to explore, highlight, and expound on the interactions of all of the factors involved with quality orthopaedic care, value, and reimbursement. Recognized orthopaedic national experts in each discipline connect the dots to understand the impact of orthopaedic value delivery.

I. Orthopaedic Evidence-based Medicine
   Mobit Bhandari, MD, FRCSC, Hamilton, ON, Canada

II. Orthopaedic Quality
    Kevin J. Bozic, MD, MBA, San Francisco, CA

III. Orthopaedic Cost Management
    David Jevsevar, MD, MBA, Lebanon, NH

IV. Orthopaedics and Payers
    Mark A. Piasio, MD, Du Bois, PA

V. Orthopaedic Reimbursement
    Stuart L. Weinstein, MD, Iowa City, IA

SYMPOSIUM
10:30 AM — 12:30 PM
Room 2001

The Aging Athlete (L)
Moderator: Brian G. Donley, MD, Cleveland, OH
This symposium will discuss the physical and mental effects of age including basic science and role of tissue inflammation in causing deterioration and injury, role of genetics, diet, rest and exercise. Overview of the weekend warrior and middle-aged athlete. A strategy for a long-term enjoyment of a variety of sports and exercise that can extend well into the 60s and beyond is presented. The role of the anti-aging movement, review of the science in prolonging our health span. What about hormone replacement therapy and the promise of better living through chemistry.

I. The Basic Science of Aging
   Samuel B. Adams Jr, MD, Durham, NC

II. How to Approach Injury and Rehabilitation of the Aging Athlete
    Bryan D. Den Hartog, MD, Rapid City, SD

III. Can We Slow Down or Reverse the Aging Process? The Anti-Aging Movement
    Christopher W. DiGiovanni, MD, Boston, MA

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Wednesday, March 25

**INSTRUCTIONAL COURSE LECTURE**

9:30 AM — 10:30 AM

**FD8** Writing a Competitive Grant Application  
*Moderator: Kurt P. Spindler, MD, Garfield Heights, OH*

Grants can be competitive and non-competitive. This course provides helpful tips and examples on writing a competitive grant application.

10:30 AM — 11:30 AM

**FD14** Benefits of the Learning Portfolio  
*Moderator: Ellen Moore, Rosemont, IL*

This course covers strategies important to taking a multiple choice test, provides details on taking a computerized examination, and supplies information you need to know for maintenance of certification.

10:30 AM — 12:30 PM

**221** 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. Gavrin, MD, Omaha, NE  
George J. Haidukewych, MD, Orlando, FL  
William A. Jiranek, MD, Richmond, VA  
David G. Lewallen, MD, Rochester, MN  
Daniel 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.

**222** Video 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 III, 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.

**223** Update on Biomaterials  
*Moderator: Paul A. Anderson, MD  
Nicholas J. Giori, MD, Palo Alto, CA  
A. Seth Greenwald, DPhil Oxon, Cleveland, OH  
Carlos J. Lavernia, MD, Coral Gables, FL*

This course focuses on modern changes in designs 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.

**224** Nuts and Bolts of Foot and Ankle Injuries in the Athlete  
*Moderator: J. Chris Coetzee, MD, Edina, MN  
Robert B. Anderson, MD, Charlotte, NC  
Steven L. Haddad, MD, Glenview, IL  
James R. Holmes, MD, Ann Arbor, MI*

This course 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 post-operative care and rehabilitation techniques to facilitate return to sport. Specific attention is given notably on the serious athlete, but also the weekend warrior and dancers.

**225** Tendinopathy of the Upper Extremity: Evaluation, Treatment and Evidence-Based Care  
*Moderator: Julie E. Adams, MD, Minneapolis, MN  
Jeffrey A. Greenberg, MD, Indianapolis, IN  
Donald H. Lee, MD, Nashville, TN  
David C. Ring, MD, Boston, MA*

Diagnosis, evaluation, and treatment of vasculostenostinopathies of the upper extremity, including those about the shoulder, elbow, wrist, and hand are discussed. Understanding of pathophysiology, treatment options, and the biomechanical and biological evidence supporting these treatment options are explored. Case discussion and audience participation is encouraged.
Wednesday, March 25

226  The Kids You See on Call: Pearls for Managing Urgent Pediatric Orthopaedics
Moderator: John M. Flynn, MD, Philadelphia, PA
James H. Beaty, MD, Memphis, TN
Martin J. Herman, MD, Philadelphia, PA
David L. Skaggs, MD, Los Angeles, CA

Course faculty address many of the pediatric orthopaedics urgencies and emergencies that might cause anxiety for the general orthopaedist covering his or her local emergency room. Enhanced case discussions are used to teach principles of treating a wide variety of acute pediatric orthopaedic issues and demonstrate decision making for controversial pediatric fracture surgical indications.

227  Life After Orthopaedics: 10 Years or More, Then What?
Moderator: Dempsey S. Springfield, MD, Palm Coast, FL
Joseph S. Barr Jr, MD, Boston, MA
Cynthia K. Hinds, CLU, Lakewood, CO
Michael McCaslin, CPA, Indianapolis, IN

This course is for orthopaedic surgeons (and their spouses) who plan to practice full-time for 10 years or more before transitioning to life after orthopaedics. It addresses the preparations necessary to make a successful transition. There is sufficient time to manage your psychological expectations and financial affairs to allow you to choose how and when you will make this transition. No CME credit.

228  Massive Rotator Cuff Tears: Arthroscopy to Arthroplasty
Moderator: Robert H. Bell, MD, Akron, OH
Frances Cuomo, MD, New York, NY
Reuben Gobezie, MD, Cleveland, OH
Anthony Miniaci, MD, FRSCS, Garfield Heights, OH

This course covers the diagnosis, classification, and treatment of massive cuff tears, including open and arthroscopic repair, the use of grafts and transfers, and arthroplasty options.

229  The Diagnosis and Management of Acromioclavicular Joint Injuries
Moderator: Richard J. Haweins, MD, Greenville, SC
Thomas M. DeBerardino, MD, Farmington, CT
Spero G. Karas, MD, Atlanta, GA
Steve Roche, MD, South Africa
W. Angus Wallace, MB, ChB, Nottingham, United Kingdom

This course covers the diagnosis and different surgical management of acromioclavicular joint injuries. Course faculty also review decision making and four different surgical techniques with their advantages and disadvantages.

◆ 230  Adult Spinal Deformity: Surgical Planning and Complications
Moderator: Robert A. Hart, MD, Portland, OR
Robert S. Bess, MD, Castle Rock, CO
Darrel S. Brodke, MD, Salt Lake City, UT
Thomas J. Errico, MD, New York, NY
Khaled Kebaish, Baltimore, MD
Rajiv K. Sethi, MD, Seattle, WA
Christopher Ames, MD, San Francisco, CA
Vedat Deviren, MD, San Francisco, CA
Han Jo Kim, MD, New York, NY
Gregory Mundia, MD, San Diego, CA
Themistocles Protopsaltis, MD, New York, NY

Cases focus on various scenarios of adult spinal deformity (untreated idiopathic scoliosis, degenerative lumbar scoliosis, flat back syndrome, the older adult deformity patient) as well as complications of treatment (interoperative spinal cord signal changes, proximal junctional failure, and non-union with rod fracture).

231  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 G. 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.

232  Rational Radiology for Orthopaedic Tumors
Moderator: Mark A. Goodman, MD, Pittsburgh, PA
Carol Andrews, MD, Baden, PA
Ernesto Santos, MD, Pittsburgh, PA

This course takes the participant through the currently available modes of testing, explaining the utilities and limitations of each for bone tumors, soft tissue tumors, and metabolic abnormalities. It also discusses the expanding world of interventional radiology and how it can be utilized in a cost-efficient way.
Wednesday, March 25

PAPER PRESENTATION

10:30 AM — 12:30 PM
Venetian Ballroom B

Shoulder and Elbow II: Elbow Problems

Moderator(s): Robert Z. Tashjian, MD, Salt Lake City, UT
Joshua Dines, MD, Great Neck, NY

10:30 AM  PAPER: 286
Total Elbow Arthroplasty in Patients Under Age 50: A 15-year Mean Follow-up Study
Peter L. Kok, MD, Rochester, MN
Mark E. Morrey, MD, Rochester, MN
Bernard F. Morrey, MD, Fayetteville, TX
Joaquin Sanchez-Sotelo, MD, Rochester, MN

TEA improves pain, motion and function in patients under the age of 50. Inflammatory conditions are associated with better functional elbow scores and survival compared to post-traumatic arthritis.

10:36 AM  PAPER: 287
Does Arthroscopic Ulnohumeral Arthroplasty Improve Outcomes for the Treatment of Elbow Arthritis?
Jonathan H. Capelle, MD, Oklahoma City, OK
Thomas V. Giel III, MD, Memphis, TN
Larry D. Field, MD, Jackson, MS
Felix H. Savaie, MD, New Orleans, LA
Edward R. Hobgood, MD, Jackson, MS

To assess the effectiveness in the treatment of osteoarthritis of the elbow by retrospectively comparing arthroscopic debridement alone and debridement with concurrent ulnohumeral arthroplasty.

10:42 AM  PAPER: 288
Single-stage Bilateral Total Elbow Arthroplasty is Safe, Reliable, and Cost-Effective in Rheumatoid Arthritis
Suenghwan Jo, MD, PhD, Rochester, MN
Akin Cil, MD, Kansas City, MO
J. Michael Wiater, MD, Beverly Hills, MI
Shawn W. O’Driscoll, MD, Rochester, MN
Bernard F. Morrey, MD, Fayetteville, TX
Mark E. Morrey, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN

Simultaneous bilateral total elbow arthroplasty is a safe and effective procedure for patients with inflammatory arthritis, and may lead to a decreased overall cost.

10:54 AM  PAPER: 289
Radial Head Fractures Treated with Metallic Radial Head Arthroplasty: Outcomes at a Mean Follow Up of 8.5 Years
Jonathan Marsh, MD, Winnipeg, MB, Canada
Ruby Grewal, MD, London, ON, Canada
Ken Faber, MD, FRCS, London, ON, Canada
Darren S. Drozdowech, MD, FRCS, London, ON, Canada
George S. Athwal, MD, London, ON, Canada
Graham J.W. King, MD, London, ON, Canada

The outcomes of 50 patients treated with a smooth stem modular metallic RHA at 8.5 years are comparable to previously reported short term outcomes with no evidence of functional deterioration.

11:00 AM  PAPER: 290
Radiocapitellar Contact Characteristics During Prosthetic Radial Head Subluxation
Dipt Sahu, Mumbai, India
James S. Fitzsimmons, BSc, Rochester, MN
Andrew Thoreson, MD
Kai-Nan An, PhD, Rochester, MN
Shaun W. O’Driscoll, MD, Rochester, MN

The articular surface design of a radial head prosthesis is an important determinant of joint contact pressures.

11:06 AM  PAPER: 291
The Effect of Prosthetic Radial Head Geometry on Radiocapitellar Joint Contact Area and Pressure
Daniel R. Bachman, MD, Rochester, MN
Sangeun Park, Daejeon
Sutee Thaveepunsan, MD, Rochester, MN
James S. Fitzsimmons, BSc, Rochester, MN
Kai-Nan An, PhD, Rochester, MN
Shaun W. O’Driscoll, MD, Rochester, MN

The depth of the articular dish had a significant effect on contact area and pressure, with improvements according to increasing articular dish depth.

11:18 AM  PAPER: 292
Treatment of Epicondylitis by Ultrasound-guided Local Injections of ACP: Placebo-controlled Randomized Trial
Philippe Hardy, PhD, Boulogne, France
Patrick Le Goux, MD, Boulogne-Billancourt, France
Bernard Montalvan, MD, Boulogne-Billancourt, France
Shabnaz Klouche, MD, Paris, France
Delphine Borgel, PhD, Paris, France
Maxime Breban, PhD, Boulogne Billancourt, France

In this prospective randomized study, two ultrasound-guided ACP injections were significantly no different compared to saline solution injections in the treatment of recent epicondylitis.
Wednesday, March 25

11:24 AM  PAPER: 293
Multiple Corticosteroid Injections are a Risk Factor for Atraumatic Posterolateral Rotatory Instability
Jake Fridman, BS, Yardley, PA
Mohit Gilotra, MD, Baltimore, MD
Andrew F. Kuntz, MD, Philadelphia, PA
David L. Glaser, MD, Philadelphia, PA
G. Russel Huffman, MD, Philadelphia, PA
Atraumatic posterolateral rotatory instability is on the differential for lateral elbow pain. We identify multiple corticosteroid injections as a risk factor in a retrospective case control study.

11:30 AM  PAPER: 294
Surgical Treatment of Distal Biceps Tendon Rupture: A Database Analysis of 1,443 Patients
Nirav B. Joshi, MD, Los Angeles, CA
Dean Wang, MD, Santa Monica, CA
Frank Petrigliano, MD, Santa Monica, CA
Kristofer Jones, MD, Los Angeles, CA
Analysis of current surgical treatment trends of distal biceps tendon tears reveals lower incidences of early and late postoperative complications than previously reported in the literature.

11:42 AM  PAPER: 295
Comparison of Exposure for the Kaplan vs. the Kocher Approach in the Treatment of Radial Head and Coronoid Fractures
Leslie F. Barnes, MD, New York, NY
Joseph M. Lombardi, MD, New York, NY
Thomas R. Gardiner, MCE, New York, NY
Robert J. Strauch, MD, New Rochelle, NY
Melvin P. Rosenwasser, MD, New York, NY
The Kaplan approach affords significantly greater visible area of the proximal radius than the Kocher approach, with or without the LCL intact. The coronoid is only visible from the Kaplan approach.

11:48 AM  PAPER: 296
Does Indomethacin Cause Nonunion When Used for HO Prophylaxis After ORIF of Distal Humerus Fractures?
Utku Kandemir, MD, San Francisco, CA
Alexander Theologis, MD, San Francisco, CA
Nonunion has not occurred when indomethacin was used for prophylaxis against heterotopic ossification after open reduction and internal fixation of distal humerus fractures.

11:54 AM  PAPER: 297
Preoperative Nerve Imaging Using Computed Tomography in Patients with Heterotopic Ossification of the Elbow
Daniel R. Bachman, MD, Rochester, MN
Saygin Kamaci, Ankara, Turkey
Sutee Thaveepunsan, MD, Rochester, MN
Sangeun Park, Daejeon
George I. Vasiliadis, MD, PhD, Rochester, MN
Shawn W. O’Driscoll, MD, Rochester, MN
CT is very useful for tracing the paths of the radial and median nerves and visualizing their spatial relationship to heterotopic ossification at the front of the elbow.

11:54 AM  PAPER: 297
Preoperative Nerve Imaging Using Computed Tomography in Patients with Heterotopic Ossification of the Elbow
Daniel R. Bachman, MD, Rochester, MN
Saygin Kamaci, Ankara, Turkey
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George I. Vasiliadis, MD, PhD, Rochester, MN
Shawn W. O’Driscoll, MD, Rochester, MN
CT is very useful for tracing the paths of the radial and median nerves and visualizing their spatial relationship to heterotopic ossification at the front of the elbow.

12:06 PM  PAPER: 298
Complex Proximal Ulna Fractures: Outcomes of Surgical Treatment
Eitan Melamed, MD, Baltimore, MD
Natalie Danna, MD, East Brunswick, NJ
Monika Debkouska, Bachelor of Science, Woodbridge, NJ
Raj Karia, MPH, New York, NY
Frank A. Liporace, MD, Englewood Cliffs, NJ
John T. Capo, MD, Hoboken, NJ
The purpose of this study was to review and compare the results of plating of isolated olecranon fractures and complex proximal ulna fractures combined with a coronoid and radial head fracture.

12:12 PM  PAPER: 299
Osteochondral Autograft Transplantation: Surgical Treatment for Osteochondritis Dessicans of the Capitellum
Robert N. Hotchkiss, MD, New York, NY
Tyler G. Marks, MD, New York, NY
Sophia Paul, BA
Hollis Potter, MD, New York, NY
Osteochondral Autograft Transplantation for large, unstable osteochondral defect provides long term pain relief and allows patients to return to activities and sports.

12:18 PM  PAPER: 300
The Risk of Revision Surgery After Primary Total Elbow Arthroplasty: A Review of 1,261 Elbows Over Four Decades
Suenghwan Jo, MD, PhD, Rochester, MN
Bernard F. Morrey, MD, Fayetteville, TX
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Mark E. Morrey, MD, Rochester, MN
The cumulative risk for revision after primary TEA reaches 42% at 25 years. Male gender, diagnosis of post-traumatic osteoarthritis, use of unlinked type implants represent the largest risk factors.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.
Wednesday, March 25

PAPER PRESENTATION

10:30 AM — 12:30 PM
Venetian Ballroom D

Adult Reconstruction Knee IV: TKA Complications
Moderator(s): Michael A. Kelly, MD, Hackensack, NJ
Robert Malinzak, MD, Mooresville, IN

10:30 AM  
PAPER: 301
Bariatric Surgery Prior to Total Knee Arthroplasty is Associated with Fewer Postoperative Complications
Bryan C. Werner, MD, Charlottesville, VA
Gregory Kurkus, Medical Student, Charlottesville, VA
F. Winston Gwathmey, MD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA

Bariatric surgery prior to TKA appears to be associated with less risk of complications compared to morbidly obese patients who do not have bariatric surgery.

10:36 AM  
PAPER: 302
National TKA Trends Patients with Coagulation Disorders:
Evaluation of 12,406 NIS Database Cases from 1998-2010
Matthew R. Boylan, Brooklyn, NY
Kimona Issa, MD, Wayne, NJ
Qais Naziri, MD, Brooklyn, NY
Nicole Record, DO, Paterson, NJ
Alexander Brothers, MD, Paterson, NJ
Anthony Scillia, MD, Bernardsville, NJ
Michael A. Mont, MD, Baltimore, MD

Coagulation disorders result in significantly higher perioperative complication rates and potential challenges to the treating surgeons.

10:42 AM  
PAPER: 303
Reducing Length of Hospital Stay Following Total Knee Arthroplasty Does Not Increase ED Visits or Readmissions
Stephen R. Rossman, DO, Cherry Hill, NJ
Christopher Reb, D.O., Newark, DE
Ryan Danowski, D.O., Cherry Hill, NJ
John Mariani, D.O., Sewell, NJ
Jess H. Lommer, MD, Philadelphia, PA

Reducing Length of Hospital Stay Following Total Knee Arthroplasty Does Not Increase Readmissions.

10:54 AM  
PAPER: 304
Unplanned Readmissions after Total Knee Replacement Using a Statewide Database
Michele R. D’Apuzzo, MD, Miami, FL
Ting-Jung Pan, MPH, New York, NY
Stephen Lyman, PhD, New York, NY
Geoffrey H. Westrich, MD, New York, NY

Patients older than 85 years, males, African-Americans, Hispanics, Medicare insurance, bilateral procedures, CHF, obesity and depression are at higher risk of readmission after TKA.

11:00 AM  
PAPER: 305
Increased Risk of Postoperative Complications after TKA in Patients with Previous Patellectomy
Omar Haque, Rochester, MN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Walter K. Kremers, PhD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

This large post-patellectomy series of TKA show an increased risk of complications in these patients but not a significant risk of revision.

11:06 AM  
PAPER: 306
A Randomized Prospective Study on Preventing Urinary Retention After Joint Arthroplasty
Carl A. Deirmengian, MD, Wynnewood, PA
Joseph Farrell, DO, Fort Worth, TX
Jenny Cai, Philadelphia, PA
Tiffany Feltman, DO, Philadelphia, PA
Gregory K. Deirmengian, MD, Broomall, PA
Mathew Levine, DO, Philadelphia, PA

Even in a high risk group of patients, the rate of POUR after modern joint arthroplasty is exceedingly low, with no need for any form of urinary catheterization.

11:18 AM  
PAPER: 307
Fixed Flexion Deformity After Total Knee Arthroplasty: How Much is Acceptable and the Risk Factors
Yong Qiang Jerry Chen, MBBS, Singapore, Singapore
Ngai-Ning Lo, MD, Singapore, Singapore
Hwee Chi Chong, Singapore, Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, PhD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Postoperative fixed flexion deformity >5° after total knee arthroplasty is associated with poorer functional outcome scores.

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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 25

11:24 AM  PAPER: 308
Transcutaneous Oxygen Readings as a Predictor of Wound Complication in Total Knee Arthroplasty
Katherine Faust, MD, New Orleans, LA
Stephen Thon, MD, New Orleans, LA
Meghan Brashear, MPH, New Orleans, LA
Adil Yousuf, BS, Kenner, LA
Emily Wild, BS, Town and Country, MO
Leann Myers, PhD, New Orleans, LA
Fernando L. Sanchez, MD, New Orleans, LA

Total knee patients that develop wounds have a significantly greater drop in transcutaneous oxygen level postop and time to return to preop level compared to total knees that do not develop wounds.

11:30 AM  PAPER: 309
Tourniquet Release before Dressing Application Reduced Blistering in Total Knee Arthroplasty
Snir Heller, MD, Netania, Israel
Antonia Chen, MD, MBA, Philadelphia, PA
William J. Hozack, MD, Philadelphia, PA

The hypothesis of this study was that releasing the tourniquet before application of dressing onto the incision will decrease blister formation around the knee following TKA.

Discussion – 6 Minutes

11:42 AM  PAPER: 310
Lymphocyte Reactivity to Implant Metals Correlates with Pain Levels in Patients with Joint Arthroplasties
Marco S. Caicedo, PhD, Chicago, IL
Edward Sovern, BS, Chicago, IL
Latashe Coleman, BS, Chicago, IL
Joshua J. Jacobs, MD, Chicago, IL
Nadir Hallab, Prof, Chicago, IL

Significantly higher adaptive immune responses to implant metals (i.e. LTT metal sensitivity responses) are present in TJA patients with moderate to high pain levels.

11:48 AM  PAPER: 311
Perioperative Complications in Patients with Inflammatory Arthritis Undergoing Total Knee Replacement
Erik Schnaser, MD, Rancho Mirage, CA
James A. Broune, MD, Charlottesville, VA
Douglas E. Padgett, MD, New York, NY
Mark P. Figgie, MD, New York, NY
Michele R. D’Aipuazzo, MD, Miami, FL

Differences exist in postoperative inpatient medical and orthopaedic complications in patients with certain types of inflammatory arthropathies following total knee replacement.

11:54 AM  PAPER: 312
Incidence and Risk Factors for Postoperative Cardiac Complication After Primary Total Knee and Hip Arthroplasty
Gens P. Goodman, DO, Alexandria, VA
Philip J. Belmont Jr, MD, El Paso, TX
Nicholas A. Kusmezou, MD, El Paso, TX
Charles Magee, MD, Bethesda, MD
Julia O. Bader, PhD, El Paso, TX
Brian Waterman, MD, El Paso, TX
Andrew J. Schoenfeld, MD, Ann Arbor, MI

Age ≥80, hypertension requiring medication and a history of cardiac disease were the three most significant predictors for development of post-operative cardiac complications after TKA and THA.

Discussion – 6 Minutes

12:06 PM  PAPER: 313
Are Nonagenarians at Increased Complication Risk Following Total Knee Arthroplasty?
Julio J. Jauregui, Baltimore, MD
Jeffrey J. Cherian, DO, Baltimore, MD
Samik Banerjee, MBBS, MS, Albany, NY
Bhavin H. Kapadia, MD, Baltimore, MD
Chris Cherian, Sugar Land, TX
Kimona Issa, MD, Wayne, NJ
Peter M. Bonutti, MD, Effingham, IL
Michael A. Mont, MD, Baltimore, MD

The NSQIP demonstrated that patients over 90 years who undergo TKA may be at no significant difference in complication rates.

12:12 PM  PAPER: 314
Characterization of Periprosthetic Femur Fractures in 32,754 Primary TKAs: A 40-Year Experience
Matthew P. Abdel, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN

Intraoperative femoral fractures are rare during primary TKA (0.3%), but 10-fold more common postoperatively (3.0%). Female gender and post-traumatic etiologies are risk factors.
12:18 PM  
PAPER: 315

A Randomized Controlled Trial of Kinematically and Mechanically Aligned Total Knee Arthroplasty
Harold G. Dossett, MD, Scottsdale, AZ  
George J. Swartz, MD, Phoenix, AZ  
Nicolette Estrada, Salt Lake City, UT  
George W. LeFevre, MD, San Diego, CA  
Bertram G. Kwaisman, MD, Scottsdale, AZ  
Harold G. Dossett, MD, Scottsdale, AZ

In a two year randomized trial comparing kinematically aligned and mechanically aligned total knee arthroplasty, motion and all clinical results were better in the kinematically aligned group.

Discussion – 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room 3304

Pediatrics II: Pediatric Trauma and Infection
Moderator(s): William M. Mirenda, MD, Danville, PA  
Todd A. Milbrandt, MD, Lexington, KY

10:30 AM  
PAPER: 316

A Seven-year Exercise Intervention in Children Improves Skeletal Traits without Increasing Fracture Risk
Jesper Fritz, MD, PhD, Malmo, Sweden  
Bjorn Rosengren, MD, PhD, Malmo, Sweden  
Magnus Dencker, MD, PhD, Malmo, Sweden  
Magnus Karlsson, MD, Malmo, Sweden

A 7 Year School-based Exercise Intervention Program in Children Improves Skeletal Traits without Increasing the Fracture Risk – A Population-Based Prospective Controlled Study in 3 534 Children

10:36 AM  
PAPER: 317

Ilfeld-Style Abduction Orthosis: An Effective Alternative to Closed Reduction and Spica Casting
Afamefu Nduaguba, Philadelphia, PA  
John M. Flynn, MD, Philadelphia, PA  
Wudbhav N. Sankar, MD, Wynnewood, PA

Osteochondritis dissecans lesions of the knee in children that are large size and grade II-IV, and lateral femoral condyle lesions often require multiple surgical procedures for resolution.

Discussion – 6 Minutes

10:42 AM  
PAPER: 318

Does Skeletal Maturity Affect Pediatric Pelvic Injury Patterns, Associated Injuries, and Treatment Intervention?
Christiane G. Kruppa, MD, Bochum, Germany  
Debra Sietsema, PhD, Byron Center, MI  
Justin D. Khoriaty, BS, MS, Wyoming, MI  
Marcel Dudda, MD, Bochum NRW, Germany  
Clifford B. Jones, MD, FACS, Grand Rapids, MI

Skeletally mature children are more likely to sustain more complex fracture patterns with a higher rate of operative treatment, have a higher rate of associated injuries and higher ISS.

Discussion – 6 Minutes

10:54 AM  
PAPER: 319

Titanium Elastic Nailing for Pediatric Tibia Fractures: Do Older, Heavier Kids Do Worse?
Christine Goodbody, BA, Philadelphia, PA  
Rushyuan J. Lee, MD, Baltimore, MD  
John M. Flynn, MD, Philadelphia, PA  
Wudbhav N. Sankar, MD, Wynnewood, PA

The use of titanium elastic nails for tibial shaft fractures, unlike for other long bone fractures, seems not to be precluded in older and heavier patients.

11:00 AM  
PAPER: 320

Evaluation of Risk Factors for Delayed Union in Pediatric Tibia Fractures Treated with Flexible Nails
Shane Batie, BS, Phoenix, AZ  
Lee S. Segal, MD, Madison, WI  
Michael W. Shrader, MD, Cave Creek, AZ

26% of pediatric tibia shaft fractures had delayed union. Risk factors for delayed union included metaphyseal fractures and older age, but NOT open fractures.

11:06 AM  
PAPER: 321

Complications after Elastic Intramedullary Nails in Pediatric Forearm Fractures - A Two Center Study
Marcel Dudda, MD, Bochum NRW, Germany  
Pamela Bunge, Essen, Germany  
Clifford B. Jones, MD, FACS, Grand Rapids, MI  
Thomas A. Schildhauer, MD, Bochum, Germany  
Christiane G. Kruppa, MD, Bochum, Germany

ESIN in forearm fractures is the method of choice in case operative treatment is required. The complication rate of 240 included fractures is low, therefore ESIN can be considered as a safe procedure.

Discussion – 6 Minutes

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Wednesday, March 25

11:18 AM  PAPER: 322
The Utility of Postoperative Radiographs After Pinning of Pediatric Supracondylar Humerus Fractures
Jacob M. Stanfield, MD, Lexington, KY
Philip A. Ashley, MD, Lexington, KY
Laura E. Blum, BS, Plymouth, MI
Todd A. Milbrandt, MD, Rochester, MN
Ryan D. Muchow, MD, Lexington, KY
Henry J. Iwinski, MD, Lexington, KY
Vishwas R. Talwalkar, MD, Lexington, KY
Janet Walker, MD, Lexington, KY
A retrospective review of pediatric supracondylar humerus fractures treated with percutaneous pinning and the utility of serial postoperative radiographs.

11:24 AM  PAPER: 323
Internal Rotation Stress Testing Improves Radiographic Outcomes of Type 3 Supracondylar Humerus Fractures
Jennifer M. Bauer, MD, Nashville, TN
Jonathan G. Schoenecker, MD, Nashville, TN
Christopher M. Stutz, MD, Nashville, TN
Steven A. Lovejoy, MD, Nashville, TN
Gregory A. Mencio, MD, Nashville, TN
Jeffrey E. Martus, MD, MS, Nashville, TN
An internal rotation stress test for type 3 supracondylar humerus fractures helps determine the degree of fixation needed, reducing the rate of rotational, sagittal, and coronal loss of reduction.

11:30 AM  PAPER: 324
Rate and Risk Factors for Delayed Healing Following Surgical Treatment of Lateral Condyle Fractures in Children
Lissette Salgueiro-Canetti, MD, San Juan, Puerto Rico
Joanna H. Roocroft, MA, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Eric W. Edmonds, MD, San Diego, CA
Burt Yaszay, MD, San Diego, CA
Lateral condyle humerus fracture nonunion and delayed union after surgical fixation is associated with quality of reduction and the difficulty in attaining that reduction.

11:42 AM  PAPER: 325
Severity Stratification of Children with Musculoskeletal Infection by Monitoring Tissue Injury
Megan Mignemi, MD, Dallas, TX
Thomas J. An, BA, Nashville, TN
Michael A. Benvenuti, BS, Nashville, TN
Kathleen Byington, NP, Nashville, TN
Christopher M. Stutz, MD, Nashville, TN
Steven A. Lovejoy, MD, Nashville, TN
Gregory A. Mencio, MD, Nashville, TN
Jeffrey E. Martus, MD, MS, Nashville, TN
Jonathan G. Schoenecker, MD, Nashville, TN
Severity of MSK infection can be categorized based on the amount of tissue injury present, which correlates with outcome and can be predicted upon presentation by measures of the acute phase response.

11:48 AM  PAPER: 326
A Multidisciplinary Clinical Care Guideline for Pediatric Musculoskeletal Infections Improves Outcomes
Murray D. Spruiell, MD, Denver, CO
Erin Wylie, BA, Denver, CO
Sarah Parker, MD, Aurora, CO
Travis C. Heare, MD, Aurora, CO
Implementation of a multidisciplinary clinical care guideline for management of pediatric musculoskeletal infections resulted in significant improvements in multiple outcomes measures.

11:54 AM  PAPER: 327
Quality Improvement for Children with Musculoskeletal Infection with a Multi-Disciplinary Sedated MRI Protocol
Lawson A. Copley, MD, Dallas, TX
Jeffrey Steiner, DO, Dallas, TX
Jeannie Kwon, MD, Plano, TX
Neil Fernandes, MD, Dallas, TX
Andrew Mueller, BS, Dallas, TX
A multi-disciplinary MRI sedation protocol based on patient-centered communication resulted in shorter scan duration and shorter length of hospitalization for children with musculoskeletal infection.

Discussion – 6 Minutes

12:06 PM  PAPER: 328
Do the Kocher Criteria Identify Risk for Septic Arthritis or Osteomyelitis? A Review in the Era of MRI
Alexander Nguyen, BS, Houston, TX
Herman Kan, Houston, TX
Scott B. Rosenfeld, MD, Houston, TX
Patients with 3 or 4 Kocher criteria have a high incidence of osteomyelitis. Kocher criteria and US alone may not be sufficient in the workup of infection about the hip.

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12:12 PM  PAPER: 329
Predictive Factors for Differentiating Between Septic Arthritis and Lyme Disease of the Knee
Afamefuna Nduaguba, Philadelphia, PA
Keith D. Baldwin, MD, Philadelphia, PA
Wudbhav N. Sankar, MD, Wynnewood, PA

Micromotion tenderness and CRP >3 mg/L are factors highly predictive of septic arthritis of the knee in patients presenting with knee monoarthritis in Lyme endemic areas.

12:18 PM  PAPER: 330
Clinical Predictors for Persistent Infection in Pediatric Septic Arthritis
Jessica J. Telleria, MD, Seattle, WA
Rosemary Cotter, BA, Seattle, WA
Viviana Bompadre, PhD, Seattle, WA
Suzanne E. Steinman, MD, Seattle, WA

Positive blood culture and markedly elevated CRP at presentation, or on post-operative days 1-4, were significant risk factors for requiring multiple debridements in pediatric septic arthritis.

10:30 AM — 12:30 PM
Room 3105
Practice Management/Rehabilitation II: Health Policy/Regulations
Moderator(s): Thomas Malvitz, MD, Grand Rapids, MI
Josef K. Eichinger, MD, Gig Harbor, WA

10:30 AM  PAPER: 331
Is Physician Quality Reported Outcomes Worth the Cost to Report to CMS?
Stephen T. Duncan, MD, Lexington, KY
Kyle Leyslon, MS, Lexington, KY
Cale Jacobs, PhD, Lexington, KY
Christian P. Christensen, MD, Lexington, KY
William B. Macaulay, MD, New York, NY

With the move from CMS toward requiring patient outcome score reporting, the financial cost to the surgeon may be cost prohibitive and prove too costly to gain wide acceptance.

10:36 AM  PAPER: 332
Patient Factors Systematically Influence Hospital Length of Stay in Common Orthopaedic Procedures
James J. Gholson, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Nicolas O. Noisieux, MD, Iowa City, IA
Apurva Shah, MD, MBA, Iowa City, IA

Patient comorbidities and characteristics, including congestive heart failure and body mass index, independently increase hospital length of stay across a broad spectrum of orthopaedic procedures.

10:42 AM  PAPER: 333
Universal Health Coverage and Total Joint Arthroplasty: Implications from the MA Experience
Steven M. Kurtz, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Kevin Ong, PhD, Philadelphia, PA
Jeffrey N. Katz, MD, Brookline, MA
Kevin J. Bozic, MD, MBA, San Francisco, CA

We determined how government mandated, universal health insurance would effect the incidence, cost, and payer mix for primary hip and knee replacement.

10:54 AM  PAPER: 334
Predictors of Suboptimal Patient-Reported Outcome Response Rates in the CA Joint Replacement Registry
Jay J. Patel, MD, Orange, CA
Zhongmin Li, PhD, Sacramento, CA
Nelson F. SooHoo, MD, Los Angeles, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA
James I. Huddleston III, MD, Redwood City, CA

This study aimed to identify the characteristics of patients and providers with low-reporting of patient reported outcomes in the CA Joint Replacement Registry.

11:00 AM  PAPER: 335
What are the Economic Consequences of Unplanned Readmissions following Total Hip Arthroplasty?
R. Clement Carter, MD, Durham, NC
Caitlin McAuliffe, Philadelphia, PA
Michael M. Kheir, BS, Philadelphia, PA
Peter Derman, MD, MBA, New York, NY
David N. Flynn, MD, MBA, Philadelphia, PA
Rebecca Speck, Philadelphia, PA
L. Scott Levin, MD, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

New CMS policy that penalizes hospitals for 30-day readmissions following THA will likely create a meaningful incentive against such readmissions, thereby changing hospital behavior.
11:06 AM  PAPER: 336
Risk Adjustment in Orthopaedics: Balancing Predictive Performance with Data Collection Burden
Peter Schilling, MD, Redwood City, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA
Outcomes of common orthopaedic procedures can be risk adjusted by using only a small number of important variables, thus enabling quality comparisons across providers with low data collection burden.

Discussion – 6 Minutes

11:18 AM  PAPER: 337
Does Physician Ownership in Specialty Hospitals Affect Utilization Rates in Arthroscopic Shoulder Surgery?
Eric M. Black, MD, Livingston, NJ
John Reynolds, B.A., Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Joseph A. Abboud, MD, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
We determined that physician ownership does not influence utilization or surgical indications in common shoulder procedures, and that privately owned facilities are more efficient.

11:24 AM  PAPER: 338
Physician Owned Distributorships: Can They Produce Cost Savings for Orthopaedic Implants?
John C. Steinmann, DO, Redlands, CA
Charles C. Edwards II, MD, Touson, MD
Thomas H. Eickmann, MD, Longmont, CO
Angela Carlson, Big Bear City, CA
Analysis of five physician owned distributors revealed significant cost savings for each implant type relative to the hospital’s next lowest cost provider.

11:30 AM  PAPER: 339
Physician-Owned MRI More Cost Effective Than Hospital-Owned Imaging
Christopher M. Graves, MD, Iowa City, IA
Cameron W. Shick, MD, Indianapolis, IN
Stuart L. Weinstein, MD, Iowa City, IA
Independent (physician-owned) imaging centers represent a lower cost alternative to hospital owned imaging centers for upper extremity studies.

Discussion – 6 Minutes

11:42 AM  PAPER: 340
Proximal Humerus Fractures - Who Does it Better? Practice Variability Across Shoulder Surgeons and Traumatologists
Suneel B. Bhat, MD, Philadelphia, PA
Eric S. Secrist, BS, Philadelphia, PA
Luke S. Austin, MD, Linwood, NJ
Charles L. Getz, MD, Newton Square, PA
James C. Krieg, MD, Philadelphia, PA
Samir Mehta, MD, Philadelphia, PA
Surena Namdari, MD, MSc, Philadelphia, PA
Treatment preference for proximal humerus fractures differs by specialty, with shoulder surgeons more likely to consider arthroplasty and traumatologists favoring ORIF or non-operative management.

11:48 AM  PAPER: 341
Diagnosis of Fracture is Associated with Lower Satisfaction with Physicians among Orthopaedic Patients
John Vorhies, MD, Redwood City, CA
Julius A. Bishop, MD, Palo Alto, CA
We used logistic regression to analyze surveys from orthopaedic inpatients at a trauma center and found that diagnosis of fracture was associated with lower satisfaction with physicians.

11:54 AM  PAPER: 342
The 72-hour Medicare Mandate After Joint Arthroplasty: Is This Medically Necessary?
Zachary Sisko, MD, Chicago, IL
Min Lu, MD, Chicago, IL
Raju S. Ghate, MD, Chicago, IL
Ravi K. Bashyal, MD, Skokie, IL
Anand Srinivasan, MD, Park Ridge, IL
Lalit Puri, MD, Glenview, IL
An analysis of the proportion of primary total hip and knee arthroplasty patients eligible for earlier skilled nursing facility discharge under Medicare’s three-night stay rule.

Discussion – 6 Minutes

12:06 PM  PAPER: 343
Medicare Data Transparency May Confuse Consumers Comparing Hospitals for Total Joint Arthroplasty
Daniel Belatti, Iowa City, IA
Andrew J. Pugely, MD, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Medicare’s new databases may mislead consumers comparing hospitals for TJA; top-ranked hospitals appear unnecessarily expensive with similar outcomes to other hospitals.
Wednesday, March 25

12:12 PM  PAPER: 344
Total Joint Arthroplasty: Trends in Medicare Reimbursement and Implant Prices
Daniel Belatti, Iowa City, IA
Andrew J. Pugely, MD, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Over the past decade, even nominal reimbursements to orthopedic surgeons for total joint arthroplasty have declined, while implant list prices have continued to rise steeply.

12:18 PM  PAPER: 345
Benedict U. Nwachukwu, MD, MBA, New York, NY
Frank McCormick, MD, Pompano Beach, FL
Matthew T. Provencher, MD, Weston, MA
Martin W. Roche, MD, Fort Lauderdale, FL
Harry E. Rubash, MD, Boston, MA

There has been a modest increase in arthroplasty utilization and hospital reimbursement rates for Medicare patients. Joint arthroplasty does not appear to be a major cost driver.

Discussion – 6 Minutes

SYMPOSIUM
1:30 PM — 3:30 PM
Room 2001

Men, Women, and Quality: Targeting Success in Patient Care and Satisfaction Metrics (N)
Moderator: Rachel S. Rohde, MD, Southfield, MI

Origin and use of quality metrics and satisfaction measurement, perceptions of care, and osteoarthritis and sports injuries are discussed, exploring pertinent sex-related differences. Awareness of these can improve patient satisfaction metrics.

I. Patient Satisfaction/Quality Measures: Why They Matter
   Warren Dunn, MD, MPH, Madison, WI

II. Men, Women, and Perceptions of Care: Changing Your Metrics
   Alexandra E. Page, MD, La Jolla, CA

III. Sex Differences in Osteoarthritis
    Mary I. O’Connor, MD, Jacksonville, FL

IV. Differences in Sports Injuries in Men and Women
   Jo A. Hannafin, MD, PhD, New York, NY

V. Gendered Innovations: Changing How We Think, Evaluate, and Measure
   Amy L. Ladd, MD, Palo Alto, CA

VI. What Do We Know and What Can We Do about Improving Our Scores?
    Rachel S. Rohde, MD, Southfield, MI

SYMPOSIUM
1:30 PM — 3:30 PM
Room 2201

Outpatient Arthroplasty is Here Now (O)
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH

Significant advances have been made in arthroplasty to minimize surgical trauma and maximize perioperative pain control. This enables patients to regain mobility within hours of the operative intervention and be discharged to home safely the same day.

I. Preparing the Patient for Outpatient Arthroplasty: Perioperative Planning, Education, Therapy, and Medical Clearance
   Adolph V. Lombardi Jr, MD, New Albany, OH

II. Anesthesia Protocols for Outpatient Arthroplasty
   Michael J. Morris, MD, New Albany, OH
Wednesday, March 25

III. Liposomal Bupivacaine Infiltration: The New Addition to Multimodal Pain Control
   John W. Barrington, MD, Plano, TX

IV. The Efficacy of Perioperative Tranexamic Acid for Outpatient Arthroplasty
   William G. Hamilton, MD, Alexandria, VA

V. Partial Knee Arthroplasty in the Outpatient Setting
   Michael E. Berend, MD, Mooresville, IN

VI. Total Hip and Total Knee Arthroplasty in the Outpatient Setting
   Keith R. Berend, MD, New Albany, OH

VII. Total Shoulder Arthroplasty in the Outpatient Setting
    Jason M. Hurst, MD, New Albany, OH

VIII. Venous Thromboembolism Prophylaxis in the Outpatient Setting
      Lawrence D. Dorr, MD, Pasadena, CA

IX. Perioperative Rehabilitation Protocols for Outpatient Arthroplasty
    Richard A. Berger, MD, Chicago, IL

X. Neither I nor My Patients Will Ever Consider Outpatient Arthroplasty
   Giles R. Scuderi, MD, New York, NY

INSTRUCTIONAL COURSE LECTURE

11:00 AM — 12:00 PM

FD9  Cliff Notes on Clinical Research: What You Need to Get Started
    Moderator: Leesa M. Galatz, MD, Saint Louis, MO
    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.

1:30 PM — 2:30 PM

FD10  The Bench: Principles of Basic Science and Translational Research
    Moderator: Kristy L. Weber, Philadelphia, PA
    Denis R. Cloibsy, Minneapolis, MN
    Leesa M. Galatz, MD, Saint Louis, MO

Discuss the benchmarks, or standards, in technique and practice in the study of basic science and translational research.

FD15  Maintenance Of Certification: Do's and Don'ts
    Moderator: Shepard R. Hurwitz, MD, Chapel Hill, NC
    William J. Maloney, MD, Redwood City, CA
    Terrance D. Peabody, MD, Chicago, IL

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 Certification. Based on your preferences, the Academy’s Learning Portfolio helps you track CME credits you have earned through Academy programs.

1:30 PM — 3:30 PM

241  Prevention, Diagnosis, and Treatment of Periprosthetic Joint Infection: A Case-Based 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

This unique, interactive course 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. These case examples are utilized to emphasize the key point on the prevention, diagnosis, and treatment of PJI.

242  Getting It Right the Second Time: Pearls and Principles for Revision Surgery in the Foot and Ankle
    Moderator: Mark J. Berkowitz, MD, Cleveland, OH
    Jeffrey E. Johnson, MD, Cleveland, OH
    Roy W. Sanders, MD, Tampa, FL
    Lew C. Schon, MD, Baltimore, MO

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.
Differentiating Cervical Spine and Shoulder Pathology: Common Disorders and Key Points of Evaluation and Treatment

Moderator: Clinton J. Devlin, MD, Nashville, TN
Charles L. Cox III, MD, Nashville, TN
Thomas R. Duquin, MD, Buffalo, NY
Wellington K. Hsu, MD, Chicago, IL

This course provides information to differentiate cervical spine and shoulder pathology and reviews common disorders and key points of evaluation and treatment.

Hand Fractures: Simple to Complex

Moderator: Richard A. Bernstein, MD, New Haven, CT
Michael S. Bednar, MD, Maywood, IL
Rand hipsinh R. Bindra, MD, Benoau, Australia
Craig S. Williams, MD, Des Plaines, IL

This course 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.

Complications of Common Pediatric Fractures: Prevention and Management

Moderator: Martin J. Herman, MD, Philadelphia, PA
Roger Cornwall, MD, Cincinnati, OH
Shannon D. Safier, MD, Gladwyne, PA
Theresa O. Wyrick, MD, Mabelvale, AR

Complications of common pediatric fractures are presented in a case-based manner. Discussion includes pearls and pitfalls of avoiding complications as well as managing them.

Coding and Reimbursement Update 2015

Moderator: R. Dale Blasier, MD, Little Rock, AR
Louis F. McIntyre, MD, White Plains, NY
Bernard A. Pfeifer, MD, Chatham, MA

This course provides an annual update on changes to current procedural terminology (CPT) and reimbursement from physicians actively involved in the AAOS coding and reimbursement activities.

Leading a Digital Life in Orthopaedics

Moderator: Jack Choueka, MD, Lawrence, NY
Spiro B. Antoniades, MD, Bel Air, MD
Howard J. Goodman, MD, Englewood, NJ
Ira H. Kirschenbaum, Bronx, NY
Norman Stone, MD, Alexandria, VA

Computerized medical records, online resources, smartphones, and iPads can seem foreign and complicated to the busy orthopaedic surgeon. Presenters demonstrate the tremendous potential that these technologies hold to improve efficiency, safety, and patient care.

Complex Shoulder Arthroplasty: Case Discussions and Management

Moderator: Thomas (Quin) Throckmorton, MD, Germantown, TN
Theodore A. Blaine, MD, New Haven, CT
Edward V. Craig, MD, New York, NY
Lynn A. Crosby, MD, Augusta, GA
Thomas B. Edwards, MD, Houston, TX
Evan L. Flatou, MD, New York, NY
Leesa M. Galatz, MD, Saint Louis, MO
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Mark A. Migbell, MD, Tampa, FL
Matthew L. Ramsey, MD, Philadelphia, PA
John W. Sperling, MD, MBA, Rochester, MN

Understand and apply strategies for managing glenoid and humeral bone deficiency in shoulder arthroplasty, options and techniques available to treat infected shoulder arthroplasty, and causes for instability after shoulder arthroplasty. Learn to treat them according to each etiology.

Complication Management in Minimally Invasive Spine Surgery

Moderator: Sheeraz Qureshi, MD, New York, NY
Saad Chaudhary, MD, Watchung, NJ
Jeffrey S. Roh, MD, Sammamish, WA
Kern Singh, MD, Chicago, IL

This course addresses rarely discussed complications involved with minimally invasive spine surgery both in the initial and later phases of adoption. The course involves a detailed interactive discussion on peri- and intra-operative pearls to safely and successfully perform minimally invasive procedures. In addition, salvage techniques are discussed, addressing complication avoidance, management, and results.

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250  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.

251  The Not So Simple Ankle Fracture: Avoiding Problems and Pitfalls to Improve Patient Outcome
Moderator: 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

Focusing on four themes, challenges to care for the rotational ankle fracture are highlighted and tips for management are provided.

252  Periarticular Fractures of the Tibia: The Case for Going Prone
Moderator: Lisa K. Cannada, MD, Saint Louis, MO
Jeffrey Anglen, MD, FACS, Indianapolis, IN
Cory A. Collinge, MD, Fort Worth, TX
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Stephen Kottmeier, MD, Stony Brook, NY
Hassan R. Mir, MD, MBA, Nashville, TN
Paul Tornetta III, MD, Boston, MA
Mark S. Vrabas, MD, Boston, MA
J. Tracy Watson, MD, Saint Louis, MO

Prone positioning in the operating room can be a hassle. In addition, the perception of more dangerous structures and less familiarity with the approach makes this plan less popular. By review of periarticular tibial fractures with cases, including surgical video, you leave this session eager to choose prone, when appropriate.

253  Bone and Soft Tissue Tumors for the General Orthopaedic Surgeon: How to Diagnose, Manage, and Avoid Errors
Moderator: G. Douglas Letson, MD, Tampa, FL
John P. Dormans, MD, Philadelphia, PA
Carol D. Morris, MD, MS, Baltimore, MD
H. Thomas Temple, MD, Miami, FL

This course is intended for the general orthopaedic surgeon to help work up, diagnose, and manage musculoskeletal lesions, avoid errors, and to refer when appropriate.

1:30 PM — 5:30 PM

291  Effective Surgeon-Patient Communication: The Key to Patient Satisfaction, Patient-Centered Care and Shared Decision Making
Co-Moderator: Dwight W. Burney III, MD, Albuquerque, NM
John R. Tongue, MD, Tuscali, OR

Newly revised and updated, 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.

PAPER PRESENTATION

1:30 PM — 3:30 PM

Venetian Ballroom B

Shoulder and Elbow III: Reverse Shoulder Arthroplasty
Moderator(s): Samer S. Hasan, MD, PhD, Cincinnati, OH
Joseph A. Abboud, MD, Philadelphia, PA
Brett L. Krause, MD, Wellington, New Zealand

Reverse Total Shoulder Arthroplasty: Results of 240 Consecutive Prosthesis with a Follow Up of Ten Years
Guillaume Bacle, MD, Chambray-Les Tours, France
Laurent Nove Josserand, MD, Lyon, France
Gilles Walsh, MD, Lyon, France

Reverse Shoulder Arthroplasty provides reliable and high long term outcomes and survivorship.

Comparative Analysis of Anatomic and Reverse Total Shoulder Arthroplasty: In-Hospital Outcomes and Costs
Brent A. Ponce, MD, Birmingham, AL
Lasin O. Oladeji, MS, Chicago, IL
Mark Rogers, MD, Birmingham, AL
Mariano Menendez, Boston, MA

Using the Nationwide Inpatient Sample, this study examined the impact of shoulder arthroplasty type, with respect to perioperative events, death, hospital stay, discharge, and hospital charges.
Wednesday, March 25

1:42 PM  PAPER: 348

Instability after Reverse Total Shoulder Arthroplasty: Which Patients Dislocate?
Eric M. Padegimas, MD, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Camilo Restrepo, MD, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Joseph A. Abboud, MD, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
Matthew L. Ramsey, MD, Philadelphia, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Surena Namdari, MD, MSc, Philadelphia, PA

This retrospective study on dislocation following reverse total shoulder arthroplasty found an increased incidence in patients with high BMI, prior surgery, or undergoing revision arthroplasty.

Discussion – 6 Minutes

1:54 PM  PAPER: 349

Glenoid Placement in Reverse Shoulder Arthroplasty
Comparison of 3D-interactive and Traditional Methods
Julien Berhouet, MD, Saint Lyr Sur Loire, France
Andreas Kontaxis, MSc, PhD, New York, NY
Daniel Choi, MS, New York, NY
Timothy M. Wright, PhD, New York, NY
Lawrence V. Giulotta, MD, New York, NY

The aim of this computerized study was to assess the accuracy in glenoid placement using a virtual computer model designed to replicate a typical RSA intraoperative view.

1:54 PM  PAPER: 349

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1:54 PM  PAPER: 349

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The aim of this computerized study was to assess the accuracy in glenoid placement using a virtual computer model designed to replicate a typical RSA intraoperative view.

2:00 PM  PAPER: 350

Wear Rates of Retentive vs. Nonretentive Reverse Total Shoulder Arthroplasty Liners in an In Vitro Wear Simulation
Shannon R. Carpenter, MD, Royal Oak, MI
Daphne Pinkas, MD, Elmwood Park, NJ
Michael D. Newton, BS, Warren, MI
Michael Kurdziel, MS, Royal Oak, MI
Kevin C. Baker, PhD, Royal Oak, MI
J. Michael Wiater, MD, Beverly Hills, MI

Retentive polyethylene liners used in reverse total shoulder arthroplasty displayed significantly increased wear compared to traditional nonretentive liners at later time points.

2:06 PM  PAPER: 351

Vitamin E Polyethylene Demonstrates Less Volumetric Wear at 5 Million Cycles in Reverse Shoulder Arthroplasty Model
Tyler J. Brolin, MD, Memphis, TN
Joshua B. Sykes, MD, Philadelphia, PA
Hani Haider, PhD, Omaha, NE
John W. Sperling, MD, MBA, Rochester, MN
Thomas (Quin) Throckmorton, MD, Germantown, TN

Vitamin E highly cross-linked polyethylene demonstrates less volumetric wear than standard cross-linked polyethylene at all time points up to 5 million cycles in a reverse shoulder arthroplasty model.

Discussion – 6 Minutes

2:18 PM  PAPER: 352

Effects of Lateralization of Reverse Shoulder Arthroplasty on Tendon Transfers to Restore External Rotation
Jean-David Werthel, Paris, France
Eric R. Wagner, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Peter L. Kok, MD, Rochester, MN
Philippe Valenti, MD, Paris Cedex 16, France
Kai-Nan An, PhD, Rochester, MN
Bassem T. Elhassan, MD, Rochester, MN

An increase of 6 mm. in lateral offset of the RSA did increase the ERMA of different types of muscle transfers to restore active external rotation.

2:24 PM  PAPER: 353

Effectiveness of Tendon Transfers Performed in Reverse Shoulder Arthroplasty to Restore External Rotation
Jean-David Werthel, Paris, France
Eric R. Wagner, MD, Rochester, MN
Peter L. Kok, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Kai-Nan An, PhD, Rochester, MN
Bassem T. Elhassan, MD, Rochester, MN

The type of muscles and their location of transfer around the proximal humerus when performed in association with RSA have a major impact on the value of ERMA

2:30 PM  PAPER: 354

Biomechanical Comparison of Three Latissimus Dorsi Transfer Sites for Reverse Shoulder Arthroplasty
Jade A. Anderson, Boston, MA
Oren Costantini, MS, New York, NY
Stefano Petrillo, MD, Rome, Italy
Daniel Choi, MS, New York, NY
Lawrence V. Giulotta, MD, New York, NY
Andreas Kontaxis, MSc, PhD, New York, NY

Lat. dorsi transfer in reverse shoulder arthroplasty is used to restore external rotation. We investigated the moment arms, muscle and joint contact forces for 3 sites amid activities of daily living.

Discussion – 6 Minutes
Wednesday, March 25

2:42 PM  PAPER: 355
Reverse Total Shoulder Arthroplasty Using Structural Bone Grafts for Large Glenoid Defects
Richard B. Jones, MD, Asheville, NC
Thomas W. Wright, MD, Gainesville, FL
Joseph D. Zuckerman, MD, New York, NY
Gregory J. Gilot, MD, Davie, FL

The use of bulk structural grafts is a promising treatment option for addressing large glenoid defects during RTSA. Allografts may yield equally acceptable results compared to autograft.

2:48 PM  PAPER: 356
Does Bony Increased Offset Reverse Shoulder Arthroplasty Decrease Scapular Notching? A Case-Controlled Study
George S. Atboul, MD, London, ON, Canada
Joy C. MacDermid, PhD, London, ON, Canada
Jonathan Marsh, MD, Winnipeg, MB, Canada
Kundam M. Reddy, Auckland, New Zealand
Darren S. Drosdowech, MD, FRCSC, London, ON, Canada
Ken Faber, MD, FRCSC, London, ON, Canada

This study demonstrated no differences between RSA and BIO-RSA with respect to motion, strength or outcome scores. The rate of notching, however, was significantly less in the BIO-RSA cohort.

2:54 PM  PAPER: 357
Glenoid Component Inferior Tilt Fixation in Reverse Shoulder Arthroplasty
Soyoung Kim, MD, Seoul, Republic of Korea
Soo-Won Chae, PhD, Seoul, Republic of Korea
Haea Lee, MS, Seoul, Republic of Korea

Glenoid component inferior tilt fixation in reverse shoulder arthroplasty may reduce the stability and increase the mechanical failure of the glenoid component.

3:00 PM  PAPER: 358
Functional Results of Bilateral Reverse Total Shoulder Arthroplasty
Christen R. Mellano, MD, Chicago, IL
Terrence F. Feldheim, MA, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Gregory P. Nicholson, MD, Chicago, IL

The functional outcomes of fifty bilateral reverse total shoulder arthroplasty is reviewed with emphasis on activities of daily living and peri-carpal hygiene.

3:12 PM  PAPER: 359
Reverse Total Shoulder Arthroplasty in the Weight-Bearing Arm: Outcomes in Dependent Ambulators
Lucas B. Romine, MD, Raleigh, NC
Filippo Familiari, MD, MBBS, Catanzaro, Italy
Alan Gonzalez, MD, Baltimore, MD
Umasuthan Srikumaran, MD, MBA, Clarksville, MD
Edward G. McFarland, MD, Lutherville, MD

Reverse total shoulder arthroplasty demonstrates short term success in a cohort of patients who are dependent upon wheelchair or walker for mobility.

3:18 PM  PAPER: 360
Outcome of Reverse Shoulder Arthroplasty in Patients with Parkinson’s Disease: A Matched Cohort Study
Michael Casick, MD, Humble, TX
Randall Otto, MD, Fenton, MO
Rachel Clark, BA, Tampa, FL
Michael M. Hussey, MD, Little Rock, AR
Brandon Steen, MD, Deland, FL
Robert U. Hartzler, MD, San Antonio, TX
Mark A. Frankle, MD, Temple Terrace, FL

Parkinson’s patients achieve similar reductions in pain but worse clinical function following RSA compared to similar patients without Parkinson’s.

Discussion – 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Venetian Ballroom D
Sports Medicine/Arthroscopy III: Shoulder 1
Moderator(s): Michael A. Kuhn, MD, Cape Carteret, NC
James C. Dreese, MD, Lutherville, MD

1:30 PM  PAPER: 361
Youth Baseball Pitchers’ Caregivers and Safe Pitching Practices: A Survey-Based Analysis
Andrew Waligora, MD, Gainesville, FL
Giorgio Zeppecri JR, Gainesville, FL
Michael Smith, Gainesville, FL
Jason Zaremski, MD, Gainesville, FL
Trevor Lentz, PT, Gainesville, FL
MaryBeth Horodyski, EdD, ATC, LAT, Gainesville, FL
Kevin W. Farmer, MD, Gainesville, FL

Despite the implementation and easy accessibility of safe pitching guidelines, a large portion of those surveyed are unaware and/or non-compliant with the established recommendations.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Wednesday, March 25

1:36 PM  
PAPER: 362  
Accuracy of the Long Head of Biceps Subluxation as a Predictor for Subscapularis Tears  
Lewis L. Shi, MD, Chicago, IL  
Martin Mullin, BA, Elmhurst, IL  
Michael T. Freehill, MD, Winston-Salem, NC  
Albert Lin, MD, Pittsburgh, PA  
Jon J.P. Warner, MD, Boston, MA  
Lawrence D. Higgins, MD, Boston, MA  

Long head of biceps tendon subluxation on axial MRI has high negative predictive value but low to moderate positive predictive value for full thickness subscapularis tear.

1:42 PM  
PAPER: 363  
Patterns of Strain and the Determination of the Safe Arc of Motion after Subscapularis Repair  
Michael Knesek, MD, Chicago, IL  
Alexander Brunfeldt, MS, Ann Arbor, MI  
Christopher Korenczuk, B.S., Hillsborough, NJ  
Karl J. Jepsen, PhD, Ann Arbor, MI  
Christopher B. Robbins, Ann Arbor, MI  
Joel J. Gagnier, PhD, Ann Arbor, MI  
Answorth A. Allen, MD, New York, NY  
Joshua Dines, MD, New York, NY  
Ashesh Bedi, MD, Ann Arbor, MI  

Biomechanical study to aimed to determine the safe arc of motion following subscapularis repair which may enable earlier rehabilitation protocols following partial or complete subscapularis repair.

1:54 PM  
PAPER: 364  
Does Smoking Affect Treatment Allocation and Outcomes in Patients with Rotator Cuff Tears?  
Germanuel Landfair, MS, Ann Arbor, MI  
Christopher B. Robbins, Ann Arbor, MI  
Joel J. Gagnier, PhD, Ann Arbor, MI  
James E. Carpenter, MD, Ann Arbor, MI  
Ashesh Bedi, MD, Ann Arbor, MI  
Bruce S. Miller, MD, Ann Arbor, MI  

This prospective study demonstrates the negative impact of smoking on functionality and pain in patients with a rotator cuff tear as well as the impact of surgical repair based on smoking status.

2:00 PM  
PAPER: 365  
Arthroscopic Rotator Cuff Repair with Concomitant Capsular Release  
Steven A. Giuseffi, MD, Rapid City, SD  
Thomas V. Giel III, MD, Memphis, TN  
Brian T. Brislin, MD, Lancaster, PA  
Edward R. Hobgood, MD, Jackson, MS  
Larry D. Field, MD, Jackson, MS  
Felix H. Savoie, MD, New Orleans, LA  

Single-stage arthroscopic rotator cuff repair and capsular release improves range-of-motion and UCLA outcomes in patients with full-thickness rotator cuff tears and concomitant shoulder stiffness.

2:06 PM  
PAPER: 366  
Predictors of Post-operative Pain and Narcotic Use After Primary Arthroscopic Rotator Cuff Repair  
Troy A. Roberson, MD, Memphis, TN  
Thomas (Quin) Throckmorton, MD, Germantown, TN  
Frederick M. Azar, MD, Memphis, TN  
Robert H. Miller III, MD, Germantown, TN  

Pre-operative narcotic use and mood disorders are most predictive of difficulty in pain management after primary arthroscopic rotator cuff repair.

2:18 PM  
PAPER: 367  
Mode of Failure of Rotator Cuff Repairs at Time of Revision Arthroscopic Repair  
Eric I. Ferkel, MD, Charlotte, NC  
Jonathan A. Stone, MD, Boston, MA  
Daniel B. Dean, MD, Fishersville, VA  
Irene Ghobrial, PA-C, Chestnut Hill, MA  
Alan S. Curtis, MD, Weston, MA  

The most common cause of rotator cuff failure was intra-substance re-ear through the tendon with re-tear from suture guillotine being the second most common.

2:24 PM  
PAPER: 368  
Biomechanical Evaluation of Coracoid Tunnel Size and Location for Coracoclavicular Ligament Reconstruction  
Sean Campbell, MD, Palo Alto, CA  
Nathanael D. Heckmann, MD, Long Beach, CA  
Sang-Jin Shin, MD, Seoul, Republic of Korea  
Lawrence C. Wang, Orange, CA  
Mallika Tamboli, St Louis, MO  
James E. Tibone, MD, Los Angeles, CA  
Thay Q. Lee, PhD, Long Beach, CA  

When performing fixation at the coracoid process for coracoclavicular ligament repair, the tunnel size should be as small as possible and the base should be targeted to create a strong construct.

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Wednesday, March 25

2:30 PM PAPER: 369
Medialized Clavicular Tunnel Position Predicts Failure after Anatomic Coracoclavicular Reconstruction
Emmanuel Eisenstein, MD, Brownsville, TX
Joseph T. Lanzi Jr, MD, El Paso, TX
Brian Waterman, MD, El Paso, TX
Mark P. Pallis, DO, El Paso, TX

We will evaluate outcomes after anatomic CC ligament reconstructions among a large military cohort relative to clavicular tunnel placement based on tunnel position to clavicular length ratio.

Discussion – 6 Minutes

2:42 PM PAPER: 370
High Incidence of Labral Injuries Associated with Acromioclavicular Joint Separations
Eric I. Ferkel, MD, Charlotte, NC
Kai Mitboefer, MD, Cambridge, MA

We report a moderate correlation between AC joint dislocations and SLAP injuries.

2:48 PM PAPER: 371
All-Arthroscopic Modified Weaver-Dunn Procedure for Chronic Acromioclavicular Joint Dislocations
Olivier Gastaud, MD, Nice, France
Christophe Trojan, MD, Nice, France
Pascal Boileau, MD, Nice, France

The advantages of arthroscopic ACJ reconstruction over the open procedure: excellent cosmesis, low morbidity, high patient satisfaction, the possibility to treat associated intra-articular lesions.

2:54 PM PAPER: 372
Arthroscopic Glenoidplasty and Osteocapsular Arthroplasty for Advanced Glenohumeral Osteoarthritis
Shawn W. O’Driscoll, MD, Rochester, MN
Kirsten L. Poehling-Mongahan, MD, Rochester, MN
Edward W. Kelly, MD, Saint Paul, MN
James S. Fitzsimmons, BSc, Rochester, MN

In patients with advanced glenohumeral arthritis, arthroscopic osteocapsular arthroplasty and glenoidplasty offered substantial benefits and obviated the need for joint replacement in the majority.

Discussion – 6 Minutes

3:06 PM PAPER: 373
Mid-term Results of Osteochondral Allograft Transplantation to the Humeral Head
Andrew J. Riff, MD, Chicago, IL
Adam B. Yanke, MD, Chicago, IL
Jason Shin, MD, Saskatoon, SK, Canada
Anthony A. Romeo, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL

Fresh osteochondral allograft transplantation is a palatable option for young patients with significant humeral chondral injury.

3:12 PM PAPER: 374
Endothelial Progenitor Cell (EPC) Therapy Enhances Rotator Cuff Healing
Aaron Nauth, MD, Toronto, ON, Canada
Tony Lin, BSc, Toronto, ON, Canada
Michael A. Glick, BMSc, Toronto, ON, Canada
Erica Giles, BSc, New Haven, CT
Emil H. Schemitsch, MD, Toronto, ON, Canada

This study demonstrated that rotator cuff healing and angiogenesis can be augmented with Endothelial Progenitor Cell (EPC) transplantation in a rat model of rotator cuff repair.

3:18 PM PAPER: 375
Arthroscopic Debridement and Capsular Release for the Treatment of Shoulder Osteoarthritis
Nathan W. Skelley, MD, Saint Louis, MO
Surena Namdari, MD, MSc, Philadelphia, PA
Aaron M. Chamberlain, MD, St Louis, MO
Jay D. Keener, MD, Saint Louis, MO
Leesa M. Galatz, MD, Saint Louis, MO
Ken Yamaguchi, MD, St Louis, MO

Arthroscopic glenohumeral joint debridement and capsular release were associated with only temporary pain relief and improvement in motion.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Wednesday, March 25

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room 3304

Trauma IV: Pelvic/Acetabular Trauma
Moderator(s): Andrew R. Evans, MD, Pittsburg, PA
Milton L. Routt, MD, Houston, TX

1:30 PM

PAPER: 376

Should Incisional Negative Pressure Wound Therapy Be Used in Hip, Acetabular, and Pelvis Fracture Surgery?
Brett D Crist, MD, Columbia, MO
Michael S. Khazzam, MD, Southlake, TX
Gregory J. Della Rocca, MD, PhD, Columbia, MO
Yvonne M. Murtha, MD, Wichita, KS
David A. Volgas, MD, Columbia, MO
James P. Stannard, MD, Columbia, MO

In a randomized prospective trial, incisional NPWT potentially increases the risk of deep infection when compared to gauze dressings in hip, pelvis, and acetabular fracture surgery.

1:36 PM

Complications of Pelvic and Acetabulum Fractures in Obese Patients
James Carson, MD, Hyattsville, MD
Sabin Shah, BS, WA, Dist. of Columbia
Augustine Obirieze, MBBS, WA, Dist. of Columbia
Babar Shaqiq, MD, Baltimore, MD

This is a retrospective review identifying and comparing the incidence of complications stemming from closed pelvic and acetabulum fractures in obese and non-obese trauma patients using the NTDB-RDS

1:42 PM

Topical Tranexamic Acid Reduces Blood Loss and Transfusion Rates during Internal Fixation of Acetabular Fractures
Sandeep Kasliyar, MD, Shimla, India

Topical tranexamic acid reduces intraoperative and post operative blood loss with decreased transfusion rates and less haemoglobin drop.

1:54 PM

The Effect of Initial Reduction and Method of Reduction on Final Alignment in Type 3 Posterior Pelvic Ring Injuries
Paul Tornetta III, MD, Boston, MA
Adam D. Lindsay, MD, Gainesville, FL
John Kurylo, MD, Peabody, MA
David C. Templeman, MD, Minneapolis, MN

The purpose was to evaluate the effect of initial reduction quality and method of reduction on final alignment

2:00 PM

PAPER: 380

Loosening of the Iliosacral Screw Used in Pelvic Ring Injury
Joon-Woo Kim, MD, Daegu
Chang-Wug Oh, MD, Daegu
Hyung Sub Kim, Daegu
Sangjin Nam, Daegu

This study was undertaken to evaluate the incidence of iliosacral screw loosening used in pelvic ring injury and to identify predictive factors.

2:06 PM

The Effect of Transiliac-Transsacral Screw Fixation for Pelvic Ring Injuries on the Uninjured Sacroiliac Joint
Sami W. Mardam-Bey, MD, Saint Louis, MO
Michael J. Beebe, MD, Salt Lake City, UT
Ellen Y. Chang, BS, MS, Saint Louis, MO
Erik Kubik, MD, Salt Lake City, UT
Christopher McAndrew, MD, Saint Louis, MO
William M. Ricci, MD, St Louis, MO
Michael J. Gardiner, MD, Saint Louis, MO

The use of transiliac-transsacral screws for posterior fixation of unilateral pelvic ring injuries does not adversely affect functional outcomes of the uninjured sacroiliac joint.

Discussion – 6 Minutes

2:18 PM

Removal of the Symphyseal Cartilage Results in Fewer Hardware Complications
Paul Tornetta III, MD, Boston, MA
Kyle Lybrand, MD, Waltham, MA
John Kurylo, MD, Peabody, MA
Jordan Gross, BS, Boston, MA
David C. Templeman, MD, Minneapolis, MN

The purpose of this study is to compare the results of symphyseal fixation with and without symphyseal cartilage excision.

2:24 PM

Biomechanical Analysis of Retrograde Superior Pubic Ramus Screw vs External Fixation in an Unstable Pelvis Fracture
Justin A. Krajca, MD, Plano, TX
Hyunchul Kim, MS, College Park, MD
Jason W. Nascone, MD, Baltimore, MD
Theodore T. Manson, MD, Bel Air, MD
Christina L. Boulton, MD, Baltimore, MD
Adam H. Hsieh, PhD, College Park, MD
Robert V. O’Toole, MD, Baltimore, MD

The retrograde superior pubic ramus screw has significantly improved biomechanics compared to external fixation in an unstable LCI pelvis fracture using composite bone models in a single limb stance.
Wednesday, March 25

2:30 PM  PAPER: 384  
Stoppa Approach for Anterior Plate Fixation in Unstable Pelvic Ring Injury  
Hyoung Keun Oh, MD, Gyeonggi-Do  
Suk Kyu Cho, MD, Goyang City  
Jung Jae Kim, MD, Seoul, Republic of Korea  
Mark A. Lee, MD, Sacramento, CA  
Stable anterior ring fixation placed via the Stoppa approach can result in excellent reduction and stable screw fixation with a low complication rate.

Discussion – 6 Minutes

2:42 PM  PAPER: 385  
Hip Stability after Posterior Wall Acetabular Fracture  
Clay A. Spalter, MD, Madison, MS  
Calvin L. Schlepp, MD, Seattle, WA  
Benjamin Hamilton, MS, Seattle, WA  
Julie Agel, ATC, Seattle, WA  
Paul Tornetta III, MD, Boston, MA  
Reza Firoozabadi, MD, Seattle, WA  
After posterior wall acetabular fracture, a more cranial exit of the fracture in relation to the acetabular roof is predictive of hip instability.

2:48 PM  PAPER: 386  
Acute THA versus ORIF for Acetabular Fractures Involving the Posterior Wall in Patients < Age 65  
Carol Lin, MD, MA, Los Angeles, CA  
Andree H. Schmidt, MD, Minneapolis, MN  
We performed a case control study of THA vs ORIF for patients under 65 with acetabular fractures at risk for early arthritis. Those with THA had fewer reoperations and better functional scores.

2:54 PM  PAPER: 387  
Achieving Anatomic Acetabular Fracture Reduction – When is the Best Time to Operate?  
Steven K. Dailey, MD, Cincinnati, OH  
Caleb Phillips, PhD, Palo Alto, CA  
Joseph M. Radley, Saint Louis, MO  
Michael T. Archdeacon, MD, Cincinnati, OH  
The interval from injury to ORIF of acetabular fractures directly affects the quality of reduction. Earlier intervention (<5 days) improves the probability of achieving an anatomic reduction.

Discussion – 6 Minutes

3:06 PM  PAPER: 388  
Long-term Follow Up after Surgical Hip Dislocation for the Treatment of Acetabular Fractures  
Pascal C. Haefeli, MD, Bern, Switzerland  
Marius Keel, MD, Berne, Switzerland  
Klaus Siebenrock, MD, Bern, Switzerland  
Moritz Tannast, MD, Bern, Switzerland  
Comparing the results of surgical hip dislocation for the treatment of acetabular fractures with the literature, indicate comparable or even superior long-term results.

3:12 PM  PAPER: 389  
Neurologic Injury in Operatively Treated Acetabular Fractures  
Yelena Bogdan, MD, Boston, MA  
Paul Tornetta III, MD, Boston, MA  
Clifford B. Jones, MD, FACS, Grand Rapids, MI  
Emil H. Schemitsch, MD, Toronto, ON, Canada  
Daniel S. Horwitz, MD, Danville, PA  
David Sanders, MD, London, ON, Canada  
Reza Firoozabadi, MD, Seattle, WA  
Juan De Dios Robinson, BA, MBBS, Headington, Oxford, United Kingdom  
Andrew J. Marcantonio, DO, Wellesley, MA  
This study evaluated a large series of operatively treated acetabular fractures with documented neurologic injury, both fracture-related and iatrogenic, and to track neurologic recovery and outcome.

3:18 PM  PAPER: 390  
The Effect of Acetabular Fracture Pattern on Short-term Complications After Operative Treatment  
George Ochenjele, MD, Chicago, IL  
Shobhit Minhas, BA, Chicago, IL  
Bryant Ho, MD, Chicago, IL  
Paul Switaj, MD, Chicago, IL  
Michael D. Stover, MD, Chicago, IL  
Anish R. Kadakia, MD, Glenview, IL  
Single column or transverse fracture patterns were associated with the highest postoperative transfusion requirements while both column fractures were associated with the highest 30-day mortality.

Discussion – 6 Minutes
Wednesday, March 25

PAPER PRESENTATION

1:30 PM — 3:30 PM  Room 3105

**Foot and Ankle II: Foot and Ankle Trauma**

*Moderator(s): Steven L. Haddad, MD, Glenview, IL. Brian Toolan, MD, Chicago, IL.*

1:30 PM  
**Assessment of Diastasis of the Tibio-Fibular Syndesmosis by Axial CT Scan at the Ankle Joint Level**

Woo Chun Lee, Seoul, Republic of Korea
Tae Kun Ahn, MD, Seongnam-Si
Seung Myung Choi, Seoul, Republic of Korea
Jae Young Kim, M.D., Seoul, Republic of Korea

When there is more than two millimeters of widening in syndesmosis on axial CT scan at the joint level, there is a high likelihood of diastasis of the distal tibiofibular syndesmosis.

1:36 PM  
**Computed Tomographic (CT) Evaluation of Syndesmotic Malreductions as it Relates to Normal Tibial Morphology**

Mark N. Perenich, DO, Tarpon Springs, FL
Dolfi Herscovici Jr, DO, Temple Terrace, FL
Julia Scaduto, NP, Tampa, FL

Three shapes of the incisura are identified. Malreductions occurred in all three. Open reduction is recommended.

1:42 PM  
**Ligament Repair Restores Ankle and Syndesmotic Stiffness as Much as a Syndesmotic Screw: A Biomechanical Study**

Patrick C. Schottel, MD, Houston, TX
Josh R. Baxter, PhD, New York, NY
Susannah Gilbert, MS, New York City, NY
Matthew R. Garner, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Our biomechanical study found that a combined repair of the PITFL and deltoid ligament restores an equivalent amount of ankle and syndesmotic stiffness compared to trans-syndesmotic screw fixation.

1:54 PM  
**Addition of a One-Third Tubular Plate Increases the Strength of Syndesmosis Fixation Compared to Screws Alone**

David B. Frumberg, MD, Brooklyn, NY
Westley Hayes, MS, Brooklyn, NY
Gavriel Feuer, BS, Brooklyn, NY
Qais Naziri, MD, Brooklyn, NY
Robert Pavez, MD, Brooklyn, NY
Jaime A. Uribe, MD, Albertson, NY

Addition of plate may improve distribution of forces at the level of syndesmosis, reducing stress risers and decreasing risk of screw breakage.

*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.*

2:00 PM  
**A Comparison of Anatomic Plating versus Tubular Plating in the Treatment of Fibula Fractures**

Justin M. Kane, MD, Coatesville, PA
Andrew B. Kay, BA, Philadelphia, PA
Joseph N. Daniel, DO, Egg Harbor Township, NJ
Jamal Ahmad, MD, Philadelphia, PA
Steven M. Raikin, MD, Philadelphia, PA
David I. Pedowitz, MD, Penn Valley, PA
James C. Krieg, MD, Philadelphia, PA

A review of OTA type 44B/44C fibula fractures was undertaken to compare quality of reduction between pre-contoured and one-third tubular plating. Quality of reduction was equivalent between groups.

2:06 PM  
**Arthroscopy in the Surgical Treatment of Ankle Fractures**

João F. Vide, MD, Lisboa, Portugal
Daniel Mendes, MD, Lisboa, Portugal
Manuel Sousa, MD, Lisboa, Portugal, Portugal

Evaluation of benefits with the use of arthroscopy-assisted surgical treatment in acute ankle fractures.

Discussion – 6 Minutes

2:18 PM  
**Elevated Synovial Fluid Inflammatory Cytokines and Matrix Metalloproteinases after Ankle Fracture**

Samuel B. Adams Jr, MD, Durham, NC
Richard Bell, BS, Durham, NC
Dana L. Nettles, PhD, Durham, NC
Mark E. Easley, MD, Durham, NC
Janet L. Huebner, Durham, NC
Virginia B. Kraus, PhD, Durham, NC
Steven A. Olson, MD, Durham, NC

Significantly elevated pro-inflammatory cytokines are present in the synovial fluid immediately after intra-articular ankle fracture.

2:24 PM  
**Complications of the Surgical Treatment of Unstable Fractures of the Ankle: Is It Timing of Surgery or Implants?**

Sohail Yousaf, MRCS, Surrey, United Kingdom
Conrad Lee, MB, ChB, Brighton, United Kingdom
Mark C. Edmondson, Sussex, United Kingdom
Benedict Rogers, MBBS, Woking, United Kingdom
Iain McFadyen, MD, Cheshire, United Kingdom
David Crone, FRCS (Ortho), Brighton, United Kingdom

Early stabilization of ankle fractures has the potential to expedite return to function and to reduce hospital stay but it remains unclear if there is an associated improvement in patient outcomes.
Wednesday, March 25

2:30 PM  
PAPER: 399
Risk Factors for Complications Following Open Reduction Internal Fixation of Ankle Fractures
Jimmy Jiang, MD, Chicago, IL
Robert Stewart, MD, Chicago, IL
Erwin Bennett, MD, Evanston, IL
Douglas R. Dirschl, MD, Chicago, IL
Brian C. Toolan, MD, Flossmoor, IL

Age, diabetes, bleeding disorder, ASA ≥ 3, fracture type, open wound, increased surgical time, delay in surgery, and general anesthesia were independently associated with higher risk of complications.

Discussion – 6 Minutes

2:42 PM  
PAPER: 400
Delay to Fixation Does Not Decrease Wound Complications in the Treatment of Calcaneus Fractures
Darius E. Lin, MD, Boston, MA
Daniel Guss, MD, Brookline, MA
Mostafa Abousayed, MD, Wynantskill, NY
Clifford L. Jeng, MD, Baltimore, MD
Steve Kang, MD, Orange, CA
John K. Ellington, MD, Charlotte, NC
John Y. Kwon, MD, Boston, MA

Delaying fixation of calcaneus fractures does not decrease wound complication rates when using the extensile approach, and increases wound complication rates when using less invasive approaches.

2:48 PM  
PAPER: 401
Risk Factors for 30-day Postoperative Complications and Mortality Following Ankle Fracture Fixation
Justin D. Orr, MD, El Paso, TX
Shaunette Davey, MD, El Paso, TX
Nicholas J. Rensing, MD, El Paso, TX
Brian Waterman, MD, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX

This study analyzes over 3,300 ankle fracture ORIFs, utilizing the NSQIP registry, to determine 30-day postoperative patient-based and surgical risk factors for morbidity and mortality.

2:54 PM  
PAPER: 402
The Independent Effects of Diabetes, Smoking, and Obesity on Operative Ankle Fracture Complications
Bryant Ho, MD, Chicago, IL
Shobhit Minhas, BA, Chicago, IL
Paul Switaj, MD, Chicago, IL
George Ochenjele, MD, Chicago, IL
Mary J. Kwasny, PhD, Chicago, IL
David W. Manning, MD, Chicago, IL
Anish R. Kadakia, MD, Glenview, IL

Insulin dependent diabetes is a predictor of increased 30-day postoperative complications following ankle fracture surgery, while smoking and obesity increase the risk of reoperation.

Discussion – 6 Minutes

2:54 PM  
PAPER: 403
The Inconvenience of Ankle Fractures: What Factors Are Most Distressing?
Christina Capriccioso, BS, New York, NY
Alexander Crespo, BS, New York, NY
Kenneth A. Egol, MD, New York, NY

This study aims to identify aspects of daily function that are most bothersome to patients who sustained unstable ankle fractures.

3:12 PM  
PAPER: 404
Realignment Osteotomy in Fibular Malunion: Mid-term Results in 19 Consecutive Patients
Alexej Barg, MD, Basel, Switzerland
Martin Wiewiorski, MD, Hedingen, Switzerland
Heath Henninger, PhD, Salt Lake Cty, UT
Victor Valderrabano, MD, Hofstetten, Switzerland

The z-shaped osteotomy of the fibula restores fibula length and rotation resulting in significant pain relief and functional improvement in patients with posttraumatic fibular malunions.

3:18 PM  
PAPER: 405
Influence of Podiatry on Orthopaedic Surgery at a Level I Trauma Center
Andre Jakoi, MD, Philadelphia, PA
Andrew B. Old, MD, Philadelphia, PA
Craig A. O’Neill, MD, Perkinsie, PA
Martin J. Herman, MD, Philadelphia, PA

The impact that a newly developed podiatry training program has on the exposure of orthopedic surgery residents to foot and ankle pathology in a Level I trauma center.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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INSTRUCTIONAL COURSE LECTURE

3:00 PM — 4:00 PM
FD11 Writing An Abstract That Gets Accepted
Moderator: Guido Marra, MD, Chicago, IL
Stefano A. Boni, MD, Piedmont, CA
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Understand the abstract submission and review process in order to increase the likelihood of acceptance. Learn how to write an abstract that is focused, concise, and clear so that your message is heard by reviewers.

FD16 Brushing Up On Your Test Taking Skills
Moderator: Joseph A. Bosco III, MD, New York, NY
This course provides tips on getting organized, planning ahead, panic strategy, staying calm, and how to apply what you have learned when taking the test.

4:00 PM — 6:00 PM
261 Primary Total Knee Arthroplasty: Everything You Need to Know
Moderator: Jay R. Lieberman, MD, Los Angeles, CA
John J. Callaghan, MD, Iowa City, IA
J. Bohnam Mason, MD, Charlotte, NC
Robert T. Trousdale, MD, Rochester, MN
Course presenters review pre- and postoperative strategies to improve outcomes, component preparation and implantation techniques (video demonstrations), and bearing surface selection.

4:00 PM — 6:00 PM
262 The Scary TKA – 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
This will focus 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.

263 Ensuring a Winner: The A,B,Cs of Primary Total Knee Arthroplasty
Moderator: Michael E. Berend, MD, Mooresville, IN
Michael P. Bolognesi, MD, Durham, NC
Jason M. Hurst, MD, New Albany, OH
Raymond H. Kim, MD, Denver, CO
This course offers information on patient selection, achieving reproducible limb alignment, balancing the varus and valgus knee, appropriate component sizing and positioning, and best cementing techniques. Interesting cases of primary total knee arthroplasty are presented.

264 Emerging Methods for Treatment of Ankle Arthritis
Moderator: Timothy R. Daniels, MD, FRCSC, Toronto, ON, Canada
Annunziato Amendola, MD, Iowa City, IA
Steven L. Haddad, MD, Glenview, IL
James A. Nunley II, MD, Durham, NC
Compare the functional and biomechanical outcomes of ankle fusion and total ankle arthroplasty. Indications, complications, surgical techniques, and outcomes of both surgical procedures are reviewed.

265 PRP, BMP and Stem Cells: What Surgeons Need to Know
Moderator: Jeffrey C. Wang, MD, Sherman Oaks, CA
Wenlington K. Hsu, MD, Chicago, IL
Thomas E. Mroz, MD, Cleveland, OH
Frank Petrigliano, MD, Santa Monica, CA
This course discusses the most important biologics in orthopaedic surgery, including growth factors, cell therapy, and pharmacologics to promote bone and soft tissue healing.

266 Scaphoid Fractures and Nonunions: What’s Hot, What’s Not
Moderator: Dean G. Sotereanos, MD, Pittsburgh, PA
Gregory I. Bain, MD, North Adelaide, Australia
Joe Dias, MD, Leicester, United Kingdom
Thomas G. Sommerkamp, MD, Crestview Hills, KY
This course covers current concepts for diagnosis and treatment of scaphoid fractures and nonunions, including arthroscopic percutaneous vascularized and nonvascularized techniques.

267 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. Comarcy, MD, FAAP, Madison, WI
William C. Warner Jr, MD, Germantown, TN
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.

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268  Stress Management and Balance for the Orthopaedic Surgeon
Moderator: John M. Flynn, MD, Philadelphia, PA
Eric C. McCarty, MD, Boulder, CO
Peter M. Waters, MD, Boston, MA
Jennifer M. Weiss, MD, Los Angeles, CA
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.

269  Practical Tips for Implementing Bundled Payments in Your Practice
Moderator: Kevin J. Bozic, MD, MBA, San Francisco, CA
Mark I. Froimson, MD, Huntington Valley, OH
Richard Iorio, MD, New Rochelle, NY
Steven F. Schutzer, MD, Farmington, CT
This course 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.

270  Shoulder Arthroplasty: How To Do Them All
Moderator: Thomas (Quin) Throckmorton, MD, Germantown, TN
Leesa M. Galatz, MD, Saint Louis, MO
Charles L. Getz, MD, Newton Square, PA
John W. Sperling, MD, MBA, Rochester, MN
This course 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.

271  Rotator Cuff: Spectrum of Repair
Moderator: Jonathan B. Ticker, MD, Merrick, NY
Richard L. Angelo, MD, Woodinville, WA
Pascal Bouleau, MD, Nice, France
Felix H. Savoie, MD, New Orleans, LA
A variety of techniques for rotator cuff repair – from partial tear repairs, as well as single- and double-row repairs, to subscapularis repairs – are highlighted.

272  Avoiding and Managing Complications in Routine Lumbar Spine Surgery
Moderator: Joseph R. O’Brien, MD, WA, Dist. of Columbia
Choll W. Kim, MD, PhD, San Diego, CA
Faisal A. Siddiqui, MD, Manassas, VA
Harvey E. Smith, MD, Penn Valley, PA
This course is focused on general spinal practice with discussion on prevention and management of complications.

INSTRUCTIONAL COURSE LECTURE
4:30 PM — 5:30 PM
FD12  The Art and Science of Reviewing Manuscripts for Orthopaedic Journals
Moderator: Jeffrey S. Fischgrund, MD, Southfield, MI
Thomas W. Bauer, MD, PhD, Cleveland, OH
Seth S. Leopold, MD, Seattle, WA
William N. Levine, MD, New York, NY
Journal editors help reviewers and authors learn how to craft more effective manuscripts by emphasizing specific assessment criteria for clinical, research, and review articles.

FD17  Case List Review: Preparation for Your Recertification Exam
Moderator: Shepard R. Hurwitz, MD, Chapel Hill, NC
David E. Martin, MD, Winston Salem, NC
Terrance D. Peabody, MD, Chicago, IL

PAPER PRESENTATION
4:00 PM — 6:00 PM
Venetian Ballroom B
Adult Reconstruction Hip III: Outcomes Primary THA
Moderator: David C. Ayers, MD, Worcester, MA
Courtland G. Lewis, MD, Farmington, CT

4:00 PM  PAPER: 406
Effect of Perioperative Corticosteroids on Inflammation and Pain After Total Hip Arthroplasty
Thomas P. Sculco, MD, New York, NY
Kethy Jules-Elysee, MD, New York, NY
Douglas E. Padgett, MD, New York, NY
Edwin P. Su, MD, New York, NY
Alexander S. McLaurhborn, MD, MBA, New York, NY
Peter K. Sculco, MD, Rochester, MN
Jonathan Beath, MD, New York, NY
Ed Purdue, PhD, New York City, NY
Yan Ma, PhD, New York, NY
Perioperative corticosteroids reduce systemic interleukin-6 after primary total hip arthroplasty, and are associated with reduced incidence of severe postoperative pain and analgesic requirement.
The Effect of Surface Finish on Survivorship of Cemented Femoral Stems in Total Hip Arthroplasty
Wayne Hoskins, MBBS, PhD, Parkville, Australia
Dirk Van Bavel, FRACS, MBBS, Hawthorn, Australia
Yen-Liang Liu, Adelaide, Australia
Stephen Graves, MD, Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia

Twelve-year data from the Australian Joint Replacement Registry shows polished tapered stems have a lower revision rate than matte finished cemented stems. This is due to reduced loosening / lysis.

Cementless Fixation has Better Outcomes in Younger Patients
Stephen Graves, MD, Adelaide, Australia
David Davidson, MD, University Of Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
Peter L. Lewis, MB, Adelaide, Australia
Robyn Vial, MSc, Adelaide, Australia
Ann Tomkins
Elizabeth C. Griffith, BA, Adelaide, Australia
Michelle Lorimer, Adelaide, Australia
Yen-Liang Liu, Adelaide, Australia

When prostheses related confounders are excluded, cementless fixation has a significantly lower rate of revision after 2.5 years compared to hybrid and cement fixation in patients aged.

Lifetime Outcome of 2000 Primary Charnley Total Hip Arthroplasties
Matthew P. Abdel, MD, Rochester, MN
Philipp Von Roth, MD, Berlin, Germany
William Harmsen, MS, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

The 40 year results of Charnley THAs reveal good long-term survival rates with 87% of implants intact at death or last follow-up.

What Percentage of Patients Must Be Captured by Joint Registries for Reliable Identification of Outliers?
Christopher Noel, Nashville, TN
Philip C. Noble, PhD, Houston, TX

In this study we utilized a computer simulation of a joint registry to address incomplete enrollment of patients in registries and the affect the reliability of identification of outliers.

Total Hip Arthroplasty in the Younger Patient: A Retrospective Cohort Study
Brian E. Schwartz, MD, Des Plaines, IL
David Mossad, Chicago, IL
Vincent M. Moretti, MD, Berwyn, IL
Ritesh Shah, MD, Glenview, IL
Wayne M. Goldstein, MD, Morton Grove, IL

Despite having double the rate of obesity, patients ≤50 years of age undergoing a THA have a lower risk of in-hospital adverse events and more favorable discharge disposition than patients ≥65 years.

Differences in Short-term Outcomes Between General and Spinal Anesthesia for Total Hip Arthroplasty
Bryce A. Basques, BS, New Haven, CT
Jason O. Toy, MD, Hamden, CT
Daniel D. Bobl, MPH, New Haven, CT
Nicholas Golimaux, BA, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT

This study characterized the differences in perioperative outcomes between general and spinal anesthesia for primary total hip arthroplasty.

Hip Disability Osteoarthritis Outcomes Survey (HOOS); HOOS, JR.: A Shorter Hip Outcomes Survey
Stephen Lyman, PhD, New York, NY
Yuo-Yu Lee, MS, New York, NY
Douglas E. Padgett, MD, New York, NY

HOOS, JR. is a novel, valid, responsive short-form patient reported outcome measure for the end stage osteoarthritis and post-hip arthroplasty patient.

Preoperative Musculoskeletal Comorbidities Limit Improvement in Functional Outcomes and Hip Pain in THA Patients
Scott Pascal, BA, Shrewsbury, MA
David C. Ayers, MD, Worcester, MA
Wenjun Li, PhD, Worcester, MA
Leslie Harrold, MD, MPH, Worcester, MA
Jeroan Allison, MD, Worcester, MA
Patricia Franklin, MD, MBA, MPH, Worcester, MA

In addition to medical factors, the burden of musculoskeletal comorbidity is an important consideration in predicting post-THA outcomes.

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.
Patient Reported Outcome Measures as a Tool for Surgical Appropriateness in Total Hip Replacement
Jonathan Berliner, MD, San Francisco, CA
Dane Brodke, San Francisco, CA
Vanessa Chan, MPH, San Francisco, CA
Nelson F. SooHoo, MD, Los Angeles, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA

Preoperative SF12v2 and WOMAC scores can be used to predict a patient's likelihood of obtaining a clinically meaningful improvement in functional outcome after total hip arthroplasty.

Factors Associated with Early Improvement in Back Pain After Hip Arthroplasty: A Multi-center Study
Peter C. Chimienti, MD, Rochester, NY
Christopher J. Drinkwater, MD, Rochester, NY
Wenjun Li, PhD, Worcester, MA
Celeste Lemay, RN, MPH, Worcester, MA
Regis O’Keefe, Rochester, NY
Patricia Franklin, MD, MBA, MPH, Worcester, MA

Patients with and without LBP reported improvement in pain scores in the operative hip. Patients with improvement in their low back pain had clinically meaningful improvement in the non- operative hip.

Perioperative Outcomes of Total Hip Arthroplasty in the Medicaid Population
Brian E. Schwartz, MD, Des Plaines, IL
David Mossad, Chicago, IL
Vincent M. Moretti, MD, Berwyn, IL
Mark H. Gonzalez, MD, Chicago, IL

This study, utilizing a national database, demonstrated that patients with Medicaid undergoing a THA have a longer length of hospitalization than those patients without Medicaid.

Total Joint Arthroplasty in Transplant Recipients: In-hospital Adverse Outcomes
Priscilla K. Cavanaugh, MS, Philadelphia, PA
Antonia Chen, MD, MBA, Philadelphia, PA
Mohammad R. Rasouli, MD, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Zachary D. Post, MD, Egg Harbor Township, NJ
Fabio Orozco, MD, Linwood, NJ
Alvin C. Ong, MD, Linwood, NJ

This study aims to determine in-hospital complications in solid organ transplant recipients who received subsequent TJA.
Wednesday, March 25

4:06 PM  PAPER: 422
The Effect of Preoperative Planning Software on the Correction of Femoroacetabular Impingement in Hip Arthroscopy
George P. Ackerman, MD, New York, NY
Malachy P. McHugh, PhD, New York, NY
Srino Bharam, MD, New York, NY

Arthroscopic femoral neck osteoplasty utilizing the 3-D CT-based preoperative planning software results in improved accuracy of deformity correction and decreased rate of inadequate resection.

4:12 PM  PAPER: 423
Relationship Between the Faber Distance Test and the Radiographic Alpha-angle in Patients with FAI
Marc J. Philippon, MD, Vail, CO
Christiano Trindade Sr, MD, Vail, CO
Kiyokazu Fukui, MD, Kaboku-gun, Japan
Karen K. Briggs, MPH, Vail, CO

This study demonstrated that FABER distance is associated with alpha angle. It can predict alpha angle over 55 degrees. The test can be used in screening without using imaging.

4:24 PM  PAPER: 424
Limited Vessel Damage Does Not Compromise Femoral Head Perfusion at Hip Arthroscopy - Can the Safe Zone be Extended?
Danyal Nawabi, MD, FRCS (Orth), New York, NY
Craig Klinger, BS, New York, NY
Richard M. Hinds, MD, New York, NY
Peter K. Sculco, MD, Rochester, MN
David C. Dewar, FRACS, MBBS, Hamilton, Australia
Asheesh Bedi, MD, Ann Arbor, MI
David L. Helfet, MD, New York, NY
Bryan T. Kelly, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Posterolateral retinacular vessel damage not extending past 11 o clock results in a 11% reduction in femoral head perfusion when performing arthroscopic femoral osteochondroplasty.

4:30 PM  PAPER: 425
Effects of Acetabular Rim Trimming on the Hip Joint Contact Pressure: How Much is Too Much?
Sanjeev Bhatta, MD, Vail, CO
Simon Lee, MPH, Chicago, IL
Elizabeth Sheueman, MS, Chicago, IL
Michael Salata, MD, Cleveland, OH
Charles A. Bush-Joseph, MD, Chicago, IL
Shane J. Nho, MD, Chicago, IL

Resecting more than 4-6 mm of bone in an acetabular rim trimming hip arthroscopy procedure may dramatically increase hip joint contact pressures and predispose patients to early osteoarthritis.

4:36 PM  PAPER: 426
In-vivo Arthrokinematics & Femur-Labrum Contact Patterns in Normal & FAI Hips During Clinical Exams
Ashley L. Kapron, PhD, Salt Lake City, UT
Stephen K. Aoki, MD, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT
Andrew E. Anderson, PhD, Salt Lake City, UT

Direct visualization of in-vivo hip motion during clinical exams through dual fluoroscopy demonstrates joint articulation to be a highly complex, subject-specific process.

4:48 PM  PAPER: 427
Does Relief from Intra-articular Diagnostic Injection Predict Outcome after Hip Arthroscopy?
Aaron J. Krych, MD, Rochester, MN
Paul L. Sousa, MBA, Rochester, MN
William M. Engasser, BA, Grand Rapids, MI
Alexander H. King, BS, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN

The percentage relief that patients receive from preoperative intraarticular hip injection does not predict clinical outcomes following arthroscopic surgery for femoroacetabular impingement.

4:54 PM  PAPER: 428
Labral Reconstruction with ITB Autograft and Semi-T Allograft Restores Hip Joint Contact Area and Contact Pressure
Simon Lee, MPH, Chicago, IL
Thomas H. Wuerz, MD, Kenilworth, IL
Elizabeth Sheueman, MS, Chicago, IL
Frank McCormick, MD, Pompano Beach, FL
Michael Salata, MD, Cleveland, OH
Marc J. Philippon, MD, Vail, CO
Shane J. Nho, MD, Chicago, IL

Focal anterosuperior hip labrum resectioning results in decreased contact area and increased contact pressures, while labral reconstruction normalizes time-zero acetabular contact areas and pressures.

5:00 PM  PAPER: 429
Femoroacetabular Impingement (FAI) in Adolescent Athletes
J. W. Thomas Byrd, MD, Nashville, TN
Kay S. Jones, RN, Nashville, TN

Symptomatic FAI among adolescents has a high correlation with athletic activities. Arthroscopic correction results in significant improvement but does not result in uniform return to sports.

* 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 25

5:12 PM  PAPER: 430  
Arthroscopic Surgery for Femoroacetabular Impingement: A Multi-center Community-based Prospective Study  
Dean K. Matsuda, MD, Los Angeles, CA  
Monti Khatod, MD, Santa Monica, CA  
Francois Antounian, MD, San Francisco, CA  
Charito Schneider, NP, Playa Vista, CA  
Faith F. Anthony, MS, San Diego, CA  
Liz Paxton, MA, San Diego, CA  
This large prospective study from 3 community hospitals shows comparable patient-assessed clinical improvement but lower satisfaction compared to reported specialty centers.

5:18 PM  PAPER: 431  
Hip Microinstability Treated with Arthroscopic Capsular Plication  
Michael Kalisvaart, MD, Reno, NV  
Marc Safran, MD, Redwood City, CA  
A series of 31 consecutive patients with hip microinstability (even with mild DDH) were successfully treated with arthroscopic capsular plication with and without labral surgery and no bony procedure.

5:24 PM  PAPER: 432  
Early Hip Arthroscopy vs. Non-operative Treatment and Delayed Surgery for Symptomatic FAI of the Hip  
Richard C. Mather III, MD, Durham, NC  
Jaskarndip Chabal, MD, Toronto, ON, Canada  
Simon Lee, MPH, Chicago, IL  
Charles A. Bush-Joseph, MD, Chicago, IL  
Bryan T. Kelly, MD, New York, NY  
J. W. Thomas Byrd, MD, Nashville, TN  
Marc J. Philippon, MD, Vail, CO  
Shane J. Nho, MD, Chicago, IL  
Early arthroscopic treatment for femoroacetabular impingement provides greater benefits to the patient at a cost to the payer that is acceptable.

5:36 PM  PAPER: 433  
Outcomes of Hip Arthroscopy in Borderline Dysplasia: A Comparison to a Matched Cohort of Patients with FAI  
Danyal Naqabi, MD, FRCS (Orth), New York, NY  
Kara Fields, MS, New York, NY  
Catherine (Sally) Wentzel, New York, NY  
Alexander S. McLaurhorn, MD, MBA, New York, NY  
Ernest L. Sink, MD, New York, NY  
Asheesh Bedi, MD, Ann Arbor, MI  
Anil S. Ranawat, MD, New York, NY  
Bryan T. Kelly, MD, New York, NY  
The outcomes of hip arthroscopy for borderline dysplastic patients are similar to the outcomes for non-dysplastic patients undergoing hip arthroscopy for FAI at a minimum of 2 years follow-up.

5:42 PM  PAPER: 434  
Cartilage Status at Time of Arthroscopy Predicts Failure in Patients with Hip Dysplasia  
Maureen K. Dwyer, ATC, PhD, Newton, MA  
Jo-Ann Lee, MS, Newton, MA  
Joseph C. McCarthy, MD, Newton, MA  
The presence of chondral damage on the posterior femoral head and anterior acetabulum are strong predictors of ultimate conversion to THA in patients with hip dysplasia.

5:48 PM  PAPER: 435  
Previous Surgery for Femoroacetabular Impingement Does Not Compromise Total Hip Arthroplasty Outcomes  
Luke Spencer-Gardner, MD, Rochester, MN  
Christopher L. Camp, MD, Rochester, MN  
John R. Martin, MD, Rochester, MN  
Bruce A. Levy, MD, Rochester, MN  
Rafael J. Sierra, MD, Rochester, MN  
Robert T. Trousdale, MD, Rochester, MN  
Aaron J. Krych, MD, Rochester, MN  
Patient reported outcomes after THA were not affected by prior open or arthroscopic procedures for FAI. However, increased operative times and risk of heterotopic ossification were noted after SHD.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM  
Room 3304  
Trauma V: Tibia/Knee  
Moderator(s): Edward Perez, MD, Memphis, TN  
Ivan S. Tarkin, MD, Pittsburgh, PA

4:00 PM  PAPER: 436  
Risk Factors Associated with Acute Compartment Syndrome of the Lower Extremity in Patients with Tibia Fractures  
Ronald Auer, MD, Louisville, KY  
John Riehl, MD, Pensacola, FL  
Acute compartment syndrome risk factors in a population of trauma patients. Risk factors include tibial plateau fractures and segmental tibia fractures.

4:06 PM  PAPER: 437  
Infection and Non-union after Fasciotomies in Tibial Plateau and Shaft Fractures: A Matched Cohort Comparison  
Michael C. Doan, MD, Chicago, IL  
James A. Blair, MD, El Paso, TX  
Dan Kemper, MD, Lafayette, CA  
Murat Erdogan, MD, Samsun, Turkey  
Henry C. Sagi, MD, Tampa, FL  
Retrospective review and matched cohort comparison of union and infection in patients treated with and without fasciotomy for acute compartment syndrome in operatively managed tibia fractures.
### Educational Programs

#### Wednesday, March 25

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper No.</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:12 PM</td>
<td>PAPER:438</td>
<td>Factors Associated with Infection in Tibia Plateau Fractures with Compartment Syndrome</td>
<td>Jason A. Lowe, MD, Homewood, AL; Brian Etier, MD, Birmingham, AL; Emily Keener, DO, Clifton Forge, VA. Retrospective review of patient, injury, and surgical risk factors for infection in tibia plateau fractures with compartment syndrome.</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>PAPER:440</td>
<td>Implant Removal After Open Reduction and Internal Fixation of Tibial Plateau Fractures Improves Clinical Outcomes</td>
<td>Matthew R. Garner, MD, New York, NY; Marschall B. Berkes, MD, Webster, NY; Amelia Ni, BA, Rockton, IL; Jacqueline F. Birnbaum, BA, Basking Ridge, NJ; Dean G. Lorich, MD, New York, NY. Removal of implants after surgical fixation of tibial plateau fractures leads to improved clinical outcomes as measured by the Knee Outcomes Survey and he Lower Extremity Functional Scale.</td>
</tr>
<tr>
<td>4:36 PM</td>
<td>PAPER:441</td>
<td>Adverse Events, Length of Stay, and Readmission Following Surgery for Tibial Plateau Fractures</td>
<td>Bryce A. Basques, BS, New Haven, CT; Matthew L. Webb, BA, New Haven, CT; Daniel D. Bobl, MPH, New Haven, CT; Nicholas Golimbaux, BA, New Haven, CT; Jonathan N. Grauer, MD, New Haven, CT. Risk factors for adverse events, length of stay, and readmission within the first 30 days following open reduction and internal fixation of tibial plateau fractures were identified.</td>
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<tr>
<td>4:48 PM</td>
<td>PAPER:442</td>
<td>A Prospective Evaluation of PCS and RUST Scoring in Tibial Shaft Fractures Treated with IM Nailing</td>
<td>Paul Tornetta III, MD, Boston, MA; Mohit Bhandari, MD, FRCSC, PhD, Hamilton, ON, Canada; Emil H. Schemitsch, MD, Toronto, ON, Canada; Yves LaFlamme, MD, Montreal, QC, Canada; Jason W. Busse, DC, PhD/Assistant Prof, Thornhill, ON, Canada; Diane Heels-Ansdell, MSc, Hamilton, ON, Canada; David Sanders, MD, London, ON, Canada. The purpose of this study is to describe the recovery curve of patients after intramedullary nailing using the SF-36 PCS and to evaluate its association with progressive healing using the RUST score.</td>
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<tr>
<td>4:54 PM</td>
<td>PAPER:443</td>
<td>How Long Should Fracture Follow Up Be? Standards of Care and Implications for Clinical Research</td>
<td>William M. Ricci, MD, St Louis, MO; Paul Tornetta III, MD, Boston, MA; Michael J. Gardner, MD, Saint Louis, MO; Christopher McAndrew, MD, Saint Louis, MO; Roy W. Sanders, MD, Tampa, FL. Surgeons follow extra-articular fractures 3 to 6 months radiographically and 6 months clinically. Follow-up of intra-articular fractures is typically 6 radiographically and 1 year or more clinically.</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>PAPER:444</td>
<td>Prediction of Tibial Nonunions at Three Months After Intramedullary Nailing</td>
<td>Justin T. Fowler, MD, Gig Harbor, WA; Andrew G. Dubina, Millersville, MD; Renan C. Castillo, MD, Baltimore, MD; Christina L. Boulton, MD, Baltimore, MD; Marcus F. Sciadini, MD, Baltimore, MD; Jason W. Nascone, MD, Baltimore, MD; Christopher T. LeBrun, MD, Ellicott City, MD; Jennifer E. Hagen, MD, Gainesville, FL; Robert V. O’Toole, MD, Baltimore, MD. The RUST score applied to tibia healing at 3 months appears to be a powerful predictor of need for tibial nonunion surgery.</td>
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Wednesday, March 25

5:12 PM  PAPER: 445
An Alternative Approach to Tibial Intramedullary Nailing: The SeMid Technique (Semi-extended Midvastus Nailing)
Thomas Sanders, MD, Falls Church, VA
A. Stephen Malekzadeh, MD, Great Falls, VA
Daniel R. Dziadosz, MD, Lexington, KY
Cary C. Schwartzbach, MD, Amandale, VA
Lolita Ramsey, RN, PhD, Falls Church, VA

The SEMid technique is an alternative approach for intramedullary nailing of the tibia which combines the advantages of semi-extended tibial nailing with the midvastus approach to the knee.

5:18 PM  PAPER: 446
Angular Malalignment Following IM Nailing of Distal Tibia Fractures: Suprapatellar versus Infrapatellar Approach
Richard L. Thomas, MD, Lawrenceville, GA
Matthew L. Welsh, MD, Orlando, FL
Joshua Langford, MD, Orlando, FL
Kenneth J. Koval, MD, Belle Isle, FL
George J. Haidukewych, MD, Orlando, FL

Radiographic study that shows statistically significant better coronal alignment when nailing distal metaphyseal tibia fractures through a suprapatellar approach versus infrapatellar.

5:24 PM  PAPER: 447
Comparison of Complications of Intramedullary Nailing versus Plate Fixation of Extra-articular Tibial Fractures
Shobhit Minhas, BA, Chicago, IL
Bryant Ho, MD, Chicago, IL
Paul Switaj, MD, Chicago, IL
George Ochenjele, MD, Chicago, IL
Anish R. Kadakia, MD, Glensview, IL

Plate fixation has decreased post-op transfusion requirements and no difference in post-op complications when compared to intramedullary nailing of closed extra-articular tibial shaft fractures.

5:36 PM  PAPER: 448
Prognostic Criteria in Traumatic Knee Dislocations: A Retrospective Study of 42 Cases
Tuna Pehlivanoglu, MD, Istanbul, Turkey
Halil I. Balci, MD, Istanbul, Turkey
Onder I. Kilicoglu, MD, Istanbul, Turkey

A Schenck’s grade of KDII or higher and presence of arterial or nerve injury is correlated with poor outcome. Incidence of neurovascular injury was not significantly related to Schenck’s grade.

5:42 PM  PAPER: 449
Patella Fracture Fixation Using a Load-Sharing Neutralization Cable
J. Dean Cole, MD, Orlando, FL
Brian K. Vickaryous, MD, Longwood, FL
Jason Croft, MBA, Orlando, FL
Susan J. Nelson, RN, Orlando, FL

The use of a load-sharing neutralization cable in patella fracture fixation decreased healing time and allowed for increased functioning and same-day weight bearing in patients.

5:48 PM  PAPER: 450
Extensor Mechanism Injuries of the Knee: Patient Demographics and Comorbidities
Matthew R. Garner, MD, New York, NY
Elizabeth Gauden, MD, New York, NY
Marshall B. Berkes, MD, Webster, NY
Amela Ni, BA, Rockton, IL
Dean G. Lorich, MD, New York, NY

While patella fracture is the most common extensor mechanism injury seen in females, non-fracture injuries tend to be associated with underlying medical comorbidities in these patients.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room 3105
Spine III: Lumbar
Moderator(s): Mark D. Rahm, MD, Temple, TX
William F. Donaldson III, MD, Pittsburgh, PA

4:00 PM  PAPER: 451
Influence of Pain Sensitivity on Surgical Outcomes After Spine Surgery in Patients with Lumbar Spinal Stenosis
Ho-Joong Kim, MD, PhD, Sungnam
Jin-Sup Yeom, MD, PhD, Sungnam

Patients with high pain sensitivity may display less improvement in back pain, leg pain, and disability after surgery for LSS as compared to patients with low pain sensitivity.

Discussion – 6 Minutes

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Wednesday, March 25

4:06 PM  PAPER: 452
Risks Factors for Reoperation after Surgery for Intervertebral Disc Herniations: Subanalysis of 8-year SPORT Data
Dante M. Leven, DO, Brooklyn, NY
Peter G. Passias, MD, Brooklyn, NY
Thomas J. Errico, MD, New York, NY
Virginie Lafage, PhD, New York, NY
Kristina Bianco, New York, NY
Alexandra Lee, RN, New York, NY
Jonathan Larue, MD, Lebanon, NH
Wenyuan Zhao, PhD, Hanover, NH
Michael C. Gerling, MD, Brooklyn, New York

Retrospective analysis identified reoperation rate and risk factors among the surgically treated patients of the intervertebral disc herniation arm of the Spine Patient Outcomes Research Trial.

4:12 PM  PAPER: 453
Clinical Outcomes Ten Years after Lumbar Fusion for Degenerative Spondylolisthesis
Andrew J. Cordiale, DO, Babylon, NY
Leah Y. Carreon, MD, Louisville, KY
Erie Adams, BS, Louisville, KY
Kelly Bratcher, RN, Louisville, KY
Steven D. Glassman, MD, Louisville, KY

Ten years postop, patients who had fusion for degenerative spondylolisthesis continued to have improvement in clinical outcomes. Patients who had revisions had less improvement than those who did not.

4:24 PM  PAPER: 454
Modifiable Risk Factors in Patients with Low Back Pain
Scott T. Shemory, MD, Akron, OH
Kiel J. Pfefferle, MD, Akron, OH
Ian M. Gradisar, MD, Akron, OH

Low back pain (LBP) is a common diagnosis, and determining modifiable risk factors is important to help avoid the morbidity and cost associated with chronic symptoms.

4:30 PM  PAPER: 455
Relative Benefit of TLIF vs. PSF at Five-Year Follow Up Stratified by Diagnostic Indication
Calvin Kuo, MD, Oakland, CA
Leah Y. Carreon, MD, Louisville, KY
Benjamin A. Schell, MS, Dallas, TX
Steven D. Glassman, MD, Louisville, KY

HRQOLs at five years post-op were similar in spondylolisthesis patients treated by TLIF or PSF. For disc pathology and post-decompression, HRQOLs were better in patients treated with TLIF vs PSF.

4:36 PM  PAPER: 456
Complications Following Lumbar Fusion in Diabetic Patients: Insulin-Dependence Makes the Difference
Nicholas Golinvaux, BA, New Haven, CT
Arya G. Varthi, MD, New Haven, CT
Daniel D. Bohl, MPH, New Haven, CT
Bryce A. Basques, BS, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT

Compared to non-diabetic patients, insulin-dependent diabetes was associated with an increased risk of a considerably higher number of postoperative complications than non-insulin-dependent diabetes.

Discussion – 6 Minutes

4:48 PM  PAPER: 457
Minimally Invasive versus Open Discectomy: A Systematic Review and Meta-analysis
Nathan Evaniew, MD, Hamilton, ON, Canada
Moin Khan, MD, Oakville, ON, Canada
Brian Drew, MD, Hamilton, ON, Canada
Desmond C. Kwok, MD, Hamilton, ON, Canada
Mohit Bhandari, MD, FRCSC, PhD, Hamilton, ON, Canada
Michelle A. Ghert, MD, FRCSC, Oakville, ON, Canada

Fourteen randomized controlled trials (n=1590 patients) were included in a meta-analysis. The current evidence does not support routine use of MIS techniques for cervical or lumbar discectomies.

4:54 PM  PAPER: 458
Prospective Evaluation of Radiculitis Following BMP-2 Use for Interbody Arthrodesis in Spine Surgery
Arjun Sebastian, MD, Rochester, MN
Paul M. Huddleston, MD, Rochester, MN
Mark A. Pichelsman, MD, Rochester, MN
Bradford L. Carrier, MD, Rochester, MN
Gregory Arutyunyan, MD, Rochester, MN
Jeremy L. Fogelson, MD, Rochester, MN
Vickie Treder, Rochester, MN
Ahmad Nassr, MD, Rochester, MN

In a prospective evaluation of BMP-2 in TLIF, no significant evidence of postoperative radiculitis was observed. BMP-2 improves short term fusion rates and appears to be safe and efficacious for TLIF.

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Wednesday, March 25

5:00 PM

PAPER: 459

Lumbar Spine Fusion Rates with Local Bone in Posterolateral and Combined Posterolateral and Interbody Approaches

Daniel K. Park, MD, Bloomfield Hills, MI
Rick C. Sasso, MD, Carmel, IN
Paul M. Arnold, MD, FACS, Kansas City, KS
David H. Kim, MD, Boston, MA
Kevin C. Baker, PhD, Royal Oak, MI
Jeffrey S. Fishgrund, MD, Southfield, MI

Results from this large, multi-center trial indicate that fusion rates associated with the use of local autologous bone graft are surprisingly low and demonstrate the need for enhancers or extenders.

Discussion – 6 Minutes

5:12 PM

PAPER: 460

3 Year Results of a Level 1 Trial Comparing Decompression and Interlaminar Stabilization to Decompression and Fusion

Hyun W. Bae, MD, Los Angeles, CA
Reginald Davis, MD, Baltimore, MD
Thomas J. Errico, MD, New York, NY
Christopher A. Yeung, MD, Paradise Valley, AZ

3 year data from a Level 1 study suggests decompression with interlaminar stabilization provides positive clinical and radiographic outcomes for treatment of moderate to severe lumbar spinal stenosis.

5:18 PM

PAPER: 461

Symptomatic Neuroforaminal Bony Overgrowth after Transforaminal Lumbar Interbody Fusion with BMP

Anton Y. Jorgensen, MD, Iowa City, IA
Sriram Sankaranarayanan, MD, Chicago, IL
Mohamed Noureldin, MD, Chicago, IL
Sreeharsha Nandyala, BA, Aurora, IL
Alejandro Marquez-Lara, MD, Winston Salem, NC
Hamid Hassanzadeh, MD, Charlottesville, VA
Eric B. Sundberg, MD, Stanford, CA
Kern Singh, MD, Chicago, IL

An investigation of post-operative radiculopathy and neuroforaminal bony overgrowth following the use of bone morphogenetic protein in transforaminal lumbar interbody fusion.

5:24 PM

PAPER: 462

Why Lumbar Artificial Disc Replacements Fail

Kenneth A. Pettine, MD, Johnstown, CO
Nicholas Schraut, MD, Worcester, MA
Fernando Techy, MD, Fort Collins, CO

Seventy-five percent of patients met strict clinical success after two-years, and the failures were most commonly due to facet pain and implant complications, which showed variation with implant type.

Discussion – 6 Minutes

5:30 PM

PAPER: 463

Prior Admissions are the Most Important Independent Predictor of Risk in Posterior Lumbar Fusion

Ananth S. Eleswarapu, MD, Chicago, IL
Mark M. Mikhael, MD, Northbrook, IL
Jason L. Koh, MD, Winnetka, IL

We identify number of admissions in the prior year as an independent risk factor for increased complications and length-of-stay in patients undergoing posterior lumbar fusion.

Discussion – 6 Minutes

5:42 PM

PAPER: 464

Impact of Surgical Approach on Clinical Outcomes in the Treatment of Lumbar Pseudarthrosis

Roger K. Owens II, MD, Louisville, KY
Mladen Djurasovic, MD, Louisville, KY
Charles H. Crawford III, MD, Louisville, KY
Steven D. Glassman, MD, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY

In patients with pseudarthrosis, only 17-28% reached MCID for ODI regardless of surgical approach. This further emphasizes the importance of achieving a solid fusion with the index surgery.

5:48 PM

PAPER: 465

The Effect of Psychological Distress on Functional Outcome Scores from Lumbar Spine Surgery

Prokopis Annis, MD, Salt Lake City, UT
Ryan Spiker, MD, Salt Lake City, UT
Brandon D. Laurence, MD, Salt Lake City, UT
Michael D. Daubs, MD, Las Vegas, NV
Darrel S. Brodke, MD, Salt Lake City, UT

This study shows that surgical intervention in psychologically distressed individuals can improve self-rated disability to a similar degree seen in non-distressed individuals.

Discussion – 6 Minutes
Thursday, March 26

SYMPOSIUM
8:00 AM — 10:00 AM
Room 2001

Operative versus Non-Operative Treatment of Common Upper Extremity Injuries: An Evidence-Based Approach (P)
Moderator: Michael D. McKee, MD, Toronto, ON, Canada

Attendees of this symposium gain an understanding of how evidence-based medicine can be used for decision making in the treatment of common upper extremity fractures.

I. Fractures of the Distal Radius
   Aaron Nauth, MD, Toronto, ON, Canada

II. Fractures of the Radial Head
    David C. Ring, MD, Boston, MA

III. Fractures of the Humeral Shaft
     Emil H. Schemitsch, MD, Toronto, ON, Canada

IV. Fractures of the Proximal Humerus
    Clifford B. Jones, MD, FACS, Grand Rapids, MI

V. Acute Acromio-Clavicular Joint Injuries
   Stephane Pelet, MD, PhD, Quebec, QC, Canada

VI. Fractures of the Scapula
    Peter A. Cole, MD, Saint Paul, MN

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SYMPOSIUM
8:00 AM — 10:00 AM
Room 2201

The Adolescent Hip in 2015: Controversies and Complication Prevention (Q) America
Moderator: Ira Zaltz, MD, Royal Oak, MI

While focused on the adolescent hip, the topics discussed in this symposium are also important to the adult hip. Ranging from instability to impingement mechanics, the topics presented are current areas of intense investigation and the therapeutic management has evolved since the conceptualization of prearthritic hip disorders. The presented cases focus on the lessons learned from complications that have occurred within hip preserving surgery and strategies to avoid complications.

I. Proper Analysis of Standardized Imaging/Accurate Diagnostic Strategies
   Michael Leunig, PhD, Zurich, Switzerland

II. Using the MRI and CT to Maximize Treatment Decision-Making
    Bryan T. Kelly, MD, New York, NY

III. “Mild” Acetabular Dysplasia: How is it Defined and Treated
     Ernest L. Sink, MD, New York, NY

IV. Management of Femoral Version and Torsion
    Martin Beck, MD, Luzern, Switzerland

V. Managing Acetabular Dysplasia and Concomitant Chondral and Labral Damage
    John C. Clohisy, MD, Saint Louis, MO

VI. The Acutely Displaced Epiphysis: To Dunn or not to Dunn
    Wudbhav N. Sankar, MD, Wynnewood, PA

VII. Acute Management of the Head/Neck Junction: So Many Options, So Little Data
     Young Jo Kim, MD, PhD, Boston, MA

VIII. Approaching the Healed, Symptomatic SCFE
      Daniel J. Sucato, MD, MS, Dallas, TX

IX. Is Non-Surgical Treatment of Adolescent FAI Substandard Care?
    Michael B. Millis, MD, Lanham, MD

X. Implementing Arthroscopy in the Care of Hip Patients: Where, When, Whom?
    Christopher M. Larson, MD, Edina, MN

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### INSTRUCTIONAL COURSE LECTURE

**8:00 AM — 9:00 AM**

**FD18 Lifelong Learning: Principles of Peer Education in Orthopaedics**

- Moderator: Evan L. Flatou, MD, New York, NY
- L. Scott Levin, MD, Philadelphia, PA
- William N. Levine, MD, New York, NY

This course provides orthopaedic surgeons with tips to endeavor toward a life of learning and teaching.

**8:00 AM — 10:00 AM**

**301 Trunnions, Tapers and Corrosion in THA: What's All the Fuss About? What Every Surgeon Should Know**

- Co-Moderators: Daniel J. Berry, MD, Rochester, MN
- John J. Caillaghan, MD, Iowa City, IA
- Robert Barrack, MD, Saint Louis, MO
- Mathias Bostrom, MD, New York, NY
- James A. Browne, MD, Charlotteville, VA
- A. Seth Greenwald, DPhil Oxon, Cleveland Heights, OH
- Atul Kamath, MD, Philadelphia, PA
- Arthur Malkani, MD, Louisville, KY
- Michael M. Morlock, PhD, Hamburg, Germany
- Christopher L. Peters, MD, Salt Lake City, UT
- Thomas Vail, MD, San Francisco, CA

Evaluate 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.

**302 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 readmissioafter total hip arthroplasty, there is a need to better understand and prevent complications responsible for readmission to the hospital.

**303 Revision TKA: Step-by-Step Video Techniques**

- Moderator: Rafael J. Sierra, MD, Rochester, MN
- Michael P. Bolognesi, MD, Durham, NC
- William L. Griffin, MD, Charlotte, NC
- William G. Hamilton, MD, Alexandria, VA
- Raymond H. Kim, MD, Denver, CO

This course helps participants learn and apply the techniques of measured resection and gap balancing for unicompartmental and total knee arthroplasty.

**304 The Synovial Joint: Structure, Function, Injury and Repair, Osteoarthritis**

- Moderator: Alan J. Grodzinsky, PhD, Cambridge, MA
- Joseph A. Buckwalter, MD, Iowa City, IA

This course 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.

**305 Management of Complications of Common Foot and Ankle Surgeries**

- Moderator: Mark S. Myerson, MD, Baltimore, MD
- J. Chris Coetzee, MD, Edina, MN
- Steven L. Haddad, MD, Glenview, IL
- William C. McGarvey, MD, Katy, TX

Strategies for managing common complications following foot and ankle surgery; present an approach to reconstruction and salvage of complications of the forefoot, midfoot, hindfoot and ankle.

**306 The Learning Curve in Orthopaedics: Defining and Controlling It**

- Moderator: Paul E. Beaulé, MD, Ottawa, ON, Canada
- Mohit Bhandari, MD, FRSCC, Hamilton, ON, Canada
- Wade T. Gofton, BSCH, MD, Ottawa, ON, Canada
- Michael Solomon, MD, Sydney, Australia

It has been suggested that within 10 years of graduation, a surgeon needs to acquire a complete set of new skills. This instruction 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.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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307 Complications of Common Hand Surgery Procedures
Moderator: Peter J. Stern, MD, Cincinnati, OH
Ryan P. Calfee, MD, Saint Louis, MO
Sanjeev Kakar, MD, Rochester, MN
Fraser J. Leversedge, MD, Durham, NC
This course covers complications following surgery for basal joint arthritis, carpal and cubital tunnel decompression, small bone fixation, velar plating for distal radius fracture, and includes a panel discussion.

308 The Difficult Pediatric Supracondylar Humerus Fracture: Tips and Techniques to Avoid Complications
Moderator: Brian K. Brighton, MD, Charlotte, NC
Joshua M. Abzug, MD, Timonium, MD
Christine A. Ho, MD, Dallas, TX
Todd F. Ritzman, MD, Akron, OH
Case-based learning is used to highlight the techniques and tips to avoid complications when caring for pediatric supracondylar humerus fractures.

309 Anatomy of a Medical Liability Lawsuit: Practical Issues in Malpractice Avoidance
Moderator: John P. Lyden, MD, New York, NY
Theodore J. Clarke, MD, Denver, CO
Anissa 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.

310 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
Ashesh Bedi, MD, Ann Arbor, MI
Michael J. Gardner, MD, Saint Louis, MO
Andrew S. Rokito, MD, New York, NY
This course 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.

311 Head and Spine Injuries in Athletes: When to Worry
Moderator: William C. Warner Jr, MD, Germantown, TN
Patrick J. Cabill, MD, Philadelphia, PA
Kern Singh, MD, Chicago, IL
Alexander Vaccaro, MD, PhD, Glendale, 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.

312 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. Irgang, PhD, Pittsburgh, PA
Darren L. Johnson, MD, Lexington, KY
Brian Noehren, PT, PhD, Lexington, KY
This course gives basic science and offers an orthopaedic surgeon’s perspective on return to play by showing specific test, 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.

313 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
This interactive course presents nightmarish errors, preventative and corrective measures, and lessons learned by a renowned group of experienced surgeons with integrated time to discuss audience experiences.

314 Pediatric Orthopaedic Trauma: Principles of Management
Moderator: Shital N. Parikh, MD, Cincinnati, OH
James H. Beaty, MD, Memphis, TN
Alvin Crawford, Cincinnati, OH
John M. Flynn, MD, Philadelphia, PA
William L. Hemmikus Jr, MD, Hershey, PA
Andrew Howard, Toronto, ON, Canada
Charles T. Mehml, DO, MPH, Cincinnati, OH
Scott Mubarak, San Diego, CA
Ken J. Noonan, MD, Madison, WI
Susan A. Scherl, MD, Omaha, NE
David L. Skaggs, MD, Los Angeles, CA
This course discusses the fundamentals of pediatric orthopaedic trauma management in general and for specific injuries, providing guidelines for management.

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**8:00 AM — 12:00 PM**

**390 TeamSTEPPS**

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*Moderator: Harpal S. Khanuja, MD, Cockeysville, MD<br>Dwight W. Burney III, MD, Albuquerque, NM<br>Mary J. O’Connor, MD, Jacksonville, FL<br>William J. Robb III, MD, Winnetka, IL<br>Kristy L. Weber, MD, Philadelphia, PA*

TeamSTEPPS is an evidenced-based team building and communication program designed to enhance patient safety and efficiency in health care. This four-hour 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 these fundamental skills workshops, 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.

**PAPER PRESENTATION**

8:00 AM — 10:00 AM

**Venetian Ballroom B**

**Adult Reconstruction Knee V: Revision TKA**

*Moderator(s): John L. Masonis, MD, Charlotte, NC<br>Bassam Masri, MD, FRCSC, Vancouver, BC, Canada*

8:00 AM

**Complications and Readmissions after Revision Knee Arthroplasty: Analysis of ACS-NSQIP 2006-2012**

*Arjun Sebastian, MD, Rochester, MN<br>Sanjeev Kakar, MD, Rochester, MN<br>Kristine Thomsen, Rochester, MN<br>Elizabeth Habermann, Ph.D., Rochester, MN<br>Mark W. Pagnano, MD, Rochester, MN*

ACS-NSQIP was used to review 4209 patients who underwent revision total knee arthroplasty. Multiple independent predictors of systemic and local complications as well as readmission were determined.

8:06 AM

**Mid-Term Results of Porous Tantalum Femoral Cones in Revision Total Knee Arthroplasty**

*Gorden D. Potter III, MD, Rochester, MN<br>Matthew P. Abdel, MD, Rochester, MN<br>David G. Lewallen, MD, Rochester, MN<br>Arlen D. Hanssen, MD, Rochester, MN*

Tantalum femoral cones provide adequate augmentation and are a durable and reliable for revision total knee arthroplasty in the setting of metaphyseal bone loss.

8:12 AM

**Cementless Tibial Methaphyseal Fixation in Revision Total Knee Arthroplasty**

*Donald L. Pomeroy, MD, Louisville, KY<br>Bradley Webb, MD, Broadview Heights, OH<br>Janene A. Empson, RN, ONC, Louisville, KY<br>Jessica S. Olson, BS, Louisville, KY*

Cementless metaphyseal fixation in revision total knee arthroplasty shows good clinical results at early follow-up without any re-operations for aseptic loosening.

**Discussion – 6 Minutes**

8:24 AM

**The Use of Metaphyseal Sleeves in Revision Total Knee Replacement**

*David F. Dalury, MD, Baltimore, MD<br>William P. Barrett, MD, Renton, WA<br>Danielle M. Chapman, Towson, MD*

Metaphyseal sleeves are an effective and versatile way to reconstruct bone loss in a group of 46 consecutive revision total knee arthroplasties.

8:30 AM

**Tibial Stems in Revision Total Knee Arthroplasty: Is There an Anatomic Conflict?**

*Mohamed Gobba, MD, HOUSTON, TX<br>Newton Chan, Houston, TX<br>Rikin Patel, Houston, TX<br>Stephen J. Incavo, MD, Houston, TX*

The alignment and tray position of stemmed tibial components for revision total knee arthroplasty may be adversely affected by the tibial canal axis and stem length.

**Discussion – 6 Minutes**

8:36 AM

**Tibial Tubercle Osteotomy in Revision Knee Arthroplasty**

*Shahid Punwar, BSc, MBBS, Bristol, United Kingdom<br>Daniel P. Fick, MBBS, FRACS, Nedlands, Australia<br>Riaz Khan, FRCS, Cottesloe, Australia*

Tibial tubercle osteotomy is a safe and reproducible procedure when adequate exposure cannot be obtained in revision knee arthroplasty.

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8:48 AM  PAPER: 472
**Tibial Tubercle Osteotomy in Revision Knee Arthroplasty - A Modified, Low Energy, Suture Technique**
Ammar Abbas, FRCS (Tr & Orth), Collooney, Ireland
Adel Ghandour, MBBS, MSc, Vale of Glamorgan, United Kingdom
Rhidian Morgan-Jones, MD, Cardiff, United Kingdom

Low-energy tibial tubercle osteotomy and braided polyester suture repair provides a useful alternative to wire repair in extensile knee exposure.

8:54 AM  PAPER: 473
**Assessing and Quantifying Instability in Revision Total Knee Arthroplasty**
David Hamilton, PhD, Edinburgh, United Kingdom
Richard Burnett, FRCS(Ed), Edinburgh, United Kingdom
James Patton, MD, Edinburgh, United Kingdom
Colin Howie, ChB, MB, Edinburgh, United Kingdom

We describe a diagnostic pattern that reflects instability of the primary total knee arthroplasty. This suggests that diagnostic criteria to assess unstable knee arthroplasty may be developed.

9:00 AM  PAPER: 474
**Stepwise Surgical Correction of Flexion Instability After Total Knee Arthroplasty**
Matthew P. Abdel, MD, Rochester, MN
Luis Pulido, MD, Rochester, MN
Erik P. Severson, MD, Crosby, MN
Arlen D. Hanssen, MD, Rochester, MN

Revision surgery for flexion instability after TKA requires reduction of tibial slope, correction of malalignment, improvement of posterior condylar offset, and additional joint line elevation.

9:12 AM  PAPER: 475
**Outcomes of Medial Collateral Ligament Injuries During Total Knee Arthroplasty**
Marcelo B. Siqueira, MD, Beachwood, OH
Kathryn Haller, BA, Mentor, OH
Andrew Goldblum, Cleveland, OH
Andrew Mulder, MD, Sartell, MN
Alison K. Klika, MS, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH

After 5 years, MCL disruption was associated with a lower KSS, although the observed improvement in scores was not significantly different from controls.

9:18 AM  PAPER: 476
**Patelloplasty with Gullwing Osteotomy for Patellar Deficiency in the Setting of Revision Total Knee Arthroplasty**
Jeremy Gililland, MD, Salt Lake City, UT
Jill Erickson, PA, Salt Lake City, UT
Christopher E. Pelt, MD, Salt Lake City, UT
Nadia Hamad, ATC, MS, Salt Lake City, UT
Mike Anderson, MS, ATC, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT

We found no aseptic re-revisions for patellofemoral complications, 87% of these patellae tracking within the groove, and radiographic healing of the majority of the osteotomies.

9:24 AM  PAPER: 477
**Risk Factors of Failure for Patients Undergoing Revision Total Knee Arthroplasty Requiring Flap Coverage**
Bishoy V. Gad, MD, Brecksville, OH
Joseph F. Styrone, MD, PhD, Westlake, OH
Mark Goery, Westlake, OH
Caleb Szubsiki, BA, Cleveland, OH
Alison K. Klika, MS, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Carlos A. Higuera, MD, Bay Village, OH

Flap coverage in revision total knee arthroplasty is a viable limb salvage option, but patients with a history of cancer or Klebsiella infection should be aware of their increased risk for failure.

9:36 AM  PAPER: 478
**Inflammation in Arthrofibrosis after Total Knee Arthroplasty is not Self-sustaining in Vitro**
Tilman Pfitzner, MD, Berlin, Germany
Sven Geissler, MSc, PhD, Berlin, Germany
Bernd Preininger, MD, Berlin, Germany
Philipp Von Roth, MD, Berlin, Germany
Georg Duda, Dr Ing, Berlin, Germany
Carsten Perka, MD, Berlin, Germany

The supernatant of synovial cells incubated with joint fluid of arthrofibrotic TKA did not induce the same inflammatory changes in vitro and therefore did not result in a self-sustaining inflammation.

9:42 AM  PAPER: 479
**Selective Denervation for Persistent Knee Pain after Total Knee Arthroplasty: A Report of 40 Cases**
Shao-Min Shi, MD, Milwaukee, WI
James T. Ninomiya, MD, Milwaukee, WI

We used selective denervation for persistent knee pain after TKA and obtained an excellent outcome. The procedure provides an effective option for the management of intractable knee neuroma pain.

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9:48 AM  PAPER: 480
Location of All Cause 30-Day Readmissions Following Total Joint Replacement: Surgical Versus Outside Hospital
Leslie Harrold, MD, MPH, Worcester, MA
David C. Ayers, MD, Worcester, MA
Philip C. Noble, PhD, Houston, TX
Regis O’Keefe, Rochester, NY
Thomas R. Bowen, MD, Danville, PA
Jeroan Allison, MD, Worcester, MA
Patricia Franklin, MD, MBA, Worcester, MA

In this national sample of patients, approximately 1 in 4 readmissions following TJR occurred at outside hospitals, and not at the hospital where the TJR was performed.

Discussion – 6 Minutes

8:00 AM – 10:00 AM  Venetian Ballroom D
Adult Reconstruction Hip IV: Complications/Readmissions

8:00 AM  PAPER: 481
Inpatient Mortality and Morbidity for Dialysis Patients Undergoing a Primary Total Hip Arthroplasty
Karthikeyan E. Ponnusamy, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Sabyasachi C. Thakkar, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khanuja, MD, Cockeysville, MD

Patients on dialysis undergoing a primary hip arthroplasty had significantly greater mortality (5.77% vs 0.12%) and complication rates during the initial hospitalization for arthroplasty.

8:06 AM  PAPER: 482
Major Adverse Events Following Total Joint Arthroplasty in Patients with Coronary Revascularization
Reza Mostafavi Tabatabaei, MD, Philadelphia, PA
Mohammad R. Rasouli, MD, Philadelphia, PA
Maryam Rezapoor, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Alvin C. Ong, MD, Linwood, NJ
Javad Parvizi, MD, FRCS, Philadelphia, PA

The present study aims to evaluate perioperative complications and mortality in these patients and also investigate how perioperative arrhythmia may affect in-hospital outcome of TJA patients.

8:12 AM  PAPER: 483
The Incidence and Economic Burden of Venous Thromboembolism in the United States
Ali S. Shahi, MD, Philadelphia, PA
Fattih Kucukdurmaz, MD, Istanbul, Turkey
Mitchell Maltenfort, PhD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

The aim of this study was to determine the incidence and economic impact of VTE [pulmonary embolism (PE) and/or deep venous thrombosis (DVT)] after elective arthroplasty.

Discussion – 6 Minutes

8:24 AM  PAPER: 484
Blood Transfusion in Primary Hip and Knee Arthroplasty: Incidence, Risk Factors, and 30-Day Complication Rates
Adam Hart, MD, Montreal, QC, Canada
Jad Abou Khalil, MD, Montreal, QC, Canada
Alberto Carli, MD, Montreal, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
David Zukor, MD, Montreal, QC, Canada
John Antoniou, MD, PhD, Montreal, QC, Canada

We queried the National Surgical Quality Improvement Program database to study the incidence, risk factors and 30-day complications associated with transfusions in primary hip and knee arthroplasty.

8:30 AM  PAPER: 485
Does Neuraxial Anesthesia Decrease the Rate of Postoperative Complications and Blood Transfusions?
Bryan Haugbom, MD, Chicago, IL
William W. Schairer, MD, New York, NY
Michael D. Hellman, MD, Chicago, IL
Benedict U. Nwachukwu, MD, MBA, New York, NY
Brett R. Levine, MD, Chicago, IL

Using the NSQIP Database, Neuraxial Anesthesia demonstrated fewer complications compared to General Anesthesia, and was shown to be an independent protective factor against blood transfusion.

8:36 AM  PAPER: 486
Unplanned Readmissions after Total Hip Replacement Using a Statewide Database
Michele R. D’Apuzzo, MD, Miami, FL
Ting-Jung Pan, MPH, New York, NY
Stephen Lyman, PhD, New York, NY
Geoffrey H. Westrich, MD, New York, NY

Patients older than 85 years, males, African-American, Medicare insurance, diagnosis of AVN and bilateral procedures are at higher risk of readmission after total hip arthroplasty.

Discussion – 6 Minutes

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8:48 AM  PAPER: 487
Perioperative Complications in Patients with Inflammatory Arthropathy After Total Hip Replacement
Erik Schnaser, MD, Rancho Mirage, CA
James A. Brown, MD, Charlottesville, VA
Mark P. Figgie, MD, New York, NY
Douglas E. Padgett, MD, New York, NY
Michele R. D’Apuzzo, MD, Miami, FL

Differences exist in postoperative inpatient medical and orthopaedic complications among patients with different types of inflammatory arthropathies following THA.

8:54 AM  PAPER: 488
Incidence of Periprosthetic Joint Infection (PJI) after Primary THA or TKA in Patients with a History of PJI
Hany S. Bedair, MD, Boston, MA
Nitin Goyal, MD, Arlington, VA
Matthew J. Dietz, MD, Morgantown, WV
Kenneth Urish, MD, PhD, Sewickley, PA
Viktor Hansen, MD, Boston, MA
Jorge Manrique, MD, Bogota, Colombia
Benjamin Zmistowski, BS, Philadelphia, PA
Javad Parvizi, MD, FCSP, Philadelphia, PA
Gregory K. Deirmengian, MD, Birmingham, PA

The objective of this study is to determine whether patients with a history of treated PJI at one site will have the same or increased risk of PJI in the second arthroplasty site.

9:00 AM  PAPER: 489
Procedure Duration of Knee and Hip Arthroplasties Affects Wound Complications Rate and Length of Hospital Stay
Yaron S. Brin, MD, Kfar-Saba, Israel
Laura M. Epure, Montreal, QC, Canada
Adrian Cartaleanu, Montreal, QC, Canada
Anthony Albers, MD, Montreal, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
David Zukor, MD, Montreal, QC, Canada
John Antoniou, MD, PhD, Montreal, QC, Canada

In both TKAs and THAs the duration of operation increases the potential risk for wound related complications and is directly related to the length of hospital stay and the unplanned readmission rate.

Discussion – 6 Minutes

9:12 AM  PAPER: 490
Can the American College of Surgeons Risk Calculator Predict Outcomes after Knee and Hip Arthroplasty?
Adam Edelstein, MD, Chicago, IL
Lisa Suleiman, MD, Chicago, IL
Rishi Khambhati, BA, Chicago, IL
Michael Moore, Glennview, IL
Mary J. Kuusy, PhD, Chicago, IL
Matthew D. Beal, MD, Elmhurst, IL
David W. Manning, MD, Chicago, IL

The American College of Surgeons risk calculator has poor predictive value for 30-day complications for total knee and hip arthroplasty.

9:18 AM  PAPER: 491
Racial and Ethnic Disparities in Hospital Readmission for Total Joint Arthroplasty
Robert Aseltine, PhD, Farmington, CT
Jun Yan, PhD, Storrs, CT
Matthew Katz, MS, North Haven, CT
Ross A. Benthien, MD, Hartford, CT
Courtland G. Lewis, MD, Farmington, CT

30 day all-cause readmission rates for Black and Hispanic patients following total joint replacement are statistically higher than for Caucasian patients.

9:24 AM  PAPER: 492
Using a Prescription Based Co-morbidity Index to Predict Infections after Joint Arthroplasty
Maria C. Inacio, PhD, San Diego, CA
Nicole Pratt, PhD, Adelaide, Australia
Elizabeth R. Roughhead, PhD, Adelaide, Australia
Stephen Graves, MD, Adelaide, Australia

The medication prescription RxRisk-V co-morbidity algorithm performed better in predicting infections after joint arthroplasty than diagnoses based Elixhauser and Charlson algorithms.

Discussion – 6 Minutes

9:36 AM  PAPER: 493
Prospective Evaluation of the Need for Critical Care Intervention after Total Joint Arthroplasty
Paul M. Courtney, MD, Philadelphia, PA
Christopher M. Melnic, MD, Philadelphia, PA
Jacob T. Gutsche, MD, Philadelphia, PA
Eric L. Hume, MD, Wynnewood, PA
Guo-Chin Lee, MD, Philadelphia, PA

We present a model to help predict which high-risk patients would benefit from a higher level of care after elective TJAs and aid hospitals in allocating precious critical care resources.

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9:42 AM  PAPER: 494  
**Activity Level after Primary Total Hip Arthroplasty Complication**  
Richard Nadeau, MD, London, ON, Canada  
Lyndsay Somerville, PhD, London, ON, Canada  
Hans J. Kreder, MD, Toronto, ON, Canada  
Steven J. MacDonald, MD, London, ON, Canada  
James Howard, MD, London, ON, Canada  

Patients suffering a perioperative complication after THA not requiring re-operation return to expected levels of function by one year after surgery.

9:48 AM  PAPER: 495  
**Complications of Direct Anterior Total Hip Arthroplasty**  
Dante Marconi, MD, Philadelphia, PA  
Guo-Chin Lee, MD, Philadelphia, PA  

Direct anterior THA can be performed successfully but it is not without complications. The approach is not immune to dislocations and there is a significant reoperation rate within 12 months.

9:54 AM  PAPER: 918  
**Local Soft-tissue Thickness as a Significant Risk Factor for Complications After Total Hip Arthroplasty**  
Travis J. Wilson, MD, Temple, TX  
Matthew E. Jordan, MD, Temple, TX  
Daniel Jupiter, PhD, Temple, TX  
Bryce C. Allen, MD, Temple, TX  
Christopher D. Chaput, MD, Temple, TX  

The purpose of the study was to determine the relationship between lateral hip soft tissue thickness as an indicator of body mass distribution and post-operative complications in THA.

8:06 AM  PAPER: 497  
**Effect of Postoperative Surgical Drain Concentrations of Vancomycin on Human Osteoblast Activity**  
Sarina Sinclair, PhD, Salt Lake City, UT  
Kade S. Lyman, BA, Salt Lake City, UT  
Prokops Annis, MD, Salt Lake City, UT  
Ryan Spiker, MD, Salt Lake City, UT  
Darrel S. Brodke, MD, Salt Lake City, UT  
Brandon D. Laurence, MD, Salt Lake Cry, UT  

This study examined the activity of human osteoblasts following exposure to vancomycin at concentrations observed in surgical drains following spinal fusions.

8:12 AM  PAPER: 498  
**Are Satisfaction Scores Related to Outcome Scores in a Spine Surgery Patient Population?**  
Amir Abtahi, MD, Salt Lake City, UT  
Brandon D. Laurence, MD, Salt Lake City, UT  
Darrel S. Brodke, MD, Salt Lake City, UT  
Chong Zhang, MS, Salt Lake City, UT  
Kade S. Lyman, BA, Salt Lake City, UT  
Angela P. Presson, PhD, Salt Lake City, UT  
Ryan Spiker, MD, Salt Lake City, UT  

This study shows that there is no significant correlation between patient satisfaction scores and patient reported outcome measures when measured at a single point in time.

8:24 AM  PAPER: 499  
**Does Aspirin Increase Perioperative Morbidity in Patients with Cardiac Stents Undergoing Spinal Surgery?**  
Jason M. Cuellar, MD PhD, New York, NY  
Anthony Petrizzo, DO, Hicksville, NY  
Ravi Vaswani, BS, New York, NY  
Jeffrey A. Goldstein, MD, New York, NY  
John A. Bendo, MD, New York, NY  

We observed no increase in bleeding-related complications in patients with cardiac stents undergoing spine surgery while taking ASA compared to patients that discontinued ASA before surgery.
**Thursday, March 26**

**8:30 AM**

**PAPER: 500**

**Prevalence and Radiographic Features of Dialysis-associated Spondylosis in Long-term Hemodialysis Patients**

Keishi Maruo, MD, Nishinomiya, Japan  
Fumihiko Aizumi, MD, Nishinomiya, Japan  
Toshiya Tachibana, MD, Nishinomiya, Japan  
Shinichi Inoue, MD, Nishinomiya, Japan  
Kazuhiko Murrayama, MD, Nishinomiya, Japan  
Taisbi Okada, MD, Nishinomiya, Japan  
Yoshinobu Masumoto, Nishinomiya, Japan  
Shinichi Yoshiya, MD, Nishinomiya, Hyogo, Japan

The prevalence of dialysis-associated spondylosis in the cervical spine was 74% in long-term hemodialysis patients. Spondylolisthesis was observed in 33% (anterolisthesis 16%, retrolisthesis 17%).

**8:36 AM**

**PAPER: 501**

**What is the Fate of Adult and Pediatric Spinal Deformity Reconstruction after Prior Deep Wound Infection?**

Jeffrey Gum, MD, Louisville, KY  
Lawrence G. Lenke, MD, Saint Louis, MO  
Keith H. Bridwell, MD, Saint Louis, MO  
Afshin Salehi, MS, MD, Saint Louis, MO  
David B. Bumpass, MD, Saint Louis, MO  
Patrick A. Sugrue, MD, St Louis, MO  
Isaac O. Karikari, MD, Durham, NC  
Michael P. Kelly, MD, Saint Louis, MO

Spinal deformity reconstruction after deep wound infection has high complication and recurrent infection rate. However, patients’ showed improved clinical and radiographic outcomes.

**8:48 AM**

**PAPER: 502**

**Anterior Debridement May not be Necessary for Adult Tuberculous Spondylitis of the Thoracic and Lumbar Spines**

Shih-Tien Wang, MD, Taipei, Taiwan  
Po H. Chou, MD, Taipei, Taiwan  
Huang Chau-Wie, MD, New Taipei City, Taiwan  
Hsiao-Li Ma, MD, Saratoga, CA  
Chien-Lin Liu, MD, Taipei, Taiwan

51 patients with TB spondylitis were treated with posterior surgery without debridement of necrotic tissue. Laminecmy was done in case of neurologic deficits. Kyphotic improvement was 11 degrees.

**8:54 AM**

**PAPER: 503**

**Prevalence of Cancer in Spinal Fusion Patients Receiving High Dose Bone Morphogenetic Protein**

Christine Baldus, MD, Saint Louis, MO  
Jeffrey Gum, MD, Louisville, KY  
Keith H. Bridwell, MD, Saint Louis, MO  
Azeem Ahmad, BA, Saint Louis, MO  
Addisu Mesfin, MD, Brighton, NY  
Leah Y. Carreon, MD, Louisville, KY

Exposure to high-dose rhBMP-2 did not increase the risk of development of a primary, recurrent or metastatic SEER cancer. Prevalence of primary SEER cancers was lower than that reported by NCI.

**9:00 AM**

**PAPER: 504**

**Renal Impairment as a Continuous Variable in Short-term Morbidity Risk Following Lumbar Spine Surgeries**

Christopher T. Martin, MD, Coralville, IA  
Andrew J. Pugely, MD, Iowa City, IA  
Yuebo Gao, PhD, Iowa City, IA  
Stuart L. Weinstein, MD, Iowa City, IA

Morbidity risk following lumbar spine surgery is strongly associated with renal impairment, and the magnitude of risk increases markedly for patients with an eGFR below 60.

**9:12 AM**

**PAPER: 505**

**The Prevalence of Sacro-iliac Joint Degeneration in Asymptomatic Adults: A Review of 500 CT Scans**

Jonathan-James Eno, MD, Redwood City, CA  
Michael Bellino, MD, Redwood City, CA  
Julius A. Bishop, MD, Palo Alto, CA

Review of 500 CT scans demonstrated radiographic findings of SI joint degeneration are highly prevalent in asymptomatic patients. Prevalence of degenerative changes increases with each decade of life.

**9:18 AM**

**PAPER: 506**

**Type of Metal, Local, or Prophylactic IV Antibiotics: What Influences Postoperative MRSA Spine Infections the Most?**

Sachin Gupta, Carmichael, CA  
Sukanta Maitra, M.D., Sacramento, CA  
Kavita Gupta, Carmichael, CA  
Pumibal Wepipiyakul, MD, Bangkok, Thailand  
Maria Das Dracas Pereira, PhD, Davis, CA  
Blythe Durbin-Johnson, PhD., Davis, CA  
Munish C. Gupta, MD, Sacramento, CA

Post-operative infections can be devastating. We demonstrated the efficacy of Vancomycin powder in eradicating MRSA. Cobalt Chrome had more residual infection than Titanium and Stainless Steel rods.

* 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.
Educational Programs

Thursday, March 26

9:24 AM
PAPER: 507
Microbiologic Profile of Infections in Presumed Aseptic Revision Spine Surgery
Grant Shifflett, MD, New York, NY
Benjamin Bjerke-Kroll, MD, New York, NY
Benedict U. Nwachukwu, MD, MBA, New York, NY
Janina Kueper, New York City, NY
Andrew A. Sama, MD, New York, NY
Federico P. Girardi, MD, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Alexander P. Hughes, MD, New York, NY

Retrospective review to determine the microbiologic profile of infections in revision spine surgery.

Discussion – 6 Minutes

9:36 AM
PAPER: 508
The Local Application of Vancomycin in Spine Surgery and Changes to Bacterial Resistance Profiles
Frank Valone III, MD, San Francisco, CA
Shane Burch, MD, San Anselmo, CA
Vedat Deviren, MD, San Francisco, CA
Bobby Tay, MD, San Francisco, CA
Sigurd H. Berven, MD, San Francisco, CA
Serena S. Hu, MD, Redwood City, CA

This study shows Vancomycin resistant spine infections did not increase from 2007-2013, and there was no significant correlation between Vancomycin application and Vancomycin resistant bacteria.

9:42 AM
PAPER: 509
Iliac Crest Bone Graft Use in Spinal Fusion: Incidence and Short-term Postoperative Risk in a National Cohort
Jordan Gruskay, BA, New Haven, CT
Bryce A. Basques, BS, New Haven, CT
Daniel D. Bohl, MPH, New Haven, CT
Matthew L. Webb, BA, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT

Iliac crest bone graft (ICBG) is used in only 5.9% of spinal fusion procedures. This study found only slight postoperative differences between ICBG and other fusion methods.

9:48 AM
PAPER: 510
Bone Morphogenetic Protein and Cancer Risk: An Analysis of 10,416 Patients from a Multi-Center Spine Registry
Kamran Majid, MD, Piedmont, CA
Lance K. Mitsunaga, MD, Sacramento, CA
Yuexin Chen, BS, San Francisco, CA
Jessica Harris, MS, RD, San Diego, CA
Julie Alvarez, MPH, San Diego, CA
Liz Paxton, MA, San Diego, CA
Kern Guppy, MD, Sacramento, CA
Ravi S. Bains, MD, Orinda, CA

With our 2-year follow-up data including 10,416 patients from a large spine registry, we did not find an association between BMP-2 and increased cancer risk.

Discussion – 6 Minutes

8:00 AM — 10:00 AM
Room 3105
Tumor/Metabolic Disease II: Bone: Tumors, Outcomes and Research
Moderator(s): Thomas Scharschmidt, MD, Delaware, OH
Francis Young-In Lee, MD, PhD, New York, NY

8:00 AM
PAPER: 511
Is There a Role for Elective Hip Arthroplasties in the Patients with End-Staged Cancer?
Kwang Woo Nam, MD, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA
Gwoan Li, PhD, Boston, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Dimitris Dimitriou, MD, Cambridge, MA
Hee J. Kim, MD, Seoul, Republic of Korea
Sang-Rim Kim, MD, Jeju
Sung Wook Choi, Jeju

Elective hip arthroplasty may be considered as a palliative therapy for terminal stage cancer patients with functionally disabling hip pathologies.

8:06 AM
PAPER: 512
Allograft Prosthesis Composite or Mega Prosthesis for Reconstruction of the Proximal Tibia: Which Works Best?
Daniel A. Mueller, MD, Zurich, Switzerland
Giovanni Beltrami, MD, Firenze, Italy
Guido Scoccianti, MD, Firenze, Italy
Domenico Andrea Campanacci, MD, Firenze, Italy
Rodolfo Capanna, Firenze, Italy

Mega Prosthesis and Allograft Prosthesis Composite are valuable reconstructive options for massive bone defects in the proximal tibia with comparable 10-year survival rates and functional results.

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High Rate of Failure Following Revision of a Total Knee Arthroplasty Performed for Oncological Resection
Matthew Houdek, MD, Rochester, MN
Benjamin Wilke, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Chad Watts, MD, Rochester, MN
Franklin H. Sim, MD, Rochester, MN

Late complications following revision of a TKA performed for an oncological resection is common, with half of patients undergoing a rerevision surgery at 15-years.

Cost Effectiveness of Prophylactic Skeletal Fixation in Orthopaedic Oncology Patients
Alan T. Blank, MD, MS, New York, NY
Neeraj M. Patel, MD, MPH, New York, NY
Daniel M. Lerman, MD, Park City, UT
Timothy Rapp, MD, New York, NY

Our study shows prophylactic fixation of pathologic lesions compared to operative treatment of pathologic fractures results in lower admission costs, lower cost per surgery and shorter hospital stay.

Predictors of Reoperations and Complications after Operative Treatment for Metastatic Femur Fractures
Stein Jasper Janssen, MD, Cambridge, MA
Joost Kortlever, BS, Boston, MA
John E. Ready, MD, Boston, MA
Kevin A. Raskin, MD, Boston, MA
Marco Ferrone, MD, FRCSC, Boston, MA
Francis J. Hornick, MD, Boston, MA
Joseph H. Schwab, MD, Boston, MA

We found that plate-screw fixation was associated with an increased risk of reoperation. Charlson Comorbidity Index was associated with an increased risk of systemic complications.

Predictors of Complications and Reoperations after Operative Treatment of Metastatic Humerus Fractures
Stein Jasper Janssen, MD, Cambridge, MA
Maarten Van Dijke, BS, Cambridge, MA
John E. Ready, MD, Boston, MA
Kevin A. Raskin, MD, Boston, MA
Marco Ferrone, MD, FRCSC, Boston, MA
Francis J. Hornick, MD, Boston, MA
Joseph H. Schwab, MD, Boston, MA

We found that pathological fractures had an increased risk of reoperations as compared to impending fractures. Patients who did not use bisphosphonates also had an increased risk of reoperation.

Sclerostin Mediates Osteolytic Activity in Bony Metastatic Breast Cancer and Giant Cell Tumor
Jocelyn T. Compton, MSc, BS, New York City, NY
Dawn A. Maldonado, BA, New York, NY
Jungho Back, PhD, New York, NY
Hyunwoo P. Kang, BS, MA, New York, NY
Lee Song, PhD, New York, NY
Francis Y. Lee, MD, PhD, New York, NY

Sclerostin, a negative regulator of bone primarily secreted by osteocytes, mediates osteolysis in metastatic breast cancer lesions and giant cell tumor (GCT).
Thursday, March 26

9:12 AM  PAPER: 520
Factors Predicting Functional Outcome After Malignant Pelvic Tumor Resection
Shintaro Iwata, MD, Tokyo, Japan
Fabio L. Giardina, MD, Milano, Italy
Lee Jeys, FRCS, Droitwich, United Kingdom
Robert J. Grimer, FRCS, Worcester, United Kingdom

Factor analysis of patients who underwent malignant pelvic tumor resection revealed that periacetabular site, flail hip, pelvic ring discontinuity, and multiple surgeries make their function worse.

9:18 AM  PAPER: 521
Prognostic Factors of Early Mortality in Patients Undergoing Spinopelvic Tumor Resection
Grigorij Arutyunyan, MD, Rochester, MN
Arjun Sebastian, MD, Rochester, MN
Nathan Murdoch, MD, Rochester, MN
Bradford L. Currier, MD, Rochester, MN
Peter S. Rose, MD, Rochester, MN
Doris Wenger, MD, Rochester, MN
Franklin H. Sim, MD, Rochester, MN
Michael J. Yaszemski, MD, PhD, Rochester, MN

A 26.1% 12 month mortality rate was observed in this cohort of patients undergoing en bloc resection for spinopelvic tumors. Several factors were prognostic of early mortality.

9:24 AM  PAPER: 522
Patient-reported Outcome and Quality of Life After En Bloc Spondylectomy for Primary Spinal Tumors
Takashi Igarashi, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Hiroyuki Hayashi, MD, Kanazawa, Japan
Noriaki Yokogawa, MD, Kanazawa, Japan
Takayoshi Ishii, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Most of our patients were satisfied with the results of en bloc spondylectomy and maintained good ADL performance. Significant physical health impairment was mostly normalized 3 years after surgery.

9:36 AM  PAPER: 523
The Effect of Surgery with Radiation on Pelvic Ewing Sarcoma Survival
Vincent Ng, MD, Ellicott City, MD
Philip Louie, MD, Chicago, IL
Stephanie Punt, BS, Seattle, WA
Viviana Bompardre, PhD, Seattle, WA
Darin Davidson, MD, Seattle, WA
Robin L. Jones, MBBS, MD, Seattle, WA
Ernest U. Conrad III, MD, Seattle, WA

Pelvic Ewing sarcoma (ES) has poorer outcomes than extremity-based lesions. We evaluated the effect of different variables on survival and local control of patients with ES of the pelvis.

9:42 AM  PAPER: 524
Childhood Cancer Survivors of Malignant Bone Tumors and Soft Tissue Sarcomas are at Risk of Hospitalization
Cristian D. Gonzalez, BS, BA, Salt Lake City, UT
R. Lor Randall, MD, Salt Lake City, UT
Jennifer Wright, MD, Salt Lake City, UT
Jian Ying, PhD, Salt Lake City, UT
Anne Kirchhoff, PhD, MPH, Salt Lake City, UT

Childhood cancer survivors of malignant bone tumors and soft tissue sarcomas experience a higher hospital admission rate and a longer length of stay than the comparison cohort.

9:48 AM  PAPER: 525
Medical Malpractice and Sarcoma Care - Who is at Risk and Why Does it Occur?
Nathan W. Mesko, MD, Cleveland, OH
Jennifer Mesko, JD, Cleveland, OH
Lauren Gaffney, Esq, Nashville, TN
Jennifer L. Halpern, MD, Nashville, TN
Herbert S. Schwartz, MD, Nashville, TN
Ginger E. Holt, MD, Nashville, TN

Primary care physicians and orthopaedic surgeons are the most commonly named defendants, citing a delay in diagnosis. Further education surrounding diagnosis and treatment of sarcoma is needed.

Discussion – 6 Minutes
Thursday, March 26

SYMPOSIUM
10:30 AM — 12:30 PM
Room 2001
Implementing Bundled Payment Initiatives for Total Joint Replacement: Decreasing Cost and Increasing Quality (R)
Moderator: Brian S. Parsley, MD, Bellaire, TX

The Bundled Payment Care Initiative (BPCI) started data gathering in January of 2013. It may be years until there is sufficient data for a meaningful evaluation of whether savings are achieved under the BPCI without quality decline. This symposium reports the early results of BPCI in a variety of clinical settings. The speakers outline the challenges and benefits of their various healthcare delivery systems as applied to the delivery of total joint replacement. Methods of cost control and quality improvement are emphasized and detailed.

I. Overview of an Academic Medical Center’s Decision to Pursue BPI
   Joseph D. Zuckerman, MD, New York, NY

II. Implementation of VHA’s BPI Initiative for TKA for a Hospital Consortium
    Peggy L. Naas, MD, MBA, Chanhassen, MN

III. Results of BPI for Medicare TJA at a Large, Academic Medical Center
     Richard Iorio, MD, New Rochelle, NY

IV. Results of BPI for Non-Medicare TJA at a Physician Owned Hospital
    Alan H. Beyer, MD, Newport Beach, CA

V. Results of BPI for Medicare TJA at a Community Hospital
    Stephen J. Zabinski, MD, Longport, NJ

VI. Utilization of Clinical Pathways to Facilitate Standardization of Care for BPI TJA
    James D. Slover, MD, New York, NY

VII. Quality and Cost Control are Not Mutually Exclusive
     Joseph A. Bosco III, MD, New York, NY

SYMPOSIUM
10:30 AM — 12:30 PM
Room 2201
Advances in Treatment for Complex Knee Injuries: Case-Based Symposium (S)
Moderator: Bruce A. Levy, MD, Rochester, MN

This symposium on complex knee injuries uses a case-based approach to highlight treatment principles of fracture dislocations, multiple ligament injuries, and extensor mechanism disruptions of the knee.

I. Co-Moderator/Knee Dislocation - High Energy Trauma
   Gregory C. Fanelli, MD, Danville, PA

II. Initial Assessment of the Severely Injured Knee
    James P. Stannard, MD, Columbia, MO

III. Knee Dislocation - The Athlete
     Joel L. Boyd, MD, Minneapolis, MN

IV. Knee Dislocation - Morbidly Obese
    Mark D. Miller, MD, Charlottesville, VA

V. Complex Extensor Mechanism Disruption
    Michael J. Stuart, MD, Rochester, MN

VI. Extensive Medial Sided Knee Injury
    Lars Engebretsen, MD, Oslo, Norway

VII. Extensive Lateral Sided Knee Injury
     Robert F. LaPrade, MD, PhD, Vail, CO

VIII. The Irreducible Knee Dislocation
      Peter B. MacDonald, MD, Winnipeg, MB, Canada

IX. Complications: Recognition and Treatment
    Robert G. Marx, MD, New York, NY

X. Fracture Dislocations
    Daniel Whelan, MD, Toronto, ON, Canada

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**INSTRUCTIONAL COURSE LECTURE**

9:30 AM — 10:30 AM

**FD19**

**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

This session is designed to help attendees implement three general principles for teaching those whose first language is not English and/or have cultural norms and operating procedures that are significantly different from those in the United States.

10:30 AM — 12:30 PM

**321**

**Preventing Leg Length Inequality and Instability after THA**

**Moderator:** Rafael J. Sierra, MD, Rochester, MN  
Aaron G. Rosenberg, MD, FACS, Chicago, IL  
Matthew Austin, MD, Philadelphia, PA  
Carlos J. Laverna, MD, Coral Gables, FL

Discuss the practical approach (preoperative preparation, surgical treatment) to preventing leg length inequality and instability after primary total hip arthroplasty (THA) with some emphasis on the management of instability after THA.

**322**

**Revision in Total Hip Arthroplasty: Understanding and Management of Osteolysis**

**Moderator:** C. Anderson Engh Jr, MD, Arlington, VA  
William G. Hamilton, MD, Alexandria, VA  
William J. Maloney III, MD, Redwood City, CA  
Neil P. Sheth, MD, Philadelphia, PA

This course reviews the etiology, evaluation, and surgical treatment of periprosthetic hip osteolysis. It includes polyethylene and metal on metal bearing surface associated osteolysis with an emphasis on surgical decision-making techniques.

**323**

**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, Mooresville, IN  
Mathias P. 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. Macaladay, 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.

**324**

**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 irrelevant 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.

**325**

**Management of the Mangled Upper Extremity**

**Moderator:** Benjamin K. Potter, MD, Bethesda, MD  
George P. Nanos, MD, Rockville, MD  
Peter C. Rhee, MD, San Antonio, TX  
Scott M. Tintle, MD, Oakton, VA

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.

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Moderator: Daniel W. Green, MD, New York, NY
Laurel C. Blakemore, MD, Gainesville, FL
Lori A. Karol, MD, Dallas, TX
Roger F. Widmann, MD, New York, NY

This course 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 2015. 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 pitfalls and pearls of management.

327  Adolescent Hip Pain: A Frequent Complaint
Moderator: Ira Zaltz, MD, Royal Oak, MI
Ashesh Bedi, MD, Ann Arbor, MI
Wulbhav N. Sankar, MD, Wynnewood, PA
Ernest L. Sink, MD, New York, NY

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. Explores the current evaluation and management strategies for adolescent patients with hip pain.

328  Rotator Cuff Controversies
Moderator: 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

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.

329  Shoulder Instability: Technical Skills
Moderator: Hussein A. Elkousy, MD, Houston, TX
Pascal Boileau, MD, Nice, France
James P. Bradley, MD, Pittsburgh, PA
Laurence D. Higgins, MD, Boston, MA

This course provides technical guidance for arthroscopic and open management of anterior, posterior, and multidirectional instability as well as revision surgery and management of bone loss.

330  Treating the Aging Spine
Moderator: Theodore J. Oboma, 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

This course targets orthopaedists who treat spinal conditions in the elderly – from osteoporosis and fractures to degenerative deformities.

331  Controversies in Hip Arthroscopy
Moderator: Paul E. Beaule, MD, Ottawa, ON, Canada
J. W. Thomas Byrd, MD, Nashville, TN
John C. Clohisy, MD, Saint Louis, MO
Christopher M. Larson, MD, Edina, MN

Addressing various pathologies such as femoroacetabular impingement (FAI), as well as dealing with the more complex clinical scenarios such as the failed hip arthroscopy, are becoming more complex. World experts on the subject matter combine on case-based discussions.

332  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, Baltimore, MD
Hassan R. Mir, MD, MBA, Nashville, TN
George V. Russell Jr, MD, Jackson, MS

This course provides the community fracture surgeon with reduction tools, tips, and tricks to facilitate lower extremity fracture reductions and subsequently improve patient outcomes.

333  Diagnosis and Management of Tumors of the Hand and Upper Extremity
Moderator: Peter J. Jебson, MD, Grand Rapids, MI
Edward A. Athanasian, MD, New York, NY
Peter M. Murray, MD, Jacksonville, FL
Matthew R. Steensma, MD, Byron Center, MI

Course faculty present an overview of the most common benign and malignant tumors in the upper limb. They 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.

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Thursday, March 26

**SPECIAL SESSION**

10:30 AM - 11:30 AM
Room 4401

**Intellectual Property Rights: A Special Session**
Moderator: Ellen Moore, Chicago, IL
Evan L. Flatow, MD, New York, NY
Lisa Gates, JD, Chicago, IL

Informational session to define Intellectual Property (IP) rights especially as relates to copyrights; identify the differences between various regulations and releases; and learn how to apply in your presentations. Understand how HIPAA compliance affects your presentations and how image libraries can be a useful tool.

**PAPER PRESENTATION**

10:30 AM — 12:30 PM
Venetian Ballroom B

**Shoulder and Elbow IV: The Rotator Cuff**
Moderator(s): Robert B. Litchfield, MD, London, ON, Canada
Theodore A. Blaine, New Haven, CT

10:30 AM

**PAPER: 526**
**Prognostic Factors Affecting Rotator Cuff Healing after Arthroscopic Repair in Small to Medium Sized Tear**
Joo Han Oh, Prof, Seoul, Republic of Korea
Jisoon Park, MD, Seoul, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Daegu, Republic of Korea
Yoon Yub Kim, MD, Gyeonggi-Do, Republic of Korea

In small to medium sized rotator cuff tears, fatty degeneration of infraspinatus muscle, tear size and age significantly affect rotator cuff healing after arthroscopic repair.

10:36 AM

**PAPER: 527**
**Outcome of Arthroscopic Rotator Cuff Repair with Muscle Advancement for Large to Massive Rotator Cuff Tear**
Shin Yokoya, MD, Hiroshima, Japan
Yoshitomo Nakamura, Hiroshima, Japan
Yohei Harada, MD, Hiroshima, Japan
Katsunori Shiraishi, Hiroshima, Japan
Yu Mochizuki, MD, Hiroshima, Japan
Mitsuo Ochi, MD, PhD, Hiroshima, Japan

Arthroscopic rotator cuff repair assisted by mini-open supraspinatus and infraspinatus muscle advancement reduced the failure rate for the large to massive rotator cuff tear.

10:42 AM

**PAPER: 528**
**Medialized Repair for Retracted Rotator Cuff Tears: A Comparative Study with Propensity Score**
Young-Kyu Kim, MD, PhD, Inchon
Kyung-Hak Jung, MD, Inchon
Jun-Sung Won, MD, Inchon
Seung-Hyun Cho, MD, Inchon

The purpose of this study was to compare clinical outcomes of rotator cuff repair for the retracted tear performed with an anatomic repair versus repair with a medialization of the footprint.

**Discussion – 6 Minutes**

10:54 AM

**PAPER: 529**
**Arthroscopic Distal Clavicle Resection with Concomitant Rotator Cuff Repair: Prospective Randomized Trial**
Jae-Chul Yoo, MD, Seoul, Republic of Korea
Yong Bok Park, MD, Seoul, Republic of Korea
Keun Min Park, MD, Seoul, Republic of Korea
Dong Ho Kum, MD, Seoul, Republic of Korea
Eunsu Lee, MD, Seoul, Republic of Korea

Arthroscopic rotator cuff repair and subacromial decompression without distal clavicle resection might be sufficient in the patient who has both symptomatic AC joint arthritis and rotator cuff tear.

11:00 AM

**PAPER: 530**
**Early Mobilization Following Mini-Open Rotator Cuff Repair: A Randomized Controlled Trial**
Robert A. Balyk, MD FRCS(C), Sherwood Park, AB, Canada
Martin J. Bouline, MD, Edmonton, AB, Canada
Fiona Styles-Tripp, PT, BScPT, Edmonton, AB, Canada
Lauren A. Beaupre, PhD, Edmonton, AB, Canada
Manoj K. Saraswat, MHS, Edmonton, AB, Canada
Charlene R. Luciak-Corea, BScPT, Edmonton, AB, Canada
Anelise Silveira, PT, Edmonton, AB, Canada
Robert R. Glasgow, MD, FRCS, Edmonton, AB, Canada

This trial shows no difference in clinical outcomes at 24 months for postoperative mini-open rotator cuff repair patients treated with early mobilization instead of the standard 6 week immobilization.

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11:06 AM  PAPER: 531
Status of Contralateral Rotator Cuff in Patients Who Underwent Rotator Cuff Repair
Woong Kyo Jeong, Seoul, Republic of Korea
Dae-Hee Lee, MD, Seoul, Republic of Korea
Soon Hyouk Lee, MD, PhD, Seoul, Republic of Korea
Seung B. Han, MD, Seoul, Republic of Korea
Si Young Park, MD, PhD, Glenview, IL
Jong-Hoon Park, MD, PhD, Seoul, Republic of Korea
This study presents the characteristics of the contralateral shoulder in patients who underwent rotator cuff repair and the factors associated with rotator cuff tear of the contralateral shoulder.
Discussion – 6 Minutes

11:18 AM  PAPER: 532
Retear Rate Following Arthroscopic Rotator Cuff Repair: Single-Row vs. Double-Row Transosseous Equivalent Repair
Jae-Chul Yoo, MD, Seoul, Republic of Korea
Yong Bok Park, MD, Seoul, Republic of Korea
Keun Min Park, MD, Seoul, Republic of Korea
Dong Ho Kum, MD, Seoul, Republic of Korea
Shyam Sundar, MBBS, MD, Coimbatore, India
Junho Kim, Seoul, Republic of Korea
Young Hoo Ko, MD, Seoul, Republic of Korea
Eunsu Lee, MD, Seoul, Republic of Korea
Our results reveal that double-row Transosseous Equivalent fixation and type I repair seemed slight higher incidence of retear as compared to the single-row fixation and type II repairs.

11:24 AM  PAPER: 533
Biologic Augmentation of Rotator Cuff Repair with Mesenchymal Stem Cells Improves Healing and Prevents Retears
Philippe Hernigou, PhD, Creteil, France
Alexandre Poignard, MD, Creteil, France
Our study showed a substantial improvement in the level of tendon integrity present at the 10-year followup between the MSC-treated group and the control patients.

11:30 AM  PAPER: 534
A Prospective, Evaluation of Clinical Outcomes in Rotator Cuff Repairs Reinforced with a Xenograft Dermal Matrix
Evan S. Lederman, MD, Phoenix, AZ
Alison P. Toth, MD, Durham, NC
Gregory P. Nicholson, MD, Chicago, IL
George K. Bal, MD, Morgantown, WV
Gerald R. Williams Jr, MD, Philadelphia, PA
Tissue augmentation to reinforce repair of large to massive rotator cuff tears resulted in improved functional outcomes scores with a low complication rate.
Discussion – 6 Minutes

11:42 AM  PAPER: 535
Healing Rate of Arthroscopic Subscapularis Tendon Repairs Using Single-Row Mattress Suture
Jae-Chul Yoo, MD, Seoul, Republic of Korea
Ho-Young Ryu, MD, Seoul, Republic of Korea
Yong Bok Park, MD, Seoul, Republic of Korea
Keun Min Park, MD, Seoul, Republic of Korea
Dong Ho Kum, MD, Seoul, Republic of Korea
Eunsu Lee, MD, Seoul, Republic of Korea
Young Hoo Ko, MD, Seoul, Republic of Korea
Junho Kim, Seoul, Republic of Korea
All-arthroscopic treatment of isolated or combined SSC tears results in satisfied tendon integrity using single-row mattress repair technique.

11:48 AM  PAPER: 536
Progression of Degenerative Changes of the Biceps Tendon after Successful Rotator Cuff Repair
Momoko Yamaguchi, Funabashi, Japan
Norimasa Takahashi, MD, Funabashi, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Hikaru Imaizumi, Radiological technician, Funabashi, Japan
Nobuaki Kawai, MD, Chiba, Japan
Keisuke Matsuki, Funabashi, Japan
Morihito Tokai, MD, Funabashi, Chiba, Japan
Kazuomo Onishi, MD, Chiba, Japan
Yusuke Ueda, MD, Tokyo, Japan
The biceps tendon in the groove becomes thicker over time even after successful rotator cuff repair. In addition, increase of vascularity around the biceps tendon correlates with pain symptom.
Discussion – 6 Minutes

11:54 AM  PAPER: 537
Hypertrophy of Extra-articular Biceps Tendon Correlates with the Location and the Size of Rotator Cuff Tear
Hikaru Imaizumi, Radiological technician, Funabashi, Japan
Norimasa Takahashi, MD, Funabashi, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Momoko Yamaguchi, Funabashi, Japan
Nobuaki Kawai, MD, Chiba, Japan
Keisuke Matsuki, Funabashi, Japan
Morihito Tokai, MD, Funabashi, Chiba, Japan
Kazuomo Onishi, MD, Chiba, Japan
Yusuke Ueda, MD, Tokyo, Japan
Regardless of the symptoms, rotator cuff tear induced the hypertrophy of the biceps tendon, which was emphasized in patients with antero-superior tear and medium to large postero-superior tear.
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.
12:06 PM  PAPER: 538
Factors Affecting Acute Postoperative Pain Levels after Arthroscopic Rotator Cuff Repair
Derek J. Cuff, MD, Venice, FL
Brandon G. Santoni, PhD, Tampa, FL
Derek Pupello, Tampa, FL

This study evaluates multiple pre-operative and operative factors that are predictive of and correlate with acute post-operative pain levels after arthroscopic rotator cuff repair.

12:12 PM  PAPER: 539
Efficacy of Subacromial Steroid Injection for Pain Management in Recovery Period after Arthroscopic Cuff Repair
Sang-Jin Shin, MD, Seoul, Republic of Korea
Nandan N. Rao, MS, Anuragabad, India
Myeong Jae Seo, MD, Seoul, Republic of Korea

This prospective study describes the factors influencing postoperative pain and efficacy of subacromial steroid injection for pain relief during rehabilitation period after arthroscopic cuff repair.

12:18 PM  PAPER: 540
The Effect of Selective COX-2 Inhibitor on Pain Control and Rotator Cuff Healing Following Arthroscopic Repair
Joo Han Oh, Prof, Seoul, Republic of Korea
Hyuk Jun Seo, MD, PhD, Daegu
Sae Hoon Kim, MD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Daegu
Tae-Yon Rhie, MD, PhD, Seoul, Republic of Korea
Joon Yub Kim, MD, Gyeonggi-Do
Seok Won Chung, MD, Seoul, Republic of Korea

Even though selective COX-2 inhibitor showed comparable postoperative analgesic effect to others, selective COX-2 inhibitor seemed to interfere the tendon-to-bone healing after surgical repair.

10:30 AM — 12:30 PM
Venetian Ballroom D
Trauma VI: Femur

Moderator(s): James C. Krieg, MD, Philadelphia, PA
Amer J. Mirza, MD, Portland, OR

10:36 AM  PAPER: 542
Inferomedial Buttress Plating of Vertical Femoral Neck Fractures
James A. Blair, MD, El Paso, TX
Seth Cooper, MD, Tampa, FL
Greg A. Herzog, MD, Gainesville, GA
Scott Marberry, MD, Winter Park, FL
Daniel S. Chan, MD, Macon, GA
David T. Watson, MD, Tampa, FL
Henry C. Sagi, MD, Tampa, FL

This study investigates the utilization of an inferomedial buttress plate to augment a sliding hip screw and anti-rotational screw in the treatment of vertical femoral neck fractures.

10:42 AM  PAPER: 543
Short- and Long-term Results of Complex Hip Fractures Treated with a Proximal Femoral Locking Plate
Paul M. Lafferty, MD, Woodbury, MN
Amir R. Rizkala, MD, Saint Paul, MN
Mengnai Li, MD, PhD, Saint Paul, MN
Peter A. Cole, MD, Saint Paul, MN

Review of proximal femoral fractures shows high femoral neck fracture non-union when treated with the proximal femoral locking plate with differences in proximal screw lengths being significant.

Discussion – 6 Minutes

10:54 AM  PAPER: 544
Extramedullary vs. Intramedullary Implants for Intertrochanteric Fractures: Results of the ACS-NSQIP
Daniel D. Bohl, MPH, New Haven, CT
Bryce A. Basques, BS, New Haven, CT
Nicholas Golinvaux, BA, New Haven, CT
Christopher Miller, MD, New Haven, CT
Michael R. Baumgaertner, MD, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT

There were no differences in rates of adverse events between extramedullary and intramedullary implants; however, postoperative length of stay was one day longer with extramedullary implants.

11:00 AM  PAPER: 545
Dynamic Hip Screws vs Intramedullary Nails for Unstable Extracapsular Hip Fractures in Patients Younger than 50 Years
Vasilios I. Sakellariou, MD, Nea Smirni Attica, Greece
Olga D. Savvidou, MD, Athens, Greece
Vasileios Kontogiorgakis, MD, Xalandri, Athens, Greece
Nikolaos Stavropoulos, MD, Zografou Athens, Greece
Andreas Mavrogenis, MD, Holargos, Athens, Greece
Panayiotis J. Papagelopoulos, MD, Athens, Greece

Optimum treatment for unstable extracapsular fractures in patients younger than 50 years is frequently debated.
Thursday, March 26

11:06 AM  
PAPER: 546
Failures in High-energy Intertrochanteric Femur Fractures
Michael H. Amini, MD, University Heights, OH
John J. Feldman IV, MD, Memphis, TN
John C. Weinlein, MD, Memphis, TN
Young patients with IT fractures present with a high rate of polytrauma. These fractures most often require an open reduction and are more prone to complications than their geriatric counterparts.

Discussion – 6 Minutes

11:18 AM  
PAPER: 547
Trochanteric Entry Femoral Nails Yield Better Femoral Version and Lower Revision Rates
Richard S. Yoon, MD, New York, NY
Mark Gage, MD, New York, NY
David Galos, MD, New York, NY
Derek J. Donegan, MD, Philadelphia, PA
Frank A. Liporace, MD, Englewood Cliffs, NJ
The objective of this study was to analyze difference in femoral version and revision rates between three types of nails in the treatment of femoral shaft fractures.

11:24 AM  
PAPER: 548
Can Views of the Proximal Femur Be Reliably Used to Predict Malrotation after Femoral Nailing?
Andrew G. Dubina, Millersville, MD
Michael R. Rozak, BA, BS, Potomac, MD
Robert V. O’Toole, MD, Baltimore, MD
Clinicians can estimate the amount of malrotation using the relationship that roughly 8 degrees of malrotation exists for every 10% difference in normalized size of the lesser trochanters.

11:30 AM  
PAPER: 549
Stability of a Novel Intramedullary Nail for Treatment of Diaphyseal Femoral Fractures in the Developing World
Andrew Tice, MD, Ottawa, ON, Canada
Sasha Carsen, MD, MBA, Vancouver, BC, Canada
Robert J. Feibel, MD, Ottawa, ON, Canada
An intramedullary femoral nail designed for the developing world with a unique distal press-fit design, without distal locking screws, proved stable in diaphyseal femoral fractures.

Discussion – 6 Minutes

11:42 AM  
PAPER: 550
Distal Femoral Fracture Fixation: Locking Plates vs. Retrograde Nails
Anthony Houard, MD, Leeds, United Kingdom
Alexander P. Wibberley, Cheshire, United Kingdom
Aafreen Rabman, Harrogate, United Kingdom
Michalis Panteli, MD, Leeds, United Kingdom
Nikolaos K. Kanakaris, MD, Leeds, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom
This work demonstrated favourable outcome of distal femoral fractures treated with a locking plate in comparison to those treated with a retrograde intramedullary.

11:48 AM  
PAPER: 551
Operative Fixation of Distal Femur Fractures: What Factors Have the Greatest Impact on Fracture Healing?
Ryan M. Taylor, MD, Philadelphia, PA
Frances O. Roberts, MD, Chicago, IL
Mara L. Schenker, MD, Philadelphia, PA
Andrew H. Milby, MD, Philadelphia, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA
Samir Mehta, MD, Philadelphia, PA
In our retrospective series of 95 patients undergoing plate fixation of distal femur fractures, only the presence of an open fracture was independently associated with non-union or need for revision.

11:54 AM  
PAPER: 552
Malalignment after Minimally Invasive Plate Osteosynthesis in Distal Femoral Fractures
Chang-Wug Oh, MD, Daegu
Joon-Woo Kim, MD, Daegu
Hyung Sub Kim, Daegu
Seong-Dae Yoon, Daegu
We aimed to assess angular deformities and rotational malalignment in patients who underwent MIPO for the treatment of distal femoral fractures and to examine the factors affecting malalignment.

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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12:06 PM  PAPER: 553
Outcomes of Surgical Management of Low Supracondylar Periprosthetic Femur Fractures
Nicholas Matlovich, MD, London, ON, Canada
Douglass Naudie, MD, FRCSC, London, ON, Canada
Richard W. McCalden, MD, London, ON, Canada
Brent Lanting, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada
Edward Vaserhelyi, MD, MSc, London, ON, Canada
James Howard, MD, London, ON, Canada
The radiographic and clinical outcomes of locked plating and intramedullary nail fixation were compared for the treatment of supracondylar periprosthetic fractures.

12:12 PM  PAPER: 554
Distal Femur Replacement for Acute Distal Femur Fractures in Elderly Patients
Clayton C. Bettin, MD, Memphis, TN
John C. Weinlein, MD, Memphis, TN
Patrick C. Toy, MD, Germantown, TN
Robert K. Heck Jr, MD, Memphis, TN
18 patients with an average age of 77 years were treated with cemented modular distal femoral replacement for acute distal femur fractures. All patients were allowed immediate full weight bearing.

12:18 PM  PAPER: 555
Quality of Life after Operative Treatment of Periprosthetic Femur Fractures in Elderly Patients
Daniela Ullrich, MD, Friedrichsdorf, Germany
Hans-Juergen Kock, MD, PhD, Darmstadt, Germany
Periprosthetic femur fractures are expected to increase in future. We recommend an ortho-geriatric therapy concept with urgent surgical treatment and prompt rehabilitation by an ortho-geriatric team.

Discussion – 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room 3304
Spine V: Adolescent Deformity
Moderator(s): Charles J. Banta II, MD, Dallas, TX
Burt Yaszay, MD, San Diego, CA

10:30 AM  PAPER: 556
How Surgery Impacts the View in the Mirror for the AIS Patient - TAASQ Questionnaire Responsiveness to Change
Baron Lonner, MD, New York, NY
Stefan Parent, MD, Montreal, QC, Canada
Saken A. Shah, MD, Wilmington, DE
Marjolaine Roy-Beaudry, MSc, Montreal, QC, Canada
Yuan Ren, PhD, MS, New York, NY
Surgical correction of AIS resulted in improvements of all domains (clothing, appearance and breast) of the TAASQ, which was also associated with improvement in overall SRS and BIDQ-S outcomes scores.

10:36 AM  PAPER: 557
Atlantoaxial Fixed Rotatory Dislocation: Report on a Series of 32 Pediatric Cases
Shenglin Wang, MD, Beijing, China
Peter G. Passias, MD, Brooklyn, NY
Sun Yang, BA, New York, NY
Chao Wang, MD, Beijing, China
Treatment of atlantoaxial rotatory fixed dislocation must be differentiated with that of common atlantoaxial rotatory fixation. In this series, AARFD was surgically treated with little complications.

10:42 AM  PAPER: 558
Congenital “Sandwich” Atlantoaxial Instability: Report of a Series of 239 Cases
Shenglin Wang, MD, Beijing, China
Peter G. Passias, MD, Brooklyn, NY
Sun Yang, BA, New York, NY
Chao Wang, MD, Beijing, China
“Sandwich” AAI had earlier onset age and worse myelopathy than “common” AAI with cranial nerve involvement, tonsillar herniation and syringomyelia.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Thursday, March 26

**10:54 AM**

**Paper: 559**

Alternative Laterality Screws Placement Versus Conventional Method in Adolescent Idiopathic Scoliosis  
Ping-Chun Yeh, MD, New Taipei City, Taiwan  
Yun-Liang Chang, MD, Taipei, Taiwan  
Hung-Kang Wu, MD, MS, Taipei City, Taiwan  
Ming-Hsiao Hu, MD, Taipei, Taiwan  
Shu-Hua Yang, MD, PhD, Taipei, Taiwan  

Comparison between alternative laterality placement and consecutive bilateral placement of pedicle screws for adolescent idiopathic scoliosis

**11:00 AM**

**Paper: 560**

Cervical Spine Compensation in Adolescent Idiopathic Scoliosis  
Elizabeth P. Norheim, MD, Los Angeles, CA  
Leah Y. Carrecon, MD, Louisville, KY  
Daniel I. Sucato, MD, MS, Dallas, TX  
Lawrence G. Lenke, MD, Saint Louis, MO  
Steven D. Glassman, MD, Louisville, KY  

AIS patients compensate for abnormal thoracic sagittal alignment with changes in cervical spine sagittal alignment. These sagittal compensatory mechanisms differ among the various Lenke curves.

**11:06 AM**

**Paper: 561**

AIS Patients are at Increased Risk for Pulmonary Hypertension which Reverses after Scoliosis Surgery  
Vishal Sarwahi, MD, Bronx, NY  
Dan Wang, MS, Bronx, NY  
Ajay Lall, MD, New York, NY  
Sarika Kalantre, Bronx, NY  

This is the first study showing direct evidence of pulmonary hypertension (Pulm HT) in Adolescent Idiopathic Scoliosis (AIS) patients and its reversal to normal after corrective scoliosis surgery.

**11:18 AM**

**Paper: 562**

Ribhead Penetration of the Spinal Canal in Neurofibromatosis Patients - No Influence on Surgical Plan  
Yavuz Saglam, MD, Istanbul, Turkey  
Anna McClung, RN, Dallas, TX  
Daniel I. Sucato, MD, MS, Dallas, TX  

Incidence of 10.6% of rib head penetration in the spinal canal in neurofibromatosis patients did not result to neurologic deficit.

**11:24 AM**

**Paper: 563**

The Effects of the 3-Dimensional Deformity of Adolescent Idiopathic Scoliosis on Pulmonary Function  
Burt Yaszay, MD, San Diego, CA  
Tracey Bastrom, MA, San Diego, CA  
Carrie Bartley, MA, San Diego, CA  
Stefan Parent, MD, Montreal, QC, Canada  
Peter O. Newton, MD, San Diego, CA  

Preop pulmonary function and 3D deformity measurements were compared. Larger thoracic deformities increase risk of pulmonary impairment, with decreasing kyphosis as the most consistent predictor.

**11:30 AM**

**Paper: 564**

Efficacy of Conservative Treatments for Lumbar Spondylolysis in Young Athletes  
Atsushi Kobayashi, MD, Maebashi Gunma, Japan  
Hiroshi Higuchi, MD, Maebashi-Shi, Japan  
Kazuo Katou, MD, Gunma, Japan  

This study evaluated differences in the rate of bony union between young athletes of lumbar spondylolysis. The results suggest that early treatment is associated with improved bony union.

**11:42 AM**

**Paper: 565**

Best Practices in Intraoperative Neuromonitoring in Spine Deformity Surgery: A Consensus-Based Approach  
David L. Skaggs, MD, Los Angeles, CA  
Gregory I. Pace, BA, New York, NY  
Margaret Wright, BS, New York, NY  
Richard Anderson, MD, New York, NY  
John M. Flynn, MD, Philadelphia, PA  
Lawrence G. Lenke, MD, Saint Louis, MO  
David P. Royle Jr, MD, New York, NY  
Sukin A. Shah, MD, Wilmington, DE  
Michael G. Vitale, MD, MPH, Irvington, NY  

Development of a checklist and best practice guideline to decrease neuromonitoring practice variability and optimize surgical team responses to neuromonitoring changes during spine deformity surgery.
11:48 AM  PAPER: 566
The Optimal Surgical Approach for Lenke 5 Curves: Is the Anterior Approach Ready for a Comeback?
Firoz Miyanji, MD, Vancouver, BC, Canada
Tracey Bastron, MA, San Diego, CA
Amer Sandani, MD, Philadelphia, PA
Burt Yaszay, MD, San Diego, CA
Jahangir Asghar, MD, Coral Gables, FL
Suken A. Shah, MD, Wilmington, DE
Randal R. Betz, MD, Lawrenceville, NJ
Harry L. Shufflebarger, MD, Miami, FL
Peter O. Newton, MD, San Diego, CA

ASIF compared with PSIF resulted in shorter fusions, increased disc angulation below the lowest instrumented vertebrae, less lumbar lordosis, and a lower % correction of the lumbar prominence.

11:54 AM  PAPER: 567
Prophylactic Rib Fixation to Prevent Proximal Junctional Failure Following Instrumented Posterior Spinal Fusion
Ahmed S. Mohamed, MD, Carbondale, IL
Erin Coburn, BS, Portland, OR
D. Kojo Hamilton, Portland, OR
Jayme Hiratzka, MD, Portland, OR
Robert A. Hart, MD, Portland, OR

Proximal Junctional Failure remains a complication of adult spinal deformity surgery. We describe our experience using adjacent level rib fixation with a Vertical Expandable Prosthetic Titanium Rib.

12:06 PM  PAPER: 568
The Pros and Cons of Operating Early vs. Late in the Progression of Cerebral Palsy Scoliosis
Steven M. Hollenbeck, MD, Wichita, KS
Burt Yaszay, MD, San Diego, CA
Paul D. Sponseller, MD, Baltimore, MD
Suken A. Shah, MD, Wilmington, DE
Jahangir Asghar, MD, Coral Gables, FL
Mark F. Abel, MD, Charlottesville, VA
Firoz Miyanji, MD, Vancouver, BC, Canada
Peter O. Newton, MD, San Diego, CA

This study demonstrated that there was no advantage to operating on patients with CP scoliosis 90° increased the risks.

12:12 PM  PAPER: 569
Musculoskeletal Compensatory Mechanisms for Spinal Malalignment: An Age-related Study
Bassel G. Diebo, MD, New York City, NY
Renaud Lafage
Emmanuelle Ferrero, Franconville, France
Vincent Chailley, MD, New York City, NY
Barthelemy Liabaud, New York, NY
Shian Liu, BS, New York, NY
Thomas J. Errico, MD, New York, NY
Frank J. Schwab, MD, New York, NY
Virginie Laforge, PhD, New York, NY

Compensatory mechanisms for spino-pelvic malalignment can be age-specific and are recruited differently, with older patients favoring pelvic and lower extremity compensation.

12:18 PM  PAPER: 570
Use of Bone Morphogenetic Protein (BMP) is Associated with Reduced Reoperation after Spine Fusion for Scoliosis
Justin Paul, MD, New York, NY
Baron Lonner, MD, New York, NY
Thomas J. Errico, MD, New York, NY

BMP has been used in spine deformity surgery with the hope of reducing the need for revision surgery. An administrative database showed BMP reduced risk for reoperation in three patient populations.

11:30 AM — 1:30 PM
Room 3105
Hand and Wrist III: Wrist & Forearm
Moderator(s): Charles F. Leinberry, MD, Chester Springs, MD
John S. Taras, MD, Philadelphia, PA

10:30 AM — 12:30 PM
Room 3105
Hand and Wrist III: Wrist & Forearm
Moderator(s): Charles F. Leinberry, MD, Chester Springs, MD
John S. Taras, MD, Philadelphia, PA

10:30 AM  PAPER: 571
Wrist Arthrodesis for Failed Total Wrist Arthroplasty
Brian D. Adams, MD, Iowa City, IA
Justin J. Guan, BS, Iowa City, IA

A specific technique for conversion of failed wrist arthroplasty to arthrodesis is safe, effective and versatile. Deformity is corrected, height is restored, fixation stable, and fusion is attained.
Thursday, March 26

10:36 AM  PAPER: 572
Scaphoid Hemi-Resection and Arthrodesis of the Radio-Carpal Joint (the SHARC Procedure)
William H. Seitz Jr, MD, Cleveland, OH
Scaphoid hemi resection and limited arthrodesis of the radio-carpal joint is a viable motion sparing procedure for isolated radiocarpal arthritis.

10:42 AM  PAPER: 573
Is Proximal Row Carpectomy Better than Radial Shortening in Litchman Stage 3-a Kienbock’s Disease?
Yasser M. Assaghir, MD, Naser City, Egypt
On intermediate followup term, proximal row carpectomy offers better pain relief with strenuous activities and grip-strength than radial shortening. This is translated into better Mayo and DASH scores.

10:54 AM  PAPER: 574
An Analysis of Capitate and Lunate Morphology to Predict Long-term Outcomes in Proximal Row Carpectomy
Eric R. Wagner, MD, Rochester, MN
Dalibel M. Bravo, MD, San Juan, Puerto Rico
Bassem T. Elhassan, MD, Rochester, MN
Steve L. Moran, MD, Rochester, MN
Capitate and lunate morphology is correlated with the development of radiocapitate arthritis after proximal row carpectomy, but radiographic arthritis did not correlate with pain or clinical outcomes.

11:00 AM  PAPER: 575
Role of Subsheath in Extensor Carpi Ulnaris Tendon Stability: Implications for Reconstruction and Rehabilitation
Andrew C. Ghatan, MD, Carlsbad, CA
Kyle Morse, B.S., New York, NY
Krystle Hearns, MA, New York, NY
Caroline von Althann, PA-C, New York, NY
Michelle G. Carlson, MD, New York, NY
The distal half of the subsheath is critically important in maintaining ECU tendon stability at the ulnar groove, and restoration of its function should be a priority during surgical reconstruction.

11:06 AM  PAPER: 576
Long-term Outcome of Step-Cut Distal Ulnar-Shortening Osteotomy for Ulnar Impaction Syndrome
Loukia K. Papaefthodorou, MD, Pittsburgh, PA
Mark E. Baratz, MD, Bethel Park, PA
Robert W. Weiser, PA-C, Pittsburgh, PA
Dean G. Sotereanos, MD, Pittsburgh, PA
Step-cut ulnar shortening osteotomy is a simple and effective technique for ulnar impaction syndrome. It provides ample bone-to-bone contact resulting in rapid healing and early return to activities.

11:18 AM  PAPER: 577
Sigmoid Notch Fractures: Analysis of Progression to DRUJ Arthritis and Impact on Upper Extremity Function
Mark A. Vitale, MD, MPH, Greenwich, CT
David M. Brogan, MD, Durham, NC
Alexander Yong Shik Shin, MD, Rochester, MN
Richard A. Berger, MD, PhD, Rochester, MN
The purpose was to determine if intra-articular fractures of the sigmoid notch of the distal radial ulnar joint (DRUJ) predispose patients to later DRUJ arthritis or impact upper extremity function.

11:24 AM  PAPER: 578
Unstable Distal Radius Fracture: Reduce Prior to Surgery?
Teun Teniens, MD, Boston, MA
Frans Mulder, BS, Boston, MA
Sjoerd Nota, MD, Boston, MA
Leslie Milne, MD, Gloucester, MA
George S. Dyer, MD, Boston, MA
David C. Ring, MD, Boston, MA
We found no difference in adverse events after plating between reduced and unreduced fractures. When surgery is planned within a few days, one might not put the patient through closed reduction.

11:30 AM  PAPER: 579
Outcomes of Surgical Treatment of Complex Distal Radius Fractures: A Comparison of Volar Plate and External Fixation
Young Hak Roh, Incheon
Jung Ho Noh, MD, PhD, Chuncheon-Si
Jong Ryoon Baek, Incheon
Do Hyun Moon, Incheon
Beom Koo Lee, MD, Incheon
Use of a VP for the treatment of complex DRF correlates with improved functional recovery at 3 months after surgery, but after 6 months both VP and EF show similar functional outcomes.
Thursday, March 26

11:42 AM

PAPER: 580

Lost Work Productivity in Patients with Distal Radius Fractures
Gerard Slobogean, MD, MPH, Vancouver, BC, Canada
Peter J. O’Brien, MD, FRCSC, Vancouver, BC, Canada
Henry M. Broekhuysen, MD, Vancouver, BC, Canada
Kelly A. Lefaivre, MD, Vancouver, BC, Canada

Most patients return to full work productivity by three months post-distal radius fracture; however, absenteeism and presenteeism cause measurable societal costs during this time.

11:48 AM

PAPER: 581

Economic Analysis of Implant Costs of Distal Radius Fracture
Suneel B. Bhat, MD, Philadelphia, PA
Frederic E. Liss, MD, Limerick, PA
Pedro K. Beredjiklian, MD, Philadelphia, PA

A variety of implant options exist for the treatment of distal radius fractures - utilization of lower cost plate and screw options can avoid a $65,271,437 financial loss annually in the US.

11:54 AM

PAPER: 582

Dorsal Screw Penetration with Volar Plating of Distal Radius Fractures: How Can You Best Detect?
Brian W. Hill, MD, Saint Louis, MO
Irshad A. Shakir, MD, St Louis, MO
Lisa K. Cannada, MD, Saint Louis, MO

This cadaveric study is designed to evaluate which described fluoroscopic images are useful to detect dorsal cortex penetration with the use of volar locking plates.

12:06 PM

PAPER: 583

Comparison of Ultrasound and Fluoroscopy Evaluation of Dorsal Screw Prominence after Volar Distal Radius Plating
Ilvy Cotterell, MD, Richmond, VA
Megan S. Cromer, MD, Durham, NC
Marc J. Richard, MD, Durham, NC
Brian T. Nickel, MD, Durham, NC
Eric W. Angermeier, MD, Charleston, SC
Fraser J. Leversedge, MD, Durham, NC

Ultrasound evaluation of dorsal screw prominence following fluoroscopic volar distal radius plating was more accurate than fluoroscopic assessment in a cadaver model.

12:12 PM

PAPER: 584

Outcome Analysis of 38 Patients with Dorsal Spanning Plate Fixation of Severely Comminuted Distal Radius Fractures
Susan Chung, MD, PhD, Tampa, FL
James Watt, DO, Ft Walton Bch, FL
Dzi-Vet Nguyen, DO, Warner Robins, GA
Jessica Ching, MD, Tampa, FL
Kristopher Avant, DO, Oklahoma City, OK
Alfred V. Hess, MD, Temple Terrace, FL

The dorsal spanning plate is used widely in the treatment of unstable comminuted distal radius fractures. This study establishes clinical expectations for those patients who undergo this treatment.

12:18 PM

PAPER: 585

Catastrophic Thinking Leads to Stiff Fingers after Distal Radius Fracture Plating
Teun Teunis, MD, Boston, MA
Arjan G. Bot, MD, Heerhugowaard, Netherlands
Emily Thornton, BS, Boston, MA
David C. Ring, MD, Boston, MA

A maladaptive coping response to pain (catastrophic thinking) leads to stiff fingers after fracture, a fact that surgeons and therapists could incorporate in their treatment.

Discussion – 6 Minutes
Thursday, March 26

SYMPOSIUM
1:30 PM — 3:30 PM
Venetian Ballroom E

How Do I Get Out of this Jam? Solutions to Common Intraoperative and Early Postoperative Problems in TKA (T)
Moderator: Daniel J. Berry, MD, Rochester, MD

This symposium provides participants with practical approaches to solving common or challenging intraoperative and early postoperative problems in TKA. Lectures cover the most common and difficult problems. After each series of lectures, the moderator polls the panel on each topic to gain consensus and highlight areas of controversy. A brief discussion follows on cases that illustrate each problem to stimulate discussion.

I. I Can’t Get Enough Exposure
   Jay R. Lieberman, MD, Los Angeles, CA

II. I Have Done my Standard Release and the Knee is Still Tight on the Medial Side
    Brian S. Parsley, MD, Bellaire, TX

III. Have Done My Standard Release and the Knee is Still Tight on the Lateral Side
     Thomas P. Vail, MD, San Francisco, CA

IV. I Think I Cut the MCL
    Craig J. Della Valle, MD, Chicago, IL

V. The Knee Doesn’t Straighten All the Way
   Thomas K. Fehring, MD, Charlotte, NC

VI. The Patellar Tendon is Coming off the Tubercle
    David F. Dalury, MD, Baltimore, MD

VII. The Patella Doesn’t Track Well
     David A. Halsey, MD, South Burlington, VT

VIII. There is a Wound Problem
     William A. Jiranek, MD, Richmond, VA

IX. I Think the Knee is Infected
    Javad Parvizi, MD, FRCS, Philadelphia, PA

X. The Knee is Stiff
    William J. Maloney III, MD, Redwood City, CA

SYMPOSIUM
1:30 PM — 3:30 PM
Room 2001

Hand Surgery Update: Treatment Recommendations for Common Hand and Wrist Injuries and Afflictions (U)
Moderator: John S. Taras, MD, Philadelphia, PA

This symposium is designed for the hand and upper extremity surgeon and the general orthopaedist. Case presentations focus on common conditions such as carpal tunnel syndrome, distal radius fractures, digital tendon and nerve lacerations, carpometacarpal arthritis, Dupuytren’s contracture, and the circumstances that can disrupt an ideal course of recovery. Newly introduced treatment methods are compared to traditional standards. The format consists of case presentations by the faculty followed by a question and answer session.

I. Nerve
   Dean G. Sotereanos, MD, Pittsburg, PA

II. New Injection Technologies
    Craig S. Williams, MD, Des Plaines, IL

III. Carpometacarpal and Osteoarthritis
     Richard A. Bernstein, MD, New Haven, CT

SYMPOSIUM
1:30 PM — 3:30 PM
Room 2201

*Cell-Based Therapies in Orthopaedics: Common Sense Approach for the Practicing Orthopaedic Surgeon (V)
Co-Moderators: Stuart B. Goodman, MD, Redwood City, CA
J. Tracy Watson, MD, Saint Louis, MO

Stem cell therapy has been described, promoted, and marketed as facilitating all aspects of skeletal repair. For the practicing surgeon, it is difficult to integrate the basic science material with clinically relevant indications and techniques for the application of these materials. This symposium provides the practitioner with a common sense approach regarding the indications and application of this evolving technology. Organized by the AAOS Biologics Committee.

I. Basic Science Overview
   Regis O’Keefe, Rochester, NY

II. Current Stae of the Art for Hard Tissue Repair
    Thomas A. Einhorn, MD, Boston, MA

III. Description, Technique, and Application of Iliac Aspiration for Cellular Application
     J T. Watson, MD, Saint Louis, MO

IV. Soft Tissue Repair: Realities and Possibilities
    Scott A. Rodeo, MD, New York, NY

* 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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V. Panel
Jason L. Dragoo, MD, Redwood City, CA

VI. Panel
Theodore Miclau III, MD, San Francisco, CA

VII. Panel
George F. Muschler, MD, Cleveland, OH

INSTRUCTIONAL COURSE LECTURE

11:00 AM — 12:00 PM

FD20 Dealing With the Underperforming Orthopaedic Resident
Moderator: John L. Marsh, MD, Iowa City, IA
Elizabeth Ames, MD, Burlington, VT
April D. Armstrong, MD, Hershey, PA
R. Dale Blasier, MD, Little Rock, AR

This course helps you design a plan as part of the educational process to foster success and target areas to deal with under performance on a case-by-case basis. One size does not fit all!

1:30 PM — 2:30 PM

FD21 The Art of the Orthopaedic Lecture
Moderator: James H. Beaty, MD, Memphis, TN
James J. McCarthy, MD, Cincinnati, OH

Learn to develop a lecture for an orthopaedic audience – from a 6-minute paper presentation to a 60-minute lecture on a specific research project or clinical subject. This session gives you the tools to prepare and present. PowerPoint preparation and tips are included.

1:30 PM — 3:30 PM

342 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.

342 Hip Preservation Surgery: How to Avoid and Treat Complications and Failures
Moderator: Christopher M. Larson, MD, Edina, MN
Bryan T. Kelly, MD, New York, NY
Michael Leunig, PhD, Zurich, Switzerland
Michael B. Millis, MD, Boston, MA

Complications and early treatment failures are seen after arthroscopic and open joint preservation procedures. Contemporary strategies to avoid and manage suboptimal outcomes are discussed.

343 Indications and Techniques for Bi- and Unicompartmental Knee Arthroplasty
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Keith R. Berend, MD, New Albany, OH
Fred D. Cashner, MD, New York, NY
Jess H. Lonner, MD, Philadelphia, PA

Interest in partial knee arthroplasty has resurged 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.

344 Management of Acute (Traumatic) and Chronic Charcot Foot and Ankle Disease: A Surgical Algorithm
Moderator: Vincent J. Sammarco, MD, Cincinnati, OH
Dolfi Herscovici Jr, DO, Temple Terrace, FL
G. James Sammarco, MD, Newport, KY

This course explores the operative treatment of Charcot foot and ankle deformity. It includes both acute (traumatic) and chronic management, with special consideration for managing fractures in diabetics. Indications and techniques for internal and external fixation are presented, including the treatment of infection, dynamic correction with external fixation, plantar plate, locking plate, and axial screw fixation for fusions.

345 Wide Awake Hand and Wrist Surgery 2.1: Details of Getting It Done
Moderator: Jesse B. Jupiter, MD, Boston, MA
Peter C. Amadio, MD, Rochester, MN
Andrew Gurman, MD, Altoona, PA
Don Lalonde, MD, St John, NB, Canada

The focus is on practical details of how to do WALANT (Wide Awake Local Anesthesia No Tourniquet) hand surgery in your community. The goal is that course participants have the knowledge to go home and do WALANT hand and wrist surgery in their community.
Thursday, March 26

346 Congenital Scoliosis: A Case-Based Approach
Moderator: Frances A. Farley, MD, Ann Arbor, MI
Laurel C. Blakemore, MD, Gainesville, FL
John P. Dormans, MD, Philadelphia, PA
Michael G. Vitale, MD, MPH, Irvington, NY

This course covers diagnosis and treatment of congenital scoliosis. Using cases to discuss surgery and controversies.

347 Risk Evaluation and Management Strategies for Prescribing Opioids
Moderator: Thomas B. Fleeter, MD, Reston, VA
Kimberly Lebrfeld, PharmD, Silver Spring, MD
David C. Ring, MD, Boston, MA
David H. Sohn, JD, MD, Perrysburg, OH

Abuse of narcotic medication is a growing problem attracting increasing federal regulatory oversight. This course details the Food and Drug Administration’s risk evaluation 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.

348 Shoulder Arthroplasty: Key Steps to Improve Outcomes and Minimize Complications
Moderator: John W. Sperling, MD, MBA, Rochester, MN
George S. Athwal, MD, London, ON, Canada
Emilie V. Cheung, MD, Redwood City, CA
Joaquín Sanchez-Sotelo, MD, Rochester, MN

Course faculty discuss challenges and the latest surgical advances in the treatment of osteoarthritis and cuff tear arthropathy, as well as the salvage of a failed arthroplasty. The course includes case-based discussions.

349 Arthroscopic Rotator Cuff Repair: Indication and Technique
Moderator: Felix H. Savoie, MD, New Orleans, LA
Jeffrey S. Abrams, MD, Princeton, NJ
Joshua Dines, MD, New York, NY
Peter J. Millett, MD, MSc, Vail, CO

The course reviews current physical examination, imaging, and optimal surgical and biologic repair techniques in the injured rotator cuff patient, as well as cost efficient postoperative care via a case-based, interactive approach.

350 Managing Complex Problems in Lumbar Spinal Stenosis
Moderator: Christopher G. Furey, MD, Cleveland, OH
Nicholas U. Ahn, MD, Shaker Heights, OH
Paul Anderson, MD, Madison, WI
John Birkedal, MD, Winston-Salem, NC
Greg Carlson, MD, Orange, CA
Kingsley, Chin, MD, Fort Lauderdale, FL
Sanford Emerly, MD, Morgantown, WV
Russel Huang, MD, New York, NY
Sheeraz Qureshi, MD, New York, NY
Joseph D. Smucker, MD, Carmel, IN

This course is a review 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.”

351 The Four Most Common Types of Cartilage Damage You Will See in Practice: How We Treat Them and Why
Moderator: Andreas H. Gomoll, MD, Chestnut Hill, MA
Brian J. Cole, MD, MBA, Chicago, IL
Christian Lattermann, MD, Lexington, KY

Course faculty discuss cartilage disease based on common real-life patient presentations, including osteochondritis dissecans, patellofemoral pain, postmeniscectomy pain, and incidental defects found during arthroscopy. They focus on patient selection and indications, leaving ample time for discussion.

352 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

This course focuses on a step-wise approach to the surgical treatment of patellar stabilization addressing each contributing factor.

353 Geriatric Trauma: Acute Arthroplasty for Fractures
Moderator: Jonathan P. Braman, MD, Minneapolis, MN
William W. Cross III, MD, Rochester, MN
Scott B. Marston, MD, Dllwood, MN
Thomas F. Varecka, MD, Minneapolis, MN

Using a case-based format, discussion focuses on shoulder, elbow, acetabular, hip, and knee fractures treated acutely with arthroplasty.

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Thursday, March 26

1:30 PM — 5:30 PM

TeamSTEPPS
Moderator: Harpal S. Khanuja, MD, Cockeysville, MD
Dwight W. Burney III, MD, Albuquerque, NM
Mary J. O’Connor, MD, Jacksonville, FL
William J. Robb III, MD, Winnetka, IL
Kristy L. Weber, MD, Philadelphia, PA

TeamSTEPPS is an evidenced-based team building and
communication program designed to enhance patient
safety and efficiency in health care. This four-hour
core skills 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 these fundamental skills
workshops, 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.

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. Horowitz, MD, Danville, PA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Stephen Kottmeier, MD, Stony Brook, NY
Samir Mehta, MD, Philadelphia, PA
Robert V. O’Toole, MD, Baltimore, MD
J. Spence Reid, MD, Hummelstown, PA
Judith Siegel, MD, Worcester, MA
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.

1:30 PM — 3:30 PM

PAPER PRESENTATION

1:30 PM — 3:30 PM

Venetian Ballroom B

Adult Reconstruction Hip V: Primary THA
Moderator(s): Michael J. Archibeck, MD, Albuquerque, NM
David W. Manning, MD, Chicago, IL

Analyzing Centers for Medicare and Medicaid Services
Radiographic Criteria for Total Hip Arthroplasty
Yevgeniy Korshunov, MD, Brooklyn, NY
John W. Sturton, MD, Alton, IL
Jonathan Robinson, MD, New York, NY
Partibh R. Rathod, MD, New York, NY
Mital S. Patel, MBBS, MS, New York, NY
Jose A. Rodriguez, MD, New York, NY

A retrospective review of radiographic criteria proposed by
Centers for Medicare and Medicaid Services for primary total hip
arthroplasty reveals several significant outliers.

Medicare Reimbursement for Total Joint Arthroplasty: What are
the Driving Forces?
Eric M. Padegimas, MD, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Kushagra Verma, MD, Philadelphia, PA
Julie L. Shaner, BA, Philadelphia, PA
Michael Howley, PhD, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA

This study aims to comprehensively explore the factors that may
be driving Medicare reimbursement for TJA.

Differences in Total Hip Replacement Outcomes Based on Age
Leslie Harrold, MD, MPH, Worcester, MA
David C. Ayers, MD, Worcester, MA
Wenjun Li, PhD, Worcester, MA
Courtland G. Lewis, MD, Farmington, CT
Philip C. Noble, PhD, Houston, TX
Regis O’Keefe, Rochester, NY
Jeroan Allison, MD, Worcester, MA
Patricia Franklin, MD, MBA, Worcester, MA

In this national sample of THR patients, both younger and older
patients had good clinical outcomes following surgery with
respect to pain relief and functional gain.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Thursday, March 26

1:54 PM PAPER: 589
Epidemiology and Predictors of Early Revision following Total Hip Arthroplasty
Lazaros A. Poultsides, MD, New York, NY
Calvin Nash, BA, New York, NY
Huong Do, MA, New York, NY
Lisa A. Mandl, MD, MPH, New York, NY
Michael M. Alexiades, MD, Manhattan, NY
Thomas P. Sculco, MD, New York, NY
Understanding the mechanisms, trends, and predictors of early failure following THA may mitigate the substantial burden for the patient, surgeon and society.

2:00 PM PAPER: 590
The Impact of Incremental Total Hip Arthroplasty Protocol Changes on Length of Stay and Readmission
Jeffrey B. Stambough, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
Madelyn Curry, RN, Saint Louis, MO
Systematic and incremental perioperative protocol changes in THA management are associated with a reduction in hospital length of stay by half without an associated increase in readmission rates.

2:06 PM PAPER: 591
Tranexamic Acid Makes Preoperative Blood Management Obsolete for Transfusion Prevention During Arthroplasty
Joseph F. Styron, MD, PhD, Westlake, OH
Caleb Szubski, BA, Cleveland, OH
Albair Guirguis, MD, Cleveland, OH
Deborah Tolich, RN, MSN, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Carlos A. Higuera, MD, Bay Village, OH
A preoperative blood management protocol did not significantly decrease transfusion odds or the number of units transfused. In contrast, intraoperative TXA use reduced the risk of a transfusion.

2:18 PM PAPER: 592
What Factors Affect Inpatient Charges for Total Joint Arthroplasty - Is it Quality?
Benjamin Zmistowski, BS, Philadelphia, PA
Eric M. Padegimas, MD, Philadelphia, PA
Kushagra Verma, MD, Philadelphia, PA
Julie L. Shaner, BA, Philadelphia, PA
Michael Howley, PhD, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
This study aims to quantify the provider charge variation and identify the variables associated with increased charges.

2:24 PM PAPER: 593
Factors Influencing Demand for Total Hip Arthroplasty in Patients Less than 65 Years of Age
Alexander S. McLauborn, MD, MBA, New York, NY
Peter Derman, MD, MBA, New York, NY
Benedict U. Nwachukwu, MD, MBA, New York, NY
Mark P. Figgie, MD, New York, NY
Total hip arthroplasty (THA) in patients 45 to 64-years-old nearly doubled from 2002-2011 in the US. This change in THA utilization is most significantly associated with population growth.

2:30 PM PAPER: 594
Regional Differences between US and Europe in Patients Undergoing Total Hip Replacement Surgery
Kirill Gromov, MD, PhD, Copenhagen, Denmark
Meridith E. Greene, Boston, MA
Nanna Sillesen, MD, Boston, MA
James I. Huddleston III, MD, Redwood City, CA
Roger H. Emerson Jr, MD, Dallas, TX
Eduardo Garcia-Cimbrelo, MD, Madrid, Spain
Peter Gebuhr, MD, Copenhagen, Denmark
Anders Troelsen, MD, PhD, Koege, Denmark
Henrik Malchau, MD, Cambridge, MA
Demographics and disease severity according to radiological osteoarthritis grade as well as self-reported survey scores in patients undergoing primary THA vary between United States and Europe.

2:42 PM PAPER: 595
Sex-Related Differences in Morbidity and Mortality Following Total Hip and Knee Arthroplasty
Bheeshma Ravi, MD, Toronto, ON, Canada
Timothy S. Leroux, MD, Toronto, ON, Canada
Richard Jenkinson, MD, Toronto, ON, Canada
Ruth Croxford, MSc, Toronto, ON, Canada
David Wasserstein, MD, MSc, North York, ON, Canada
Simon Hollands, MSc, BS, Toronto, ON, Canada
Michael Paterson, Toronto, ON, Canada
Hans J. Kreder, MD, Toronto, ON, Canada
Gillian Hawker, MD, Toronto, ON, Canada
Males are at greater risk of an acute myocardial infarction following both THA and TKA, as well as deep infection and revision following TKA. There is no difference in mortality.

* 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.
Systemic Lupus Erythematosus Patients Have Increased Risk of Short Term Adverse Events After Total Hip Arthroplasty
Jordan Roberts, BA, New York, NY
Lisa A. Mandl, MD, MPH, New York, NY
Edwin P. Su, MD, New York, NY
David J. Mayman, MD, New York, NY
Mark P. Figgie, MD, New York, NY
Arielle Fein, BA, New York, NY
Yuo-Yu Lee, MS, New York, NY
Susan Goodman, MD, New York, NY

Lupus patients undergoing THA are at high risk for AEs in the 6 months after surgery. In our cohort, SLE patients had higher rates of complications and longer lengths of stay than matched OA controls.

National Trends of Occurrence of Pulmonary Embolism after Total Hip Arthroplasty
Brian E. Schwartz, MD, Des Plaines, IL
Nicholas Schraut, MD, Worcester, MA
Vincent M. Moretti, MD, Berwyn, IL
Ritesh Shah, MD, Glenview, IL
Wayne M. Goldstein, MD, Morton Grove, IL

This NHDS database study demonstrates that although the risk of PE after primary THA remains rare, recent preventive efforts have not had a significant impact on its occurrence at the national level.

Inpatient Mortality and Morbidity for Transplant Patients Undergoing a Primary Total Hip Arthroplasty
Karthikeyan E. Ponnusamy, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Savyasachi C. Thakkar, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khanna, MD, Cockeysville, MD

Transplant patients undergoing a primary hip arthroplasty had no mortality difference, but had longer hospitalizations with more complications.

Day of Surgery Affects Length of Stay and Charges in Primary Total Hip and Knee Arthroplasties
Trevor G. Murray, MD, Avon Lake, OH
Robert M. Molloy, MD, Avon Lake, OH
Caleb Szubski, BA, Cleveland, OH
Iyoob Uchechukwu Davidson, MS, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Viktor Erik Krebs, MD, Rocky River, OH
Carlos A. Higuera, MD, Bay Village, OH

Primary THA and TKA done late in the week (Thurs/Fri) were associated with 0.358 additional days of LOS. Older age and greater severity of illness were significant risk factors for increased LOS.

Factors Affecting Length of Stay After Total Knee and Total Hip Arthroplasties
Jonathan Lester, MD, Chicago, IL
Vincent M. Moretti, MD, Berwyn, IL
Samuel J. Chmell, MD, Chicago, IL

There is a significant difference in average length of stay in relation to age, insurance type, and discharge disposition after both TKA and THA and also in relation to sex and hospital type after TKA.

Clinical Outcomes of Symptomatic Isolated SLAP Lesion in Non-athletic Patients with Conservative Treatment
Sang-Jun Shin, MD, Seoul, Republic of Korea
Nandan N. Rao, MS, Aurangabad, India
Myeong Jae Seo, MD, Seoul, Republic of Korea

This study describes the results after conservative treatment with intra-articular steroid injection and strengthening exercises in middle aged non athletic patients with a symptomatic SLAP lesion.
Thursday, March 26

1:36 PM  PAPER: 602
The Incidence of Subsequent Shoulder Surgery Following Repair of Superior Glenoid Labral Tears
Kelsey Ensor, MD, New York, NY
Young W. Kuon, MD, PhD, New York, NY
Siddharth A. Mahure, MD, Sarasota, FL
Joseph D. Zuckerman, MD, New York, NY
Andrew S. Rokito, MD, New York, NY

This study evaluates the incidence subsequent shoulder procedures and possible association of patient characteristics with the occurrence of further shoulder surgery.

1:42 PM  PAPER: 603
Surgical Treatment of SLAP Tears in Patients Greater than 40 Years: A Literature Review
John Erickson, MD, New Brunswick, NJ
Aman Dhawan, MD, Hummelstown, PA
James T. Monica, MD, Princeton, NJ
Kyle P. Lavery, MD, New Brunswick, NJ
Charles J. Gatt Jr, MD, Somerset, NJ

SLAP repair in age above 40 is a risk factors for surgical complications. Cumulative evidence supports labral debridement or biceps tenotomy over labral repair with associated cuff pathology.

1:54 PM  PAPER: 604
How Do SLAP Repairs Compare with Bankart Repairs? A Case Control Study of 200 Consecutive Labral Repairs
Pieter Haen, MD, Groningen, Netherlands
Patrick H. Lam, PhD, Sydney, Australia
Andrew D. McKeown, Bathurst, Australia
George A. Murrell, MD, Kogarah, Australia

While pain and stiffness did improve after an isolated SLAP-repair, patients with an isolated SLAP lesion had more pain and stiffness six months post repair than patients who had Bankart repair.

2:00 PM  PAPER: 605
The Clinical Relevance of the Postoperative Morphology of Restored Labrum after Arthroscopic Bankart Repair
Sung-Min Rhee, MD, Seoul, Republic of Korea
Jae Y. Kim, MD, Seoul, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea

To achieve successful arthroscopic Bankart repair, surgeons should be aware of the importance of restoring labral height at the inferior glenoid location and the place of the lowest suture anchor.

2:06 PM  PAPER: 606
Outcomes & Operative Findings in First Time and Recurrent Shoulder Dislocations after Arthroscopic Stabilization
Sang-Jin Shin, MD, Seoul, Republic of Korea
Nandan N. Rao, MS, Aurangabad, India
Myeong Jae Seo, MD, Seoul, Republic of Korea

This study compares the operative findings and clinical outcomes after arthroscopic stabilization procedure in patients less than 30 years of age for first time dislocation and recurrent dislocation.

2:18 PM  PAPER: 607
A Biomechanical Assessment of Combined Glenoid and Humeral Head Defects Utilizing 3D Modeling of 142 Patients
Robert A. Arciero, MD, Farmington, CT
Anthony Parrino, MD, West Hartford, CT
Vibinath D. D’Aros, MS,BMe, Farmington, CT
Mark Cote, PT, Farmington, CT
Augustus D. Mazzocca, MD, MS, Farmington, CT
Matthew T. Provencher, MD, Weston, MA

Combined glenoid and humeral head defects have an additive adverse effect on shoulder stability. A 2mm glenoid defect with a medium-sized Hill-Sachs compromises soft tissue Bankart repair.

2:24 PM  PAPER: 608
Evaluation of the Two-dimensional and Three-dimensional Humeral Subluxation Index
Matthijs Jacxsens, Resident, Basel, Switzerland
Alexander Van Tongel, MD, Ghent, Belgium
Laurent B. Willemot, MD, Gent, Belgium
Andreas Marc Mueller, MD, Basel, Switzerland
Victor Valderrabano, MD, PhD, Hofstetten, Switzerland
Lieven De Wilde, Gent, Belgium

The 2D Humeral subluxation index (HSI) of 151 non-pathological shoulders and 112 shoulders with primary osteoarthritis seems to underestimate the humeral subluxation compared to the 3D HSI.

2:30 PM  PAPER: 609
Arthroscopic Bristow-Latarjet
Jose C. Garcia Jr, MSc, PhD, Sao Paulo, Brazil

Despite all the possible post-surgery complications the arthroscopic Bristow–Latarjet procedure was effective in treating anterior shoulder instability.

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Thursday, March 26

2:42 PM  PAPER: 610
Latarjet Procedure: Is Coracoid Enough to Fill the Glenoid Bone Loss?
Paolo Paladini, MD, Cattolica, Italy
Giovanni Merolla, MD, Cattolica, Italy
Fabrizio Campi, MD, Cattolica, Italy
Antonio Tartarone, MD, Cattolica, Italy
Giuseppe Porcellini, MD, Cattolica, Italy

Latarjet procedure is a very useful procedure for chronic shoulder instability with glenoid bone loss and the transferred coracoid seems to be enough to fill even large glenoid bone loss.

2:48 PM  PAPER: 611
Biomechanical Comparison of the Latarjet Procedure with and without a Coracoid Bone Block
William B. Payne, MD, Burien, WA
Matthew Kleiner, MD, Los Angeles, CA
Michelle H. McGarry, MD, Long Beach, CA
Thay Q. Lee, PhD, Long Beach, CA
James E. Tibone, MD, Los Angeles, CA

The aim of this study was to biomechanically evaluate the Latarjet procedure, with and without a bone block, on glenohumeral range of motion, translation, and kinematics.

2:54 PM  PAPER: 612
Use of Autologous Distal Clavicle for Restoration of Anterior Inferior Glenoid Bone Loss
Johnathan Bernard, MD, MPH, New York, NY
Evan R. Langdale, MS, Baltimore, MD
Stephen Belkoff, PhD, Baltimore, MD
Steve A. Petersen, MD, Baltimore, MD

The distal clavicle should be considered as a bone graft option for the treatment of anterior glenoid bone loss resulting in recurrent instability.

3:00 PM  PAPER: 613
Comparison of Pressure Average and Contact Surface between Two Hill Sachs Remplissage Techniques in Animal Model
Rene Pozo SR, MD, Santiago, Chile
Felipe Reinares, MD, Santiago, Chile
Maximiliano Espinosa, MD, Santiago, Chile
Michelle Sacre, MD, Santiago, Chile
Francisco Figueroa, MD, Santiago, Chile
Francisco Ruiz, Santiago, Chile
Claudio Moraga, MD, Santiago, Chile
Felipe Toro, MD, Vitacura, Chile

The double pulley remplissage technique present superior biomechanical characteristics in average pressure, area of contact and coverage of defect, compared to double mattress configuration.

3:12 PM  PAPER: 614
A Prospective Randomized Comparison of Clinical Outcomes Between Tenotomy and Tenodesis of Biceps in Shoulder Joint
Yang-Soo Kim, MD, Seoul, Republic of Korea
Hyo-Jin Lee, Gunpo
In Park, Seoul, Republic of Korea
Sung-Ho Bae, Seoul, Republic of Korea
Sung-Eun Kim, Seoul, Republic of Korea
Hyung-Lae Cho, MD, Busan

Both tenotomy or tenodesis of LHB are effective for resolving symptoms caused by lesion of LHB. However, regarding the cosmetic problem, tenodesis showed lower tendency of Popeye’s deformity.

3:18 PM  PAPER: 615
Patients have Strong Preferences and Perceptions for Biceps Tenotomy versus Tenodesis
Balazs Galdi, MD, Newark, NJ
Daniel L. Southren, BA, Suffern, NY
Eugene W. Brabston, MD, Birmingham, AL
Charles A. Popkin, MD, New York, NY
Charles M. Jobin, MD, New York, NY
William N. Levine, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY

There are various patient-specific factors that will assist surgeons in making individualized decisions regarding proximal biceps tenotomy versus tenodesis.

Discussion – 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room 3304
Spine VI: Tumor, Infection, Miscellaneous
Moderator(s): Jason Datta, MD, Mesa, AZ
Theodore J. Groma, MD, Columbia, MD

1:30 PM  PAPER: 616
Novel Bone Graft Technique of Total En Bloc Spondylectomy Enhancing Anticancer Immunity for Spinal Tumors
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhiro Yoshioka, MD, Kanazawa, Japan
Takayoshi Ishii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Xiang Fang, MD, Kanazawa, Japan
Hiroyuki Tsujiya, MD, Kanazawa, Japan

Our novel technique of TES using frozen tumor-bearing autograft inside a cage provides a systemic anticancer immunological enhancement. Further prolonged survival is promising by anticancer effect.
**Thursday, March 26**

**1:36 PM  PAPER: 617**

**Facet Joint Violation During Percutaneous Pedicle Screw Placement: A Comparison of Two Techniques**

Oliver O. Tannous, MD, Baltimore, MD  
Ehsan Jazini, MD, Baltimore, MD  
Kelley E. Banagan, MD, Baltimore, MD  
Daniel E. Gelb, MD, Baltimore, MD  
Eugene Y. Koh, MD, PhD, Baltimore, MD  
D. Greg Anderson, MD, Moorestown, NJ  
Steven C. Ludwig, MD, Baltimore, MD

The lateral-to-medial trajectory technique results in significantly less facet joint violation than the owl’s eye technique during percutaneous pedicle instrumentation of the thoracic and lumbar spine.

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**1:42 PM  PAPER: 618**

**Survivals and Prognostic Factors in Patients who Underwent Total Resection of Spinal Metastases from Renal Cancer**

Satoshi Kato, MD, Kanazawa, Japan  
Hideki Murakami, MD, Kanazawa, Japan  
Satoru Demura, MD, Kanazawa, Japan  
Katsuhito Yoshio, MD, Kanazawa, Japan  
Hiroyuki Hayashi, MD, Kanazawa, Japan  
Noriaki Yokogawa, MD, Kanazawa, Japan  
Hirokichi Ito, MD, Kanazawa, Japan  
Takashi Igarashi, MD, Kanazawa, Japan  
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Patients with locally curative spinal metastases from kidney cancer can be appropriate candidates for surgical resection. For the good candidates, curative resection prolongs the survival.

**Discussion – 6 Minutes**

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**1:54 PM  PAPER: 619**

**Comparison of Instrumented and Uninstrumented Posterolateral Fusion for Lumbar Stenosis and Spondylolisthesis**

Alex Richter, MD, MS, Manhasset, NY  
Stelios A. Koutras, MD, New Hyde Park, NY  
David Essig, MD, Long Island City, NY  
Sara Murooka, MPH, New Hyde Park, NY  
Matthew Goldstein, MD, Port Washington, NY  
Jeffrey Silber, MD, West Harrison, NY

Comparison of instrumented and uninstrumented posterolateral fusion for lumbar stenosis and spondylolisthesis shows significant reduction in both back and leg pain at 2-10 year follow-up.

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**2:00 PM  PAPER: 620**

**Middle Column Injury at the Time of Osteoporotic Vertebral Fracture was Associated with Poor Long-term Prognosis**

Masatoshi Hoshino, MD, PhD, Nara, Japan  
Hideomi Terai, MD, PhD, Osaka, Japan  
Akinobu Suzuki, MD, PhD, Osaka, Japan  
Akira Matsumura, MD, Osaka, Japan  
Hiroaki Nakamura, MD, Osaka, Japan

We investigated the long-term prognosis of osteoporotic vertebral fracture in a prospective multicenter study. Middle column injury and advanced vertebral collapse were associated with poor prognosis.

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**2:06 PM  PAPER: 621**

**Inhibition of Osteogenic Differentiation and Spine Fusion by Dioxin, a Cigarette Smoke Constituent**

Sharath Bellary, MD, West Orange, NJ  
Kevin Somn, MD, Chicago, IL  
Chawon Yun, PhD, Chicago, IL  
Stuart R. Stock, PhD, Chicago, IL  
Sohaib Z. Hashmi, BS, Chicago, IL  
John T. Nelson, MD, Taylor, MI  
Amruta Ashtekar, Evanston, IL  
Wellington K. Hsu, MD, Chicago, IL  
Erin L. Hsu, PhD, Chicago, IL

Dioxin significantly reduces fusion capacity in rats and AHR blockers alpha-naphthoflavone and resveratrol may have therapeutic use to mitigate this effect.

**Discussion – 6 Minutes**

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**2:18 PM  PAPER: 622**

**Efficacy of Linezolid in the Treatment of Spondylodiscitis Caused by Methicillin-resistant Staphylococcus Aureus**

Masahiko Takahata, MD, Sapporo, Japan  
Manabu Ito, MD, Sapporo, Japan  
Hideki Sudo, MD, Sapporo, Japan  
Ken Nagahama, MD, PhD, Sapporo, Japan  
Norimasa Iwasaki, Sapporo, Japan

Linezolid could be effective drug for the treatment of MRSA spondylodiscitis even when glycopeptides therapy fails, possibly due to efficient penetration of linezolid into spine tissues.
**Thursday, March 26**

**2:24 PM**
**Paper: 623**
**Effect of Teriparatide versus Bisphosphonate on the Healing of Osteoporotic Vertebral Fracture**
Akira Iwata, MD, Hakodate, Japan
Masahiro Kanayama, MD, Hakodate, Japan
Keiichi Shigenobu, MD, Hakodate, Japan
Fumibiro Oha, MD, Hakodate, Japan
Masaru Tanaka, Shizuoka, Japan
Shingo Onda, MD, Hokkaido, Japan
Tomoyuki Hashimoto, MD, Hakodate, Japan
Norimasa Iwasaki, Sapporo, Japan

Compared with bisphosphonate, teriparatide had a potential to enhance the fracture healing and improve the union rate in osteoporotic vertebral compression fracture.

**2:30 PM**
**Paper: 624**
**Severity of Stenosis Correlation Using MRI, Dural Cross Sectional Area, and Oswestry Disability Index**
Satyajit V. Marawar, MBBS, Jamesville, NY
Mark A. Palumbo, MD, Providence, RI
Richard Tallarico, MD, Manlius, NY
Dongliang Wang, PhD, Syracuse, NY
Nathaniel R. Ordway, Syracuse, NY
William F. Lavelle, MD, East Syracuse, NY

We found no correlation between the degree of spinal stenosis graded by the surgeon on the MRI as well as dural cross sectional area measurement, and the clinical disability using ODI.

**2:42 PM**
**Paper: 625**
**Pharmacologic Treatment for Osteoporosis after Vertebral Fractures: Do We Really Own the Bone?**
Jeffrey Gum, MD, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY
Steven D. Glassman, MD, Louisville, KY

27% of Medicare patients received appropriate therapy within a year after a vertebral fracture. Although this is a 9% increase from previous reports, there is still much room for improvement.

**2:48 PM**
**Paper: 626**
**The Truth About Coccygectomy**
Gabriella Ode, MD, Charlotte, NC
Edward N. Hanley Jr, MD, Charlotte, NC
James B. Jackson, MD, Irmo, SC
Rachel Seymour, PhD, Charlotte, NC

In appropriately selected patients, coccygectomy is a successful treatment for chronic coccydynia.

**2:54 PM**
**Paper: 627**
**Risk Factors for Venous Thromboembolism following Thoracolumbar Surgery: Analysis from the ACS-NSQIP 2005-2012**
Arjun Sebastian, MD, Rochester, MN
Sanjeev Kakar, MD, Rochester, MN
Amy Wagle, Rochester, MN
Elizabeth Habermann, Ph.D., Rochester, MN

Using ACS-NSQIP, a review of 43,777 patients who underwent thoracolumbar surgery was performed to determine the incidence, timing, and risk factors for postoperative venous thromboembolism.

**3:06 PM**
**Paper: 628**
**Spine Surgery at an Ambulatory Surgery Center: Is it Feasible, Safe, and Cost Effective?**
Kenneth A. Pettine, MD, Johnstown, CO
Nicholas Schraut, MD, Worcester, MA
Fernando Techy, MD, Fort Collins, CO

Anterior cervical fusion, lumbar nerve decompression, discectomy, and artificial disc replacements can be safely performed with efficacy at an ambulatory surgery center with substantial cost savings.

**3:12 PM**
**Paper: 629**
**The Utility of Intra-operative Gram Stain in Revision Spine Surgery**
Grant Shifflett, MD, New York, NY
Benjamin Bjerke-Kroll, MD, New York, NY
Jayme C. Burket, PhD, New York, NY
Andrew A. Sama, MD, New York, NY
Federico P. Girardi, MD, New York, NY

This study tests the hypothesis that there is no utility in obtaining gram stains in revision spinal surgery.

**3:18 PM**
**Paper: 630**
**Posterior Spinal Adiposity and Risk of Infection with Lumbar Fusion**
Neil Patel, MD, Taylor, MI
David Buzas, MD, Taylor, MI
Ali Sobh, B.Sc., Dearborn, MI
Eric Owashi, B.Sc., B.A., Detroit, MI
Nilesh M. Patel, MD, Canton, MI

There is a relationship with the amount of adiposity involved in the surgical dissection and Surgical Site Infection.

An alphabetical faculty financial disclosure list can be found starting on page 332.
Thursday, March 26

1:30 PM — 3:30 PM
Room 3105

Pediatrics III: Pediatric Hip and Sports
Moderator(s): Ernest L. Sink, MD, New York, NY
Tim Schrader, MD, Atlanta, GA
Jean-Claude Theis, FRACS, Dunedin, New Zealand

1:30 PM
Long-term Health Status After In-Situ Fixation for Slipped Capital Femoral Epiphysis
Benjamin Escott, MBBS, Toronto, ON, Canada
Chan-Hee Jo, PhD, Dallas, TX
Adriana De La Rocha, MS, Dallas, TX
Daniel J. Sucato, MD, MS, Dallas, TX
Lori A. Karol, MD, Dallas, TX

The long-term general health of a cohort of SCFE patients was poor but patient-reported outcomes did not correlate with slip angle.

1:36 PM
Ultrasound Exam at Six Weeks of Age for Infants Born Breech with a Normal Hip Exam for Instability
Matthew Pacana, BS, Hershey, PA
William L. Henrikus Jr, MD, Hershey, PA
Jennifer Slough, BS, West Hartford, CT

Not all pediatricians are following the AAP 2000 guidelines for DDH. We suggest that the guidelines be re-examined.

1:42 PM
Proximal Femoral Osteotomy in Children with Cerebral Palsy: What Factors are Associated with Revision
Benjamin J. Shore, MD, FRSCS, Boston, MA
David Zurakowski, PhD, Boston, MA
Travis H. Matheny, MD, Boston, MA
Brian Snyder, MD, PhD, Boston, MA

The results of this study demonstrate a high revision rate after VDRO (22%) in children with CP. Age, GMFCS level and surgeon experience are strong predictors of surgical success.

2:00 PM
Medium-term Outcome for Total Hip Arthroplasty in Patients Aged 20 and Younger
Ivor Vanhegan, BSc(Hons), MBBS, Dip SEM, London, United Kingdom
James P. Cashman, MD, FRCS (Ortho), Dublin 7, Ireland
Nirav K. Patel, BMedSc, MChB, London, United Kingdom
Aresh Hashemi-Nejad, FRCS, Middlesex, United Kingdom

We report a 4.3% revision rate at 5.5 years for total hip arthroplasty in a cohort with an average age of 18 years.

2:06 PM
A New Radiographic Classification for DDH is More Reliable and Predictive of Successful Closed Reduction
Brandon A. Ramo, MD, Dallas, TX
Adriana De La Rocha, MS, Dallas, TX
Chan-Hee Jo, PhD, Dallas, TX
Daniel J. Sucato, MD, MS, Dallas, TX

The new IHDI radiographic classification for DDH is more reliable than the Tonnis method and is predictive of successful closed reduction and need for pelvic osteotomy.

2:18 PM
Functional Movement Recovery after Anterior Cruciate Ligament Reconstruction in Adolescent Patients
Matthew J. Boyle, MD, Newton Center, MA
Robert J. Butler, DPT, PhD, Durham, NC
Robin M. Queen, PhD, Durham, NC

We found that adolescent patients undergoing primary ACL reconstruction do not consistently recover adequate functional movement by nine months postoperatively to permit a safe return to sport.

2:24 PM
Early Complications of Femoral Neck Osteotomies for Slipped Capital Femoral Epiphysis
Prasad V. Gourineni, MD, Oak Brook, IL
Summer Watkins, NP, RN, MS, Darien, IL
Rhea Richardson, DO, Akron, OH

Almost all complications of femoral neck osteotomies occurred within one year. Majority also occurred early in the surgeon’s experience.
Thursday, March 26

2:30 PM

PAPER: 639

Epiphyseal Drilling and Marrow Implantation for Femoral Head Osteonecrosis After Pediatric Sickle Cell Disease
Eduardo N. Novais, MD, Aurora, CO
Wudbhav N. Sankar, MD, Wynnewood, PA
Laurence Wells, MD, Philadelphia, PA
Young Jo Kim, MD, PhD, Boston, MA

Epiphyseal drilling with marrow implantation is a promising technique that allows for short term improvement in pediatric patients with femoral head necrosis.

Discussion – 6 Minutes

2:42 PM

PAPER: 640

The Impact of Table Choice on Surgery-Related Factors for Fixation of Slipped Capital Femoral Epiphysis
Matthew Butterfield, MD, Eden Prairie, MN
Patrick B. Wright, MD, Jackson, MS
Mark A. Birnbaum, MD, Orlando, FL
Jonathan H. Phillips, MD, Orlando, FL
Jose A. Herrera Soto, MD, Orlando, FL

A radiolucent table is a safe and accurate method of fixation of a stable or unstable slipped capital femoral epiphysis with significantly less total radiation exposure than a fracture table.

2:48 PM

PAPER: 641

Femoroacetabular Impingement in Asymptomatic Adolescents: At What Age Do CAM and Pincer Deformities First Appear?
G. Ying Li, MD, Ann Arbor, MI
Peter Helvie, BS, Ann Arbor, MI
Matthew Mead, BS, BA, Whitmore Lake, MI
Joel J. Gagnier, PhD, Ann Arbor, MI
Nahbee Jong, BS, Ann Arbor, MI

The prevalence of CAM-type femoroacetabular impingement in asymptomatic adolescents is similar to the reported prevalence in asymptomatic adults. CAM deformities are more prevalent in males.

2:54 PM

PAPER: 642

Can We Alter the Natural History of Type II Avascular Necrosis with Percutaneous Medial Hemiepiphysiodesis?
Haluk Agus, MD, Izmir, Turkey
Burak Onural, MD, Izmir, Turkey
Cemal Kazimoglu, MD, Ankara, Turkey
Onder Kalenderer, MD, Izmir, Turkey
Ali Reisoglu, MD, Izmir, Turkey

This study demonstrated the possibility that a medial percutaneous hemiepiphysiodesis could solve the development of inadequate coverage of the hip joint by providing symmetrical growth.

Discussion – 6 Minutes

3:06 PM

PAPER: 643

Predictive Factors of Osteonecrosis Following Closed Reduction for Treatment of Developmental Dysplasia of the Hip
Eduardo N. Novais, MD, Aurora, CO
Julie Ma, BA, Aurora, CO
Meredith Mayo, MD, Denver, CO
Zhaoxing Pan, Aurora, CO
Mary K. Hill, BA, Aurora, CO
Gaia Georgopoulos, MD, Aurora, CO

Older age, higher dislocations and non anatomical reduction were found to be significant factors associated with osteonecrosis after closed reduction for developmental dysplasia of the hip.

3:12 PM

PAPER: 644

Trans-Physeal Revascularization of the Hip is Associated with Partial Physeal Arrest
John Sielatycki, MD, Nashville, TN
Heather Cole, Nashville, TN
Gregory G. Polkowski II, MD, Nashville, TN
Jonathan G. Schoenecker, MD, Nashville, TN

These studies provide evidence that there is an anatomic association of epiphyseal revascularization through the physis and the development of a physeal arrest.

3:18 PM

PAPER: 645

Staged Containment Protocol for Legg-Calve-Perthes Disease: Health-Related Quality of Life
Ayesha Yahya, Liberty Township, OH
Charles T. Mehlman, DO, MPH, Cincinnati, OH
Junichi Tamai, MD, Cincinnati, OH

Staged containment resulted in good long-term health-related quality of life (mean PedsQL score of 82±18) in 37 patients with Legg-Calve-Perthes disease after an average of 14 (range: 7-25) years.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.
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SYMPOSIUM
4:00 PM — 6:00 PM
Room 2201

ICD-10 (FF)
Moderator: R. Dale Blasier, MD, Little Rock, AR

ICD-10 will be fully adopted for diagnosis coding on October 1st, 2015. This symposium will give the attendee basic information on how to use the new code set, meet new documentation requirements and get ready for the big change.

I. An Introduction to ICD-10
   Bernard Pfeifer, MD, Chatham, MA

II. ICD-10 and Sports Orthopaedics
    Louis F. McIntyre, MD, White Plains, NY

III. ICD-10 and Adult Reconstruction
     Frank Voss, MD, Columbia, SC

IV. The “Episode of Care” 7th Character and the Inner Workings of ICD-10
    Brad Henley, Seattle, WA

SYMPOSIUM
4:00 PM — 6:00 PM
Venetian Ballroom E

Hot Topics and Controversies in Primary Total Hip Arthroplasty (W)
Moderator: Paul F. Lachiewicz, MD, Chapel Hill, NC

Hot topics in THA include surgical approach, optimal bearing surfaces, femoral and acetabular component choices, head size, and choice of thromboembolism prophylaxis. This symposium brings together experts in the field of primary total hip arthroplasty to discuss and debate these controversies.

I. The Direct Anterior Approach is Best
   Joseph T. Moskal, MD, Roanoke, VA

II. ABMSparing (Anterior-based, Muscle-sparing) Hip Approach is Best
    Scott S. Kelley, MD, Durham, NC

III. The Direct Lateral Approach is Best
     Adolph V. Lombardi Jr, MD, New Albany, OH

IV. The Posterior Approach is Best
    Mark W. Fagnano, MD, Rochester, MN

V. Metal on Highly Cross-linked Poly is Best
   Steven J. MacDonald, MD, London, ON, Canada

VI. Ceramic on Highly Cross-linked Poly is Best
    Javad Parvizi, MD, FRCS, Philadelphia, PA

SYMPOSIUM
4:00 PM — 6:00 PM
Room 2001

Controversies in Shoulder Arthroplasty (X)
Moderator: Thomas (Quin) Throckmorton, MD, Germantown, TN

This symposium discusses the current controversies in shoulder arthroplasty. Topics include management of the B2 glenoid, the role and importance of certain design features in reverse arthroplasty, the role of patient specific instrumentation, and different methods to address proximal humerus bony deficiency.

I. TSA with Glenoid Bone Grafting
   Robert Z. Tashjian, MD, Salt Lake City, UT

II. TSA with Partial Glenoid Correction and Altered Stem Version
    Jay D. Keener, MD, Saint Louis, MO

III. TSA with Augmented Glenoid Component
    April D. Armstrong, MD, Hershey, PA

IV. Reverse Total Shoulder Arthroplasty
    David M. Dines, MD, Uniondale, NY

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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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V. The Importance of Accurate Glenoid Component Position
   George S. Athwal, MD, London, ON, Canada

VI. The Role of Patient Specific Instrumentation in Shoulder Arthroplasty
   Joseph P. Iannotti, MD, PhD, Cleveland, OH

VII. Advantages of a Lateralized Glenosphere
    Patrick St. Pierre, MD, Rancho Mirage, CA

VIII. Benefits of the Grammont-style Prosthesis
     Sumant G. Krishnan, MD, Dallas, TX

IX. Advantages of a Central Post
    Kaveh R. Sajadi, MD, Lexington, KY

X. A Central Screw is the Way to Go
    Lawrence V. Guilotta, MD, New York, NY

XI. Humeral Stems: Cemented or Uncemented? And How Long Should You Go
    Joseph A. Abboud, MD, Philadelphia, PA

XII. The Role Of Allograft-Prosthesis Composite and Endoprosthetic Reconstruction In Massive Proximal Humerus Deficiency
     John W. Sperling, MD, MBA, Rochester, MN

INSTRUCTIONAL COURSE LECTURE

3:00 PM — 5:00 PM

FD22 The Art of Teaching Orthopaedic Surgery
Moderator: Joseph D. Zuckerman, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Donna P. Phillips, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Room 4501

This session provides the learner with an assessment of barriers to the implementation of modern teaching strategies in orthopaedic residencies and discusses the historical and current models for training in the US. Presenters discuss metrics for evaluation and present methods to improve resident assessment.

4:00 PM — 6:00 PM

362 Outpatient Arthroplasty: Same Day, Home Safe
Moderator: Keith R. Berend, MD, New Albany, OH
Michael E. Berend, MD, Mooresville, IN
Richard A. Berger, MD, Chicago, IL
Mark A. Hartzband, MD, Franklin Lakes, NJ
Room Venetian Ballroom G

Understanding and addressing safely the reasons that surgeons and patients believe they “need” a hospital admission is the cornerstone to outpatient arthroplasty. Course faculty review the surgical techniques and perioperative factors.

363 Perioperative Management in Total Knee Arthroplasty
Moderator: R. Michael Meneghini, MD, Fishers, IN
Paul E. Beaule, MD, Ottawa, ON, Canada
Brett R. Levine, MD, Salt Lake City, UT
Vincent S. Mosca, MD, Seattle, WA
Lew C. Schon, MD, Baltimore, MD
Room 3401

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.

364 Pes Planovalgus: From Adolescent to Adulthood
Moderator: Jenny Frances, MD, New York, NY
David S. Feldman, MD, New York, NY
Vincent S. Mosca, MD, Seattle, WA
Lew C. Schon, MD, Baltimore, MD
Room 3404

Course faculty review all aspects of treatment of painful pes planovalgus feet, from idiopathic pathology in children through neuromuscular deformity to adult pathology using a case-based approach. Current concepts with regard to surgical indications, operative techniques, and pearls and pitfalls in each treatment group also are covered.

365 An Orthopaedist’s Introduction to the AMA Guides to Permanent Physical Impairment by Examples Using the 4th, 5th, and 6th Editions
Moderator: J. Mark Melhorn, MD, Wichita, KS
Room 4301

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.
### Thursday, March 26

#### 366 Ulnar Sided Wrist Pain: Where Do I Start?
**Moderator:** Sanjeev Kakar, MD, Rochester, MN  
**William B. Geissler, MD, Jackson, MS**  
**A. Lee Osterman, MD, Villanova, PA**

This course is an overview of pathophysiology and provides an evidenced-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 fibrocartilage complex disruption, and ulnar impaction.

#### 367 Problems and Procedures in Pediatric Trauma: Case-Based Learning
**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.

#### 368 Strategies to Enhance Value and Improve Patient Experience Through Patient-Centered Care
**Moderator:** James B. Rickert, MD, Bloomington, IN  
**Thomas J. Grogan, MD, Los Angeles, CA**  
**Jonathan Sugarman, MD, Seattle, WA**

Improve patient satisfaction, treatment outcomes, and online ratings using the patient-centered care strategies discussed. Course faculty offer both practice organization and effective patient physician interactions.

#### 369 Diagnosis and Treatment of the Biceps-Labral Complex: The State of the Art 2015
**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.

#### 370 Realignment Planning in Adult Spinal Deformity: The Newest Tools, Formulas and Techniques to Get it Right
**Moderator:** Thomas J. Errico, MD, New York, NY  
**Christopher Ames, MD, San Francisco, CA**  
**Robert S. Bess, MD, Castle Rock, CO**  
**Virginie Lafage, PhD, New York, NY**

This course covers the treatment of adult spinal deformity and focuses on clinical data and new tools to help improve surgical planning, outcomes, and avoid complications.

#### 371 Cases and Controversies in Treatment of SLAP Injuries
**Moderator:** Felix H. Savoie, MD, New Orleans, LA  
**Neal S. ElAttrache, MD, Los Angeles, CA**  
**Michael J. O’Brien, MD, New Orleans, LA**  
**Richard K.N. Ryu, MD, Santa Barbara, CA**

This course helps you improve diagnostic skills and learn to use these skills to determine the best treatment option for each case: rehabilitation, repair, or tenodesis. Cases presented include the young overhead athlete, a highly active middle age patient, a work related injury with pain, and a relatively sedentary patient with a positive MRI for a superior labrum anterior-to-posterior (SLAP) lesion. Emphasis is on accurate physical examination techniques.

#### 372 Primary ACL 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**  
**Robert T. Burks, MD, Salt Lake City, UT**  
**Charles A. Bush-Joseph, Chicago, IL**  
**Mark D. Miller, MD, Charlottesville, VA**  
**Claude T. Moorman III, MD, Durham, NC**  
**David R. McAllister, MD, Los Angeles, CA**  
**Kurt P. Spindler, MD, Garfield Hts, OH**

This course helps you understand in-depth potential etiologies of anterior cruciate ligament (ACL) failure and ways to improve our outcomes. 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.

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Thursday, March 26

Fractures and Dislocations about the Elbow and their Adverse Sequelae: Contemporary Perspectives
Moderator: Scott P. Steinmann, MD, Rochester, MN
Robert N. Hotchkiss, MD, New York, NY
Graham J.W. King, MD, London, ON, Canada
Shawn W. O’Driscoll, MD, Rochester, MN
Room 3103
Based upon clinical cases and surgical videos, this course addresses contemporary treatments and controversies regarding traumatic injuries about the elbow and their sequel.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Venetian Ballroom B
Sports Medicine/Arthroscopy V: Basic Science/Complications
Moderator(s): Christopher C. Kaeding, MD, Columbus, OH
Christian Lattermann, MD, Lexington, KY

4:00 PM
In Vivo Evaluation of Tissue-Engineered Constructs for Anterior Cruciate Ligament Reconstruction
Armin Arshi, BS, Los Angeles, CA
Nima Kabir, MD, Los Angeles, CA
Natalie Leong, MD, Los Angeles, CA
David R. McAllister, MD, Los Angeles, CA
Azadeh Nazemi, BS, Newport Beach, CA
Frank Petriglano, MD, Santa Monica, CA
Ben Wu, DDS, PhD, Los Angeles, CA

In this study, we report on the implantation and evaluation of tissue-engineered scaffolds augmented with basic fibroblast growth factor (bFGF) and human foreskin fibroblasts in an athymic rat model.

4:06 PM
The Biological Tropism of Hyaline Cartilage in Different Hosts: An Animal Study
Kadir Buyukdogan, MD, Ankara, Turkey
Mahmut N. Doral, MD, Ankara, Turkey
Onur Bilge, MD, Konya, Turkey
Egemen Turhan, Ankara, Turkey
Gürhan Dönmez, MD, Ankara, Turkey
Gazi Hur, MD, Baltimore, MD
Define Kaya, PT, MSc, PhD, Ankara, Turkey

The results of this study indicated that intra-abdominal region may have the potential to be used as an in vivo culture medium for osteochondral tissue growth in the animal.

4:12 PM
Stem Cells Versus Platelet-augmented Achilles Tendon Repair - A Randomized, Active-controlled Large Animal Study
Patrick Vavken, MD, Basel, Switzerland
Benedikt Proffen, MD, Boston, MA
Victor Valderrabano, MD, Hofstetten, Switzerland
Martha M. Murray, MD, Boston, MA

PRP produces better biomechanical and histological outcomes in Achilles tendon repair than bone marrow concentrate.

Discussion – 6 Minutes

4:24 PM
Comparison of Hyperosmolar Irrigation to Standard Isotonic Solution in a Canine Shoulder Arthroscopy Model
Nicholas M. Capito, MD, Columbia, MO
Matthew J. Smith, MD, Columbia, MO
Aaron M. Oster, MS, PhD, Columbia, MO
Nikki Werner, Saint Louis, MO
James L. Cook, DVM, PhD, Columbia, MO

A hyperosmolar irrigation solution does not negatively affect glenohumeral chondrocyte viability compared to a standard isotonic solution for shoulder arthroscopy in a canine model.

4:30 PM
Cytokine Predictors of Cartilage Pathology, Joint Pain, and Outcomes in Knee Arthroscopy
Vanessa G. Cuellar, MD, New York, NY
Jason M. Cuellar, MD PhD, New York, NY
Thorsten Kirsch, PhD, New York, NY
Will Smith, BS, Briarcliff Manor, NY
Laith M. Jazrawi, MD, New York, NY
Eric J. Strauss, MD, New York, NY

This study identified IL-6, MCP-1, RANTES, VEGF, TIMP-3 and IL-1ra in knee synovial fluid as strong predictors of cartilage pathology, joint pain and clinical outcome following arthroscopy.

4:36 PM
Effect of Platelet Rich Plasma and Hyaluronic Acid on Chondrogenic Differentiation of Human Mesenchymal Stem Cells
David Figueroa, MD, Santiago, Chile
Maximiliano Espinosa, MD, Santiago, Chile
Rafael Calvo, MD, Santiago, Chile
Agustin Leon, MD, Santiago, Chile
Alex Vaisman, MD, Santiago, Chile
Flavia Bruna, PhD, Santiago De Chile, Chile
Paulette Conget, PhD, Santiago, Chile

We analyzed the effects of HA and PRP on chondrogenic differentiation of MSCs. According to our results, PRP would have a role enhancing the chondrogenic differentiation of MSC in vitro.

Discussion – 6 Minutes

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4:48 PM  PAPER: 652
The Effect of Donor Age on the Structural and Mechanical Properties of Allograft Tendons
Jason L. Dragoo, MD, Redwood City, CA
Anthony Behn, MS, Stanford, CA
Katherine R. Swank, BA, Columbus, OH
Donor age has minimal impact on the initial structural and mechanical properties of allograft tendons.

4:54 PM  PAPER: 653
Differential Impact of Corticosteroids on Human Mesenchymal Stem Cells
Cody Wyles, BS, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Sarah Wyles, BA, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Corticosteroids have a differential cytotoxicity profile on mesenchymal stem cells with dexamethasone supporting the greatest cell viability and betamethasone being most toxic.

5:00 PM  PAPER: 654
Comparison of Short-term Complications in Arthroscopic Versus Open Acromio-Clavicular Ligament Reconstruction
Lane N. Rush, MD, New Orleans, LA
Nicholas Lake, MS, New Orleans, LA
Edward R. Hobgood, MD, Jackson, MS
Michael J. O’Brien, MD, New Orleans, LA
Larry D. Field, MD, Jackson, MS
Felix H. Savoie, MD, New Orleans, LA
All-arthroscopic techniques of AC ligament reconstruction carried a statistically significant greater risk of early complications and construct failures than those treated with an open procedure.

5:12 PM  PAPER: 655
Anchor-induced Chondral Damage of the Hip: Treatment, Prevention, and Outcomes
Dean K. Matsuda, MD, Los Angeles, CA
Marc Safran, MD, Redwood City, CA
Srino Bharam, MD, New York, NY
Brian J. White, MD, Denver, CO
This is the first case series on the potentially devastating complication of anchor-induced chondral damage in the hip.

5:18 PM  PAPER: 656
Early Problems and Complications after the Arthroscopic Latarjet Procedure: The North American Experience
George S. Athwal, MD, London, ON, Canada
Robert J. Meislin, MD, New York, NY
Charles L. Getz, MD, Newton Square, PA
David Weinstein, MD, Colorado Springs, CO
Paul J. Favorito, MD, Cincinnati, OH
The North American experience with early problems and complications after the arthroscopic Latarjet procedure are reported. Eighty-three patients were reviewed.

5:24 PM  PAPER: 657
Prevention of Venous Thromboembolism after Arthroscopic Knee Surgery with the Use of Aspirin: A Randomized Trial
Ian Kaye, MD, New York, NY
Deepan Patel, MD, Hoboken, NJ
Michael J. Alaia, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY
This is the first randomized, prospective study evaluating the efficacy and safety of aspirin as venous thromboembolic prophylaxis after arthroscopic knee surgery.

5:36 PM  PAPER: 658
Mucormycosis Osteomyelitis After Arthroscopic Anterior Cruciate Ligament Reconstruction
Lisandro Carbo, MD, Buenos Aires, Argentina
Juan Astoud, MD, Buenos Aires, Argentina
Adrian N. Sirio Jr, MD, Buenos Aires, Argentina
Carlos H. Yacuzzi Sr, MD, Argentina
Miguel A. Ayerza, MD, Buenos Aires, Argentina
Matias Costa Paz, Buenos Aires, Argentina
Domingo L. Muscolo, MD, Buenos Aires, Argentina
Epidemic outbreak of Mucormycosis after anterior cruciate ligament (ACL) surgery with severe bone loss and catastrophic consequences.

5:42 PM  PAPER: 659
The Effect of Naproxen on Heterotopic Ossification Following Hip Arthroscopy: A Randomized Controlled Trial
James Beckmann, MD, Menlo Park, CA
James Wylie, MD, Park City, UT
Travis G. Maak, MD, Salt Lake City, UT
Stephen K. Aoki, MD, Salt Lake City, UT
This double-blinded randomized controlled trial compared Naproxen to placebo for HO prophylaxis after hip arthroscopy; a significant reduction was found in the treatment group (p<0.0001).
Education Programs

Thursday, March 26

5:48 PM  PAPER: 660
Obesity Significantly Increases Postoperative Complications after Knee and Shoulder Arthroscopy
Brian C. Werner, MD, Charlottesville, VA
Alexander Halim, BS, Charlottesville, VA
Mark D. Miller, MD, Charlottesville, VA
E. Winston Gwathmey, MD, Charlottesville, VA

Obesity and its associated medical comorbidities place patients undergoing knee and shoulder arthroscopy at significantly increased risk for postoperative complications.

Discussion – 6 Minutes

4:00 PM — 6:00 PM
Venetian Ballroom D
Adult Reconstruction Knee VI: Economics
Moderator(s): Thomas H. Eickmann, MD, Longmont, CO
Andrew M. Star, MD, Willow Grove, PA

4:00 PM  PAPER: 661
What Incentives are Created by Medicare Payments for Total Knee Arthroplasty?
R. Clement Carter, BSE, Durham, NC
Michael M. Kheir, BS, Philadelphia, PA
Peter Derman, MD, MBA, New York, NY
Rebecca Speck, Philadelphia, PA
David N. Flynn, MD, MBA, Philadelphia, PA
L. Scott Levin, MD, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Financial analysis suggests current Medicare payments adequately compensate hospitals for TKA patients with multiple comorbidities but create an incentive against knee replacement in older patients.

4:06 PM  PAPER: 662
How will Financial Incentives to Provide TKA for Sicker Patients Change with Bundled Payments?
R. Clement Carter, BSE, Durham, NC
Michael M. Kheir, BS, Philadelphia, PA
Peter Derman, MD, MBA, New York, NY
Rebecca Speck, Philadelphia, PA
David N. Flynn, MD, MBA, Philadelphia, PA
L. Scott Levin, MD, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Financial analysis suggests current Medicare payments incentivize hospitals to provide TKA for sicker patients but that flat-rate bundled payments will create a large incentive against their care.

4:12 PM  PAPER: 663
Transfusion Cost and Time Savings with Tranexamic Acid in Primary Total Knee Arthroplasty from 2009 to 2012
Joseph T. Moskal, MD, Roanoke, VA
Ryan Harris, DO, Riner, VA
Susan G. Capps, PhD, Warsaw, IN

Tranexamic Acid used in total knee arthroplasty significantly reduces the need for blood transfusion. This also contributes to reductions in total facility costs and time spent on transfusions.

Discussion – 6 Minutes

4:24 PM  PAPER: 664
Tranexamic Acid Benefits Total Joint Arthroplasty Patients Regardless of Preoperative Hemoglobin Value
Daniel Whiting, MD, Rochester, MN
Christopher Duncan, MD, Rochester, MN
Hugh M. Smith, MD, PhD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

Tranexamic acid decreases transfusion rates in total joint arthroplasty patients regardless of preoperative hemoglobin values and is associated with decreased length of stay.

4:30 PM  PAPER: 665
Direct Costs of Aspirin Versus Coumadin for Venous Thromboembolism Prophylaxis
Christina J. Gutowski, MD, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Jess H. Lonner, MD, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Patients receiving aspirin had lower complication rate and lower average total cost. Aspirin was an independent predictor of lower total cost of the episode of care and cost of index hospitalization.

4:36 PM  PAPER: 666
Topical Tranexamic Acid Reduces Transfusion Rates in Simultaneous Bilateral Total Knee Arthroplasty
Christopher Kim, MD, Toronto, ON, Canada
Sam S. Park, MD, Toronto, ON, Canada
Herman Dhotar, MD, Mississauga, ON, Canada
Anthony Perruccio, PhD, Toronto, ON, Canada
Michael G. Zyriak, MD, Mississauga, ON, Canada
J. Rod Davey, MD, Toronto, ON, Canada

Topical administration of TA in simultaneous bilateral TKA significantly reduced transfusion requirements, blood loss and postoperative length of stay with no increased risk of thromboembolic events.

Discussion – 6 Minutes

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4:48 PM  PAPER: 667
Topical Tranexamic Acid in TKA Lowers Transfusion Rates and Hospital Costs without Raising Thromboembolic Events
Michael G. Zywiel, MD, Mississauga, ON, Canada
Zara Jan, Pickering, ON, Canada
Anthony Perruccio, PhD, Toronto, ON, Canada
Y. Raja Rampersaud, MD, FRCS(C), Toronto, ON, Canada
J. Rod Davey, MD, Toronto, ON, Canada
Lucia Evans, Toronto, ON, Canada
Atul Prabhu, MBBS, MD, Toronto, ON, Canada
Routine use of topical TXA in both primary and revision TKA procedures provides both clinical and economic benefits, without any increased risk of clinically relevant thromboembolic adverse events.

4:54 PM  PAPER: 668
The Cost Effectiveness of Radiographic Surveillance Following Primary Total Knee Arthroplasty
Simon L. Amsdell, MD, Rochester, NY
Richard D. Southgate, MD, Rochester, NY
Matthew C. Bessette, MD, Rochester, NY
Brian D. Giordano, MD, Pittsford, NY
Stephan L. Kates, MD, Rochester, NY
Routine radiographic surveillance following primary total knee arthroplasty may not be necessary in the absence of patient reported symptoms in the first two years postoperatively.

5:00 PM  PAPER: 669
Cost-Effectiveness of Bariatric Surgery Prior to Total Knee Arthroplasty in the Morbidly Obese
Alexander S. McLawborn, MD, MBA, New York, NY
Daniel L. Southbren, BA, Suffern, NY
Claire Wang, MD, PhD, New York, NY
Robert G. Marx, MD, New York, NY
Emily Dodwell, MD, New York, NY
Bariatric surgery prior to primary total knee arthroplasty is a cost-effective intervention in the morbidly obese.

5:12 PM  PAPER: 670
Who Should Not Undergo Short Stay Hip and Knee Arthroplasty?
Paul M. Courtney, MD, Philadelphia, PA
Joshua C. Rozell, MD, Philadelphia, PA
Christopher M. Melnic, MD, Philadelphia, PA
Guo-Chin Lee, MD, Philadelphia, PA
We present a novel risk score to identify patients for short stay primary TJA. Patients with a history of CHF, CAD, cirrhosis, or CODS should not undergo outpatient or short stay primary TJA.

5:18 PM  PAPER: 671
Routine Urine Testing Before Arthroplasty Demonstrates Characteristics of a Poor Screening Test
Ernick Kazarian, BA, Ann Arbor, MI
Jenny Cai, Philadelphia, PA
Gregory K. Deirmengian, MD, Broomall, PA
Carl A. Deirmengian, MD, Wynnewood, PA
Routine urine screening before arthroplasty demonstrates a high proportion of contaminated samples among women, and a very low prevalence of UTI among men, both problematic for predictive value.

5:24 PM  PAPER: 672
Thinking Beyond Hospital Pharmacy Silo Analysis of Perioperative Pain Modalities in Total Joint Arthroplasty
Bryan D. Springer, MD, Charlotte, NC
Susan Bear, PharmD, Charlotte, NC
Eugene P. Christian, MD, Matthews, NC
Beyond the hospital pharmacy budget analysis, liposomal bupivacaine is demonstrated to lower cost per episode of care compared to other modalities in total joint arthroplasty.

5:36 PM  PAPER: 673
Does Early Discharge Increase the Rate of Unplanned Readmission after Total Knee Arthroplasty?
Steven J. Barad, MD, Sacramento, CA
Stephen M. Howell, MD, Sacramento, CA
We reviewed our 4 year discharge experience following total knee replacement at a community hospital. As our length of stay declined, our rate unplanned readmissions did not significantly change.

5:42 PM  PAPER: 674
Does Total Knee Arthroplasty Increase Postoperative Physical Activity to Meet AHA Guidelines for Improved Health?
William C. Schroer, MD, Saint Louis, MO
George R. Bradbury III, MD, Tucson, AZ
Paul Diesfeld, PA-C, Saint Louis, MO
Angela Leman, RN, Saint Louis, MO
Lindsay Harden, ATC, BA, Saint Louis, MO
Diane Morton, MS, Saint Louis, MO
Mary E. Reedy, RN, Saint Louis, MO
Patients undergoing TKA electively wore a pedometer for 10 days before surgery and at intervals after TKA, and results indicated that overall physical activity increased postoperatively.

*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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5:48 PM  PAPER: 675
Does Computer Navigation Improve Functional Outcomes After Total Knee Replacement?
Simon Young, MD, FRACS, Auckland, New Zealand
Chris Frampton, Associate Prof, Christchurch, New Zealand
Tim Roberts, MBChB, Auckland, New Zealand
Mark Clatworthy, MD, Auckland, New Zealand
In this comparative review of 9054 cases computer navigation did not improve functional outcomes in TKA.

Discussion – 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room 3304

Adult Reconstruction Hip VI: Primary THA/Public Policy
Moderator(s): Peter F. Sharkey, MD, Media, PA
Richard W. McCalden, MD, London, ON, Canada

4:00 PM  PAPER: 676
Do Surgeon Expectations Predict Outcomes After Total Joint Replacement?
Hassan Gbomrau, PhD, New York, NY
Carol A. Mancuso, MD, New York, NY
Michael M. Alexiades, MD, Manhattan, NY
Thomas P. Sculco, MD, New York, NY
Alejandro Gonzalez Della Valle, MD, New York, NY
Charles N. Cornell, MD, New York, NY
Alvin I. Mushlin, MD, New York, NY
We examined the association between surgeon expectations and surgery outcomes. Our results suggest that surgeon expectations are good predictors of outcome of THR but not TKR.

4:06 PM  PAPER: 677
The Effect of Liposomal Bupivacaine Injection During Total Hip Arthroplasty: A Controlled Cohort Study
Benjamin G. Domb, MD, Oak Brook, IL
Asheesh Gupta, MD, Arlington, VA
Jon Hammarstedt, BS, Chicago, IL
Kinzie G. Sharp, PA-C, Chicago, IL
John M. Redmond, MD, Jacksonville, FL
The purpose of this study was to compare liposomal bupivacaine to bupivacaine for postoperative analgesia in patients receiving total hip arthroplasty.

4:12 PM  PAPER: 678
Monocryl and Dermabond vs. Staples in Total Hip Arthroplasty: A Comparison Using a Patient Centered Assessment Tool
Andrew Glennie, MD, Halifax, NS, Canada
Abigail E. Kocznak, BScN, London, ON, Canada
Dianne Bryant, PhD, London, ON, Canada
Douglas Auld, MD, FRCCS, London, ON, Canada
Robert B. Bourne, MD, CM, FACSC, London, ON, Canada
James Howard, MD, London, ON, Canada
The purpose of this study was to compare staple closure to dermabond and subcuticular monocryl suture (DSM) using an assessment tool that incorporates both patient and surgeon evaluation.

Discussion – 6 Minutes

4:24 PM  PAPER: 679
Are We as Good as We Think in Predicting our Patient Satisfaction?
Leonid A. Kandel, MD, Jerusalem, Israel
Ron Dar, MD, PREIA ILLIT, Israel
Shimon Firman, BA, Jerusalem, Israel
Rachel Shimonov, BSc, Jerusalem, Israel
Garion Riekin, MD, ZUR Hadassah, Israel
Meir Liebergall, MD, Jerusalem, Israel
Yoav Mattan, MD, Jerusalem, Israel
Our ability to predict patient satisfaction based on superficial impression of patient’s personality is very low or non-existent. Medical decisions based on these impressions should be avoided

4:30 PM  PAPER: 680
Lumbar Plexus Catheters Do Not Improve Postoperative Pain or Decrease Narcotic Usage after Total Hip Arthroplasty
Derek Ward, MD, San Francisco, CA
Rosanna L. Wustrack, MD, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Erik N. Hansen, MD, San Francisco, CA
This study compares total hip arthroplasty patients who received a lumbar plexus catheter to those with a single-shot spinal only in terms of postoperative pain scores and narcotic usage.

4:36 PM  PAPER: 681
Tranexamic Acid Versus Fibrin Sealant in Total Hip Replacement: A Non-randomized Comparative Study
Aatif Mahmood, MBBS, Liverpool, United Kingdom
Gunesekaran Kumar, FRCS (Ortho), MS, Prenton, United Kingdom
Viju Peter, MD, Mersseyside, United Kingdom
The aim of this study was to assess the effectiveness of a fibrin sealant in comparison to intravenous TA and a control group.

Discussion – 6 Minutes

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**4:48 PM**

**PAPER: 682**

**Decreased Transfusion Rates and Hospital Resource Utilization with Routine Topical Tranexamic Acid Use in THA**

Michael G. Zywiel, MD, Mississauga, ON, Canada
Zara Jan, Pickering, ON, Canada
Anthony Perruccio, PhD, Toronto, ON, Canada
Y. Raja Rampersaud, MD, FRCS(C), Toronto, ON, Canada
J. Rod Davey, MD, Toronto, ON, Canada
Lucia Evans, Toronto, ON, Canada
Atul Prabhu, MBBS, MD, Toronto, ON, Canada
Rajiv Gandhi, MD, Toronto, ON, Canada

The routine use of topical TXA in both primary and revision THA procedures provide both clinical and economic benefits, without any increased risk of clinically relevant thromboembolic adverse events.

**4:54 PM**

**PAPER: 683**

**Rivaroxaban Use for Thrombosis Prophylaxis is an Independent Risk Factor for Early Periprosthetic Joint Infections**

Olubusola Brimmo, MD, Columbia, MO
Margaret Glenn, MD, Cleveland, OH
Alison K. Klika, MS, Cleveland, OH
Trevor G. Murray, MD, Avon Lake, OH
Robert M. Molloy, MD, Avon Lake, OH
Carlos A. Higuera, MD, Bay Village, OH

A significant increase in deep surgical site infection in primary THA and TKA patients was observed in patients who were treated with Rivaroxaban.

**5:00 PM**

**PAPER: 684**

**Risk of Redislocation after Early Versus Late Dislocation Within One Year of Primary Total Hip Replacement**

German A. Norambuena, MD, Rochester, MN
Jose H. Jimenez-Almonte, BS, Rochester, MN
Cody Wyles, BS, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

The aim of this study was to examine the risk of redislocation in patients who had an early (within 30 days) versus a late (after 30 days) first episode of dislocation following a THA.

**5:12 PM**

**PAPER: 685**

**Hospital Volume as a Source of Variation for Major Complications and Hospital Mortality After TJA**

Michele R. D’Apuzzo, MD, Miami, FL
Wendy Novicoff, PhD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA

Hospital volume appears to drive a large proportion of variation in mortality after TJA. This variation does not seem to be explained by hospital case mix.

**5:18 PM**

**PAPER: 686**

**What Incentives are Created by Medicare Payments for Total Hip Arthroplasty?**

R. Clement Carter, BSE, Durham, NC
Michael M. Kheir, BS, Philadelphia, PA
Peter Derman, MD, MBA, New York, NY
Rebecca Speck, Philadelphia, PA
David N. Flynn, MD, MBA, Philadelphia, PA
L. Scott Levin, MD, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Financial analysis suggests that current Medicare payments for THA create an incentive for hospitals to avoid hip replacement in older patients and those with more comorbidities.

**5:24 PM**

**PAPER: 687**

**Trends in Short- and Mid-Term Risk of Revision THA following Primary THA in Medicare Patients**

Kevin J. Bozic, MD, MBA, San Francisco, CA
Kevin Ong, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Steven M. Kurtz, PhD, Philadelphia, PA
Thomas P. Vail, MD, San Francisco, CA
Harry E. Rubash, MD, Boston, MA
Daniel J. Berry, MD, Rochester, MN

Mid-term risk of revision THA has decreased among Medicare primary THA patients, but not short-term risk, suggesting greater emphasis on mitigating potentially avoidable causes of early revision.

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5:36 PM  PAPER: 688
Episode of Care Cost Outlier Analysis for Primary Total Hip and Knee Replacements
Jaymes Granata, MD, Lewis Center, OH
Richard Snow, DO, Columbus, OH

This study suggests that a large percentage of aberrant spending in total joint replacement surgery can be addressed by focusing optimization efforts on a small percentage of at-risk patients.

5:42 PM  PAPER: 689
How Will Financial Incentives to Provide Total Hip Arthroplasty for Sicker Patients Change with Bundled Payments?
R. Clement Carter, BSE, Durham, NC
Michael M. Kheir, BS, Philadelphia, PA
Peter Derman, MD, MBA, New York, NY
Rebecca Speck, Philadelphia, PA
David N. Flynn, MD, MBA, Philadelphia, PA
L. Scott Levin, MD, Philadelphia, PA
Lee A. Fleisher, MD, Philadelphia, PA

Financial analysis suggests current Medicare payments incentivize hospitals to provide THA for sicker patients but that flat-rate bundled payments will create a large incentive against their care.

5:48 PM  PAPER: 690
The Epidemiology of Total Hip Arthroplasty in Teaching and Non-teaching Hospitals in the United States
Thomas D. Kowalik, MD, Portland, OR
Matthew Dehart, BS, Portland, OR
Kathryn Schabel, MD, Portland, OR
Thomas Huff, MD, Portland, OR
Michael J. Morris, MD, New Albany, OH
Keith R. Berend, MD, New Albany, OH
Adolph V. Lombardi Jr, MD, New Albany, OH
Amer J. Mirza, MD, Portland, OR

Primary and revision total hip arthroplasties were compared at teaching and non-teaching hospitals using the Nationwide Inpatient Sample database.

Discussion – 6 Minutes
SYMPOSIUM
8:00 AM — 10:00 AM
Venetian Ballroom E

How I Perform a Primary and a Revision Total Knee Arthroplasty (Y)
Co-Moderators: Keith R. Berend, MD, New Albany, OH
Thomas K. Fehring, MD, Charlotte, NC

This symposium uses video vignettes to demonstrate surgical techniques to facilitate primary and revision total knee arthroplasty.

I. How I Preoperatively Plan
   William L. Griffin, MD, Charlotte, NC
   What is the Role of PSI in 2015?
   Keith R. Berend, MD, New Albany, OH

II. Arthroscopy Options - Does it Matter?
    Thomas P. Sculco, MD, New York, NY

III. Why Do I Perform Measured Resection?
     Thomas S. Thornhill, MD, Boston, MA

IV. Why Do I Gap Balance?
    Douglas A. Dennis, MD, Denver, CO

V. A Stepwise Algorithm to Balance the Severe Varus Knee
   Mark W. Pagnano, MD, Rochester, MN

VI. A Stepwise Algorithm to Balance the Severe Valgus Knee
    Giles R. Scuderi, MD, New York, NY

VII. Moderator Revision Total Knee
     Thomas P. Vail, MD, San Francisco, CA

VIII. A Stepwise Algorithm to Gain Exposure
      Jean-Noel A. Argenson, MD, Marseille, France

IX. How to Safely Remove a Variety of Components
    Steven J. MacDonald, MD, London, OH, Canada

X. Why I Prefer Cementless Stems
    Christopher L. Peters, MD, Salt Lake City, UT

XI. Why I Prefer Cemented Stems
    Bryan D. Springer, MD, Charlotte, NC

XII. How I Balance the Revision Knee
     Thomas K. Fehring, MD, Charlotte, NC

XIII. How I Manage Distal Femoral Bone Loss
      David G. Lewallen, MD, Rochester, MN

XIV. How I Manage Proximal Tibial Bone Loss
     Robert T. Trousdale, MD, Rochester, MN

XV. How I Manage Patellar Deficiency
    John J. Callaghan, MD, Iowa City, IA

XVI. Prosthetic Constraint - A Stepwise Algorithm
    Robert E. Booth Jr, MD, Philadelphia, PA

XVII. How I Manage Extensor Mechanism Deficiencies
      Arlen D. Hansen, MD, Rochester, MN

XVIII. How I Deal with Previous Incisions
       Richard Iorio, MD, New Rochelle, NY

XIX. Stepwise Algorithm to deal with a severe flexion contracture
      Ormone M. Mahoney, MD, Athens, GA

INSTRUCTIONAL COURSE LECTURE
8:00 AM — 9:00 AM

FD23 Getting Your Ideas Supported: Effective Techniques
Moderator: Mary I. O’Connor, MD, Jacksonville, FL

Room 4501
Understand the types of information which different people want before they can support your proposals. Learn how to achieve buy-in and counter efforts to sink your next great idea. Presenters also discuss leadership perceptions of individuals based on race/ethnic/gender as well as corresponding tactics for you to counter negative bias and improve your effectiveness.

8:00 AM — 10:00 AM

401 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
Frank A. Liporace, MD, Englewood Cliffs, NJ

Room 3404
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 reconstruction strategies.

402 Aetiology and Management of Soft Tissue Instability during TKA
Moderator: William M. Mihalko, MD, PhD, Germantown, TN
Kenneth A. Krackow, MD, Buffalo, NY
Khaled J. Saleh, MD, MSc, Springfield, IL
Leo A. Whiteside, MD, Saint Louis, MO

Soft tissue resection may negatively impact the stability of total knee arthroplasty (TKA), especially in flexion. Course faculty discuss the controversial techniques as to when, how, and the extent of soft tissue resection to avoid iatrogenic causes of TKA instability.

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Friday, March 27

403 The Land of Ligaments: Navigating Sprains, Strains and Ruptures about the Foot and Ankle
Moderator: Robert B. Anderson, MD, Charlotte, NC
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.

404 Practical Implementation of Quality Improvement in Orthopaedic Practice
Moderator: David Jeevan, MD, MBA, Lebanon, NH
Mark J. Froimson, MD, Euclid, OH
Karl Koenig, MD, MS, Lebanon, NH
Kevin G. Shea, MD, Boise, ID

This course identifies practical methodologies to improve your practice’s quality indicators. Examples of quality analysis and improvement on very basic items from leading health systems and authorities are offered. Emphasis is on a toolkit applied to all practices.

405 Hand and Wrist Problems General Orthopaedists Treat (Or Should Treat): Diagnostic and Operative Tips
Moderator: Nader Pakzima, DO, New York, NY
Jeffrey A. Greenberg, MD, Indianapolis, IN
Fraser J. Leversedge, MD, Durham, NC
Anthony Sapienza, MD, New York, NY

The course focus is on diagnostic and treatment pearls and avoiding pitfalls in the treatment of hand conditions by general orthopaedic surgeons.

406 Skeletally Immature ACL: 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

This course 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.

407 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. Nogueira, 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.

408 Payment Reform: Update on a Moving Target
Moderator: Alexandra E. Page, MD, La Jolla, CA
Thomas C. Barber, MD, Oakland, CA
Brian R. McCardel, MD, Lansing, MI
Peggy L. Naas, MD, MBA, Chanhassen, MN

Payment reform requires recognizing and responding to changes. Impacts from sustainable growth rate reform/patches, Affordable Care Act Marketplace, Centers for Medicare & Medicaid Services bundled payment, and value-based reimbursement are updated, as are commercial private insurance exchanges and bundled payments.

409 The Young Arthritic Shoulder: Scope, Arthroplasty, Interposition, Fusion and Resurfacing
Moderator: Joseph A. Abboud, MD, Philadelphia, PA
George S. Athwal, MD, London, ON, Canada
Anand M. Murthy, MD, Baltimore, MD
Robert Z. Tashjian, MD, Salt Lake City, UT

This course 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.

410 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

This course addresses current controversies in treating anterior shoulder instability – balancing innovative techniques with the evidence for and against them in a case-based format.

411 Degenerative Spondylolisthesis: An Evidence-Based Assessment of Treatment Options and Outcomes
Co-Moderators: John C. France, MD, Morgantown, WV
Alpesh A. Patel, MD, River Forest, IL
Ivan Cheng, MD, Redwood City, CA
Theodore J. Oboma, MD, Columbus, OH
Scott D. Daffner, MD, Morgantown, WV
Michael D. Daubs, MD, Las Vegas, NV
John G. Devine, MD, August, GA
Mitchel B. Harris, MD, Boston, MA
James Kang, Pittsburgh, PA
Robert W. Molinari, MD, Pittsford, NY
Kern Singh, MD, Chicago, IL

This session 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.
**Friday, March 27**

### 412  
**Arthroscopic Management of Shoulder Instabilities: Anterior, Posterior and Multidirectional**  
**Moderator:** Larry D. Field, MD, Jackson, MS  
Jeffrey S. Abrams, MD, Princeton, NJ  
Matthew T. Provencher, MD, Weston, MA  
Richard K.N. Ryu, MD, Santa Barbara, CA  

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.

### 413  
**Back to the Future – The Ongoing Evolution of Anterior Cruciate Ligament Reconstruction**  
**Moderator:** David Yucha, MD, Berwyn, PA  
Robert T. Burks, MD, Salt Lake City, UT  
James L. Carey, MD, Villanova, PA  
John C. Richmond, MD, Boston, MA  

Review the history of anterior cruciate ligament (ACL) surgery, how trends in ACL surgery have changed, and what has stood the test of time. Surgical techniques are reviewed, with options for graft selection, fixation, and rehab. Complication management is discussed.

### 414  
**Femur Fractures: Subtrochanteric to Supracondylar**  
**Moderator:** Robert F. Ostrum, MD, Chapel Hill, NC  
Pall Tornetta III, MD, Boston, MA  
Philip R. Wolinsky, MD, Sacramento, CA  

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.

### 415  
**What’s Wrong with the Bone?**  
**Moderator:** Kristy L. Weber, MD, Philadelphia, PA  
Michael P. Mott, MD, Detroit, MI  
Richard L. McGough, MD, Pittsburgh, PA  

This course 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.

**ORTHOPAEDIC REVIEW COURSE**

**8:00 AM — 5:35 PM**  
**Palazzo Ballroom L**

#### 490  
**Orthopaedic Review Course**  
**Chair:** Jeffrey R. Sawyer, MD, Germantown, TN  
Albert J. Aboulafia, MD, Baltimore, MD  
Todd J Albert, MD, New York, NY  
Matthew Austin, MD, Philadelphia, PA  
Jens R. Chapman, MD, Seattle, WA  
Brian Forsythe, MD, Chicago, IL  
Leesa G. Galatz, MD, Saint Louis, MO  
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  

- 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 with a moderated question and answer period at the end of each section

**PAPER PRESENTATION**

**8:00 AM — 10:00 AM**  
**Venetian Ballroom B**

**Shoulder and Elbow VI: Shoulder Arthroplasty**  
**Moderator(s):** Gordon I. Grob, MD, Asheville, NC  
Kaveh R. Sajadi, MD, Lexington, KY  

**8:00 AM**  
**PAPER: 691**  
Arthroplasty Utilization in the Medicare Population  
Judd Day, PhD, Philadelphia, PA  
E. Scott Paxton, MD, Providence, RI  
Edmund Lau, MS, Menlo Park, CA  
Victoria A. Gordon, BA, Haverford, PA  
Joseph A. Abboud, MD, Philadelphia, PA  
Gerald R. Williams Jr, MD, Philadelphia, PA  

The purposes of this study were to examine and compare the utilization and reimbursements of reverse shoulder arthroplasty to total shoulder arthroplasty and shoulder hemiarthroplasty.

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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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8:06 AM
**Economic and Outcomes Analysis of TSA vs. Hemiarthroplasty for Young Patients with Shoulder Arthritis**
Sunneel B. Bhat, MD, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Surena Namdari, MD, MSc, Philadelphia, PA

Treatment of glenohumeral arthritis in patients

8:12 AM
**Shoulder Arthroplasty for Arthritis after Instability Surgery: A Ten-Year Follow-Up Study**
Peter L. Kok, MD, Rochester, MN
Joshua A. Parry, MD, Rochester, MN
Bradley S. Schoch, MD, Rochester, MN
Cathy D. Schleck, Rochester, MN
Robert H. Cofield, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN

Shoulder arthroplasty improves pain and function due to arthritis after prior instability surgery. However, there is a high rate of revisions and unsatisfactory outcomes.

8:24 AM
**Mid-term Clinical and Radiographic Results of a Stemless Humeral Head Replacement**
Philip R. Heuberer, MD, Vienna, Austria
Brenda Laky, PhD, MSc, Vienna, Austria
Werner Anderl, MD, Vienna, Austria

Promising results with a stemless humeral head replacement providing unhindered glenoid access and favourable revision situation were reported in this prospective mid-term follow-up study.

8:30 AM
**Shoulder Arthroplasty for the Treatment of Chondrolysis**
Bradley S. Schoch, MD, Rochester, MN
Jean-David Werbel, Paris, France
Robert A. Adams, PA, Rochester, MN
Robert H. Cofield, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN

Shoulder arthroplasty for the treatment chondrolysis provides significant pain relief and improved range of motion with lower than expected patient satisfaction.

8:36 AM
**The Mid-term Clinical and Radiological Results of an All-polyethylene Pegged Bone-ingrowth Glenoid Component**
Malin Wijeratna, BSc, MBBS, Cambridge, United Kingdom
Steven Lee, MBBS, Windsor, Australia
David Taylor, MBBS, Heidelberg, Australia
Gregory Hoy, MD, Windsor, Australia
Matthew Evans, MBBS, Windsor, Australia

This study evaluates the clinical and radiological results of an all polyethylene glenoid component that promotes bone ingrowth between radial fins of its central peg.

8:48 AM
**Results of Augmented Polyethylene Glenoids for Primary Total Shoulder Arthroplasty with Glenoid Retroversion**
Scott Stephens, MD, Houston, TX
Paul J. Favorito, MD, Cincinnati, OH
Edwin E. Spencer Jr, MD, Knoxville, TN
Michael A. Wirth, MD, San Antonio, TX

Glenoid implant augmentation can improve glenoid version and humeral subluxation while also demonstrating improved range of motion, pain scores, and functional outcomes.

8:54 AM
**Eccentric Reaming is Biomechanically Superior to Posterior Augment for Posterior Glenoid Wear**
Tianyi Wang, MD, Redwood City, CA
Geoffrey D. Abrams, MD, Atherton, CA
Anthony Behn, MS, Stanford, CA
Derek P. Lindsey, MS, Santa Clara, CA
Emilie V. Cheung, MD, Redwood City, CA

Eccentric anterior reaming provides increased biomechanical stability to cyclic loading when compared to posterior-augmented glenoid components for posterior glenoid wear in Shoulder Arthroplasty.

9:00 AM
**Outcome of Total Shoulder Arthroplasty with Posterior Glenoid Bone Grafting**
Ruth A. Delaney, MD, Blackrock, Ireland
Lewis L. Shi, MD, Chicago, IL
Lindsay Miller, MPH, BA, Bronxville, NY
Laurence D. Higgins, MD, Boston, MA
Jon J.P. Warner, MD, Boston, MA

Posterior glenoid bone grafting during total shoulder arthroplasty can successfully restore glenoid version and prevent posterior instability after arthroplasty.
**Friday, March 27**

9:12 AM  **PAPER: 700**

**Glenoid Vault Penetration During Total Shoulder Arthroplasty: Effect on Patient Centered Outcomes**
Daniel Witmer, MD, West Hartford, CT
Dale N. Reed, MD, Calbounta, GA
Connor Ziegler, MD, Farmington, CT
Christen R. Mellano, MD, Chicago, IL
Brett T. Monson, MA, Chicago, IL.
John Apostolakos, B.S., Farmington, CT
Benjamin B. Barden, MD, Columbia, SC
Anthony A. Romeo, MD, Chicago, IL
Augustus D. Mazzocca, MD, MS, Farmington, CT

This is a multi-centered study evaluating the occurrence of glenoid vault penetration during total shoulder arthroplasty and its effect on both patient centered subjective and objective outcomes.

9:18 AM  **PAPER: 701**

**Patient Specific Instrumentation Guidance of Glenoid Component Implantation Reduces Inclination Variability**
Steven Heylen, MD, Wustwezel, Belgium
Annetecca Van Haver, MSc, PhD, Sint-Amansberg, Belgium
Kristien Vynlsteke, RN, Deurne, Belgium
Geert Declercq, MD, Deurne, Belgium
Olivier Verborgt, MD, PhD, Wilrijk, Belgium

3D pre-operative surgical planning and PSI guidance reduce variability in glenoid component inclination and avoid extreme inclination errors for total and reversed shoulder arthroplasty.

9:24 AM  **PAPER: 702**

**Three-dimensional Imaging and Templating Improves Glenoid Implant Positioning**
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Scott I. Weiner, DO, Plainview, NY
Eric Rodriguez, BS, Cleveland, OH
Naveen Sibhas, MD, Cleveland, OH
Thomas E. Patterson, PhD, Cleveland, OH
Bong-Jae Jun, PhD, Cleveland, OH
Eric T. Ricchetti, MD, Cleveland, OH

In anatomic total shoulder arthroplasty, the accuracy of glenoid implant placement is significantly improved through the use of 3D imaging and preoperative planning compared to 2D imaging.

9:36 AM  **PAPER: 703**

**Does Subscapularis Strength Return to Normal Following Shoulder Arthroplasty?**
Peter Lapner, MD, Ottawa, ON, Canada
Kristi Wood, MD, Ottawa, ON, Canada
Tinghui Zhang, MSc, Ottawa, ON, Canada
George S. Athwal, MD, London, ON, Canada

Subscapularis strength returned to normal in only a minority of patients. Potential prognostic variables associated with final subscapularis strength remain elusive.

9:42 AM  **PAPER: 704**

**Subscapularis Function Following Total Shoulder Arthroplasty Using Lesser Tuberosity Osteotomy or Tenotomy**
Patrick O’Brien, MD, Hickory, NC
Edward R. Hobgood, MD, Jackson, MS

Comparison of outcomes in patients undergoing total shoulder arthroplasty with either subscapularis tenotomy or lesser tuberosity osteotomy, focusing on subscapularis strength and overall function.

9:48 AM  **PAPER: 705**

**Anatomic Reconstruction of Total Shoulder Arthroplasty with the Subscapularis Sparing Approach**
David Ding, MD, New York, NY
Siddharth A. Mahure, MD, Sarasota, FL
Joseph D. Zuckerman, MD, New York, NY
Young W. Kwon, MD, PhD, New York, NY

Evaluation of radiographic anatomic restoration of the shoulder using a subscapularis sparing approach versus a traditional approach.

**Discussion – 6 Minutes**

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## Friday, March 27

### 8:06 AM  PAPER: 707

**Can Preoperative MRI Adequately Predict Hamstring Diameter for ACL Reconstruction?**  
Brian Grawe, MD, Cincinnati, OH  
Phillip N. Williams, MD, New York, NY  
Alissa J. Burge, MD, New York, NY  
Marcia Vogt, Skillman, NJ  
Joshua Dines, MD, New York, NY  
Jo A. Hanna fian, MD, PhD, New York, NY  
David W. Alitchek, MD, New York, NY  
Joseph Nguyen, MPH, New York, NY  
Answorth A. Allen, MD, New York, NY

Preoperative MRI can predict hamstring graft diameter at ACL surgery. Cross-sectional areas of 22mm², 25mm², 28mm² can reliably provide graft diameters of greater than 8mm, 9mm, 10mm respectively.

### 8:12 AM  PAPER: 708

**15 Year Survival of Endoscopic Anterior Cruciate Ligament Reconstruction in Patients Aged 18 and Under**  
Justin P. Roe, MD, Sydney, Australia  
Matthew Morgan, MBBS, Sydney, Australia  
Lucy J. Salmon, PhD, Sydney, Australia  
Alison Waller, BAppSci, Sydney, Australia  
Simon Thompson, FRACS, Guildford, United Kingdom  
Leo A. Pinczewski, FRACS, Wollstonecraft, Australia

After ACL reconstruction in those aged 18 years or less, further ACL injury occurred in 1 in 3 over 15 years. A family history of ACL injury was a significantly associated with further injuries.

### 8:24 AM  PAPER: 709

**Anterior Cruciate Ligament Reconstruction: Age-related Risk Factors for Revision**  
Gregory B. Maletis, MD, Baldwin Park, CA  
Jason Chen, MA, San Diego, CA  
Maria C. Inacio, PhD, San Diego, CA  
Rebecca Love, BSN, RN, San Diego, CA  
Tadashi T. Funahashi, MD, Irvine, CA

Young patients had highest risk of revision ACLR. Patients 30, blacks, and higher risk with hamstring tendons. Patients

### 8:36 AM  PAPER: 711

**Does Excellent Six-month Strength and Function following ACL Reconstruction Predict Mid-term Outcomes?**  
Paul L. Sousa, MBA, Rochester, MN  
Robert Cates, DO, Rochester, MN  
Bruce A. Levy, MD, Rochester, MN  
Michael J. Stuart, MD, Rochester, MN  
Diane L. Dahn, MD, Rochester, MN  
Jo A. Hannafin, MD, PhD, Rochester, MN

Patients with excellent 6-month strength and function after ACL reconstruction had superior knee function and activity levels at mid-term followup; however, contralateral ACL tears were more common.

### 8:48 AM  PAPER: 712

**Meniscal and Articular Cartilage Predictors of Clinical Outcome following Revision ACL Reconstruction**  
MARS Group, Saint Louis, MO  
Rick W. Wright, MD, Saint Louis, MO

Previous meniscal excision, as well as grade 3-4 chondral damage at the time of ACLR revision results in decreased sports outcome scores and worse WOMAC scores at 2 years following revision surgery.

### 8:54 AM  PAPER: 713

**Does Preconditioning an ACL Graft Prior to Fixation Reduce Anterior Laxity During Cyclic Anteroposterior Testing?**  
Daniel Boguszewski, PhD, Los Angeles, CA  
Nirav B. Joshi, MD, BS, Los Angeles, CA  
Dean Wang, MD, Santa Monica, CA  
Keith L. Markolf, PhD, Los Angeles, CA  
Frank Petriglino, MD, Santa Monica, CA  
David R. McAllister, MD, Los Angeles, CA

Commonly practiced graft preconditioning protocols had no significant effect on reducing the cyclic increase in anterior knee laxity in the ACL-reconstructed knee, regardless of graft tissue type.

### 9:00 AM  PAPER: 714

**Abnormal Kinematics in the ACL Reconstructed as a Mechanism of Early Onset Osteoarthritis**  
Musa Zaid, San Francisco, CA  
Drew Lansdown, MD, San Francisco, CA  
Favian Su, B.S., Milpitas, CA  
Valentina Pedaio, PhD, San Francisco, CA  
Lauren S. Tufts, BA, Piedmont, CA  
Xiaojuan Li, PhD, San Francisco, CA  
ChunBong B. Ma, MD, San Francisco, CA

Altered tibial position following ACL reconstruction correlates to increased cartilage T1p values in the knee which may demonstrate the effect of altered kinematics on cartilage health.
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9:12 AM  PAPER: 715
**Does Adjustable-Loop Cortical Suspension Loosen After Anterior Cruciate Ligament Reconstruction?**
Matthew J. Boyle, MD, Newton Center, MA
Tyler J. Vovos, BS, Durham, NC
Kathryne Stabile, MD, Lititz, PA
Jonathan M. Roth, MD, Alexandria, VA
William E. Garrett Jr, MD, Bahama, NC

We have identified no significant difference in knee stability or graft failure rate between adjustable-length and fixed-length loop femoral cortical suspension following ACL reconstruction.

9:18 AM  PAPER: 716
**Kinematics and Contact Stress Comparison of All Epiphyseal and Complete Transphyseal ACL Reconstructions**
Moira M. McCarthy, MD, New York, NY
Peter D. Fabricant, MD, MPH, Philadelphia, PA
Kyle E. Stone, MS, BS, New York, NY
James Boorman-Padgett, BS, New York, NY
Daniel W. Green, MD, New York, NY
Carl W. Imhauser, PhD, New York, NY
Frank A. Cordasco, MD, New York, NY
Hamidreza Jahandar, MD, Columbia, MO

Pediatric ACL reconstructions that avoid the physis restore joint stability and contact mechanics.

9:24 AM  PAPER: 717
**Meniscal Tears Left In Situ at the Time of Anterior Cruciate Ligament Reconstruction**
Marcus A. Rothermich, MD, Saint Louis, MO
Rick W. Wright, MD, Saint Louis, MO

When stable meniscal tears are encountered at the time of arthroscopy during anterior cruciate ligament reconstruction, benign neglect can be reliably used for a successful outcome.

9:36 AM  PAPER: 718
**Trephination of Peripheral Medial Meniscus Tears at Anterior Cruciate Ligament Reconstruction**
K. Donald Shelbourne, MD, Indianapolis, IN
Rodney W. Benner, MD, Indianapolis, IN
Ryan Nixon, Indianapolis, IN
Tinker Gray, MA, ELS, Indianapolis, IN

Patients who underwent trephination of medial meniscus tears had 16.3% re-tear rate compared with 5.8% in control group. No differences existed between groups for radiographic or subjective results.

9:42 AM  PAPER: 719
**MPFL-Reconstruction using Gracilis Tendon in 102 Knees - A Mean Follow Up of 5.3 Years**
Philippe M. Tscholl, MD, Zurich, Switzerland
Peter P. Koch, MD, Winterthur, Switzerland
Alexander Antoniadis SR, Zurich, Switzerland
Sandro F. Fucentese, MD, Volketswil, Switzerland

MPFL-reconstruction is most frequently performed in patients with patellar instability. Mid-term knee function can objectively and subjectively be improved significantly.

9:48 AM  PAPER: 720
**Medial Patellofemoral Ligament Reconstruction: A Biomechanical Analysis of Fixation Techniques**
Franco Russo, BS, San Diego, CA
Josh Doan, MS, San Diego, CA
Derek Chase, MD, San Diego, CA
Christine L. Farnsworth, MS, San Diego, CA
Andrew T. Pennock, MD, San Diego, CA

An in vitro biomechanical study of four medial patellofemoral ligament reconstruction techniques.

Discussion – 6 Minutes

8:00 AM — 10:00 AM  PAPER PRESENTATION
Room 3304
**Spine VII: Cervical II**
Moderator(s): Michael J. Lee, MD, Chicago, IL
Michael C. Gerling, MD, Brooklynn, NY

8:00 AM  PAPER: 721
**The Impact of Workers’ Compensation Claims on Anterior Cervical Discectomy and Fusion: A Cost Analysis**
Eric B. Sundberg, MD, Stanford, CA
Sriram Sankaranarayanan, MD, Chicago, IL
Mohamed Noureldin, MD, Chicago, IL
Sreeharsha Nandyala, BA, Aurora, IL
Islam Elboghdady, Darien, IL
Hamid Hassanzadeh, MD, Charlottesville, VA
Anton Y. Jorgensen, MD, Iowa City, IA
Kern Singh, MD, Chicago, IL

Workman’s compensation (WC) claims are associated with worsened peri-operative outcomes and greater hospital reimbursement than traditional payers after anterior cervical discectomy and fusion.
Educational Programs

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8:06 AM  PAPER: 722
Adjacent-level Ossification Development after Anterior Cervical Decompression and Fusion
John Koerner, MD, Philadelphia, PA
Christopher Kepler, MD, Philadelphia, PA
Todd J. Albert, MD, New York, NY
Alexander Vaccaro, MD, PhD, Gladwyne, PA
Kristen E. Radcliff, MD, Egg Harbor Township, NJ

Adjacent-level Ossification Development (ALOD) is common after ACDF with plate fixation, and younger patients and those with longer fusion constructs may be at higher risk for this pathology.

8:12 AM  PAPER: 723
Diagnosing Congenital Cervical Stenosis on Lateral Radiographs: The Utility of Laminar Depth
Jeffrey Gum, MD, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY
Sam Q. Sun, BS, Saint Louis, MO
Melissa Wright, MD, Saint Louis, MO
David B. Bumpass, MD, Saint Louis, MO
Patrick A. Sugrue, MD, Saint Louis, MO
Isaac O. Karikari, MD, Durham, NC
Michael P. Kelly, MD, Saint Louis, MO
K. Daniel Riew, MD, Saint Louis, MO

Laminar depth measured on plain lateral cervical radiographs is not predictive of the presence of spinal stenosis.

Discussion – 6 Minutes

8:24 AM  PAPER: 724
Management of Acute Whiplash Associated Disorders: A Randomized Controlled Trial of Three Treatment Protocols
Nikolaos K. Paschos, MD, Davis, CA
Eleftherios Makris, MD, Santa Clara, CA
Khaled Abuhemoud, MD, PhD, Ioannina, Greece
Anastasios D. Georgoulis, MD, Ioannina, Greece

In this RCT, three different mobilization/immobilization protocols were evaluated for their effectiveness in Whiplash injuries. Management should be individualized according to the grade of injury.

8:30 AM  PAPER: 725
Cervical Spondylotic Myelopathy: Does Surgical Approach Influence Sagittal Alignment and Surgical Outcomes?
Michael Fehlings, MD, Toronto, ON, Canada
Justin S. Smith, MD, Charlottesville, VA
Shian Liu, BS, New York, NY
Paul M. Arnold, MD, FACS, Kansas City, KS
Jens R. Chapman, MD, Seattle, WA
Renaud Lafage
Eric Massicotte, MD, Toronto, ON, Canada
Sangwook T. Yoon, MD, PhD, Atlanta, GA
Christopher Ames, MD, San Francisco, CA

Among patients treated surgically for cervical spondylotic myelopathy, posterior techniques lead to worse postoperative cervical sagittal alignment but similar myelopathy scores to anterior.

8:36 AM  PAPER: 726
Can Long Posterior Cervical Fusions Be Safely Stopped at C7 Instead of the Upper Thoracic Spine?
David B. Bumpass, MD, Saint Louis, MO
Lukas P. Zebala, MD, Saint Louis, MO
Mikhail Roubakha, Saint Louis, MO
Jacob Haynes, MD, Saint Louis, MO
K. Daniel Riew, MD, Saint Louis, MO

Posterior cervical fusions stopping distally at C7 did not have higher risk for complications, subsequent revision, or cervical sagittal imbalance than fusions crossing the cervicothoracic junction.

Discussion – 6 Minutes

8:48 AM  PAPER: 727
Risk of New Onset Postop Cervical Deformity in Thoracolumbar Adult Spinal Deformity and Clinical Outcomes at 2 Years
Alexandra Soroceanu, MD, Halifax, NS, Canada
Peter G. Passias, MD, Brooklyn, NY
Anthony J. Boniello, BS, Philadelphia, PA
Sun Yang, BA, New York, NY
Han Jo Kim, MD, New York, NY
Gregory M. Mundis, MD, San Diego, CA
Eric O. Klineberg, MD, Sacramento, CA
Justin S. Smith, MD, Charlottesville, VA
Christopher Ames, MD, San Francisco, CA

Diabetes, higher pre-op TS-CL and ending instrumentation above T4 are independent predictors of new onset CD after ASD surgery at 2 years follow-up.

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**8:54 AM**  
**PAPER: 728**  
Influence of Fixation Method on Spinal Canal Area Following Cervical Expansive Open-door Laminoplasty  
Koji Tamai, MD, Osakasi, Japan  
Akinobu Suzuki, MD, PhD, Osaka, Japan  
Hidetomi Terai, MD, Osaka, Japan  
Hiromitsu Toyoda, Osaka, Japan  
Sho Dohzono, MD, Osaka, Japan  
Shinji Takahashi, MD, Osaka, Japan  
Hiroaki Nakamura, MD, Osaka, Japan  
Spacer fixation is superior to fixation with suture anchors for maintaining cross-sectional area after expansive open-door laminoplasty.

**9:00 AM**  
**PAPER: 729**  
Prolonged Weakness Affects Recovery of Motor Function Following Anterior Cervical Discectomy and Fusion  
Ronald Huang, MD, Philadelphia, PA  
David Beck, MD, Philadelphia, PA  
Andrew G. Park, MD, Philadelphia, PA  
Gus Barrazueta, BA, MS, Tampa, FL  
Alan S. Hilibrand, MD, Philadelphia, PA  
Prolonged preoperative weakness is associated with decreased recovery of motor function following anterior cervical discectomy and fusion.

**9:12 AM**  
**PAPER: 730**  
Heterotopic Ossification Following Cervical Artificial Disc Replacement - Incidence and Clinical Significance  
Kenneth A. Pettine, MD, Johnstown, CO  
Nicholas Schratt, MD, Worcester, MA  
Fernando Tchey, MD, Fort Collins, CO  
The incidence of HO appears implant type dependent and the length of follow-up increases its incidence. There is little or no data to indicate that HO can be decreased by drugs or surgical technique.

**9:18 AM**  
**PAPER: 731**  
Long-term Societal Costs of ACDF versus Cervical Disc Arthroplasty for Single Level Cervical Disc Disease  
Ahmer K. Ghori, MD, Cambridge, MA  
Joseph F. Konopka, MD, Boston, MA  
Christopher bono, MD, Boston, MA  
Thomas D. Cha, MD, Boston, MA  
We performed an economic analysis comparing long term costs of CDA versus ACDF and found CDA to be a less expensive option.

**9:24 AM**  
**PAPER: 732**  
Instrumentation Failure and Reoperation for Posterior Cervical Fusion that Crosses the Cervicothoracic Junction  
Peter J. Wagner, MD, Worcester, MA  
Samuel Adams, MD, Worcester, MA  
Patrick J. Connolly, MD, Worcester, MA  
Christian P. Dipaola, MD, Worcester, MA  
Michael Stauff, MD, Worcester, MA  
This retrospective review of patients who underwent posterior instrumented cervical fusion found a higher incidence of instrumentation failure when constructs cross the cervicothoracic junction.

**9:36 AM**  
**PAPER: 733**  
Esophageal Probe Improves Postoperative Dysphagia Following Primary Anterior Cervical Discectomy and Fusion  
Daniel Huttman, MD, Falls Church, VA  
Mathew Cyriac, MD, WA, Dist. of Columbia  
Warren D. Yu, MD, WA, Dist. of Columbia  
Joseph R. O’Brien, MD, WA, Dist. of Columbia  
Esophageal Probe Improves Post-Operative Dysphagia Following Anterior Cervical Discectomy and Fusion

**9:42 AM**  
**PAPER: 734**  
Risk Factors in the Progression of Rheumatoid Cervical Lesion  
Masahiro Horita, MD, Okayama, Japan  
Keiichiro Nishida, MD, Okayama City, Japan  
Kenzo Hashizume, MD, PhD, Okayama, Japan  
Ryozo Harada, MD, Okayama, Japan  
Takabiro Machida, MD, Okayama, Japan  
Toshifumi Ozaki, MD, Okayama, Japan  
This case series aims to identify predictor of progression in rheumatoid cervical lesions. The cases of advanced cervical lesions, and high CRP value were predictors of progression.

**9:48 AM**  
**PAPER: 735**  
Comparison Between Anterior and Posterior Surgical Approaches for Cervical Myelopathy Due to C3-4 Stenosis  
Koji Tamai, MD, Osakas, Japan  
Hidetomi Terai, MD, Osaka, Japan  
Akinobu Suzuki, MD, PhD, Osaka, Japan  
Hiromitsu Toyoda, Osaka, Japan  
Sho Dohzono, MD, Osaka, Japan  
Shinji Takahashi, MD, Osaka, Japan  
Hiroaki Nakamura, MD, Osaka, Japan  
Hypermobility of may contribute to the occurrence of C3-4 CSM and that ACDF is a more favorable treatment at this level than laminoplasty, which can preserve segmental motion.

*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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Friday, March 27

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room 3105

Foot and Ankle III: Foot and Ankle Toe-Pourri
Moderator(s): Patrick Ebeling, MD, Burnsville, MN
Daniel C. Farber, MD, Philadelphia, PA

An alphabetical faculty financial disclosure list can be found starting on page 332.

8:00 AM

Osteochondritis Dissecans
Karl-Friedrich Schittler, MD, Marburg, Germany
Thomas J. Heyse, MD, Marburg, Germany
Annette Schweitzer, Rösrath, Germany
Nina Timmesfeld, PhD
Turgay Efe, MD, Marburg, Germany
Susanne Fuchs-Winkelmann, MD, Marburg, Germany
Francisco Fernandez, MD, PhD, Stuttgart, Germany

The ideal treatment for the juvenile osteochondritis dissecans of the talus (ODT) is still unclear. To determine predictors of failure of conservative treatment we retrospectively analyzed children admitted for ODT.

8:06 AM

Osteochondral Lesions of the Talus with and without Chronic Lateral Ankle Instability
Moses Lee, MD, Seoul, Republic of Korea
Woo Jin Choi, M.D., Ph.D., Seoul, Republic of Korea
Seung Hwan Han, MD, Seoul, Republic of Korea
Kwang H. Park, MD, Seodaemun-Gu
Jaewan Suh, MD, Seoul, Republic of Korea
Jin Woo Lee, MD, Seoul, Republic of Korea
Hang Seob Yoon, MD, Seoul, Republic of Korea

OLT with CLAI presented an increased proportion of larger lesions, additional chondral lesions at the tip of the medial malleolus, and increased clinical failure compared to OLT without CLAI.

8:12 AM

Effect of Platelet Rich Plasma and Hyaluronic Acid on Osteochondral Transplantation: An In Vivo Rabbit Model
Niall A. Smyth, MD, South Miami, FL
Keir A. Ross, McKinney, TX
Amgad M. Haleem, MD, MSc, Giza, Egypt
Charles P. Hannan, BS, New York, NY
Christopher D. Murauski, Stroudsburg, PA
Huong Do, MA, New York, NY
John G. Kennedy, MD, New York, NY

The effect of PRP and hyaluronic acid on autologous osteochondral graft healing was assessed both separately and in combination in an in vivo rabbit model.

8:24 AM

Mesenchymal Stem Cell Injection with Marrow Stimulation in Osteochondral Lesions of the Talus
Yong Sang Kim, MD, Seoul, Republic of Korea
Yong-Gon Kob, Seoul, Republic of Korea
Yun-Jin Choi, Seoul, Republic of Korea

Clinical and MRI outcomes of injection of MSCs with marrow stimulation were encouraging, compared with marrow stimulation alone, for the treatment of OLT.

8:30 AM

Histopathologic Analysis of Failed Fresh Osteochondral Allografts of the Talus
Ryan J. Pomazl, MD, Royal Oak, MI
Elin A. Baker, MS, Royal Oak, MI
Meagan Salisbury, BS, Royal Oak, MI
Kevin C. Baker, PhD, Royal Oak, MI
Zachary Vaupel, MD, Royal Oak, MI
Paul T. Fortin, MD, Royal Oak, MI

Histologic and immunohistochemical analyses are presented that implicate an immune-mediated response focused at the graft-host interface in the collapse of fresh osteochondral allografts of the talus.

8:36 AM

Metal Resurfacing Implant for Osteochondral Talar Defects after Failed Surgery: A Prospective Study
Rogier Gerards, Amsterdam, Netherlands
Christiaan J. Van Bergen, MD, Amsterdam, Netherlands
Mikel Reilingh, MD, Amsterdam, Netherlands
C. Niek Van Dijk, MD, Abcoude, Netherlands

A metal resurfacing implant is a promising treatment for osteochondral defects of the medial talar dome after failed previous surgery.

8:48 AM

Lateral Instability of the Ankle and Posterior Ankle Impingement Syndrome
Reiji Higashiwata, MD, PhD, Kanagawa, Japan
Jun Aikawa, Kitasato Minamioku Sagamihara Kanagawa, Japan
Dai Iwase
Atsushi Minatani, MD, Sagamihara, Japan
Tomonori Kenmoku, MD, Minami-Ku, Sagamihara, Japan
Kensuke Fukushima, MD, Sagamihara, Japan
Koji Naruse, Assistant Prof, Sagamihara, Kanagawa, Japan
Ken Urabe, MD, Saitama, Japan
Masashi Takaso, Prof, Sagamihara, Kanagawa, Japan

Posterior ankle impingement syndrome and severe ankle instability should be treated simultaneously with hindfoot endoscopy and lateral ligament reconstruction to ensure a prompt return to activity.

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**8:54 AM**

**PAPER: 743**

**Achilles Tendonopathy and Rupture: Analysis of a Large Private Insurance Database**

Timothy Charlton, MD, Los Angeles, CA  
Christopher M. Sakowski, MD, Los Angeles, CA  
Jeffrey Mulvihill, BS, Los Angeles, CA  
Jeremiah R. Cohen, BS, Los Angeles, CA  
Jeffrey C. Wang, MD, Sherman Oaks, CA  
George F. Hatch III, MD, Los Angeles, CA

Achilles Tendonopathy And Rupture -Analysis Of A Large Private Insurance Database

**9:00 AM**

**PAPER: 744**

**Lateral Approach Results in Better Short-term Pain Relief, Reduced Delayed Wound Healing**

Zhan Xia, MBBS, Singapore, Singapore  
Andy Yew, PhD, Singapore, Singapore  
Karen Zhang, BS, Singapore, Singapore  
Inderjeet S. Rikhraj, Professor, Singapore, Singapore

For surgical treatment of insertional Achilles tendinopathy, lateral approach results in better short-term pain relief, reduced delayed wound healing as compared with central tendon-splitting approach.

**Discussion – 6 Minutes**

**9:12 AM**

**PAPER: 745**

**Extracorporeal Shockwave Therapy Compared to Fasciotomy for Plantar Fasciitis - A Cost Comparison Analysis**

Erin E. Klein, DPM, MS, Grayslake, IL  
Lowell S. Weil, DPM, Lake Forest, IL  
Michael Bowen, DPM, Des Plaines, IL  
Adam Fleischer, DPM, MPH, North Chicago, IL  
Mitchell B. Sheinkop, MD, Chicago, IL

Extracorporeal shockwave therapy is a more cost effective treatment for plantar fasciitis than fasciotomy.

**9:18 AM**

**PAPER: 746**

**Foot Function Index Outcomes of Gastrocnemius Recession for Treatment of Chronic Plantar Fasciitis**

Ashish Shah, MD, Birmingham, AL  
Michael J. Kimball, MD, Jenkintown, PA  
Osama M. Elattar, Birmingham, AL  
Brooks Ficke, MD, Birmingham, AL

Isolated gastrocnemius recession for recalcitrant plantar fasciitis led to improvement in foot function based on the Foot Function Index in this case series.

**Discussion – 6 Minutes**

**9:24 AM**

**PAPER: 747**

**There is a Strong Correlation Between Gastrocnemius Tightness and Pain in Plantar Fasciitis**

Bernard Lau, MBBS, Singapore, Singapore  
Lin Kang Cheng, MBBS, Singapore, Singapore  
Christopher J. Pearce, FRCS, Singapore, Singapore

A prospective cohort study in determining the relationship between severity of disease with amount of gastrocnemius tightness.

**Discussion – 6 Minutes**

**9:36 AM**

**PAPER: 748**

**Clinical Outcomes Following Reconstruction of Stage II Flatfoot in Obese Patients Compared to Controls**

Jeanne Yu, BS, New York, NY  
Jayme C. Burket, PhD, New York, NY  
Huong Do, MA, New York, NY  
Scott Ellis, MD, New York, NY  
Jonathan T. Deland, MD, New York, NY

A retrospective review of pre- and postoperative Foot and Ankle Outcome Scores suggests that BMI affects the success of stage II flatfoot reconstruction less than previously hypothesized.

**9:42 AM**

**PAPER: 749**

**Weil Metatarsal Osteotomy vs. Weil Metatarsal Osteotomy Plus Plantar Plate Repair for Forefoot Metatarsalgia**

Michael Bowen, DPM, Des Plaines, IL  
Lowell S. Weil, DPM, Lake Forest, IL  
Erin E. Klein, DPM, MS, Grayslake, IL  
Mitchell B. Sheinkop, MD, Chicago, IL  
Adam Fleischer, DPM, MPH, North Chicago, IL

This study compares clinical outcomes achieved using Weil metatarsal osteotomy (WMO) alone to WMO plus primary repair of the plantar plate in patients who had presented with plantar forefoot pain.

**9:48 AM**

**PAPER: 750**

**Outcome of Neuroma Resection and Implantation into Muscle in Lower Extremity**

Channanmi Rungrai, MD, Iowa City, IA  
Phinit Phisitkul, MD, Iowa City, IA  
Ong-Art Phruetthiphat, MD, Iowa City, IA

Outcomes of Neuroma Resection and Implantation of proximal nerve stump into the Muscle in Lower Extremity.

**Discussion – 6 Minutes**

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SYMPOSIUM
10:30 AM — 12:30 PM
Room 2201
Patient Reported Outcomes in Spine Surgery (AA)
Moderator: Alpesh A. Patel, MD, River Forest, IL
This symposium addresses the critical area of patient reported outcomes, both in clinical research and in clinical practice. The advantages and limitations of outcomes tools are reviewed as are strategies for implementing patient-reported outcomes in clinical practice.

I. Why Measure Patient Reported Outcomes in Clinical Research and Clinical Practice
   Kern Singh, MD, Chicago, IL

II. General Health and Mental Health Measures in Adult Spine Surgery
    Jeffrey A. Rihn, MD, Media, PA

III. Disease Specific Measures (NDI, ODI) in Adult Spine Surgery
     Darrel S. Brodke, MD, Salt Lake City, UT

SYMPOSIUM
10:30 AM — 12:30 PM
Venetian Ballroom E
Articulations in Total Joint Replacement: Have We Lost Our Bearings? (Z)
Moderator: William M. Mihalko, MD, PhD, Germantown, TN
This symposium addresses the critical issues related to traditional and newer bearing surfaces from the perspective of the clinician and material scientist/engineer. The goal is to provide evidence-based information on bearing technologies and outcomes for joint replacement, so that stakeholders can better understand the challenges that need to be addressed.

I. Second Moderator
   Stuart B. Goodman, MD, Redwood City, CA

II. Polyethylene Retrieval Analysis
    Steven M. Kurtz, PhD, Philadelphia, PA

III. Historical Aspects of Bearing Materials Science
    A. Seth Greenwald, DPhil Oxon, Cleveland Heights, OH

INSTRUCTIONAL COURSE LECTURE
9:30 AM — 10:30 AM
FD24 Social Media and Orthopaedics: Opportunities and Challenges
Moderator: Naven Duggal, MD, Manlius, NY
Howard J. Luks, MD, Katonah, NY
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.

10:30 AM — 12:30 PM
421 THA – 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
This is designed to provide the surgeon with strategies to manage the most common challenges faced intraoperatively and early postoperatively after total hip arthroplasty (THA). The challenges addressed are common and are problems surgeons need to address “on the spot.” Will 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.
Friday, March 27

422  How to Perform a Primary Total Knee Arthroplasty: Video Vignettes
Moderator: Raymond H. Kim, MD, Denver, CO
Walter B. Beaver, MD, Charlotte, NC
Guo-Chin Lee, MD, Philadelphia, PA
Giles R. Scuderi, MD, New York, NY

Techniques required to perform a successful total knee arthroplasty are detailed using video vignettes, including preoperative planning, prosthesis selection, surgical exposures, ligamentous balancing, and patellar resurfacing.

423  Infection in Arthroplasty: The Basic Science of Bacterial Biofilms 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.

424  The Fab Five of the Foot and Ankle
Moderator: Mark J. Berkowitz, MD, Cleveland, OH
Michael P. Clare, MD, Tampa, FL
Mark C. Drakos, MD, New York, NY
James J. Sferra, MD, Cleveland, OH

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

425  Antibiotic Stewardship in Orthopaedic Surgery: Principles and Practice
Moderator: Joseph A. Bosco III, MD, New York, NY
Brett R. Levine, MD, Chicago, IL
Michael Phillips, MD, New York, NY
James D. Slover, MD, New York, NY

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.

426  Venturing into the Overlap Between Pediatric Orthopaedics and Hand Surgery
Moderator: Joshua M. Abzug, MD, Timonium, MD
Donald S. Bae, MD, Boston, MA
Andrea S. Bauer, MD, Sacramento, CA
Michael S. Bednar, MD, Maywood, IL

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.

427  Skeletal Dysplasia – Evaluation and Management
Moderator: William G. Mackenzie, MD, Wilmington, DE
Benjamin Alman, MD, Toronto, ON, Canada
John E. Herzenberg, MD, Baltimore, MD
Klane K. White, MD, Seattle, WA

This course 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.

428  All Things Clavicle: From AC to SC and All Points in Between
Moderator: Gordon I. Grob, MD, Asheville, NC
Carl J. Basamania, MD, Edmonds, WA
Laurence D. Higgins, MD, Boston, MA
Mark A. Migbell, MD, Tampa, FL

This course 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.

429  Challenges in Shoulder Arthroplasty
Moderator: Peter Lapner, MD, Ottawa, ON, Canada
Thomas R. Duquin, MD, Buffalo, NY
Jay D. Keener, MD, Saint Louis, MO
Gilles Walsh, MD, Lyon, France

This course provides an in-depth look at challenges encountered in total shoulder replacement. Best evidence is examined related to the workup, diagnosis, and management of infection in shoulder arthroplasty. Postoperative instability is discussed as are strategies to prevent the risk of its occurrence. Finally, surgical techniques to minimize the risk of glenoid lucencies and maximize glenoid implant survivorship are reviewed and relevant clinical cases are presented.

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430 MRI of the Spine: Essentials for the Orthopaedic Surgeon
Moderator: John A. Carrino, MD, New York, NY
William B. Morrison, MD, Philadelphia, PA
Brian J. Neuman, MD, Baltimore, MD
Yoshimi Endo, MD, New York, NY
This course helps clinicians develop a systematic structured checklist approach to the accurate interpretation of spine MRI exams emphasizing standardized nomenclature and grading schemes.

431 Surgical Management of Cervical Spondylotic Myelopathy
Moderator: James Kang, MD, Pittsburgh, PA
Chris A. Cornett, MD, USAF Academy, CO
Clinton J. Devin, MD, Nashville, TN
Jooy Y. Lee, MD, Pittsburgh, PA
Pathophysiology of cervical spondylotic myelopathy is discussed followed by a thorough discussion on the rationale for surgical treatment. Indications for anterior, posterior, as well as combined approaches, are discussed.

432 Concussion Management in Athletes: A Multi-Disciplinary Approach
Moderator: Carl D. Allred, MD, Colorado Springs, CO
Brett C. Anderson, MD, Colorado Springs, CO
Laura Baugh, MD, USAF Academy, CO
Darren E. Campbell, MD, Colorado Springs, CO
Jonathan Jackson, MD, Colorado Springs, CO
Anthony J. Jarecke, OD, MBA, Force Acad, CO
Ky Kobayashi, MD, Colorado Springs, CO
Renee Pazdan, MD, Colorado Springs, CO
Alicia Souvignier, DPT, Fort Carson, CO
Cases are taken from the US Air Force Academy concussion clinic, each case illustrates a unique, challenging dynamic in concussion management. 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 will serve as table facilitators.

433 Extreme Nailing: Tips and Tricks from the Experts
Moderator: George J. Hadukeywych, MD, Orlando, FL
Daniel S. Horwitz, MD, Danville, PA
Joshua Langford, MD, Orlando, FL
The course 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.

434 Controversies in Management of Tibia Fractures
Moderator: Nirmal C. Tejwani, MD, New York, NY
David R. Polonet, MD, Manalapan, NJ
Daniel N. Segna, MD, Melbourne, FL
Philip R. Wolinsky, MD, Sacramento, CA
This course focuses on controversies associated with management of tibia fractures including the use of suprapatellar nailing. The merits of choosing the appropriate fixation for tibial metaphyseal fractures, both proximal and distal, are debated. The use of external fixation for definitive management of non-articular tibia fractures also is discussed.

PAPER PRESENTATION

10:30 AM — 12:30 PM
Venetian Ballroom B

Adult Reconstruction Knee VII: Miscellaneous/Unicompartmental Knee Arthroplasty
Moderator(s): Matthew J. Kraay, MD, Cleveland, OH
Siraj A. Sayeed, MD, San Antonio, TX

10:30 AM PAPER: 751
Peri-articular Injection Using Liposomal Bupivacaine in Total Knee Arthroplasty
Bradley Webb, MD, Broadview Heights, OH
James R. Spears, BS, Louisville, KY
Langan S. Smith, BS, Louisville, KY
Arthur L. Malkani, MD, Louisville, KY
A peri-articular injection of liposomal bupivacaine after total knee arthroplasty leads to decreased use of narcotic pain medication for 72 hours after the procedure.

10:36 AM PAPER: 752
Does Extended-Release Liposomal Bupivacaine Better Control Postoperative Knee Pain than Bupivacaine?
William C. Schroer, MD, Saint Louis, MO
Paul Diesfeld, PA-C, Saint Louis, MO
Angela LeMarr, RN, Saint Louis, MO
Diane Morton, MS, Saint Louis, MO
Mary E. Reedy, RN, Saint Louis, MO
Postoperative pain levels and narcotic pill counts were not reduced in study patients using liposomal bupivacaine after TKA, and the cost does not justify routine use in the authors’ institution.

An alphabetical faculty financial disclosure list can be found starting on page 332.
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10:42 AM PAPER: 753
Long-term Results of Treating Large Post-traumatic Tibial Plateau Lesions with Fresh Osteochondral Allografts
Paul T. Lee, MD, London, United Kingdom
Mansour Abolghasemian, MD, Tehran
Guy Raz, MD, Toronto, ON, Canada
Oleg Safir, MD, Toronto, ON, Canada
David Backstein, MD, Toronto, ON, Canada
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada

We present the long-term outcomes of a consecutive series of 132 patients who had large post-traumatic tibial plateau defects treated with fresh osteochondral allografts.

Discussion – 6 Minutes

10:54 AM PAPER: 754
The Impact of Custom Cutting Guides on Patient Satisfaction and Function following Total Knee Arthroplasty
Ryan Nunley, MD, Saint Louis, MO
Denis Nam, MD, St Louis, MO
Keith R. Berend, MD, New Albany, OH
Adolph V. Lombardi Jr, MD, New Albany, OH
Robert L. Barrack, MD, Saint Louis, MO

When interviewed by an independent, blinded third party, the use of custom cutting guides did not improve patient-perceived outcomes compared to standard guides in total knee arthroplasty.

11:00 AM PAPER: 755
Patient-Specific Instrumentation in Total Knee Arthroplasty:
Early Clinical Outcome and Radiological Accuracy
Leo Pauzenberger, MD, Vienna, Austria
Eva M. Schwameis, MD, Vienna, Austria
Philip R. Heuberer, MD, Vienna, Austria
Brenda Laky, PhD, MSc, Vienna, Austria
Werner Anderl, MD, Vienna, Austria

In this prospective clinical trial, patient-specific compared to conventional instrumentation showed superior radiological accuracy and promising clinical outcome in primary total knee arthroplasty.

11:06 AM PAPER: 756
Custom Cutting Guides Do Not Improve Total Knee Arthroplasty Outcomes at Two Years Follow Up
Denis Nam, MD, St Louis, MO
Andrew Park, MD, Saint Louis, MO
Jeffrey B. Stambough, MD, Saint Louis, MO
Staci Johnson, M.Ed, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO

At two years follow-up, custom cutting guides fail to demonstrate any advantages in clinical outcomes versus the use of standard instrumentation in total knee arthroplasty.

Discussion – 6 Minutes

11:18 AM PAPER: 757
A Randomized Trial of All Polyethylene and Metal Backed Tibial Components in Unicompartmental Knee Arthroplasty
Jonathan R. Hutt, BA, MBBS, Montreal, QC, Canada
Payam Farhadnia, MD, Montreal, QC, Canada
Vincent Masse, MD, Montreal, QC, Canada
Martin Lavigne, MD, Ville St-Laurent, QC, Canada
Pascal-Andre Vendittoli, MD, Montreal, QC, Canada

This randomised study shows significantly higher revision rates for all polyethylene tibial components compared with metal backed modular ones in unicompartmental knee arthroplasty.

11:24 AM PAPER: 758
Behavior of Anterior Cruciate Ligament (ACL) Deficient Knees after Unicompartmental Knee Arthroplasty (UKA)
Elise Pegg, PhD, Oxford, United Kingdom
Francesco Mancuso, MD, Udine, Italy
Mona Alinejad, DPhil, Oxford, United Kingdom
Stephen J. Mellon, PhD
Thomas Hamilton, MBChB, BSc (Hons), Oxford, United Kingdom
Barbara Marks, Oxford, United Kingdom
Christopher A. Dodd, FRCS, Oxford, United Kingdom
David W. Murray, MD, Oxford, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom

If medial UKA is performed in an ACL-deficient knee, some anterior-posterior knee instability is likely to occur during stair climbing and patients will take 31% longer on average to climb stairs.

11:30 AM PAPER: 759
Does Obesity Affect Short Term Complication Rates and Length of Stay Following Unicompartmental Knee Arthroplasty?
Bryan Haugom, MD, Chicago, IL
William W. Schairer, MD, New York, NY
Michael D. Hellman, MD, Chicago, IL
Benedict U. Nwachukwu, MD, MBA, New York, NY
Brett R. Levine, MD, Chicago, IL

Using the National Surgical Quality Improvement Database, we demonstrate obesity to be an independent risk factor for short-term complications and prolonged length of hospitalization (>4 days).

Discussion – 6 Minutes
11:42 AM  
PAPER: 760
Fifteen-year Survival and Functional Outcome of 1,000 Minimally Invasive Unicompartmental Knee Arthroplasties
Thomas Hamilton, MBChB, BSc (Hons), Oxford, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom
Cathy Jenkins, MA
Stephen J. Mellon, PhD, Oxford, United Kingdom
Elise Pegg, PhD, Oxford, United Kingdom
Barbara Marks, Oxford, United Kingdom
Christopher A. Dodd, FRCS, Oxford, United Kingdom
David W. Murray, MD, Oxford, United Kingdom

Low revision rates with excellent functional outcomes can be seen with minimally invasive unicompartmental knee arthroplasty (UKA) at 15 years. UKA represents a definitive treatment choice for knee OA.

11:48 AM  
PAPER: 761
Tibial Baseplate Positioning in Robotic-Assisted and Conventional Unicompartmental Knee Arthroplasty
Jonathan Danoff, MD, Englewood, NJ
Katherine Maccallum, BA, Brooklyn, NY
Jeffrey A. Geller, MD, New York, NY

Robotic-assisted unicompartmental knee arthroplasty does not improve tibial baseplate alignment precision or accuracy over conventional techniques, but increases operative time.

11:54 AM  
PAPER: 762
Are Patients with Trochlear Dysplasia Better Candidates for Patellofemoral Joint Arthroplasty - A Six Year Follow Up
Ming Han Liow, MD, MBBS, Singapore, Singapore
Graham Goh, NA, Singapore, Singapore
Huwei Chi Chong, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, FRCS (Ortho), PhD, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Our study showed no clinical or radiological outcome differences between the patellofemoral osteoarthritis and trochlear dysplasia groups with more revisions in the PFOA group due to TFOA progression.

12:06 PM  
PAPER: 763
Wear and Delamination Resistance of Vitamin E Grafted UHMWPE Knee Inserts under Activities of Daily Living
Diego A. Orozco-Villaseñor, PhD, Warsaw, IN
Jerry Parcell, Warsaw, IN
Alicia Rufner, MSc, Warsaw, IN
Andrew A. Freiberg, MD, Boston, MA

Vitamin E-grafted UHMWPE TKR inserts exhibited great wear and delamination resistance under various activities of daily living.
10:36 AM PAPER: 767
PRP Augmentation is Not Cost Effective for Arthroscopic Repair of Small and Medium Sized Rotator Cuff Tears
Patrick Vavken, MD, Basel, Switzerland
Patrick Sadoghi, MD, PhD, Graz, Austria
Claudio Rosso, MD, MSc, Oberwil, Switzerland
Andreas Marc Mueller, MD, Basel, Switzerland
Gregor Szollosy, MD, Basel, Switzerland
Victor Valderrabano, MD, Hofstetten, Switzerland
PRP augmentation is not cost effective for arthroscopic repair of small and medium sized rotator cuff tears

10:42 AM PAPER: 768
Inferior Humeral Head Translation Does Not Accurately Diagnose Rotator Interval Lesions
Matthew J. Boyle, MD, Newton Center, MA
Lior Laver, MD, Tel-Aviv, Israel
Erika L. Templeton, MD, Durham, NC
Tyler J. Vovos, BS, Durham, NC
Kwadwo Owusu-Akyaw, MD, Durham, NC
Dean C. Taylor, COL, MD, Durham, NC
This diagnostic study of 690 shoulder arthroscopies contradicts the historic view that a sulcus sign not eliminated or decreased in external rotation is diagnostic of rotator interval abnormality.

10:54 AM PAPER: 769
Clinical Validation of the “On-Track” vs. “Off-Track” Concept in Anterior Glenohumeral Instability
Jay B. Cook, MD, Richmond Hill, GA
James S. Shaha, MD, Kailua, HI
Douglas J. Rowles, MD, Edmond, OK
Craig R. Bottomly, MD, Honolulu, HI
Steve Shaha, Prof, Draper, UT
John M. Tokish, MD, Simpsonville, SC
Bone loss defined as “on-track” or “off-track” is a better predictor of failed arthroscopic stabilization than solely quantifying glenoid bone loss.

11:00 AM PAPER: 770
High Prevalence of Superior Labral Tears Diagnosed by MRI in Middle-Aged Asymptomatic Shoulders
Randy S. Schwartzberg, MD, Orlando, FL
Bradd Burkhart, MD, Winter Park, FL
Bryan L. Reuss, MD, Winter Park, FL
Matthew Butterfield, MD, Eden Prairie, MN
MRI of the asymptomatic shoulder in middle-aged people revealed a high prevalence of superior labral tears.

11:06 AM PAPER: 771
3D MRI Quantification of Glenoid Bone Loss Is Equivalent to 3D CT Quantification: Cadaveric Study
Adam B. Yanke, MD, Chicago, IL
Jason Shin, MD, Saskatoon, SK, Canada
Ian L. Pearson, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Anthony A. Romeo, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
3D MRI reconstructions of glenoid bone loss correlate with measurements from 3D CT scan data in a cadaveric model. 3D MRI in the setting of shoulder instability could obviate the need for CT scans.

11:18 AM PAPER: 772
A New Diagnostic Method for the Diagnosis of Multiple Directional Shoulder Instability
Kyoung Jin Park, MD, Cheongju
Yong-Min Kim, MD, Cheongju
Euisung Choi, MD, Cheongju-si, Republic of Korea
Dong-Soo Kim, MD, Cheongju, Republic of Korea
For the clinical diagnosis of MDI, the Labro-capsular distance can easily and quickly be measured and used as an effective diagnostic method.

11:24 AM PAPER: 773
In Which Arm Position is a Hill-sachs Lesion Created?
Jun Kawakami, MD, Sendai, Miyagi, Japan
Nobuyuki Yamamoto, MD, Sendai, Japan
Hideaki Nagamoto, MD, Sendai, Japan
Yuki Shiotani, MD, Sendai, Japan
Mitsuyoshi Mineta, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan
The shoulder dislocation position was not so-called dislocation position (abduction and external rotation) but much lower angle of abduction (41 degrees) and lesser external rotation (50 degrees).

11:30 AM PAPER: 774
Arthroscopically Assisted Glenoid Bone Block Technique: Results of a New Technique
Ramin Sadeghpour, MD, New York, NY
Sohale Sadeghpour, MD, New Orleans, LA
Michael J. O’Brien, MD, New Orleans, LA
Felix H. Savoie, MD, New Orleans, LA
Ramin Sadeghpour, MD, New York, NY
This technique allows the advantages of both open and arthroscopic techniques, has shown excellent follow-up results at 2 years with minimal complications and high patient satisfaction scores.

* 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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11:42 AM  PAPER: 775
Infraspinatus Strength Assessment and Ultrasound Evaluation of Arthroscopic Hill-sachs Remplissage
Giovanni Merolla, MD, Cattolica, Italy
Paolo Paladini, MD, Cattolica, Italy
Fabrizio Campi, MD, Cattolica, Italy
Giuseppe Porcellini, MD, Cattolica, Italy
In this retrospective controlled study we evaluated the infraspinatus strength assessment and the posterior capsulotenodesis after arthroscopic Hill-Sachs remplissage and anterior Bankart repair.

11:48 AM  PAPER: 776
Biomechanical Comparison of the Latarjet Procedure With and Without Capsular Repair
Matthew Kleiner, MD, Los Angeles, CA
William B. Payne, MD, Burien, WA
Ana Nunez Herrera, BA, San Pedro, CA
Michelle H. McGarry, MD, Long Beach, CA
James E. Tibone, MD, Los Angeles, CA
Thay Q. Lee, PhD, Long Beach, CA
In a biomechanical model, the addition of a capsular repair to the Latarjet procedure does not significantly improve stability but does lead to alterations in glenohumeral range of motion.

11:54 AM  PAPER: 777
Surgeon Cost of Care in Arthroscopic Cuff Repair: Analysis of 2012 Medicare Dataset
Ronald A. Navarro, MD, Rolling Hills, CA
Oke A. Anakwenze, MD, New York, NY
Anshuman Singh, MD, San Diego, CA
Samuel R. Ward, PhD, La Jolla, CA
The 2012 CMS dataset reveals the charge for scope cuff repair is variable but most are paid much lower and 20% less than allowed, with much geographic variation.

12:00 PM  PAPER: 778
Arthroscopic Bristow-Latarjet Combined with Bankart Restores Shoulder Stability in Case of Glenoid Deficiency
Charles-Edouard Thelu, MD, Valbonne, France
Patrick Gendre, MD, Nice, France
Thomas D’Ollonne, MD, Nice, France
Numa Mercier, MD, Nice, France
Xavier Obl, MD, Reims, France
Robert Houghton-Clemmey, FRCS, Nice, France
Pascal Boileau, MD, Nice, France
The arthroscopic Bristow-Latarjet procedure combined with Bankart repair for anterior instability with severe glenoid bone loss restores stability, maintains range of motion, allows return to sports.

12:06 PM  PAPER: 779
Biceps Tenotomy versus Tenodesis in Active Patients under 40
Jeremy R. McCallum, MD, Honolulu, HI
Shaun Gee, MD, Tripler Amc, HI
Jay B. Cook, MD, Richmond Hill, GA
Craig R. Bottoni, MD, Honolulu, HI
John M. Tokish, MD, Simpsonville, SC
Douglas J. Rowles, MD, Edmond, OK
Tenodesis versus tenotomy in a young active population demonstrate similar outcomes. Neither treatment appears to be as effective in this patient population as in older study cohorts.

12:12 PM  PAPER: 780
Biomechanics of Latarjet Screw Fixation: Comparison of Fully Threaded, Partially Threaded, and Cannulated Screws
Maristella F. Saccomanno, MD, Torre Santa Susanna (brindisi), Italy
Jason Shin, MD, Saskatoon, SK, Canada
Christen R. Mellano, MD, Chicago, IL
Elizabeth Shewman, MS, Chicago, IL
Vincent Wang, Chicago, IL
Gregory P. Nicholson, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
In this cadaveric model, there were no statistically significant differences among screw types with regard to biomechanical performance for the classic Latarjet coracoid transfer.

Discussion – 6 Minutes

10:30 AM — 12:30 PM
Room 3304

Foot and Ankle IV: Arthritis, Arthrodesis, Arthroplasty 2
Moderator(s): Naren G. Gurbani, MD, Capistrano Beach, CA
J. Chris Coetzee, MD, Edina, MN

10:30 AM  PAPER: 781
Management of End-Stage Ankle Arthritis: A Cost-Utility Analysis Using Direct and Indirect Costs
Benedict U. Nwachukwu, MD, MBA, New York, NY
Alexander S. McLauhorn, MD, MBA, New York, NY
Kamran S. Hamid, MD, MPH, Dallas, TX
Constantine Demetracopoulos, MD, New York, NY
Jonathan T. Deland, MD, New York, NY
Scott Ellis, MD, New York, NY
Total ankle replacement is a cost-effective option for the management of end-stage ankle osteoarthritis from the health-system and societal perspectives. It is cost-saving in younger patients.
Friday, March 27

10:36 AM PAPER: 782
A Prospective Study on Expectation and Satisfaction After Total Ankle Arthroplasty and Fusion for Ankle Arthritis
Alastair S. E. Younger, MD, Vancouver, BC, Canada
Timothy R. Daniels, MD, FRCS, Toronto, ON, Canada
Mark Glazebrook, MD, Halifax, NS, Canada
Hubert Wong, PhD, Vancouver, BC, Canada
Murray J. Penner, MD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
Peter Dryden, MD, Victoria, BC, Canada

Expectation and Satisfaction were measured pre and post operatively in 644 patients a mean 7.6 years. Ankle replacement patients have higher preoperative expectations with similar follow up scores.

10:42 AM PAPER: 783
Patient Satisfaction and Physical Function Improvement Following Ankle Arthrodesis and Arthroplasty
Bruce J. Sangeorzan, MD, Seattle, WA
Marisa R. Benich, BS, Seattle, WA
William R. Ledoux, PhD, Seattle, WA
Sigvard T. Hansen Jr, MD, Seattle, WA
J. Chris Coetzee, MD, Edina, MN
James Davitt, MD, Portland, OR
John G. Anderson, MD, Grand Rapids, MI
Donald R. Bohay, MD, Grand Rapids, MI
John D. Maskill, MD, Grand Rapids, MI

Data comparing patient reported outcomes of ankle arthrodesis and ankle arthroplasty do not show significant differences at 3-year follow-up, though trends favor ankle arthroplasty.

11:00 AM PAPER: 785
Patient Activity Levels Correlate with Self-Reported Outcomes after Surgery for End-Stage Ankle Arthritis
Calvin Hu, MD, Hamilton, NY
Marisa R. Benich, BS, Seattle, WA
Daniel Norvell, PT, Tacoma, WA
William R. Ledoux, PhD, Seattle, WA
Bruce J. Sangeorzan, MD, Seattle, WA

Objectively collected activity data correlated moderately with self-reported outcomes after ankle arthrodesis and arthroplasty; thus the measurement of both may be unnecessary in a clinical trial.

11:06 AM PAPER: 786
Talonavicular Arthrodesis: A Biomechanical Study of Compression Staple Utility
Cameron Barr, MD, La Jolla, CA
Brent G. Parks, MSc, Baltimore, MD
Michael Tsai, BS, Baltimore, MD
Stuart D. Miller, MD, Baltimore, MD

Biomechanical testing of a talonavicular arthrodesis model shows no advantage with the addition of a compression staple to a single screw for fixation.

Discussion – 6 Minutes

11:18 AM PAPER: 787
Performance of Total Ankle Arthroplasty and Ankle Arthrodesis on Uneven Surfaces: A Prospective Study
James R. Jastifer, MD, Vicksburg, MI
Michael J. Coughlin, MD, Boise, ID
Christopher B. Hirose, MD, Boise, ID

A 12 month prospective study was performed comparing 61 ankle arthroplasty to 16 ankle arthrodesis patients on uneven ground. The arthroplasty group had better function on several surfaces.

11:24 AM PAPER: 788
Comparing Reoperation after Ankle Joint Fusion or Replacement: Experience within a Prospective Multicenter Study
Alastair S. E. Younger, MD, Vancouver, BC, Canada
Timothy R. Daniels, MD, FRCS, Toronto, ON, Canada
Mark Glazebrook, MD, Halifax, NS, Canada
Murray J. Penner, MD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
Peter Dryden, MD, Victoria, BC, Canada

In 214 fusions and 474 replacements repeat operations occurred more often after replacement (24% vs 5%) at an average of 7.9 years follow up. A coding system assisted comparison.

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11:30 AM PAPER: 789
Impact of Diabetes on Perioperative Complications after Total Ankle Arthroplasty and Tibiotalar Fusion
Jimmy Jiang, MD, Chicago, IL
Oliver Schipper, MD, Chicago, IL
Lan Chen, MD, Chicago, IL
Brian C. Toolan, MD, Flossmoor, IL

In both tibiotalar fusion and total ankle arthroplasty, diabetic patients have higher perioperative complication rates and longer length of hospital stay.

Discussion – 6 Minutes

11:42 AM PAPER: 790
TAA Implant Outcome: A Prospective Study of Four Different TAA Implants by Non Design Investigators
Mark Glazebrook, MD, Halifax, NS, Canada
Alastair S. E. Younger, MD, Vancouver, BC, Canada
Timothy R. Daniels, MD, FRCSC, Toronto, ON, Canada
Murray J. Penner, MD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
Peter Dryden, MD, Victoria, BC, Canada
Hubert Wong, PhD, Vancouver, BC, Canada
Tina Le Francois, MD, Dartmouth, NS, Canada

A prospective comparison of 4 modern TAA prostheses (Hintegra, Agility, Mobility and STAR) showed a difference in clinical outcome and implant survival that is likely attributed to implant type.

Discussion – 6 Minutes

11:54 AM PAPER: 792
Characterization of In Vivo Damage and Failure of Total Ankle Arthroplasty Systems: A Multi-center Retrieval Study
Zachary Vaupel, MD, Royal Oak, MI
Gearn Green, MD, Royal Oak, MI
Eden A. Baker, MS, Royal Oak, MI
Meagan Salisbury, BS, Royal Oak, MI
Kevin C. Baker, PhD, Royal Oak, MI
Donald R. Bohay, MD, Grand Rapids, MI
J. Chris Coetzee, MD, Edina, MN
Mark S. Myerson, MD, Baltimore, MD
Paul T. Fortin, MD, Royal Oak, MI

This is the largest collection of failed ankle arthroplasty devices on record, which provides unique, multi-center insight into common damage modes and failure mechanisms not previously presented.

Discussion – 6 Minutes

11:48 AM PAPER: 791
Procedures through Separate Incisions During Total Ankle Replacement Do Not Increase Short-term Complications
Braden J. Criswell, MD, Pasadena, CA
Kenneth Hunt, MD, Redwood City, CA
Todd S. Kim, MD, Burlingame, CA
Loretta Chou, MD, Redwood City, CA
Andrew Haskell, MD, Palo Alto, CA

This study suggests surgeons can add adjuvant procedures through separate incisions during Total Ankle Replacement without affecting short-term complication rates.

12:06 PM PAPER: 793
The Agility Total Ankle Arthroplasty: A Long-term Follow-up Outcome Study
Steven M. Raikin, MD, Philadelphia, PA
Kristin Sandrowski, MD, Philadelphia, PA
Justin M. Kane, MD, Coatesville, PA
Brian Winters, MD, Limewood, NJ

Patients that have retained their original Agility total ankle arthroplasty are functioning at a high level of satisfaction based on statistically validated patient-centered outcome scores.

12:12 PM PAPER: 794
Inconsistency in the Reporting of Adverse Events in Total Ankle Replacement: A Systematic Review of the Literature
Jeffrey Mercer, MD, PhD, Portland, OR
Murray J. Penner, MD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
Alastair S. E. Younger, MD, Vancouver, BC, Canada

The reporting of adverse events in ankle arthroplasty is inconsistent and limits the ability to draw useful conclusions from the available data.

12:18 PM PAPER: 795
Incidence of Venous Thromboembolism After Total Ankle Arthroplasty (TAA) Without Routine Use of Chemoprophylaxis
Phillip H. Horne, MD, Durham, NC
Jason M. Jennings, MD, Denver, CO
James K. DeOrio, MD, Durham, NC
Mark E. Easley, MD, Durham, NC
James A. Nunley II, MD, Durham, NC
Samuel B. Adams Jr, MD, Durham, NC

Our results suggest that clinically detectable VTE events after TAA are uncommon. Patients without identifiable risk factors do not appear to require chemoprophylaxis postoperatively following TAA.

Discussion – 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 332.

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PAPER PRESENTATION

10:30 AM — 12:30 PM
Room 3105

Pediatrics IV: Pediatrics: Something for Everyone
Moderator(s): Amy L. McIntosh, MD, Dallas, TX
Kristan Pierz, MD, Hartford, CT
Wudbhav N. Sankar, MD, Wynnewood, PA

10:30 AM
PAPER: 796
Is Tertiary Pediatric Orthopaedic Referral of Idiopathic In-toeing Necessary?
Jeffrey Gum, MD, Louisville, KY
Nathan Polley, MD, Louisville, KY
Andrew Harston, MD, Louisville, KY
Joshua W. Meier, MD, Prospect, KY
Gilbert Chan, MD, Crestwood, KY
Leah Y. Carreon, MD, Louisville, KY

A national database and tertiary pediatric orthopedic specialty practice analysis clearly demonstrates that idiopathic in-toeing very rarely requires operative treatment, especially if < 2 years old.

10:36 AM
PAPER: 797
Multiplier Method to Predict Leg Length Discrepancy and Epiphysiodesis Timing: Mobile App Improves Accuracy/Speed
Pablo Wagner, MD, Santiago, Chile
Shawn C. Standard, MD, Baltimore, MD
John E. Herzenberg, MD, Baltimore, MD

The mobile app is more accurate/faster than the traditional way of using formulae and a calculator to apply the Multiplier Method for predicting leg length discrepancy and timing of epiphysiodesis.

10:42 AM
PAPER: 798
Complications Associated with Epiphysiodesis for Management of Leg Length Inequality
Karl E. Rathjen, MD, Dallas, TX
John G. Birch, MD, Dallas, TX
Brandon A. Ramo, MD, Dallas, TX
Marina Makaroff, Dallas, TX

Evaluation of complications after epiphysiodesis for leg length discrepancy revealed that congenital etiology, younger age, and larger leg inequalities are risk factors for incomplete epiphysiodesis.

10:54 AM
PAPER: 799
Age of Recurrence in Idiopathic Clubfoot Treated with the Ponseti Method
Rachel Y. Goldstein, MD, Los Angeles, CA
Alice Chu, MD, Livingston, NJ
Debra A. Sala, PT, New York, NY
Wallace B. Lehman, MD, New York, NY

Patients with recurrence after successful Ponseti treatment become distinguishable two to three years of age. Close follow-up and brace adherence is important at least until that age.

11:00 AM
PAPER: 800
Painful Flatfoot after Clubfoot Correction by Ponseti Casting
Christopher B. Hayes, MD, Lexington, KY
Kevin A. Murr, MD, Lexington, KY
Pooya Hosseinzadeh, MD, Miami, FL
Todd A. Milbrandt, MD, Rochester, MN
Henry J. Iwinski, MD, Lexington, KY
Janet Walker, MD, Lexington, KY

Clubfoot overcorrection occurs following Ponseti casting and is associated with a higher incidence of foot and ankle pain compared to normally corrected clubfeet treated similarly.

11:06 AM
PAPER: 801
Subtalar Joint Morphology and the Determinants of Flexible Flatfeet in Children
Alpesh Kothari, MD, MSc, Oxford, United Kingdom
Julie Stebbins, PhD, Oxford, United Kingdom
Amy B. Zavatsky, PhD, Oxford, United Kingdom
Tim Theologis, Oxford/Oxfordshire, United Kingdom

Using MRI imaging, in this prospective cross-sectional study of children 8-15, we have demonstrated that altered subtalar joint morphology is an important determinant of flexible flatfeet.

Discussion – 6 Minutes

11:18 AM
PAPER: 802
Treatment of Congenital Vertical Talus: Comparison of Minimally Invasive Versus Traditional Surgical Techniques
Justin Yang, MD, Farmington, CT
Karen Steger-May, MD, Saint Louis, MO
Matthew B. Dobbs, MD, Saint Louis, MO

Serial casting with minimally invasive surgery, when compared to traditional surgical techniques, resulted in better range of motion and pain scores at minimum five year follow up.

Discussion – 6 Minutes

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11:24 AM  
PAPER: 803  
Acetabular Protrusio and Proximal Femur Fractures in Patients with Osteogenesis Imperfecta  
Samir Trehan, MD, New York, NY  
Emmanouil Morakis, MD, Manchester, United Kingdom  
Cathleen L. Raggio, MD, New York, NY  
Kristin D. Twomey, MEd, MS, BA, Bronxville, NY  
Daniel W. Green, MD, New York, NY  

In this series of 49 osteogenesis imperfecta patients, a high incidence of acetabular protrusio was observed and associated with a 30% increased risk of proximal femur and acetabular fractures.

11:30 AM  
PAPER: 804  
Delayed Wound Dehiscence of Anterior Knee Incisions in Patients  
Christopher G. Salib, BA, MS, Nashville, TN  
Nicholas Siow, Scottsburg, IN  
June C. O'Donnell, Saint Louis, MO  
Scott J. Lubmann, MD, Ladue, MO  

The frequency of DWD in our study was higher in the Vicryl group than PDS group. The authors have switched to PDS for subcutaneous closure in the attempt to make wound complications a non-event.

11:42 AM  
PAPER: 805  
Pediatric Non-fracture Related Compartment Syndrome: A Review of 39 Cases  
Kristin O. Livingston, MD, Boston, MA  
Patricia Miller, MS, Boston, MA  
Michael P. Glotzbecker, MD, Boston, MA  
Daniel J. Hedequist, MD, Boston, MA  
Benjamin J. Shore, MD, FRSCS, Boston, MA  

The purpose of this study was to report the varying etiologies, risk factors and treatment outcomes associated with pediatric non-fracture related compartment syndrome (NFRCS).

11:48 AM  
PAPER: 806  
Outcomes Following Operative Treatment of Elbow Contractures in the Pediatric Population  
Eugene Ek, MD, PhD, Melbourne, Australia  
Sophia Paul, BA  
Robert N. Hothckiss, MD, New York, NY  

This is the largest series of pediatric patients having undergone surgery for elbow stiffness. We found that open release in the young provides significant improvements in motion similar to adults.

11:54 AM  
PAPER: 807  
Congenital Radioulnar Synostosis, A Novel Operation in 27 Cases  
Ahmad S. Allam, Prof, Banha, Egypt  

This one stage intervention for CRUS -Wilkie type I- is technically simple, with a significant obtained active functional range of forearm rotation with few minor complications.

12:06 PM  
PAPER: 808  
Radiographic Predictors of Ulna Shortening Osteotomy in Children and Adolescents with Madelung Deformity  
Donald S. Bae, MD, Boston, MA  
Sebastian Farr, MD, Vienna, Austria  
Leslie A. Kalish, ScD, Boston, MA  
Peter M. Waters, MD, Boston, MA  

Lunate subsidence, ulnar variance and palmar carpal displacement are significant predictors for ulnar shortening osteotomy in Madelung deformity.

12:12 PM  
PAPER: 809  
Comparison of Ultrasound and MRI for the Diagnosis of Glenohumeral Dysplasia in Brachial Plexus Birth Palsy  
Kenneth W. Donohue, MD, Houston, TX  
Kevin J. Little, MD, Cincinnati, OH  
Brian Norton, MD, Philadelphia, PA  
Scott H. Kozin, MD, Philadelphia, PA  
Dan A. Zlotolow, MD, Philadelphia, PA  

A prospective evaluation of imaging techniques for glenohumeral dysplasia in brachial plexus birth palsy. Investigates inter-rater reliability and measurement agreement between MRI and ultrasound.

12:18 PM  
PAPER: 810  
Long-term Outcomes of External Rotation Tendon Transfers in Brachial Plexus Birth Palsy  
Lindsey C. Sheffler, MD, San Francisco, CA  
Fred Molitor, Ph.D., Sacramento, CA  
Michelle A. James, MD, Sacramento, CA  

Initial gains in external rotation and abduction after external rotation tendon transfers decrease over time but still remain statistically significant at eight years of follow-up.

12:24 PM  
PAPER: 919  
Treatment of Pediatric Distal Radius Buckle Fractures with a Wrist Brace and No Follow-up Visit  
Megan Kuba, MD, Honolulu, HI  
Krister Freese, MD, Aurora, CO  
Byron Izuka, MD, Aiea, HI  

Treatment of distal forearm buckle fractures with a removable brace and no follow-up visit results in both good patient outcomes and parental satisfaction.

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SYMPOSIUM
1:30 PM — 3:30 PM
Venetian Ballroom E

Annual Meeting Highlights (BB)
Co-Moderators: Brian J. Cole, MD, MBA, Chicago, IL
James R. Ficke, MD, Baltimore, MD

The Annual Meeting Highlights symposium will feature highlights from the best papers and posters presented at the 2015 Annual Meeting as chosen by the AAOS Program Committee.

I. Adult Reconstruction Hip Highlights
   David C. Ayers, MD, Worcester, MA

II. Shoulder and Elbow Highlights
    Keith Kenter, MD, Cincinnati, OH

III. Hand and Wrist Highlights
     Fraser J. Leversedge, MD, Durham, NC

IV. Pediatrics Highlights
    Ken J. Noonan, MD, Madison, WI

V. Practice Management Highlights
   Thomas Malitz, MD, Grand Rapids, MI

VI. Spine Highlights
    Norman B. Chutkan, MD, Phoenix, AZ

VII. Trauma Highlights
     Ivan S. Tarkin, MD, Pittsburgh, PA

VIII. Tumor/Metabolic Disease Highlights
      Thomas J. Scharschmidt, MD, Delaware, OH

IX. Adult Reconstruction Knee Highlights
    Michael A. Kelly, MD, Hackensack, NJ

X. Sports Medicine/Arthroscopy Highlights
    Dean K. Matsuda, MD, Los Angeles, CA

XI. Foot and Ankle Highlights
     Daniel C. Farber, MD, Philadelphia, PA

SYMPOSIUM
1:30 PM — 3:30 PM
Room 2201

The International Musculoskeletal Time Bomb: Time for Action (DD)
Moderator: Tim Briggs, FRCS, Middlesex, United Kingdom

The world population is aging with ever increasing demand for orthopaedic services. This, at a time when World debt continues to rise and currently stands at $52 trillion, of which the USA’s share is $22 trillion and the UK’s $2 trillion. This is unsustainable in the medium term. We will all have to do things differently if we are going to maintain timely effective care for our patients, which will include, reducing variation in practice and doing more for less. This symposium highlights the current problems and provides some possible solutions including those currently being rolled out in the UK.

I. The Size of the Problem in the USA
   Stuart L. Weinstein, MD, Iowa City, IA

II. Is Canada Any Different to the USA?
    Cyril Frank, Calgary, AB, Canada

III. Using the Evidence Base; What Do the Registries Tell Us?
     Stephen Graves, MD, Adelaide, Australia

IV. Co-Moderator/Barriers to Change in the US Healthcare System
    Joshua J. Jacobs, MD, Chicago, IL

V. The Workforce of the Future, Do We Need to Change Our Roles?
    Scott Boden, MD, Atlanta, GA

VI. Cost Effective Orthopaedics in Developing Countries is Essential for All
    Jan De Vos, Pretoria, South Africa

VII. Maintaining Research and Innovation in the New Financially Challenged Environment: An International Perspective
     Peter F. Choong, FRACS, Sydney, Australia

VIII. Getting it Right First Time (GIRFT) - The UK Methodology for Solving the Problem
      Tim Briggs, FRCS, Middlesex, United Kingdom

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**INSTRUCTIONAL COURSE LECTURE**

**11:00 AM — 12:00 PM**

**FD25** The Basics of Effective Surgeon-Patient Communication

*Moderator: Dwight W. Barney III, MD, Albuquerque, NM*

*Donna P. Phillips, MD, New York, NY*

*Andrew M. Wong, MD, Tallahassee, FL*

This course concentrates on successful medical encounters between the patient and the physician. By the patient and physician developing a “partnership,” this allows the patient to be actively involved in the decision-making process and establishes agreed upon expectations and goals.

**Room 4501**

**1:30 PM — 2:30 PM**

**FD26** Collaboration Within and Between Institutions

*Moderator: Brian R. Wolf, MD, Iowa City, IA*

*Kurt P. Spindler, MD, Garfield Hts, OH*

*Nikhil Verma, Chicago, IL*

*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.

**Room 4501**

**3:30 PM — 4:30 PM**

**441** 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.

**Room 3101**

**442** A Patient-Specific Approach to Knee Arthroplasty

*Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH*

*Wolfgang Fitz, MD, Boston, MA*

*Steven B. Haas, MD, New York, NY*

*S. David Stulberg, MD, Chicago, IL*

Patient-specific techniques in knee arthroplasty utilize preoperative imaging to determine anatomical reference points and alignment. Customized pin or cut guides are generated to facilitate accurate bony resections and optimize component position.

**Room 3103**

**4:43** Osteochondral Lesions of the Talus: Current Treatment Dilemmas

*Moderator: Mark Glazebrook, MD, Halifax, NS, Canada*

*Richard D. Ferkel, MD, Van Nuys, CA*

*C. Niek Van Dijk, MD, Abcoude, Netherlands*

*Alastair S. E. Younger, MD, Vancouver, BC, Canada*

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.

**Room 3301**

**4:44** Magnetic Resonance Imaging of the Knee and Shoulder

*Moderator: Dennis C. Crawford, MD, PhD, Portland, OR*

*Lynne S. Steinbach, MD, San Francisco, CA*

*Carl S. Winalski, MD, Cleveland, OH*

This course 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.

**Room 4301**

**4:45** 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*

*Sidney M. Jacoby, MD, Philadelphia, PA*

*Dean G. Sotereanos, MD, Pittsburgh, PA*

*Robert M. Szabo, MD, MPH, Sacramento, CA*

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.

**Room 4303**

**4:46** Pediatric Hand and Wrist Fractures: A Case-Based 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, Sacramento, CA*

*Roger Cornwall, MD, Cincinnati, OH*

*Theresa O. Wyrick, MD, Mabelvale, 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.

**Room 3201**
Compliance in 2015: What You Need to Know!
Moderator: Jack M. Bert, MD, Woodbury, MN
David M. Glaser, MD, Minneapolis, MN
Ranjit Sachdev, MD, Bethlehem, PA
This course details risks and outlines steps practices can take to update their existing/implement new compliance plans. This not only helps to minimize risks but also helps to mitigate fines and penalties in case of unfavorable Office of Inspector General audits.

Reverse Shoulder Arthroplasty
Moderator: Edward G. McFarland, MD, Lutherville, MD
Lynn A. Crosby, MD, Augusta, GA
Xavier A. Duralde, MD, Atlanta, GA
Guido Marra, MD, Chicago, IL
This course encompasses the theory and methodology of reverse shoulder arthroplasty as applied to primary and revision situations.

Proximal Humerus Fractures: Current Treatment Options, Pearls and Pitfalls
Moderator: O. Alton Barron, MD, New York, NY
Joseph A. Abboud, MD, Philadelphia, PA
Louis W. Catalano III, MD, New York, NY
Bradford O. Parsons, MD, New York, NY
Our purposes are to 1) provide some insights to improve diagnosis and classification, 2) provide thorough review of literature-supported treatment options, 3) compare and contrast different techniques that are applicable to a given fracture pattern, 4) review the basic techniques with pearls and pitfalls in an effort to minimize intraoperative and postoperative complications, 5) leave ample time for questions and answers between the audience and the panel of presenters, and 6) present case examples to further elucidate the teaching points covered by each speaker.

Management of Spinal Infections
Moderator: Timothy A. Moore, MD, Shaker Heights, OH
Christopher G. Furey, MD, Cleveland, OH
Paul Gause, MD, Scottsdale, AZ
Michael C. Gerling, MD, Brooklyn, NY
This course is a review of the etiology and pathophysiology, as well as the clinical and radiographic presentation, of vertebral osteomyelitis, discitis, and spinal epidural abscess. Indications and strategies for surgical and nonsurgical management are discussed, inclusive of illustrative cases.

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 E. 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.

Patellofemoral Arthritis: Treatment Strategies from Cartilage Restoration to Arthroplasty
Moderator: Diane L. Dahm, MD, Rochester, MN
Elizabeth A. Arendt, MD, Minneapolis, MN
David Dejour, MD, Lyon, France
Andreas H. Gomoll, MD, Chestnut, Hill, MA
This course provides a comprehensive overview of the surgical management of full thickness chondral lesions of the patellofemoral joint from cartilage restoration procedures to arthroplasty.

Staying on the Hill: Sports Medicine Considerations for Mature Athletes
Moderator: Laith M. Jazrawi, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY
Guillem Gonzalez-Lomas, MD, New York, NY
Steven Lamm, MD, New York, NY
This course reviews the biological and physiological issues and challenges facing older athletes. Focus is on surgical and nonsurgical measures and methods for treating injuries in the mature athlete population. Faculty addresses performance enhancing drugs, ‘anti-aging’ medications, physical therapy, and other nonoperative managements.

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
Howard R. Epps, MD, Houston, 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.

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Advances in Treatment and Understanding of Musculoskeletal Infections

Moderator: David W. Lowenberg, MD, Redwood City, CA
L. Scott Levin, MD, Philadelphia, PA
J. Tracy Watson, MD, Saint Louis, MO

Understanding emerging technologies aids in better diagnosis and management of musculoskeletal infections. This course emphasizes strategies for the comprehensive care of the bone and soft tissue in limb infections.

PAPER PRESENTATION

1:30 PM — 3:30 PM
Venetian Ballroom B

Adult Reconstruction Hip VII: Revision THA
Moderator(s): Michael A. Mont, MD, Baltimore, MD
David J. Mayman, MD, New York, NY

Complications and Readmissions after Revision Hip Arthroplasty: Analysis of ACS-NSQIP 2006-2012
Arjun Sebastian, MD, Rochester, MN
Sanjeev Kakar, MD, Rochester, MN
Daniel Ubl, BA, Rochester, MN
Elizabeth Habermann, PhD, MPH, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN

ACS-NSQIP was utilized to review complications in 4133 patients who underwent revision hip arthroplasty. Obesity, anemia, and functional dependence were significant predictors of complications.

Risk Factors for Late Failure of Revision THA for Aseptic Loosening: A Study of 4,713 Consecutive Revision THA
Matthew Houdek, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
John R. Martin, MD, Rochester, MN
Daniel Whiting, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Tad M. Mabry, MD, Rochester, MN

Following revision THA for aseptic loosening, complications are common. Preoperative risk factors, component choice and indications for the revision surgery all have an impact the survival.

Valuation of Synovial Aspiration in Girdlestone Hips for Detection of Infection Persistence
Viktor Janz, MD, Berlin, Germany
Benjamin Bartek, M.D., Berlin, Germany
Georgi Wassilew, MD, Berlin, Germany
Tobias Winkler, MD, Berlin, Germany
Andrey Trampuz, MD, Berlin, Germany
Carsten Perka, MD, Berlin, Germany

The Girdlestone aspiration offers inferior diagnostic performance compared to the THA-aspiration and cannot confirm nor exclude a persistence of infection and should not determine reimplantation.

Do Metal Ion Levels Normalize Following Revision Surgery for Pseudotumors in Patients with Dual Taper Modular THA?
Young-Min Kwon, MD, PhD, Boston, MA
William A. Leone, MD, Lighthouse Point, FL
Tsung-Yuan Tsai, PhD, Boston, MA
Guoan Li, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA

Metal ion levels declined to very low levels following revision surgery. Both cobalt and chromium ion levels declined at 1% per day with 80% reduction of pre-revision level by 3 months post-revision.

A Total of 208 Femoral Component Revisions with Impaction Bone Grafting and a Cemented Polished Exeter Stem
Martin J. Steen, MD, Nijmegen, Netherlands
Wim Rijnen, Nijmegen, Netherlands
Jean W. Gardeniers, MD, MX Nijmegen, Netherlands
Albert van Kampen, MD, Nijmegen, Netherlands
Berend W. Schreurs, MD, Malden, Netherlands

208 femoral revisions with impaction bone-grafting and a cemented stem had 99.4% survival for endpoint aseptic loosening at 10 years. This is valuable technique to restore femoral bone stock loss.

Cemented Constrained Liners in Revision Total Hip Arthroplasty: 10-year Outcomes
Diren Arsoy, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Constrained liner cementation into existing acetabular shell is associated with 4-fold higher risk for revision and 6-fold higher risk of instability compared to revising the acetabular cup as well.
Friday, March 27

2:18 PM  | PAPER: 817
The Use of Structural Distal Femoral Allografts for Acetabular Reconstruction at an Average 21 Years of Follow Up
Nicholas M. Brown, MD, Chicago, IL
Joe Morrison, BS, Chicago, IL
Scott M. Sporer, MD, Wheaton, IL
Wayne G. Paprosky, MD, Winfield, IL

Using a porous-coated acetabular component supported with structural distal femoral allograft for Type IIIa defects resulted in a high rate of clinical success at an average 21 years of follow-up.

2:24 PM  | PAPER: 818
Non-constrained Cemented Liners in Revision Total Hip Arthroplasty: 10-year Outcomes
Diren Arsoy, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Joseph R. Cass, MD, Rochester, MN

Cementation of a non-constrained highly crosslinked polyethylene liner into a cementless acetabular shell during revision THA is associated with a low (1%) failure rate at 10 years.

2:30 PM  | PAPER: 819
Beware Cup Spin-out After Modular Liner Exchange with Retained Acetabular Shell for Wear/Osteolysis
Jacob M. Drew, MD, Charleston, SC
John L. Masonis, MD, Charlotte, NC
Susan M. Odum, PhD, Charlotte, NC
Brock Weston, BS, Charlotte, NC

There is significant risk for aseptic loosening of the retained acetabular shell after modular liner exchange for PE wear and/or osteolysis. Acetabular revision should be considered in this setting.

2:42 PM  | PAPER: 820
Trabecular Metal Revision Cups Show Very Low Proximal Migration; 103 Acetabular Revisions Followed 2-7 Years
Maziar Mohaddes, MD, Molndal, Sweden
Johan N. Karrholm, MD, Molndal, Sweden

The trabecular metal cups show low proximal migration, regardless of the amount of acetabular bone defect, indicating reduced risk for late aseptic loosening.

2:48 PM  | PAPER: 821
Histopathology of Pseudotumors in Dual Taper Modular Femoral Stem: Hypersensitivity or Dose-Dependent Reaction?
Young-Min Kwon, MD, PhD, Boston, MA
Kenneth Urish, MD, PhD, Sewickley, PA
Tsung-Yuan Tsai, PhD, Boston, MA
Guoan Li, PhD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA
Harry E. Rubash, MD, Boston, MA

Histopathology of pseudotumour in dual taper stems demonstrated no significant correlation between ALVAL score and metal ion levels, suggesting a complex interplay between implant and patient factors.

2:54 PM  | PAPER: 822
Taper Failure in Contemporary Hip Arthroplasties: Wear Assisted Corrosion or Corrosion Assisted Wear?
David Langton, Gateshead, United Kingdom
Raghavendra P. Sidaginamale, Stockton On Tees, United Kingdom
James Lord, MSc, San Luis Obispo, CA
Antoni Nargol, FRCS, Cleveland, United Kingdom
John Bousher, PhD, Silver Spring, MD
Christina Savisaar, Silber Spring, MD
Thomas Joyce, PhD, Newcastle Upon Tyne, United Kingdom

Study hypothesises that in contemporary hip arthroplasties, rougher trunnions lead to increased volumetric wear at the female taper surfaces compared to those with smoother trunnion surface finishes.

3:06 PM  | PAPER: 823
Temporal Trends in Revision Total Hip Arthroplasty Over a 10-year Period Using National Joint Registry Data
Jeya Palan, MD, Market Harborough, United Kingdom
Michele Smith, PhD, Bristol, United Kingdom
Keith Tucker, MD, FRCS Orth, Norwich, United Kingdom
Ashwin Kulkarni, MD, FRCS Orth, Leicester, United Kingdom
Colin Esler, MD, FRCS, Leicester, United Kingdom
Paul J. Gregg, Prof, Cleveland, United Kingdom
Ashley Blom, PhD, Bristol, United Kingdom

The reasons for undertaking a revision THA have changed over 10 years with more revisions for unexplained pain and adverse tissue reaction and less revisions for dislocations.

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Friday, March 27

3:12 PM  PAPER: 824
Femoral Impaction Grafting in Revision Hip Replacement: 705 Cases from the Originating Center
Samantha Hook, FRCS, MBBS, East Dean, United Kingdom
Matthew J. Wilson, FRCS (Ortho), MBBS, Devon, United Kingdom
Jonathan R. Howell, MD, Devon, United Kingdom
Matthew J. Hubble, FRCS, Devon, United Kingdom
Andrew J. Timperley, MD, Exeter, United Kingdom
Sarah Whitehouse, PhD, Brisbane, Australia
Graham A. Gie, MD, Credon, Devon, United Kingdom

In this paper we present the first 705 cases of femoral impaction grafting performed in the originating centre. We include the learning curve and discuss the use in peri-prosthetic fractures.

3:18 PM  PAPER: 825
20-year Results of Uncemented Jumbo Cups for Revision Total Hip Arthroplasty
Philipp Von Roth, MD, Berlin, Germany
Matthew P. Abdel, MD, Rochester, MN
William Harmen, MS, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

The 20 year results of uncemented jumbo cups for revision THA showed good clinical outcomes, radiographic results, and survivorship.

1:30 PM — 3:30 PM  PAPER PRESENTATION
Venetian Ballroom D

Shoulder and Elbow VII: Complications and Risk Reduction
Moderator(s): John G. Costouros, MD, Redwood City, CA
Wesley M. Nottage, MD, Laguna Hills, CA

1:30 PM  PAPER: 826
Risk Factors for 30-day Morbidity and Mortality Following Total Shoulder Arthroplasty: A Review of 1,922 Cases
Robert W. Westermann, MD, Iowa City, IA
Christopher Anthony, MD, Iowa City, IA
Andrew J. Pugely, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA
Carolyn Hettrich, MD, MPH, Iowa City, IA

Of 1,922 cases of shoulder arthroplasty, we observed an 8% complication rate; independent risk factors for complication after TSA are CHF, steroid use, preoperative anemia, OR time >2hrs and ASA class.

1:36 PM  PAPER: 827
Risk of Nerve Injury During Reverse or Anatomical Shoulder Arthroplasty: An Intra-operative Nerve Monitoring Study
Robert L. Parisien, MD, Boston, MA
Paul H. Yi, MD, San Francisco, CA
Xinning Li, MD, Lexington, MA
Andrew Jawa, MD, Cambridge, MA

Is There a Greater Risk of Peripheral Nerve Injury During Reverse or Anatomical Total Shoulder Arthroplasty? Correlation of Intra-operative Nerve Monitoring with Postoperative Findings

1:42 PM  PAPER: 828
Incidence and Risk Factors of Venous Thromboembolism after Total Shoulder Arthroplasty
Abdurrahman Kandil, MD, Charlottesville, VA
Justin W. Griffin, MD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA
Stephen F. Brockmeier, MD, Charlottesville, VA

This nationwide database study identified three risk factors for VTE after TSA: older age, presence of deficiency anemias, and a higher Charlson/Deyo score.

1:54 PM  PAPER: 829
Tranexamic Acid Decreases Blood Loss Following Total Shoulder Arthroplasty
Richard J. Friedman, MD, Charleston, SC
Lisa Mock, CCRC, Charleston, SC
Bonnie P. Dumas, MBA, PhD, Charleston, SC

Tranexamic acid 20 mg/kg IV given just prior to primary and revision TSA results in statistically significant reductions in blood loss, hospital stay and recovery room time.

2:00 PM  PAPER: 830
The Effectiveness of Tranexamic Acid in Reducing Blood Loss after Total Shoulder Arthroplasty
Robert J. Gillespie, MD, Shaker Heights, OH
Yousef Shishani, MD, Cleveland, OH
Shane Hanzlik, MD, Henrico, VA
Jonathan Streit, MD, Cleveland, OH
Reuben Gobeze, MD, Cleveland, OH

Tranexamic acid appears to decrease blood loss following shoulder arthroplasty, however, further study utilizing more patients is warranted.

An alphabetical faculty financial disclosure list can be found starting on page 332.
Friday, March 27

2:06 PM PAPER: 831
Initial Varus Displacement of Proximal Humerus Fractures Results in Similar Function but Higher Complication Rates
Christina Capriccioso, BS, New York, NY
Joseph D. Zuckerman, MD, New York, NY
Kenneth A. Egol, MD, New York, NY

This study investigates the effect of initial varus or valgus surgical neck alignment on outcomes of patients who sustained proximal humerus fractures treated with open reduction internal fixation.

Discussion – 6 Minutes

2:18 PM PAPER: 832
Complications After Arthroscopic Coracoclavicular Reconstruction Using a Single Tightrope
Sang-Jin Shin, MD, Seoul, Republic of Korea
Nandan N. Rao, MS, Aurangabad, India
Myeong Jae Seo, MD, Seoul, Republic of Korea

This prospective study describes the results and complications after reconstruction of acute coracoclavicular ligament reconstruction in 18 consecutive patients with tightrope.

2:24 PM PAPER: 833
Correlation of Cerebral Desaturation Events and Arterial Pressures in the Beach Chair Position
Jacob J. Triplet, Ft Lauderdale, FL
Christopher Lonetta, Fort Lauderdale, FL
Jonathan C. Levy, MD, Ft Lauderdale, FL
Nathan Everding, MD, Skaneateles, NY
Molly Moor, Hallandale Beach, FL

During a cerebral desaturation event, there is no correlation between cerebral oximetry and arterial pressure measurements. Both should be independently valued in the beach chair position.

Discussion – 6 Minutes

2:30 PM PAPER: 834
Correlation of Temporal Invasive and Brachial Non-invasive Blood Pressure Measurements in the Beach Chair Position
Nathan Everding, MD, Skaneateles, NY
Jacob J. Triplet, Ft Lauderdale, FL
Christopher Lonetta, Fort Lauderdale, FL
Jonathan C. Levy, MD, Ft Lauderdale, FL
Molly Moor, Hallandale Beach, FL

The application of an arterial pressure ratio may prevent the overestimation of cerebral perfusion with the use of brachial blood pressure in the beach chair position during general anesthesia.

Discussion – 6 Minutes

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Friday, March 27

3:06 PM  PAPER: 838  
**Synovial Fluid Interleukin-6 as a Predictor of Periprosthetic Shoulder Infection**  
Salvatore J. Frangiamore, MD, MS, Cleveland, OH  
Anas Saleh, MD, Beachwood, OH  
Matthew Grosso, MD, New York, NY  
Mario Farias-Kovac, MD, Cleveland, OH  
Thomas Daly, Cleveland, OH  
Xiaochun S. Zhang, MD, PhD, Cleveland, OH  
Thomas W. Bauer, MD, PhD, Cleveland, OH  
Eric T. Ricchetti, MD, Cleveland, OH  
Joseph P. Iannotti, MD, PhD, Cleveland, OH  

In revision shoulder arthroplasty, synovial fluid IL-6 levels were more sensitive and specific than current preoperative tests for predicting positive cultures, including culture of indolent P. acnes.

3:12 PM  PAPER: 839  
**Characterization of Shoulder Arthroplasty Periprosthetic Tissue Pro-Inflammatory Markers and Radiographic Data**  
Daphne Pinkas, MD, Elmwood Park, NJ  
Drew D. Moore, MD, Royal Oak, MI  
Ashok L. Gowda, MD, Troy, MI  
Kevin C. Baker, PhD, Royal Oak, MI  
Erin A. Baker, MS, Royal Oak, MI  
Michael Kurdziel, MS, Royal Oak, MI  
Meagan Salisbury, BS, Royal Oak, MI  
J. Michael Wiater, MD, Beverly Hills, MI  

Expression of pro-inflammatory cytokines and matrix metalloproteinases in tissues adjacent to failed shoulder arthroplasty systems is dependent on device type.

3:18 PM  PAPER: 840  
**Arthroscopic Tissue Culture for the Evaluation of Periprosthetic Shoulder Infection**  
Matthew F. Dilisio, MD, Omaha, NE  
Jon J.P. Warner, MD, Boston, MA  
Lindsay Miller, MPH, BA, Bronxville, NY  
Laurence D. Higgins, MD, Boston, MA  

Arthroscopic tissue biopsy for the evaluation of prosthetic shoulder infection is a reliable method to diagnose infection and isolate Propionibacterium acnes.

**Discussion – 6 Minutes**

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1:30 PM — 3:30 PM  Room 3304  
**Sports Medicine/Arthroscopy VIII: Foot/Pelvis/Other**  
**Moderator(s): Anil S. Ranawat, MD, New York, NY**  
Mininder S. Kocher, MD, MPH, Boston, MA

**1:30 PM  PAPER: 841  
Endoscopic Excision of a Symptomatic Os Trigonum in Professional Dancers**  
Federico Morelli, Formello, Italy  
Pierluigi Serlorenzi, MD, Rome, Italy  
Daniele Mazza, Fiumicino, Italy  
Marco Guidi, MD, Capena, Italy  
Andrea Ferretti, MD, Rome, Italy  

This study represents the largest number of classical ballet dancers reviewed with the endoscopic excision of a symptomatic os trigonum.

**1:36 PM  PAPER: 842  
Operative Versus Nonoperative Treatment of Acute Achilles Tendon Rupture: A Database Analysis of 12,570 Patients**  
Dean Wang, MD, Santa Monica, CA  
Michael I. Sandlin, MD, Los Angeles, CA  
Jeremiah R. Cohen, BS, Los Angeles, CA  
Elizabeth Lord, MD, Venice, CA  
Frank Petrigliano, MD, Santa Monica, CA  
Nelson F. SooHoo, MD, Los Angeles, CA  

In a retrospective database analysis of 12,570 patients, there was no significant difference in rerupture rate following operative versus nonoperative treatment of acute Achilles tendon rupture.

**1:42 PM  PAPER: 843  
Functional and Radiographic Outcomes and Return to Sports Following Autologous Osteochondral Transfer in the Talus**  
Ethan J. Fraser, New York, NY  
Keir A. Ross, McKinney, TX  
Marcelo P. Prado, MD, Princeton, NJ, Brazil  
John G. Kennedy, MD, New York, NY  

Functional and MRI outcomes, and return to sports after Autologous Osteochondral Transplantation in the Talus in an athletic population.

**Discussion – 6 Minutes**
Greater than 90% of NFL athletes with Lisfranc injuries returned to play in the NFL at a median 11.1 months from injury; a return to pre-injury performance is possible for the majority of players.

Anesthetic ischiofemoral space injections will confirm the diagnosis of ischiofemoral impingement. Arthroscopic lesser trochanter excisions and psoas tenotomies will effectively treat this condition.

The purpose of this prospective cohort study was to evaluate the effect of platelet-rich plasma on the outcomes of patients undergoing hip arthroscopy for labral treatment.

Case series of 42 patients (48 hips) demonstrates that a periacetabular osteotomy in conjunction with hip arthroscopy is a safe method to simultaneously treat hip dysplasia and labral pathology.

Bovine and human articular cartilage was subjected to iatrogenic blunt trauma using a standard arthroscopic probe showing significant cell death.

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2:54 PM  PAPER: 852
On-field Performance of National Football League Players following Return from Concussion
Neil S. Kumar, MD, Philadelphia, PA
Matthew A. Chin, MD, Philadelphia, PA
Craig A. O’Neill, MD, Perkasie, PA
Andre Jakoi, MD, Philadelphia, PA
Loni P. Tabb, PhD, Philadelphia, PA
Michael Wolf, MD, Collingswood, NJ

On-field athletic performance in NFL players did not change after sustaining concussion. Early return is associated with experience and timing of injury and less likely following newer guidelines.

Discussion – 6 Minutes

3:06 PM  PAPER: 853
Prevalence of Abnormal Vitamin D Levels Among Division I NCAA Athletes
Diego C. Villacis, MD, Los Angeles, CA
Anthony Yi, BS, Los Angeles, CA
Ryan Jahn, BS, Pasadena, CA
Curtis J. Kephart, MD, Delray Beach, FL
Timothy Charlton, MD, Los Angeles, CA
Seth C. Gamradt, MD, Los Angeles, CA
Russ Romano, MA, ATC, Los Angeles, CA
James E. Tibone, MD, Los Angeles, CA
George F. Hatch III, MD, Los Angeles, CA

In a large cohort of NCAA athletes, our study demonstrates a high prevalence of vitamin D deficiency. Athletes with dark skin tone and male gender are more likely to be vitamin D deficient.

3:12 PM  PAPER: 854
The Amplitude of Intramuscular Pressure Oscillations Assures the Diagnosis of Chronic Compartment Syndrome
Andreas Nilsson, MSc, Gothenburg, Sweden
Quuxia Zhang, MD, Gothenburg, Sweden
Jorma Styf, MD, Gothenburg, Sweden

The amplitude of intramuscular pressure (IMP) oscillations has high sensitivity and specificity to identify chronic anterior compartment syndrome and corroborates the questioned IMP criteria.

3:18 PM  PAPER: 855
Using Proficiency-based Progression to Harness Simulation - Superior Training for Surgical Skills
Richard L. Angelo, MD, Woodinville, WA
Anthony G. Gallagher, PhD, Cork, Ireland
Richard K.N. Ryu, MD, Santa Barbara, CA
Robert A. Pedowitz, MD, PhD, Culver City, CA
William R. Beach, MD, Richmond, VA
Joseph P. Burns, MD, Los Angeles, CA
Julie A. Dodds, MD, East Lansing, MI
Larry D. Field, MD, Jackson, MS
Mark H. Getelman, MD, Tarzana, CA

This is the most robust metric based clinical validation of proficiency-based training using simulation. PBP simulation training produces a superior skill set and significant reduction of errors.

Discussion – 6 Minutes

1:30 PM  PAPER: 856
Differences in Cost Estimates Between Traditional Accounting and Time-Driven Activity Based Costing in TJA
Sina Akhavan, BA, San Francisco, CA
Lorrayne Ward, MBA, San Francisco, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA

TDABC is a more accurate measure of true resource utilization associated with TJA procedures, and can be used to identify high cost/high variability processes that can be targeted for improvement.

1:36 PM  PAPER: 857
Patient Compliance with Total Joint Arthroplasty Preoperative Instructions
Tyler Moore, MD, Irvine, CA
Ran Schwarzkopf, MD, Irvine, CA

The currently used protocol of patient preoperative preparation achieves rates of compliance equivalent if not better to other studies. The lowest overall percentage of compliance.

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The Influence of Comorbidities on Hospital Costs and Length of Stay Following Total Hip Arthroplasty
Andrew J. Pugely, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
The 2009 NIS was queried for 277,564 patients undergoing THA in the US. Hospital charges and LOS increase with patient comorbidities.

Variation in the Cost of Care for Primary Total Knee Arthroplasties
Derek Haas, MBA, Cambridge, MA
Kevin J. Bozic, MD, MBA, San Francisco, CA
Anthony M. DiGioia, MD, Pittsburgh, PA
Katharine Luther, RN, MS, Cambridge, MA
Robert S. Kaplan, PhD, Boston, MA
There is a wide range in direct personnel, consumable supply, and post-acute care costs for total knee arthroplasty procedures across organizations with similar patient profiles and outcomes.

Cost Analysis of Total Joint Arthroplasty Readmissions in a Bundled Payment Care Initiative
Andrew J. Clair, BA, Beachwood, OH
Perry J. Evangelista, MD, New York, NY
Claudette M. Lajam, MD, New York, NY
James D. Slover, MD, New York, NY
Joseph A. Bosco III, MD, New Rochelle, NY
Readmissions following total hip and total knee arthroplasty are common and costly. This project aims to identify the causes for readmission and assess the costs to guide quality improvement efforts.

Can Administrative Data be Used to Analyze Complications Following Total Joint Arthroplasty?
Andrew J. Clair, BA, Beachwood, OH
Ifeoma A. Inneh, New York, NY
Richard Iorio, MD, New Rochelle, NY
Keith R. Berend, MD, New Albany, OH
Craig J. Della Valle, MD, Chicago, IL
William L. Healy, MD, Newton, MA
Validation of the Hip Society and Knee Society total hip arthroplasty and total knee arthroplasty complications using the Medicare Administrative database was not feasible.

Drivers of Total Knee and Total Hip Arthroplasty Implant Purchase Prices
Derek Haas, MBA, Cambridge, MA
Kevin J. Bozic, MD, MBA, San Francisco, CA
Anthony M. DiGioia, MD, Pittsburgh, PA
Katharine Luther, RN, MS, Cambridge, MA
Robert S. Kaplan, PhD, Boston, MA
The factors studied explained 45% of the variation in TKA and THA implant purchase prices across organizations; hospital-physician alignment was the strongest predictor of lower prices.

Effect of Surgeons “Score Cards” on Operating Room Costs
Luke S. Austin, MD, Linwood, NJ
Alvin C. Ong, MD, Linwood, NJ
Nicholas J. Lombardi, BS, Egg Harbor Township, NJ
Michael J. Mehnert, MD, Philadelphia, PA
In this study, we sought to investigate the effect of physician knowledge of their absolute operating room cost and operating room cost relative to their peers on the cost of subsequent procedures.

Radiation Exposure to Breast Tissue in Female Orthopaedic Surgeons
Lindsey C. Sheffler, MD, San Francisco, CA
Lisa L. Lattanza, MD, San Francisco, CA
Marie Dusch, B.S., San Francisco, CA
Michelle A. James, MD, Sacramento, CA
Breast cancer prevalence in female orthopaedic surgeons is 3 times higher than the general population. Lead aprons may not adequately shield the breast tissue from intra-operative ionizing radiation.
**Friday, March 27**

2:48 PM  PAPER: 866

**Do Patients with Distal Radius Fractures Benefit from Decision Aids in their Care?**
Simon L. Amsdell, MD, Rochester, NY  
Erik R. Bergquist, MD, Helena, MT  
John Elfar, MD, Rochester, NY  
Ronald Gonzalez, DO, ATC, Pittsford, NY  
Warren Hammert, MD, Rochester, NY

Decision aids involve patients in discussing their medical issues and serve to optimize the encounter time with the physician, which is often limited.

2:54 PM  PAPER: 867

**The Potential Economic Burden of Portable Pneumatic Compression Devices after Total Joint Arthroplasty**
Suneel B. Bhat, MD, Philadelphia, PA  
Danielle Y. Ponzio, MD, Philadelphia, PA  
James J. Purtill, MD, Philadelphia, PA

Use of pneumatic compression devices after total joint arthroplasty results in no significant reduction pulmonary embolism rates, but incurs an annual excess economic burden of nearly $200 million.

**Discussion – 6 Minutes**

3:06 PM  PAPER: 868

**Orthopaedic Surgeons Rank Low in Total Medicare Payments**
Daniel Belatti, Iowa City, IA  
Andrew J. Pugely, MD, Iowa City, IA  
Phinit Phisitkul, MD, Iowa City, IA  
Annunziato Amendola, MD, Iowa City, IA  
John J. Callaghan, MD, Iowa City, IA

Although orthopedic surgery is often pegged as a major driver of Medicare spending, the average orthopedic surgeon received just $104,085 from Medicare in 2012.

3:12 PM  PAPER: 869

**The Effect of A Night Float Call System on Resident Fatigue, Cognition, and Motor Function**
Daniel Banaszek, MD, Kingston, ON, Canada  
Mark M. Harrison, MD, Kingston, ON, Canada

Our study aims to objectively measure the impact of a novel night float as compared to traditional overnight call on fatigue, cognitive, and motor function in residents at a tertiary care centre.

3:18 PM  PAPER: 870

**Professionalism, Social Media, and the Orthopaedic Surgeon: What Do You Have on the Internet?**
Trevor R. Call, DO, Las Vegas, NV  
Ronald W. Hillock, MD, Las Vegas, NV

This study observes Internet postings of 1,022 Orthopaedic Surgeons. Specifically, Social Media and other professional venues were evaluated for content and any breaches in professionalism.

**Discussion – 6 Minutes**

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Friday, March 27

SYMPOSIUM
4:00 PM — 6:00 PM
Room 2201

Shoulder Surgery, Getting It Right! An ARS Symposium (EE)
Moderator: Kevin D. Plancher, MD, MS, New York, NY

Leading shoulder experts debate four controversial topics with clinical presentation and didactic lecture supporting proper management. Participants learn best treatment of common shoulder problems to treat their own patients successfully.

I. 2. Anterior Instability Following First Dislocation in a 23-Year-Old Collegiate Football Player - Arthroscopic Technique
   Felix H. Savoie, MD, New Orleans, LA

II. 2. Anterior Instability Following First Dislocation in a 23-Year-Old Collegiate Football Player - Open Stabilization
    Russell F. Warren, MD, New York, NY

III. 3. Full Thickness Re-Tear of a Previously Repaired Large Rotator Cuff Tear in a 65-Year-Old - Repair Again
     Brian J. Cole, MD, MBA, Chicago, IL

IV. 3. Full Thickness Re-Tear of a Previously Repaired Large Rotator Cuff Tear in a 65-Year-Old - Reverse Shoulder Arthroplasty
   Edward V. Craig, MD, New York, NY

V. 3. Full Thickness Re-Tear of a Previously Repaired Large Rotator Cuff Tear in a 65-Year-Old - Rehabilitation Don’t Fix It
   John E. Kuhn, MD, Nashville, TN

VI. 4.37-Year-Old Tennis Player with Pain on Overhead Serving - Biceps Tenodesis to Fix the SLAP
    Robert T. Burks, MD, Salt Lake City, UT

VII. 4.37-Year-Old Tennis Player with Pain on Overhead Serving - Arthroscopic Repair of SLAP Tear
     Anthony A. Romeo, MD, Chicago, IL

VIII. 5. Posterior Shoulder Atrophy in a 21-Year-Old Competitive Swimmer - Release of the Suprascapular Nerve
      Kevin D. Plancher, MD, MS, New York, NY

IX. 5. Posterior Shoulder Atrophy in a 21-Year-Old Competitive Swimmer - Therapy and Leave It Alone
    Scott P. Steinmann, MD, Rochester, MN

INSTRUCTIONAL COURSE LECTURE
3:00 PM — 4:00 PM

FD27 Cross Cultural Patient Communication
Moderator: Hassan R. Mir, MD, Nashville, TN
Room 4501

Successful cross cultural patient communication is important. This course reviews words that should not be used and those words that work best, as well as offers ways to improve your non-verbal body language.

4:30 PM — 5:30 PM

FD28 Marketing Yourself and Your Practice
Moderator: Bill Champion, Omaha, NE
Tony Edwards, Omaha, NE
Room 4501

This course lays out best practices in measurement, strategy, and execution to drive more of the right patient volume to your practice. It also provides some of the latest research in social media, advertising, interactive, and traditional marketing strategies specifically for orthopaedic providers.

4:00 PM — 6:00 PM

461 The Pre-Arthritic Hip in the Young, Active Patient:
How Do You Approach It? Scope vs. Open, Acetabulum or Femur: A Case-Based ICL
Moderator: Marc Safran, MD, Redwood City, CA
J. W. Thomas Byrd, MD, Nashville, TN
John C. Clohisy, MD, Saint Louis, MO
Michael Leunig, PhD, Zurich, Switzerland
Venetian Ballroom G

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.

462 Revision Total Knee Arthroplasty: Planning and Performance (Video Technique)
Moderator: Javad Parsvizi, MD, FRCS, Philadelphia, PA
Robert L. Barrack, MD, Saint Louis, MO
Michael Dunbar, MD, Halifax, NS, Canada
Emmanuel Thienpont, MD, Asse, Belgium
Venetian Ballroom I

This course addresses the issue of major bone deficiency during knee revision surgery. Options for handling this problem are discussed.

* 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 27

463  Osteotomy and Arthrodesis of the Forefoot and Hindfoot
   Moderator: Simon Lee, MD, Chicago, IL
   Kenneth Hunt, MD, Redwood City, CA
   Todd A. Irwin, MD, Ann Arbor, MI
   Jeremy J. McCormick, MD, Saint Louis, MO
   Phinit Phisitkul, MD, Iowa City, IA
   This course reviews common surgical techniques for correction of hallux valgus and hindfoot arthrodesis.

464  Current Perspectives in Distal Radius Fixation
   Moderator: Charles S. Day, MD, MBA, Boston, MA
   Ryan P. Calfee, MD, Saint Louis, MO
   Abhinav B. Chhabra, MD, Keswick, VA
   Jeffrey Yao, MD, Redwood City, CA
   This course offers an introduction and historical perspective about plate fixation – where’s the evidence? Are there still viable alternatives to plate fixation? Complications, including iatrogenic, soft tissue, and osseous, are covered.

465  Pediatric Sports Medicine Operative Challenges and Solutions: A Case-Based Approach
   Moderator: Mininder S. Kocher, MD, MPH, Boston, MA
   Donald S. Bae, MD, Boston, MA
   Theodore J. Ganley, MD, Philadelphia, PA
   Eric J. Wall, MD, Cincinnati, OH
   With a case-based interactive format with expert faculty, this course covers hot topics in pediatric sports medicine from the shoulder to the foot.

466  Getting Ready for ICD-10 and Meaningful Use Stage 2
   Moderator: Jack M. Bert, MD, Woodbury, MN
   William R. Beach, MD, Richmond, VA
   Louis F. McIntyre, MD, White Plains, NY
   Ranjan Sachdev, MD, Bethlehem, PA
   This course examines the financial and operational impact ICD-10 and meaningful use stage 2 regulations have on orthopaedic practices. The organization of ICD-10, cross walk from ICD-9 to ICD-10, and steps needed for successful conversion are discussed. Significant changes proposed in meaningful use 2 regulations and compliance risks posed by these regulations also are covered.

467  Proximal Humerus Fractures: Treatment Considerations and Technical Pearls
   Moderator: James C. Krieg, MD, Philadelphia, PA
   Joseph A. Abboud, MD, Philadelphia, PA
   Michael J. Gardner, MD, Saint Louis, MO
   Charles L. Getz, MD, Newtown Square, PA
   The focus of this course is to provide 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 reverse arthroplasty of the shoulder.

468  Reverse Total Shoulder Arthroplasty for Management of Acute Fracture and the Sequelae of Proximal Humeral Fractures
   Moderator: Joseph P. Iannotti, MD, PhD, Cleveland, OH
   Anders L. Ekelund, MD, Stockholm, Sweden
   Ludwig Seebauer, MD, Forstinning, Germany
   Jon J. P. Warner, MD, Boston, MA
   This course deals both with controversies and surgical techniques, and covers tips and pearls associated with the use of reverse total shoulder replacement for a complex set of problems associated with trauma to shoulder.

469  Avoiding and Managing Complications in Cervical Spine Surgery
   Moderator: Joon Y. Lee, MD, Pittsburgh, PA
   Darrel S. Brodke, MD, Salt Lake City, UT
   Moe R. Lim, MD, Chapel Hill, NC
   Jeffrey A. Rihn, MD, Media, PA
   Management of common complications such as dysphasia and dysphonia and more complex ones such as vertebral artery injuries, adjacent level disease, inadequate decompression, and fusion related complications are discussed.

470  The Management of Meniscal Pathology: From Partial Meniscectomy to Transplantation
   Moderator: Laith M. Jazrawi, MD, New York, NY
   Philip A. Davidson, MD, Park City, UT
   James N. Gladstone, MD, New York, NY
   Eric J. Strauss, MD, New York, NY
   This course provides a focused consolidation of expert lectures on current diagnoses and management of meniscus pathology and treatment.
Friday, March 27

471  Knee MLI Injuries: A Case-Based Approach
Moderator: Darren L. Johnson, MD, Lexington, KY
Robert F. LaPrade, MD, PhD, Vail, CO
Robert C. Schenck, Jr, MD, Albuquerque, NM
Michael J. Stuart, MD, Rochester, MN

Knee multiple ligament injury cases are presented and discussed between the faculty and the attendees.

472  Complex Trauma to Shoulder Girdle Including Clavicle, Scapula, and Proximal Humerus: Current Concepts in Diagnosis and Treatment
Moderator: Mark A. Mighell, MD, Tampa, FL
Sumant G. Krishnan, MD, Dallas, TX
Roy W. Sanders, MD, Tampa, FL
J. Tracy Watson, MD, Saint Louis, MO

Current concepts in treatment of acute and chronic trauma to the shoulder girdle, including the clavicle, scapula, and proximal humerus, are presented comprehensively.

473  Humeral Shaft Fractures: Is Nonoperative Treatment Still an Option?
Moderator: Amer J. Mirza, MD, Portland, OR
Erik Kubuak, MD, Salt Lake City, UT
Samin Mehta, MD, Philadelphia, PA
Matthew D. McElvany, MD, MS, Santa Rosa, CA

This course helps you identify which humeral shaft fractures benefit from operative stabilization. The optimum techniques for managing these fractures and their complications are detailed.

PAPER PRESENTATION

4:00 PM — 6:00 PM Venetian Ballroom B

Adult Reconstruction Hip VIII: Metal Issues
Moderator(s): Scott M. Spover, MD, Wheaton, IL
James D. Slover, MD, New York, NY

4:00 PM  PAPER: 871

Influence of Stem Type on Material Loss at the Taper of the Most Commonly Used Metal-on-Metal Hip in the United States
Harry Holtby, BEng, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Jayanthilal M. Meswania, PhD, Stanmore, Middlesex, United Kingdom
Kevin Ilo, MBBS, London, United Kingdom
Antti Eskelinen, MD, PhD, Tampere, Finland
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alistair Hart, FRCS, London, United Kingdom

We quantified material loss at the taper of 146 retrieved metal hips. We report four distinct patterns of material loss, each with there own mechanism, which help to explain elevated metal ions.

4:06 PM  PAPER: 872

Metal-on-Metal Total Hip Arthroplasty: Does Increasing Modularity Effect Clinical Outcome?
Kevin Ilo, MBBS, London, United Kingdom
Harry Holtby, BEng, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Harry Krishnan, MMBS, Middlesex, United Kingdom
Asaad M. Asaad, MD, MSc, MRCS, London, United Kingdom
Reshd Berber, MBBS, BSc, St Albans, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alistair Hart, FRCS, London, United Kingdom

Pseudotumour incidence is increased with modular implants, when compared to resurfacing implants with the same bearing surface.

4:12 PM  PAPER: 873

Corrosion of the Morse Taper Results in a Higher Rate of Revision for a Broach Only Tapered Stem in Primary THA
Carl T. Talmo, MD, Boston, MA
Daniel M. Ward, MD, Chestnut Hill, MA
Claire E. Robbins, PT, DPT, Franklin, MA
Mehrav Aghazadeh, MD, Newton, MA
Benjamin E. Bierbaum, MD, Chestnut Hill, MA
James V. Bono, MD, Boston, MA

A review of 3741 THA demonstrated a higher incidence of revision for corrosion and adverse tissue reaction in tapered broach only stems when compared to ream-broach stems.

Discussion – 6 Minutes

4:24 PM  PAPER: 874

Characterizing Taper Junction Wear Helps Understand the Mechanism of Failure of Metal on Metal Hip Replacements
Andreas C. Panagiotopoulos, Leicester, United Kingdom
Harry Holtby, BEng, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Jayanthilal M. Meswania, PhD, Stanmore, Middlesex, United Kingdom
Paul J. Bills, PhD, MSc, Huddersfield, United Kingdom
Radu Racasan, PhD, Huddersfield, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alistair Hart, FRCS, London, United Kingdom

We quantified material loss at the taper of 146 retrieved metal hips. We report four distinct patterns of material loss, each with there own mechanism, which help to explain elevated metal ions.

* 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 27

4:30 PM
PAPER: 875
**Corrosion of Metal Modular Cup Liners**
Kevin Ilo, MBBS, BS, London, United Kingdom
Harry Hothi, BEng, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Reshid Berber, MBBS, BSc, St Albans, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom

Retrieval analysis of metal modular cup liners found evidence of localized surface corrosion which may be a source of blood metal ions. The severity of corrosion may be implant design specific.

4:36 PM
PAPER: 876
**Can Metal Levels be Measured at Community Laboratory?**
Phonthakorn Panichkul, MD, Springfield, VA
Henry Ho, MSc, Alexandria, VA
Robert Hopper, PhD, Alexandria, VA
C. Anderson Engb Jr, MD, Arlington, VA

Metal level values measured by community laboratories are similar to the values obtained in a reference laboratory. Serum cobalt and chromium levels can be reliably measured in a community laboratory.

Discussion – 6 Minutes

4:48 PM
PAPER: 877
**Follow Up of Metal-on-Metal Hip Arthroplasty Patients: The Utility of Repeat Ultrasound Scanning**
Guilraj Matharu, BSc, Birmingham, United Kingdom
Seema Janardhan, MBBS, Bangalore, India
Lesley Brash, MSc, RN, Birmingham, United Kingdom
Paul Pynsent, PhD, Birmingham, United Kingdom
David J. Dunlop, MD, Stourbridge, United Kingdom
Steven James, MD, Birmingham, United Kingdom

Regular surveillance of MoMHA patients is recommended with repeat ultrasound imaging providing an effective investigation for identifying progression of periprosthetic effusions and pseudotumours.

Discussion – 6 Minutes

4:54 PM
PAPER: 878
**Revision Risk of Cementless Metal-on-Metal Total Hip Arthroplasty is Influenced by Component Design**
Claus Varnum, MD, Vejle, Denmark
Alma B. Pedersen, MD, Risskov, Denmark
Keijo Makela, MD, Turku, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland
Johan N. Karrholm, MD, Molndal, Sweden
Goran Garellick, MD, PhD, Goteborg, Sweden
Leif I. Havelin, MD, Bergen, Norway
Ove N. Furnes, MD, Bergen, Norway
Soren Overgaard, MD, Odense C, Denmark

Register data from four Nordic countries showed that the relative risk for any revision of cementless, stemmed metal-on-metal total hip arthroplasty was 1.49 (CI: 1.30-1.71) at six years follow-up.

5:00 PM
PAPER: 879
**The Prevalence of Positive Findings on MARS MRI in Metal on Metal Total Hip Arthroplasty**
Jeremy Gililland, MD, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT
Mike Anderson, MS, ATC, Salt Lake City, UT
Christopher E. Pelt, MD, Salt Lake City, UT

Surgeons should consider all factors, including symptoms, component positioning, implant track record, metal ions and advanced imaging findings, when deciding to revise a MOM THA.

Discussion – 6 Minutes

5:12 PM
PAPER: 880
**Cobalt to Chromium Ratio is Not a Key Marker for ALTR In Metal-on-Metal Hips**
Thomas K. Fehring, MD, Charlotte, NC
Susan M. Odum, PhD, Charlotte, NC
William L. Griffin, MD, Charlotte, NC

In a series of 89 MoM revision hips, the Co to Cr ratio did not correlate with ALTR and therefore the ratio is not a predictive biomarker for MoM bearing malfunction or ALTR.

5:18 PM
PAPER: 881
**Adverse Local Tissue Reactions in Asymptomatic Modular Metal-on-Metal Total Hips Decrease Over Time**
Thomas K. Fehring, MD, Charlotte, NC
Jeffrey M. Goldstein, MD, Buffalo Grove, IL

Given the benign natural history of asymptomatic ALTR observed, we recommend vigilance but can not recommend routine MRI imaging in patients with modular metal-on-metal implants with low ion levels.
5:24 PM  PAPER: 882
Metal Ion Levels and Clinical Outcomes of Ceramic-on-Metal Total Hip Arthroplasty
Kwang Woo Nam, MD, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Guoan Li, PhD, Boston, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Dimitris Dimitrou, MD, Cambridge, MA
Hee J. Kim, MD, Seoul, Republic of Korea
Sang-Rim Kim, MD, Jeju
Sung Wook Choi, Prof, Jeju
Ji-Hoon Bae, Ansan

The metal ion levels and clinical results of ceramic-on-metal total hip arthroplasty were comparable with ceramic-on-ceramic total hip arthroplasty.

Discussion – 6 Minutes

5:36 PM  PAPER: 883
Contemporary Tapers in Total Hip Replacement - Cause for Concern?
Tim Brock, MBChB, BSc, Newcastle Upon Tyne, United Kingdom
Raghabendra P. Sidaginamale, Stockton On Tees, United Kingdom
Antoni Nargol, MD, PhD, Silver Spring, MD
Christina Savisaar, PhD, Silver Spring, MD
Thomas Joyce, PhD, Newcastle Upon Tyne, United Kingdom
David Deehan, MD, Silver Spring, MD
James Lord, PhD, San Luis Obispo, CA

Pre-clinical evaluation protocols that mimic wear phenomena at explantation are required to understand the impact and interaction of manufacturing design variables shown to influence taper failure.

Discussion – 6 Minutes

5:42 PM  PAPER: 884
Effect of Impact Assembly on the Interface Deformation and Fretting Corrosion of Modular Hip Tapers: An In Vitro Study
Anna Panagiotidou, MBBS, London, United Kingdom
Timothy E. Cobb, Epsom, Surrey, United Kingdom
Jayantilal M. Meswania, PhD, Stanmore, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom

The clinical implication of this study is that, for implants currently produced by manufacturers, surgeons should apply a greater impact assembly force than is used at present.

Discussion – 6 Minutes

5:48 PM  PAPER: 885
Short-term Metal Ion Trends Following Removal of Recalled Modular Neck Femoral Stems
Joseph Assini, MD, FRCSC, New York, NY
John Boles, BS, New York, NY
Geoffrey H. Westrich, MD, New York, NY

We examined the trend of metal ions in patients undergoing revision of a recalled modular femoral prosthesis. Metal ions dropped precipitously with removal of the stem.

Discussion – 6 Minutes
Friday, March 27

4:12 PM  PAPER: 888
Influence of Obesity on Revision and Infection Rates after Primary Total Knee Arthroplasty
Matthieu Zingg, MD, Geneva, Switzerland
Hermes Moszjarz, MD, Geneva, Switzerland
Ilker Uçkay, M.D., Geneva, Switzerland
Daniel Fritschi, MD, MEYRIN, Switzerland
Pierre J. Hoffmeyer, MD, Geneve, Switzerland
Anne Lübbecke-Wolff, MD, DSc, Geneva 14, Switzerland

This prospective study including 2'800 TKAs followed-up for 6 years demonstrated that BMI ≥ 35 was associated with higher rates of revision and infection. The effect was stronger in men than in women.

Discussion – 6 Minutes

4:24 PM  PAPER: 889
Inpatient Mortality and Morbidity for Dialysis Patients Undergoing a Primary Total Knee Arthroplasty
Karthikeyan E. Ponnusamy, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Savyasachi C. Thakkar, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khanuja, MD, Cockeysville, MD

Patients on dialysis undergoing a primary knee arthroplasty have significantly greater mortality (4.37% vs 0.1%) and complication rates during the initial hospitalization for arthroplasty.

4:30 PM  PAPER: 890
Prospective Comparison of Blood Culture Bottles to Swabs for Microbial Detection in Periprosthetic Joint Infection
Jeffrey A. Geller, MD, New York, NY
Katherine Maccallum, BA, Brooklyn, NY
David A. Patrick Jr, BS, New York, NY
Barthelemy Liabaud, New York, NY
Venkata K. Jonna, MD, Jersey City, NJ

This study showed that the use of blood culture bottles significantly increased pathogenic microorganisms identification in lower extremity periprosthetic joint infection compared to culture swabs.

Discussion – 6 Minutes

4:36 PM  PAPER: 891
Timing of Airflow Activation Impacts Contamination from Filtered-Exhaust Helmets for Arthroplasty Surgery
Andrew Hanselman, MD, Morgantown, WV
Michael Montague, MD, Morgantown, WV
Timothy R. Murphy, MD, Pittsburgh, PA
Matthew J. Dietz, MD, Morgantown, WV

There is an increased risk of contamination when a filtered-exhaust helmet's airflow system is activated prior to surgical gowning.

Discussion – 6 Minutes

4:48 PM  PAPER: 892
Disclosing Agents for the Intraoperative Identification of Occult Biofilms on Orthopaedic Implants
Joshua A. Parry, MD, Rochester, MN
Melissa J. Karau, BS, Rochester, MN
Robin Patel, MD, Rochester, MN

Methylene blue stains biofilm on polyethylene liners, cement discs, and Teflon discs. Staining did not interfere with sonication and culture of the bacteria.

4:54 PM  PAPER: 893
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
Jared Niska, MD, Los Angeles, CA
Madeline Yung, BS, Los Angeles, CA
Fabrizio Billi, PhD, Los Angeles, CA
Lloyd Miller, MD, PhD, Baltimore, MD
Tatiana Segura, PhD, Los Angeles, CA
Nicholas Bernthal, MD, Venice, CA

Antibiotic implant coatings such as the one tested in this study are a promising approach to preventing periprosthetic infection. Further studies in larger animals and human subjects are needed.

5:00 PM  PAPER: 894
Combined Use of 16S rRNA RT-qPCR and Biofilm Dispersal Agents to Improve Diagnosis of Periprosthetic Joint Infection
Adam Rothenberg, MD, Pittsburgh, PA
Peter G. Alexander, PhD, Pittsburgh, PA
Rocky S. Tuan, PhD, Pittsburgh, PA

Accurate diagnosis of periprosthetic joint infection can be improved using biofilm dispersal agents and reverse transcriptase quantitative polymerase chain reaction of bacterial 16S ribosomal RNA.

Discussion – 6 Minutes

5:12 PM  PAPER: 895
Irrigation and Debridement Prior to a Two-Stage Revision TKA Does Not Increase Risk of Failure
Olubusola Brimmo, MD, Columbia, MO
Nicholas K. Schiltz, BS, Cleveland, OH
Aiswarya Chandran Pillai, MD, MS, Seattle, WA
Alison K. Klika, MS, Cleveland, OH
Caleb Szubski, BA, Cleveland, OH
Siran M. Koroukian, PhD, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH

Patients who had an I&D prior to two-stage rTKA for infection did not have an increased failure rate, defined as need for surgery following the revision for infection-related reasons.

An alphabetical faculty financial disclosure list can be found starting on page 332.
Total Knee Arthroplasty in Hepatitis-C Patients: Evaluation of 23,338 Patients in Nationwide Inpatient Database  
Kimona Issa, MD, Wayne, NJ  
Qais Naziri, MD, Brooklyn, NY  
Matthew R. Boylan, Brooklyn, NY  
Dean C. Perfetti, BA, Brooklyn, NY  
Michael A. Mont, MD, Baltimore, MD

Total knee arthroplasty in hepatitis-C infected patients may be associated with more perioperative complications and a higher incidence of knee osteonecrosis.

Comparison of In Vivo Polyethylene Wear Particles Between Mobile- and Fixed-bearing TKA in the Same Patients  
Yukihide Minoda, MD, Osaka, Japan  
Kanako Hata, BS, Osaka, Japan  
Shigekazu Mizokata, MD, PhD, Osaka, Japan  
Yoichi Ohta, MD, Osaka, Japan  
Mitsuhiko Ikebuchi, MD, Abeno-ku Osaka, Japan  
Maki Ito, MD, Osaka, Japan  
Kazumasa Yamamura, MD, Osaka City Osaka, Japan  
Suguru Nakamura, MD, Osaka-city, Osaka, Japan  
Hiroaki Nakamura, MD, Osaka, Japan

We compared the characteristics of in vivo polyethylene wear particles between mobile-bearing and fixed-bearing in bilateral TKA. There was no statistical difference between two groups.

Tibial Insert Retrievals Allow Comparison of Wear and Oxidation in Conventional and Highly Cross-linked UHMWPE  
Barbara H. Currier, MChE, Hanover, NH  
John H. Currier, MS, Hanover, NH  
Michael B. Mayor, MD, Hanover, NH  
Rayna Levine, BA, Hanover, NH  
John P. Collier, DE, Hanover, NH  
Douglas Van Cutters, PhD, Hanover, NH

Retrieved HXL and conventional UHMWPE inserts paired with rough trays showed no significant difference in the measurable performance of the materials.

Outpatient Total Joint Arthroplasty Leads to a Substantial Burden of Telephone Calls for the Surgeon  
Roshan P. Shah, MD, JD, New York, NY  
Darren R. Plummer, MBA, Chicago, IL  
Sheila Sanders, BSN, Hickory Hills, IL  
Richard A. Berger, MD, Chicago, IL

There were 148 telephone calls during the first 7 days of care for 57 patients.

Autogenous Iliac Crest Bone Grafting Revisited: The Most Reliable Solution for Tibial Non-unions  
David P. Taormina, MS, New York, NY  
Sanjit R. Konda, MD, Closter, NJ  
Roy Davidovitch, MD, New York, NY  
Kenneth A. Egol, MD, New York, NY

Autogenous iliac crest bone grafting is the most effective intervention in the management of persistent tibial nonunions regardless of approach.

Intramedullary Bone Graft Harvest using Reamer Irrigation Aspiration System  
Amr A. Abdelgawad, MD, El Paso, TX  
Enes M. Kanlic, MD, El Paso, TX  
Brian Waterman, MD, El Paso, TX

This study presents the clinical results of RIA as a method to harvest bone graft. Fracture of the host bone is a possible complication after this method especially for tibial RIA.
Friday, March 27

4:12 PM  PAPER: 903
Treatment of Bone Non-unions with Microsurgical Corticoperiosteal Flap from the Medial Femoral Condyle
Matteo Guzzini, MD, Rome, Italy
Cristina Dominello, MD, Rome, Italy
Daniele Paravani, MD, Rome, Italy
Carolina Civitenga, MD, Rome, Italy
Marco Guidi, MD, Capena, Italy
Andrea Ferretti, MD, Rome, Italy
Corticoperiosteal flap provide high success rate in the treatment of bone nonunion due to its good osteogenic capacity and vascularization with minimal morbidity of the donor site.

4:24 PM  PAPER: 904
Hip Arthroplasty for Failed Treatment of Intertrochanteric Hip Fractures
Brandon J. Yuan, MD, Rochester, MN
Matthew P. Abdel, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
Conversion of failed intertrochanteric fracture fixation to hip arthroplasty is associated with excellent short-term survivorship and equal complication rates regardless of prior fixation technique.

4:30 PM  PAPER: 905
Valgus Intertrochanteric Osteotomy - Percutaneous Technique with Locked Nailing
Alexander Chelnokov, MD, Ekaterinburg, Russian Federation
Artem Shalin, MD, Ekaterinburg, Russian Federation
A technique of percutaneous valgus intertrochanteric osteotomy with closed intramedullary nailing was introduced.

4:36 PM  PAPER: 906
Magnetically-Driven, Telescopic, Intramedullary Lengthening Nail: Pre-clinical Testing and First 30 Patients
Pablo Wagner, MD, Santiago, Chile
Rolf D. Burghardt, MD, Hamburg, Germany
Stuart A. Green, MD, Los Alamitos, CA
Stacy C. Specht, MPA, Baltimore, MD
Shawn C. Standard, MD, Baltimore, MD
John E. Herzenberg, MD, Baltimore, MD
Limb lengthening with an implantable rod is feasible and prevents the problems of pin tract infections and tethering of muscles; however, the underlying challenges of limb lengthening still exist.

4:48 PM  PAPER: 907
The Gustilo-Anderson Classification System as Predictor of Nonunion and Infection in Open Tibia Fractures
Rachel V. Thakore, BS, Nashville, TN
Elvis L. Francois, Nashville, TN
Michael Siuta, Nashville, TN
Anne K. Smith, Nashville, TN
Samuel Nwosu, MS, Nashville, TN
Kristin Archer, PhD, Nashville, TN
Jesse Ehrenfeld, MD, MPH, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN
This study, which is the largest analysis of open tibia fractures to date, determined that the Gustilo Grade of open tibia fractures is by far the greatest predictor of nonunion and infection.

4:54 PM  PAPER: 908
Posttraumatic Tibial Defects Treated by the Ilizarov Method: Comparison of Classic Versus Integrated Technique
Mitchell Bernstein, MD, Chicago, IL
Austin T. Fragomen, MD, New York, NY
Samir Sabharwal, BA, Chatham, NJ
Jonathan Barclay, New York, NY
S. Robert Rozbruch, MD, New York, NY
Limb salvage for posttraumatic tibial bone defects can be successfully performed with distraction osteogenesis with the classic or integrated fixation method.

5:00 PM  PAPER: 909
Distraction Histogenesis for Infected Non-unions of Long Bones using Rail Road Fixator - LRS
Rakesh Sharma, M.S. Orthopaedics, Amritsar, India
Distraction Histogenesis using Rail Road Fixator by LRS in infected non-unions of long bones is a simple & effective procedure with lesser complication and an easy learning curve for the surgeons.

5:12 PM  PAPER: 910
An Osseointegrated Percutaneous Prosthetic System for Treatment of Transfemoral Amputees
Orjan K. Berlin, MD, Goteborg, Sweden
Rickard Branemark, MD, PhD, Gothenburg, Sweden
The first prospective study on bone-anchored amputation prostheses in transfemoral amputees was recently published (BJ J 2014;96-B:106-113). We report on the continuous results of this technique.
Friday, March 27

5:18 PM  PAPER: 911
Implant Survival, Adverse Events, and Bone Remodeling of Osseointegrated Implants for Transhumeral Amputees
Georgios Tsikandylakis, Gothenburg, Sweden
Orjan K. Berlin, MD, Goteborg, Sweden
Rickard Branemark, MD, Gothenburg, Sweden
A retrospective study reporting on implant survival adverse events and radiological signs of bone remodeling in transhumeral amputees treated with osseointegrated percutaneous prosthesis.

5:24 PM  PAPER: 912
The Effectiveness of Osseo-integrated Prosthesis Compared with Socket Prosthesis after Transfemoral Amputation
Jak Paul M. Frolke, FRACS, Nijmegen, Netherlands
Henk Van De Meent, MD, Nijmegen, Netherlands
Munjed Al Muderis, MB, Bella Vista, Australia
The effectiveness of osseo-integrated prosthesis compared with socket prosthesis after transfemoral amputation.

5:36 PM  PAPER: 913
Complications after Clavicle Fracture ORIF: Plate vs. First & Second Generation Intramedullary Fixation
Carl J. Basamania, MD, Edmonds, WA
Terry L. Whipple, MD, Richmond, VA
Device specific instrumentation to ease preparation of the medial clavicle to a necessary 50mm depth significantly reduced the removal rate and improved survivorship of a hybrid IM fixation device.

5:42 PM  PAPER: 914
Incidence of Iatrogenic Radial Nerve Palsy Following ORIF of Humeral Shaft Nonunion
Rafael Kakazu, MD, MS, Cincinnati, OH
Steven K. Dailey, MD, Cincinnati, OH
John D. Wyrick, MD, Cincinnati, OH
Michael T. Archdeacon, MD, Cincinnati, OH
The incidence of radial nerve palsy following ORIF of humeral shaft nonunions is 22%, which is approximately three times higher than historical data for ORIF of acute humeral shaft fractures.

5:48 PM  PAPER: 915
Reverse Shoulder Arthroplasty for Chronic Fracture Deformity
Steven J. Hattrup, MD, Phoenix, AZ
Robert Waldrop, MD, Phoenix, AZ
Joaquin Sanchez-Sotelo, M.D., Ph.D, Rochester, MN
The reconstruction of the deformed proximal humerus with RSA is complex, often requiring advanced surgical techniques, however satisfactory results can be achieved in most patients.

5:54 PM  PAPER: 916
Antibiotic Implant Coatings Prevent Staphylococcus aureus Infection in an Open Fracture Animal Model
Jared Niska, MD, Los Angeles, CA
Suwei Zhu, PhD, Los Angeles, CA
Alexandra Stavrakis, MD, Los Angeles, CA
Amanda Loftin, Santa Monica, CA
Jonathan Shabbazian, Baltimore, MD
Lloyd Miller, MD, PhD, Baltimore, MD
Tatiana Segura, PhD, Los Angeles, CA
Nicholas Bernthal, MD, Venice, CA
This novel open fracture mouse model can be used as a powerful in vivo preclinical tool to evaluate and optimize the treatment of open fractures before further studies in humans.

* 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.
Orthopaedic Video Theater presents peer reviewed videos and media programs developed and produced by your colleagues. Here you are able to observe and study the very latest in orthopaedic surgical technique. Discover leading edge devices as well as new techniques and technologies in a wide range of orthopaedic specialties. Strengthen your knowledge of surgical anatomy, exposures, treatments, and more.

Also, make plans to attend the Feature Presentation Theater, an intimate setting where you can meet video authors, view programs as part of the live audience, and participate in question and answer sessions.

A complete listing of the Feature Presentation Theater programs is listed beginning on page 244.

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

**ADULT RECONSTRUCTION HIP**

**OVT10** ................................................................. **Station 6**

Two Techniques for Removal of a Recalled, Well Fixed, Dual Tapered, Modular Neck Femoral Stem

Mitchell Weiser, MD, New York, NY
Darwin Chen, MD, New York, NY

In this video, we present two surgical techniques for removal of a recalled, well fixed, dual tapered, modular neck femoral stem.

(Product no. V15010, 15 mins.)

**OVT11** ................................................................. **Station 7**

Modified Posterior Approach with Flap Osteotomy of Quadratus Femoris Bony Insertion in Total Hip Arthroplasty

Weon-Yoo Kim, MD, PhD, Daejeon, Republic of Korea
Se Won Lee, MD, Daejeon, Republic of Korea
Jae-Jung Jeong, MD, Daejeon, Republic of Korea

We present a novel modification of posterior approach through the gap made by the flap osteotomy of the quadratus femoris bony insertion, which do not need the dissection of short external rotator muscles at all.

(Product no. V15011, 10 mins.)

**OVT12** **Station 6**

The Direct Superior Approach, A Less Invasive Surgical Technique for Total Hip Arthroplasty

Douglas J. Roger, MD, Palm Springs, CA
Anthony Hedley, MD, Phoenix, AZ

The Direct Superior Approach (DSA) to Total Hip Arthroplasty is a minimally invasive, rotator preserving, and iliotibial band preserving surgical technique for primary Total Hip Arthroplasty.

(Product no. V15012, 18 mins.)

**OVT13** ................................................................. **Station 7**

Exposure and Capsular Management in Anterior Total Hip Arthroplasty

J.B. Mason, MD, Charlotte, NC
Jonathan Salava, MD, Huntington, WV
Jacob M. Drew, MD, Charleston, SC

This video demonstrates the direct anterior (DA) approach for total hip arthroplasty (THA) using novel techniques to allow safe exposure of the femur and meticulous preservation of the hip capsule.

(Product no. V15013, 17 mins.)

**OVT14** ................................................................. **Station 8**

Unicompartmental Knee Arthroplasty Revision under Navigation System

Han-Jun Lee, MD, Seoul, Republic of Korea
Sang-Min Park, MD, Seoul, Republic of Korea
Young-Bong Ko, MD, Seoul, Republic of Korea
Kwak Yoon-Ho, MD, Seoul, Republic of Korea

With appropriate surgical technique, the navigation assisted revision UKA to TKA technique provides reliable preoperative information, minimal bone cuts, an ideal joint line and limb alignment, less invasive implants and soft tissue balancing.

(Product no. V15014, 9 mins.)

**OVT15** ................................................................. **Station 9**

Arthroscopic Lysis of Adhesions for the Stiff Total Knee Arthroplasty

Jerome Enad, MD, Pensacola, FL

Arthroscopic lysis of adhesions is an effective method to treat the stiff knee after total knee arthroplasty.

(Product no. V15015, 10 mins.)

**OVT16** ................................................................. **Station 10**

Total Knee Arthroplasty Using Whole Limb Mechanical Axis

Jai-gon Seo, Prof, Seoul, Republic of Korea
Young-Wan Moon, MD, Seoul, Republic of Korea
Moon Jong Chang, MD, Seoul, Republic of Korea

Accurate total knee arthroplasty, in terms of limb and rotational alignments, can be performed using the whole limb mechanical axis.

(Product no. V15016, 12 mins.)

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An alphabetical faculty financial disclosure list can be found starting on page 332.
OVT17.................................................. Station 11
Restoring the Natural Joint Lines & Knee Laxities Restores High Satisfaction in Kinematically Aligned TKA
Stephen M. Howell, MD, Sacramento, CA
Joshua D. Roth, Graduate Student, Davis, CA
Harold G. Dossett, MD, Scottsdale, AZ
Maury L. Hull, PhD, Davis, CA

This video concerning total knee arthroplasty justifies the importance of restoring the natural joint lines in TKA.
(Product no. V15017, 16 mins.)

OVT18.................................................. Station 8
Rationale and Reliability of Setting I/E Component Rotation and Restoring Function in Kinematically Aligned TKA
Stephen M. Howell, MD, Sacramento, CA
Alexander J. Nedopil, MD, Sacramento, CA
Maury L. Hull, PhD, Davis, CA

This video concerning total knee arthroplasty (TKA): 1) justifies the importance of restoring the natural joint lines in TKA, 2) shows the concept of creating equal laxities at 0 and 90 degrees of flexion to balance a TKA has little support, 3) presents the surgical technique for kinematically aligning (KA) a TKA that restores natural joint lines and knee laxities, and 4) reviews a Level I study that showed KA TKA provides higher satisfaction than mechanically aligned (MA) TKA.
(Product no. V15018, 13 mins.)

OVT19.................................................. Station 9
Navigated Total Knee Replacement with Robotic Assistance: A Surgical Technique Video
Jan A. Koenig, MD, Dix Hills, NY
Timothy Lozier, PA-C, Garden City, NY

This video introduces the viewer to the ease and benefits of computer and robotically assisted total knee replacement. A novel navigated measured resection technique with hybrid femur first navigated soft tissue balancing is shown and validated.
(Product no. V15019, 18 mins.)

OVT20.................................................. Station 10
Posterior Stabilized Total Knee Arthroplasty: Surgical Technique
Cesare Faldini, MD, Bologna, Italy
Francesco Traina, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Mohamadreza Chehrassan, MD, Bologna, Italy
Daniela Fabbri, MD, Bologna, Italy
Federico Pilla, MD, Bologna, Italy
Niccolò Stefanni, MD, Bologna, Italy
Alice Bondi, MD, Cesnatico, Italy
Salvatore Calderone, MD, Palermo, Italy

Total knee arthroplasty can be a successful and easy to perform procedure when the surgeon respects the principles of knee joint biomechanics and understands the mechanism of knee implant.
(Product no. V15020, 20 mins.)

OVT21.................................................. Station 11
Utilizing Intraoperative Sensor Technology to Achieve Balance in Total Knee Arthroplasty
Martin W. Roche, MD, Fort Lauderdale, FL
Christopher R. Anderson, MS, Dania, FL

Intraoperative sensing technology has proven to be a useful tool for guiding tibiofemoral rotational congruency, soft-tissue balance and alignment during primary total knee arthroplasty.
(Product no. V15021, 6 mins.)
OVT25 .......................................................... Station 12
Chronic Dislocation of Peroneal Tendon: The Lannelongue Procedure
Federico Morelli, MD, Formello, Italy
Daniele Mazza, MD, Fiumicino, Italy
Cosma Calderaro, MD, Rome, Italy
Pierluigi Serlorenzi, MD, Rome, Italy
Angelo De Carli, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

The Lannelongue procedure has good results and high satisfaction for patients and a low complication rate.
(Product no. V15025, 7 mins.)

OVT26 .......................................................... Station 13
Surgical Technique of a New Ankle Prosthesis Model Implanted with a Lateral Surgical Approach
Sandro Giannini, MD, Bologna, Italy
Matteo Romagnoli, MD, Bologna, Italy
Cesare Faldini, MD, Bologna, Italy
Andrea Ensini, MD, Bologna, Italy
Michele D’Amato, MD, Bologna, Italy
Paolo Barbadoro, MD, Bologna, Italy
Antonio Mazzotti, MD, Bologna, Italy

Now a days only few surgeons perform total ankle replacement. The purpose of this video is to show how to perform a total ankle replacement, using a new prosthetic model that respects both ankle joint biomechanics and anatomy.
(Product no. V15026, 16 mins.)

OVT27 .......................................................... Station 12
Ultrasound-guided Ultraminimally Invasive Surgical Techniques for Non-insertional Achilles Tendinopathy
Manuel Villanueva, MD, PhD, Madrid, Spain
Alvaro Iborra, DPM, Madrid, Spain
Guillermo Rodriguez, MD, PhD, Madrid, Spain
Antonio Rios-Luna, MD, PhD, El Ejido, Almeria, Spain
Basilio De La Torre, MD, PhD, Madrid, Spain

Ultrasound-guided ultraminimally invasive surgery is a promising technology for Achilles non-insertional tendinopathy and paratendinopathy. The procedures are safe and effective.
(Product no. V15027, 20 mins.)

OVT02 .......................................................... Station 3
Surgical Treatment of Cavus Foot in Charcot-Marie-Tooth Disease
Cesare Faldini, MD, Bologna, Italy
Matteo Nanni, MD, Bagnaria, Italy
Daniele Fabbri, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Raffaele Borgi, MD, Bologna, Italy
Federico Pilla, MD, Bologna, Italy
Ilaria Sanzarella, MD, Messina, Italy
Francesco Traina, MD, Bologna, Italy
Sandro Giannini, MD, Bologna, Italy

Plantar fasciotomy, midtarsal osteotomy, Jones procedure and dorsiflexion osteotomy of the first metatarsal allows us to obtain adequate correction of flexible cavus foot in Charcot-Marie-tooth disease.
(Product no. V15002, 15 mins.)

HAND AND WRIST

OVT28 .......................................................... Station 14
Surgical Management of Complex Metacarpophalangeal Joint Dislocation
Harold Fogel, MD, Chicago, IL
Matthew Hiro, MD, Tampa, FL
Randipsingh R. Bindra, MD, Benowa, Australia

This educational video reviews the anatomic pathology of a complex metacarpophalangeal joint dislocation and demonstrates the keys to clinical diagnosis, surgical management, and postoperative care.
(Product no. V15028, 13 mins.)

OVT29 .......................................................... Station 14
Thumb CMC Trapezial Excision and Suture Suspension Arthroplasty - Surgical Technique
Amy L. Ladd, MD, Palo Alto, CA
Arnold-Peter C. Weiss, MD, Providence, RI

We present a simple suture suspension arthroplasty technique for common thumb CMC arthritis surgical treatment.
(Product no. V15029, 9 mins.)

OVT30 .......................................................... Station 14
Minimally-Invasive Distal Radius Fixation: A Novel Technique
John S. Taras, MD, Philadelphia, PA

This video presents a novel technique for the fixation of extra-articular distal radius fractures.
(Product no. V15030, 9 mins.)
OVT33 ................................................................................... Station 15
Hip Arthroscopy and Periacetabular Osteotomy Treatment of Acetabular Dysplasia and Associated Labral Tear
John C. Clohisy, MD, Saint Louis, MO
Jeffrey Nepple, MD, Saint Louis, MO
This surgical technique video presents our technique for combined hip arthroscopy and periacetabular osteotomy (PAO) for acetabular dysplasia. Combined hip arthroscopy and PAO may be the ideal surgical approach to patients with symptomatic dysplasia and intra-articular pathology.
(Product no. V15033, 23 mins.)

OVT34 ................................................................................... Station 16
Biomechanical Summary of Reverse Shoulder Arthroplasty
Matthew L. Hansen, MD, Gilbert, AZ
Lynn A. Crosby, MD, Augusta, Georgia
Pierre-Henri Flurin, MD, Merignac, France
Thomas W. Wright, MD, Gainesville, FL
Joseph D. Zuckerman, MD, New York, NY
Howard D. Routman, DO, Atlantis, FL
Christopher Roche, MS, MBA, Gainesville, FL
We present rTSA biomechanics and a classification system describing how kinematics are altered by prosthesis design, implant scapular positioning, repair (or not repair) of the subscapularis, and use in eroded glenoid morphologies.
(Product no. V15034, 12 mins.)

OVT35 ................................................................................... Station 17
The Extracellular Matrix Augmentation Graft in Large to Massive Rotator Cuff Tears
Andres M. Alvarez, MD, Plantation, FL
Gregory J. Gilot, MD, Davie, FL
Despite advances in surgical technology, the repairs tend to fail at the suture-tendon junction. One strategy to augment repair of large to massive rotator cuff tears is the development of biological scaffold materials, composed of extracellular matrix (ECM).
(Product no. V15035, 8 mins.)

OVT36 ................................................................................... Station 18
Open Bankart Repair Revisited
Robert A. Arciero, MD, Farmington, CT
Augustus D. Mazzocca, MD, MS, Farmington, CT
This video will demonstrate the indications, rationale and description of the open Bankart reconstruction.
(Product no. V15036, 18 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.
OVT37 ................................................................. Station 19
The Modified Eden-Lange Procedure for Lateral Scapular Winging Due to Spinal Accessory Nerve Palsy
Richard J. Hawkins, MD, Greenville, SC
Derik Geist, MD, Houston, TX
The video provided will give the viewer a step-by-step outline of the pre-operative work-up, surgical treatment, and post-op outcome of this highly successful procedure for lateral scapular winging.
(Product no. V15037, 10 mins.)

OVT38 ................................................................. Station 20
Arthroscopic Reconstruction of Irreparable Rotator Cuff Tears with a Synthetic (ePTFE) Patch
Jonathan Ronquillo, MD, Dasmarinas City, Philippines
Patrick H. Lam, PhD, Sydney, Australia
Kristen Twibill, Medical student, Kogarah, Australia
Pieter Haen, MD, Groningen, Netherlands
George A. Murrell, MD, Kogarah, Australia
Massive rotator cuff tears are difficult to manage. A synthetic PTFE patch could be used as an interpositional bridge to restore continuity of the cuff defect.
(Product no. V15038, 15 mins.)

OVT40 ................................................................. Station 17
New Device for Arthroscopic Trans-osseous Equivalent (TOE) Cuff Tear Repair: SHARC-FT
Giacomo Marchi, MD, Brescia, Italy
Celeste Bertone, MD, Brescia, Italy
Dario Petricioli, MD, Brescia, Italy
In the last years, the surgeons can observe the return to trans-osseous technique in cuff tears repair. We show a new device and procedure for arthroscopic trans-osseous cuff fixation.
(Product no. V15040, 10 mins.)

OVT41 ................................................................. Station 18
Exposure of the Glenohumeral Joint for Total Shoulder Arthroplasty
Rachel M. Frank, MD, Chicago, IL
Christen R. Mellano, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
CDR (ret) Matthew T. Provencher, MD, Weston, MA
Anthony A. Romeo, MD, Chicago, IL
Open surgical procedures such as total shoulder arthroplasty can be effectively accomplished via a meticulous exposure to the glenohumeral joint, taking care to protect neurovascular structures.
(Product no. V15041, 14 mins.)

OVT42 ................................................................. Station 19
Radiocapitellar Arthroplasty of the Elbow: Surgical Technique
Matthias Vanhees, MD, Stabroek, Belgium
Frederik Verstreken, MD, Deurne, Belgium
Roger P. van Riet, MD, Wilrijk, Belgium
In this video we clearly show the surgical technique for the radiocapitellar arthroplasty of the elbow, through an extensor tendon split approach. The goal of this video is to present a clear surgical technique for the radio-capitellar arthroplasty of the elbow.
(Product no. V15042, 12 mins.)

OVT43 ................................................................. Station 20
Rotator Cuff Tear Patterns: Recognition and Treatment
Ryan J. Warth, MD, Vail, CO
Peter J. Millett, MD, Vail, CO
Michael B. Ellman, MD, Denver, CO
This surgical video reviews the critical aspects related to recognition and surgical treatment of the four most common three-dimensional rotator cuff tear patterns using a case-based approach.
(Product no. V15043, 11 mins.)

OVT44 ................................................................. Station 16
OATS Grafting for Osteochondritis Dissecans of the Capitellum Using an Anconeous Muscle Splitting Approach
James M. Bennett, MD, Houston, TX
Thomas L. Mehlhoff, MD, Houston, TX
Hussein A. Elkousy, MD, Houston, TX
This video presents the surgical treatment for the unstable displaced OCD lesion of the capitellum of the elbow using a single dowel OATS graft from the ipsilateral knee. A novel anconeous muscle splitting approach is used to provide direct perpendicular access to the lesion for drilling and graft placement.
(Product no. V15044, 18 mins.)

SPINE

OVT05 ................................................................. Station 4
Placement of Bilateral Magnetically Activated Growing Rods
Patrick J. Cabhill, MD, Philadelphia, PA
Joshua M. Pahys, MD, Wynnewood, PA
Harold J. Van Bosse, MD, Wynnewood, PA
Amer Samdani, MD, Philadelphia, PA
We present the use of bilateral magnetically activated growing rods in lieu of traditional growing rods. Our video highlights the similarities and differences in the technique of insertion of magnetically activated growing rods compared to traditional growing rods.
(Product no. V15005, 14 mins.)
SPORTS MEDICINE AND ARTHROSCOPY

OVT45 ................................................................. Station 21
Endoscopic Pubic Symphysectomy for Athletic Osteitis Pubis
Dean K. Matsuda, MD, Los Angeles, CA
Manuel Ribas Fernandez, MD, Barcelona, Spain
Nicole Matsuda, Los Angeles, CA
Benjamin G. Domb, MD, Oak Brook, IL
The endoscopic technique, avoidable gender-specific complication, and multi-center outcomes from endoscopic pubic symphysectomy for athletic osteitis pubis are concisely presented in this video.
(Product no. V15045, 9 mins.)

OVT46 ................................................................. Station 22
Ulnar Collateral Ligament Repair Using Internal Brace Augmentation
Jeffrey R. Dugas, MD, Birmingham, AL
Brian Walters, MD, New York, NY
We demonstrate the successful surgical management of acute ulnar collateral ligament injury in the young overhead athlete using ulnar collateral ligament repair with internal brace augmentation.
(Product no. V15046, 16 mins.)

OVT47 ................................................................. Station 23
Arthroscopic Surgical Techniques for the Treatment of Femoroacetabular Impingement
Aaron J. Krych, MD, Rochester, MN
Paul L. Sousa, MBA, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
A technique-based review of the arthroscopic treatment of femoroacetabular impingement.
(Product no. V15047, 14 mins.)

OVT48 ................................................................. Station 24
Revision of Failed Latarjet Procedure Using a Tricortical Iliac Crest Autograft (Eden-Hybinette)
Laurent B. Willemot, MD, Gent, Belgium
Olivier Verborgt, MD, PhD, Wilrijk, Belgium
This video demonstrates the surgical technique for revision of a failed Latarjet procedure by using a tricortical iliac crest autograft.
(Product no. V15048, 8 mins.)

OVT49 ................................................................. Station 25
Anatomical Rectangular Tunnel ACL Reconstruction with a Bone-Patellar Tendon-Bone Graft
Kenset Shino, MD, Osaka, Japan
Tatsuo Mae, MD, Osaka, Japan
Shigeto Nakagawa, MD, Osaka, Japan
This video demonstrates (1) strict ACL footprints; (2) how to visualize the ACL attachment areas; (3) how to create anatomical tunnels within the areas; (4) how to properly place and fix the grafts.
(Product no. V15049, 23 mins.)

OVT50 ................................................................. Station 26
Arthroscopic Reconstruction and Replacement of a Massive Non-repairable Rotator Cuff Defect
Stephen J. Snyder, MD, Van Nuys, CA
Nathan Faulkner, MD, Lone Tree, CO
Nolan R. May, MD, Van Nuys, CA
Patients with chronic, massive, and irreparable rotator cuff tears without significant arthritis can be considered for rotator cuff reconstruction using human dermal allograft.
(Product no. V15050, 14 mins.)

OVT51 ................................................................. Station 27
The Use of Remnant in Individualized Anatomic ACL Reconstruction
Kevin N. Jiang, MD, Brooklyn, NY
Garth Walker, MD, Chicago, IL
Liang R. Cui, BS, Pittsburg, PA
Sachin Tapasvi, MD, Pune, India
Freddie H. Fu, MD, Pittsburgh, PA
This video presents a technique using the native ACL remnants for proper individualized anatomic tunnel placement in both single and double bundle ACL reconstructions.
(Product no. V15051, 15 mins.)

OVT52 ................................................................. Station 28
Arthroscopic Treatment of Calcific Tendonitis of the Rotator Cuff
Simon Euler, MD, Vail, CO
Michael B. Ellman, MD, Denver, CO
Peter J. Millett, MD, MSc, Vail, CO
This video presents two cases of arthroscopic treatment of calcific tendonitis of the rotator cuff. The epidemiology, pathophysiology, clinical findings, and surgical techniques associated with the disease process are reviewed.
(Product no. V15052, 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.
Station 29

Ischiofemoral Space Decompression: Posterolateral Cutting Block Technique

Thomas Kelsey, BS, MA, Winston-Salem, NC
Elizabeth A. House, MD, New Hyde Park, NY
Sandeepr Mannava, MD, PhD, Winston-Salem, NC
Ryan H. Barnes, BS, Richmond, VA
Hal D. Martin, DO, Dallas, TX
Miriam A. Bredella, MD, Boston, MA
Allston J. Stubbs IV, MD, Winston-Salem, NC

Ischiofemoral impingement is an increasingly recognized pathology of hip pain. The posterolateral approach allows for treatment of this disease while preserving the iliopsoas tendon attachment.

(Product no. V15053, 9 mins.)

Station 30

Arthroscopic Meniscal Root Repair Using a Novel Suture Passing Device

Andrew J. Blackman, MD, Chesterfield, MO
Michael J. Stuart, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
Mark A. Pecorby, MD, Iowa City, IA
Aaron J. Krych, MD, Rochester, MN

This video demonstrates a novel technique for meniscal root repair which is biomechanically strong and does not require use of a posterior portal.

(Product no. V15054, 7 mins.)

Station 31

Single Portal Arthroscopy of the Central Compartment of the Hip

Elizabeth A. House, MD, New Hyde Park, NY
Thomas Kelsey, BS, MA, Winston-Salem, NC
Ryan H. Barnes, BS, Richmond, VA
Sandeepr Mannava, MD, PhD, Winston-Salem, NC
Allston J. Stubbs IV, MD, Winston-Salem, NC

Single portal hip arthroscopy is a novel technique ideal for the general orthopaedist. It allows the surgeon to establish the fundamentals needed for arthroscopic treatment of basic hip pathology.

(Product no. V15055, 9 mins.)

Station 32

Dynamic Intraligamentary Stabilization: A Doorway to Intrinsic Healing of the ACL

Stefan Schwienbacher, MD, Bern, Switzerland
Sufian S. Ahmad, MD, Bern, Switzerland
Lorenz Büchler, MD, Bern, Switzerland
Sandro Kohl, MD, Bern, Switzerland

This video presents the dynamic intraligamentary stabilization (DIS) technique, a new method developed at the author’s department to provide the self-healing of acute anterior cruciate ligament (ACL) ruptures.

(Product no. V15056, 11 mins.)

Station 33

The Elmslie-Trillat Procedure for Treatment of Patellar Instability

Raffaele Iorio, MD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Daniele Mazza, MD, Fiumicino, Italy
Carolina Civitenga, MD, Rome, Italy
Andrea Redler, MD, Rome, Italy
Luigi Valeo, MD, Rome, Italy
Priscilla Di Sette, MD, Rome, Italy
Angelo De Carli, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

The Elmslie-Trillat procedure is safe and effective in the treatment of patellar instability with a successful high rate.

(Product no. V15057, 17 mins.)

Station 34

Active Moving Patella Apprehension Test for Lateral Patella Instability

Jaedoo Yoo, Prof, Seoul, Republic of Korea
Young won Koh, MD, Seoul, Republic of Korea

DeNuvo active patellar apprehension test is an accurate reproducible physical examination technique.

(Product no. V15058, 14 mins.)

Station 35

All Arthroscopic Latarjet Procedure Technical Note and Results

Gonzalo Samitier Solis, MD, PhD, Madrid, Spain
Ashish Gupta, MD, Brisbane, Australia
Kalojan Petkin, MD, Buchs, Switzerland
Laurent Lafosse, MD, Annecy, France

In this work we present a detailed video demonstration of the Arthroscopic Latarjet procedure at our Institution. This procedure is fully arthroscopic and combines the advantages of the open procedure with those of arthroscopic stabilization. As an adjunct, the video is accompanied with preliminary mid-term results and our specific staged rehabilitation program.

(Product no. V15059, 17 mins.)

An alphabetical faculty financial disclosure list can be found starting on page 332.
New Horizons in Meniscus Repair: The Circumferential Compression Stitch
Justin D. Saliman, MD, Los Angeles, CA

Anatomical reduction and uniform compression are the mainstays of orthopaedic soft tissue and bony repair, and malreduction and/or gap formation are common failure modes for such repairs. Traditional meniscus repair techniques rely on central to peripheral needle penetration across the tear with fixation in the perimeniscular capsule region, and often require placing sutures on the tibial and femoral sides of tears for optimal fixation. They unfortunately also carry failure rates that are high compared to other orthopaedic procedures. A stitch pattern that can circumferentially surround meniscus tears is likely to better allow anatomical reduction and uniform compression of the tear edges during healing. In this video presentation the rationale for the circumferential compression stitch is discussed and a video case series is presented to demonstrate all-inside circumferential compression stitch repair of several complex tear patterns.

(Product no. V15060, 18 mins.)

Arthroscopic Anterior Shoulder Stabilization: Pearls and Pitfalls in Patient Positioning
Rachel M. Frank, MD, Chicago, IL
Maristella F. Saccomanno, MD, Torre Santa Susanna, Italy
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Anthony A. Romeo, MD, Chicago, IL
CDR (ret) Matthew T. Provencher, MD, Weston, MA

With appropriate set-up and technique, excellent outcomes with low recurrence rates can be obtained after arthroscopic shoulder stabilization in both the beach chair and lateral decubitus positions.

(Product no. V15006, 16 mins.)

Management of Glenoid Bone Loss in Anterior Shoulder Instability: A Case Based Approach
Rachel M. Frank, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Gregory P. Nicholson, MD, Chicago, IL
CDR (ret) Matthew T. Provencher, MD, Weston, MA
Anthony A. Romeo, MD, Chicago, IL

Appropriate surgical management of anterior glenoid bone lost in the setting of anterior glenohumeral instability allows for excellent clinical outcomes with low recurrent instability rates.

(Product no. V15062 14 mins.)

Proximal Tibiofibular Joint Ganglion Cyst: Surgical Treatment
Francesco Traina, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Federico Pilla, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Daniele Fabbri, MD, Bologna, Italy
Fabrizio Perna, MD, Palermo, Italy
Costantino Errani, MD, Bagheria, Italy
Marcello De Fine, MD, Bologna, Italy
Cesare Faldini, MD, Bologna, Italy

The aim of this video is to show the surgical technique of PTFJ ganglion cyst excision and PTFJ arthrodesis. Eight male patients were included in our study in which one of them is shown in this video. All the patients were symptomatic. The diagnosis was made in all cases based on the clinical and imaging findings. Briefly the surgical technique included lateral knee approach, exploration and isolation of CPN, excision of the ganglion cyst and PTFJ arthrodesis. This video may help the young surgeons to know how to approach PTFJ and manage this rare pathology.

(Product no. V15007 11 mins.)
OVT63 ................................................................. Station 22
Anatomical Anterolateral Ligament Reconstruction
Camilo Partezani Helito, MD, São Paulo, Brazil
Marco K. Demange, MD, São Paulo, Brazil
Marcelo B. Bonadio, MD, São Paulo, Brazil
Jose R. Pecora, MD, São Paulo, Brazil
Roberto F. Albuquerque, MD, PhD, São Paulo, Brazil
Marcia U. De Rezende, MD, São Paulo, Brazil
Fabio J. Angelini, MD, São Paulo, Brazil
Riccardo G. Gobbi, MD, São Paulo, Brazil
Luís E. Tirico, MD, São Paulo, Brazil
Gilberto L. Camanho, MD, São Paulo, Brazil

Reconstruction of the anterior cruciate ligament (ACL) is one of the most common procedures in orthopaedic surgery. However, even with advances in surgical techniques and implants, some patients still have residual anterolateral rotatory laxity after reconstruction. The Knee Anterolateral Ligament has been recently described in anatomical studies. The research about this structure is important as it may be partially responsible for anterolateral knee stability. This program will display the reconstruction of the ACL associated with anatomical reconstruction of anterolateral ligament.

(Product no. V15063 11 mins.)

OVT64 ................................................................. Station 23
Proximal Adductor Repair with Suture Anchor Technique
Srino Bharam, MD, New York, NY
Michael E. Birns, MD, New York, NY
Mathew Hamula, MD, New York, NY

Endoscopic adductor tenotomy is a safe and effective technique that allows for release of the pathologic adductor tendon under direct visualization while avoiding the morbidity associated with more open and invasive techniques.

(Product no. V15064 6 mins.)

OVT65 ................................................................. Station 24
Distal Medial Collateral Ligament and Distal Patellar Tendon Repair
Michael J. Alaia, MD, New York, NY
Christopher Looze, MD, New York, NY
Alan W. McGee, MD, New York, NY
Maxwell Weinberg, MD, New York, NY
William Ryan, BS, New York, NY
Dylan Lowe, BA, New York, NY

We present a unique patient case and surgical technique video highlighting concepts of surgical management in patients sustaining combined patellar tendon and ligamentous injury.

(Product no. V15065 11 mins.)

OVT66 ................................................................. Station 25
Arthroscopic Anterior Labral Repair with Remplissage
Laith M. Jazrawi, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Guillem Gonzalez-Lomas, MD, New York, NY
Maxwell Weinberg, MD, New York, NY
William Ryan, BS, New York, NY
Dylan Lowe, BA, New York, NY

This video illustrates an arthroscopic anterior labral repair combined with a Remplissage procedure to correct the Hill-Sachs lesion and render the defect extra-articular.

(Product no. V15066 9 mins.)

OVT67 ................................................................. Station 26
Arthroscopic Suprascapular Nerve Release
Laith M. Jazrawi, MD, New York, NY
Graeme Whyte, MD, Kingston, ON, Canada
Maxwell Weinberg, MD, New York, NY
William Ryan, BS, New York, NY
Dylan Lowe, BA, New York, NY

This video demonstrates suprascapular nerve release in a patient with supraspascapular nerve entrapment at the transverse scapular notch. There is specific focus on: relevant patient history, injury presentation, etiology, surgical indications, prognostic factors, surgical technique, concurrent procedures, and rehabilitation.

(Product no. V15067 12 mins.)

OVT69 ................................................................. Station 28
Tibial Spine Avulsion Fractures: Arthroscopic Reduction and Internal Fixation
Laith M. Jazrawi, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Michael Ryan, MD, New York, NY
William Ryan, BS, New York, NY
Maxwell Weinberg, MD, New York, NY
Dylan Lowe, BA, New York, NY

This video presents multiple cases of arthroscopic reduction and internal fixation of a tibial spine avulsion fracture using a novel cross fiber tape fixation pattern.

(Product no. V15068 9 mins.)

OVT70 ................................................................. Station 29
Meniscal Root Repair: Surgical Technique
Laith M. Jazrawi, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Shane Blackmore, MBBS, FRACS, New York, NY
Maxwell Weinberg, MD, New York, NY
William Ryan, BS, New York, NY
Dylan Lowe, BA, New York, NY

The video demonstrates the successful repair of a posterior root medial meniscal tear and offers pearls on achieving a stable repair with reproducible results. This transtibial technique reliably restores the meniscus to its anatomic position.

(Product no. V15070 7 mins.)
OVT71 ............................................................ Station 30
Distal Biceps Tendon Rupture: Repair and Reconstruction
Laith M. Jazrawi, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Guillem Gonzalez-Lomas, MD, New York, NY
Alan W. McGee, MD, New York, NY
William Ryan, BS, New York, NY
Dylan Lowe, BA, New York, NY

The purpose of this video is to demonstrate an acute repair of a
distal tendon rupture, and a chronic reconstruction of a similar
injury.

(Product no. V15071 17 mins.)

OVT72 ............................................................ Station 31
Sternoclavicular Joint Reconstruction
Laith M. Jazrawi, MD, New York, NY
Michael Ryan, MD, New York, NY
Young W. Kwon, MD, PhD, New York, NY
Maxwell Weinberg, MD, New York, NY
William Ryan, BS, New York, NY

We present a case and surgical technique of sternoclavicular joint
reconstruction in a patient with chronic, symptomatic anterior
instability using a tibialis anterior allograft in a figure-of-eight
construct.

(Product no. V15072 11 mins.)

OVT73 ............................................................ Station 32
Triple Band Semitendinosus + Gracilis Autograft: A Simple
Strategy or Diameter Augmentation in ACL Surgery
Xabier Carredano, MD, Santiago, Chile
Gonzalo F. Ferrer, MD, FRCS (Ortho), Santiago, Chile
Rafael Calvo, MD, Santiago, Chile
David Figueroa, MD, Santiago, Chile
Diego Montenegro, Jr, MD, Santiago, Chile
María J. Tuca, MD, Santiago, Chile
Gonzalo Espinosa, MD, Santiago, Chile

This video shows a straightforward technique of autograft
tripling to achieve a sufficient diameter for ACL
reconstruction surgery, avoiding allograft augmentation and its
associated risks and costs.

(Product no. V15073 6 mins.)

OVT74 ............................................................ Station 33
Tibial Tubercle Avulsions: Indications and Techniques
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY
Michael S. Day, MD, New York, NY
William Ryan, BS, New York, NY
Dylan Lowe, BA, New York, NY
Steven Shamah, BA, Brooklyn, NY

This video presents the technique of open reduction and internal
fixation of a patient with a Watson-Jones Type III tibial tubercle
fracture. Relevant patient history, injury presentation and
workup, non-operative management, indications for surgery,
pre and postoperative imaging, postoperative rehabilitation and
clinical outcomes are presented.

(Product no. V15074 10 mins.)

OVT75 ............................................................ Station 34
Endoscopic Gluteus Medius Repair: Case Presentation and
Surgical Technique
Thomas Youm, MD, New York, NY
Jason Capo, MD, New York, NY
Dylan Lowe, BA, New York, NY
David Choueka, Lawrence, NY
William Ryan, BS, New York, NY
Maxwell Weinberg, MD, New York, NY

This video presents a technique to surgically repair gluteus
medius tears endoscopically. Relevant patient history, workup,
non-operative management, indications for surgery, pre and
postoperative imaging and postoperative rehabilitation are also
presented.

(Product no. V15075 7 mins.)

OVT08 ............................................................ Station 2
Safe Access and Portal Changing Technique in Hip
Arthroscopy
Carl Wierks, MD, Holland, MI

This surgical technique video demonstrates a safe method to
establish hip arthroscopic intra-articular access, as well as how
to safely and effectively change portals during hip arthroscopy.
Background on the importance of a safe and reliable technique is
presented.

(Product no. V15008 12 mins.)
Endoscopy-Assisted Peri-Acetabular Osteotomy
Dean K. Matsuda, MD, Los Angeles, CA
Javad Parvizi, MD, Philadelphia, PA
Hal D. Martin, DO, Dallas, TX

Endoscopy-assisted peri-acetabular osteotomy (eaPAO) offers a less invasive and potentially safer option for patients with dysplasia or acetabular retroversion with posterior insufficiency. Besides offering all of the advantages of concomitant central and peripheral compartment hip arthroscopy, endoscopic visualization of critical posterior column and ischial osteotomies may reduce the risk of iatrogenic direct sciatic nerve injury, intra-articular violation, posterior column discontinuity, and acetabular osteonecrosis. This video demonstrates the use of a mini-incision approach for the osteotomies and standard anterolateral and posterolateral arthroscopic portals for endoscopic visualization and sciatic nerve retraction.

(Product no. V15076 14 mins.)

Masquelet Technique for Treating Bone Defects
Matheus L. Azi, MD, Salvador, Brazil
Samuel Silva Farias, MD, Salvador, Brazil
Armando Augusto de Almeida Teixeira, MD, Salvador, Brazil
Ricardo Britto Cotias, MD, Salvador, Brazil

The Masquelet technique was described for the treatment of segmental bone defects. This video illustrates a case of a patient with an open fracture of the tibia with soft tissue injury and bone loss where the technique was used.

(Product no. V15078 14 mins.)

Minimally Invasive Percutaneous Plate Osteosynthesis for Ankle Fractures
Robinson E. Pires, Prof, Belo Horizonte, Brazil
Andre Wajnsztejn SR, São Paulo, Brazil
Cyril Mauffrey, MD, MRCS, Denver, CO

Open reduction and internal fixation with plate and screws is the standard operative treatment for displaced or unstable lateral malleolar fractures. Despite satisfactory results using this technique, diabetics, smokers, and patients with peripheral vascular disease or with poor soft tissue conditions are more vulnerable to infection and skin necrosis. Minimally invasive percutaneous plate osteosynthesis (MIPPO) technique has emerged as an alternative with the advantage to decrease complication rates at least in patients with a higher risk of wound problems. The aim of this video is to present the surgical technique using minimally invasive percutaneous plate osteosynthesis for ankle fractures.

(Product no. V15079 7 mins.)
Displaced Intra-articular Calcaneal Fracture: Open Reduction and Internal Fixation
Kenneth A. Egol, MD, New York, NY
Mark Gage, MD, New York, NY
Alan W. McGee, MD, New York, NY
Dylan Lowe, BA, New York, NY
William Ryan, BS, New York, NY
This video presents the relevant concepts and surgical technique of open reduction and fixation of a Sanders Type II displaced intra-articular calcaneal fracture with lateral plating. Relevant patient history, injury presentation and workup, indications for surgery, imaging, postoperative rehabilitation and clinical outcomes are presented. The important features of the technique are highlighted and the rationale behind the approach is reviewed.
(Product no. V15082 8 mins.)

Periprosthetic Femoral Shaft Fracture after Total Knee Arthroplasty
Kenneth A. Egol, MD, New York, NY
Matthew Hamula, MD, New York, NY
Maxwell Weinberg, MD, New York, NY
William Ryan, BS, New York, NY
The management of a type I periprosthetic femoral shaft fracture is presented in the context of a patient case. The video focuses on technique to restore mechanical and anatomic axes of the femoral shaft in relation to the implanted prosthesis.
(Product no. V15083 9 mins.)

Biological Reconstruction Using Recycled Tumor-bearing Bone Treated by Liquid Nitrogen
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Japan
Toshiharu Shirai, MD, Kanazawa, Japan
Hideji Nishida, MD, Kanazawa, Japan
Katsuhiko Hayashi, MD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Japan
The aim of this video is to show the essence of biological reconstruction using recycled tumor-bearing bone treated by liquid nitrogen in malignant bone tumor surgery to achieve excellent limb function postoperatively.
(Product no. V15084 22 mins.)

FOOT AND ANKLE
9:30 - 11:00 Surgical Technique of a New Ankle Prosthesis Model Implanted with a Lateral Surgical Approach
Sandro Giannini, MD, Matteo Romagnoli, MD, Cesare Faldini, MD, Andrea Ensini, MD, Michele D’Amato, MD, Paolo Barbadoro, MD, Antonio Mazzotti, MD

11:00-12:30 Chevron Shaft Osteotomy for Hallux Valgus
Jose A. Sanhudo, MD, Porto Alegre, Brazil

11:00-12:30 Primary Subtalar Arthrodesis for Comminuted Calcaneal Fractures
Ian J. Alexander, MD, Nicholas Musgrave, MD

11:00-12:30 Endoscopic Excision of Symptomatic OS Trigonum by Posterior Hindfoot Approach
Federico Morelli, MD, Daniele Mazza, MD, Cosma Calderaro, MD, Marco Guidi, MD, Pierluigi Serlorenzi, MD, Andrea Ferretti, MD

11:00-12:30 Chronic Dislocation of Peroneal Tendon: The Lannelongue Procedure
Federico Morelli, MD, Daniele Mazza, MD, Cosma Calderaro, MD, Pierluigi Serlorenzi, MD, Angelo De Carli, MD, Andrea Ferretti, MD

SPORTS MEDICINE AND ARTHROSCOPY
1:30-3:00 Distal Medial Collateral Ligament and Distal Patellar Tendon Repair
Michael J. Alaia, MD, Christopher Looze, MD, Alan W. McGee, MD, Maxwell Weinberg, MD, William Ryan, BS, Dylan Lowe, BA

1:30-3:00 Ulnar Collateral Ligament Repair Using Internal Brace Augmentation
Jeffrey R. Dugas, MD, Brian Walters, MD

1:30-3:00 Arthroscopic Surgical Techniques for the Treatment of Femoroacetabular Impingement
Aaron J. Krych, MD, Paul L. Sousa, MBA, Bruce A. Levy, MD

1:30-3:00 Revision of Failed Latarjet Procedure Using a Tricortical Iliac Crest Autograft (Eden-Hybinette)
Laurent B. Villemot, MD, Olivier Verborgt, MD, PhD

* 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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3:00-4:30  Arthroscopic Meniscal Root Repair Using a Novel Suture Passing Device
Andrew J. Blackman, MD, Michael J. Stuart, MD, Bruce A. Levy, MD, Mark A. McCarthy, MD, Aaron J. Krych, MD

3:00-4:30  Ischiofemoral Space Decompression: Posterolateral Cutting Block Technique
Thomas Kelsey, BS, MA, Elizabeth A. House, MD, Sandeep Mannava, MD, PhD, Ryan H. Barnes, BS, Hal D. Martin, DO, Miriam A. Bredella, MD, Allston J. Stubbs IV, MD

3:00-4:30  Single Portal Arthroscopy of the Central Compartment of the Hip
Elizabeth A. House, MD, Thomas Kelsey, BS, MA, Ryan H. Barnes, BS, Sandeep Mannava, MD, PhD, Allston J. Stubbs IV, MD

4:30-6:00  Arthroscopic Treatment of Calcific Tendonitis of the Rotator Cuff
Simon Euler, MD, Michael B. Ellman, MD, Peter J. Millett, MD, Msc

4:30-6:00  Anatomical Rectangular Tunnel ACL Reconstruction with a Bone-Patellar Tendon-Bone Graft
Konsei Shino, MD, Tatsuo Mae, MD, Shigeto Nakagawa, MD

4:30-6:00  The Use of Remnant in Individualized Anatomic ACL Reconstruction
Kevin N. Jiang, MD, Garth Walker, MD, Liang R. Cui, BS, Sachin Tapasvi, MD, Freddie H. Fu, MD

4:30-6:00  Proximal Adductor Repair with Suture Anchor Technique
Srino Bharam, MD, Michael E. Birns, MD, Mathew Hamula, MD

9:30-11:00  New Device for Arthroscopic Trans-osseous Equivalent (TOE) Cuff Tear Repair: SHARC-FT
Giacomo Marchi, MD, Celeste Bertone, MD, Dario Petriccioli, MD

9:30-11:00  Exposure of the Glenohumeral Joint for Total Shoulder Arthroplasty
Rachel M. Frank, MD, Christen R. Mellano, MD, Nikhil N. Verma, MD, Brian J. Cole, MD, MBA, CDR (ret) Matthew T. Provencer, MD, Anthony A. Romeo, MD

9:30-11:00  Radiocapitellar Arthroplasty of the Elbow: Surgical Technique
Matthias Vanbees, MD, Frederik Verstreken, MD, Roger P. van Riet, MD

11:00-12:30  Biomechanical Summary of Reverse Shoulder Arthroplasty
Matthew L. Hansen, MD, Lynn A. Crosby, MD, Pierre-Henri Flurin, MD, Thomas W. Wright, MD, Joseph D. Zuckerman, MD, Howard D. Routman, DO, Christopher Roche, MS, MBA

11:00-12:30  Rotator Cuff Tear Patterns: Recognition and Treatment
Ryan J. Warth, MD, Peter J. Millett, MD, Michael B Ellman, MD

11:00-12:30  OATS Grafting for Osteochondritis Dissecans of the Capitellum Using an Anconeus Muscle Splitting Approach
James M. Bennett, MD, Thomas L. Mehlhoff, MD, Hussein A. Elkousy, MD

Wednesday, March 25

SHOULDER AND ELBOW

8:00-9:30  Open Bankart Repair Revisited
Robert A. Arciero, MD, Augustus D. Mazzocca, MD, MS

8:00-9:30  The Modified Eden-Lange Procedure for Lateral Scapular Winging Due to Spinal Accessory Nerve Palsy
Richard J. Hawkins, MD, Derik Geist, MD

9:30-11:00  Arthroscopic Reconstruction of Irreparable Rotator Cuff Tears with a Synthetic (ePTFE) Patch
Jonathan Ronquillo, MD, Patrick H. Lam, PhD, Kristen Twibill, Medical Student, Pieter Haen, MD, George A. Murrell, MD

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ADULT RECONSTRUCTION KNEE

3:00-4:30 Restoring the Natural Joint Lines & Knee Laxities Restores High Satisfaction in Kinematically Aligned TKA
Stephen M. Howell, MD, Joshua D. Roth, Graduate Student, Harold G. Dossett, MD, Maury L. Hull, PhD

3:00-4:30 Rationale and Reliability of Setting I/E Component Rotation and Restoring Function in Kinematically Aligned TKA
Stephen M. Howell, MD, Alexander J. Nedopil, PhD

3:00-4:30 Utilizing Intraoperative Sensor Technology to Achieve Balance in Total Knee Arthroplasty
Martin W. Roche, MD, Christopher R. Anderson, MS

3:00-6:00 Unicompartmental Knee Arthroplasty Revision under Navigation System
Han-Jun Lee, MD, Sang-Min Park, MD, Young-Bong Ko, MD, Skwak Yoon-Ho, MD

3:00-6:00 Posterior Stabilized Total Knee Arthroplasty: Surgical Technique
Cesare Faldini, MD, Francesco Traina, MD, Raffaele Borghi, MD, Mohammadreza Chehrassan, MD, Daniele Fabbri, MD, Federico Pilla, MD, Niccolò Stefani, MD, Alice Bond, MD, Salvatore Calderone, MD

3:00-6:00 Navigated Total Knee Replacement with Robotic Assistance: A Surgical Technique Video
Jan A. Koenig, MD, Timothy Lozier, PA-C

Thursday, March 26

SPORTS MEDICINE AND ARTHROSCOPY

8:00-9:30 Arthroscopic Reconstruction and Replacement of a Massive Non-repairable Rotator Cuff Defect
Stephen J. Snyder, MD, Nathan Faulkner, MD, Nolan R. May, MD

8:00-9:30 Arthroscopic Anterior Labral Repair with Remplissage
Laith M. Jazrawi, MD, Eric J. Strauss, MD, Guillem Gonzalez-Lomas, MD, Maxwell Weinberg, MD, William Ryan, BS, Dylan Loue, BA

8:00-9:30 Arthroscopic Suprascapular Nerve Release
Laith M. Jazrawi, MD, Graeme Whyte, MD, Maxwell Weinberg, MD, William Ryan, BS, Dylan Loue, BA

8:00-9:30 Endoscopic Gluteus Medius Repair
Thomas Youm, MD, Frantz R. Lerebours, MD, Maxwell Weinberg, MD, William Ryan, BS, David Choueka, Dylan Loue, BA, Jason Capo, MD

9:30-11:00 Dynamic Intraligamentary Stabilization: A Doorway to Intrinsic Healing of the ACL
Stefan Schuiebacher, MD, Sufian S Ahmad, MD, Lorenz Büchler, MD, Sandro Kob, MD

9:30-11:00 The Elmslie-Trillat Procedure for Treatment of Patellar Instability
Raffaele Iorio, MD, Cosma Calderaro, MD, Daniele Mazza, MD, Carolina Ciwetnga, MD, Andrea Redler, MD, Luigi Valeo, MD, Priscilla Di Sette, MD, Angelo De Carli, MD, Andrea Ferretti, MD

9:30-11:00 Active Moving Patella Apprehension Test for Lateral Patella Instability
Jaedoo Yoo, Prof, Young won Koh, MD

9:30-11:00 All Arthroscopic Latarjet Procedure Technical Note and Results
Gonzalo Samitier Solis, MD, PhD, Ashish Gupta, MD, Kalojan Petkin, MD, Laurent Lafoisse, MD

11:00-12:30 New Horizons in Meniscus Repair: The Circumferential Compression Stitch
Justin D. Saliman, MD

11:00-12:30 Arthroscopic Anterior Shoulder Stabilization: Pearls and Pitfalls in Patient Positioning
Rachel M. Frank, MD, Maristella F. Saccomanno, MD, Nikhil N. Verma, MD, Brian J. Cole, MD, MBA, Bernard R. Bach Jr, MD, Anthony A. Romeo, MD, CDR (ret) Matthew T. Provencher, MD

11:00-12:30 Hip Arthroscopy: Pitfalls and Pearls
Scott D. Martin, MD

11:00-12:30 Management of Glenoid Bone Loss in Anterior Shoulder Instability: A Case Based Approach
Rachel M. Frank, MD, Brian J. Cole, MD, MBA, Nikhil N. Verma, MD, Bernard R. Bach Jr, MD, Gregory P. Nicholson, MD, CDR (ret) Matthew T. Provencher, MD, Anthony A. Romeo, MD

1:30-3:00 Proximal Tibiofibular Joint Ganglion Cyst: Surgical Treatment
Francesco Traina, MD, Mohammadreza Chehrassan, MD, Federico Pilla, MD, Raffaele Borghi, MD, Daniele Fabbri, MD, Fabrizio Perna, MD, Costantino Errani, MD, Marcello De Fine, MD, Cesare Faldini, MD

1:30-3:00 Anatomical Anterolateral Ligament Reconstruction
Camilo Partezani Helito, MD, Marco K. Demange, MD, Marcelo B. Bonadio, MD, Jose R. Pecora, MD, Roberto E. Albuquerque, MD, PhD, Marcia U. De Rezende, MD, Fabio J. Angelini, MD, Riccardo G. Gobbi, MD, Luis E. Tirico, MD, Gilberto L. Camanho, MD

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An alphabetical faculty financial disclosure list can be found starting on page 332.
1:30-3:00  Periprosthetic Femoral Shaft Fracture after Total Knee Arthroplasty  
Kenneth A. Egol, MD, Daniel Bazylewicz, MD, Mathew Hamula, MD, Maxwell Weinberg, MD, William Ryan, BS

3:00-4:30  Masquelet Technique for Treating Bone Defects  
Matheus L. Azi, MD, Samuel Silva Farias, MD, Armando Augusto de Almeida Teixeira, MD, Ricardo Britto Cotias, MD

3:00-4:30  Minimally Invasive Percutaneous Plate Osteosynthesis for Ankle Fractures  
Robinson E. Pires, Prof, Andre Wajnstejn SR, Cyril Mauffrey, MD, MRCS

3:00-4:30  Intra-articular Glenoid Fracture: Open Reduction Internal Fixation  
Michael J. Alaia, MD, Sanjit R. Konda, MD, William Ryan, BS, Maxwell Weinberg, MD

**SPINE AND TUMOR**

4:30-5:30  Placement of Bilateral Magnetically Activated Growing Rods  
Patrick J. Cahill, MD, Joshua M. Pahys, MD, Harold J. Van Bosse, MD, Amer Samdani, MD

4:30-5:30  Biological Reconstruction Using Recycled Tumor-bearing Bone Treated by Liquid Nitrogen  
Hiroyuki Tsuchiya, MD, Norio Yamamoto, MD, Toshiharu Shirai, MD, Hideji Nishida, MD, Katsuhito Hayashi, MD, Akihiko Takeuchi, MD

* 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 Exhibits have been grouped in the following categories:

- Basic Research........................ SE27-SE28. Pg. 252
- Foot and Ankle ......................... SE37-SE38. Pg. 253
- Hand and Wrist........................ SE62-SE64. Pg. 256
- Pediatrics................................ SE29-SE32. Pg. 252
- Practice Management.................. SE33-SE36. Pg. 253
- Spine .................................... SE65-SE68. Pgs. 256 - 257
- Trauma................................... SE17-SE26. Pgs. 251- 252
- Tumor and Metabolic Disease........ SE69-SE71. Pg. 257

Scientific Exhibit SE04
Joint Preservation with High Tibial and Distal Femoral Osteotomies: Indications, Techniques, and Outcomes
Rachel M. Frank, MD, Chicago, IL
Annie Tilton, Chicago, IL
Gregory L. Cveticanovich, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Christen R. Mellano, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Charles A. Bush-Joseph, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Brian J. Cole, MD, MBA, Chicago, IL

Joint preservation strategies incorporating high tibial and/or distal femoral osteotomy allow for successful outcomes in physiologically young, active patients that may otherwise require arthroplasty.

Scientific Exhibit SE05
Asymmetric Tibial Component Reduced the Risk of Malrotation in Total Knee Arthroplasty
Yukibide Minoda, MD, Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Yoichi Ohta, Osaka, Japan
Mitsuhiko Ikebuchi, MD, Osaka, Japan
Maki Itokazu, MD, Osaka, Japan
Kazumasa Yamamura, MD, Osaka, Japan
Suguru Nakamura, MD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

Correct tibial rotation resulted in better coverage with asymmetric design than with symmetric design. Malrotation resulted in better coverage with symmetric design and overhang with asymmetric design.

Scientific Exhibit SE06
How Can We Use Tourniquet More Properly During Total Knee Arthroplasty?
Young Gon Na, Seongnam-Si, Republic of Korea
Ankur B. Bamne, MD, Navi Mumbai, India
Nimesh P. Jain, MBBS, MS, Mumbai, India
Sung Yup Lee, Seoul, Republic of Korea
Young Dong Song, MD, Daejeon, Republic of Korea
Yoichi Ohta, Seoul, Republic of Korea
Tae Kyun Kim, MD, Seongnam-Si, Republic of Korea

Tourniquet pressure can optimally be applied at systolic blood pressure (SBP)+120mmHg. SBP after anesthesia induction can be used for reference. Reinflation of tourniquet after early release is safe.

Scientific Exhibit SE07
Risk-adjusted Comparative TJR Outcomes to Anticipate Bundled Payment and Public Reporting of Quality Data
Hua Zheng, PhD, Worcester, MA
Leslie Harrold, MD, MPH, Worcester, MA
Wenjun Li, PhD, Worcester, MA
Regis O’Keefe, Rochester, NY
Courtland G. Lewis, MD, Farmington, CT
Philip C. Noble, PhD, Houston, TX
Vincent D. Pellegrini Jr, MD, Charleston, SC
David C. Ayers, MD, Worcester, MA
Patricia Franklin, MD, MBA, MPH, Worcester, MA

A secure web-site returns comparative data to providers.
Scientific Exhibit SE08
Single-Shot and Continuous Femoral Nerve Blocks for Total Knee Arthroplasty (TKA): What is the Evidence?
Richard S. Yoon, MD, New York, NY
John Buza, MD, New York, NY
Eric W. Lloyd, MD, Boca Raton, FL
Carlos M. Alvarado, MD, Boston, MA
Richard Iorio, MD, New Rochelle, NY
William B. Macaulay, MD, New York, NY

The purpose of this exhibit will be to review the outcomes, complications, and future surrounding femoral nerve blocks following total knee arthroplasty.

Scientific Exhibit SE09
Smart Tools in Orthopaedic Surgery
Hani Haider, PhD, Omaha, NE
O. A. Barrera, MSc, Omaha, NE
Ibrahim Al-Shawi, PhD, Univ Of NE Med Center, NE
Beau S. Konigsberg, MD, Omaha, NE
Curtis W. Hartman, MD, Omaha, NE
William M. Mihalko, MD, PhD, Germantown, TN
Carlos J. Lavernia, MD, Coral Gables, FL
Kevin L. Garvin, MD, Omaha, NE

This study reviews the various smart tools which are aimed to simplify and improve the bone and soft tissue preparation in knee replacement surgery.

Scientific Exhibit SE10
An Algorithmic Approach to Management of Symptomatic Instability Following Total Knee Arthroplasty
Herbert J. Cooper, MD, New York, NY
Matthew S. Heppinstall, MD, New York, NY
Giles R. Scuderi, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY

Symptomatic instability following TKA presents variably and can often be nebulous. Through an algorithmic approach, evaluation and management can be optimized to obtain good functional results.

Scientific Exhibit SE11
Optimizing Outcomes Following Unicompartmental Knee Replacement: Insights from a Study of 25,982 Cases
Alexander D. Liddle, MBBS, Oxford, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom
Andrew Judge, PhD, Oxford, United Kingdom
David W. Murray, MD, Oxford, United Kingdom

A comprehensive study of national data examining patient, surgeon and implant factors associated with success after UKR.

Scientific Exhibit SE12
Pre-clinical Testing and Clinical Results of a Novel Coating for Total Knee Arthroplasty Implants
Jorg Lutzner, MD, Dresden, Germany

A novel coating for TKA to address metal hypersensitivity resulted in reduced wear and metal ion release in simulator studies and demonstrated no problems during 2 year clinical follow-up.

Scientific Exhibit SE13
Total Arthroplasty in Knee Osteoarthritis with Extraarticular Knee Deformity
Lucas Arbeloa, MD, Pamplona (Navarra), Spain
Blanca Vazquez-Garcia, MD, Egües (Navarra), Spain
Julio Duart, MD,PhD, Pamplona (Navarra), Spain
Andrea D’Arrigo, MD, Rome, Italy
Julio de Pablos, MD, Pamplona, Spain

Based on 23 cases of knee osteoarthritis with extraarticular deformity, treated with Total Knee Arthroplasty, how to analyze and plan surgery for optimal mechanical performance.

Scientific Exhibit SE14
Mobile Fluoroscopy: Assessment of In Vivo Kinematics in Single vs. Multi Radii TKA during Unrestricted Activities
Trevor F. Grieco, BS, Knoxville, TN
Adrija Sharma, PhD, Knoxville, TN
Harold E. Cates Jr, MD, Knoxville, TN
William Hamel, PhD, Knoxville, TN
Richard D. Komistek, PhD, Knoxville, TN

Mobile fluoroscopy is used to show that knee kinematics while walking on a treadmill are different from those while walking on the ground.

Scientific Exhibit SE15
Maximizing Clinical Outcomes after Revision and Primary Total Knee Arthroplasty Using Intraoperative Sensors
Kenneth A. Gustke, MD, Temple Terrace, FL
Martin W. Roche, MD, Fort Lauderdale, FL
Gregory Golladay, MD, Richmond, VA
William A. Leone, MD, Lighthouse Point, FL
Patrick A. Meere, MD, New York, NY
Leah Elson, Sunrise, FL
Christopher R. Anderson, MSc, Dania, FL

Ensuring soft-tissue balance in TKA leads to improved short- and long-term clinical outcomes

Scientific Exhibit SE16
The Influence of Contemporary Total Knee Design on High Flexion: A Kinematic Comparison with the Healthy Intact Knee
Edward Morra, MSME, Cleveland, OH
A S. Greenwald, DPhil Oxon, Cleveland Heights, OH
Adolph V. Lombardi Jr., MD, New Albany, OH

This study compares the motion of contemporary TKA systems with in-vivo kinematic data derived from a population of healthy intact knees by employing a computational kinematic simulator.

* 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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TRAUMA

Scientific Exhibit SE17
Tips, Tricks, and Pearls in the Treatment of Proximal Third Tibia Fractures with Intramedullary Nails
Richard S. Yoon, MD, New York, NY
Mark Gage, MD, New York, NY
Sanjit R. Konda, MD, Closter, NJ
Tom M. McLaurin, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Roy Davidovitch, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Frank A. Liporace, MD, Englewd Clfs, NJ

This exhibit will focus on the operative pearls and specific techniques to avoid malreduction for proximal third tibial shaft fractures.

Scientific Exhibit SE18
Acute Compartment Syndrome of the Extremity: “State-of-the-Art” Diagnosis and Management
Alexander Crespo, BS, New York, NY
Sanjit R. Konda, MD, Closter, NJ
Roy Davidovitch, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Frank A. Liporace, MD, Englewd Clfs, NJ
Kenneth A. Egol, MD, New York, NY

Promising innovative diagnostic techniques for acute compartment syndrome are described.

Scientific Exhibit SE19
Biologics Toolbox for Bone Defects
Philipp Leucht, MD, New York, NY
J T. Watson, MD, Saint Louis, MO

We will provide guidance for orthopaedic surgeons in the decision on whether to use biologics for bone defects and discuss, which biologic will result in the most predictable and successful outcome.

Scientific Exhibit SE20
Addition of an “Over The Top” View in Hip Fracture Surgery Detects Screw Perforation from the Femoral Neck
Grace Blaylock, Medical Student, Roanoke, VA
Trevor Owen, MD, Roanoke, VA

The addition of an over the top view to standard anterior-posterior and lateral imaging in percutaneous hip pinning can detect posterior superior femoral neck perforation.

Scientific Exhibit SE21
‘One and Done’ - Arthroplasty/Arthrodesis vs. Surgical Fixation for Geriatric Periarticular Fractures
Sanjit R. Konda, MD, Closter, NJ
Richard S. Yoon, MD, New York, NY
Abraham Goch, BS, New York, NY
Roy Davidovitch, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Frank A. Liporace, MD, Englewd Clfs, NJ
Kenneth A. Egol, MD, New York, NY

The purpose of this exhibit is to provide current data on treatment options for a range of geriatric periarticular fractures.

Scientific Exhibit SE22
Peri-Operative Planning in Orthopaedic Surgery
David Galos, MD, New York, NY
Kivanc I. Atesok, MD, Etobicoke, ON, Canada
Sanjit R. Konda, MD, Closter, NJ
Roy Davidovitch, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Kenneth A. Egol, MD, New York, NY

The purpose of this exhibit is to demonstrate the evolution of perioperative planning and discuss its critical role in orthopaedic surgery in the year 2015.

Scientific Exhibit SE23
Utilizing 3D Printing for Orthopaedic Innovation
Joseph B. Cohen, MD, Chicago, IL
Jason L. Koh, MD, Winnetka, IL
Nigel M. Parsad, MS, Evanston, IL
Oliver Schipper, MD, Chicago, IL

3D printing and imaging will advance Orthopedics by rapid prototyping of anatomically accurate, autoclavable, patient specific models providing surgeons with unprecedented perioperative advantage.

Scientific Exhibit SE24
AAOS EWI Project Team: Extremity War Injuries: Return to Health and Function
Marc F. Swiontkowski, MD, Minneapolis, MN
Jeffrey N. Davila, MD, Washington, Dist. of Columbia
James R. Ficke, MD, Baltimore, MD
Erin L. Ramsford, Rosemont, IL

State of the art treatments for posttraumatic osteoarthritis, spine-related disabilities, and traumatic extremity injury will be discussed as they relate to military and civilian populations.

Scientific Exhibit SE25
Nonoperative Fracture Care in 2015: Does It Exist?
Alexander Crespo, BS, New York, NY
Sanjit R. Konda, MD, Closter, NJ
Roy Davidovitch, MD, New York, NY
Frank A. Liporace, MD, Englewd Clfs, NJ
Nirmal C. Tejwani, MD, New York, NY
Kenneth A. Egol, MD, New York, NY

This exhibit highlights clinical scenarios where nonoperative fracture care plays an important role.

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Scientific Exhibit SE26
Orthopaedic Surgical and Technical Skill Training Assessment Tools
Andrea Spiker, MD, Baltimore, MD
Johnathan Bernard, MD, MPH, New York, NY
Jonathan R. Dattilo, BS, Philadelphia, PA
Louis C. Okafor, MD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Greg M. Osgood, MD, Baltimore, MD
Umashan Srikumaran, MD, MBA, Clarksville, MD
Bashir A. Zikria, MD, MSc, Baltimore, MD
Dawn LaPorte, MD, Baltimore, MD
Assessing orthopaedic surgical/technical skills is increasingly important in orthopaedic resident education. We demonstrate multiple methods of objective assessment in this scientific exhibit.

Scientific Exhibit SE27
AAOS Women’s Health Issues Advisory Board: Musculoskeletal Sex Differences Throughout the Lifespan
Laura L. Tosi, MD, Washington, Dist. of Columbia
Karl J. Jepsen, PhD, Ann Arbor, MI
Nancy Lane, MD, Sacramento, CA
John H. Healey, MD, FACS, New York, NY
Laura M. Gehrig, MD, Henderson, NV
Elizabeth A. Arendt, MD, Minneapolis, MN
Barbara D. Boyan, PhD, Richmond, VA
Mary I. O’Connor, MD, Jacksonville, FL
Adele Boskey, New York, NY
Differences in incidence and severity of MSK diseases, conditions, and sports injuries between males and females are the result of inherent anatomic, biomechanical, hormonal, and cellular differences.

Scientific Exhibit SE28
Understanding Biological Augmentation for Orthopaedics in 2015: Stem Cells, Growth Factors, Scaffolds, and PRP
James Cowan, MD, Ann Arbor, MI
Alexander Weber, MD, Ann Arbor, MI
Ryan Mlynarek, MD, BS, Ann Arbor, MI
Jonathan P. Gumucio, BS, Ann Arbor, MI
Christopher L. Mendieta, PhD, ATC, Ann Arbor, MI
Joshua Dines, MD, New York, NY
Ashesh Bakshi, MD, Ann Arbor, MI
A review of the basic science, laboratory outcomes, potential clinical use, and areas for future research for four types of biological augmentation: stem cells, growth factors, scaffolds, and PRP.

Scientific Exhibit SE29
Algorithm for Treatment of Idiopathic Congenital Talipes Equinovarus from Birth to Walking Age
Matteo Nanni, MD, Bagheria, Italy
Francesco Traina, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Carlotta Calamelli, MD, Bologna, Italy
Antonio Mazzotti, MD, Bologna, Italy
Fabrizio Pernia, Palermo, Italy
Ilaria Sancarello, MD, Messina, Italy
Sandro Giannini, MD, Bologna, Italy
Cesare Faldini, MD, Bologna, Italy
Treatment of congenital talipes equinovarus from completely reducible deformity to partially reducible deformity from birth to walking age, until neglected or relapsed deformity after walking age.

Scientific Exhibit SE30
The Diagnosis and Management of Developmental Dysplasia of the Hip in the First Six Months of Life
Katie Rooks, MD, Saskatoon, SK, Canada
Jason Shin, MD, Saskatoon, SK, Canada
This exhibit provides a comprehensive framework based on the best-available evidence to diagnose and manage infants with developmental dysplasia of the hip DDH during the first 6 months of life.

Scientific Exhibit SE31
Pediatric Orthopaedic Society of North America: Childrens’ Orthopaedics in Underserved Regions Committee: Advancing Orthopaedic Care Across the Globe
Martin J. Herman, MD, Philadelphia, PA
Eric D. Shirley, MD, Jacksonville, FL
Sanjeev Sabharwal, MD, MPH, Chatham, NJ
Anna Katsman, MD, Philadelphia, PA
Kit M. Song, MD, Los Angeles, CA
The work of POSNA’s Childrens’ Orthopedics in Underserved Regions Committee is a model for orthopedic volunteerism and the advancement of global pediatric orthopedic care.

Scientific Exhibit SE32
Calls to the Newborn Nursery: What Every Orthopaedist Should Know, and Not Miss
Devon J. Ryan, MD, New York, NY
Omri Ayalon, MD, Brooklyn, NY
Alice Chu, MD, Livingston, NJ
This exhibit will aid the orthopaedist on calls to the newborn nursery by highlighting the correct approach to seeing and examining newborns, and reviewing diagnoses, treatments, and correct referrals.
**PRACTICE MANAGEMENT**

Scientific Exhibit SE33  
Utilization of Ultrasound as a Diagnostic, Therapeutic, and Research Tool in Orthopaedic Surgery  
Paul H. Yi, MD, San Francisco, CA  
Hanbing Zhou, MD, Worcester, MA  
Vamsi Yelavarthi, BA, Boston, MA  
Bruce Jobse, BA, Scituate, MA  
Justin Chung, BA, Boston, MA  
Richard Ma, MD, Columbia, MO  
Joshua Dines, MD, New York, NY  
Akira Murakami, MD, Boston, MA  
Xinning Li, MD, Lexington, MA

Ultrasound is useful for diagnostic, therapeutic, and research purposes in orthopaedic surgery.

Scientific Exhibit SE34  
Cost-effective Arthroscopic Surgery Training and Assessment Tool for Resident Education  
Gregory Lopez, MD, Orange, CA  
David F. Martin, MD, Winston-Salem, NC  
Rick W. Wright, MD, Saint Louis, MO  
James Jung, BS, Irvine, CA  
Peter Hahn, MD, Long Beach, CA  
Daniel Bracey, MD, Winston Salem, NC  
Ranjan Gupta, MD, Orange, CA

This interactive exhibit will provide surgeons with the ability to trial a low cost arthroscopy simulator we have developed, which has potential to be used in the future as a residency education tool.

Scientific Exhibit SE35  
AAOS Medical Liability Committee: State Legislative Changes Affecting Medical Liability Reform: What's New in Your State?  
Thomas B. Fleeter, MD, Reston, VA  
Michael M. Albrecht, MD, Austin, TX  
Robert R. Slater Jr, MD, Folsom, CA

Federal liability reform is unlikely. States are actively pursuing medical liability reform but annual liability costs exceed $30B. Significant changes and trends are detailed in this poster.

Scientific Exhibit SE36  
Improving Orthopaedic Resident Surgical Skills Curricula Through Problem-Based Learning  
Adam Rothenberg, MD, Pittsburgh, PA  
MaCalus Hogan, MD, Pittsburgh, PA  
Vincent Deeney, MD, Pittsburgh, PA  
Freddie H. Fu, MD, Pittsburgh, PA  
Kanu Goyal, MD, Columbus, OH

Effectiveness of, and sustained participation in, simulated surgical skills curricula is improved by incorporation of adult learning theory principles into module development.

**FOOT AND ANKLE**

Scientific Exhibit SE37  
Lateral Inverted Osteochondral Fracture of the Talus - Diagnosis, Surgical Technique, and Results  
Arash Dini, MD, New Orleans, LA  
Adam F. Meisel, MD, W Hollywood, CA  
Matthew D. Driscoll, MD, Austin, TX  
Bradley J. Dunlap, MD, Evanston, IL  
Richard D. Ferkel, MD, Van Nuys, CA

We present an overview of a newly recognized and often-missed injury pattern – the LIFT Lesion (Lateral Inverted Fracture of the Talus) - including diagnosis, surgical technique, and clinical results.

Scientific Exhibit SE38  
Surgical Treatment of Hallux Valgus Associated with Flat Foot During Growing Age  
Sandro Giannini, MD, Bologna, Italy  
Francesco Traina, MD, Bologna, Italy  
Matteo Nanni, MD, Bagheria, Italy  
Federico Pilla, MD, Bologna, Italy  
Raffaele Borgi, MD, Bologna, Italy  
Daniele Fabbri, MD, Bologna, Italy  
Ilaria Sanzarella, MD, Messina, Italy  
Mohammadreza Chebrassan, MD, Bologna, Italy  
Cesare Faldini, MD, Bologna, Italy

Simultaneous surgical treatment of hallux valgus associated with flexible flat foot in children combining distal linear metatarsal osteotomy of the 1st metatarsal with subtalar arthroereisis.

**SHOULDER AND ELBOW**

Scientific Exhibit SE39  
Management of Complications of Reverse Shoulder Arthroplasty  
Matthew J. Teusink, MD, Omaha, NE  
James V. Nepola, MD, Iowa City, IA  
Mark A. Frankle, MD, Temple Terrace, FL

This exhibit will display interactive computer modules on avoidance and management of common complications following reverse shoulder arthroplasty.

Scientific Exhibit SE40  
Medial Ulnar Collateral Ligament Reconstruction: Indications, Techniques, and Outcomes  
Brandon Erickson, MD, Chicago, IL  
Joshua Harris, MD, Bellaire, TX  
Gregory L. Cvietanovich, MD, Chicago, IL  
Rachel M. Frank, MD, Chicago, IL  
Mark S. Cohen, MD, Glencoe, IL  
Bernard R. Bach Jr, MD, River Forest, IL  
Charles A. Bush-Joseph, MD, Chicago, IL  
Anthony A. Romeo, MD, Chicago, IL

With proper indications, meticulous surgical technique, and comprehensive rehabilitation, UCL reconstruction is a reliable procedure in the throwing athlete.
Scientific Exhibit SE41
Diagnostic Injections About the Shoulder
Alex Johnson, MD, Baltimore, MD
Malick Bachabi, MD, Baltimore, MD
Eric Dein, BS, Baltimore, MD
Johnathan Bernard, MD, MPH, New York, NY
Sophia A. Strike, MD, Baltimore, MD
Edward G. McFarland, MD, Lutherville, MD
Umashanthan Srikrumaran, MD, MBA, Clarksville, MD
Bashir A. Zikria, MD, MSc, Baltimore, MD

This exhibit seeks to educate and update orthopaedic surgeons on physical examination of the shoulder and the role of diagnostic injections for identifying pathology.

Scientific Exhibit SE42
Treatment of Shoulder Instability Due to Glenoid and Humeral Bone Loss
Jason Somogyi, MD, Chicago, IL
Joseph B. Cohen, MD, Chicago, IL
Hristo I. Piponov, Evanston, IL
Jason L. Koh, MD, Winnetka, IL
Laurent Lafosse, MD, Annecy, France
Lewis L. Shi, MD, Chicago, IL

Traumatic shoulder injuries leading to recurrent dislocation in the presence of clinically significant glenoid or humeral bone loss often require advanced techniques to restore stability.

Scientific Exhibit SE43
Magnetic Resonance Imaging, Ultrasound, and Their Associated Arthroscopic Findings of Shoulder Disorders
Ashvin K. Dewan, MD, Baltimore, MD
Andrea Spiker, MD, Baltimore, MD
Ariel Williams, MD, Baltimore, MD
Johnathan Bernard, MD, MPH, New York, NY
Bashir A. Zikria, MD, MSc, Baltimore, MD
Steve A. Petersen, MD, Baltimore, MD
Edward G. McFarland, MD, Lutherville, MD
A. J. Khanna, MD, Bethesda, MD
Umashanthan Srikrumaran, MD, MBA, Clarksville, MD

MRI is a valuable, non-invasive method of evaluating the shoulder; ultrasound is an economical imaging modality for select pathologies; arthroscopic correlations with imaging are reviewed here.

Scientific Exhibit SE44
Updates in the Management of Glenoid Bone Loss in Shoulder Arthroplasty
Michael S. Guss, MD, New York, NY
Kirk A. Campbell, MD, Chicago, IL
Young W. Kuon, MD, PhD, New York, NY

This exhibit will review current literature on management of glenoid bone loss in shoulder arthroplasty and develop an evidence-based algorithm to dictate treatment and optimize outcomes.

Scientific Exhibit SE45
Surgical Approaches in Total Elbow Arthroplasty: Managing the Triceps
Peter McQueen, MD, Chicago, IL
David Savin, MD, Chicago, IL
Simon Lee, MPH, Chicago, IL
Benjamin Goldberg, MD, Chicago, IL

As indications for total elbow arthroplasty expand, it is important for the Orthopaedic surgeon to understand the different approaches to the elbow in order to optimize outcomes in their patients.

Scientific Exhibit SE46
Acute Distal Biceps Rupture: Surgical Management Options
David Savin, MD, Chicago, IL
Simon Lee, Chicago, IL
Jonathan Watson, MD, Chicago, IL
Ari Youderian, MD, Aliso Viejo, CA
Mark R. Hutchinson, MD, Elmhurst, IL
Benjamin Goldberg, MD, Chicago, IL

Surgical repair of distal biceps rupture is constantly evolving with multiple surgical techniques and fixation methods that can result in good outcomes.

Scientific Exhibit SE47
Glenohumeral Arthritis in the Young Adult: New Treatments for a Complex Problem
Cory M. Stewart, MD, Chicago, IL
Hristo I. Piponov, Evanston, IL
Oliver Schipper, MD, Chicago, IL
Jason L. Koh, MD, Winnetka, IL
Peter J. Millett, MD, MSc, Vail, CO
Lewis L. Shi, MD, Chicago, IL

This exhibit will review the diagnosis, treatments, and outcomes of patients with glenohumeral arthritis under the age of 45 with emphasis on several recent studies, including our own.

Scientific Exhibit SE48
The Unstable Os Acromiale: Evaluation and Treatment
Brian Shiu, MD, Baltimore, MD
Ehsan Jazini, MD, Baltimore, MD
Xuyang Song, Baltimore, MD
Mohit Gilotra, MD, Baltimore, MD
R. F. Henn III, MD, Ellicott City, MD
Syed A. Hasan, MD, Baltimore, MD

This scientific exhibit offers a comprehensive review of the pathophysiology, biomechanics and presents an algorithm for evidence-based treatment of the symptomatic, unstable os acromiale.
ADULT RECONSTRUCTION HIP

Scientific Exhibit SE49
AAOS Research Development Committee: Musculoskeletal Infection
Javad Parvizi, MD, FRCS, Philadelphia, PA
Michael T. Archdeacon, MD, Cincinnati, OH
Paul A. Manner, MD, Seattle, Washington
Peter C. Amadio, MD, Rochester, MN
Erin L. Ransford, Rosemont, IL

Evidence-based state of the art knowledge to improve the diagnosis and treatment of musculoskeletal infections, including orthopaedic periprosthetic and post-traumatic/post-surgical infections.

Scientific Exhibit SE50
3D MRI of the Postoperative Hip Replacement
Christian Klemt, PhD, London, United Kingdom
Johann Henckel, MD, London, United Kingdom
Shiraz Sabah, MD, Middlesex, United Kingdom
Rishid Berber, MBBS, BSc, St Albans, United Kingdom
Marc Modat, PhD, London, United Kingdom
Michael Kho, MBBS, Stanmore, United Kingdom
John Skinner, FRCS, London, United Kingdom
Sebastien Ourselin, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom

We will demonstrate our use of 3D MRI in orthopaedic surgery by applying novel muscle rendering imaging tools to conventional MRI scans from patients with hip pathology to aid surgical planning.

Scientific Exhibit SE51
Extensile Anterior Approach Hip Arthroplasty: Revisions, Complex Primary, and Intra-operative Complications
Kristoff Corten, MD, PhD, Genk, Belgium
Ronald Driesen, MD, Genk, Belgium

The anatomy of the anterior neurovascular structures is described for extensile acetabular and femoral exposure for revision and complex hip arthroplasty conducted through the anterior approach.

Scientific Exhibit SE52
The Treatment of Paprosky 3B Acetabular Defects with Impaction Grafting, Reinforcement Mesh, and a Cemented Cup
Alejandro Gonzalez Della Valle, MD, New York, NY
Francisco Nally, Olivos, Argentina
Marion Opperer, MD, New York, NY
Burak Beksac, MD, Istanbul, Turkey
Friedrich Boettner, MD, New York, NY

Extensive acetabular bone loss in Paprosky 3B defects can be addressed using impaction grafting with a reinforcement mesh and a cemented polyethylene cup.

Scientific Exhibit SE53
An Overview of the Outcomes of Technological Advances in Performing Total Hip Arthroplasty
Savyasachi C. Thakkar, MD, Baltimore, MD
Karthikeyan E. Ponnusamy, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Lawrence D. Dorr, MD, Pasadena, CA
Harpal S. Khanuja, MD, Cockeysville, MD

With the economic challenges of our outcome-driven healthcare system, new technology in performing total hip arthroplasty will only be adopted if it correlates with improved outcomes.

Scientific Exhibit SE54
Metallurgy for Surgeons: What You Need to Know
Carlos J. Lavernia, MD, Coral Gables, FL
Jesus M. Villa, MD, South Miami, FL
Christopher Emerson, BS, South Miami, FL

This scientific exhibit will provide the surgeon with deeper metallurgical knowledge useful to recognize the real characteristics of prosthesis and carry out well-informed implant selection decisions.

Scientific Exhibit SE55
Management of Migrated Pelvic Acetabular Components in THA Revision With or Without Vascular Involvement
Stefan Cristea, MD, Bucuresti, Romania
Andrei I. Prundeanu, MD, Bucuresti, Romania
Florin S. Groseau, Bucharest, Romania
Stefan A. Cuculici, Bucharest, Romania
Serban Dragosloveanu, MD, Bucharest, Romania

Intrapelvic acetabular cup migration is a serious complication especially when vascular injury happened. Management of these complicated revisions needs an experienced, multidisciplinary team.

Scientific Exhibit SE56
The Correlation of Range of Motion with Head and Neck Size, Cup Center, Cup and Neck Position in Total Hip Arthroplasty
Fumihiro Yoshimine, MD, Tokyo, Japan
Tomohiro Yoshimine, PhD, Tokyo, Japan
Yuto Yoshimine, PhD, Tokyo, Japan

To increase ROM, the most effective factor is prosthetic ROM. This value is decided by 3 factors, head size, neck diameter, rotation center. Rotation center position is the most influential factor.

Scientific Exhibit SE57
Molded Articulating Cement Spacers for Two-Stage Treatment of Infected Total Hip Arthroplasty
Keith R. Berend, MD, New Albany, OH
Michael J. Morris, MD, New Albany, OH
Joanne B. Adams, CMI, New Albany, OH
Keri L. Satterwhite, New Albany, OH
Adolph V. Lombardi Jr, MD, New Albany, OH

Treatment of deep infection after THA using molded, articulating antibiotic-laden acrylic cement spacers was successful in eradicating infection in 84% of hips (47 of 56) at 2 years.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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Scientific Exhibit SE58
The Anterior Approach in Total Hip Replacement: Tips and Tricks to Make it Easy
Matteo Romagnoli, MD, Bologna, Italy
Matteo Cadossi, MD, Bologna, Italy
Alberto Ruffilli, MD, Bologna, Italy
Giuseppe Tedesco, MD, Bologna, Italy
Antonio Mazzotti, MD, Bologna, Italy
Sandro Giannini, MD, Bologna, Italy

The purpose of this exhibit is to identify the most crucial steps in THR by anterior approach and describe the possible pitfalls and solutions.

Scientific Exhibit SE59
Salvage Treatment of Failed Surgical Fixation of Hip Fractures
Spencer Woolwine, CS, Costa Mesa, CA
Givenchy Manzano, BS, Cleveland, OH
James D. Slover, MD, New York, NY
Ran Schwarzkopf, MD, Irvine, CA

Conversion THA for failed surgical fixation of hip fractures significantly improves function, however, orthopaedic surgeons must be aware of the risk of common complications.

Scientific Exhibit SE60
Hip Pain in the Young Adult: A Treatment Algorithm
Roy Davidovitch, MD, New York, NY
Brian Park, MD, New York, NY
William Rossy, MD, Hoboken, NJ
Carlos Uquillas, MD, New York, NY
Jeffrey Nepple, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
Jonathan Vigdorchik, MD, New York, NY

Through literature review and institutional database review, we will present an evidence based treatment algorithm for the young adult with hip pain.

Scientific Exhibit SE61
THA for the Dysplastic Hip: Outcomes and Strategies to Optimize Component Placement and Reduce Complications
Christopher E. Pelt, MD, Salt Lake City, UT
Jesse Chrestil, MD, Lone Tree, CO
Jeremy Gilliland, MD, Salt Lake Cty, UT
Mike Anderson, MS, ATC, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT
Jill Erickson, PA, Salt Lake City, UT

THA for the dysplastic hip presents numerous challenges. Clinical results are similar to non-dysplastic hips but there is an increased risk of hip instability.

Scientific Exhibit SE62
Dynamic Imaging in Hand and Upper Extremity Surgery: Ultrasound and Three Dimensional MRI
Omri Ayalon, MD, Brooklyn, NY
Catherine Petchprapa, MD, New York, NY
Ronald Adler, MD, New York, NY
Devin J. Ryan, BA, New York, NY
John T. Capo, MD, Hoboken, NJ
Anthony Sapienza, MD, New York, NY
Nader Paksima, DO, New York, NY

This exhibit will explain appropriate use of dynamic ultrasound, and present 3-dimensional dynamic MRI as an emerging technique in evaluating complex kinematics in hand and upper extremity surgery.

Scientific Exhibit SE63
Flexor Tendon Injuries: What Do We Know and Where Do We Go?
Christopher Klifto, MD, New York, NY
Anthony Sapienza, MD, New York, NY
John T. Capo, MD, Hoboken, NJ
Syngil S. Yang, MD, New York, NY
Nader Paksima, DO, New York, NY
April O’Connell, BS, New York, NY
Imran Akhtar, Woodhaven, NY

A scientific exhibit discussing the most current anatomy, basic science, surgical repair and rehabilitation in flexor tendon injuries.

Scientific Exhibit SE64
Evaluation and Treatment of Overuse Syndromes the Hand, Wrist, and Elbow
Malick Bachabi, MD, Baltimore, MD
Sophia A. Strike, MD, Baltimore, MD
Eric Dein, BS, Baltimore, MD
Alex Johnson, MD, Baltimore, MD
Johnathan Bernard, MD, MPH, New York, NY
Gene Deune, MD, Baltimore, MD
Dawn LaPorte, MD, Baltimore, MD

Overuse syndromes are quite common at the elbow, wrist and hand. This exhibit reviews treatment modalities from some of the most common overuse syndromes of the upper extremity.

Scientific Exhibit SE65
Risk Factors and Prophylaxis Options for Proximal Junctional Kyphosis
Sreeharsha Nandyala, BA, Aurora, IL
Khaled M. Kebaish, MD, Baltimore, MD
Francis H. Shen, MD, Charlottesville, VA
Adam L. Shimer, MD, Charlottesville, VA
Hamid Hassanzadeh, MD, Charlottesville, VA

This exhibit elucidates the risk factors and prevention strategies for PJK that have been recently introduced in the literature and provides some preliminary evidence and case examples.
Scientific Exhibit SE66
Intraoperative Neurophysiological Monitoring During Spine Surgery
Richard Okafor, MD, Rochester, NY
William J. Molinari, MD, Rochester, NY
Omri Ayalon, MD, Brooklyn, NY
Addisu Mesfin, MD, Brighton, NY

Intraoperative neurophysiological monitoring is important in increasing the safety of spine surgery. We provide a literature review and an update on this important technology.

Scientific Exhibit SE67
The Influence of Spinal Deformities on Acetabular Orientation in Total Hip Arthroplasty
Du Y, Phan, MD, Anaheim, CA
S. S. Bederman, MD, PhD, FRCS, Orange, CA
Kan Schwarzkopf, MD, Irvine, CA

Acetabular cup placement during total hip arthroplasty can be optimized based on the type and significance of coexisting spinal deformity to increase hip functional range of motion.

Scientific Exhibit SE68
Changes in Spino-pelvic Alignment after Surgical Treatment of High Grade Isthmic Spondylolisthesis
Cesare Faldini, MD, Bologna, Italy
Francesco Traina, MD, Bologna, Italy
Alberto Di Martino, MD, PhD, Rome, Italy
Angelo Toscano, MD, Mori (TN), Italy
Daniele Fabbri, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Fabrizio Perna, Palermo, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Vincenzo Denaro, MD, Rome, Italy

The aim of this study is to analyse changes in spino-pelvic alignment after surgical treatment of high grade lumbar isthmic spondylolisthesis by attempt of posterior reduction and instrumented fusion.

TUMOR AND METABOLIC DISEASE

Scientific Exhibit SE69
Musculoskeletal Tumor Society: 30 Years of Oncologic Expandable Prostheses - What Have We Learned?
Michael P. Mott, MD, Detroit, MI
Odion Binitie, MD, Tampa, FL
Joseph Benevenia, MD, Newark, NJ
Michael D. Neel, MD, Memphis, TN
Theodore W. Parsons III, MD, FACS, Detroit, MI
G. D. Letson, MD, Tampa, FL

Successful oncologic reconstruction in the skeletally immature represents a significant challenge to produce a lifelong functioning limb for the long term survivors of their underlying malignancy.

Scientific Exhibit SE70
Online Orthopaedic Oncology Text: PORTNotes, The Pathology, Orthopaedics, Radiology of Musculoskeletal Tumors
J. D. Pitcher Jr MD, Miami Beach, FL
Christian Veillette, MD, Toronto, ON, Canada

A free, comprehensive orthopaedic oncology textbook updated monthly at http://www.orthopaedicsone.com/display/PORT provides free access to surgeons and patients in modern and developing nations alike.

Scientific Exhibit SE71
How to Recognize a Bone Tumor Based on Imaging: Guidelines Inferred from a Review of the Literature
Francesco Traina, MD, Bologna, Italy
Costantino Errani, MD, Bagheria, Italy
Iaria Sanzarella, MD, Messina, Italy
Camilla Pungetti, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Daniele Fabbri, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Fabrizio Perna, Palermo, Italy
Cesare Faldini, MD, Bologna, Italy

Recognize a bone lesion on imaging is mandatory for general orthopaedic surgeon. This study proposes an algorithm of diagnosis on imaging of bone lesions inferred from a review of the literature.

SPORTS MEDICINE AND ARTHROSCOPY

Scientific Exhibit SE72
Pearls & Pitfalls of Hip Arthroscopy: Avoiding Complications & Getting Out of Trouble
Kyle Alpaugh, MS, Boston, MA
Benedict U. Nwachukwu, MD, MBA, New York, NY
Shivam Upadhyaya, BS, Boston, MA
Scott D. Martin, MD, Boston, MA

Hip arthrosopy is technically challenging; however, there are strategies to avoid and recover from intra-operative complications if and when they occur.

Scientific Exhibit SE73
Hip Preservation Surgery: Positioning, Traction, Portals, Techniques, Pearls, and Pitfalls
Simon Lee, MPH, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Brandon Erickson, MD, Chicago, IL
Richard C. Matier III, MD, Durham, NC
Michael Salata, MD, Cleveland, OH
Charles A. Bush-Joseph, MD, Chicago, IL
Shane J. Nho, MD, Chicago, IL

This exhibit provides a comprehensive framework based on the best-available evidence to optimize hip arthroscopic management in patients undergoing surgery for femoroacetabular impingement.
Scientific Exhibit SE74
Two-stage Revision ACL Reconstruction: Indications, Techniques, and Outcomes
Brandon Erickson, MD, Chicago, IL
Khalid Waliullah, MD, Columbia, MO
Adam B. Yaneke, MD, Chicago, IL
Christopher E. Gross, MD, Chicago, IL
Gary Stover Jr, BA, Columbia, MO
Brian J. Cole, MD, MBA, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Seth Sherman, MD, Columbia, MO
Gregory L. Cvetanovich, MD, Chicago, IL

The decision to perform two stage revision ACLR is based upon prior tunnel position, tunnel widening requiring bone grafting, prior graft choice and fixation method, and concomitant injuries.

Scientific Exhibit SE75
Meniscal Root Tears: Significance, Diagnosis, and Treatment
Sanjeev Bhatia, MD, Vail, CO
Christopher Laprade, BA, Vail, CO
Michael B. Ellman, MD, Denver, CO
Sam Moulton, BS, Eugene, OR
Robert F. LaPrade, MD, PhD, Vail, CO

Tears of posterior meniscal root attachments often lead to meniscal extrusion, a risk factor for rapid joint degeneration.

Scientific Exhibit SE76
Comparison of Current Surgical Techniques in Ulnar Collateral Ligament Reconstruction in Overhead Athletes
Edward Chang, MD, Pittsburgh, PA
Eric M. Padegimas, MD, Philadelphia, PA
Steven B. Cohen, MD, Media, PA
Adam E. Hyatt, MD, Philadelphia, PA
Jake Zarab, MD, Verona, NJ
Matthew I. Steen, MD, Tampa, FL
Sommer Hammoud, MD, Philadelphia, PA
Christopher Dodson, MD, Philadelphia, PA
Michael G. Cicciotti, MD, Philadelphia, PA

UCL reconstruction allows athletes to return to their previous level at a rate of 80-90%. Further research is required to determine whether one technique is superior to the other.

Scientific Exhibit SE77
Repairs and Reconstructions Around the Elbow
Michael S. Day, MD, New York, NY
Sergio Glatt, MD, New York, NY
Alan W. McGee, MD, New York, NY
Maxwell Weinberg, BS, New York, NY
Michael J. Aliai, MD, New York, NY
Guillem Gonzalez-Lomas, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY

To provide a comprehensive review of ligamentous injuries of the elbow, anatomy, diagnosis, instability, and treatment, with particular focus on surgical techniques of LCL and UCL reconstructions.

Scientific Exhibit SE78
The Surgical Management of Articular Cartilage Injuries in Patients with Concomitant Malalignment
Ian Kaye, MD, New York, NY
Michael Ryan, MD, New York, NY
Alan W. McGee, MD, New York, NY
Eric J. Strauss, MD, New York, NY
Laith M. Jazrawi, MD, New York, NY

This is a thorough review of and evidence-based how-to-guide for combined articular cartilage procedures and high tibial osteotomies for cartilage defects in the setting of tibiofemoral malalignment.

Scientific Exhibit SE79
Ligamentous Avulsions about the Knee - Incidence, Diagnosis, and Management
Ariel Williams, MD, Baltimore, MD
John H. Wilckens, MD, Annapolis, MD
Andres E. O'Daly, MD, Baltimore, MD
Qais Naziri, MD, Brooklyn, NY
Bashir A. Zikria, MD, MSc, Baltimore, MD

A discussion of ligamentous avulsion injuries within the knee including incidence, clinical and radiologic findings, associated injuries, surgical treatment and outcome results.

Scientific Exhibit SE80
Approach to Glenoid and Humeral Head Bone Loss in Surgical Treatment of Recurrent Shoulder Instability
Ryan Mlynarek, MD, BS, Ann Arbor, MI
James Cowan, MD, Ann Arbor, MI
Alexander Weber, MD, Ann Arbor, MI
Joshua Dunes, MD, New York, NY
Nikhil N. Verma, MD, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Ainsworth A. Allen, MD, New York, NY
Jon K. Sekiya, MD, Ann Arbor, MI
Asheesh Bedi, MD, Ann Arbor, MI

A review of diagnosis and treatment options for patients with recurrent shoulder instability complicated by glenoid and humeral head bone loss in the setting of primary and revision surgery.

Scientific Exhibit SE81
Posteromedial Meniscocapsular Tear: Prevalence, Detection Sensitivity, Biomechanics, and Repair Technique
Cory Edgar, MD, PhD, West Hartford, CT
James K. Ware, MD, West Hartford, CT
Elifbo Obopilue, Torrington, CT
Connor Ziegler, MD, Farmington, CT
Dale N. Reed, MD, Calhoun, Georgia
Robert A. Arciero, MD, Farmington, CT

Posteromedial Meniscocapsular Tear: The prevalence in a series of 337 ACL reconstruction patients, detection sensitivity by MRI, Biomechanics as it relates to the ACL, and a Repair Technique.
Scientific Exhibit SE82
Cartilage Restoration of the Patellofemoral Joint
Patrick Kane, MD, Wilmington, DE
Matthew I. Stein, MD, Philadelphia, PA
Sommer Hammoud, MD, Philadelphia, PA
Christopher Dodson, MD, Philadelphia, PA
Robert W. Frederick, MD, Villanova, PA
Bradford S. Tucker, MD, Ocean City, NJ
John Anderson, MD, Philadelphia, PA
Michael G. Ciccotti, MD, Philadelphia, PA
Kevin B. Freedman, MD, Bryn Mawr, PA

The goal of this scientific exhibit is to review the surgical options and results for the treatment of articular cartilage defects of the patellofemoral joint.

Scientific Exhibit SE83
Xinning Li, MD, Lexington, MA
Richard Ma, MD, Columbia, MO
Hanbing Zhou, MD, Worcester, MA
Asheesh Bedi, MD, Ann Arbor, MI
David M. Dines, MD, Uniondale, NY
David W. Aliot, MD, New York, NY
Joshua Dines, MD, New York, NY

The goal of this exhibit is to provide recommendations on the management of each type of AC joint injury based on the currently available literature.

Scientific Exhibit SE84
Biceps Tenodesis Update: Indications, Techniques, Results, and Complications
Andrew J. Riff, MD, Chicago, IL
Robert A. Sershon, MD, Chicago, IL
Peter N. Chalmers, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Brian J. Cole, MD, MBA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL

This exhibit reviews the surgical approaches and fixation devices commonly used for biceps tenodesis with emphasis on technical pearls and pitfalls, clinical outcomes, and complication rates.

Scientific Exhibit SE85
Biomechanical and Clinical Comparison of Arthroscopic Type II SLAP Repair Techniques
Matthew A. Cavagnaro, MD, Hermosa Beach, CA
Kevin B. Freedman, MD, Bryn Mawr, PA
Sommer Hammoud, MD, Philadelphia, PA
Adam E. Hyatt, MD, Philadelphia, PA
Matthew I. Stein, MD, Tampa, FL
Jake Zarab, MD, Verona, NJ
Christopher Dodson, MD, Philadelphia, PA
Steven B. Cohen, MD, Media, PA
Michael G. Ciccotti, MD, Philadelphia, PA

A review of biomechanical data, and a systematic review of outcome studies for different techniques currently being utilized in practice for repair of type II SLAP tears.

Scientific Exhibit SE86
Expanding Indications and Emerging Techniques for the Use of Fresh Osteochondral Allograft Transplantation
Seth Sherman, MD, Columbia, MO
Hal Lewis, BS, Columbia, MO
Matthew A. Mooberry, BS, Columbia, MO
Ferris Pfieffer, PhD, Boonville, MO
James L. Cook, DVM, PhD, Columbia, MO
Brett D Crist, MD, Columbia, MO
James P. Stannard, MD, Columbia, MO

Innovation, technique, and improved graft storage and availability have led to expanding indications for the use of fresh OCA in the knee and other joints.

Scientific Exhibit SE87
Undressing the Bone Marrow Stimulation Technique; The Evidence behind Regenerating Articular Cartilage
Do Young Park, MD, Suwon, Republic of Korea
Byoung H. Min, MD, Suwon, Republic of Korea
Jun Young Chung, MD, Suwon, Republic of Korea
Jeajoong Kim, Suwon City, Republic of Korea
Hyunseok Seo, Suwon City, Republic of Korea
Han-Dong Lee, Suwon, Republic of Korea

Clinicians should have full understanding of the basic science behind the healing process that maximizes the reparability after bone marrow stimulation technique.

Scientific Exhibit SE88
Tenotomy, Tenodesis, or Transfer: Review of Treatment Options for Biceps-related Shoulder Pain
Elizabeth Gaudien, MD, New York, NY
Samuel A. Taylor, MD, Greenwich, CT
Prem Ramkumar, Houston, TX
Benedict U. Nwachukwu, MD, MBA, New York, NY
Brian Rebolledo, MD, New York, NY
Keith T. Corpus, MD, New York, NY
Stephen J. O’Brien, MD PLLC, New York, NY

This comprehensive review will provide readers with the most recent literature to support best practice means for diagnosis and surgical treatment of chronic refractory biceps tendinitis.
ADULT RECONSTRUCTION HIP

Poster No. P001
Mid-term Results of Hip Resurfacing in a Large US Series with Technique and Imaging Recommendations
Carlos A. Higuera, MD, Bay Village, OH
Kurt P. Spindler, MD, Garfield Hts, OH
Gregory J. Strnad, MS, Lyndhurst, OH
Peter J. Brooks, MD, Cleveland, OH

A series of hip resurfacing procedures performed at a single institution demonstrates the mid-term safety and efficacy of this procedure. Component position and careful patient selection are critical.

Poster No. P002
Low Early Complication Rate with a Modern Dual Mobility Hip Prosthesis
Manoshi Bhowmik-Stoker, PhD, Mahwah, NJ
Geoffrey H. Westrich, MD, New York, NY
Kipling P. Sharpe, MD, Gilbert, AZ
Kristin Robinson, MS, Mahwah, NJ
Jim Nevelos, PhD, Mahwah, NJ

In this study, we analyzed the three dimensional jump height of a modern dual mobility bearing in a computer model and reported on early complications from a prospective clinical trial.

Poster No. P003
Comparison between 28mm and 32mm Ceramic-on-Ceramic Bearings in Total Hip Arthroplasty
Young-Kyun Lee, MD, Menlo Park, CA
Kyung-Hoi Koo, MD, Seongnam-Si, Republic of Korea
Yong-chan Ha, Prof, Seoul, Republic of Korea
Tae-young Kim, PhD, Anyang, Republic of Korea
Jae-Hui Nho, Assistant Prof, Cheonan, Republic of Korea
Bun-Jung Kang, MD, Jinju, Republic of Korea
Byung Ho Yoon, Seoul, Republic of Korea

We compared the rates of ceramic fractures, dislocation, squeaking, ceramic wear, osteolysis, and loosening between 32-mm and conventional 28-mm articulations in ceramic THA.

Poster No. P004
RCT Comparison of Delta Ceramic Versus Metal Against Conventional Polyethylene in THA
Amine Zaoui, Paris, France
Samer El Hage, MD, Chiyah, Beirut, Lebanon
Jean Langlois, MD, Paris, France
Caroline Scemama, Issy Les Moulineaux, France
Jean-Pierre Courpied, PhD, Paris, France
Monissa Hamadouche, PhD, Paris, France

This paper compares the minimum 3-year penetration rate of delta ceramic versus metal against contemporary annealed sockets using the Martell system.

Poster No. P005
Prospective Results of 4th Generation Alumina Matrix Composite Total Hip Replacement with Minimum 7-Year Follow Up
Robit Dhawan, MBBS, MRCS Oswestry, United Kingdom
John-Paul Whittaker, MRCS, Shropshire, United Kingdom
Sudbeer Karlakki, FRCS, FRCS (Ortho), Oswestry, United Kingdom
Stephen J. Phillips, MD, Oswestry, Shropshire, United Kingdom
Patrick Gregson, FRCS, FRCS (Ortho), Shropshire, United Kingdom
Niall Graham, FRCS, FRCS (Ortho), Wrexham, United Kingdom

A prospective study of 387 patients with primary total hip replacements with 4th generation Alumina Matrix Composite ceramic articulating surfaces is reported. No ceramic fractures were seen.

Poster No. P006
Reliability of Modern Ceramic Femoral Heads in over 5.7 Million Hip Implants
Guo-Chin Lee, MD, Philadelphia, PA
Raymond H. Kim, MD, Denver, CO

Modern ceramic heads are reliable with very low fracture rates. Maximizing head size and proper implant matching can further decrease fracture risk.

Poster No. P007
Extra-articular Impingement as a Cause of Refractive Groin Pain Following Total Hip Replacement
Kristoff Corten, MD, PhD, Genk, Belgium

Extra-articular impingement between the greater trochanter and the soft tissues at the level of inferior iliac spine has been detected as a source of refractive groin pain following THA.

Poster No. P008
No Differences in Patient Function Six Weeks after Direct Anterior or Posterior THA: A Randomized Study
Christian P. Christensen, MD, Lexington, KY
Cale Jacobs, PhD, Lexington, KY

DAA THA resulted in a shorter hospital stay, earlier ability to walk without a cane, and better pain relief at 6 weeks, but objective and subjective function did not differ between approaches.

Poster No. P009
Refining the Acetabular Component Safe Zone for Posterior Approach Total Hip Arthroplasty
Jonathan Danoff, MD, Englewood, NJ
Jacob Bobman, BS, BA, New York, NY
Oladapo M. Babatunde, MD, Redwood City, CA
Jeffrey A. Geller, MD, New York, NY
William B. Macaulay, MD, New York, NY

Hip dislocation events may be minimized by orienting the acetabular component inside a safe zone of 10-25° anteverision and 30-50° abduction, when using a posterior approach.
**Poster No. P010**
The Relationship Between Polyethylene Wear and Peri-prosthetic Osteolysis in THA - A 12-year RCT
John A. Broomfield, Oxford, United Kingdom
Geraint E. Thomas, MA, MBBS, Oxford, United Kingdom
Antony Palmer, MA, BMBCh, Oxford, United Kingdom
Adrian Taylor, MBBS, FRCS, Oxford, United Kingdom
Andrew J. Carr, FRCS, Headington Oxford, United Kingdom
Sion Glyn-Jones, MA MBBS, Oxford, United Kingdom

A prospective, double blind, RCT comparing RSA measured volumetric polyethylene wear with CT measured peri-prosthetic osteolysis showing no significant difference between the two groups.

**Poster No. P011**
Modern Proximal Titanium Stems are Tolerant of Femoral Malposition
David F. Dalury, MD, Baltimore, MD
Danielle M. Chapman, Towson, MD

Modern proximally coated tapered stems are tolerant of femoral malalignment and show sufficient osseous integration, despite mild malalignment.

**Poster No. P012**
What Can and Can’t Be Learned from Long-term Follow-up Studies of Hip Replacement
Christopher T. Martin, MD, Coralville, IA
John J. Callaghan, MD, Iowa City, IA
Lucian C. Warth, MD, Iowa City, IA
Steve S. Liu, MD, Coralville, IA
Devon D. Goetz, MD, West Des Moines, IA
Andreew J. Pugely, MD, Iowa City, IA
Nicolas O. Noisieux, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Richard C. Johnston, MD, Iowa City, IA

Long term studies of THR need to evaluate younger cohorts of patients to have meaningful numbers of patients for statistically relevant evaluation at final follow-up.

**Poster No. P013**
New Cross-table Lateral Radiography Method for Measuring Acetabular Component Anteversion
Hajime Seo, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan
Kouichi Kinoshita, MD, Fukuoka, Japan
Norihito Watanabe, MD, Fukuoka-Ken, Japan
So Minokawa, MD, Fukuoka-Ken, Japan
Shohei Okahisa, MD, Hyogo, Japan
Tomohiko Minamikawa, MD, Fukuoka-Ken, Japan
Satohiro Ishii, MD, Fukuoka, Japan
Tetsuro Ishimatsu, MD, Fukuoka, Japan

We propose a new method to measure acetabular component version using cross-table lateral view. It is performed with the contralateral hip flexed to 45°. Our method appears to be reliable and valid.

**Poster No. P014**
Repeated Magnetic Resonance Imaging in Patients with Large-diameter Metal-on-metal Hip Replacement
Aleksi Reito, MD, Tampere, Finland
Petra Elo, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Jorma Pajamäki, MD, PhD, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

Significant change in repeated MRI in patients with large-diameter MoM hip replacement was rare and progression of the findings does not seem to correlate clearly with symptoms or WB metal values.

**Poster No. P015**
The Metal on Metal Hip Replacement Recall - Our Experience with Over 700 Cases
Nijil L. Vasukutty, FRCS, MRCS, Boston, United Kingdom
Vishal Rajput, MD, Lincolnshire, United Kingdom
Anees Shaikh, MBBS, MS, Boston/Lincs, United Kingdom
Chika Uzoigwe, MBBS MRCS, Sheffield, United Kingdom
Hasnat Minhas, FRCS, Lincolnshire, United Kingdom

In our experience with 718 metal on metal hip replacements 41 have been revised after a mean follow up of 108 months out of which ten had histopathologic evidence of adverse reaction to metal debris.

**Poster No. P016**
Risk Factors for Discharge to Rehab Among Hip Fracture Patients
Rachel V. Thakore, BS, Nashville, TN
Cesar S. Molina, MD, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

In a large prospective series of patients with hip fractures, we demonstrate clear risk factors that predict potential postoperative transfer to rehab centers.

**Poster No. P017**
Acetabular Dysplasia Increases Risk for Malpositioning of the Acetabular Component in Total Hip Arthroplasty
Kirill Gromov, MD, PhD, Copenhagen, Denmark
Meridith E. Greene, Boston, MA
Christopher J. Barr, BS, Boston, MA
James I. Huddleston III, MD, Redwood City, CA
Roger H. Emerson Jr, MD, Dallas, TX
Peter Geburh, MD, Copenhagen, Denmark
Henrik Malchau, MD, Cambridge, MA
Anders Troelsen, MD, PhD, Koege, Denmark

Using Martell analysis we identified presence of acetabular dysplasia, defined as LCE angle.
ADULT RECONSTRUCTION HIP

**Poster No. P018**
Intraoperative Contamination and Surgical Helmet Systems - A Comparative Study
James Fraser, MD, Phoenix, AZ
Simon Young, MD, FRACS, Auckland, New Zealand
Kimberly Valentine, RN, Phoenix, AZ
Nicholas E. Probst, PA-C, Scottsdale, AZ
Mark J. Spangehl, MD, Phoenix, AZ
Nicholas E. Probst, PA-C, Scottsdale, AZ

A comparative study of particle contamination at the gown glove interface of commonly used surgical helmet systems in total joint replacement.

**Poster No. P019**
Histopathological Patterns Seen Around Failed Metal-on-metal Hip Replacements: A Factor and Cluster Analysis
Aleksi Reito, MD, Tampere, Finland
Jyrki Parkkinen, MD, PhD, Tampere, Finland
Timo J. Paolakka, MD, PhD, Tampere, Finland
Anssi Eskelinen, MD, PhD, Tampere, Finland

Histological findings of failed MoM hips in the absence of other reasons evinced three different patterns of histopathological findings.

**Poster No. P020**
Increased Patient Satisfaction with Mobile Compression Pumps for Venous Thromboembolism Prophylaxis
Ryan Nunley, MD, Saint Louis, MO
Denis Nam, MD, St Louis, MO
James A. Keeney, MD, St Louis, MO
John C. Clohisy, MD, Saint Louis, MO
Staci Johnson, M.Ed, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO

MCDs were equivalent to warfarin for VTE prevention, with reduced major bleeding events, wound complications, and days of drainage, and increased patient satisfaction.

**Poster No. P021**
Taper Corrosion Presenting as Late Instability Following Metal-on-Polyethylene Total Hip Arthroplasty
Herbert J. Cooper, MD, New York, NY
Robert M. Urban, Associate Prof, Chicago, IL
Carl A. Deirmengian, MD, Wynnewood, PA
Jose A. Rodriguez, MD, New York, NY
Wayne G. Paprosky, MD, Winfield, IL
Joshua J. Jacobs, MD, Chicago, IL.

Case series of 18 patients presenting with late instability secondary to adverse local tissue reactions and corrosion at the modular head-neck taper in metal-on-polyethylene total hip arthroplasty.

**Poster No. P022**
Aspirin is Adequate in Prevention of Thromboembolic Events after Revision Arthroplasty
Gregory K. Deirmengian, MD, Broomall, PA
Eric B. Smith, MD, Merion Station, PA
Snir Heller, MD, Netania, Israel
Javad Parvizi, MD, FRCS, Philadelphia, PA

This study aimed to evaluate whether aspirin, that is known to be efficacious for prevention of VTE following primary arthroplasty is also effective against such events following revision THA and TKA.

**Poster No. P023**
Impact of Cup Geometry and Fixation on Survival in Total Hip Arthroplasty
Thomas K. Comfort, MD, Stillicean, MN
Susan C. Mehl, Saint Paul, MN

Evaluation of results from a community based joint registry suggests potential significant differences in long term survival of acetabular components with differing geometries and fixation techniques.

**Poster No. P024**
Long-term Risk Factors for Revision, Reoperation, and Infection Following Revision THA for Mechanical Failure
Matthew Houdek, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
John R. Martin, MD, Rochester, MN
Taylor Dennison, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Tad M. Mabry, MD, Rochester, MN

Revision THA for mechanical failure is a difficult problem with a relatively high rate of implant failure over the long-term follow-up period.

**Poster No. P025**
Patients Developing PE Following Elective Joint Replacement Have a Very Low, One-year Mortality Rate
Alejandro Gonzalez Della Valle, MD, New York, NY
Nicolas Robador, MD, Buenos Aires, Argentina
Martin Di Nallo, MD, Quilmes, Argentina
Yoo-Yu Lee, MS, New York, NY
Gabrielle P. Konin, MD, New York, NY
Yoshimi Endo, MD, New York, NY
Gregory Saboeiro, MD, New York, NY
Geoffrey H. Westrich, MD, New York, NY
Eduardo A. Salvati, MD, New York, NY

Only 2 of 269 patients who developed a PE following elective joint replacement surgery died during the first year.

*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. P026**  
Utility of Serum and Synovial Fluid in Diagnosis of Infection in Patients with Corrosion of Dual Taper Modular Stem  
Young-Min Kwon, MD, PhD, Boston, MA  
Tsung-Yuan Tsai, PhD, Boston, MA  
William A. Leone, MD, Lighthouse Point, FL  
Guoan Li, PhD, Boston, MA  
Andrew A. Freiberg, MD, Boston, MA  
Harry E. Rubash, MD, Boston, MA

ESR and CRP have poor predictive value in diagnosing prosthetic infection in dual taper stem due to corrosion, whereas synovial WBC count and cell counts are useful markers for diagnosing infection.

**Poster No. P027**  
Sequential MARS MRI After Eight Years Follow Up of Well-functioning Metal on Metal Hip Replacements  
Emma Derby, Sevenoaks, Kent, United Kingdom  
Reshid Berber, MBBS, BSc, St Albans, United Kingdom  
Michael Kboo, MBBS, Stammore, United Kingdom  
Johann Henckel, MD, London, United Kingdom  
Shiraz Sabah, MD, Middlesex, United Kingdom  
John Skinner, FRCS, London, United Kingdom  
Alister Hart, FRCS, London, United Kingdom

Sequential MRI of metal on metal hip replacement over 8 years has demonstrated that female patients with high metal ions are at a higher risk of progression of muscle atrophy.

**Poster No. P028**  
Low Dose Aspirin: An Effective Chemoprophylaxis for Preventing Venous Thromboembolic Events  
Antonia Chen, MD, MBA, Philadelphia, PA  
Jenny Cai, Philadelphia, PA  
Camilo Restrepo, MD, Philadelphia, PA  
William J. Hozack, MD, Philadelphia, PA  
Javad Parvizi, MD, FRCS, Philadelphia, PA  
Jess H. Lonner, MD, Philadelphia, PA

In our ongoing study, plain aspirin 81mg by mouth twice a day is as effective as enteric coated ASA 325mg by mouth twice a day for preventing venous thromboembolic events in total joint arthroplasty.

**Poster No. P029**  
Capsule Atrophy and Muscle Degeneration are Related to Osteolysis with Risk of Dislocation after Hip Revision  
Philippe Hermigou, PhD, Creteil, France  
Alexandre Poignard, MD, Creteil, France

Dislocation after hip revision is increased when osteolytic lesions are large. The reason seems to be the lesions of the capsule and muscles that are not observed in absence of osteolysis.

**Poster No. P030**  
Positive Outcome Bias in the Total Joint Arthroplasty Literature  
Carola F. Van Eck, MD, Pittsburgh, PA  
Antonia Chen, MD, MBA, Philadelphia, PA  
Adolph J. Yates Jr, MD, Pittsburgh, PA

Despite the Department of Justice requirements for public reporting and establishing consulting, this study shows no decrease in the rate of positive outcomes bias in the total joint literature.

**Poster No. P031**  
† Hip Resurfacing as an Outpatient Procedure  
Thomas P. Gross, MD, Columbia, SC  
Fei P. Liu, Ph.D, Columbia, SC

We conclude that in properly selected patients, outpatient hip resurfacing can be accomplished safely, with a high degree of patient satisfaction and a tremendous cost savings to the insurer.

**Poster No. P032**  
Aspirin and Mechanical Prophylaxis was very Effective in Prevention of PE and Proximal DVT in 2000 TJA Cases  
Koh Shimizu, MD, Chiba, Japan  
Takuro Moriya, Ichihara, Japan

Aspirin and mechanical prophylaxis is safe and sufficient in prevention of PE and proximal DVT in most TKA and THA patients, excluding rare cases with very high risk of coagulation tendency.

**Poster No. P033**  
Effect of Frictional Torque and Bending Moment on the Fretting Corrosion Behavior of the Large Diameter Femoral Head  
Anna Panagiotidou, MBBS, London, United Kingdom  
Khabab Osman, MBBS, MSc, London, United Kingdom  
Jayantilal M. Meswania, PhD, Stammore, Middx, United Kingdom  
Ben Bolland, FRCS (Ortho), MBBS, Hampshire, United Kingdom  
Jeremy Latham, FRCS, Southampton, United Kingdom  
Fares S. Haddad, FRCS, London, United Kingdom  
John Skinner, FRCS, London, United Kingdom  
Alister Hart, FRCS, London, United Kingdom  
Gordon W. Blunn, MD, Middlex, United Kingdom

This is the first study to quantify corrosion associated with different material combinations and loading conditions.

**Poster No. P034**  
Are Ceramic Heads Effective in Preventing Adverse Local Tissue Reaction around Large-Diameter HXLPE Bearings?  
Takashi Nishi, MD, Osaka, Japan  
Takashi Sakai, MD, Suita, Spain  
Masaki Takao, MD, Suita, Japan  
Hidetoshi Hamada, MD, Osaka, Japan  
Kim Jungyo, MD, Osaka, Japan  
Takeshi Ogawa, MD, Osaka, Japan  
Kensuke Uemura, MD, Suita, Japan  
Nobuhiko Sugano, MD, Suita, Japan

In our prospective ultrasound screening around metal-on-metal and highly cross-linked polyethylene bearings, adverse local tissue reaction was not completely prevented even using a ceramic head.

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ADULT RECONSTRUCTION HIP

Poster No. P035
ORIF of Vancouver B1 Periprosthetic Fractures: Results, Complications, and Classification of Failed Treatment
Adam Sassoon, MD, Seattle, WA
Matthew Houdek, MD, Rochester, MN
Chad Watts, MD, Rochester, MN
Nathan Turnbull, MD, Deland, FL
Joseph R. Cass, MD, Rochester, MN
Stephen A. Sens, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
George J. Haidukewych, MD, Orlando, FL

Failure of ORIF in Vancouver B1 fractures occurred in 16% of patients treated, most commonly for missed diagnosis of a loose femoral component or inadequate fixation.

Poster No. P036
Independent Evaluation of a CT-based Mechanical Hip Socket Navigation System in Total Hip Arthroplasty
Jason M. Jennings, MD, Denver, CO
Guoyan Zheng, PhD, Bern, Switzerland
Samuel S. Wellman, MD, Durham, NC

Introduction: The purpose of this study was to independently evaluate the accuracy of acetabular cup orientation using a novel mechanical navigation device.

Poster No. P037
Construct Rigidity: Keystone for Reconstructing Pelvic Discontinuity
John R. Martin, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

We recommend the use of cage constructs in the treatment of pelvic discontinuity due to increased radiographic healing rates and the highest implant survival rates of all reconstructive options.

Poster No. P038
The Influence of Femoral Stem Design and Fixation on the Incidence of Hip Periprosthetic Fractures
Jeya Palan, MD, Market Harborough, United Kingdom
Michele Smith, PhD, Bristol, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
Ashwin Kulkarni, FRCS Orth, Leicester, United Kingdom
Keith Tucker, MD, FRCS Orth, NORWICH, United Kingdom
Colin Esler, MD, FRCS, Leicester, United Kingdom
David W. Murray, MD, Oxford, United Kingdom
Ashley Blom, PhD, Bristol, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom

The design and type of fixation of femoral stems has a significant influence on the risk of needing a revision for periprosthetic fractures after primary THR.

Poster No. P039
Irrigation and Debridement for Periprosthetic Infections of the Hip and Factors Determining Outcome
Georgios Triantafyllopoulos, MD, Astoria, NY
Lazaros A. Poultsides, MD, New York, NY
Vasilios I. Sakellariou, MD, Nea Smirni Attica, Greece
Wei Zhang, New York, NY
Peter K. Sculco, MD, Rochester, MN
Yan Ma, PhD, New York, NY
Thomas P. Sculco, MD, New York, NY

We studied factors predicting outcome of irrigation and debridement for periprosthetic infections of the hip. Duration of symptoms, obesity and pathogen were found to significantly affect outcome.

Poster No. P040
Relationship Between Pelvic Incidence and Osteoarthritis of the Hip
Jeremy Gebhart, MD, Cleveland, OH
Michael S. Bohl, BA, Providence, RI
Jonathan Streit, MD, Cleveland, OH
Raymond W. Liu, MD, Cleveland, OH

We found a correlation between increased pelvic incidence and hip osteoarthritis scores in a large cadaveric sample, suggesting that a large pelvic incidence accelerates the development of hip OA.

Poster No. P041
Hip Revisions with both Acetabular and Femoral Impaction Bone-Grafting in Patient Younger than 55 Years
Martijn Te Stoet, MD, Nijmegen, Netherlands
Wim Rijnen, Nijmegen, Netherlands
Jean W. Gardeniers, MD, MX Nijmegen, Netherlands
Albert van Kampen, MD, Nijmegen, Netherlands
Berend W. Schreurs, MD, Malden, Netherlands

Impaction bone-grafting could be a valuable treatment option to restore the bone stock loss in revision total hip arthroplasties in young patients which have a long life expectancy.

Poster No. P042
Impact of Diagnosis on 90-day Hospital Readmission Rates after Hip or Knee Arthroplasty: A Cohort Study
Jaspreet Singh, MD, Vestavia, AL
Maria C. Inacio, PhD, San Diego, CA
Robert S. Namba, MD, Corona Del Mar, CA
Liz Paxton, MA, San Diego, CA

Rheumatoid arthritis compared to osteoarthritis is a risk factor for 90-day readmission after primary total knee arthroplasty or total hip arthroplasty.

Poster No. P043
The 27 to 29-Year Outcomes of the PCA Total Hip Arthroplasty in Patients Younger Than 50 Years Old
Young-Hoo Kim, MD, Seoul, Republic of Korea
Jangwon Park, MD, Seoul, Republic of Korea
Jun S. Kim, MD, Seoul, Republic of Korea

The survival rate of 88 PCA stem was 90% and that of 88 PCA cup was 66% at 28.4 years FU.

* 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. P044
What Safe Zone? The Majority of 224 Dislocated THA were within the Lewinnek Zone
Matthew P. Abdel, MD, Rochester, MN
Philipp Von Roth, MD, Berlin, Germany
Arlen D. Hanssen, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
The Lewinnek target for cup position may be useful, but should not be termed a safe-zone -- the majority of 224 dislocated THAs in contemporary practice had a cup positioned within that zone.

Poster No. P045
Venous Thromboembolism after Total Joint Arthroplasty
William W. Schairer, MD, New York, NY
Douglas E. Padgett, MD, New York, NY
Serena S. Hu, MD, Redwood City, CA
Using claims databases with 100% of emergency room and inpatient visits, we evaluated the rate of thromboembolic events within 90 days after primary and revision total joint arthroplasty.

Poster No. P046
Quantifying Material Loss in Dual Taper Hip Arthroplasty
Douglas Van Citters, PhD, Hanover, NH
Dylan Assael, BA, Woodbury, NY
John H. Currier, MS, Hanover, NH
Michael B. Mayor, MD, Hanover, NH
Volumetric CoCrMo loss from dual taper constructs is on par with published values for metal on metal hips, and is likely related to taper angle mismatch between the male and female components.

Poster No. P047
Risk of Complications following Treatment of Intertrochanteric Hip Fractures with IM Nails and Plate Fixation
Ronald Henzman, M.S., Louisville, KY
Kevin Ong, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
David Seligson, MD, Louisville, KY
Craig S. Roberts, MD, MBA, Louisville, KY
Arthur L. Malkani, MD, Louisville, KY
Arthur L. Malkani, MD, Louisville, KY
The study was designed to evaluate incidence and complications of intramedullary (IM) nail versus open reduction with internal fixation (ORIF).

Poster No. P048
Comparison of Patients with Developmental Dysplasia of the Hip and Femoroacetabular Impingement
Etienne Belzile, MD, Quebec, QC, Canada
Paul E. Bevles, MD, Ottawa, ON, Canada
Gillian Parker, BS, Ottawa, ON, Canada
Jae-Jin Ryu, PhD, Ottawa, ON, Canada
John C. Clohisy, MD, Saint Louis, MO
FAI patients have worse clinical outcome scores at their initial presentation. Earlier detection of patients suffering from FAI may be needed in order to improve clinical outcomes.

Poster No. P049
Custom Triflange Cup for Failed Acetabular Salvage Procedures
Robert J. Otto, MD, Saint Louis, MO
Martha Brinson, RNCS, Nashville, TN
Mary B. Masters, RN, Nashville, TN
David K. DeBoer, MD, Gallatin, TN
J. C. Morrison, MD, Nashville, TN
Jeffrey T. Hodrick, MD, Nashville, TN
Michael J. Christie, MD, Nashville, TN
The custom triflange cup provides significant clinical improvement with low revision rates in patients who have failed other salvage procedures for catastrophic pelvic bone loss.

Poster No. P050
Evaluation of Quality of Lower Limb Arthroplasty Observational Studies Using the AQUILA Checklist
James Cowan, MD, Ann Arbor, MI
Ryan Mlynarek, MD, BS, Ann Arbor, MI
Bart G. Pijs, MD
Joel J. Gagnier, PhD, Ann Arbor, MI
The purpose of this study was to use the Assessment of Quality in Lower Limb Arthroplasty (AQUILA) checklist to assess the quality of lower limb arthroplasty observational studies from 2010 to 2011.

Poster No. P051
Quantitative Analysis of Femoral Head and Neck Blood Supply, Medial vs. Lateral Femoral Circumflex Artery
David C. Dewar, FRACS, MBBS, Hamilton, Australia
Peter K. Sculco, MD, Rochester, MN
Danyal Nawabi, MD, FRCS (Orth), New York, NY
Richard M. Hinds, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Dean G. Lorich, MD, New York, NY
This cadaveric, anatomic, quantitative vascularity MRI study demonstrates small but significant perfusion of the femoral head, neck, and head/neck junction by the lateral femoral circumflex artery.

Poster No. P052
A Simple Screening Tool to Identify Pseudotumor In Metal-On-Metal Hip Resurfacing
Garhan Erturan, MBBS, Msc, London, United Kingdom
Adrian Taylor, MBBS, FRCS, Oxford, United Kingdom
David J. Beard, MSc, PhD, Oxford, United Kingdom
Andrew J. Carr, FRCS, Headington Oxford, United Kingdom
Sion Glyn-Jones, MA, MBBS, Oxford, United Kingdom
A simple screening tool to identify pseudotumour in metal-on-metal hip resurfacing.
ADULT RECONSTRUCTION HIP

**Poster No. P053**
Femoroacetabular Impingement Screening Project (FAISP) in 480 Asymptomatic Adolescents
Joaquin Lara, MD, Santiago, Chile
Javier Besomi, MD, Santiago, Chile
Gonzalo Delgado, Santiago, Chile
Juan Jose Valderrama, MD, Santiago, Chile
Ignacio Villalon, Santiago, Chile
Carlos Tobar, MD, Santiago, Chile
Iris Delgado, Santiago, Chile

An analytical cross-sectional survey to determine the prevalence and hip morphology assessment for femoroacetabular impingement in young asymptomatic population is performed.

**Poster No. P054**
Pseudotumor is a Common MRI Finding Also After Ceramic-on-polyethylene Total Hip Arthroplasties
Pepijn Bisseling, MD, Nijmegen, Netherlands
Bart de Wit, MD, Arnhem, Netherlands
Maarten van Gorp, Arnhem, Netherlands
Berend W. Schreurs, MD, Malden, Netherlands
Job L. Van Susante, MD, PhD, Arnhem, Netherlands

MRI screening on a trial comparing resurfacing with MoM THA and a matched cohort CoP THA revealed an equal prevalence of pseudotumors.

**Poster No. P055**
Outcome of Revision Hips using Constrained Acetabular Components
Peter L. Lewis, MB, Adelaide, Australia
Stephen Graves, MD, Adelaide, Australia
David Davidson, MD, University Of Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
Robyn Vial, MSc, Adelaide, Australia
Ann Tomkins
Elizabeth C. Griffith, BA, Adelaide, Australia
Alan Guthbert, B.Mathematical Science (Hons), Adelaide, Australia
Yen-Liang Liu, Adelaide, Australia

Constrained devices have an early lower rate of revision when used in revision hip arthroplasty.

**Poster No. P056**
Risk Factors for Bilateral Osteonecrosis of the Femoral Head Differ from Unilateral Disease
Kwang Woo Nam, MD, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA
Guoan Li, PhD, Boston, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Dimitris Dimtriou, MD, Cambridge, MA
Hee J. Kim, MD, Seoul, Republic of Korea
Sang-Rim Kim, MD, Jeju, Republic of Korea
Sung Wook Choi, Jeju, Republic of Korea

This study demonstrated that the risk factors associated with bilateral osteonecrosis of the femoral head differ from those of unilateral osteonecrosis of the femoral head.

**Poster No. P057**
Natural History of Pseudotumors Surrounding Metal-on-Metal Total Hip Arthroplasty
Kunihide Muraoaka, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan
Kouichi Kinoshita, 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
Satohiro Ishii, MD, Fukuoka, Japan
Tetsuro Ishimatsu, MD, Fukuoka, Japan

Pseudotumors were found to be generally regressed or stable during a year and the progression did not affect the clinical outcome. We recommend the conservative approach for asymptomatic pseudotumors.

**Poster No. P058**
Perioperative Hyperglycemia and Postoperative Infection after Total Knee and Hip Arthroplasty
Yuki Maeda, MD, Osaka, Japan
Nobuo Nakamura, MD, Osaka, Japan
Makoto Hamawaki, MD, Saita, Japan

It is important to monitor the fasting blood glucose for two days postoperatively for postoperative infection.

**Poster No. P059**
Long-term Fracture Rate of Alumina Ceramic Femoral Heads in Cementless Total Hip Arthroplasty - 20-25 Year Results
Nicholas Beckmann, MD, Heidelberg, Germany
Tobias Gotterbarm, MD, Heidelberg, Germany
Moritz Immann, MD, Heidelberg, Germany
Christian Merle, MD
J. P. Kretzer, PhD, Heidelberg, Germany
Marcus R. Street, MD, MSc, Heidelberg, Germany

This study evaluates the long-term (20-25 year) survivorship of cement on polyethylene bearings in uncemented THA.

**Poster No. P060**
No Free Lunch! Large Metal Heads and Vitamin-E Polyethylene Increase Frictional Torque in Total Hip Arthroplasty
R M. Meneghini, MD, Fishers, IN
Luke R. Lovro, BS, Fishers, IN
Ahmad Faizan, Mahwah, NJ

Substantial frictional torque increases were seen in (1) large CoCr metal heads (> 36mm) in highly-crosslinked polyethylene (XLP) and (2) ceramic and CoCr heads in Vitamin-E poly compared to XLP.

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Poster No. P061
Patient Selection for Short-Stay Total Hip Arthroplasty
Scott T. Lovald, PhD, MBA, Menlo Park, CA
Kevin Org, PhD, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Girish Joshi, MBBS, MD, Dallas, TX
Steven M. Kurtz, PhD, Philadelphia, PA
Arthur L. Malkani, MD, Louisville, KY
Risk factors for short-term complications after short-stay total hip arthroplasty were determined. The results provide information to assist in patient selection for short-stay procedures.

Poster No. P062
Core Decompression with Autogenous Bone Marrow Stem Cells for the Treatment of the Femoral Head Osteonecrosis
Reza Mostafavi Tabatabaee, MD, Philadelphia, PA
Sadegh Saberi, MD, Tehran, Iran
Mahmood Farzan, MD, Tehran, Iran
Injection of concentrated bone marrow into the osteonecrotic femoral head could be effective in the early stages, reduce pain and joint discomfort, delay deterioration, and even improve the disease.

Poster No. P063
36mm Metal-on-Metal Hips have Similar Taper Material Loss Rates as Larger Diameter Hips from the Same Manufacturer
Robert K. Whittaker, BS, Stanmore, United Kingdom
Harry Hotli, BEng, MSc, PhD, Stanmore, United Kingdom
Jayantilal M. Meswania, PhD, Stanmore, Middx, United Kingdom
Paul J. Bills, PhD, MSc, Huddersfield, United Kingdom
Radu Racasan PhD, Huddersfield, United Kingdom
Antti Eskelinen, MD, PhD, Tampere, Finland
Gordon W. Blunn, MD, Middlesex, United Kingdom
Alister Hart, FRCS, London, United Kingdom
We found that 36mm metal-on-metal hips have similar corrosion and taper material loss as larger diameter hips. This supports their classification as large diameter hips.

Poster No. P064
Paradox of Choice: Uncertainty in Total Hip Bearing Selection
Jayme C. Burket, PhD, New York, NY
Stephen Lyman, PhD, New York, NY
Timothy M. Wright, PhD, New York, NY
Yuo-Yu Lee, MS, New York, NY
Douglas E. Padgett, MD, New York, NY
Alvin I. Mushlin, MD, New York, NY
Uncertainty in predicting bearing choice from patient factors is greatest in young, healthy, male patients, where the range of devices to choose from has not been narrowed through scientific evidence.

Poster No. P065
Implant Survival and Patient-Reported Outcomes After Total Hip Arthroplasty in JIA Patients Under the Age of 35
Ishaan Swarup, MD, New York, NY
Ella Christoph, BA, Brooklyn, NY
Lisa A. Mandl, MD, MPH, New York, NY
Susan Goodman, MD, New York, NY
Mark P. Figgie, MD, New York, NY
This study describes implant survival and patient-reported outcomes after primary total hip arthroplasty in young patients with juvenile idiopathic arthritis (JIA).

Poster No. P066
National Projections of Time, Cost, and Failure in Revision Total Hip and Knee Arthroplasty Implant Identification
Natalia Wilson, MD, MPH, Tempe, AZ
Jennifer Broatch, PhD, Phoenix, AZ
Megan John, PhD, MHS, Scottsdale, AZ
Charles M. Davis III, MD, Hershey, PA
National projections for revision total hip and knee arthroplasty implant identification indicate significant time spent, cost and number of cases with inability to identify failed implants.

Poster No. P067
Mortality and Morbidity for Sickle Cell Patients Undergoing a Primary Total Hip Arthroplasty
Karthikeyan E. Ponnusamy, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Savyasachi C. Thakkar, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Harpal S. Khamija, MD, Cockeysville, MD
Compared to the general total hip arthroplasty population, sickle cell patients are younger, poorer, have more osteonecrosis, and longer hospitalizations with no inpatient mortality differences.

Poster No. P068
Third-generation Alumina-on-alumina Total Hip Arthroplasty: 14 to 16-year Follow-up Study
Yong-chan Ha, Prof, Seoul, Republic of Korea
Young-Kyun Lee, MD, Menlo Park, CA
Bum-Jung Kang, MD, Jinju, Republic of Korea
Jae-Hwi Nho, Assistant Prof, Cheonan, Republic of Korea
Tae-young Kim, PhD, Anyang, Republic of Korea
Jae Suk Chang, MD, PhD, Seoul, Republic of Korea
Han-Jun Lee, MD, Seoul, Republic of Korea
Kyung-Hoi Koo, MD, Seongnam-Si, Republic of Korea
The 15 year results of THAs using third-generation COC bearing were encouraging with an excellent survival rate.

Poster No. P069
The Transverse Acetabular Ligament as a Guide for Acetabular Component in Idiopathic and Secondary Osteoarthritis
Masahiro Inoue, MD, Eniwa, Japan
Satomi Abe, MD, Hokkaido, Japan
Takeshi Masuda, MD, Sapporo, Japan
We investigated effectiveness of the transverse acetabular ligament (TAL) in 206 hips with or without congenital dysplasia. There was no difference between both cases.
**ADULT RECONSTRUCTION HIP**

**Poster No. P070**

Postoperative Complication Grade and Early Adverse Outcomes in Primary Joint Arthroplasty Patients

Dorothy Y. Harris, MD, Houston, TX
Jillian K. McAngus, BS, TX City, TX
Yong-fang Kuo, PhD, Galveston, TX
Ronald W. Lindsey, MD, Galveston, TX

A proposed orthopedic complications grading system for total hip and total knee arthroplasty was found to be valid for documenting the severity of complications and indicating early adverse outcomes.

**Poster No. P071**

Adults with Down Syndrome have Unique Hip Morphology Compared to Matched Controls and Published Normal Values

Michael G. Zywiel, MD, Mississauga, ON, Canada
Ryan M. Shulman, MBBS, Toronto, ON, Canada
Thomas Zochockeski, MD, MS, Toronto, ON, Canada
Rajiv Gandhi, MD, Toronto, ON, Canada
David Salonen, MD, Toronto, ON, Canada
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada

Patients with Down syndrome have unique hip morphology. Surgeons should be aware of these differences to inform pre-operative planning.

**Poster No. P072**

Evaluation of Acetabular Cup Positioning and Clinical Outcomes in 3,439 Total Hip Arthroplasties

Christopher J. Barr, BS, Boston, MA
Charles R. Bragdon, PhD, Boston, MA
Maureen K. Dwyer, ATC, PhD, Newton, MA
Joseph C. McCarthy, MD, Newton, MA
Henrik Malchau, MD, Cambridge, MA

Our analysis suggests that cup overabduction may lead to increased metal-on-metal implant failure rates. There was no effect of cup position on the survivorship of metal-on-polyethylene implants.

**Poster No. P073**

Immune Response in Patients with Pseudotumors after Metal-on-metal Total Hip Arthroplasty

Masahiro Hasegawa, MD, Mie, Japan
Shinichi Miyazaki, Mie, Japan
Noriki Miyamoto, Tsu, Japan
Hiroki Wakabayashi, Mie Prefecture, Japan
Akihiro Sudo, MD, Tsu City, Mie, Japan

In 16 hips with pseudotumors after MoM THA, only 1 hip was cobalt sensitive. Eleven hips showed dominant B cells infiltration. A major cause could not be T cell-mediated type IV hypersensitivity.

**Poster No. P074**

Adverse Reaction to Metal Debris: What is the Metal-on-metal Specific Spectrum of Muscular Abnormalities?

Aleksi Reito, MD, Tampere, Finland
Petra Elo, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Jorma Pajamaki, MD, PhD, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

Instead of metal ion levels or pseudotumors, surgery related factors were associated to presence of muscle atrophy in patients with high risk MoM hip replacement.

**Poster No. P075**

Prolonged Length of Stay is Not an Acceptable Measure of Surgical Safety for Elective Total Hip Arthroplasty

Stephen Lyman, PhD, New York, NY
Kara Fields, MS, New York, NY
Allina A. Nocon, MPH, New York, NY
Benjamin Ricciardi, MD, New York, NY
Friedrich Boettner, MD, New York, NY

Prolonged length of stay is not an adequate surrogate for post-operative complications in the setting of elective total hip arthroplasty.

**Poster No. P076**

Use of the Cup Cage Construct for Reconstruction of Large Acetabular Defects and Pelvic Discontinuity

Tomas Amenabar, MD, Santiago, Chile
Bander Hetaimish, MD, Ancaster, ON, Canada
Wael Abdelrahman, MD, Mississauga, ON, Canada
Paul R. Kucyk, MD, FRCSC, Toronto, ON, Canada
Oleg Safir, MD, Toronto, ON, Canada
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada

Retrospective clinical and radiological evaluation of the results obtained by using a Cup Cage construct in the treatment of large acetabular defects and pelvic discontinuity.

**Poster No. P077**

Does Early Hospital Discharge Following Total Hip & Knee Arthroplasty Increase 30-day Readmission?

Justin Drager, MD, Montreal, QC, Canada
John Antoniou, MD, FRCSC, Montreal, QC, Canada
Laura M. Epure, Montreal, QC, Canada
Mohammed H. Alattas, MD, Montreal, QC, Canada
Olga Huk, MD, Westmount, QC, Canada
David Zukor, MD, Montreal, QC, Canada
Stephane Bergeron, MD, Kirkland, QC, Canada

Following TKA and THA, discharge within the first two postoperative days for healthy younger patients does not lead to an increase in 30 day hospital readmission or postoperative complications.
Educational Programs

Poster No. P078

Cost-Effectiveness of Bariatric Surgery Prior to Total Hip Arthroplasty in Morbidly Obese Patients
Daniel L. Southren, BA, Suffern, NY
Alexander S. McLawhorn, MD, MBA, New York, NY
Mark P. Figgie, MD, New York, NY
Emily Dodwell, MD, New York, NY

Bariatric surgery prior to total hip arthroplasty is a cost-effective intervention in morbidly obese patients with end-stage hip osteoarthritis.

Poster No. P079

Pre-admission Chlorhexidine Preparation Reduces Surgical Site Infections Following Lower Extremity TJA
Bhaveen H. Kapadia, MD, Baltimore, MD
Samik Banerjee, MBBS, MS, Albany, NY
Kimona Issa, MD, Wayne, NJ
Michael A. Mont, MD, Baltimore, MD

We compared the incidence of infection in lower extremity TJA patients who used a pre-admission cutaneous preparation protocol to a group who underwent standard in-hospital perioperative preparation.

Poster No. P080

Revision Total Hip Arthroplasty: National Trends and Perioperative Outcomes
Brian E. Schwartz, MD, Des Plaines, IL
Nicholas Schraut, MD, Worcester, MA
Vincent M. Moretti, MD, Berwyn, IL
Mark H. Gonzalez, MD, Chicago, IL

The number of primary and revision THA in the United States is increasing, with revisions having a higher transfusion rate, increased mortality, and a less favorable discharge disposition.

Poster No. P081

Minimally Invasive Total Hip Arthroplasty: Can We Reduce the Likelihood of Intraoperative Fracture?
Dustin A. Greenhill, MD, Philadelphia, PA
Kurosh Darvish, Philadelphia, PA
Andrew M. Star, MD, Willow Grove, PA

Even small changes in broach handle design can lead to substantial changes in forces out of plane, thus possible increasing risk of intraoperative fracture during hip arthroplasty.

Poster No. P082

Effect of Body-Weight on Cefazolin and Vancomycin Bone Concentrations in Total Joint Arthroplasty
Kan Schwarzkopf, MD, Irvine, CA
Behnam Sharareh, BS, Laguna Niguel, CA
Deeba Pourmand, MS, Orange, CA
Christina Sutherland, BS, Hartford, CT
David Nicollau, PhD, Hartford, CT

In this study we have shown that in the majority of cases we achieve adequate MIC levels in bone during TJA.

Poster No. P083

Does Femoral Version Affect Outcomes of Periacetabular Osteotomy for Treatment of Hip Dysplasia?
Hajime Seo, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan
Kouichi Kinoshita, MD, Fukuoka, Japan
Noriyuki Watanabe, MD, Fukuoka-Ken, Japan
Satoshi Minokawa, MD, Fukuoka-Ken, Japan
Shohei Okahisa, MD, Hyogo, Japan
Tomohiko Minamikawa, MD, Fukuoka-Ken, Japan
Satobiro Ishii, MD, Fukuoka, Japan
Tetsuro Ishimatsu, MD, Fukuoka, Japan

We studied the influence of femoral version on periacetabular osteotomy. When acetabular retroversion is reMed postoperatively, diminished femoral version may negatively affect outcomes of surgery.

Poster No. P084

Impact of Cirrhosis on Hospital Length of Stay, Costs, and Complications after Total Hip and Knee Arthroplasty
Christopher D. Mudd, MD, Webster Groves, MO
Nicholas K. Schiltz, MS, Cleveland, OH
Aiswarya Chandran Pillai, MD, MS, Seattle, WA
Alison K. Klika, MS, Cleveland, OH
Caleb Szulc, BA, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH

Total joint arthroplasty in cirrhotic patients is associated with greater costs, longer LOS, and significantly increased risk of a perioperative complication, specifically a hematologic complication.

Poster No. P085

Utilization of Leucocyte Esterase Reagent Strips in the Diagnosis or Exclusion of Prosthetic Joint Infection
Roozbeh Shafafy, MBBS, MRCS, Guildford, United Kingdom
William McClatchie, MBBS, BSc, London, United Kingdom
Krisan Chettiar, MD, East Sussex, United Kingdom
Kathryn Gill, MBBS, BSc, Guildford, United Kingdom
Sabastian Sturridge, MD, Surrey, United Kingdom
Andrea Guayot, DMed, MSc, Dortmund, Germany

Investigation into the validity of leucocyte esterase reagent strips in the diagnosis or exclusion of prosthetic joint infection.

Poster No. P086

Comparison and Consequences of Ion Generation from Four Large Head Metal-on-Metal Total Hip Arthroplasty Designs
Jonathan R. Hutt, BA, MBBS, Montreal, QC, Canada
Eugene Lungu, Montreal, QC, Canada
Michel Rahme, MD, Strasbourg, France
Martin Lavigne, MD, Ville St-Laurent, QC, Canada
Etienne Belzile, MD, Quebec, QC, Canada
Pascal-Andre Vendittoli, MD, Montreal, QC, Canada

This 5 year prospective study of 4 MoM THAs shows ion generation varies across implants and in contrast to resurfacing the main problem may be coupling CoCr adaptor sleeves to standard stem trunions.

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Poster No. P087
Learning Curve for Total Conventional Hip Arthroplasty
Richard De Steiger, MD, Richmond, Australia
Stephen Graves, MD, Adelaide, Australia
David Davidson, MD, University of Adelaide, Australia
Peter L. Lewis, MB, Adelaide, Australia
Robyn Vial, MSc, Adelaide, Australia
Ann Tomkins
Elizabeth C. Griffith, BA, Adelaide, Australia
Michelle Lorimer, Adelaide, Australia
Yen-Liang Liu, Adelaide, Australia
Surgeons who have used components in over 40 THA procedures have a lower rate of revision compared to when surgeons use components they are less familiar with.

Poster No. P088
Long-term Result of Novel Tissue Engineering Technology to Treat Large Osteonecrotic Lesion of Femoral Head
Shin-Yoon Kim, MD, Daegu, Republic of Korea
Eui-Kyun Park, MD, PhD, Daegu, Republic of Korea
Seung-Hoon Baek, MD, Daegu, Republic of Korea
Jun Young Kim, MD, Daegu, Republic of Korea
Suk-Young Kim, PhD, Daegu, Republic of Korea
Based on MRI findings, combined use of bone marrow stromal cell-expanded osteoblasts and CMP scaffold is promising for treatment of large, lateral-located osteonecrotic lesions of femoral head.

Poster No. P089
The Effect of Malnutrition and Morbid Obesity on Complication Rates Following Primary Total Joint Arthroplasty
Paul M. Courtney, MD, Philadelphia, PA
Joshua C. Rozell, MD, Philadelphia, PA
Christopher M. Melnic, MD, Philadelphia, PA
Neil P. Sibeth, MD, Philadelphia, PA
Charles L. Nelson, MD, Philadelphia, PA
Malnutrition is an independent risk factor for complications following primary TJA. We did not find a statistical increase in complication rate based on morbid obesity alone.

Poster No. P090
★ One Third of 395 Failed Metal-on-Metal Hips have Severely Corroded Taper Junctions
Harry Hothi, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Reshid Berber, MBBS, BSc, St Albans, United Kingdom
Jayantilal M. Meswania, PhD, Stanmore, Middx, United Kingdom
Shiraz Sabah, MD, Middlesex, United Kingdom
Johann Henckel, MD, London, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom
Retrieval analysis of 395 metal-on-metal hips found that one third of taper junctions were severely corroded. This re-affirms the significance of corrosion as a mechanism of metal ion release.

Poster No. P091
Effect of Fixed Lumbosacral Deformity on Functional Cup Orientation from Standing to Sitting
Morteza Meftah, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Chitranjan S. Ranawat, MD, New York, NY
There is a significant change in sagittal pelvic tilt from standing to sitting in patients with flexible spine: the functional anteversion increases with sitting.

Poster No. P092
Low Dose Computed Tomography in Hip Arthroplasty: A Novel Protocol
Matthieu Durand-Hill, BS, London, United Kingdom
Johann Henckel, MD, London, United Kingdom
Shiraz Sabah, MD, Middlesex, United Kingdom
Harry Hothi, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Christian Klemt, PhD, London, United Kingdom
We have defined a computed tomography protocol, with an effective dose equivalent to two pelvic radiographs, for preoperative planning and postoperative assessment of total hip arthroplasty.

Poster No. P093
Eliminating Blood Transfusion in Primary Total Hip and Knee Arthroplasty: An Achievable Goal?
Joshua Holt, MD, Iowa City, IA
Benjamin J. Miller, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Charles R. Clark, MD, Iowa City, IA
Melissa Willenborg, MD, Iowa City, IA
Nicolas O. Noiseux, MD, Iowa City, IA
Adoption of a multimodal, multi-disciplinary blood management algorithm may eliminate the need for blood transfusions in primary hip and knee arthroplasty.

Poster No. P094
Chronic Suppression with Oral Antibiotics Increases Survivorship in Periprosthetic Joint Infections
Marcelo B. Siqueira, MD, Beachwood, OH
Anas Saleh, MD, Beachwood, OH
Alison K. Klika, MS, Cleveland, OH
Wael K. Barsoum, MD, Cleveland, OH
Carlos A. Higuera, MD, Bay Village, OH
The use of chronic antibiotic suppression significantly increased infection-free survival following surgical treatment for prosthetic joint infection.
Posters

Poster No. P095
Total Hip Arthroplasty Survival and Complications as a Function of Age
Eric R. Wagner, MD, Rochester, MN
Cathy D. Schleck, Rochester, MN
William Harmsen, MS, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

There is a strong association between older age decreased rates of revision surgery and reoperation after THA.

Poster No. P096
Dislocation Rates following Primary Total Hip Arthroplasty have Plateaued in North America
Akshay Goel, MD, Barboursville, West VA
Edmund Lau, MS, Menlo Park, CA
Kevin Ong, PhD, Philadelphia, PA
Daniel J. Berry, MD, Rochester, MN
Arthur L. Malkani, MD, Louisville, KY

Dislocation rates following primary THA have plateaued in North America to approximately 2% with the full benefits of large femoral head sizes now realized.

Poster No. P097
Large Diameter Metal-on-Metal Hip Arthroplasty: Modularity Effects Blood Metal Ion Levels Ratio
Kevin Ilo, MBBS, BS, London, United Kingdom
Harry Hothi, MSc, PhD, Stanmore, United Kingdom
Robert K. Whittaker, BS, Stanmore, United Kingdom
Lizzie Ellis, BSc, London, United Kingdom
Reshid Berber, MBBS, BSc, St Albans, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom

Ratio of cobalt to chromium is greater in patients with large diameter metal-on-metal hips compared to resurfacings. This implicates taper corrosion as a clinically relevant source of blood metal ions.

Poster No. P098
Synovial Biomarkers in Patients with Adverse Local Tissue Reactions
Scott T. Ball, MD, San Diego, CA
David Nagle, BA, San Diego, CA
Jordan Levine, MPH, San Diego, CA
Patricia A. Campbell, PhD, Los Angeles, CA
Gary S. Firestein, MD

Select cytokines were markedly elevated in the synovial fluid of patients revised for ALTR. IL-8 and IP-10 were significantly higher in severe cases than in patients with only mild reactions.

Poster No. P099
How Stable is a Cemented Polyethylene Cup in a Metal on Metal Hip Resurfacing Component?
Matthias C. Klotz Sr, MD, Heidelberg, Germany
Nicholas Beckmann, MD, Heidelberg, Germany
Tobias Reiner, MD, Heidelberg, Germany
Sebastian Jaeger, MSc, Heidelberg, Germany
J P. Kretzer, PhD, Heidelberg, Germany
Rudi Bitsch, MD, Heidelberg, Germany

In order to change metal-on-metal articulation without removal of the acetabular cup in hip resurfacing, a polyethylene was cemented into the cup, which finally did not show sufficient stability.

Poster No. P100
◆ Low Risk of VTE and Potential Decreased Mortality Associated with Tranexamic Acid in Total Joint Arthroplasty
Christopher Duncan, MD, Rochester, MN
Blake P. Gillette, MD, Rochester, MN
Adam Jacob, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Dirk Larson, Rochester, MN
Hugh M. Smith, MD, PhD, Rochester, MN

Tranexamic acid use in this large retrospective cohort showed no increase in postoperative VTE frequency and demonstrated a potential reduction in the 30 day all-cause mortality in TKA and THA.

Poster No. P101
Effects of Selenium Coating of Orthopaedic Implant Surfaces on Bacterial Adherence and Osteoblastic Cell Growth
Johannes Holinka, MD, Vienna, Austria
Magdalena Pilz, PhD, Vienna, Austria
Bernd Kubista, MD, Vienna, Austria
Elisabeth Presterl, MD, Vienna, Austria
Reinhard Windhager, MD, Vienna, Austria

Selenium-nanoparticle coatings on titanium surfaces showed a decreasing effect on bacterial adhesion and did not negatively influence the osteoblastic cell growth.

Poster No. P102
Trend in Primary and Revision Hip and Knee Arthroplasty Among Those Who Take the ABOS Part 2 Exam
Aidin Eslampour, MD, Ann Arbor, MI
Greg Erens, MD, Decatur, GA
Thomas L. Bradbury, MD, Atlanta, GA
James R. Roberson, MD, Atlanta, GA
John J. Harrast, MS, Hinsdale, IL

The purpose of this study was to assess changing trends over time for primary and revision total hip arthroplasty and early postoperative complications for those who take the Part II examination.

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**Poster No. P103**  
Increased Risk of Periprosthetic Femur Fractures Associated with a Unique Cementless Stem Design  
Chad Watts, MD, Rochester, MN  
Matthew P. Abdel, MD, Rochester, MN  
David G. Lewallen, MD, Rochester, MN  
Daniel J. Berry, MD, Rochester, MN  
Arlen D. Hansen, MD, Rochester, MN  

Hips implanted with this unique stem had a significantly increased risk of early and late postoperative periprosthetic femur fracture compared to other cementless tapered stems.

**Poster No. P104**  
When is it Safe for Patients to Drive after Right Total Hip Arthroplasty?  
Victor H. Hernandez, MD, MS, Margate, NJ  
Alvin C. Ong, MD, Linwood, NJ  
Fabio Orozco, MD, Linwood, NJ  
Anne Marie Madden, Sicklerville, NJ  
Zachary D. Post, MD, Egg Harbor Township, NJ  

Most patients in this study were able to return to normal brake response times by 2 weeks after THA.

**Poster No. P105**  
Early Outcomes of Titanium-based Highly-porous Acetabular Components in Revision Total Hip Arthroplasty  
Samik Banerjee, MBBS, MS, Albany, NY  
Julio J. Jauregui, Baltimore, MD  
Bhaveen H. Kapadia, MD, Baltimore, MD  
Jeffrey J. Cherian, DO, Baltimore, MD  
Randa K. Elmallah, Baltimore, MD  
Joseph Mueller, Brandon, FL  
Arthur L. Malikani, MD, Louisville, KY  
Michael A. Mont, MD, Baltimore, MD  

We compared the clinical, functional, and patient-reported outcomes following use of new generation highly-porous titanium acetabular implants to conventional porous-coated acetabular components.

**Poster No. P106**  
Comparison of Biomechanical and Biological Properties of Different Topographic Locations of the Knee Joint  
Nikolaos K. Paschos, MD, Davis, CA  
Eleftherios Makris, MD, Santa Clara, CA  
Jerry C. Hu, PhD, Davis, CA  
Kyriacos A. Athanasiou, PhD, Davis, CA  

The different topographic areas of the knee joint have different biomechanical and biological properties that need to be considered in cartilage transplantation and reconstruction procedures.

**Poster No. P107**  
Routine Examination of Tissue from Total Knee Arthroplasty is Not Cost Efficient and does Not Affect Patient Care  
David Liebelt, MD, PhD, Bristol, IN  
Joseph Greene, MD, Louisville, KY  
Theofanis Zois, PA-C, Long Beach, NY  
Didi Omiyi, MD, Effingham, IL  
Fred D. Cashner, MD, New York, NY  
Giles R. Scuderi, MD, New York, NY  

Routine histological examination of bone and soft tissue removed during total knee arthroplasty does not alter patient care and it increases costs.

**Poster No. P108**  
Effect of Use of Local and Systemic Tranexamic Acid with Total Knee Arthroplasty  
Wael A. Nassar, MD, Cairo, Egypt  

Our study provides clinically relevant data about the effect of use of tranexamic acid in different ways to reduce postoperative blood loss after total knee arthroplasty.

**Poster No. P109**  
Does the Gait Pattern Become Normal after Total Knee Arthroplasty?  
Duhyun Ro, MD., Seoul, Republic of Korea  
Young Min Lee, MD, Seoul, Republic of Korea  
Seung Hwan Kim, MD, Seoul, Republic of Korea  
Chong Bum Chang, MD, PhD, Seongnamsi, Republic of Korea  
Kee Yun Chung, MD, Seoul, Republic of Korea  
Yong-Seuk Lee, MD, Incheon, Republic of Korea  
Myung C. Lee, MD, Seoul, Republic of Korea  

Patients would feel more comfortable and stable with their reconstructed knee by reducing medial joint loading and arc of varus-valgus motion.

**Poster No. P110**  
Radiographic Analysis of an Accelerometer-based System for the Tibial Resection in Total Knee Arthroplasty  
Gabriele Bolle, Fiumicino, Italy  
Piergiorgio Drogo, MD, Fabrica Di Roma, Italy  
Daniele Mazza, Fiumicino, Italy  
Andrea Redder, MD  
Jacopo Conteduca, MD, Rome, Italy  
Luigi Valeo, MD  
Raffaele Iorio, MD, Rome, Italy  
Fabio Conteduca, MD, Roma, Italy  
Andrea Ferretti, MD, Rome, Italy  

The accelerometer-based system combines the accuracy of computer-assisted surgery with the ease of use and familiarity of conventional instrument, avoiding any substantial increase in surgical time.
Poster No. P111

The Rotational Impact of Kinematically Aligning the Femoral Component in Total Knee Arthroplasty
Denis Nam, MD, St Louis, MO
Andrew Park, MD, Saint Louis, MO
Stephen T. Duncan, MD, Lexington, KY
James A. Keeney, MD, St Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO

Use of a “kinematic alignment” surgical technique internally rotates the femoral component relative to traditional, rotational alignment targets in total knee arthroplasty.

Poster No. P112

Can Anterior Cruciate Substitution Address Abnormal Kinematics of Posterior Cruciate Retaining Implants?
Kartik Varadarajan, MS, PhD, Boston, MA
Thomas Zumbrunn, Boston, MA
Michael P. Duffy, MS, Boston, MA
Harry E. Rubash, MD, Boston, MA
Henrik Malchau, MD, Cambridge, MA
Orhun K. Muratoglu, PhD, Boston, MA

A new anterior cruciate ligament substituting implant that also preserves the posterior cruciate ligament (PCL) was shown to address abnormal femoral sliding seen in contemporary PCL retaining implant.

Poster No. P113

Spontaneous Bone Marrow Edema of the Knee: The Role of Biophysical Treatment with Pulsed Electromagnetic Fields
Marco Guidi, MD, Capena, Italy
Dario Perugia, MD, Roma, Italy

The use of biophysical stimulation with pulsed electromagnetic fields (PEMF) seems to be effective in the first stages in spontaneous bone marrow edema lesions of the knee.

Poster No. P114

Biomechanical Comparison of Three Plates for Open Wedge High Tibial Osteotomy using Finite Element Analysis
Sae-Kwang Kwon, MD, Bucheon-Si, Republic of Korea
Kyoung-Tak Kang, PhD, Seoul, Republic of Korea
Jubyun Son, MS, Seoul, Republic of Korea
Yong-Gon Koh, MD, Seoul, Republic of Korea

Our study aimed to determine the stability of three implants having different distal screws following open wedge high tibial osteotomy using finite element analysis.

Poster No. P115

Low Dose Tobramycin Bone Cement in Total Knee Arthroplasty: An In Vivo Eutonon Analysis and Comparison
Sameh Elguizouzi, MD, Akron, OH
Gregory A. Vrabec, MD, Akron, OH
John L. Pinkowski, MD, Wadsworth, OH

Commercially prepared low-dose tobramycin bone cement can be safely used to obtain supra-therapeutic local concentrations while maintaining systemic levels at a minimum.

Poster No. P116

Subgroup Analysis of Topical Tranexamic Acid in Total Knee Arthroplasty
John R. Tuttle, MD, Providence, RI
Lee E. Rubin, MD, East Greenwich, RI

Obese patients, females, and those over 65 years of age undergoing total knee arthroplasty may benefit from TXA most consistently.

Poster No. P117

Aminocaproic Acid vs. Tranexamic Acid to Reduce Transfusion Requirements in Total Hip and Knee Arthroplasty
Florian Daragjati, PharmD, BCPS, Jacksonville, FL
Gavan P. Duffy, MD, Jacksonville, FL
Earl Miller, PA, Jacksonville, FL

The use of local application plus IV aminocaproic acid was effective at reducing blood transfusions, hemoglobin decrease, knee drain output, and resulted in significant cost savings.

Poster No. P118

Intravenous or Intra-articular Tranexamic Acid in Total Knee Arthroplasty
Yong Qiang Jerry Chen, MBBS, Singapore, Singapore
Pak Lin Chin, FRCSEd, Singapore, Singapore
Moo Ing Hoe, MBBS, MRCS, Singapore
Hee-Nee Pang, MBBS, MRCs, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, FRCS (Ortho), Singapore, Singapore
Ngai-Ning Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Intra-articular tranexamic acid offers an alternative to surgeons caring for patients in whom the intravenous route is cautioned, such as renal impaired patients.

Poster No. P119

Does Your Implant Contain Nickel? Nickel Assays of Retrieved Arthroplasty Devices
Douglas Van Citters, PhD, Hanover, NH
Dylan Assael, BA, Woodbury, NY
John H. Currier, MS, Hanover, NH
Michael B. Mayor, MD, Hanover, NH

Nickel assays were performed on four different materials from arthroplasty retrievals. Nickel was found in both CoCrMo and oxidized zirconium at levels greater than 0.06 wt %.

Poster No. P120

Red Cell Distribution Width: An Unacknowledged Predictor of Mortality Following Revision Arthroplasty
Pooya Aligianpour, MD, Philadelphia, PA
Suir Heller, MD, Netania, Israel
Fatih Kucukdurmaz, MD, Istanbul, Turkey
Benjamin Zmistowski, BS, Philadelphia, PA
Maryam Rezapoor, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

To investigate a possible relationship between RDW levels and mortality following TJA, and to calculate the optimal threshold and test characteristics of RDW as predictor of mortality.
ADULT RECONSTRUCTION KNEE

Poster No. P121
Magnetic Resonance Characteristics of Patients with Primary Lateral Patellar Dislocation
Elizabeth A. Arendt, MD, Minneapolis, MN
Marc Tompkins, MD, Minneapolis, MN

We identify significant morphological characteristics and injury pattern on magnetic resonance imaging of primary lateral patellar dislocation patients, including trochlear dysplasia and patella alta.

Poster No. P122
In Vivo Oxidation and Associated Changes in Sequentially Cross-link and Annealed UHMWPE Bearings
Steven D. Reinitz, BA, Hanover, NH
Barbara H. Currier, MChE, Hanover, NH
John P. Collier, DE, Hanover, NH
Rayna Levine, BA, Hanover, NH
John H. Currier, MS, Hanover, NH
Michael B. Mayor, MD, Hanover, NH
Douglas Van Citters, PhD, Hanover, NH

Oxidation in SXL UHMWPE has not yet reached a level to cause a clinical impact, but decreasing cross-link density and the presence of white banding suggests material degradation is occurring in vivo.

Poster No. P123
Recent Changes of Radiological Findings and Patients’ Background of Rheumatoid Knees
Yuichi Mochida, MD, Yokohama, Japan
Katsushi Ishii, MD, Yokohama, Japan
Yuki Ozawa, MD, Yokohama, Japan
Naoya Taki, MD, Yokohama, Japan
Naoto Mitsugi, MD, Yokohama, Japan
Tomoyuki Saito, MD, Yokohama, Japan
Yuichi Mochida, MD, Yokohama, Japan

Between 2000 and 2013, the ratio of RA knee surgery in lower limbs was significantly decreased. Interestingly, we found the continual increase of RA knee with the spur formation.

Poster No. P124
Orthopaedic Surgery Arthroplasty Clinics See Larger Proportion of Obese Patients
Kristina Linnea Welton, MD, Ann Arbor, MI
Joel J. Gagnier, PhD, Ann Arbor, MI
Andrew G. Urquhart, MD, Ann Arbor, MI

Total joint replacement clinics see higher percentage of obese people than are present in the population; an opportunity to alter the only modifiable risk factor for knee and hip osteoarthritis.

Poster No. P125
Should Knee Aspiration Prior to Second Stage Reimplantation be Performed in All Patients?
Sharlene Su, BS, Baltimore, MD
Paul Lichstein, MD, Redwood City, CA
Hakan B. Hedlund, MD, Huddinge, Sweden
Gina Sub, MD, Stanford, CA
William J. Maloney III, MD, Redwood City, CA
Stuart B. Goodman, MD, Redwood City, CA
James I. Huddleston III, MD, Redwood City, CA

Knee aspiration prior to second stage reimplantation should be reserved for select cases where there is a high index of suspicion for recurrent infection.

Poster No. P126
Knee Arthrodesis Outcomes Following Infected Total Knee Arthroplasty
Matthew Robinson, Chicago, IL
David Mossad, Chicago, IL
Mark H. Gonzalez, MD, Chicago, IL

Knee fusion has proven to be an effective salvage procedure following failed two stage revision of total knee arthroplasty involving antibiotic articulating spacers.

Poster No. P127
In Vivo Total Knee Arthroplasty Kinematics for Subjects Walking Down a Ramp
Trevor F. Grieco, BS, Knoxville, TN
Harold E. Cates Jr, MD, Knoxville, TN
Adrija Sharma, PhD, Knoxville, TN
William Hamel, PhD, Knoxville, TN
Richard D. Komistek, PhD, Knoxville, TN

Subjects having a single radius CR TKA seem to exhibit a more stable motion than those with a multi radii CR TKA while walking down a ramp.

Poster No. P128
The Location of the Popliteal Artery in Knee Extension on Magnetic Resonance Imaging
Matthew J. Simons, MD, New York, NY
Joseph Karam, MD, Chicago, IL
Nicholas Schraut, MD, Worcester, MA
Vincent M. Moretti, MD, Berwyn, IL
Mark H. Gonzalez, MD, Chicago, IL

As the popliteal artery courses from proximal to distal with the knee extended, it is located increasingly more posterior and lateral.

Poster No. P129
Tranexamic Acid Reduces Blood Loss in Patients Undergoing Knee Arthroplasty without Tourniquet
Gabriel Vindver, MD, Pacheco - Tigre, Argentina
Bernardo M. Bidolegui, MD, Buenos Aires, Argentina
Sebastian Pereira, MD, Buenos Aires, Argentina
Alfonso Lagones, MD, Santiago Del Estero, Argentina
Guillermo Arce, MD, Buenos Aires, Argentina

A double-dose of TA was safe and effective, reducing blood loss and transfusion rates in patients undergoing TKA without tourniquet.

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Poster No. P130
Functional Joint Line Obliquity in the Kinematic Total Knee Arthroplasty
Jonathan R. Hutt, MBBS, FRCS (Ortho), Montreal, QC, Canada
Vincent Masse, MD, Montreal, QC, Canada
Martin Lavigne, MD, Ville St-Laurent, QC, Canada
Pascal-Andre Vendittoli, MD, Montreal, QC, Canada
TKA with a kinematic technique produces a range of alignment relative to the mechanical axis, but functional variation is smaller, which is reassuring for potential wear and failure.

Poster No. P131
Rotating Platform Bearing Design: A Risk Factor for Arthrofibrosis Following Total Knee Arthroplasty
Alexander Orem, MD, Lebanon, NH
Benjamin Keeney, PhD, Lebanon, NH
Erik R. Bergquist, MD, Helena, MT
Michael B. Sparks, MD, Lebanon, NH
Rotating platform bearing surfaces are associated with higher odds of arthrofibrosis compared to fixed bearing, shown through retrospective review of 3205 patients and logistic regression analysis.

Poster No. P132
A Prospective, Randomized Control Trial: Efficacy of Continuous Passive Motion Device Post Total Knee Arthroplasty
Kupali Joshi, MEd, PhD, Jersey City, NJ
Peter White, BA, New York, NY
Mary O. Murray-Weir, PT, Yorktown Heights, NY
Michael M. Alexiades, MD, Manhattan, NY
Thomas P. Sculco, MD, New York, NY
A randomized control trial evaluating the efficacy of CPM after TKA. No significant differences were found in range of motion, patient satisfaction or time to meet rehab discharge.

Poster No. P133
Clinical and Radiographic Evaluation of a Monoblock Tibial Component with Minimum 12-year Follow Up
Thomas J. O'Keefe, MD, Ann Arbor, MI
Suzanne Winter, Ypsilanti, MI
Douglas D. Robertson, MD, PhD, Decatur, GA
Total knee arthroplasty using a cemented monoblock porous tantalum tibial component is clinically reliable and radiographically stable at minimum 12-year follow-up.

Poster No. P134
The Impact of Quadriceps Strength on Patient Satisfaction after Total Knee Arthroplasty
Moritoshi Furu, MD, PhD, Kouka-Shi Shiga, Japan
Hiromu Ito, Kyoto, Japan
Shinichi Kuriyama, MD, Kyoto, Japan
Shinichiro Nakamura, MD, PhD, Kyoto, Japan
Masahiro Ishikawa, MD, PhD, Kyoto, Japan
Yusuke Hamamoto, M.D., Kyoto, Japan
Shuichi Matsuda, MD, Kyoto, Japan
This study demonstrates that the strength of quadriceps is important for increasing patients satisfaction after TKA.

Poster No. P135
Which Tibial Tray Design Achieves Ideal Coverage & Rotation: Anatomic, Symmetric, or Asymmetric? An MRI-based Study
S. David Stulberg, MD, Chicago, IL
Nitin Goyal, BA, Chicago, IL
An evaluation of MR images obtained as part of the PSI planning process to determine which tibial tray design optimizes the relationship between tibial surface coverage and rotation.

Poster No. P136
High-Flex vs. Posterior Stabilized Polyethylene Inserts in Total Knee Arthroplasty: A Retrieval Study
Erik Schnaser, MD, Rancho Mirage, CA
Marcella Elpers, BS, New York, NY
Steven B. Haas, MD, New York, NY
Geoffrey H. Westrich, MD, New York, NY
Timothy M. Wright, PhD, New York, NY
Posterior stabilized tibial polyethylene damage appears to be influenced by implant design and manufacturer characteristics.

Poster No. P137
The Effect of Topical Tranexamic Acid during Arthroplasty of the Knee on Blood Loss
Jedediah H. May, MD, Miamisburg, OH
Geoffrey R. Rieser, MD, Dayton, OH
Chad Williams, MD, Dayton, OH
Ronald J. Markert, PhD, Dayton, OH
Anil Krishnamurthy, MD, Dayton, OH
Ryan D. Bauman, MD, Dayton, OH
Matthew Lawless, MD, Dayton, OH
Randomized controlled trial demonstrating non-inferiority of topically administered tranexamic acid to intravenously administered tranexamic acid in primary total knee arthroplasty.

Poster No. P138
Pre-operative Charges and Interventions prior to Total Knee Arthroplasty across Medicare and United Healthcare
Jeremiah R. Cohen, BS, Los Angeles, CA
Alexander Bradley, Ann Arbor, MI
Jeffrey C. Wang, MD, Sherman Oaks, CA
Jay R. Lieberman, MD, Los Angeles, CA
A large, retrospective cohort analysis of charges and interventions in the two years prior to receiving a total knee arthroplasty showing a disproportionate rate of interventions.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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**Poster No. P139**
What is the Efficacy of Repeat Manipulations Under Anesthesia to Treat Stiffness Following Total Knee Arthroplasty?
Kimona Issa, MD, Wayne, NJ
Amanda M. Palich, Gilbert, AZ
Aiman Rifai, DO, Clifton, NJ
Ronald E. Delanois, MD, Baltimore, MD
Mark A. Kester, PhD, Mahwah, NJ
Vincent K. McInerney, MD, Wayne, NJ
Michael A. Mont, MD, Baltimore, MD

We evaluated the efficacy of repeat manipulations to improve flexion range-of-motion and functional outcomes in patients who had persistent knee stiffness after initial MUA following TKA.

**Poster No. P140**
Safety and Efficacy of Liposome Intraarticular Injection in Moderate Knee Osteoarthritis: A RCT
Leonid A. Kandel, MD, Jerusalem, Israel
Yaniv Dolev, DVM, Tel Aviv, Israel
Rachel Shimonov, BSc, Jerusalem, Israel
Gurion Riskin, MD, Zur Hadassah, Israel
Meir Liebergall, MD, Jerusalem, Israel
Yoav Mattan, MD, Jerusalem, Israel
Yechzkel Barenholz, PhD, Jerusalem, Israel
Xavier Chevalier, MD, PhD, Creteil, France

MMII was found to be safe and tolerant in intraarticular injections for knee osteoarthritis. It showed faster and better improvement in pain and activity than a single-dose hyaluronic acid injection.

**Poster No. P141**
Average 12-year Follow Up of Total Knee Arthroplasty in a Group of Patients Less than 50 Years of Age
David F. Dalury, MD, Baltimore, MD
Danielle M. Chapman, Towson, MD

Total knee arthroplasty provides effective and durable outcomes in a group of end stage arthritis patients less than 50 years of age at an average of 12 years.

**Poster No. P142**
Impact of Tibia Bearing Surface Design on Deep Knee Bend Kinematics
Eik Siggelkow, MSc, Winterthur, Switzerland
Marc Bandi, MSc ETH, Winterthur, Switzerland
William J. Maloney III, MD, Redwood City, CA

It is possible to create similar anterior posterior (AP) knee kinematics in knee bend activity with geometrically different femur designs by performing modifications on the tibia bearing surfaces.

**Poster No. P143**
Systemic Emboli in Computer Assisted vs. Conventional Surgical Technique of Total Knee Replacement
Rajesh Malhotra, MS, New Delhi, India
Amit Singla, MBBS, MS (Student), New Delhi, India
Dr. Chandrelakha, Prof, New Delhi, India
Vijay Kumar, MD, New Delhi, India
Ganesan Karthikeyan, MBBS, MD, New Delhi, India
Vishwas Malik, Delhi, India

Computer assisted total knee replacement had lesser embolic load as compared to those with conventional technique however difference in emboli load in two techniques was not clinically relevant.

**Poster No. P144**
Aspirin vs. Potent Anticoagulants for Venous Thromboembolism Prevention after Primary Total Joint Arthroplasty
Nathaniel C. Wingert, MD, Danville, PA
Edgardo Parrilla, BS, Danville, PA
Jose Graham, PhD, Danville, PA
Carmen D. Crofoot, MD, Danville, PA
David J. Kolessar, MD, Wilkes Barre, PA
Elie S. Ghanem, MD, Danville, PA

Clinically symptomatic DVT and PE occur after TJA regardless of the chemoprophylaxis used. Aspirin was non-inferior to other potent anticoagulants in preventing DVT and PE.

**Poster No. P145**
Axial Rotation in Single vs. Multi Radii Cruciate Retaining Total Knee Arthroplasty
Trevor F. Greens, BS, Knoxville, TN
Adrija Sharma, PhD, Knoxville, TN
Harold E. Cates Jr, MD, Knoxville, TN
William Hamel, PhD, Knoxville, TN
Richard D. Komistek, PhD, Knoxville, TN

Single radius cruciate retaining (CR) total knee arthroplasty (TKA) tends to exhibit more normal axial rotation patterns during a deep knee bend when compared to multiple radii CR TKAs.

**Poster No. P146**
The Influence of Low Vitamin D Levels and Synovial Inflammation of the Hip and Knee
Larry Waldrop, MD, Richmond, VA
William A. Jiranek, MD, Richmond, VA
Gregory Golladay, MD, Richmond, VA
Brian M. Curtin, MD, Charlotte, NC
John A. Cardea, MD, Midlothian, VA
Cara A. Cipriano, MD, Saint Louis, MO
Aparna Maiti, PhD, Richmond, VA

Patients with low 25-OH Vitamin D serum levels have increased inflammation at the synovial level in idiopathic primary arthritic hips and knees compared to patients with normal serum 25-OH Vitamin D.
Poster No. P147
Does Previous Knee Stiffness after TKA have Predicative Value on the Clinical Outcomes of Contralateral TKA?
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Aiman Rifai, DO, Clifton, NJ
Harpal S. Khanna, MD, Cockeysville, MD
Ronald E. Delanois, MD, Baltimore, MD
Vincent K. McIlnerney, MD, Wayne, NJ
Michael A. Mont, MD, Baltimore, MD

Many patients with knee stiffness following index arthroplasty undergo contralateral TKA. We evaluated the predicative value of previous knee stiffness on the clinical outcomes of contralateral TKA.

Poster No. P148
Unexplained Pain and a Poor Oxford Knee Score Six Months Post TKA-Do These Patients Improve with Time?
Renyi B. Seab, MBBS, Singapore, Republic of Singapore
Seng-Jin Yeo, FRCS, Singapore, Republic of Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Republic of Singapore
Hwee Chi Chong, Singapore, Republic of Singapore
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Pak Lin Chin, FRCSed, Singapore, Republic of Singapore
Hee-Nee Pang, MBBS, MRCS, Singapore, Republic of Singapore
Shi-lu Chia, MBBS, FRCS (Ortho), Singapore, Republic of Singapore
Ngai-Nung Lo, MD, Singapore, Republic of Singapore

Some patients with unexplained pain post TKA can experience resolution of symptoms. However, unexplained pain and an OKS ≤ 19 at 6 months post operatively predicts poor functional outcome at 2 years.

Poster No. P149
A Randomized Controlled Trial of Customized Cutting Block Compared with Conventional Instrumentation in TKA
Nattapol Tammachote, MD, Bangkok, Thailand
Phonthakorn Panichkul, MD, Springfield, VA
Supakit Kanitnate, MD, Pathumtani, Thailand

Customized cutting block for TKA reduces bone cut time than conventional cutting block. The alignment, postoperative blood loss and hemodynamic change are not different between the two groups.

Poster No. P150
Total Knee Arthroplasty after 3:00 pm Increases Operative Time and Cost
Arjun Sebastian, MD, Rochester, MN
Thomas O’Byrne, Rochester, MN
Dawn Finnie, MPH, Rochester, MN
James Naessens, MPH, Rochester, MN
David G. Lewallen, MD, Rochester, MN

After setting a goal for primary total knee arthroplasty cases to finish by 3:00 PM, we reviewed 4493 cases and found significant increases in operative time and cost in cases extending past 3:00.

Poster No. P151
Comparison of Adductor Canal and Femoral Nerve Blocks in Primary Total Knee Arthroplasty
James B. Kyle, MD, New Orleans, LA
Phillip Fontenot, BA, New Orleans, LA
Matthew R. Delarosa, MD, New Orleans, LA
Vinod Das, MD, New Orleans, LA

Adductor canal nerve block provided better pain relief and shorter length of stay.

Poster No. P152
Burden of Periprosthetic Joint Infection and its Treatment on Kidney Function
Pooya Alijanipour, MD, Philadelphia, PA
Snr. Heller, MD, Netania, Israel
Camilo Restrepo, MD, Philadelphia, PA
Colin T. Ackerman, BS, Philadelphia, PA
William J. Hoback, MD, Philadelphia, PA

Determine the incidence and severity of kidney injury in patients undergoing surgery for PJI; if the number of surgeries affects renal function in PJI patients and risk factors for kidney injury.

Poster No. P153
Quantifying Survival and Complications after Total Knee Arthroplasty as a Function of Body Mass Index
Eric R. Wagner, MD, Rochester, MN
Atul F. Kamath, MD, Philadelphia, PA
Cathy D. Schlick, Rochester, MN
William Harmsen, MS, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

BMI is strongly associated with increased rates of common postoperative complications and revision surgery after TKA.

Poster No. P154
Complex Primary Total Knee Arthroplasty: Long-term Outcomes
John R. Martin, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Complex primary total knee arthroplasty is associated with a six fold increased risk of revision compared with standard primary total knee arthroplasty.

Poster No. P155
Mobile-bearing TKA Reduced the Anteroposterior Displacement Comparing to Fixed-bearing TKA in the Same Patients
Yukihide Minoda, MD, Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Yoichi Ohta, MD, Osaka, Japan
Mitsuhiko Ikabuchi, MD, Abeno-ku Osaka, Japan
Maki Itokazu, MD, Osaka, Japan
Kazumasa Yamamura, MD, Osaka, Japan
Suguru Nakamura, MD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

We measured the anteroposterior (AP) laxity in mid-flexion using the KT-2000 arthrometer. AP laxity in the mobile-bearing prosthesis was significantly less than that in the fixed-bearing prosthesis.

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**Poster No. P156**
Quantitative Perfusion Differences Afforded by Three Closure Techniques in Knee Reconstruction
Cody Wyles, BS, Rochester, MN
Steve Jacobson, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Franklin H. Sim, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

This randomized clinical trial using a novel imaging technique shows running subcuticular closure enables the most robust perfusion which may benefit patients at risk of wound healing complications.

**Poster No. P157**
International Rates of Patellar Resurfacing in Primary Total Knee Arthroplasty, 2003-2013
James Fraser, MD, Phoenix, AZ
Mark J. Spangehl, MD, Phoenix, AZ

Given uncertain benefits, the purpose of this study was to determine if the rates of patellar resurfacing in primary total knee arthroplasty have changed over the past 10 years worldwide.

**Poster No. P158**
Inconsistent Operative Teams Correlate with Higher Rates of 30-Day Hospital Readmissions
Yan Xiao, PhD, Dallas, TX
Alan L. Jones, MD, Dallas, TX
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Monica Bennett, PhD, Dallas, TX
Simon C. Mears, MD, Plano, TX
Jay D. Mabrey, MD, MBA, Dallas, TX
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Inconsistent surgical teams were more likely to result in higher rates of 30-day hospital readmissions among patients undergoing total knee and hip arthroplasty in this retrospective analysis.

**Poster No. P159**
Which Patients Do Best Following Total Knee Arthroplasty in an Asian Population?
Hamid Rabmatullah Bin Abd Razak, MBBS, Singapore, Republic of Singapore
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Ngai-Nung Lo, MD, Singapore, Republic of Singapore
Seng-Jin Yeo, FRCS, Singapore, Republic of Singapore

Majority of Asian patients with knee osteoarthritis benefit from primary total knee arthroplasty with younger age and lower preoperative Knee Society Scores predicting better outcomes.

**Poster No. P160**
Low Incidence of Complications in Computer Assisted Total Knee Arthroplasty - A Retrospective Review of 1,596 Cases
Raghbir S. Khakha, MBBS, MRCS, London, United Kingdom
Majid Chowdhry, FRCS (Ortho), MBBS, Rotherhithe, United Kingdom
Mark Norris, MD, Kent, United Kingdom
Amin Kheiran, MD, MRCS, Leicester, United Kingdom
Sandep Chauban, MD, Lewes, East Sussex, United Kingdom

We present the largest single surgeon series of computer navigated total knee arthroplasty and the associated complications.

**Poster No. P161**
Total Knee Arthroplasty Following Tibial Plateau Fracture
Chloe Scott, BSc, Edinburgh, United Kingdom
Eleanor Davidson, Edinburgh, United Kingdom
Deborah J. Macdonald, BA, Edinburgh, United Kingdom
Timothy O. White, MD, FRCS
John F. Keating, Scotland, United Kingdom

This consecutive matched cohort study reports increased complications of TKA following tibial plateau fracture compared to TKA for primary OA, but similar patient reported outcomes.

**Poster No. P162**
The Epidemiology of Periprosthetic Fracture in the United States
Paul Toogood, MD, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA

This study evaluates the frequency, demographics, and outcomes of periprosthetic fractures as compared to primary and other revision total joint arthroplasties.

**Poster No. P163**
Intraoperative Fracture During Aseptic Revision Total Knee Arthroplasty
Adam Sassoon, MD, Seattle, WA
Cody Wyles, BS, Rochester, MN
German A. Norambuena, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Intraoperative fractures occur during aseptic revision TKA at a rate of 3%. Despite high union rates (94%), these patients require re-revision in 17%, at a mean follow-up of 5 years.

**Poster No. P164**
Efficacy and Costs of Reinfusion Drains vs. Tranexamic Acid in Total Joint Arthroplasty: A Randomized Trial
Bryan D. Springer, MD, Charlotte, NC
Susan M. Odum, PhD, Charlotte, NC
Thomas K. Febrigh, MD, Charlotte, NC

Compared to standard drains and autologous reinfusion drains, tranexamic acid is a safe, efficacious and more cost-beneficial as blood management option for TJA.
**Poster No. P165**

Outpatient Joint Arthroplasty is Increasing in the United States  
*Robert A. Henderson, MD, Durham, NC*  
*Tyler S. Watters, MD, Durham, NC*  
*Jonathan A. Godin, MD, Durham, NC*  
*RICHARD C. Mather III, MD, Durham, NC*  
*Keith R. Berend, MD, New Albany, OH*  
*Michael P. Bolognesi, MD, Durham, NC*

This study demonstrates an increased utilization of the outpatient hospital and ASC settings for hip and knee replacement surgery among a large private insurer network from 2007 to 2011.

**Poster No. P166**

Hand-held Navigation Improves Accuracy in Minimally Invasive Surgery Total Knee Arthroplasty  
*Satit Thiengwittayaporn, MD, Bangkok, Thailand*  
*Yupadee Fusakul, MD, Bangkok, Thailand*  
*Nunnapat Kangkano, McDonald, Bangkok, Thailand*  
*Norattaphol Charoenphandhu, MD, PhD, Bangkok, Thailand*

A randomized controlled trial comparing radiographic outcomes in MIS-TKA with and without hand-held navigation revealed improvement for alignment and positioning without additional surgical time.

**Poster No. P167**

An Assessment of the Short-Term Morbidity and Mortality Following Patellofemoral Arthroplasty  
*Bryan Haughom, MD, Chicago, IL*  
*William W. Schairer, MD, New York, NY*  
*MICHAEL D. HELLMAN, MD, Chicago, IL*  
*Benedict U. Nwachukwu, MD, MBA, New York, NY*  
*Brett R. Levine, MD, Chicago, IL*

We present the largest series to date evaluating Patellofemoral Arthroplasty, and show a 5.6% rate of complications as well as an 18.6% rate of transfusion.

**Poster No. P168**

Urinary Tract Infection After Total Knee Arthroplasty: A Retrospective Cohort Study  
*BRIAN E. SCHWARTZ, MD, Des Plaines, IL*  
*David Mossad, Chicago, IL*  
*Vincent M. Moretti, MD, Berwyn, IL*  
*Ritesh Shah, MD, Glenview, IL*  
*Wayne M. Goldstein, MD, Morton Grove, IL*

UTI’s, occurring in over 1 in 40 patients, are a relatively frequent complication after TKA and are associated with longer hospitalizations and a less favorable discharge disposition.

**Poster No. P169**

SUMMIT Extension: Matrix-induced Autologous Chondrocyte Implant vs. Microfracture at Three Years  
*Daniel B. Saris, MD, PhD, Utrecht, Netherlands*  
*Andrew J. Price, FRCS, Oxford, United Kingdom*  
*Qifeng Yu, PhD, Shrewsbury, MA*  
*Sven Kili, MD, Shrewsbury, United Kingdom*  
*Mats Brittberg, MD, Kungsholmen, Sweden*

At 3 years, matrix-induced autologous chondrocyte implant (MACI) continues to show favorable efficacy and safety compared with microfracture for treating symptomatic articular cartilage defects.

**Poster No. P170**

Motion in Fixed Bearing Knees: Quantifying the Contribution of Micro-Motion to Backside Wear  
*Douglas Van Citters, PhD, Hanover, NH*  
*Rayna Levine, BA, Hanover, NH*  
*John H. Carrier, MS, Hanover, NH*  
*Dennis Xiaotian Wu, BE, Hanover, NH*  
*Michael B. Mayor, MD, Hanover, NH*

A series of fixed bearing knees was assessed for backside wear and insert micromotion. Wear is a strong function of magnitude of micromotion and in vivo duration, not patient weight or insert size.

**Poster No. P171**

Effect of Posterior Tibial Slope on Flexion and Tibiofemoral Translation in Total Knee Arthroplasty  
*Andrew W. Chambers, MD, Fort Worth, TX*  
*Addison R. Wood, MS, Keller, TX*  
*Victor Kosmopoulos, MS, PhD, Fort Worth, TX*  
*Hugo B. Sanchez, MD, PhD, Fort Worth, TX*  
*RusSELL A. WAGNER, MD, Fort Worth, TX*

Increasing posterior tibial slope up to 5 degrees can improve flexion and result in more posterior tibiofemoral translation in posterior cruciate retaining total knee arthroplasty.

**Poster No. P172**

Patellar Impingement on Tibial Polyethylene: A Problem in Modern Posterior Stabilized Total Knee Arthroplasty  
*Bo-Hyun Hwang, MD, Seoul, Republic of Korea*  
*Soo-Chang Lee, MD, Seoul, Republic of Korea*  
*Kwang Am Jung, MD, Seoul, Republic of Korea*  
*HyE-Sun Ahn, MS, Seoul, Republic of Korea*

Patellar impingement on tibial polyethylene is one potential complication of total knee arthroplasty. The purpose of this study is to determine the prevalence and etiology of PIP following PS-TKA.
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Poster No. P173
Calcium Sulfate Does Not Increase Wear of Polyethylene in Total Joint Arthroplasty
Kathleen Lewicki, Hanover, NH
Brandon Prioreschi, MD, Lebanon, NH
Karl Koenig, MD, MS, Lebanon, NH
Meredith Bartelstein, MD, New York, NY
Calin S. Moucha, MD, New York, NY
Douglas Van Citters, PhD, Hanover, NH

Laboratory pin-on-plate testing and retrieval analysis show that calcium sulfate does not increase the wear rate of polyethylene in total joint arthroplasty.

Poster No. P174
Accuracy of Femoral and Tibial Resection Thickness Using Patient Specific Instruments for Total Knee Arthroplasty
Todd C. Kelley, MD, Cincinnati, OH
Michael L. Swank, MD, Cincinnati, OH

Absolute value differences between planned vs. intra-operative resection thickness may not be symmetric and may lead to component malpositioning when performing TKAs using patient-specific guides.

Poster No. P175
Perceived Leg Length Discrepancy Following Primary Total Knee Arthroplasty
Paul H. Yi, MD, San Francisco, CA
Zachary H. Goldstein, BA, South Bend, IN
Matthew W. Tetreault, MD, Chicago, IL
Brett R. Levine, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL
Scott M. Sporer, MD, Wheaton, IL

Although 10% of patients perceive a LLD after primary TKA, the vast majority resolve within 3 months.

Poster No. P176
Total Knee Arthroplasty in Obesity: Perioperative Outcomes and National Trends
Brian E. Schwartz, MD, Des Plaines, IL
Nicholas Schraut, MD, Worcester, MA
Vincent M. Moretti, MD, Berwyn, IL
Wayne M. Goldstein, MD, Morton Grove, IL
Ritesh Shah, MD, Glenview, IL

This study, utilizing a national database, showed the number of obese patients undergoing TKA is rising and that these patients have similar perioperative outcomes to non-obese patients.

Poster No. P177
Preoperative Pain and Function: Profiles of Selected Total Knee Replacements Patients among US Surgeons
Uyen-Sa D. Nguyen, DSc, MPH, Worcester, MA
David C. Ayers, MD, Worcester, MA
Wenjun Li, PhD, Worcester, MA
Leslie Harrold, MD, MPH, Worcester, MA
Patricia Franklin, MD, MBA, MPH, Worcester, MA

Further investigation is needed to determine the reasons for TKR use among patients with low pre-operative pain and high function as this may have an important policy implication.

Poster No. P178
The Use of a Closed-suction Drain in Revision Knee Arthroplasty is Not Beneficial: A Prospective Randomized Study
Mansour Abolghasemian, MD, Tehran, Iran
Todd W. Huether, RN, Toronto, ON, Canada
Leslie J. Soever, BSCPT, MSC, Toronto, ON, Canada
Michael Drexler, MD, Ramana, Israel
David Backstein, MD, Toronto, ON, Canada

In a randomized study on the use of suction drainage for revision knee arthroplasties, only haemoglobin drop was less in the no-drain group. Other outcomes were not different in 1 year followup.

Poster No. P179
Reduced Push Off Ground Reaction Force and Impulse Reduces Top Walking Speed in Knee Osteoarthritis
Anatole V. Wiik, MBBS, London, United Kingdom
Adeel Aqil, MBChB, MRCS Ed, London, United Kingdom
Andrew A. Amis, London, United Kingdom
Justin P. Cobb, MD, London, United Kingdom

Reduced push off ground reaction force and impulse appear to be the cause of the general decline in speed in knee osteoarthritis patients when compared to controls.

Poster No. P180
Does Increased Age Equal Increased Complications, Length of Stay, and Readmissions after Total Knee Replacement?
Thomas L. Bernasek, MD, Tampa, FL
Jacob Conjeski, MD, Tampa, FL

This study reviews outcomes in patients grouped according to age after primary total knee replacement (TKR) surgery.

Poster No. P181
Early Experience with Bi-Cruciate Retaining Total Knee Arthroplasty
Craig J. Della Valle, MD, Chicago, IL
Thomas P. Andriacchi, PhD, Stanford, CA
Keith R. Berend, MD, New Albany, OH
Jeffrey H. DeClaire, MD, Rochester, MI
Adolph V. Lombardi Jr, MD, New Albany, OH
Christopher L. Peters, MD, Salt Lake City, UT

Our experience with the Bi-cruciate retaining TKA was associated with a low risk of complications, decreased significantly with a greater understanding of and changes to the surgical technique.
**Poster No. P182**  
Uncemented Mobile-bearing Total Knee Arthroplasty: A Mid-term Follow-up Study  
Andrea Redler, MD  
Simone Di Ludovico, Rignano Flaminio, Italy  
Daniele Mazza, Fiumicino, Italy  
Jacopo Conteduca, MD, Rome, Italy  
Gabriele Bolle, Fiumicino (Roma), Italy  
Carlo Lorio, MD  
Fabio Conteduca, MD, Roma, Italy  
Raffaele Iorio, MD, Rome, Italy  
Andrea Ferretti, MD, Rome, Italy  

This mid-term follow-up clinical and radiological study suggest that MB TKA are suitable for use without cement in patients with no systemic disease affecting bone density, regardless of the age.

**Poster No. P183**  
On the Sensitivity of Total Knee Balancing to Small Changes in Bone Cuts  
Peter S. Walker, PhD, New York, NY  
Patrick A. Meere, MD, New York, NY  
Christopher Bell, MSc, New York, NY  
Ilya Borukhov, BS, Rego Park, NY  

Lateral and medial contact forces were measured in specimens using an instrumented tibial trial. Balancing could be achieved within 2mm/2deg bone cut adjustments on the proximal tibia or distal femur.

**Poster No. P184**  
The Flexion Contracture of the Knee Negatively Correlates with Posterior Offset Ratio after Total Knee Arthroplasty  
Tomohiro Onodera, MD, PhD, Sapporo, Japan  
Tokifumi Majima, MD, PhD, Nasushiobara, Japan  
Naoki Seito, MD, PhD, Sapporo, Japan  
Eiji Kondo, MD, Sapporo, Japan  
Norimasa Iwasaki, Sapporo, Japan  

Posterior protrusion of the femoral implants after total knee arthroplasty (TKA) significantly correlates with knee flexion contracture.

**Poster No. P185**  
Virtual Knee Replacement by Surgeon Improves Component Prediction and Reduces Intraoperative Changes  
Muthu Ganapathi, FRCS (Orth), Gwynedd, United Kingdom  
Srinivas Thati, MBBS, MS, Gwynedd, United Kingdom  

Surgeon’s input is essential in preoperative planning with PSI and not accept default plans. The benefits of PSI technique are achievable which may improve the clinical outcome.

**Poster No. P186**  
Cell-free Collagen Type I Matrices in Treatment of Cartilage Defects of the Knee: Clinical and MRI Evaluation  
Philip P. Roessler, MD, Bonn, Germany  
Bernhard Pfister, Marburg, Germany  
Thomas J. Heyse, MD, Marburg, Germany  
Karl-Friedrich Schüttler, MD, Marburg, Germany  
Susanne Fuchs-Winkelmann, MD, Marburg, Germany  
Turgay Efe, MD, Marburg, Germany  

Cell-free collagen type I matrices achieve sustainable clinical improvement and good magnetic resonance imaging results 24 months after surgery.

**Poster No. P187**  
Characterization of Periprosthetic Tibia Fractures in 32,754 Primary TKAs: A 40-year Experience  
Matthew P. Abdel, MD, Rochester, MN  
Matthew Houdek, MD, Rochester, MN  
Chad Watts, MD, Rochester, MN  
David G. Lewallen, MD, Rochester, MN  
Daniel J. Berry, MD, Rochester, MN  

While periprosthetic tibial fractures occur in <1% of cases, female gender and post-traumatic arthritis portend the greatest risk of intraoperative fractures.

**Poster No. P188**  
Patient Satisfaction after Total Knee Arthroplasty in Patients Aged 80 Years and Older: A Study of 407 Patients  
Bo-Hyun Hwang, MD, Seoul, Republic of Korea  
Su-Chan Lee, MD, Seoul, Republic of Korea  
Kwang An Jung, MD, Seoul, Republic of Korea  
Chang Hyun Nam, MD, PhD, Seoul, Republic of Korea  

With management of pain and maintenance of regular activities, subjective patient satisfaction can be optimized after primary total knee arthroplasty in patients aged 80 years and older.

**Poster No. P189**  
Risk Factors of Delirium in Patients Undergoing Total Knee Arthroplasty  
Kyu-Sung Chung, MD, Seoul, Republic of Korea  
Jin Kyu Lee, MD, Seoul, Republic of Korea  
Chang Hoon Lee, MD, Seoul, Republic of Korea  
Choong H. Choi, MD, Seoul, Republic of Korea  

Study showed the risk factors for delirium in patients undergoing total knee arthroplasty as history of neuropsychiatric disorder, age over 78.5 years, and postoperative 3-day BUN over 14.9 mg/dl.

**Poster No. P190**  
Inhospital Complications and Costs of Simultaneous Bilateral Total Knee Arthroplasty  
Michele R. D’Apuzzo, MD, Miami, FL  
Thomas P. Sculco, MD, New York, NY  
Wendy Novicoff, PhD, Charlottesville, VA  
James A. Browne, MD, Charlottesville, VA  

Patients undergoing simultaneous bilateral TKA are at increased risk of developing important postoperative complications and mortality compared with unilateral cases.
ADULT RECONSTRUCTION KNEE

Poster No. P191
Patient-specific Total Knees Demonstrate a Higher Manipulation Rate Compared to “Off-the-Shelf” Implants
Peter White, BA, New York, NY
Amir S. Ranawat, MD, New York, NY

This match-paired study evaluates outcomes of a novel patient-specific implant vs. “off-the-shelf” implants.

Poster No. P192
Cruciate Retaining and Substituting Knee Replacement Stability Patterns at Time of Necropsy
Erik L. Woodard, BS, Memphis, TN
Casey Hebert, Memphis, TN
William M. Mihalko, MD, PhD, Germantown, TN

This study indicates there may be a significant laxity difference between PS and CR TKA designs in both posterior laxity in full extension and coronal stability in 60° and 90° flexion.

Poster No. P193
Joint Gap at 120° in Flexion is a Predictor of Postoperative Flexion Angle after Total Knee Arthroplasty
Yukihide Minoda, MD, Osaka, Japan
Makoto Kondo, MD, PhD, Gojo-Shi, Japan
Kazuhide Tomari, MD, Osaka, Japan
Yoshinori Kadoya, MD, Sakai, Japan
Aki Kohayashi, MD, Nara, Japan
Shigeru Nakagawa, MD, Osaka, Japan
Masashi Hirakawa, MD, Fukuoka, Japan
Yasuo Higuma, MD, Oita, Japan

We assessed intra-operative ligament balancing in 246 TKAs. The knees with large implant joint gap at 120° in flexion achieved better postoperative knee flexion angle.

Poster No. P194
Age and American Society of Anesthesiologists Classification as Guidelines for One-stage Total Knee Arthroplasty
In Jun Koh, MD, PhD, Seoul, Republic of Korea
Min Woo Kim, Seoul, Republic of Korea
Ju Hwan Kim, Seoul, Republic of Korea
Yong In, Seoul, Republic of Korea

Age and ASA classification are reasonable guidelines for decision of simultaneous bilateral TKA, and one week is an appropriate interval for staged bilateral TKA.

Poster No. P195
Total Knee Arthroplasty in the Medicaid Population
Brian E. Schwartz, MD, Des Plaines, IL
David Mossad, Chicago, IL
Vincent M. Moretti, MD, Berwyn, IL
Alfonso Mejia, MD, MPH, Chicago, IL

This study, utilizing a national database, demonstrated that patients with Medicaid undergoing a TKA are more obese, diabetic, and have longer hospitalizations than those patients without Medicaid.

Poster No. P196
The Effect of Tibial Baseplate Position on Functional Outcomes in Unicompartmental Knee Arthroplasty
Jonathan Danoff, MD, Englewood, NJ
Katherine Maccallum, BA, Brooklyn, NY
Jeffrey A. Geller, MD, New York, NY

Surgeons performing a medial unicompartmental knee arthroplasty should place the tibial component within 0-6° varus and 0-6° posterior slope to maximize functional and patient perceived outcomes.

Poster No. P197
Comparison of Lower Limb Kinematics of Patients with Medial Unicompartmental Replacement during Stair Descent
Yang-Chieh Fu, PhD, University, MS
Kathy J. Simpson, PhD, Athens, GA
Rumit S. Kakar, PT, Ithaca College, NY
Tracy Kinsey, MPH, Athens, GA
Ormonde M. Maboney, MD, Athens, GA

No atypical lower limb kinematics displayed by patients with medial or lateral unilateral compartment knee reconstruction were observed compared to healthy individuals during stair descent.

Poster No. P198
Does the Choice of Tibial Prosthesis Influence the Outcome and Revision Rate in Obese UKA Patients?
Yew Lok Woo, MD, Holland Close, Singapore
Yong Qiang Jerry Chen, MBBS, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, FRCS (Ortho), PhD, Singapore, Singapore
Ngai-Ning Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Type of tibial prosthesis does not influence the outcome and revision rate in obese unicompartmental knee arthroplasty patients.

Poster No. P199
Does Obesity Affect the Outcomes in Inlay Patellofemoral Joint Arthroplasty? A Six-year Follow-Up Study
Graham Goh, NA, Singapore, Singapore
Ming Han Liew, MD, MBBS, Singapore, Singapore
Hwee Chi Chong, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Shi-Lu Chia, MBBS, FRCS (Ortho), PhD, Singapore, Singapore
Ngai-Ning Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Our study shows obesity is associated with poorer clinical/radiological outcomes and higher revision/complication rates after PFA. Lower patient satisfaction was noted in obese and overweight groups.
Poster No. P200
Patellar Fracture Following Patellofemoral Arthroplasty
Alexander H. King, BS, Rochester, MN
William M. Engasser, BA, Grand Rapids, MI
Elizabeth A. Arendt, MD, Minneapolis, MN
Diane L. Dahn, MD, Rochester, MN
Decreased patellar thickness and larger trochlear components are associated with patellar fracture after patellofemoral arthroplasty.

Poster No. P201
Rotational Alignment in Medial Unicompartmental Knee Arthroplasty: Comparison of Anatomic Landmarks
Glenn J. Kerr, MD, Glen Allen, VA
Patrick O’Toole, MD, Dublin, Ireland
Eddie Wu, DO, Williamstown, NJ
Jess H. Loner, MD, Philadelphia, PA
External rotation of the tibial component may occur if the medial edge of the tibial tubercle is used as the rotational landmark to perform the sagittal tibial cut in medial UKA.

Poster No. P202
The Survival and Functional Outcome of Unicompartmental Knee Arthroplasty Undertaken by High or Low Volume Users
Nicholas Bottomley, MRCS, Oxford, United Kingdom
Luke Jones, MRCS, Oxford, UK, United Kingdom
Rajesh Rout, MD, Oxford, United Kingdom
William Jackson, FRCS, Oxford, United Kingdom
David J. Beard, MSc, PhD, Oxford, United Kingdom
Andrew J. Price, FRCS, Oxford, United Kingdom
We present a survival study of 1084 unicompartmental knee replacements, with ten year survival of 94% and no significant difference between high and low volume surgeons.

Poster No. P203
The Patellar Tendon Can Cause External Tibial Component Malrotation in Lateral UKA
Glenn J. Kerr, MD, Glen Allen, VA
Patrick O’Toole, MD, Dublin, Ireland
Eddie Wu, DO, Williamstown, NJ
Jess H. Loner, MD, Philadelphia, PA
Excessive external rotation of the tibial component in lateral UKA may occur if the lateral edge of the patellar tendon is used as a landmark to perform the sagittal tibial cut.

Poster No. P204
Total Knee Component Size can be Accurately Predicted Without the Use of Preoperative Radiographs
Manoshi Bhowmik-Stoker, PhD, Mahwah, NJ
Steven M. Teeny, MD, Lakewood, WA
Jianhua Shen, Mahwah, NJ
The goal of this study was to determine if device size used at surgery could be predicted based on patient characteristics and surgeon preferences without the use of radiographs.

Poster No. P205
Intra-articular Tranexamic Acid Reduces Blood Loss after Simultaneous Bilateral Total Knee Arthroplasty
Meng Zhu, BEng, MD, Singapore, Republic of Singapore
Yong Qiang Jerry Chen, MBBS, Singapore, Republic of Singapore
Shi-liu Chia, MBBS, FRCS (Ortho), Singapore, Republic of Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Republic of Singapore
Ngai-Ning Lo, MD, Singapore, Republic of Singapore
Seng-Jin Yeo, FRCS, Singapore, Republic of Singapore
Intra-articular application of TXA wash reduces blood loss after simultaneous-BTKA, resulting in a reduced odds ratio of transfusion incidence and a shorter hospital stay.

FOOT AND ANKLE

Poster No. P206
Advanced Glycation End Products Inhibitor Protects Against Diabetic Skeletal Muscle Atrophy
Rong-Sen Yang, MD, Taipei, Taiwan
Shing-Hwa Liu, PhD, Taipei, Taiwan
Advanced glycation end products (AGEs) inhibited myotube formation and induced muscle atrophy. AGEs inhibitor alagebrium possesses a therapeutic potential in diabetic muscle atrophy and regeneration.

Poster No. P207
Alpha-2-macroglobulin Inhibits Elastase, MMP-2, and MMP-8
Gaetano J. Scuderi, MD, Jupiter, FL
John Laughlin, PhD, Jupiter, FL
Shawn R. Browning, PhD, Jupiter, FL
Lewis Hanna, PhD, Jupiter, FL
There are protective effects of an autologous preparation with a high concentration of A2M (APIC) from MMP’s and Elastase, all part of a known pathway for ECM catabolism.

Poster No. P208
The Impact of Diabetes on Hospital Length of Stay, Cost, and Inpatient Mortality Following ORIF of Ankle Fractures
Deirdre Regan, BA, Garden City, NY
Arthur Manoli III, BS, New York, NY
Sanjit R. Konda, MD, Closter, NJ
Kenneth A. Egol, MD, New York, NY
Diabetic patients undergoing ORIF of ankle fractures have significantly longer lengths of stay and incur significantly higher hospital charges when compared to those without diabetes.

Poster No. P209
Hammertoe Correction with K-wire Fixation in 2,694 Toes
William C. Kramer, MD, Castle Pines, CO
Richard M. Marks, MD, Milwaukee, WI
Michael D. Parman, MD, Wauwatosa, WI
This is a retrospective review of 2,694 hammer toe corrections performed with K-wire fixation, detailing the number as well as risk factors for complications, recurrence and revision rates.
**FOOT AND ANKLE**

**Poster No. P210**
Distraction Osteogenesis for Brachymetatarsal Hypothenar; Results and Implications on the Metatarsophalangeal Joint
Amgad M. Haleem, MD, MSc, Giza, Egypt
Angela Balagadde, BS, Jersey City, NJ
Eugene W. Borst, BA, Bronx, NY
Austin T. Fragomen, MD, New York, NY
S. Robert Rozbruch, MD, New York, NY
Distraction Osteogenesis is effective for brachymetatarsia with high satisfaction rates. Most reported complication is MTP stiffness.

**Poster No. P211**
Radiographic Hallux Valgus Interphalangeus Worsens with Surgical Correction of Hallux Valgus
Alexis E. Dixon, MD, Pasadena, CA
Lydia C. Lee, MD, Los Angeles, CA
Christian K. Kikuchi, MD, Los Angeles, CA
Timothy Charlton, MD, Los Angeles, CA
David B. Thordarson, MD, Los Angeles, CA
There is increased radiographic prevalence and severity of hallux valgus interphalangeus after surgical correction of hallux valgus due to correction of pronation deformity.

**Poster No. P212**
Lapidus Procedure in Younger Patients: Return to Sports and Physical Activities
John A. Karbassi, MD, Andover, MA
Jeanne Yu, BS, New York, NY
Carol A. Mancuso, MD, New York, NY
Andrew J. Elliott, MD, New York, NY
Martin J. O'Malley, MD, New York, NY
David S. Levine, MD, Bedford, NY
Matthew M. Roberts, MD, New York, NY
Scott Ellis, MD, New York, NY
Lapidus procedure for hallux valgus is an excellent option for young patients who are physically active. This younger cohort is returning to sports with a high rate of satisfaction.

**Poster No. P213**
The Influence of Obesity on Outcomes of Hallux Valgus Corrective Surgery
Yong Qiang Jerry Chen, MBBS, Singapore, Republic of Singapore
Merrill Lee, MBBS, Singapore, Republic of Singapore
Hwee Chi Chong, Singapore, Republic of Singapore
Inderjeet S. Rikbray, MD, Singapore, Republic of Singapore
Compared to those with a normal BMI, obese patients have higher risk of revision surgery but similar improvement in functional outcome scores after hallux valgus corrective surgery.

**Poster No. P214**
Effect of Age on Prosthesis Survivorship and Outcome Scores following Total Ankle Arthroplasty
Orfan Arafah, MD, Vancouver, BC, Canada
Peter Dryden, MD, Victoria, BC, Canada
Alastair S. E. Younger, MD, Vancouver, BC, Canada
Murray J. Penner, MD, Vancouver, BC, Canada
Mark Glazebrook, MD, Halifax, NS, Canada
Timothy R. Daniels, MD, FRCSC, Toronto, ON, Canada
Hubert Wong, PhD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
The aim of this study is to evaluate the effect of patient's age on revision rate and outcome scores rate following ankle replacement.

**Poster No. P215**
3D Printing of Calcaneal Fractures as a New Tool to Improve Understanding of Injury’s Severity and Surgical Planning
Nicola Bizzotto, MD, Pove Del Grappa, Italy
Andrea Sandri, Verona, Italy
Dario Regis, MD, Verona, Italy
Elena Manuela Samaila, MD, Isola Rizza, Italy
Denis Romani, MD, Verona, Italy
Bruno Magnan, MD, Verona, Italy
New 3D printer created rapid and low cost realistic prototypes of calcaneal fractures to improve sense of spatial pathology of injuries and patient’s education.

**Poster No. P216**
Occupational Outcomes and Return to Running after Ankle Fracture Fixation in Active Duty US Military Personnel
Justin D. Orr, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
David M. Romano, MD, El Paso, TX
Brian Waterman, MD, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX
Assessment of occupational outcomes and return to running in 76 active duty US military personnel with > 2 year follow-up.

**Poster No. P217**
The Economic Burden of Inpatient Admission of Ankle Fractures
Sumeel B. Bhat, MD, Philadelphia, PA
Justin M. Kane, MD, Coatesville, PA
Steven M. Raikin, MD, Philadelphia, PA
Closed ankle fractures may be safely treated on an outpatient basis, and routine admission of ankle fractures results in over $415 million of excess facility reimbursements annually in the US.

* 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. P218  
Detection of Traumatic Arthrotomy of the Ankle Using the Saline Load Test  
Rachel M. Frank, MD, Chicago, IL  
William Slikker III, MD, Chicago, IL  
David N. Garras, MD, Chicago, IL  
Simon Lee, MD, Chicago, IL  
Johnny L. Lin, MD, Chicago, IL  
Utilizing the saline load test, 30 ml of saline are needed to detect 95% of traumatic ankle arthrotomies, with no differences based on age, gender, or body mass index.

Poster No. P219  
The Effect of the Cotton Osteotomy on Midfoot Sag Correction in Various Types of Adult Flatfoot Deformity  
Graham Dall, ChB, FRCS (Ortho), MB, Baltimore, MD  
Amiethab Aiyer, MD, Baltimore, MD  
Jeffrey Shub, BS, Miami, FL  
Mark S. Myerson, MD, Baltimore, MD  
The medial cuneiform opening wedge osteotomy can be used to improve the medial arch. This study seeks to better define the indications under which this procedure should be performed.

Poster No. P220  
Lateral Column Lengthening Versus Subtalar Arthroereisis in the Treatment of Adult Flexible Flatfoot Deformity  
Lee Bing Howe, MD, Singapore, Republic of Singapore  
Christopher J. Fang, MBBS, Singapore, Republic of Singapore  
Gowreeson Thevendran, MD, Singapore, Republic of Singapore  
A prospective randomized study comparing the effectiveness of the subtalar arthroereisis implant against the lateral column lengthening procedure for the treatment of adult flexible flatfoot deformity.

Poster No. P221  
Causes and Risk Factors for 30-day Readmission Following Foot and Ankle Surgery  
Nate Nicholson, Iowa City, IA  
Andrew J. Pugely, MD, Iowa City, IA  
Yubo Gao, PhD, Iowa City, IA  
John E. Femino, MD, Iowa City, IA  
John J. Callaghan, MD, Iowa City, IA  
Annunziato Amendola, MD, Iowa City, IA  
Phinit Phisitkul, MD, Iowa City, IA  
Readmission rates were generally low (2.89%) but included both surgical (operative time) and patient factors (ASA classification) with surgical site infection (18.04%) being most common.

Poster No. P222  
Ankle Arthroscopy Simulation Improves Basic Skills and Proficiency of Residents in Training  
Kevin D. Martin, DO, Fort Carson, CO  
Phinit Phisitkul, MD, Iowa City, IA  
David P. Patterson, MD, Ann Arbor, MI  
John E. Femino, MD, Iowa City, IA  
Kenneth L. Cameron, PhD, West Point, NY  
Annunziato Amendola, MD, Iowa City, IA  
This study demonstrates low-fidelity ankle arthroscopy simulation training can improve orthopaedic trainees’ basic surgical skills and efficiency while decreasing surgical time on a cadaveric model.

Poster No. P223  
The Footprint of the Achilles Tendon- A Cadaveric Study  
Moez Ballal, Liverpool, United Kingdom  
Christopher Richard Walker, FRCS (Ortho), FRCS, Liverpool, United Kingdom  
Andy Molloy, FRCS (Tr & Orth), Liverpool, United Kingdom  
This is a cadaveric study to evaluate the footprint of the Achilles Tendon.

Poster No. P224  
Early Postoperative Outcomes of Different Bone Graft Harvesting Techniques for Tibiotalar Arthrodesis  
Michael Miladore, MD, Buffalo, NY  
Scott Nodzo, MD, Williamsville, NY  
Bernhard Robrbacher, MD, Buffalo, NY  
Christopher Ritter, MD, Buffalo, NY  
We evaluated the early postoperative pain outcomes of patients undergoing tibiotalar fusion with either an iliac crest bone graft or reamer-irrigator-aspirator bone graft.

Poster No. P225  
Role of Bone Graft and Bone Graft Substitutes in Isolated Subtalar Arthrodesis  
Ashish Shah, MD, Birmingham, AL  
Osama M. Elattar, MD, Birmingham, AL  
Sameer Naranje, MS, MBBS, Forrest City, AR  
Sameer Naranje, MBBS, MS, Minneapolis, MN  
This study compares union rates of isolated subtalar arthrodesis with and without the use of bone graft & bone graft substitutes.

Poster No. P226  
PCLF as a Backbone for Chondrocyte Attachment and Proliferation Augmented by Platelet Lysate  
Eric R. Wagner, MD, Rochester, MN  
Dalibel M. Bravo, MD, San Juan, Puerto Rico  
Mabrokh Dadsetan, PhD, Rochester, MN  
Andre J. Van Wijnen, Prof, Rochester, MN  
Michael J. Yaszemski, MD, Rochester, MN  
Sanjeev Kakar, MD, Rochester, MN  
PCLF polymer scaffold enables chondrocytes to attach, proliferate and retain their chondrogenic phenotypes.
**Poster No. P227**  
Radiation Exposure to the Eye with Mini C-arm Use during Hand Surgery  
Mark L. Wang, MD, PhD, Bryn Mawr, PA  
Charles E. Hoffler II, MD, Miami, FL  
Frederic E. Liss, MD, Limerick, PA  
William Kirkpatrick, MD, Newtown Square, PA  
Asif M. Ilyas, MD, Wayne, PA  
Charles F. Leinberry, MD, Chester Springs, PA  
Pedro K. Beredjiklian, MD, Philadelphia, PA

The purpose of this study is to test that eye radiation exposure, sustained during routine mini C-arm use, does not exceed that of previously reported critical radiation dosages to the eye.

**Poster No. P228**  
Functional and Cosmetic Outcomes of Patients with Subungual Hematoma Treated with Trephination Alone  
Angeli Apalisoc, MD, Caloocan City, Republic of the Philippines  
David Alagar, MD, Quezon City, Republic of the Philippines

Treatment of subungual hematoma with trephination alone provides early return to function with excellent cosmetic outcome.

**Poster No. P229**  
Trigger Finger Release Surgery Performed Wide Awake: Prospective Comparison of Local Anesthetics  
Frederic E. Liss, MD, Limerick, PA  
Constantinos Ketonis, MD, PhD, Philadelphia, PA  
Jonas L. Matzon, MD, Philadelphia, PA  
Charles F. Leinberry, MD, Chester Springs, PA  
Mark L. Wang, MD, PhD, Bryn Mawr, PA  
William Kirkpatrick, MD, Newtown Square, PA  
Christopher M. Jones, MD, Wayne, PA  
Jack Abboudi, MD, Newtown Square, PA  
Asif M. Ilyas, MD, Wayne, PA

Prospective evaluation of various local anesthetics used in trigger finger release surgery identified Exparel to have a tendency for overall lower earlier pain scores than Lidocaine or Marcaine.

**Poster No. P230**  
An Outcome Analysis of 75 Consecutive Cases of Revision Proximal Interphalangeal Arthroplasty  
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

Revision PIP arthroplasty has a 77% 5 year survival, but a relatively high rate of complications, with improved outcomes seen in with the use of silicone implants.

**Poster No. P231**  
Effects of Selective Activation of the First Dorsal Interosseous and Opponens Pollicis on Thumb CMC Kinematics  
Julie E. Adams, MD, Minneapolis, MN  
Virginia H. O’Brien, OTR/L, Minneapolis, MN  
Erik Magnusson, MD, Seattle, WA  
Ben E. Rosenberg, BS, Minneapolis, MN  
David J. Nuckley, PhD, Minneapolis, MN

The first dorsal interosseous & opponens pollicis act synergistically to center the first metacarpal on the trapezium and reduce thumb trapeziometacarpal subluxation during pinch.

**Poster No. P232**  
Utility and Cost Analysis of the Two-week Radiograph Following Operatively Treated Distal Radius Fractures  
Robert C. Brabender, MD, Pittsburgh, PA  
Lisa Vaccaro, Tampa, FL  
Dzi-Vet Nguyen, DO, Warner Robins, GA  
Michael J. Garcia, MD, Tampa, FL  
Alfred V. Hess, MD, Temple Terrace, FL  
Jeffrey D. Stone, MD, Tampa, FL

The purpose of this study is to evaluate the utility of routine 2 week postoperative radiographs for operatively treated distal radius fractures.

**Poster No. P233**  
Opportunistic Diagnosis of Osteoporosis in Patients with Distal Radius Fractures Using Hounsfield Units  
Elizabeth Gausden, MD, New York, NY  
Joseph J. Schreiber, MD, New York, NY  
Paul A. Anderson, MD, Madison, WI  
Andrew J. Weiland, MD, New York, NY  
Michelle G. Carlson, MD, New York, NY

Patients with distal radius fractures have decreased bone density as measured by Hounsfield Units (HU) on wrist CT scans; herein we define HU thresholds to warrant osteoporosis surveillance.

**Poster No. P234**  
Computer Guided Templating for Osteotomy and Fixation of Complex Distal Radius Deformity  
William H. Seitz Jr, MD, Cleveland, OH  
Peter Evans, MD, PhD, Cleveland, OH  
David B. Shapiro, MD, Avon Lake, OH  
Abhishek Jarka, MD, Ann Arbor, MI

Cost effectiveness of precision templating shows a decrease in time for radial and ulnar osteotomies representing a reduction in operating room costs and provides precise anatomical reconstruction.
**Poster No. P235**
Incidence and Reasons for Hardware Removal Following Operative Fixation of Distal Radius Fractures
Mark Snoddy, MD, Nashville, TN
Nick D. Pappas, MD, Greenville, SC
Donald H. Lee, MD, Nashville, TN
Benjamin S. Hooe, BA, BS, Nashville, TN
Harrison F. Kay, BS, Nashville, TN
Thomas J. An, BA, Nashville, TN

Although the incidence of distal radius plating has increased in recent years, the rate of plate removal has remained stable and is most often performed for tendon dysfunction and painful hardware.

**Poster No. P236**
Factors Influencing Infection Rates after Open Fractures of the Distal Radius
Cesar S. Molina, MD, Nashville, TN
Justin Zumsteg, MD, Nashville, TN
Donald H. Lee, MD, Nashville, TN
Nick D. Pappas, MD, Greenville, SC

Open distal radius fractures have a low rate of infection (1.6%). Time to antibiotics and time to operative debridement do not appear to be associated with the development of non-union or infection.

**Poster No. P237**
Effect of Thermal Shrinkage on Innervation of the Triangular Fibrocartilage Complex
Joseph M. Pirolo, MD, Redwood City, CA
Wei Le, MD, Stanford, CA
Jeffrey Yao, MD, Redwood City, CA

Innervation of the triangular fibrocartilage complex (TFCC) may contribute to pain in the pathologic state. Electrothermal shrinkage and debridement of the TFCC successfully denervates treated areas.

**Poster No. P238**
Proximal Row Carpectomy versus Four-Corner Arthrodesis for Posttraumatic Wrist Arthropathy: A Systematic Review
Bryan M. Saltzman, MD, Chicago, IL
Jonathan M. Frank, MD, Chicago, IL
William Slikker III, MD, Chicago, IL
John J. Fernandez, MD, Winnetka, IL
Mark S. Cohen, MD, Glencoe, IL
Robert W. Wysocki Jr, MD, Chicago, IL

4-CA had significantly greater postop radial deviation and hand grip strength, while PRC had greater postop wrist flexion, extension, and flexion-extension arc, and a lower overall complication rate.

**Poster No. P239**
Carpal Tunnel Decompression in Patients with Bleeding Disorders
Joseph Littlechild, MBChB, Manchester, United Kingdom
Thomas Finnigan, MBChB, MRCS, Manchester, United Kingdom
Charles Hay, MB ChB, MD, Manchester, United Kingdom
Sanat shah, MB BS, MS Orth, Lancashire, United Kingdom
Jonathan J. Gregory, Cheshire, United Kingdom

This is the first case series depicting the complication rate of carpal tunnel decompression surgery in patients with bleeding disorders. Our retrospective study concluded that it is a safe procedure.

**Poster No. P240**
Reconstruction of Soft Tissue Defects of the Upper Extremity Using Anterolateral Thigh Flaps
Ryosuke Ikeguchi, MD, Kyoto, Japan
Souichi Ohta, MD, Kyoto, Japan
Takashi Noguchi, MD, Kyoto, Japan
Yukitoshi Kaizawa, MD, Kyoto, Japan
Hiroki Oda, MD, Kyoto, Japan
Tadashi Yasuda, MD, Kobe, Japan
Shuichi Matsuda, MD, Kyoto, Japan

The ALT flap is a safe and reliable surgical option for reconstruction of soft tissue defects of the upper extremity.

**PEDIATRICS**

**Poster No. P241**
Cerebral Anatomy Predicts Intraoperative Neuromonitoring Signals in Cerebral Palsy Scoliosis Correction
Andrew Mo, BS, Baltimore, MD
Anthony O. Asemota, MBBS, MPH, Baltimore, MD
Arun Venkatesan, MD, Baltimore, MD
Eva Katharina Ritzl, MD, Baltimore, MD
Dolores Njoku, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD

Neuroanatomic findings are significant predictors of limited intraoperative neuromonitoring signals in cerebral palsy scoliosis correction.

**Poster No. P242**
Precise Risk Factor for Osgood-Schlatter Disease
Junsuke Nakase, MD, Kanazawa, Japan
Tatsuhiro Toratani, MD, Kanazawa, Japan
Masahiro Kosaka, MD, Kanazawa, Japan
Yoshinori Ohashi, MD, Kanazawa, Japan
Hitoki Numata, MD, Ishikawa, Japan
Takeshi Oshima, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

The precise risk factors for Osgood-Schlatter disease were increased quadriceps muscle tightness and strength during knee extension and flexibility of the hamstring muscles.
**PEDIATRICS**

**Poster No. P243**
Cost-effective yet Reliable Approach to Monitor Nutritional Rickets
Daipayan Chatterjee, New Delhi, India
Mathad Siddalingaswamy, Bangalore, India
Vikas Gupta, MS, Delhi, India
Vasu Sharma, MS, Govindpuri, Kalkaji, India
Krishiti Chatterjee, Kolkata, India

Alkaline phosphatase assay 3 monthly and radiograph at 6 weeks and at the time predicted by formula can decrease the cost of therapy and radiation exposure yet reliably monitor nutritional rickets.

**Poster No. P244**
Bilateral Humerus Lengthening with Unilateral External Fixator in Achondroplasia
Halil I. Balci, MD, Istanbul, Turkey
Mehmet Kocaoglu, Istanbul, Turkey
Levent Eralk, MD, Istanbul, Turkey
Cengiz Sen, Prof, Istanbul, Turkey
Sefa G. Batibay, Fatih, Turkey
Ismail K. Bilsel, MD, Istanbul, Turkey
Mehmet Elmadag, Istanbul, Turkey

Humerus lengthening of the achondroplasic patients is not just a cosmetic operation but also it is a functional necessity, there is Great improvement in DASH score, perineal and perianal hygiene.

**Poster No. P245**
Arm Pain in Youth Baseball Players: A Survey of “Healthy” Players
Eric C. Makhni, MD, New York, NY
Zachary Morrow, BS, New York, NY
Timothy J. Luchetti, MD, Chicago, IL
Anthony Gualtieri, BA, New York, NY
Randall Lee, Hoboken, NJ
Christopher S. Ahmad, MD, New York, NY

An overwhelming majority of active, healthy adolescent baseball players prescribe to arm pain; this is in contrast to prior published reports.

**Poster No. P246**
Injury Scene Analysis: Pediatric Automobile vs. Pedestrian Accidents in an Urban Setting
Alexa J. Karkenny, MD, Bronx, NY
Justin Williams, BS, Philadelphia, PA
Conor Russell, Staten Island, NY
Martin J. Herman, MD, Philadelphia, PA

Injury scene analysis identifies risks for pedestrian-versus-motor vehicle injuries, indicating a need for improved public transportation safety near school zones.

**Poster No. P247**
Three Dimensional Comparison of Progressive versus Non-progressive Curves in Idiopathic Scoliosis
Emily J. Osborn, MD, San Diego, CA
Peter O. Newton, MD, San Diego, CA
Burt Yaszay, MD, San Diego, CA
Fredrick G. Reighard, MPH, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Josh Doan, MS, San Diego, CA

3D reconstructed spine imaging used to analyze Idiopathic Scoliosis (IS) suggests that reduced kyphosis as well as a lower kyphosis to pelvic incidence ratio is associated with curve progression.

**Poster No. P248**
Variability of Surgical Site Infection with VEPTR at Eight Centers: A Retrospective Cohort Analysis
Sumeet Garg, MD, Aurora, CO
Micaela Cyr, BA, Aurora, CO
Michael P. Glotzbecker, MD, Boston, MA
Patrick Carry, Aurora, CO
John T. Smith, MD, Salt Lake City, UT
Jeffrey R. Saucier, MD, Germantown, TN
Joshua M. Pahys, MD, Wynnewood, PA
Tricia St. Hilaire, MPH, Valley Forge, PA
Children’s Spine Study Group, Valley Forge, PA

18% of patients develop infection during VEPTR treatment with significant variability in infection rate among sites of care.

**Poster No. P249**
Variability of the Anterior Humeral Line in Pediatric Patients with Normal Elbows
Deirdre D. Ryan, MD, Los Angeles, CA
Nina R. Lightdale-Miric, MD, Los Angeles, CA
Tibby Wren, PhD, Los Angeles, CA
Lindsey M. Spragg, MD, Manhattan Beach, CA
Michael J. Heffernan, MD, New Orleans, LA
Elizabeth Joiner, RS, Houston, TX
Robert M. Kay, MD, Los Angeles, CA
David L. Skaggs, MD, Los Angeles, CA

Clinically significant variability exists in the percentage of the capitellum divided by the AHL in a large series of normal pediatric elbow radiographs.

**Poster No. P250**
Anterior/Posterior Surgery in Cerebral Palsy Scoliosis: Perioperative Outcomes of Single Day vs Two-Stage Surgery
Patrick J. Cahill, MD, Philadelphia, PA
Joshua M. Pahys, MD, Wynnewood, PA
Kimberly Hayes, Philadelphia, PA
Randal R. Betz, MD, Lawrenceville, NJ
Amer Samdani, MD, Philadelphia, PA

Performing staged anterior/posterior scoliosis surgery in CP versus same-day surgery led to increased length of hospitalization and duration of intubation.
Educational Programs

Poster No. P251
Iliosacral Screw Pathways in the Pediatric Population: Are There Safe Bony Corridors?
Joshua L. Gary, MD, Houston, TX
Matthew Burn, MD, Houston, TX
Michael Holzman, MD, Fairfax, VA
Matthew C. Galpin, Houston, TX
John A. Heydemann, MD, Houston, TX
John W. Munz, MD, Houston, TX
Timothy S. Achor, MD, Bellaire, TX
Manickam Kumaravel, MD, FRCS, Houston, TX

100% of pediatric patients ages 2-16 have an osseous corridor > 6.5 mm in the upper sacral segment. More than 93% of pediatric patients have a corridor > 6.5 mm in the second sacral segment.

Poster No. P252
A Retrospective Examination of a Classic Approach to Slipped Capital Femoral Epiphysis Management
Kenneth A. Hood, DO, San Diego, CA
John Schlechter, DO, Orange, CA
Shawn Nguyen, BS, Moreno Valley, CA

At our institution in-situ screw fixation offers a low rate of avascular necrosis, even with unstable slips. This rate is lower than established rates of AVN for the modified Dunn procedure.

Poster No. P253
Effectiveness of Sublaminar Wires in Growing Constructs to Prevent Proximal Anchor Pullout in Early Onset Scoliosis
Daniel J. Sucato, MD, MS, Dallas, TX
Charles E. Johnston II, MD, Dallas, TX
Brandon A. Ramo, MD, Dallas, TX
Anna McClung, RN, Dallas, TX

Use of sublaminar wires as proximal anchors in growing rods shows promising effectiveness at preventing implant pullout in comparison to hooks and/or pedicle screws.

Poster No. P254
◆ Is There an Optimal Time to Distract Dual Growing Rods?
Michael Paloski, DO, Charlotte, NC
Paul D. Sponseller, MD, Baltimore, MD
Bebrooz A. Akharnia, MD, La Jolla, CA
George H. Thompson, MD, Cleveland, OH
David L. Skaggs, MD, Los Angeles, CA
Jeff Pawelek, La Jolla, CA
Phuong T. Nguyen, MA, Charlotte, NC
Susan M. Odum, PhD, Charlotte, NC
Growing Spine Study Group, Milwaukee, WI

There was no difference in curve correction, T1-S1 length or instrumented length between growing rod patients who had ≥9 months lengthening intervals and <9 month lengthening intervals.

Poster No. P255
The Spectrum of Foot Deformities in Loeys-Dietz Syndrome
Thomas J. Kim, MD, Baltimore, MD
Andrew Mo, BS, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD

Loeys-Dietz syndrome is a connective tissue disease that requires investigation and characterization of manifestations such as foot deformities, a major component of the clinical presentation.

Poster No. P256
Variability of Patient Standing Position in Operative Adolescent Idiopathic Scoliosis: A Motion Capture Analysis
David M. Robertson, BS, Aurora, CO
James Carollo, PhD, Aurora, CO
Cameron R. Niswander, BA, Aurora, CO
Sumeet Garg, MD, Aurora, CO

A prospective study revealed large variability in standing coronal and sagittal alignment in patients with operative adolescent idiopathic scoliosis (AIS).

Poster No. P257
Can a “Final Fusion” Procedure be Avoided in EOS Patients Who Reach Skeletal Maturity After Growing Rod Treatment?
Amit Jain, MD, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD
Urvij Modhia, MBBS, MD, Baltimore, MD
Suken A. Shah, MD, Wilmington, DE
George H. Thompson, MD, Cleveland, OH
John B. Emans, MD, Boston, MA
Jeff Pawelek, La Jolla, CA
Bebrooz A. Akharnia, MD, La Jolla, CA
Growing Spine Study Group, Milwaukee, WI

In this series we found that patients who did not receive a final fusion had excellent final coronal correction and trunk height, with no fractures in retained rods.

Poster No. P258
Surgical Treatment of Pediatric Spinal Deformity in the United States from 1997 to 2009
Alan H. Daniels, MD, Providence, RI
Hari Vigneswaran, BS, Providence, RI
Hari Vigneswaran, BS, Providence, RI
Craig P. Eberson, MD, Providence, RI
Mark A. Palumbo, MD, Providence, RI

From 1997 to 2009 there was an increasing trend toward posterior based techniques compared to anterior procedures for pediatric spine deformity with a yearly national bill of up to $1.5 billion.

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**PEDIATRICS**

**Poster No. P259**
Do Thoracic Dimensions Predict Restrictive Pulmonary Function in Early Onset Scoliosis?

- Michael P. Glotzbecher, MD, Boston, MA
- Charles E. Johnston II, MD, Dallas, TX
- John T. Smith, MD, Salt Lake City, UT
- Francisco S. Perez-Grueso, MD, Madrid, Spain
- Regina Woon, Los Angeles, CA
- John M. Flynn, MD, Philadelphia, PA
- Meryl Gold, BA, Boston, MA
- Patrick J. Cahill, MD, Philadelphia, PA
- John B. Emans, MD, Boston, MA

Traditional 2D thoracic measurements (T1-T12 height) can be used as a surrogate to pulmonary function. However the correlation is weak; better outcome measures need to be developed.

**Poster No. P260**
It’s Not Just the Big Kids: Both High and Low BMI Impact Bracing Success for Adolescent Idiopathic Scoliosis

- Christine Goodbody, BA, Philadelphia, PA
- Ivor Asztalos, BS, Philadelphia, PA
- Wudbhav N. Sankar, MD, Wynnewood, PA
- John M. Flynn, MD, Philadelphia, PA

Children on either end of the BMI spectrum are more likely to fail brace treatment for AIS than their mid-BMI counterparts. This is in part attributable to inadequacy of in-brace curve correction.

**PRACTICE MANAGEMENT/REHABILITATION**

**Poster No. P261**
Increasing Women and Underrepresented Minorities in Orthopaedic Surgery: A Pipeline Initiative

- Bonnie Simpson Mason, MD, Chicago, IL
- Eldra W. Daniels, MD, Silver Spring, MD
- Gezzer Ortega, MD, Wheaton, MD
- MaCalus Hogan, MD, Pittsburgh, PA
- Michael L. Parks, MD, New York, NY
- Richard E. Grant, MD, Ambler, PA

Pipeline programs focused on increasing the number of women and underrepresented minorities in specialty fields can positively impact the numbers of these students matching in orthopaedic surgery.

**Poster No. P262**
Sufentanil Sublingual Tablet System vs. Intravenous Patient-controlled Morphine for Hip/Knee Arthroplasty Pain

- Maurice Jove, MD, Decatur, GA
- David W. Griffin, MD, Vero Beach, FL
- Pamela P. Palmer, MD, Redwood City, CA

The sufentanil sublingual tablet system is a non-invasive, preprogrammed, patient-administered analgesic system that has more rapid onset than IV PCA morphine and is more patient- and nurse-friendly.

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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. P268
Recent Trends in Orthopaedic Device Regulation
Jordan P. Barker, MD, KS City, MO
Jonathan Dubin, MD, Leawood, KS
This study quantitatively analyzes and describes FDA orthopaedic device approvals over a twelve-year period.

Poster No. P269
Cost Utility Analyses in Total Joint Arthroplasty: A Qualitative and Systematic Review
Benedict U. Nwachukwu, MD, New York, NY
Kevin J. Bozic, MD, MBA, San Francisco, CA
William W. Schairer, MD, New York, NY
Jaime Bernstein, BS, Fairfield, CT
David Jesevar, MD, MBA, Lebanon, NH
Robert G. Marx, MD, New York, NY
Douglas E. Padgett, MD, New York, NY
There has been a significant increase in the volume of published cost utility analyses in hip and knee arthroplasty and there has also been an associated improvement in quality of the studies.

Poster No. P270
First Assist in Pediatric Orthopaedics: Implications for Financing Graduate Medical Education
Jeffrey Abildgaard, MD, Avondale, AZ
Michael W. Shrader, MD, Cave Creek, AZ
Alexander C. McLaren, MD, Phoenix, AZ
Lee S. Segal, MD, Madison, WI
Carla Boan, M.Sc., Phoenix, AZ
Resident assistance in the operating room provides for significant savings to private health insurance companies. Total annual collections for an orthopaedic surgery resident would be $40,900.

Poster No. P271
Hospital-Based Orthopaedically Trained PA-C Improves Length of Stay, Cost, and Discharge Following TJA
Daniel P. Hoeffel, MD, Woodbury, MN
Brandon J. Kelly, Saint Paul, MN
M. R. Giveans, PhD, Eden Prairie, MN
Susan C. Meble, Saint Paul, MN
Implementation of a hospital-based orthopedically trained PA-C led to reduced patient length of stay, direct cost per admission and rate of discharge to transitional care facilities after TJA.

Poster No. P272
The Economics of Delay of Discharge to Post-Acute Facilities in a Bundled Payment Environment
James D. Slover, MD, New York, NY
Richard Iorio, MD, New Rochelle, NY
Joseph A. Bosco III, MD, New York, NY
Extended acute hospital care in a bundled payment environment is financially feasible, provided other parameters, such as readmission rates, do not increase, if it allows for patient discharge home.

Poster No. P273
Factors that Influence Discharge Disposition and Readmission Following Total Joint Arthroplasty
Daniel P. Hoeffel, MD, Woodbury, MN
Brandon J. Kelly, Saint Paul, MN
M. R. Giveans, PhD, Eden Prairie, MN
Susan C. Meble, Saint Paul, MN
Patients that live alone, have a hospital stay >3 days or have a Charlson-comorbidity index >2 are significantly more likely to be discharged to TCU/SNF and to present for readmission following TJA.

Poster No. P274
The Cost of Post-hospital Acute Care of Total Joint Arthroplasty in a Bundled Payment System
James Murphy, MD, Dallas, PA
David J. Kolessar, MD, Wilkes Barre, PA
Thomas R. Bowen, MD, Danville, PA
Carmen D. Crofoot, MD, Danville, PA
Elie S. Ghanem, MD, Danville, PA
Michael Suk, MD, Danville, PA
In a bundled payment system for total joint arthroplasty, post-acute hospital costs can account for up to 50% of the total cost with orthopaedic surgeons having limited control to reduce these costs.

Poster No. P275
A Validated Model for Teaching and Evaluation of Basic Arthroscopic Skills
Ryan Coughlin, MD, Montreal, QC, Canada
Thierry Pauyo, MD, Montreal, QC, Canada
Joseph C. Sutton III, MD, Montreal, QC, Canada
Larry P. Coughlin, MD, Dollard Des Armeaux, QC, Canada
Stephane Bergeron, MD, Kirkland, QC, Canada
An arthroscopic training box model was successfully designed showing good construct validity and significant improvement in performance according to level of training.

Poster No. P276
Decreasing Resource Utilization Using Standardized Clinical Assessment and Management Plans
Gaurav A. Luther, MD, Boston, MA
Patricia Miller, MS, Boston, MA
Susan T. Mahan, MD, Boston, MA
Donald S. Bae, MD, Boston, MA
Standardized Clinical Assessment and Management Plans (SCAMPs) decrease resource utilization, practice variability, and overall cost in pediatric torus fractures.
**Educational Programs**

**Practice Management/Rehabilitation**

**Poster No. P277**
Changes to Medicare Relative Value Units in Total Joint Arthroplasty: A Political Necessity or Based on Data?
Andrew J. Pugely, MD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Yubo Gao, PhD, Iowa City, IA
Nicolas O. Noisieux, MD, Iowa City, IA
Mark J. Froimson, MD, Euclid, OH
John J. Callaghan, MD, Iowa City, IA

Orthopaedic surgeons are performing TKA and THA faster today than in 2005, according to the RUC review. The results from the ACS NSQIP database corroborate these findings.

**Poster No. P278**
Validation of a Global Rating Scale in a Virtual Reality and Benchtop Arthroscopic Simulator
Daniel Banaszek, MD, Kingston, ON, Canada
David Bardana, MD, FRCSC, Kingston, ON, Canada
Justues Chang, MD, Toronto, ON, Canada

Using expert and non-expert testing groups, the Global Rating Scale is a valid evaluation tool of orthopaedic residents’ arthroscopic performance in both virtual and bench-top simulation set-ups.

**Poster No. P279**
The Value of Radiologist Interpretations of Peri-operative Imaging of Thoracolumbar Fractures
Thierry Pauyo, MD, Montreal, QC, Canada
Lojan Sivakuraman, B.S, Montreal, QC, Canada
Maryse Fortin, Ph.D, Montreal, QC, Canada
Jean Ouellet, MD, Montreal, QC, Canada
Peter Jarzem, MD, Montreal, QC, Canada
Michael Weber, MD, Montreal, QC, Canada

In the treatment traumatic thoraco-lumbar fractures, the radiologist interpretations of intra-operative and post-operative images are delayed, costly and do not affect surgical management.

**Poster No. P280**
Surgeon-directed Management of Quality Indicators in Total Joint Arthroplasty: Optimizing Quality
Nicolas O. Noisieux, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Aldijana Avdic, BSN, RN, Iowa City, IA
Nancy Krutzfield, RN, MA, Iowa City, IA

A quality-oriented monthly dashboard meeting has contributed to significant improvements in quality of care, safety and value in total joint arthroplasty at our institution.

**Shoulder and Elbow**

**Poster No. P281**
Total Elbow Arthroplasty Using Alumina Ceramic Elbow Prosthesis in Japanese Patients with Rheumatoid Arthritis
Takahiro Machida, MD, Okayama, Japan
Keiichiro Nishida, MD, Okayama City, Japan
Kenzo Hashizume, MD, PhD, Okayama, Japan
Ryozo Harada, MD, Okayama, Japan
Masahiro Horita, MD, Okayama, Japan
Toshifumi Ozaki, MD, Okayama, Japan

We retrospectively reviewed the clinical results of an unlinked prosthesis composed of polycrystalline alumina ceramics. The results demonstrated favorable mid-term outcomes of the prosthesis.

**Poster No. P282**
Complications of Elbow Arthroscopy at a Single Institution 1999-2011
Ian J. Barrett, MD, Rochester, MN
George F. Bonadurer III, BS, Rochester, MN
Sean Cantwell, BS, Rochester, MN
Ryan Planchard, BE, Rochester, MN
Scott P. Steinmann, MD, Rochester, MN

Retrospective review describing the complications of over 600 elbow arthroscopy cases performed at a single institution between 1999 and 2011.

**Poster No. P283**
The Ipsilateral Olecranon Tip Fragment is a Suitable Autograft for Unrepairable Coronoid Fractures
Stephen A. Putman, MD, Pawleys Island, SC
Hill Hastings II, MD, Indianapolis, IN
Aakash Chauhan, MD, MBA, Pittsburgh, PA
Greg A. Merrell, MD, Indianapolis, IN

Comparative 3-D mapping and analysis show the ipsilateral olecranon tip is an anatomically similar and acceptable autograft for unreparable coronoid fractures.

**Poster No. P284**
The Incidence of Supraspinatus Weakness in Patients with Lateral Epicondylitis
Nicholas M. Caggiano, MD, Bethlehem, PA
Daniel M. Avery III, MD, Bethlehem, PA
Kristofer S. Matullo, MD, Ambler, PA

A significant association exists between lateral epicondylitis and ipsilateral supraspinatus weakness, the cause of which may be a kinetic chain between the rotator cuff and the wrist extensors.

**Poster No. P285**
Distal Humeral Hemiarthroplasty: Indications, Results, and Complications: A Systematic Review
John Dunn, MD, El Paso, TX
Miguel A. Pirela-Cruz, MD, El Paso, TX
Nicholas A. Kusnezov, MD, El Paso, TX
Distal Humeral Hemiarthroplasty (DHH) may be used for unreconstructible distal humeral fractures and offers less restrictions and lower rates of loosening as compared to Total Elbow Arthroplasty.

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Poster No. P286
BstUI and DpnII Variants of COL5A1 Gene are Associated with Tennis Elbow
Julide Altinisik, Balikesir, Turkey
Gokhan Mermic, MD, Izmir, Turkey
Mehmet Erduran, Izmir, Turkey
Omer Ates, Tokat, Turkey
Aliengin Ulusal, Balikesir, Turkey
Devrim Akseki, MD, Balikesir, Turkey
The exact etiology of the tennis elbow is not yet fully understood. The main finding of this study is that variants of the COL5A1 gene are associated with tennis elbow.

Poster No. P287
Contact Mechanics of Axisymmetric & Non-Axisymmetric Radial Head Hemiarthroplasty Compared to the Native Joint
G. Daniel G. Langohr, MSc, London, ON, Canada
Ryan Willing, PhD, Binghamton, NY
John B. Medley, PhD, Waterloo, ON, Canada
James A. Johnson, PhD, London, ON, Canada
Graham J. King, MD, London, ON, Canada
Non-axisymmetric RH hemiarthroplasty can produce significantly higher peak contact stresses and reduced contact area compared to axisymmetric geometries, which may affect the long term performance.

Poster No. P288
The Probability and Agreement of Serial Ultrasonographic Evaluation to Detect Rotator Cuff Healing after A/S Repair
Joo Han Oh, Prof, Seoul, Republic of Korea
Namryun Chung, Seongnam-Si, Republic of Korea
Jong Pil Yoon, MD, Daegu, Republic of Korea
Tae-Yon Rhie, MD, PhD, Seoul, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
Joon Yub Kim, MD, Gyereong-Do, Republic of Korea
Hyuk Jun Seo, MD, PhD, Daegu, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea
USG evaluation performed at 6 month after A/S rotator cuff repair has greater probability of rotator cuff healing and higher agreement with MRI at postop 12 month.

Poster No. P289
Electromyography Analysis of Rotator Cuff Function During Driving
Megan Carroll Paulus, MD, Arlington, VA
Sameer H. Nagda, MD, Alexandria, VA
Brent B. Wiesel, MD, Bethesda, MD
Lauren Biemer, Arlington, VA
Kevin Fitzpatrick, McLean, VA
The purpose of this study is to evaluate the activation of the supraspinatus, infraspinatus, and biceps while driving.

Poster No. P290
Comparison Between Suture Bridge Technique with or without Medial Tying in Rotator Cuff Tears
Hirokazu Honda, MD, Fukuoka, Japan
Hidehiro Nakamura, MD, Kurume Fukuoka, Japan
Masafumi Gotoh, MD, PhD, Kurume, Japan
Naoto Shibata, MD PhD, Fukuoka, Japan
Suture bridge technique with medial tying does not produce superiority in terms of functional and structural outcome, compared with the technique without tying in patients with rotator cuff tears.

Poster No. P291
LHB Tendon Patch with Prolene Membrane Augmentation in Massive Rotator Cuff Tears: 60 Patient Study
Matteo Vitali, MD, Milan, Italy
Alberto Pedretti, Milan, Italy
Nadim Naim Rodriguez, Lurate Caccivio, Italy
Andrea Casumano, Voghera, Italy
Gianfranco Fraschini SR, Milan, Italy
Massive rotator cuff tears surgical repair technique using LHB tendon patch and synthetic prolene membrane augmentation. 60 patient case report with a control group. 3 ys clinical and MRI follow-up.

Poster No. P292
Subgroup Analyses on Shoulder Impingement Syndrome - Which Patients do not Recover?
Saara Ketola, MD, Tampere, Finland
If the shoulder patients will not recover by conservative means, it seems that they do not benefit from the operative treatment either.

Poster No. P293
Suprascapular Neuropathy in Rotator Cuff Tears: Electromyographic Studies in 340 Cases
Nobuyasu Ochiai, MD, PhD, Chiba City, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Norimasa Takabashi, MD, Funabashi, Japan
Keisuke Matsuki, MD, Funabashi, Japan
Yu Sasaki, MD, Chiba, Japan
Takeki Yamaguchi, MD, Chiba, Japan
Takehiro Kijima, Chiba, Japan
Eiko Hashimoto, Chiba, Japan
Yasubito Sasaki, Chiba, Japan
Suprascapular neuropathy only existed in infraspinatus in 5.9%. From our results, suprascapular nerve release in suprascapular notch would not be beneficial in arthroscopic rotator cuff repair.

Poster No. P294
Retear of the Repaired Rotator Cuff - When and Why?
Woong Kyo Jeong, MD, Seoul, Republic of Korea
Dae-Hee Lee, MD, Seoul, Republic of Korea
Soon Hyuck Lee, MD, PhD, Seoul, Republic of Korea
Seung B. Han, MD, Seoul, Republic of Korea
Si Young Park, MD, PhD, Glenview, IL
Jong-Hoon Park, MD, PhD, Seoul, Republic of Korea
This study presents the retear time of repaired rotator cuff tendon using serial ultrasonography and the factors associated with retear.
**SHOULDER AND ELBOW**

**Poster No. P295**
Prognostic Factors Affecting Rotator Cuff Healing after Arthroscopic Repair in Small to Medium Sized Tear

Oh Joo Han, MD, Seongnam, Republic of Korea
Jisoon Park, MD, Seoul, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea
Namyun Cheng, Seongnam-si, Republic of Korea
Joon Yub Kim, MD, Gyeonggi-do, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
Tae-Yon Rhee, MD, PhD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Daegu, Republic of Korea

In small to medium sized rotator cuff tears, fatty degeneration of infraspinatus muscle, tear size and age significantly affect rotator cuff healing after arthroscopic repair.

**Poster No. P296**
Arthroscopic Rotator Cuff Repair for Large and Massive Tears Using Graft Augmentation of Fascia Lata

Takeshi Kokubu, MD, Kobe, Japan
Yutaka Mifune, MD, Kobe, Japan
Atpuyuki Inui, PhD, MD, Kobe, Japan
Tomoyuki Muto, MD, Kobe, Japan
Harada Yoshifumi, Asahiya, Japan
Fumiaki Takase, MD, Kobe, Hyogo, Japan
Yasuhiro Ueda, Kobe, byogo, Japan, Japan
Masaburo Kurosuka, MD, Kobe, Japan

Arthroscopic rotator cuff repair with graft augmentation of fascia lata showed good clinical outcomes with a low retear rate and improvement of abduction strength.

**Poster No. P297**
Prevalence of Contralateral Shoulder Pathology in Patients Undergoing Rotator Cuff Repair at Age 45 Years or Under

Daniel D. Buss, MD, EDINA, MN
Marissa Martin, Little Canada, MN
Joseph S. Renier, Edina, MN
Aimee S. Klapach, MD, Minneapolis, MN
Leroy P. McCarthy III, MD, Edina, MN
Michael Q. Freehill, MD, Edina, MN
M. R. Gieveans, PhD, Eden Prairie, MN

Patients aged 45 years or less undergoing rotator cuff repair for atraumatic rotator cuff tear appear to be at significant risk for contralateral rotator cuff pathology.

**Poster No. P298**
Diagnostic Accuracy of Magnetic Resonance Findings of Pulley Lesions

Yuji Shibayama, Sapporo, Japan
Toshiaki Hirose, Sapporo, Japan
Takayuki Dobbe, MD, Hokkaido Sapporo City, Japan
Emi Mizushima, MD, Muroran, Japan
Toshikazu Yamashita, MD, Sapporo, Japan
Sugi Akira, MD, Sapporo, Japan

The pulley was intact if we found continuity of the SGHL in MRI. When we had anterior displacement and subluxation of the LHB, and SSC tendon tear in MRI, we found pulley lesion arthroscopically.

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**Poster No. P304**

MRI Evaluation after Arthroscopic Partial Rotator Cuff Repair for Irreparable Rotator Cuff Tear

Toshiaki Hirose, Sapporo, Japan
Takayuki Dohke, MD, Sapporo, Japan
Yuji Shibayama, Sapporo, Japan
Emi Mizushima, MD, Muroran, Japan
Sugi Akira, MD, Sapporo, Japan
Toshihiko Yamashita, MD, Sapporo, Japan

MRIs showed 24% re-torn for ISP tendon, and 25% re-torn for SSC tendon. The distance from the coracoid process to the humeral head was decreased in the patient with re-torn SSC tendon.

**Poster No. P305**

New Technique of Making 3D Cuff Tear Image using MRI - Clinical Utility and Precision of 3D Cuff Tear Images

Masaki Ito, Tokyo, Japan
Takashi Matsushita, MD, Tokyo, Japan

We made 3D MRI images of rotator cuff tear with CAD (ZedView). These images showed the same size and shape as the arthroscopic findings. It is value to use this CAD for making 3D cuff tear images.

**Poster No. P306**

A Single Dose of Platelet-rich Plasma Improves the Organization and Strength of a Repaired Rotator Cuff in Rats

Oleg Dolkart, PhD, Tel Aviv, Israel
Ofir Chechik, MD, Ramat Hasharon, Israel
Yaron Zarfaty, MD, Ramat Gan, Israel
Fadi Y. Alhajajra SR, East Jerusalem
Eran Maman, MD, Tel Aviv, Israel

Single dose autologous PRP in adjunct to surgical repair resulted in improved tendon-to-bone healing, assessed by histological and biomechanical testing in a rat model of acute RCT.

**Poster No. P307**

Is Supraspinatus Muscle Atrophy Irreversible?: Quantitative Analysis after Arthroscopic Repair

Suk Kee Tae, Prof, Gyeonggi-Do, Republic of Korea
Sang W. Mun, Goyangsi, Republic of Korea
Sung Hyun Lee, MD, Go Yang Si, Republic of Korea
Seung Hye Jeong, Gyanggido, Republic of Korea

Supraspinatus muscle atrophy might be reversed if repaired cuff heals completely, and the tear width is less than 20mm.

**Poster No. P308**

Quantitative Assessment of Rotator Cuff Fatty Infiltration by IDEAL Sequence MRI

Robert Lucas, MD, Seattle, WA
Drew Lansdown, MD, San Francisco, CA
Sonia Lee, MD, San Francisco, CA
Lorenzo Nardo, San Francisco, CA
Andrew Lai, BS, BA, Castro Valley, CA
Roland Krug, San Francisco, CA
ChunBong B. Ma, MD, San Francisco, CA

This study evaluated rotator cuff muscular fatty infiltration with a quantitative MRI sequence termed IDEAL. We showed that intramuscular fat content correlates with rotator cuff pathology.

**Poster No. P309**

Prevalence of Rotator Cuff Atrophy and Fatty Infiltration in Patients with Glenohumeral Osteoarthritis

Jonathan Berliner, MD, San Francisco, CA
Alan Zhang, MD, San Francisco, CA
Drew Lansdown, MD, San Francisco, CA
ChunBong B. Ma, MD, San Francisco, CA
Brian T. Feeley, MD, San Francisco, CA

Patients with glenohumeral osteoarthritis have a higher prevalence and more advanced grade of rotator cuff fatty infiltration and muscle atrophy compared to an age-matched cohort without OA.

**Poster No. P310**

Gender has a Significant Affect on Postoperative Functional Outcome Scores in Reverse Shoulder Arthroplasty

Samuel Harmsen, MD, Phoenix, AZ
James D. Kelly II, MD, San Francisco, CA
Ryan Mclemore, PhD, Phoenix, AZ
Armodios M. Hatzidakis, MD, Denver, CO
Tom R Norris, MD, San Francisco, CA
Thomas B. Edwards, MD, Houston, TX
Evan S. Lederman, MD, Phoenix, AZ
Samuel Harmsen, MD, Phoenix, AZ

Female patients who undergo reverse shoulder arthroplasty have significantly lower functional outcome and strength scores than male patients. However, the clinical significance appears to be minimal.

**Poster No. P311**

Uncemented versus Cemented Reverse Shoulder Arthroplasty

Joseph J. King III, MD, Gainesville, FL
Aimee Struk, MEd, MBA, Gainesville, FL
Kevin W. Farmer, MD, Gainesville, FL
Thomas W. Wright, MD, Gainesville, FL

Press-fitting the humeral component in reverse shoulder arthroplasty provides similar radiographic and functional outcomes compared to cementation at minimum 2-year follow-up.
Posters

**SHOULDER AND ELBOW**

**Poster No. P312**
Quantification of the Position, Orientation, and Surface Area of Posterior Bone Loss in Type B2 Glenoids
Nikolas K. Knowles, BEng, London, ON, Canada
Louis Ferreira, MSc, London, ON, Canada
Jay D. Keener, MD, Saint Louis, MO
George S. Athwal, MD, London, ON, Canada
The orientation, position and curvature of posterior erosion in arthritic glenoids were quantified to assist in the surgical management of biconcave cases.

**Poster No. P313**
Factors Associated with Rotator Cuff Tears in Total Shoulder Arthroplasty
Matthew Binkley, MD, Buffalo, NY
Scott Nodzo, MD, Williamsville, NY
Philip M. Stegemann, MD, Buffalo, NY
Thomas R. Duquin, MD, Buffalo, NY
This is a retrospective chart review of the clinical and radiographic features of total shoulder arthroplasty patients with rotator cuff tears post-operatively.

**Poster No. P314**
Subscapularis Function after Total Shoulder Arthroplasty: Electromyography, Ultrasound, & Clinical Correlation
April D. Armstrong, MD, Hershey, PA
Jodi D. Southam, MD, Portland, OR
Andrea H. Horne, Hershey, PA
Christopher S. Hollenbeck, PhD, Hershey, PA
Donald Flemming, MD, Hershey, PA
Milind Kothari, DO, Hershey, PA
EMG analysis showed that active denervation of the subscapularis was not evident at least one year following total shoulder arthroplasty exposed utilizing a subscapularis tenotomy approach.

**Poster No. P315**
Two-Stage Reimplantation for the Treatment of Deep Infection After Shoulder Arthroplasty
Taylor Dennison, MD, Rochester, MN
Yaser M. Baghdadi, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Robert H. Cofield, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
A retrospective review evaluating the clinical outcome of 40 consecutive 2-stage reimplantations for the treatment of infected shoulder arthroplasty.

**Poster No. P316**
The Distribution of Shoulder Replacements Among Surgeons and Hospitals is Changing Over Time
Samer S. Hasan, MD, PhD, Cincinnati, OH
Cassie M. Fleckenstein, MS, Cincinnati, OH
Martin S. Levy, PhD, Cincinnati, OH
The distribution of shoulder replacements among surgeons and hospitals has changed over time, but remains different than that of hip and knee replacements.

**Poster No. P317**
Shoulder Arthroplasty for the Treatment of Charcot Arthropathy
Bradley S. Schoch, MD, Rochester, MN
Jean-David Werthel, Paris, France
Robert H. Cofield, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Shoulder arthroplasty for the treatment of the sequelae of a Charcot joint produces significant pain relief but less range of motion improvements than those patients with osteoarthritis.

**Poster No. P318**
Outcomes of Surgical Treatment for Atraumatic Osteonecrosis of the Humeral Head
Lynn A. Crosby, MD, Augusta, GA
Jeffrey P. Smith Jr, MD, Augusta, GA
David Janeira, BS, Augusta, GA
Core decompression for stage I or II disease in patients with AVN secondary to sickle cell disease is not likely to be as successful due to the chronic remitting and relapsing nature of the disease.

**Poster No. P319**
Radiographic and Clinical Outcomes Following Total Shoulder Arthroplasty with a Microstem Humeral Component
Andrew Millis, MD, Cincinnati, OH
Keith Kenter, MD, Cincinnati, OH
Nicholas Sacksteder, B.S., Saint Louis, MO
Robert Wissman, MD, Cincinnati, OH
Eric England, MD, Cincinnati, OH
Kausal Mehta, MD, Cincinnati, OH
The microstem humerus total shoulder implant group shows good to excellent clinical outcomes and low suspicion of radiographic loosening at 2 years.

**Poster No. P320**
Three-dimensional Computed Tomography Analysis of Implant Position Following Total Shoulder Arthroplasty
Eric T. Ricchetti, MD, Cleveland, OH
Richard Cain, MD, Tampa, FL
Bong-Jae Jun, PhD, Cleveland, OH
Ari Youdertian, MD, Aliso Viejo, CA
Eric Rodriguez, BS, Cleveland, OH
David Kasin, BA, University Heights, OH
Naveen Subhas, MD, Cleveland, OH
Thomas E. Patterson, PhD, Cleveland, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Postoperative 3-D CT imaging following total shoulder arthroplasty identified changes in glenoid component position over time not detectable on plain radiographs, including subclinical loosening.

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Poster No. P321
Future Young Patient Demand for Shoulder Arthroplasty: National Projections
Eric M. Padegimas, MD, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Mark D. Lazarus, MD, Philadelphia, PA
Matthew L. Ramsey, MD, Philadelphia, PA
Gerald R. Williams Jr, MD, Philadelphia, PA
Surena Namdari, MD, MSc, Philadelphia, PA
Shoulder arthroplasty demand in patients aged less than 55 years projects to increase through 2030, though at a slower rate than the elderly. Changing demand has strong implications on future costs.

Poster No. P322
Future Young Patient Demand for Shoulder Arthroplasty: National Projections
Eric M. Padegimas, MD, Philadelphia, PA
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Surena Namdari, MD, MSc, Philadelphia, PA
Shoulder arthroplasty demand in patients aged less than 55 years projects to increase through 2030, though at a slower rate than the elderly. Changing demand has strong implications on future costs.

Poster No. P323
Predicting Stability of Augmented Glenoid Implants using a Finite Element Model of Glenoid Retroversion
Jared J. Allred, MD, Spokane, WA
Cesar Flores-Hernandez, La Jolla, CA
Darryl D.’Lima, MD, La Jolla, CA
Heinz R. Hoenecke Jr, MD, San Diego, CA
The purpose of this study was to determine which implant required the least bone to be reamed and showed the lowest stresses on the implant, cement, and adjacent glenoid bone when virtually implanted.

Poster No. P324
Enhanced Molecular Diagnosis of Periprosthetic Joint Infection With Novel Bacterial Species Specific Primer Array
Adam Rothenberg, MD, Pittsburgh, PA
Peter G. Alexander, PhD, Pittsburgh, PA
Albert Lin, MD, Pittsburgh, PA
Rocky S. Tuan, PhD, Pittsburgh, PA
Use of species-specific primers in real-time quantitative PCR is a clinically useful potential improvement over culture for diagnosing the most common bacteria in periprosthetic joint infections.

Poster No. P325
Long-term Outcomes of Glenohumeral Arthrodesis
Eric R. Wagner, MD, Rochester, MN
Shumaila Sarfani, Rochester, MN
Bassem T. Elbashar, MD, Rochester, MN
Although patients experience good pain relief and shoulder stability, glenohumeral arthrodesis is associated with a high rate of complications, revision arthrodesis for nonunion, and reoperations.

Poster No. P326
Modern Treatment of 3 and 4-Part Proximal Humerus Fractures: ORIF Compared to Reverse Total Shoulder Arthroplasty
Kenneth A. Egol, MD, New York, NY
Christina Capriccioso, BS, New York, NY
Thomas W. Wright, MD, Gainesville, FL
Pierre-Henri Flurin, MD, Mergnac, France
Joseph D. Zuckerman, MD, New York, NY
Patients treated with ORIF were found to have greater final range of motion than those treated with reverse total shoulder arthroplasty. Both strategies resulted in similar functional outcome scores.

Poster No. P327
Prospective Comparison between Locked and Nonlocked Palates for Displaced Mid-shaft Clavicle Fractures
Yohsiyasu Uchiyama, MD, PhD, Kanagawa, Japan
Eiji Shimpuku, MD, PhD, Tokyo, Japan
Akiyoshi Handa, MD, PhD, Isebara, Kanagawa, Japan
Joji Mochida, MD, PhD, Isebara, Kanagawa, Japan
Bone union time in locked plate was faster than nonlocked plate for displaced mid-shaft clavicle fractures. However, Constant score was not significantly different between both plating systems.

Poster No. P328
Outcomes after Surgical Treatment of Neer Type II and V Distal Clavicle Fractures
Ronald A. Navarro, MD, Rolling Hills, CA
John Fleming, MD, Torrance, CA
Brannon Orton, MD, Torrance, CA
Jonathan Gelber, MD, Shaker Heights, CA
Albert Hsu, MD, La Jolla, CA
Maximino Brambila, MD, Torrance, CA
Ernest Shen, BS, Pasadena, CA
Anshuman Singh, MD, San Diego, CA
Distal clavicle fracture treatments were studied. A majority achieved stable union. Hook plates had the highest HWR. Patients treated with suture fixation had the lowest re-operation rate.

Poster No. P329
The Safety and Efficacy of Sternotoclavicular Joint Stabilization
Andrew J. Pastor, MD, Seattle, WA
Yaw Boachie-Adjei, MD, Atlanta, GA
Winston J. Warme, MD, Bellevue, WA
Reconstruction of unstable sternoclavicular joints yields reliably safe and effective results.

Poster No. P330
Correlations of Magnetic Resonance Imaging Findings with Clinical Severity and Prognosis in Frozen Shoulder
Jong Pil Yoon, MD, DAegu, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
Joon Yub Kim, MD, Gyeyonggi-Do, Republic of Korea
MRI can be ancillary finding for evaluating with clinical severity in frozen shoulder. But, these finding did not reflect further prognosis of frozen shoulder.
SHOULDER AND ELBOW

Poster No. P331
The Role of Acid-sensing Ion Channels in the Pathogenesis of Frozen Shoulder
Chul-Hyun Cho, MD, PhD, Joongu, Republic of Korea
Byung-Woo Min, MD, Daegu, Republic of Korea
Ki-Cheor Bae, MD, Daegu, Republic of Korea
Kyung-Jae Lee, MD, Daegu, Republic of Korea
St Wook Lee SR, Daegu, Republic of Korea
Sungyun Lee, Daegu, Republic of Korea

Our study suggests that ASICs play a role as a mediator of inflammatory pain and are involved in the pathogenesis of FS. These findings may lead to new therapeutic openings to treat patients with FS.

Poster No. P332
Extracorporeal Shockwave Therapy Improves Short-term Functional Outcomes of Shoulder Adhesive Capsulitis
Chih-Yu Chen, MD, Taipei City, Taiwan
Shu-Wei Huang, New Taipei City, Taiwan
Yueh-Ying Hsieh, Taoyuan, Taiwan
Jui-Sheng Sun, MD, Taipei City, Taiwan
Tsung-yun Lan, MD, Taipei City, Taiwan
Yang-Hwei Tsuang, MD, PhD, New Taipei City, Taiwan
Cheng-Kung Cheng, PhD, Taipei City, Taiwan

Extracorporeal shockwave therapy had faster and better short-term functional outcome improvements than those treated with oral steroids for primary shoulder adhesive capsulitis patients.

Poster No. P333
Complications Following Elective Shoulder Arthroscopy: A Review of 148,264 Cases
Robert Stewart, MD, Chicago, IL
Jimmy Jiang, MD, Chicago, IL
Hristo I. Piponov, Evanston, IL
Jason L. Koh, MD, Winnetka, IL
Douglas R. Dirschi, MD, Chicago, IL
Lewis L. Shi, MD, Chicago, IL

Examined the incidence of complications for a two year period following elective shoulder arthroscopy using a database of commercially insured patients.

Poster No. P334
The Rising Incidence of MRI Reported Superior Labrum Anterior and Posterior (SLAP) Tears
John G. Horneff, MD, Philadelphia, PA
Matthew Blake, MD, Twin Falls, ID
Andrew H. Milby, MD, Philadelphia, PA
Woosin Kim, MD, Philadelphia, PA
David L. Glaser, MD, Philadelphia, PA

The cause for increase in operative treatment of SLAP lesions is multifactorial; however, can partially be explained by the increased incidence of SLAP lesions being interpreted from shoulder MRIs.

Poster No. P335
The Distance from the Axillary Nerve to the Glenohumeral Joint Does Not Change with Shoulder External Rotation
Juan P. Simone, MD, Buenos Aires, Argentina
Philipp N. Streubel, MD, Omaha, NE
Joaquín Sanchez-Sotelo, MD, Rochester, MN
Scott P. Steffan, MD, Rochester, MN
Julie E. Adams, MD, Minneapolis, MN

This cadaver study suggests that shoulder abduction may make the axillary nerve more vulnerable to iatrogenic injury during surgery but external rotation does not change the nerve's position.

Poster No. P336
Closed Suction Drainage in Shoulder Arthroplasty: Where is the Evidence?
David Trofa, MD, New York, NY
Eric C. Makhni, MD, New York, NY
Jonathan P. Watling, MD, New York, NY
Jacob Bobman, BS, BA, New York, NY
William N. Levine, MD, New York, NY
Charles M. Jobin, MD, New York, NY
Louis U. Bighami, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY

Closed-suction drainage following shoulder arthroplasty results in modest output; continued use of these systems may not be necessary.

Poster No. P337
Minimally Important Differences for the ASES and WORC Outcome Measures
Joel J. Gagnier, PhD, Ann Arbor, MI
Christopher B. Robbins, Ann Arbor, MI
Asheesh Bedi, MD, Ann Arbor, MI
James E. Carpenter, MD, Ann Arbor, MI
Bruce S. Miller, MD, MS, Ann Arbor, MI

For the ASES and the WORC we found MIDs of 17.11 points and 348.54 points (16.7%) respectively. This is the first study to report MIDs for the ASES and WORC in patients with rotator cuff tears only.

Poster No. P338
Measurements for the Humeral Retroversion Using 2D CT Scan: Which is the Most Reliable One?
Joo Han Oh, Prof, Seoul, Republic of Korea
Tae-Yon Rhee, MD, PhD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Daegu, Republic of Korea
Joon Yub Kim, MD, Gyeonggi-Do, Republic of Korea
Seok Won Chung, MD, Seoul, Republic of Korea
Hyuk Jun Seo, MD, PhD, Daegu, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea

Distal humeral head retroversion is reliable and accurate method for measuring the retroversion of the humerus.

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. P339
Validation of the Glenoid Ratio Method for Measuring Glenoid Bone Loss: Controlled Cadaveric Experiment
Robert A. Sershon, MD, Chicago, IL
Adam B. Yanke, MD, Chicago, IL
Jason Shin, MD, Saskatoon, Saskatchewan, Canada
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

This study evaluates whether glenoid defects can be accurately estimated on sagittal computed tomography imaging using a fixed glenoid length-width ratio, created using intact, cadaveric glenoids.

Poster No. P340
Surgical Anatomy of the Lower Trapezius Tendon Transfer
Reza Omid, MD, Los Angeles, CA
Matthew J. Cavallero, MD, Los Angeles, CA
Danielle Granholm, BS, Encino, CA
Diego C. Villacis, MD, Los Angeles, CA
Anthony Yi, BS, Los Angeles, CA

In our cadaveric study, we investigated the pertinent anatomic relationships central to the trapezius tendon transfer.

Poster No. P341
Association Between Vertebral Fracture and Degenerative Changes in Adjacent Intervertebral Discs
Norihiko Takegami, Tsu, Japan
Koji Akeda, MD, PhD, Tsu, Japan
Koichiro Murata, Yokkaichi, Japan
Junichi Yamada, MD, Tsu City, Japan
Akihiro Sudo, MD, Tsu City, Japan

The incidence of advanced disc degeneration and intradiscal vacuum phenomena was significantly higher in IVDs adjacent to a VF compared to those without an adjacent VF.

Poster No. P342
The Utility of Flexion, Extension, and Oblique Cervical Radiographs in Surgical Planning for Cervical Spondylosis
David B. Bumpass, MD, Saint Louis, MO
Michael P. Kelly, MD, Saint Louis, MO
Jeffrey Gum, MD, Louisville, KY
Alan S. Hilibrand, MD, Philadelphia, PA
John J. Rhee, MD, Atlanta, GA
Vincent C. Traynelis, MD, Chicago, IL
Jeffrey C. Wang, MD, Sherman Oaks, CA
Neill M. Wright, MD, Saint Louis, MO

In a survey study, surgeons stated that flexion-extension or oblique cervical radiographs added critical information for surgical planning in approximately 10% of patients with cervical spondylosis.

Poster No. P343
The ZSO - A Novel Approach to the Pedicle Subtraction Osteotomy
Joseph M. Zavatsky, MD, New Orleans, LA
David Briski, MD, Jefferson, LA

The ZSO is a novel approach to the PSO that can decrease technical strain and curtail osteotomy time resulting in decreased associated blood loss, length of stay, and peri-operative morbidity.

Poster No. P344
Sagittal Spinopelvic Alignment in Skeletally Mature Patients with Scheuermann's Disease
Marcin Tyrakowski, MD, PhD, Chicago, IL
Steven M. Mardjetko, MD, Lake Forest, IL
Krzysztof B. Siemionow, MD, Homer Glen, IL

The study revealed that pelvic incidence in skeletally mature individuals with Scheuermann's disease was significantly lower that pelvic incidence in normal adults and adolescents.

Poster No. P345
Prevention of Spinal Cord Injury Using Monitoring of Waveform Deterioration in Cervical Spine Screw Fixation
Kazuyoshi Kobayashi, MD, PhD, Nagoya, Japan
Shiro Imagama, MD, Nagoya, Japan
Kei Ando, MD, Nagoya, Japan
Hideki Yagi, Nagoya, Japan
Tetsuro Hida, MD, Nagoya, Japan
Kenyu Ito, Nagoya, Japan
Yoshimoto Ishikawa, MD, Nagoya, Japan
Naoki Ishitugu, MD, Nagoya, Japan

In posterior cervical screw fixation, decompression should be performed before screw insertion in cases with the narrowest segment at the apex of the cervical lordosis.

Poster No. P346
Static and Dynamic Anterior Cervical Plates: A Retrieval Analysis of Damage and Clinical Data
Okezie K. Aguwa, MD, Troy, MI
Theodore Koreckij, MD, Leawood, KS
Erin A. Baker, MS, Royal Oak, MI
Meagan Salisbury, BS, Royal Oak, MI
Kevin C. Baker, PhD, Royal Oak, MI
Daniel K. Park, MD, Bloomfield Hills, MI
Jeffrey S. Fischgrund, MD, Southfield, MI

Differences in in vivo damage modes were observed between static and dynamic anterior cervical plates.
Posters

SPINE

Poster No. P347
Anterior Vertebral Body Tethering for Immature Adolescent Idiopathic Scoliosis: Preliminary Clinical Results
Robert J. Ames, MD, Philadelphia, PA
Jeff Kimball, BS, Philadelphia, PA
Joshua M. Pabys, MD, Wynnewood, PA
Harsh Grewal, MD, Camden, NJ
Glenn Pelletier, MD, Wilmington, DE
Randal R. Betz, MD, Lawrenceville, NJ
Amer Samdani, MD, Philadelphia, PA

Anterior VBT is a novel fusionless treatment for adolescent idiopathic scoliosis used as an alternative to bracing or spinal fusion. We report on our first 32 patients with minimum 1-yr follow-up.

Poster No. P348
Serum Interleukin-12 as a Prognostic Factor for Spinal Metastases
Hiroyuki Hayashi, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Noritsuki Yokogawa, MD, Kanazawa, Japan
Takayoshi Ishii, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Preoperative low serum levels of interleukin-12 were predictive of shorter survival after TES for spinal metastases in relation to progression of visceral metastases.

Poster No. P349
Invasiveness Reduction of Recent Total Spondylectomy: Assessment of the Learning Curve
Takayoshi Ishii, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Hiroyuki Hayashi, MD, Kanazawa, Japan
Noritsuki Yokogawa, MD, Kanazawa, Japan
Takashi Igarashi, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

In June 2010, we developed a “second-generation” Total spondylectomy (TS) combined with tumor-induced cryoimmunology. Second-generation TS can no longer be considered highly invasive.

Poster No. P350
Does Intrawound Application of Vancomycin Powder Decrease SSI in Posterior Degenerative Spine Surgeries?
Isador H. Lieberman, MD, MBA, FRCSC, Plano, TX
Xiaobang Hu, PhD, Plano, TX

Adjunctive local application of vancomycin powder decreased SSI from 7.6% to 5% (p<0.05). 24 hour post-op serum levels of vancomycin were low or undetected in 94% of the patients.

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**Poster No. P355**

Cartilage Oligomeric Matrix Protein (COMP) Enhances Spinal Fusion in a Rat Model with Exogenous BMP  
Motasem I. Refaat, MD, Sacramento, CA  
Eric O. Klineberg, MD, Sacramento, CA  
Dominik R. Haudenschild, PhD, Sacramento, CA  
Extracellular proteins, such as COMP, can be combined with BMP to enhance BMP-induced bone formation, enabling lower doses of BMP to achieve the same level of spinal fusion.

**Poster No. P356**

Biomechanical Stability of Transverse Connectors in the Setting of a Thoracic Pedicle Subtraction Osteotomy  
Ronald A. Lehman Jr, MD, Creve Coeur, MO  
Daniel Kang, MD, Saint Louis, MO  
Haines Paik, MD, Tacoma, WA  
Scott Wagner, MD, Rockville, MD  
In the setting of a pedicle subtraction osteotomy and long segment pedicle screw-rod construct, augmentation with at least two transverse connectors improves torsional rigidity.

**Poster No. P357**

Does Use of an Operating Microscope in Spine Surgery Increase Infection Rates or Operative Time?  
Bryce A. Basques, BS, New Haven, CT  
Daniel D. Bohl, MPH, New Haven, CT  
Nicholas Golinvaux, BA, New Haven, CT  
Jonathan N. Grauer, MD, New Haven, CT  
Operating microscopes are commonly used in spine procedures, and after adjusting for procedure type, were associated with minor increases in operative times and no increased risk of infection.

**Poster No. P358**

Does Balloon Kyphoplasty Affect Global Spinal Alignment in Patients with Osteoporotic Vertebral Fracture?  
Masahiro Kanayama, MD, Hakodate, Japan  
Fumihiro Oha, MD, Hakodate, Japan  
Akira Iwata, MD, Hakodate, Japan  
Shingo Onda, MD, Hokkaido, Japan  
Masaru Tanaka, Shizuoka, Japan  
Tomoyuki Hashimoto, MD, Hakodate, Japan  
Balloon kyphoplasty results in significant relief of back pain, but did not have an impact on global spinal alignment in patients with delayed or non-union after osteoporotic vertebral fractures.

**Poster No. P359**

Higher Volume is Associated with Fewer Early Reoperation Events after Adolescent Idiopathic Scoliosis Surgery  
Justin Paul, MD, New York, NY  
Baron Lonner, MD, New York, NY  
Thomas J. Errico, MD, New York, NY  
An administrative database showed fewer reoperation events among higher volume hospitals and surgeons after fusion for adolescent idiopathic scoliosis.

**Poster No. P360**

Are Established Targets for Adult Spinal Deformity Correction Valid?  
Themistocles S. Protopsaltis, MD, New York, NY  
Renaud Lafage  
Oheneba Boachie-Adjei, MD, New York, NY  
Christopher Ames, MD, San Francisco, CA  
Robert S. Bess, MD, Castle Rock, CO  
Munish C. Gupta, MD, Sacramento, CA  
Robert A. Hart, MD, Portland, OR  
Frank J. Schwab, MD, New York, NY  
Virginie Lafage, PhD, New York, NY  
This study determines whether postoperative and preoperative alignment match in determining thresholds for mild and severe disability. TPA less than 15 is reasonable alignment target.

**Poster No. P361**

Vancomycin Powder Decreases Surgical Site Infections in Adult Deformity Reconstruction: A Cost Analysis  
Alexander Theologis, MD, San Francisco, CA  
Gokhan H. Demirkiran, MD, Ankara, Turkey  
Murat Pekmezci, MD, San Francisco, CA  
Christopher Ames, MD, San Francisco, CA  
Vedat Deviren, MD, San Francisco, CA  
Intra-wound vancomycin powder significantly decreased surgical site infections in adult spinal deformity reconstruction, which resulted in cost savings of $234,164 per 100 procedures.

**Poster No. P362**

Evidence of an Inherited Predisposition for Spinal Cord Tumors  
Ryan Spiker, MD, Salt Lake City, UT  
Brandon D. Lawrence, MD, Salt Lake City, UT  
Prokopis Annis, MD, Salt Lake City, UT  
Darrel S. Brodke, MD, Salt Lake City, UT  
Lisa Cannon-Albright, Salt Lake City, UT  
The significant excess relatedness of cases over controls for distant relationships and the elevated Relative Risk (RR) to distant relatives suggest a heritable predisposition to spinal cord tumors.

**Poster No. P363**

Subaxial Cervical Sagittal Alignment Following C1-C2 Fusion for Atlanto-Axial Osteoarthritis  
Daniel Kang, MD, Saint Louis, MO  
Ronald A. Lehman Jr, MD, Creve Coeur, MO  
Scott Wagner, MD, Rockville, MD  
K. Daniel Riew, MD, Saint Louis, MO  
Our study demonstrates patients with non-rheumatologic conditions (AAOA and trauma) undergoing C1-C2 fusion, do not develop post-operative subaxial cervical kyphosis.
Poster No. P364
The Impact of Patient Demographics and Disease Variables on Satisfaction Scores in a Spine Population
Ryan Spiker, MD, Salt Lake City, UT
Amir Abtahi, MD, Salt Lake City, UT
Brandon D. Laurence, MD, Salt Lake City, UT
Darrel S. Brodke, MD, Salt Lake City, UT
This study demonstrates that patient satisfaction scores are significantly associated with age in a spine population, with older patients reporting greater satisfaction.

Poster No. P365
Utility of Bracing after Penetrating Gunshot Spinal Column Injury
Nima Eftekhar, MD, New York, NY
Kenneth Nuoso, MD, Torrance, CA
Dudley Fukunaga, PA-C, Downey, CA
Kevin W. Rolfe, MD, Hermosa Beach, CA
We quantified the brace overutilization rate after penetrating gunshot wound-related spinal column injury (67%). Long-term follow-up confirmed that these injuries are stable and do not need bracing.

Poster No. P366
BMP-2 Inhibits Tumor-initiating Ability in Human Renal Cancer Stem Cells and Induces Bone Formation
Paul Park, MD, Ann Arbor, MI
Lin Wang, MD, Ann Arbor, MI
Rakesh Patel, MD, Ann Arbor, MI
Chia-Ying Lin, PhD, Ann Arbor, MI
BMP-2 can inhibit the tumor initiating ability of renal cancer stem cells and induce bone formation.

Poster No. P367
Pulmonary Function Following Adult Spinal Deformity Surgery: Minimum Two-year Follow Up
Ronald A. Lehman Jr, MD, Creve Coeur, MO
Daniel Kang, MD, Saint Louis, MO
Lawrence G. Lenke, MD, Saint Louis, MO
Scott Wagner, MD, Rockville, MD
Brenda Sides, MA, Saint Louis, MO
We found a significant post-operative improvement in pulmonary function for patients who had preoperative pulmonary function impairment after deformity surgery.

Poster No. P368
Association Between Diffuse Idiopathic Skeletal Hyperostosis, Bone Mineral Density, and CTX2
Ryobei 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
Toru Akune, MD, Tokyo, Japan
Shigeyuki Muraki, PhD, MD, Tokyo, Japan
Noriko Yoshimura, MD, Tokyo, Japan
Lumbar BMD (OR, 1.06; 95% CI, 1.00-1.12, p = 0.055) and urinary level of CTX2 (OR, 1.28; 95% CI, 1.10-1.29, p = 0.0001) were significantly related to diffuse idiopathic skeletal hyperostosis.

Poster No. P369
Postoperative Opioid Consumption: A Comparison between Anterior and Direct Lateral Lumbar Interbody Fusion
Sreeharsha Nandyala, BA, Aurora, IL
Alejandro Marquez-Lara, MD, Winston Salem, NC
Sriram Sankaranarayanan, MD, Chicago, IL
Eric B. Sundberg, MD, Stanford, CA
Hamid Hassanzadeh, MD, Charlotteville, VA
Anton Y. Jorgensen, MD, Iowa City, IA
Mohamed Noureldin, MD, Chicago, IL
Islam Elboghdady, Darien, IL
Kern Singh, MD, Chicago, IL
A minimally invasive approach to the lumbar spine may be associated with less postoperative narcotic requirements compared to an open approach.

Poster No. P370
Morphology of the Injured Posterior Wall Causing Spinal Canal Encroachment for Osteoporotic Vertebral Fractures
Tetsuo Hayashi, MD, Fukuoka, Japan
Takeshi Maeda, Iizuka, Japan
Eiji Mori, MD, Fukuoka, Japan
Tsuneaki Takao, MD, Iizuka, Japan
Yuichiro Morishita, MD, PhD, Iizuka, Japan
Keisichiro Shiba, MD, Iizuka, Japan
Collapse of posterior vertebral wall and intracanal protrusion of vertebral fragments would occur simultaneously with axial loading and were greater in cases with comminuted type burst fractures.

Poster No. P371
Does Fists-on-clavicle Position Represent Reliable Global Sagittal Spinal Alignment in Adolescent Patients?
Yuichiro Abe, MD, PhD, Eniwa, Hokkaido, Japan
Shigenobu Satoh, MD, Sapporo Hokkaido, Japan
Kentaro Yamada, MD, PhD, Hokkaido, Japan
Tetsuya Kobayashi, Asahikawa, Japan
Shizuo Jimbo, MD, PhD, Asahikawa, Hokkaido, Japan
3D-scanning analysis of standing posture demonstrated that lateral radiograph of whole spine taken with fits-on-clavicle position could represent negative SVA position in adolescent patients.

* 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. P372
Rates of Reoperation Following Lumbar Total Disc Arthroplasty and Lumbar Interbody Fusion
Claire Eliasberg, BA, Los Angeles, CA
Michael P. Kelly, MD, Saint Louis, MO
Andrew J. Pugely, MD, Iowa City, IA
Nelson F. SooHoo, MD, Los Angeles, CA
Lumbar total disc arthroplasty may be associated with lower rates of short-term reoperation than lumbar fusion; however, there was no difference in reoperation rates at 3- and 5-year follow-up.

Poster No. P373
Determination of Lowest Instrumented Vertebra Utilizing Prone AP XR Allows for Shorter Fusion in AIS
Terry D. Amaral, MD, New Hyde Park, NY
Adam L. Wollowick, MD, New York, NY
Dan Wang, MS, Bronx, NY
Ajay Lall, MD, New York, NY
Vishal Sarwahi, MD, Bronx, NY
Lowest Instrumented Vertebra (LIV) is often determined on standing/bending XR. This study showed that using prone XR allows a significantly shorter fusion than standing/bending XR.

Poster No. P374
Meta-Analysis of the Treatment of Cervical Pseudoarthrosis
Steven McAnany, MD, New York, NY
Evan Baird, MD, New York, NY
Samuel Overley, MD, New York, NY
Sheeraz Qureshi, MD, New York, NY
Paul A. Anderson, MD, Madison, WI
A meta-analysis was performed comparing the clinical success and fusion success rates in the treatment of cervical pseudoarthrosis. A comparison of anterior and posterior approaches was performed.

Poster No. P375
Shape Loss of Autoclaved, Machine-Bent Cobalt-Chrome and Titanium Spine Surgery Rods
Robert G. Willson, MD, Augusta, GA
Haitao Zhou, MD, Augusta, GA
Sadanan Fuleze, DVM, PhD, Augusta, GA
Andy Chang, BS, New York, NY
Norman B. Chutkan, MD, Phoenix, AZ
Autoclaving cobalt-chrome spine surgery rods prior to bending produces a significant increase in shape loss compared to pre-bent rods, all of which undergo significantly less shape loss than titanium.

Poster No. P376
Fatigue Loading Evaluation of a Novel Four Rod Technique to Prevent Early Instrumentation Failure in Lumbar PSO
Munish C. Gupta, MD, Sacramento, CA
Peter M. Wanberg, BS, San Francisco, CA
Jeremi M. Leasure, MS, San Francisco, CA
Christopher Ames, MD, San Francisco, CA
The specific aims were to (1) compare the fatigue performance between the single and double rod techniques and (2) investigate the performance according to contour angle of the short and long rods.

Poster No. P377
Link N Activates SMAD1/5 Pathway by Stimulating the Release of BMP by Disc Cells
Sultan Aldebeyan, MD, Verdun, QC, Canada
Laura M. Epure, Montreal, QC, Canada
Abdulrahman Alaseem, MD, Montreal, QC, Canada
Michael Grant, PhD, Montreal, QC, Canada
John Antoniou, MD, FRCSC, PhD, Montreal, QC, Canada
Fackson Muwale, PhD, Montreal, QC, Canada
Link N has growth factor potential when added to degenerate discs. It mimics BMPs and TGF- without inducing calcification. In this study, we reveal a possible mechanism by which Link N functions.

Poster No. P378
Association Between Psychiatric Factors and Chronic Dysphagia after Anterior Cervical Spine Surgery
Jung S. Lee, MD, Busan, Republic of Korea
Jong Ki Shin, MD, Busan, Republic of Korea
Kuen-Tak Suh, MD, Yangsan, Republic of Korea
Sung Shik Kang, MD, Yangsan, Republic of Korea
Won C. Shin Jr, Assistant Prof, Yangsan, Republic of Korea
The presence of a psychiatric problem seems to be an important risk factor of chronic dysphagia in patients with cervical disc herniation.

Poster No. P379
Administrative Database Concerns: Poor ICD-9 Code Accuracy for Preoperative Anemia in Spinal Fusion
Nicholas Golinvaux, BA, New Haven, CT
Daniel D. Bohl, MPH, New Haven, CT
Bryce A. Basques, BS, New Haven, CT
Jonathan N. Grauer, MD, New Haven, CT
This study uses preoperative anemia to demonstrate the potential inaccuracies of ICD-9 codes. These results have implications for publications using databases that are compiled from ICD-9 coding data.

Poster No. P380
Effects of Vertebral Column Distraction on TES-MEP and Histology of the Spinal Cord in a Porcine Model
Jae-Hyuk Yang, MD, Seoul, Republic of Korea
Seung W. Suh, Seoul, Republic of Korea
Hak Jun Kim, MD, PhD, Seoul, Republic of Korea
Kwang Won Park, MD, Seoul, Republic of Korea
Seung-Yup Lee, MD, Seoul, Republic of Korea
Parallel distraction of approximately 3.6% of the thoracolumbar length after global osteotomy resulted in spinal cord injury and histological evidence of spinal cord damage.

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SPINE

Poster No. P381
Toei 2012 Study: Sagittal Spinal Alignment and Oswestry Disability Index in Volunteers with Age Over 50
Daisuke Togawa, MD, Hamamatsu, Japan
Tatuya Yasuda, MD, Hamamatsu, Japan
Yu Yamato, MD, Hamamatsu, Japan
Sho Kobayashi, MD, Hamamatsu, Japan
Hideyuki Arima, MD, Shizuoka, Japan
Tomohiro Banno, MD, Shizuoka, Japan
Tomohiko Hasegawa, MD, Shizuoka, Japan
Yukihiro Matsuyama, MD, Hamamatsu, Japan

Relationship between sagittal spinal alignment and ODI was investigated in 656 volunteers. Higher age group had higher grade of sagittal spinal mal-alignment associated with HRQOL deterioration.

Poster No. P382
Utilization Trends of PSOs Compared to PSFs for Deformity: A National Database Analysis, 2008-2011
Jeffrey Gum, MD, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY
Jacob M. Buchowski, MD, Saint Louis, MO
Lawrence G. Lenke, MD, Saint Louis, MO
Steven D. Glassman, MD, Louisville, KY

From 2008-2011, there was a 3.2-fold increase in the use of PSOs while fusion procedures for spinal deformity and adult spine deformity as a diagnosis had minimal to no increase.

Poster No. P383
Perioperative Complications of Lumbar Spine Surgery in Patients over 85 Years
Shingo Onda, MD, Hokkaido, Japan
Masabiro Kanayama, MD, Hakodate, Japan
Tomoyuki Hashimoto, MD, Hakodate, Japan
Fumihiro Oba, MD, Hakodate, Japan
Akira Iwata, MD, Hakodate, Japan
Masaru Tanaka, Shizuoka, Japan

We investigated the rate of perioperative complications in decompression surgery versus instrumented fusion over-85-year population. We should perform instrumentation even ASA class 3 or less.

Poster No. P384
The Incidence of Venous Thromboembolism Following Spine Surgery using 16-row Multidetector Computed Tomography
Akira Murayama, MD, Tochigi, Japan
Hideaki Watanabe, MD, PhD, Shimotsuke, Japan
Hiroyuki Inoue, MD, Shimotsuke, Japan

We concluded that presurgical and postsurgical asymptomatic VTE were 5.5%(3/55) and 14.5%(8/55) in spine surgery.

Poster No. P385
Do Computed Tomography Scans Affect Clinical Decision Making for Cervical Spondylosis?
David B. Bumpass, MD, Saint Louis, MO
Michael P. Kelly, MD, Saint Louis, MO
Jeffrey Gum, MD, Louisville, KY
Alan S. Hilibrand, MD, Philadelphia, PA
Jeremy L. Fogelson, MD, Rochester, MN
Vincent C. Traynelis, MD, Chicago, IL
Jeffrey C. Wang, MD, Sherman Oaks, CA
Neill M. Wright, MD, Saint Louis, MO
K. Daniel Riew, MD, Saint Louis, MO

Use of cervical CT scans in spondylosic patients is common, but little evidence exists for their usefulness. CT scans were found to be critical for decision-making in only 10% of cases surveyed.

Poster No. P386
Deformation of Rib Cage Induced With Scoliosis is a Risk Factor for Subclinical Shoulder Impingement Syndrome
Yuichiro Abe, MD, PhD, Eniwa, Hokkaido, Japan
Shigenobu Satoh, MD, Sapporo, Hokkaido, Japan
Kentaro Yamada, MD, PhD, Hokkaido, Japan

Rib hump ≥15 mm was a risk factor for shoulder dysfunction on the convex side of thoracic curve. Imbalance of shoulder position in AIS patient could be future threat for shoulder disorders.

Poster No. P387
Posterior Surgical Correction With or Without Interbody in Matched Curves for Adult Spinal Deformity
Eric O. Klineberg, MD, Sacramento, CA
Munish C. Gupta, MD, Sacramento, CA
Virgine Lafage, PhD, New York, NY
Justin S. Smith, MD, Charlottesville, VA
Christopher Ames, MD, San Francisco, CA
Douglas C. Burton, MD, KS City, KS
Frank J. Schwab, MD, New York, NY
Han Jo Kim, MD, New York, NY
International Spine Study Group, Brighton, CO

The addition of interbody to posterior deformity correction does not significantly improve radiographic parameters, HRQOL or fusion grade at 2 years.

Poster No. P388
Pre-insertion Pedicle Screw Testing Using Mechanomyography
Stephen Bartol, MD, Detroit, MI
Wael Ghacham, MD, Birmingham, MI

We describe a new technique for improving the accuracy of pedicle screw placement using MMG to assess nerve proximity.
An alphabetical faculty financial disclosure list can be found starting on page 332.

**Poster No. P389**
Outcomes Comparison between Unilateral and Bilateral Minimally Invasive Transforaminal Lumbar Interbody Fusion

Islam Elboghdady, Darien, IL
Mohamed Noureldin, MD, Chicago, IL
Alejandro Marquez-Lara, MD, Winston Salem, NC
Hamid Hassanzadeh, MD, Charlottesville, VA
Anton Y. Jorgensen, MD, Iowa City, IA
Eric B. Sundberg, MD, Stanford, CA
Sriram Sankaranarayanan, MD, Chicago, IL
Sreeharsha Nandyala, BA, Aurora, IL
Kern Singh, MD, Chicago, IL

Unilateral minimally invasive transforaminal interbody fusion is associated with reduced operative times, VAS scores, and blood loss while maintaining comparable fusion rates to bilateral procedures.

**Poster No. P390**
Sagittal Spinopelvic Alignment in Skeletally Immature versus Mature Patients with Scheuermann’s Disease

Marcin Tyrakowski, MD, PhD, Chicago, IL
Piotr Jamus, MD, Poznan, Poland
Steven M. Mardjetko, MD, Lake Forest, IL
Tomasz Kotwicki, MD, PhD, Poznan, Poland
Krzysztof B. Siemionow, MD, Homer Glen, IL

There was no differences in sagittal spinopelvic alignment between the skeletally immature and skeletally mature patients with Scheuermann’s disease.

**Poster No. P391**
Better Patient Reported Outcome Measures: The NDI-8 and NDI-5 Assessed in 714 Patients

Darrel S. Brodke, MD, Salt Lake City, UT
Brandon D. Lawrence, MD, Salt Lake City, UT
Ryan Spiker, MD, Salt Lake City, UT
Ashley Neese, BS, Salt Lake City, UT
Man Hung, PhD, Salt Lake City, UT

While the standard 10-item NDI is of questioned value, the NDI-5 and NDI-8 show improved psychometrics, in particular the raw score to measure correlation.

**Poster No. P392**
Risk of Adjacent Segment Breakdown at the Cervico-Thoracic Junction: Where Should We Stop?

Brian J. Neuman, MD, Baltimore, MD
Kevin R. O’Neill, MD, Nashville, TN

Multilevel cervical fusions that ended at C7 vertebrae resulted in revision surgery for distal ASD in 21%, which was over 10 times the rate of distal ASD when fusions ended in the upper thoracic spine.

**Poster No. P393**
Efficacy of Ankle-Brachial Index as a Preoperative Screening in Spine Surgery

Masaru Tanaka, Shizuoka, Japan
Fumihiro Oka, MD, Hakodate, Japan
Masahiro Kanayama, MD, Hakodate, Japan
Akira Iwata, MD, Hakodate, Japan
Shingo Onda, MD, Hokkaido, Japan
Tomoyuki Hashimoto, MD, Hakodate, Japan

Based on the risk factor analysis, preoperative ABI measurement in spine surgery was indicated for over-50-year patients with co-morbidities and/or smoking habit and all the patients over 65 years.

**Poster No. P394**
Neuroprotective Effect of Prophylactic Intrathecal Methylprednisolone in Spinal Cord Injury in Rat Model

Thomas Cheriyen, New York, NY
Hiroyuki Yoshibara, MD, PhD, New York, NY
Stephen P. Maier, BA, New York, NY
Devon J. Ryan, BA, New York, NY
Thorsten Kirsch, PhD, New York, NY
Thomas J. Errico, MD, New York, NY

Neuroprotective effect of prophylactic intrathecal methylprednisolone in spinal cord injury in rat model.

**Poster No. P395**
Unilateral Thoracic Nerve Neurotomy Causes Rib Cage Torsion and Idiopathic-like Thoracic Scoliosis

Hong Zhang, MD, Dallas, TX
Xiaobin Wang, M.D., Huanan, China
Daniel J. Sucato, MD, MS, Dallas, TX

Unilateral thoracic nerve neurotomy induced rib cage torsion toward the operative side resulting in idiopathic-like thoracic hypokyphotic scoliosis in the immature pig model.

**Poster No. P396**
Minimum Five-year Follow Up Results Occipito-Cervical Fusion Using the Screw-Rod System

Ket Ando, MD, Nagoya, Japan
Shiro Imagama, MD, Nagoya, Japan
Zenya Ito, PhD, Nagoya, Japan

The purpose of this study was to evaluate (with a minimum of 5-year follow-up) the clinical outcome in patients who had undergone occipitocervical fusion using pedicle screws and rods.
**Poster No. P397**  
Non-operative Benefit in Spinal Deformity: Predictors for Reaching a Minimal Clinically Important Difference  
Shian Liu, BS, New York, NY  
Justin S. Smith, MD, Charlottesville, VA  
Richard A. Hostin, MD, Plano, TX  
Gregory M. Mundis, MD, San Diego, CA  
Christopher Ames, MD, San Francisco, CA  
Robert S. Bess, MD, Castle Rock, CO  
Robert A. Hart, MD, Portland, OR  
Frank J. Schwab, MD, New York, NY  
Virginie Lafage, PhD, New York, NY  

Predictors of reaching a minimal clinically important difference in non-operative care for patients with spinal deformity include low SRS Pain score and less thoracolumbar deformity.

**Poster No. P398**  
Sagittal Spinopelvic Alignment in Elderly with Osteoporotic Thoracolumbar Kyphosis  
Shinichi Iinoue, MD, Nishinomiya, Japan  
Toshiya Tachibana, MD, Nishinomiya, Japan  
Keishi Maruo, MD, Nishinomiya, Japan  
Fumihiro Aizumi, Nishinomiya, Japan  
Kazuhiro Murayama, MD, Nishinomiya, Japan  
Taishi Okada, MD, Nishinomiya, Japan  
Hirotaka Nakayama, MD, Nishinomiya, Japan  
Yoshinobu Masamoto, Nishinomiya, Japan  
Shinichiro Yoshiya, MD, Nishinomiya, Hyogo, Japan  

This present study analyzed elderly subjects with thoracolumbar kyphosis by osteoporotic fractures and without, and demonstrated that compensatory mechanisms for acquired thoracolumbar kyphosis.

**Poster No. P399**  
● Local Tumor Necrosis Factor Alpha Decreases Fusion Rates in a Rat Model  
John Koerner, MD, Philadelphia, PA  
Dessislava Markova, PhD, Philadelphia, PA  
Alexander Vaccaro, MD, PhD, Gladwyne, PA  
Todd J. Albert, MD, New York, NY  
D G. Anderson, MD, Moorestown, NJ  
Christopher Kepler, MD, Philadelphia, PA  

The local application of tumor necrosis factor alpha decreases the rate of successful fusion.

**Poster No. P400**  
Do Upper Instrumented Vertebra Selection Recommendations Predict Shoulder Imbalance?  
Benjamin Bjerke-Kroll, MD, New York, NY  
Zoe B. Cheung, BS, MS, New York, NY  
Grant Shiflett, MD, New York, NY  
Stavisht Iyer, MD, New York, NY  
Peter Derman, MD, New York, NY  
Joseph Liu, MD, New York, NY  
Matthew E. Cunningham, MD, PhD, New York, NY  

At this time, we are unable to identify a set of UIV selection criteria to accurately predict postoperative shoulder balance. Further validated measures are needed in this area.

* The FDA has not cleared the drug 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.

**SPORTS MEDICINE AND ARTHROSCOPY**

**Poster No. P401**  
Topographic Analysis of the Capitellum and Distal Femoral Condyle: Ideal Match for Treating Capitellum OCD  
Jason Shin, MD, Saskatoon, Saskatchewan, Canada  
Marc S. Haro, MD, Charleston, SC  
Adam B. Yanke, MD, Chicago, IL  
Anthony A. Romeo, MD, Chicago, IL  
Brian J. Cole, MD, MBA, Chicago, IL  
Nozomu Inoue, MD, Chicago, IL  
Nikhil N. Verma, MD, Chicago, IL  

The lateral trochlea articular surface provides the best match for the capitellum articular surface. Medial trochlea, medial and lateral intercondylar notch can serve as potential sites.

**Poster No. P402**  
MRI and Clinical Analysis of Hip Abductor Repair  
Lorcan McGonagle, MB, ChB, Liverpool, United Kingdom  
Samantha Haebich, Scarborough, Australia  
William Breidahl, MBBS, Subiaco, Australia  
Daniel P. Fick, MD, Nedlands, Australia  

The MRI appearance of the tendon does not normalise after surgery and there is limited correlation between the MRI appearances pre and post operatively with the post operative outcome.

**Poster No. P403**  
● Arthroscopic MACT for Cartilage Defects of the Knee: Prospective Study at Minimum 10 Years of Follow Up  
Elizaveta Kon, MD, Italy  
Giuseppe Filardo, MD, Bologna, Italy  
Francesca De Caro, Parma, Italy  
Alessandro Di Martino, MD, Bologna, Italy  
Luca Andriolo, MD, Bologna, Italy  
Francesco Tentoni, MD, Bologna, Italy  
Francesco Perdisa, MD, Bologna, Italy  
Maurilio Marcacci, MD, Bologna, Italy  

Matrix assisted chondrocyte transplantation (MACT) has been proved to allow satisfactory long-term clinical and MRI results.

**Poster No. P404**  
Should Preoperative Antibiotics Be Given in Simple Knee Arthroscopy?  
Ronald W. Wyatt, MD, Walnut Creek, CA  
Gregory B. Maletis, MD, Baldwin Park, CA  
Andrew Avins, MD, MPH, Oakland, CA  

In a study of 44,112 simple knee arthroscopies, there was no significant association between administering preoperative antibiotics and the risk of deep or superficial infection.
Educational Programs

Poster No. P405
Predictors of 30-day Readmission after Shoulder and Knee Arthroscopy: An Analysis of 15,228 Cases
Robert W. Westermann, MD, Iowa City, IA
Andrew J. Pugely, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Christopher T. Martin, MD, Coralville, IA
Zachary Ries, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA
Brian R. Wolf, MD, Iowa City, IA

We analyzed 15,228 shoulder and knee arthroscopic procedures; the readmission rate was 0.92%, and independent risk factors for readmission were age>80 years, steroid use and elevated ASA class.

Poster No. P406
The Prevalence of Abdominal Hernias in Patients with Symptomatic Femoroacetabular Impingement
Thomas H. Wuerz, MD, Kenilworth, IL
Francesco Dalla Riva, MD, Zurich, Switzerland
Florian D. Naal, MD, Zurich, Switzerland
Beat Dubs, MD, Zürich-GLattpark, Switzerland
Bernard R. Bach Jr, MD, River Forest, IL
Michael Leung, PhD, Zurich, Switzerland

We found a high prevalence of abdominal hernias in patients being assessed for femoroacetabular impingement. Ultrasound may be a useful adjunct to assess for extra-articular sources of hip pain.

Poster No. P407
◆ A 7.9 Year Follow-up Study after Trochleoplasty in 49 Patients with High-Grade Patellofemoral Dysplasia
Philippe M. Tscholl, MD, Zurich, Switzerland
Peter P. Koch, MD, Winterthur, Switzerland
Florian Wanivenhaus, MD, Zurich, Switzerland
Sandro F. Fucentese, MD, Volketswil, Switzerland

Patients with high-grade trochlear dysplasia require trochleoplasty to prevent further lateral patellar dislocation. Satisfactory knee function can be achieved up to 8 years after surgery.

Poster No. P408
◆ HA vs. PRP: Double-blind RCT Comparing Clinical Outcomes and Intra-articular Biology for Knee Arthritis Treatment
Brian J. Cole, MD, MBA, Chicago, IL
Lisa Fortier, DVM, PhD, Ithaca, NY
Vasili Karas, MD, Durham, NC
David B. Merkow, Hartland, WI
Kristen Hussey, BS, Chicago, IL
Angela Stuckey, BS, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Brian Forsythe, MD, Chicago, IL

Both HA and PRP as treatments for knee OA support a significant improvement of pain and function, and our findings suggest that PRP may be a superior treatment for the active patient with OA.

Poster No. P409
◆ A Multi-Center Prospective Randomized Clinical Trial of Autologous Chondrocyte Implantation
James B. Richardson, PhD, Shropshire, United Kingdom
Jan-Herman Kuiper, PhD, Oswestry, Shropshire, United Kingdom
Johanna Wales, PhD, Oswestry, United Kingdom
Hamish R. Simpson, DMed, ChB, Edinburgh, United Kingdom
David Marsh, MD, Stannmore, United Kingdom
Neil Rushton, FRCS, Cambridge, United Kingdom
Lee Middleton, MSc, Birmingham, United Kingdom
Paul Harrison, MSc, Shropshire, United Kingdom
Richard Gray, MSc, Oxford, United Kingdom
Brian Ashton, PhD, Oswestry, United Kingdom

A Multi-Centre prospective randomised clinical trial of Autologous Chondrocyte Implantation in 390 patients found significantly increased function at 5 years in the ACI group.

Poster No. P410
Factors Influencing Pain Relief After Intra-articular Anesthetic Injection of the Hip
Kyle Alpaugh, MS, Boston, MA
Kirstin M. Small, MD, Newton Highlands, MA
Nehal Shab, MD, Boston, MA
Peters T. Oltans, BA, MA, Portland, OR
Scott D. Martin, MD, Boston, MA

Anesthetic injections of the hip are useful for confirming the presence symptomatic intra-articular pathology; however, there are factors that may reduce the diagnostic utility of this test.

Poster No. P411
Effect of Knee Flexion Angle During MPFL Graft Tensioning on Patellofemoral Kinematics and Contact Forces
Ioannis Zouzias, MD, Playa Vista, CA
Brian M. Schulz, MD, Corona Del Mar, CA
Dennis Kwon, BS, Providence, RI
Thomas R. Gardner, MCE, New York, NY
Christopher S. Ahmad, MD, New York, NY

Knee flexion angle during graft tensioning in medial patellofemoral ligament reconstruction has an impact on patellofemoral contact pressures and kinematics, and may impact future patellar arthrosis.

Poster No. P412
The Costs Associated with Perioperative Management of Articular Cartilage Lesions in the United States
Joanne Y. Zhang, BA, Los Angeles, CA
Jeremiah R. Cohen, BS, Los Angeles, CA
Jeffrey C. Wang, MD, Sherman Oaks, CA
Frank Petrigliano, MD, Santa Monica, CA
David R. McAllister, MD, Los Angeles, CA
Kristofer Jones, MD, Los Angeles, CA

This study examines the perioperative costs associated with the evaluation and surgical management of symptomatic focal cartilage lesions of the knee.
Poster No. P413

Prediction of Diameter and Length for Autologous Hamstring Graft Based on Simple Standing Full Length Radiograph
Seong Hwan Kim, MD, Daehak-Ro, Republic of Korea
Myung C. Lee, MD, Seoul, Republic of Korea
Sahngboon Lee, MD, PhD, Seoul, Republic of Korea
Chong Bum Chang, MD, PhD, Seongnamsi, Republic of Korea
Yong-Seok Lee, MD, Incheon, Republic of Korea
In Woong Park, MD, Seoul, Republic of Korea
Kee Yun Chung, MD, Seoul, Republic of Korea
Yool Cho, MD, Seoul, Republic of Korea
Dubyun Ro, MD, Seoul, Republic of Korea

The length and diameter of ST and GR grafts for double bundle ACL reconstruction were predicted and correlated with combination of measurement values of x-ray, gender, weight, and BMI.

Poster No. P414

Does Obesity Affect Outcomes in Hip Arthroscopy? A Matched-Pair Controlled Study with Two-year Minimum Follow Up
Asheesh Gupta, MD, Arlington, VA
John M. Redmond, MD, Jacksonville, FL
Jon Hammarstedt, BS, Chicago, IL
Benjamin G. Domb, MD, Oak Brook, IL

The purpose of this study is to compare two-year clinical outcomes of obese patients compared to a matched control group of patient within a normal weight range. (BMI<25 kg/m2).

Poster No. P415

Characteristics and Results of Surgical Treatment for Thoracic Outlet Syndrome in Baseball Players
Ryuji Koga, MD, Tatebayashi, Japan
Kozo Furushima, MD, PhD, Tatebayashi, Japan
Shohei Iwabu, MD, PhD, Tatebashi, Japan
Yasuhiro Mitsu, Tatebayashi, Japan
Yoshiyasu Itoh, MD, Tatebayashi, Japan

We clarify the characteristics and report diagnosis and treatment results of TOS.92.8% could return to competition-level baseball after surgery.

Poster No. P416

Trends in the Management of Patellofemoral Instability in the United States: A Large Population-based Analysis
Armin Arshi, BS, Los Angeles, CA
Jeremiah R. Cohen, BS, Los Angeles, CA
Jeffrey C. Wang, MD, Sherman Oaks, CA
Sharon L. Hame, MD, Los Angeles, CA
David R. McAllister, MD, Los Angeles, CA
Kristofer Jones, MD, Los Angeles, CA

The rate of MPFL reconstruction has steadily increased over the last half-decade, perhaps reflecting a change in current treatment trends.

Poster No. P417

Effects of Remnant Preservation on Properties of Hamstring Tendon Autograft after ACL Reconstruction in Sheep
Eiji Kondo, MD, Sapporo, Japan
Jun Onodera, MD, Hokkaido, Japan
Yasuyuki Kawaguchi, MD, Sapporo, Japan
Norimasa Iwasaki, Sapporo, Japan
Kazunori Yasuda, MD, Sapporo, Japan

This study demonstrated that a remnant tissue coverage significantly improved the anterior-posterior translation laxity after ACL reconstruction in sheep model at 12 weeks after surgery.

Poster No. P418

Second-look Arthroscopic Assessment of Cartilage Regeneration after Medial Opening-wedge High Tibial Osteotomy
Jae-Heon Jeong, MD, Changwun-Si, Republic of Korea
Woohwa Jung, MD, Masan, Gyeongsangnam-do, Republic of Korea
Chung-woo Chun, MD, Masan, Gyeongsangnam-do, Republic of Korea

The degenerated cartilage of the medial femoral condyle could be covered by newly regenerated cartilage at 2 years after adequate correction of varus deformity by high tibial osteotomy.

Poster No. P419

Improving Resident Performance in Knee Arthroscopy: A Prospective Value Based Assessment of Cadaveric Skills Labs
Christopher L. Camp, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Terry Regnier, BS, Rochester, MN
Karen M. Mills, CST, Rochester, MN
Norman S. Turner III, MD, Rochester, MN

Use of a cadaveric surgical skills lab is a cost effective means for improving orthopedic resident performance in knee arthroscopy in this prospective controlled trial.

Poster No. P420

Surgical Release of the Adductor Longus is a Useful Treatment for Strains in the Elite Athlete
Andrew J. Wall, BS, Boston, MA
Amun Makani, MD, Cambridge, MA
W. Guathway, MD, Charlottesville, VA
David Berger, MD, Houston, TX
Bertram Zarins, MD, Boston, MA
Thomas J. Gill, MD, Dedham, MA

Tenotomy of the Adductor longus tendon with or without a concomitant sports hernia repair provided overall good and excellent results in elite athletes.

* 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. P421
Changes in Capsular Volume after Arthroscopic Bankart Repair and Capsular Shift
Seok Won Chung, MD, Seoul, Republic of Korea
Kyung-Soo Oh, MD, Seoul, Republic of Korea
Jin-Young Park, MD, Seoul, Republic of Korea
Surgeons should be aware of the re-increase in anterior capsular volume, or re-stretching trait of anterior capsule over time, even after successful arthroscopic Bankart repair and capsular shift.

Poster No. P422
Posterior Cruciate Ligament Reconstruction - Double Bundle Augmentation Versus Single Bundle Reconstruction
Kazuhiko Saeki, MD, PhD, Fukuoka, Japan
Akira Maeyama, MD, Fukuoka, Japan
Satoshi Kamada, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan
For improving clinical outcomes of PCL reconstruction, we have changed surgical methods. The braking force in double-bundle augmentation would be superior to the single-bundle reconstruction.

Poster No. P423
Has the Utilization of Arthroscopy for Knee Arthritis Changed Over Time?
Muyibat A. Adelani, MD, Saint Louis, MO
Alexander Harris
Thomas Bowie, PhD, Menlo Park, CA
Nicholas J. Giori, MD, Palo Alto, CA
In the VA Hospital System, the rate of knee arthroscopy in patients with knee arthritis did not decrease following the publication of randomized control trials demonstrating a lack of efficacy.

Poster No. P424
Diabetes and Graft Choice are Risk Factors for Infection Following Anterior Cruciate Ligament Reconstruction
Robert H. Brophy, MD, Chesterfield, MO
Rick W. Wright, MD, Saint Louis, MO
Laura J. Huston, MS, Nashville, TN
Samuel Neosse, MS, Nashville, TN
The MOON Group, Nashville, TN
Kurt P. Spindler, MD, Garfield Hts, OH
Patients with diabetes are 18.8 times more likely to have a post-operative infection following ACL reconstruction, while not using BTB autograft is associated with a 4-fold increase in infection risk.

Poster No. P425
Reliability of a Simple Method of Measuring MRI Tibial Tubercle Trochlear Groove Distance without Advanced Software
Christopher L. Camp, MD, Rochester, MN
Mark Heidenreich, Rochester, MN
Diane L. Dahm, MD, Rochester, MN
Jeffrey R. Bond, MD, Rochester, MN
Mark Collins, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
TT-TG can reliably and accurately be assessed by orthopedic surgeons with basic software compared to musculoskeletal radiologists using advance radiologic software.

Poster No. P426
Recurrent Shoulder Instability Treated with Arthroscopic Bankart Repair at a Minimum of Five Years Follow Up
Richard B. Burris, MD, Atlanta, GA
Dan Hogan, MS, New York, NY
Timothy Tyler, PT, ATC, Scarsdale, NY
Malachy P. McHugh, PhD, New York, NY
Stephen J. Nicholas, MD, New York, NY
Arthroscopic shoulder stabilization with modern techniques can effectively treat patients with recurrent instability with durable results.

Poster No. P427
Effects of a Dynamic Patella Re-alignment Brace on Disease-determining Parameters in Patellofemoral Instability
Christoph Becher, MD, Hannover, Germany
Thees Schumacher, Hannover, Germany
Ben Fleischer, Hannover, Germany
Max Etinger, MD, Hannover, Germany
Sven Ostermeier, Gundelfingen, Germany
The dynamic patella re-alignment brace suggests being capable of improving disease-determining factors under weight bearing conditions in patients with patellofemoral instability at 0-30° flexion.

Poster No. P428
The Effect of Donor Age on the Structural and Mechanical Properties of Allograft Tendons
Katherine R. Swank, BA, Columbus, OH
Anthony Behn, MS, Stanford, CA
Jason L. Dragoo, MD, Redwood City, CA
Donor age has minimal impact on the structural and mechanical properties of allograft tendons.

Poster No. P429
Anterior Horn of the Lateral Meniscus as a Landmark for the Tibial Tunnel in ACL Reconstruction: A Prospective Study
Brian C. Werner, MD, Charlottesville, VA
F W. Greathamney, MD, Charlottesville, VA
Mark D. Miller, MD, Charlottesville, VA
Use of the posterior border of the anterior horn of the lateral meniscus as a landmark for tibial tunnel placement yields an inconsistent tunnel location.

An alphabetical faculty financial disclosure list can be found starting on page 332.
SPORTS MEDICINE AND ARTHROSCOPY

Poster No. P430
Endoscopic Sciatic Nerve Decompression for Patients of Deep Gluteal Syndrome
Sun Jung Yoon, MD, Jeonju, Republic of Korea
Myung-Sik Park, MD, Jeonju, Republic of Korea
Young-Ju Chae, Jeonju, Republic of Korea
Seung-Ho Kim, Seoul, Republic of Korea
Endoscopic sciatic nerve decompression is a safe and effective procedure for the management of the sciatic nerve entrapment syndrome in DGS.

Poster No. P431
Lateral Tibial Posterior Slope is Increased with Patients with Early Graft Failure Following ACL Reconstruction
Joshua J. Christensen, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
William M. Engasser, BA, Grand Rapids, MI
Matthias Vanbees, MD, Stabroek, Belgium
Mark Collins, Rochester, MN
Diane L. Dahm, MD, Rochester, MN
Significantly higher rates of early ACL graft failure are found in patients with greater degrees of lateral tibial posterior slope.

Poster No. P432
Gene Expression Changes over Time-from-injury in ACL Tears: Implications for Repair/Reconstruction
Robert H. Brophy, MD, Chesterfield, MO
Muhammad Farooq Rai, PhD, Saint Louis, MO
Linda J. Sandell, PhD, St Louis, MO
Changes in gene expression of the injured ACL suggest a declining potential for repair over time, with potential implications for reconstruction as well.

Poster No. P433
Fresh Osteochondral Allograft Transplantation for Isolated Patellar Cartilage Injury
Guilherme C. Gracitelli, MD, Sao Paulo, Brazil
Gokhan Meric, MD, Izmir, Turkey
Pamela A. Pulido, RN, BSN, La Jolla, CA
Simon Gortz, MD, San Diego, CA
Allison De Young, Walnut Creek, CA
William Bugbee, MD, La Jolla, CA
Patellar allografting survivorship was 73.5% at 5 and 10 years in our sample of 25 patients making it a successful salvage treatment procedure.

Poster No. P434
Combined Labral Repair and Biceps Tenodesis for Superior Labral Anterior Posterior Tears
Peter N. Chalmers, MD, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Christen R. Mellano, MD, Chicago, IL
Randhir Mascarenhas, MD, Winnipeg, MB, Canada
Brian J. Cole, MD, MBA, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Gregory P. Nicholson, MD, Chicago, IL
Bernard R. Bach Jr, MD, River Forest, IL
Anthony A. Romeo, MD, Chicago, IL
Isolated tenodesis or SLAP repair offer superior functional outcomes and pain relief when compared to combined tenodesis and labral repair for SLAP tears without affecting rates of return to play.

Poster No. P435
Early to Mid-term Functional Outcome of Arthroscopic Management of Femoroacetabular Impingement
Sujith Konan, London, United Kingdom
Tony E. Fayad, MD MRCS, London, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom
Our study confirms that hip arthroscopy is associated with sustained good results at early and mid term follow up with improvement in function and pain levels.

Poster No. P436
Heterotopic Ossification after Hip Arthroscopy: The Role of Capsular Closure
Eyal Amar, MD, Tel Aviv, Israel
Yaniv Warschauski, MD, Tel Aviv, Israel
Thomas G. Sampson, MD, San Francisco, CA
Atoum Ekh, MD, Kochav Michael, Israel
Ely L. Steinberg, MD, Rishon LeZion, Israel
Ehud Rath, MD, Rebovit, Israel
Capsular closure did not seem to alter the prevalence of HO when compared with a control group of patients in whom the capsulotomy was not repaired.

Poster No. P437
A Biomechanical Investigation of the Anterolateral Ligament in the Setting of ACL Reconstruction
Evan G. Meeks, MD, Houston, TX
Ardavan A. Saadat, Houston, TX
Adam Bretteke, MD, Nashville, TN
Sabir Ismaiy, Houston, TX
Jonathan Gold, BS, Houston, TX
Philip C. Noble, PhD, Houston, TX
Walter R. Lohe, MD, Houston, TX
This study demonstrates that the ALL deficient knee is more unstable in both translation and rotation in the setting of ACL reconstruction, which may place the ACL graft at risk of retear.

* 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. P438  
Bony Contact/Capsular Forces at the Glenohumeral Joint After Repair of an Unstable Shoulder with a Hill-Sachs Defect  
Neil Bakshi, BA, Canton, MI  
John Jolly, MS, Bartlett, TN  
Richard E. Debski, PhD, Pittsburgh, PA  
Jon K. Sekiya, MD, Ann Arbor, MI  
A cadaveric examination of forces placed on the glenohumeral capsule and bony surfaces after various surgical repairs of an unstable shoulder with a large Hill-Sachs lesion.

Poster No. P439  
Increased Failure Rates of ACL Soft Tissue Autograft/Allograft Hybrid Grafts  
Matthew T. Burrus, MD, Charlottesville, VA  
Austin Crow, MD, Eau Claire, WI  
Brian C. Werner, MD, Charlottesville, VA  
Tyler Diduch, Charlottesville, VA  
Mark D. Miller, MD, Charlottesville, VA  
David R. Diduch, MD, Charlottesville, VA  
Hybrid ACL grafts fail and leave the knee with significant clinical laxity at an alarming rate as seen in over one third of our patients.

Poster No. P440  
Two-year Clinical Follow Up on All Revision Hip Arthroscopies Performed at a High Volume Referral Center  
Benjamin G. Domb, MD, Oak Brook, IL  
John M. Redmond, MD, Jacksonville, FL  
Kevin F. Dunne, BS, Westmont, IL  
Jon Hammarstedt, BS, Chicago, IL  
Christine E. Stake, MA, Naperville, IL  
Asheesh Gupta, MD, Arlington, VA  
The purpose of this study was to evaluate clinical outcomes, pain, and patient satisfaction following revision hip arthroscopy at a high volume referral center with a minimum two-year follow-up.

Poster No. P441  
Bursoscopic Ossicle Resection in Young and Active Patients with Unresolved Osgood-Schlatter Disease  
Moon Jong Chang, MD, Seoul, Republic of Korea  
Jai-gon Seo, Prof, Seoul, Republic of Korea  
Young-Wan Moon, MD, Seoul, Republic of Korea  
Bursoscopic ossicle excision showed satisfactory outcomes in selective young and active patients with persistent symptoms. However, the prominence of the tibial tuberosity was not reduced.

Poster No. P442  
The Extra-Articular Bicipital Tunnel is Active in Chronically Symptomatic Patients: A Molecular Characterization  
Abigail L. Campbell, MSc, MD, New York, NY  
Samuel A. Taylor, MD, Greenwich, CT  
Mary E. Shorey, BA, New York, NY  
Russell F. Warren, MD, New York, NY  
Stephen J. O’Brien, MD PLLC, New York, NY  
There is genetic evidence of inflammatory, degradative, and nociceptor upregulation in the extra-articular bicipital tunnel relative to intra-articular LHBT among chronically symptomatic patients.

Poster No. P443  
Outcomes of Autologous Chondrocyte Implantation following Failed Microfracture  
Andrew J. Riff, MD, Chicago, IL  
Adam B. Yanke, MD, Chicago, IL  
Randhir Mascarenhas, MD, Winnipeg, MB, Canada  
Marc S. Haro, MD, Charleston, SC  
Bernard R. Bach Jr, MD, River Forest, IL  
Brian J. Cole, MD, MBA, Chicago, IL  
Although prior reports in the literature suggest inferior results of ACI following failed microfracture, our series suggests ACI following microfracture renders results comparable to primary ACI.

Poster No. P444  
Outcomes following ACL Reconstruction: Cortical Button vs. Transfemoral Suspensory Fixation Systematic Review  
Maristella F. Saccomanno, Brindisi, Italy  
Jason Shin, MD, Saskatoon, Saskatchewan, Canada  
Randhir Mascarenhas, MD, Winnipeg, MB, Canada  
Marc S. Haro, MD, Charleston, SC  
Brian Forsythe, MD, Chicago, IL  
Nikhil N. Verma, MD, Chicago, IL  
Brian J. Cole, MD, MBA, Chicago, IL  
Charles A. Bush-Joseph, MD, Chicago, IL  
Bernard R. Bach Jr, MD, River Forest, IL  
Evidence suggests that there are no short-to medium-term differences in knee specific outcome measures between patients treated with cortical button and those with suspensory transfemoral fixation.

Poster No. P445  
The Dancers Hip: Extreme ROM Impingement / Instability: Arthroscopic Clinical Outcomes  
Christopher M. Larson, MD, Edina, MN  
James Ross, MD, Fort Lauderdale, FL  
M. R. Gievan, PhD, Eden Prairie, MN  
Rebecca M. Stone, ATC, Edina, MN  
Asheesh Bedi, MD, Ann Arbor, MI  
Management of hip pain in dancers can be very challenging secondary to the complex demands placed on their hips.

Poster No. P446  
Preoperative Templating Anterior Cruciate Ligament Reconstruction to Avoid Graft Tunnel Mismatch  
Patrick W. Joyner, MD, Chesapeake, VA  
Christopher L. Wilcox, DO, Gulf Breeze, FL  
Ryan W. Hess, MD, Columbia, SC  
Jeremy Bruce, MD, Chattanooga, TN  
Christopher O’Grady, MD, Gulf Breeze, FL  
Charles A. Roth, MD, Gulf Breeze, FL  
James R. Andrews, MD, Gulf Breeze, FL  
This research, utilizing lateral knee radiographs pre-operatively, helps to eliminate graft tunnel mismatch as a complication during ACL reconstruction using bone-patella-tendon bone autograft.
SPORTS MEDICINE AND ARTHROSCOPY

**Poster No. P447**

Does Primary Hip Arthroscopy Result in Improved Clinical Outcomes? Two-year Follow Up on 738 Consecutive Patients

Benjamin G. Domb, MD, Oak Brook, IL
Kevin F. Dunne, BS, Westmont, IL
John M. Redmond, MD, Jacksonville, FL
Christine E. Stake, MA, Naperville, IL
Ashesh Gupta, MD, MD, Arlington, VA

This study evaluates clinical outcomes, pain, and patient satisfaction following primary hip arthroscopy for a single surgeon at a high volume referral center with a minimum two-year follow-up.

**Poster No. P448**

Does Ligament Preservation in ACL Reconstruction Improve Two-year Outcomes? A Prospective Cohort Study

Nick G. Mohtadi, MD, Calgary, AB, Canada
Rhamona Barber, Calgary, AB, Canada
Denise S. Chan, MBT, MSc, Calgary, AB, Canada

This prospective cohort shows that ACL tissue preservation (2-stranded semitendinosus graft) results in similar quality-of-life outcome, and better stability than a standard hamstring reconstruction.

**Poster No. P449**

Anterior and Posterior Glenohumeral Capsular Plication Reduces Ligament Strain Compared to Anterior Alone

Charlie Yongpravat, MS, New York, NY
Eugene W. Brabston, MD, Birmingham, AL
Charles M. John, MD, New York, NY
William N. Levine, MD, New York, NY
Thomas R. Gardner, MCE, New York, NY
Christopher S. Ahmadi, MD, New York, NY

Computer simulations of glenohumeral capsular plication suggest a combined plication of the AB-IGHL and PB-IGHL evenly distributes capsular strains.

**Poster No. P450**

Biomechanical Strength of Current Medial Patellofemoral Ligament Reconstruction Techniques

Patrick W. Joyner, MD, Chesapeake, VA
Ryan W. Hess, MD, Columbia, SC
Jeremy Bruce, MD, Chattanooga, TN
Christopher L. Wilcox, DO, Gulf Breeze, FL
Aaron K. Mates, MD, Mobile, AL
James R. Andrews, MD, Gulf Breeze, FL
Charles A. Roth, MD, Gulf Breeze, FL

This study demonstrates three methods of MPFL reconstruction that are stronger than the native MPFL; all using suspensory cortical fixation and human gracilis allograft.

**Poster No. P451**

Are Acetabular Chondral Flaps Identified During Hip Arthroscopy Worth Repairing?

Sanaz Hariri, MD, Menlo Park, CA
Jeremy Truntzer, MD, Providence, RI
Robert L. Smith, PhD, Stanford, CA
Marc Safran, MD, Redwood City, CA

The biochemical properties of and percentage of live chondrocytes in full thickness chondral flaps encountered during hip arthroscopy demonstrate that this tissue is not normal.

**Poster No. P452**

Labral Base Repair Compared to Looped Stitch Repair for Acetabular Labral Repair: A Matched-Paired Comparison

Timothy J. Jackson, MD, Studio City, CA
Jon Hammerstedt, BS, Chicago, IL
Benjamin G. Domb, MD, Oak Brook, IL

The purpose of this analysis is to attempt to determine if an acetabular labral repair technique superior to another based on clinical outcomes measured by patient reported outcome (PRO) scores.

**Poster No. P453**

Ischiofemoral Impingement and Hamstring Dysfunction after Ischial Tuberosity Fracture: Surgical Outcomes

Luke Spencer-Gardner, MD, Rochester, MN
Asheesh Bedi, MD, Ann Arbor, MI
Michael J. Stuart, MD, Rochester, MN
James Ross, MD, Fort Lauderdale, FL
Christopher M. Larson, MD, Edina, MN
Bryan T. Kelly, MD, New York, NY
Aaron J. Krych, MD, Rochester, MN

We present a reliable surgical technique to restore anatomy, improve hamstring dysfunction and correct ischiofemoral impingement after ischial tuberosity avulsion fracture nonunion or malunion.

**Poster No. P454**

Arthroscopic and Imaging Findings after Traumatic Hip Dislocation in Patients Younger than 25 Years of Age

James Wylie, MD, Park City, UT
Amir Abtahi, MD, Salt Lake City, UT
James Beckmann, MD, Menlo Park, CA
Travis G. Maak, MD, Salt Lake City, UT
Stephen K. Aoki, MD, Salt Lake City, UT

Intraarticular loose bodies and articular injuries are common at the time of hip dislocation in the adolescent and young adult. They are not always apparent on CT imaging.

**Poster No. P455**

Contemporary Epidemiology of Lower Extremity Stress Fractures in the United States Military

Brian Waterman, MD, El Paso, TX
Baris Gun, DO, El Paso, TX
Justin D. Orr, MD, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX

Significant risk factors for lower extremity stress fractures identified in this study include female sex, age >40, non-Black race, junior enlisted rank, and Army or Marine service.
Poster No. P456
The Effect of Training Shoes on Running Kinematics in Older Runners
Scott M. Mullen, MD, Highlands Ranch, CO
E. B. Toby, MD, Kansas City, KS
Damon Mar, Kansas City, KS
Megan Bechtold, DPT, Greenwood, MO
Heath Melugin, BS, Kansas City, KS
Terence McIliff, PhD, Kansas City, KS
Mature runners may have a much more established gait and a longer period of time may be needed to accustom to a forefoot strike with a barefoot running condition or minimalist shoe.

Poster No. P457
Injury to the Suprascapular Nerve in SLAP Repair: Is a Curved Suture Anchor Insertion Technique Safer?
Jason A. Grieshober, MD, Baltimore, MD
Jeremiah E. Palmer, MD, Baltimore, MD
Hyunchul Kim, MS, College Park, MD
Jonathan Jaffe, MD, Catonsville, MD
Syed A. Hasan, MD, Baltimore, MD
R. F. Henn III, MD, Ellicott City, MD
The curved technique demonstrated half the rate of glenoid perforation and injury to the suprascapular nerve when compared to the traditional straight technique.

Poster No. P458
Correlation between Cam-type Femoroacetabular Impingement and Osteitis Pubis
Elizabeth Phillips, BS, Philadelphia, PA
Vivane Khoury, MD, Philadelphia, PA
Andrew Wilmot, MD, Sewickley, PA
Stuart D. Kinsella, MD, MSc, Boston, MA
John D. Kelly IV, MD, Newtonton Square, PA
This retrospective chart review found a significant increase in the prevalence of osteitis pubis in patients with cam-type FAI compared to controls, supporting a clinical link between these processes.

Poster No. P459
Comparative Study of ACL Reconstruction with or without HTO in ACL Deficient Patients with Varus Deformity
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Jeollanam-Do, Republic of Korea
Chang-Seon Oh, Gwang-Ju, Republic of Korea
Jonghwan Seol, Hwasungun, Republic of Korea
Ha Sung Kim, MD, Hwasungun, Republic of Korea
Seungjun Lee, Hwasung, Republic of Korea
Simultaneous open wedge HTO and ACL reconstruction showed satisfactory correction angle and improved knee joint function.

Poster No. P460
Endoscopic Treatment of Haglund’s Syndrome: Indications and Limits
Pierfrancesco De Santis, Rome, Italy
Pierpaolo Rota, Rome, Italy
Attilio Rota, MD, Roma, Italy
Endoscopic treatment of HAGLUND’S SYNDROME is a minimally invasive procedure, valid also in the revisions of open treatments.

Poster No. P461
Strain with Respect to Epicondyle Placement in Ulnar Collateral Ligament Reconstruction of the Elbow
Eric C. Makhni, MD, New York, NY
Allan Reyes, BS, East Brunswick, NJ
Christopher S. Ahmad, MD, New York, NY
Central placement of the humeral tunnel is often advocated for improved isometry and larger bone bridge but must be balanced with its biomechanical disadvantage.

Poster No. P462
Acquiring Expert Surgeon Performance Levels in Hip Arthroscopy
Gurhan Erturan, MBBS, London, United Kingdom
Abtin Alvand, MBBS, Oxford, United Kingdom
Andrew J. Price, FRCS, Oxford, United Kingdom
Sion Glyn-Jones, MA MBBS, Oxford, United Kingdom
Jonathan Rees, FRCS, Oxford, United Kingdom
The use of a validated hip simulation model and assessments to define expert-level skill based on previous arthroscopic experience.

Poster No. P463
Validity of a Smartphone Application for the Assessment of ATT in ACL Deficient Knee: Evaluation with Navigation
Raffaele Iorio, MD, Rome, Italy
Luigi Valeo, MD
Daniele Mazza, Fiumicino, Italy
Fabio Conteduca, MD, Roma, Italy
Andrea Ferretti, MD, Rome, Italy
We compared the reliability of a smartphone application with the navigator to assess ATT in ACL deficient knee.

Poster No. P464
Ligamentum Teres Injury-related Instability: Validation of New Anterior Luxation Test
Luciano Agnello, Cambridge, United Kingdom
James Moore, Mr, London, United Kingdom
Sachin Daivajna, FRCS (Ortho), MS, Cambridge, United Kingdom
Richard N. Villar, MD, Cambridge, United Kingdom
Ali Bajwa, MD, Cambridge, United Kingdom
Lesions of Ligamentum Teres may be associated with pain and/or instability of the hip. No reliable clinical test has been described to elicit instability in hip related with LT injuries.
Poster No. P465
Arthroscopic Reconstruction of the Acetabular Labrum using Allograft Fascia Lata: Technique and Early Results
Dominic S. Carreira, MD, Fort Lauderdale, FL
John Kozy, BS, Perrysburg, OH
M. R. Guevans, PhD, Eden Prairie, MN
This research describes a technique for labrum reconstruction and seeks to determine the efficacy and safety of an all-arthroscopic hip labrum reconstruction using allograft fascia lata.

Poster No. P466
Sports and Physical Activity in the Long Term Following Primary Cementless Total Hip Arthroplasty
Moritz Imnmann, MD, Heidelberg, Germany
Stefan Weiss, PhD, MD, Pforzheim, Germany
Christian Merle, MD
Marcus R. Streit, MD, Heidelberg, Germany
The majority of patients maintained their physical activity level in the long term after primary cementless THA, compared to the activity level before the onset of restricting osteoarthritis symptoms.

Poster No. P467
Integrity of the Ligamentum Teres in Ballet Dancers
Sachin Dadvina, FRCS (Ortho), MS, Cambridge, United Kingdom
Aedin Kennedy, BSc (Hons) MSc (Sports Med), London, United Kingdom
Ali Bajwa, MRCs, MPhil, DSEM, MFSEM, FRCS Orth, Cambridge, United Kingdom
Richard N. Villar, BSc, MA, Cambridge, United Kingdom
Our results show that the prevalence of tears of the ligamentum teres (56%) was 4.7 times higher in our professional ballet dancers than for our age-matched, non-dancing population.

Poster No. P468
Outcomes of Arthroscopic Surgery for Dysplasia: A Multicenter Case Control Study
Dean K. Matsuda, MD, Los Angeles, CA
Nikhil Gupta, BA, Fullerton, CA
Joshua Sampson, MD, Mill Valley, CA
Nicole Matsuda, Los Angeles, CA
Monti Khatod, MD, Santa Monica, CA
Raoul Burchette, MA MS, Pasadena, CA
This multicenter case control study demonstrates relatively poor longer-term outcomes despite early clinical improvement from arthroscopic treatment of dysplasia.

Poster No. P469
KT1000 Versus Smartphone: When Size Does Not Matter
Daniele Mazza, Fiumicino, Italy
Luigi Valeo, MD
Raffaele Iorio, MD, Rome, Italy
Fabio Conteduca, MD, Roma, Italy
Andrea Ferretti, MD, Rome, Italy
We evaluated the measurement performance of the application for the assessment of ATT, including measurement reliability as compared with KT1000, between observers and within observers.

Poster No. P470
Tensile Properties of the Ligamentum Teres
Christiano Trindade Sr, MD, Vail, CO
Marc J. Philippon, MD, Vail, CO
Matthew Rasmussen, BS, Vail, CO
Travis Turnbull, PhD, Vail, CO
Mark G. Hamming, MD, Durham, NC
Michael B. Ellman, MD, Denver, CO
Matthew J. Harris, MD, MBA, Jupiter, FL
Robert E. LaPrade, MD, PhD, Vail, CO
Coen A. Wijdicks, PhD, Vail, CO
The purpose of the current study was to quantify the native anatomic and biomechanical properties of the ligamentum teres in a human cadaveric model.

Poster No. P471
Arthroscopic Decompression of Anterior Inferior Iliac Spine: Improved Hip Range of Motion in Case-Controlled Study
Elizabeth A. House, MD, New Hyde Park, NY
Leon Lenchik, Winston-Salem, NC
Scott Wiertz, MD, MS, Winston Salem, NC
Sandeep Mannava, MD, PhD, Winston-Salem, NC
Andre Antunes, South Salem, NY
Allston J. Stubbs IV, MD, Winston-Salem, NC
Anterior Inferior Iliac Spine decompression improves hip range of motion, with terminal flexion and internal rotation at four months being comparable to controls.

Poster No. P472
Endoscopic Pubic Symphysectomy for Athletic Osteitis Pubis: A Multicenter Outcome Study
Dean K. Matsuda, MD, Los Angeles, CA
Manuel Ribas Fernandez, MD, BARCELONA, Spain
Nicole Matsuda, Los Angeles, CA
Benjamin G. Domb, MD, Oak Brook, IL
This multicenter outcome study from the USA and Spain is the first case series on a new technique demonstrating 2-5 year outcomes from endoscopic pubic symphysectomy for athletic osteitis pubis.

Poster No. P473
Labral Tears in Patients Less Than 25 Years of Age: Clinical Presentation and Analysis of Outcomes
Gillian Bayley, MD, Ottawa, ON, Canada
Paul E. Beaule, MD, Ottawa, ON, Canada
Gillian Parker, BS, Ottawa, ON, Canada
Gillian Parker, BS, Ottawa, ON, Canada
The etiology of labral tears in patients less than 25 years of age occurs commonly without bony deformities and may be up to 46%. Hip Scope can improve quality of life with minimal morbidity.
Poster No. P474
Video Analysis of the Mechanism of Anterior Cruciate Ligament Injuries in the National Football League
David Schub, MD, Solana Beach, CA
Robert H. Brophy, MD, Chesterfield, MO
Thomas H. Wuerz, MD, Kenilworth, IL
Holly J. Silvers, PT, Los Angeles, CA
Brian J. Cole, MD, MBA, Chicago, IL
Timothy R. McAdams, MD, Redwood City, CA
Scott A. Rodeo, MD, New York, NY
Neal S. ElAttrache, MD, Los Angeles, CA
Bert Mandelbaum, MD, Santa Monica, CA
Videos of every ACL injury sustained in a game during the 2013-2014 NFL regular and post-season were analyzed. Mechanism of injury, body position, and player demographics were recorded.

Poster No. P475
Effects of Mesenchymal Stem Cells and Platelet-rich Plasma on Ligament Healing: Histologic and Biomechanical Study
Imran Ashraf, MD, Flowood, MS
Danica D. Vance, BS, New York, NY
Amaris Gegenaras, Coral Gables, FL
Rosemetre M. Kanashiro-Takesuchi, DVM, PhD, Miami, FL
Andrew D. Hiller, MD, Miami, FL
Jennifer Chapman, MD, Miami Shores, FL
Wayne Balkan, Ph.D., Miami, FL
Lee D. Kaplan, MD, Miami, FL
Bryson P. Lesniak, MD, Pittsburgh, PA
Treatment with PRP (isolated and in combination with MSCs) increase ligament healing response during the early stages of healing based on higher cellularity and fibroblastic activity.

TRAUMA

Poster No. P476
Body Mass Index in Postmenopausal Females Sustaining Proximal Humerus Fractures
Waseem Jerjes, MBBS, PhD, London, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom
The severity of the fractures is increased in overweight and obese patients. Surgical fixation in 3-part and 4-part fractures is associated with delayed union and increase wound healing problems.

Poster No. P477
Use of Reverse Soleus Flaps for Coverage of Soft-Tissue Defects of Distal Third Leg Wounds
Matthew Houdek, MD, Rochester, MN
Eric R. Wagner, MD, Rochester, MN
Cody Wyles, BS, Rochester, MN
Stephen A. Sems, MD, Rochester, MN
Steven L. Moran, MD, Rochester, MN
Distally-based soleus muscle flaps are a safe and reliable option for healing soft-tissue defects in the distal third of the leg.

Poster No. P478
Reduction of Radiation Exposure from Fluoroscopy during Orthopaedic Trauma Operations Using Real-time Dosimetry
Rita Baumgartner, BS, Durham, NC
Kiley Libuit, BS, San Francisco, CA
Dennis Ren, BA, San Jose, CA
Omar Bakr, BS, San Francisco, CA
Nathan Singh, Fresno, CA
Utku Kandemir, MD, San Francisco, CA
Meir T. Marmor, MD, San Francisco, CA
Saam Morshed, MD, San Francisco, CA
Real-time visualization of radiation exposure during orthopaedic trauma operations can decrease radiation exposure, presumably through immediate feedback and motivation for dose-minimizing techniques.

Poster No. P479
Proximal Humerus Fractures Demonstrate Equivalent Clinical Outcomes in Geriatric and Non-Geriatric Cohorts
Richard M. Hinds, MD, New York, NY
Matthew R. Garner, MD, New York, NY
Wesley H. Tran, MD, Irvine, CA
Joshua Dines, MD, New York, NY
Dean G. Lorich, MD, New York, NY
Osteosynthesis of proximal humerus fractures via locked plating with fibular allograft augmentation results in similar functional outcomes in geriatric and non-geriatric patients.

Poster No. P480
Evaluating Google Glass in Peri-operative Orthopaedic Consultations: Linking Haiti to Canada
Thierry Pauyo, MD, Montreal, QC, Canada
Hans P. Van Lancker, MD, Montreal, QC, Canada
Edward J. Harvey, MD, MSc, FRCSC, Westmount, QC, Canada
A peri-operative approach to orthopaedic consultations with Google Glass connecting surgeons in Haiti and Canada was found to have significant educational value and significant impact on patient care.

Poster No. P481
Adverse Events in Orthopaedic Surgery: Is Trauma More Risky? An Analysis of the NSQIP Data
Cesar S. Molina, MD, Nashville, TN
Rachel V. Thakore, BS, Nashville, TN
Eduardo J. Burgos, MD, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN
Utilizing the NSQIP data we demonstrate that Orthopaedic trauma patients are almost 2 times more likely than those in the general orthopaedic population to sustain complications.
TRAUMA

Poster No. P482
Subtrochanteric Fractures: The Effect of Cerclage Wire on Fracture Reduction and Outcome
Wayne Hoskins, MBBS, PhD, Parkville, Australia
Samuel Joseph, MD, Carnegie, Australia
Roger Bingham, FRACS, Melbourne, Australia
David T. Love, MBBS, North Balwyn, Australia
Andrew T. Bucknill, FRCS, Parkville, Australia
Andrew Oppy, MD, Melbourne, Australia

The benefits of using cerclage wire for subtrochanteric fractures in terms of fracture reduction, angulation and return to theatre rate is significantly better than not using cerclage wire.

Poster No. P483
Reference Positions in Lower Limb, The Ideal Directions for External Pin Insertion with Less Soft Tissue Motion
Munetomo Takata, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Leonid N. Solomin, MD, St Petersburg, Russian Federation

The amounts of soft tissue displacement during joint motion were assessed in the 12 directions in each 8 levels between proximal and distal metaphysis of femur and tibia respectively, using cadaver.

Poster No. P484
The Incidence of Venous Thromboembolism after Fracture of the Tibia: An Analysis of the National Trauma Databank
Ronald Auer, MD, Louisville, KY
John Riehl, MD, Pensacola, FL

Analysis of the National Trauma Data Bank shows a low incidence of DVT/PE after isolated fracture of the tibia and identifies patient risk factors for DVT/PE.

Poster No. P485
Impact of Chronic Kidney Disease Stage on Postoperative Intertrochanteric Hip Fracture Mortality
Nicholas B. Frisch, MD, MBA, Bloomfield Hills, MI
Michael A. Charters, MD, Beachwood, OH
Nolan M. Wessell, MD, Detroit, MI
Alexander Greenstein, BS, Farmington Hills, MI
Brett N. Cann, BS, Dearborn, MI
Stuart T. Guthrie, MD, Detroit, MI

This retrospective review of 505 patients with intertrochanteric evaluated the impact of chronic kidney disease (stage, GFR) on mortality after intertrochanteric hip fracture.

Poster No. P486
Predictors of Pain for Arthritis Patients Using a National Sample
Man Hung, PhD, Salt Lake City, UT
Shirley Hon, Salt Lake City, UT
Jerry Bounsanga, Salt Lake City, UT
Ami Stuart, Park City, UT
Thomas F. Higgins, MD, Salt Lake City, UT
Christine Cheng, Salt Lake City, UT
Wei Chen, Haleiwa, HI
Jeremy D. Franklin, Salt Lake City, UT
Erik Kubik, MD, Salt Lake City, UT

This study utilized a large national sample to examine the factors that contribute to pain for people that have arthritis. Past joint pain, diabetes, and high blood pressure were predictors of pain.

Poster No. P487
The Invalidation of Sawbones as a Biomechanical Model for Stress Concentration
Amir Qureshi, Miami, FL
Ali A. Albandi, MBBS, Miami, FL
David N. Kaimrajh, Miami, FL
Edward L. Milne, Miami Beach, FL
Loren L. Latta, PhD, Plantation, FL

Sawbones do not behave similarly to cadaver bones for all applications, so it is important to validate each type of application before conducting a study.

Poster No. P488
The High-risk Polytrauma Patient and Inferior Vena Cava Filter Use
Onur Berber, MBBS, BSc(Hons), London, United Kingdom
Aswinkumar Vastreddy, MBBS, Burnham-on-Crouch / Essex, United Kingdom
Obi Nzeako, MBBS, London, United Kingdom
Adel Tavakkolizadeh, FRCS (Ortho), MSc, MBBS, London, United Kingdom

IVC filters have an important role in high-risk trauma patients. The EAST guidelines are useful but may be overestimating the need for filter insertion.

Poster No. P489
Results of Athlete Perceptions Toward Concussive Injury: A Survey of American High School Athletes
Graeme Whyte, MD, Kingston, ON, Canada
Alan W. McGee, MD, New York, NY
Raymond Kanovsky, Fort Lee, NJ
Gullem Gonzalez-Lomas, MD, New York, NY

This study seeks to identify patterns in high school athlete perceptions that might help in future tool development and in pre-season and on-field concussion management.

* 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. P490
Radiation Exposure to the Patients During Fluoroscopically Guided Acetabular Reconstruction
Michalis Panteli, MD, Leeds, United Kingdom
Theodoros Tosounidis, Leeds, West Yorkshire, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom
The present study assesses the level of radiation exposure of patients undergoing acetabular reconstruction and investigates whether specific fracture patterns are associated with increased exposure.

Poster No. P491
Clinical Results in Fixed Acetabular Fractures: Retrospective Analysis 20 Years of Follow Up
Claudio A. Rojas Sr, MD, Santiago, Chile
Aleksandar R. Munjin Sr, MD, Santiago, Chile
Sebastián A. Monge Sr, MD, Santiago, Chile
Nicolás M. Ullurrun Sr, MD, Vallenar, Chile
Retrospective analysis of 154 patients with fixed acetabular fractures, we searched for risk factors for need of arthroplasty and poor functional results.

Poster No. P492
Can Combined Therapy with Teriparatide and Low-intensity Pulsed Ultrasound Accelerate Fracture Healing?
Nozaka Koji, MD, PhD, Akita, Japan
Yoichi Shimada, MD, PhD, Akita, Japan
Naohisa Miyakoshi, MD, PhD, Akita, Japan
Shin Yamada, MD, Akita, Japan
Michio Hongo, MD, Akita, Japan
Yuji Kasukawa, MD, PhD, Akita, Japan
Hitotomo Saito, MD, Akita City, Japan
Hiroaki Kijima, MD, Akita, Japan
Shuichi Chiba, MD, Akita, Japan
In elderly patients with lower limb fractures, combined therapy (teriparatide and low-intensity pulsed ultrasound) showed a shorter mean duration of union than the Ilizarov external fixator alone.

Poster No. P493
Economic Analysis of Anatomic Plating vs. Tubular Plating for the Treatment of Fibula Fractures
Suneel B. Bhat, MD, Philadelphia, PA
Justin M. Kane, MD, Coatesville, PA
Joseph N. Daniel, DO, Egg Harbor Township, NJ
Andrew B. Kay, BA, Philadelphia, PA
Steven M. Raikin, MD, Philadelphia, PA
David I. Pedowitz, MD, Penn Valley, PA
Jamal Ahmad, MD, Philadelphia, PA
James C. Krieg, MD, Philadelphia, PA
Utilization of one-third tubular plating whenever possible for fibula fractures instead of anatomic plating would result in cost savings of nearly $40 million annually in the US.

Poster No. P494
Antibiotics Given for Infection Prophylaxis in Open Tibia Fractures Do Not Cover Common Infecting Organisms
Michael C. Willey, MD, Iowa City, IA
Ambar Haleem, MBBS, Iowa City, IA
Matthew D. Karam, MD, Iowa City, IA
Robert W. Westermann, MD, Iowa City, IA
John L. Marsh, MD, Iowa City, IA
Prophylactic antibiotics given for patients with open tibia fractures do not cover MRSA which accounts for 30% of surgical site infections, indicating need for screening/decolonization programs.

Poster No. P495
Over-utilization of Computed Tomography Angiography in Extremity Trauma
Alexandra K. Callan, MD, Nashville, TN
Jennifer M. Bauer, MD, Nashville, TN
Hassan R. Mir, MD, Nashville, TN
CT angiography is over-utilized in extremity trauma; it is often ordered without exam-based indication and frequently does not affect patients’ treatment.

Poster No. P496
There is No Difference between Bracing and No Bracing after Internal Fixation of Tibial Plateau Fractures
Aakash Chauhan, MD, Pittsburgh, PA
Alan Slipak, BS, Pittsburgh, PA
Kathryn D. Petica, BA, Cincinnati, OH
Daniel T. Altman, MD, Pittsburgh, PA
Gregory T. Altman, MD, Pittsburgh, PA
There were no major differences between post-operative bracing and no bracing after tibial plateau internal fixation in terms of union, complications, range of motion, and SF-36 scores.

Poster No. P497
Prediction of Pulmonary Embolism in Trauma Patients: Risk Assessment Model Based on 38,000 Patients
Sheena R. Black, MD, Dallas, TX
Jeffrey T. Howard, PhD, San Antonio, TX
Paul C. Chin, MD, PhD, The Woodlands, TX
Adam J. Starr, MD, Dallas, TX
A risk assessment model, based on a large sample of trauma patients, was developed to individually stratify trauma patients on their risk for development of pulmonary embolism.

Poster No. P498
Appropriateness and Adequacy of Splints Applied for Pediatric Fractures
Aaron J. Johnson, MD, Glen Burnie, MD
Brandon Schwartz, MPH, Baltimore, MD
Joshua M. Abzug, MD, Timonium, MD
Splints were improperly placed in 93% (256 out of 275) of cases, with improper joint immobilization present in 163 cases, and skin and soft tissue complications present in 92 cases.
TRAUMA

Poster No. P499
Demographic and Temporal Determinants of Admission and Transfer Volume at a Level I Trauma Center
Ebrahim Paryavi, MD, MPH, Baltimore, MD
Paul E. Matuszewski, MD, Baltimore, MD
Robert V. O’Toole, MD, Baltimore, MD

Orthopaedic injury is associated with transfer to trauma center. Transfer admissions were more likely on holidays. Patients with private insurance are less likely to be transferred.

Poster No. P500
Intraarticular Findings Following Traumatic Posterior Hip Dislocation in Pediatric Patients
Stephanie W. Mayer, MD, Aurora, CO
Mary K. Hill, BA, Aurora, CO
Travis C. Heare, MD, Aurora, CO
Eduardo N. Novaes, MD, Aurora, CO

Extensive capsular-labral complex and ligamentum teres tear were essential lesions. Chondral injury, cartilaginous posterior wall fractures and femoracetabular impingement morphology were common.

Poster No. P501
Conventional versus Virtual Radiographs of the Injured Pelvis and Acetabulum
Julius A. Bishop, MD, Palo Alto, CA
Allison J. Rao, BA, Chicago, IL
Michael Poulis, MD, Portola Valley, CA
Christopher Beaudieu, MD, PhD, Stanford, CA
Michael Bellino, MD, Redwood City, CA

Virtual radiographs generated from CT imaging offer superior image quality when compared to conventional radiographs in evaluation of pelvic and acetabular fractures.

Poster No. P502
Is the Digital Divide in Orthopaedic Trauma Patients a Myth? A Prospective Cohort Study
Paul E. Matuszewski, MD, Baltimore, MD
Samir Mehta, MD, Philadelphia, PA
Andrew N. Pollak, MD, Baltimore, MD
Robert V. O’Toole, MD, Baltimore, MD

The digital divide is a myth in our modern trauma population, as internet access is nearly ubiquitous. Despite overwhelming enthusiasm for an info website (95%), a small fraction visited our site.

Poster No. P503
Cardiac Events in Orthopaedic Trauma Patients: Risk Factors and Outcome
Michalis Panteli, MD, Leeds, United Kingdom
Marilena Giamoudi, Medical Student, Leeds, United Kingdom
Peter Giannoudis, MD, FRCS, MBBS, BS, Leeds, United Kingdom

Cardiac events represent an independent predictor of mortality following trauma. We present an algorithm predicting this risk according to the patient's state on admission and injury sustained.

Poster No. P504
Neuropsychological Outcomes in Long Bone Fractures: What Factors Affect Results? A Pilot Study
Kimberly Jacobsen, MD, Saint Louis, MO
Ryan Van Patten, BS, Saint Louis, MO
Heidi Israel, PhD, RN, St Louis, MO
Lisa K. Cannada, MD, Saint Louis, MO
John Wright, PhD, St Louis, MO

Our aim was to determine if time to operative fixation had an effect on cognitive outcome determined through neuropsychological testing and define specific patient factors that may have an effect.

Poster No. P505
Sleep Disturbances After Orthopaedic Trauma
Robert D. Russell, MD, Dallas, TX
William R. Hotchkiss, MD, Dallas, TX
Adam J. Starr, MD, Dallas, TX
Jose Santoyo, BA, Dallas, TX
Jeffrey T. Howard, MA, San Antonio, TX

This study is an evaluation of the prevalence of sleep disturbance in an orthopaedic trauma population in relation to patient-perceived outcomes.

Poster No. P506
Can Thrombelastography Predict Venous Thromboembolic Events in Patients with Severe Extremity Trauma?
Joshua L. Gary, MD, Houston, TX
Prism Schneider, MD, PhD, FRCS, Calgary, AB, Canada
Matthew C. Galpin, Houston, TX
Zayed Radwan, MD, Deer Park, TX
John W. Munz, MD, Houston, TX
Timothy S. Achtor, MD, Bellaire, TX
Mark L. Prasarn, MD, Houston, TX
Bryan A. Cotton, MD, MPH, Houston, TX

Patients with extremity injuries and r-TEG mA value of ≥ 65 at a 3.6 fold increased risk and those with mA ≥ 72 have a 6.7 fold risk for in-hospital VTE compared to those without extremity injuries.

Poster No. P507
Does Patient Sex Affect the Anatomic Relationships Between the Sternoclavicular Joint and Posterior Vasculature?
Jarrad A. Merriman, MD, MPH, Orinda, CA
Diego C. Villa, MD, Los Angeles, CA
Brian Wu, BS, Los Angeles, CA
Dakshesh Patel, MD, Los Angeles, CA
Anthony Yi, BS, Los Angeles, CA
George F. Hatch III, MD, Los Angeles, CA

Intimate relationships between vessels and structures associated with sternoclavicular reconstruction warrant protection and a cardiothoracic surgeon be available.

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Poster No. P508
Comparison of Intertrochanteric Hip Fracture Fixation in a Biomechanical Chair Rise Model
Ian Smithson, MD, Tampa, FL
Seth Cooper, MD, Tampa, FL
Aniruddh Nayak, MS, Tampa, FL
Jacob Cox, MD, Tampa, FL
Scott Marberry, MD, Winter Park, FL
Brandon G. Santoni, PhD, Tampa, FL
Roy W. Sanders, MD, Tampa, FL

Comparison of femoral head rotation and varus collapse between a single and integrated dual screw intertrochanteric hip fracture fixation device using a chair rise biomechanical model.

Poster No. P509
Fluoroscopic Imaging of Tibial Plateau Depression: A Cadaveric Study
Matthew R. Garner, MD, New York, NY
Jason J. Halcroson, MD, Winston Salem, NC
Peter D. Fabricant, MD, MPH, Philadelphia, PA
Patrick C. Schottel, MD, Houston, TX
Stephen J. Warner, MD, New York, NY
David Wellman, MD, New York, NY
Dean G. Lorich, MD, New York, NY
David L. Helfet, MD, New York, NY

The use of fluoroscopy in the assessment of articular congruency of the lateral tibial plateau has 100% sensitivity, making it an excellent first line assessment of fracture reduction.

Poster No. P510
The Effect of Suture Technique on Cutaneous Blood Flow and Immediate Wound Repair Strength
Adam Sunderland, MD, Farmington Hils, MI
Richard Bangmaier, PhD
Stuart T. Guthrie, MD, Detroit, MI

The cutaneous blood flow and wound repair strength of incisions closed with 5 different suture techniques were compared in a porcine model. The suture patterns included four knotted and one knotless.

Poster No. P511
Predictors of Adult Upper Extremity Compartment Syndrome: Which Factors are Most Predictive?
Ehsan Jazni, MD, Baltimore, MD
Ebrahim Paryari, MD, MPH, Baltimore, MD
Joshua M. Abzug, MD, Timonium, MD

In an adult upper extremity trauma population, the pulse rate may be a useful indicator of developing compartment syndrome and should be closely monitored in the at risk patient.

Poster No. P512
30-day and One-year Mortality after Femoral Neck Fracture: Hemiarthroplasty Versus Total Hip Arthroplasty
Michael Maceroli, MD, Rochester, NY
Lucas Nikkel, MD, Rochester, NY
Bilal Mahmood, MD, Rochester, NY
John Elfar, MD, Rochester, NY

Total hip arthroplasty for intracapsular hip fractures in patients ≥60 years of age is associated with significantly decreased mortality risks at 30 days and 1 year when compared to hemiarthroplasty.

Poster No. P513
An Operatorless Method for Determining Resident Competency in Orthopaedic Procedures
Susanne M. Roberts, MD, Boston, MA
Aidin Masoudi, MD, Boston, MA
Brandon E. Earp, MD, Boston, MA
George S. Dyer, MD, Boston, MA

In this study we present an operatorless method to determine resident competency in a basic procedure.

Poster No. P514
Total Hip Arthroplasty Reduces Reoperation Risk in Fracture Patients: A Register Study of 49,438 Hips
Cecilia Rogmark, MD, PhD, Malmo, Sweden
Goran Garellick, MD, PhD, Goteborg, Sweden
Johan N. Karrholm, MD, Molndal, Sweden

Both hemiarthroplasty and THA is used in hip fractures. Optimum implant choice is unclear. In 49,000 hips, THA decreased reoperation risk. Secondary arthroplasty, cementless stem increases it.

Poster No. P515
The Effect of Granulocyte Colony Stimulating Factor Therapy on Posttraumatic Avascular Necrosis of the Femoral Head
Peter Hogg, MD, Indianapolis, IN
Denise Kouseit, Royal Oak, MI
Tristan Maerz, MS, Royal Oak, MI
Rachel S. Rohde, MD, Southfield, MI
Kevin C. Baker, PhD, Royal Oak, MI

Administration of exogenous granulocyte/macrophage-colony stimulating factor thwarted histologic changes associated with the progression of AVN in AVN-induced rat femoral heads.

Poster No. P516
Tension Band Plating for Chronic Anterior Tibial Stress Fractures in High-performance Athletes
Robert Zbeda, New York, NY
Peter K. Sculco, MD, Rochester, MN
Ekaterina Y. Urch, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Riley J. Williams, MD, New York, NY
Dean G. Lorich, MD, New York, NY
David Wellman, MD, New York, NY
Olivier Borens, MD, Lausanne, Switzerland
David L. Helfet, MD, New York, NY

We sought to review our case series of anterior tibial stress fractures in high-performance athletes treated utilizing tension band plating and associated outcomes.

Poster No. P517
Bilateral Sacral Fractures are Highly Associated with Lumbopelvic Instability
Tiffany Castillo, MD, Atherton, CA
Julius A. Bishop, MD, Palo Alto, CA
Ian Corcoran-Schwartz, MD, Menlo Park, CA

Presence of bilateral sacral fractures on axial imaging should alert treating physicians to scrutinize sagittal reconstructions to facilitate diagnosis and treatment of lumbopelvic instability.

An alphabetical faculty financial disclosure list can be found starting on page 332.

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TRAUMA

**Poster No. P518**
Plasmin is Essential for Preventing Formation of Heterotopic Ossification after Skeletal Muscle Trauma
Masato Yuasa, PhD, Nashville, TN
Jonathan G. Schoenecker, MD, Nashville, TN

The findings in this study are the first to demonstrate that plasmin protease activity is protective against HO suggesting that restoring its activity could potentially prevent HO clinically.

**Poster No. P519**
The Dose-response Effect of the Mast Cell Stabilizer, Ketotifen Fumarate, on Posttraumatic Joint Contractures
Prism Schneider, MD, PhD, Calgary, AB, Canada
Herman Johal, MD, Calgary, AB, Canada
Andrew R. Buckley, Calgary, AB, Canada
Kevin A. Hildebrand, MD, Calgary, AB, Canada

Post-traumatic joint contracture is debilitating. Ketotifen fumarate exhibited a dose-response effect in reducing joint capsule fibrosis in a rabbit model of post-traumatic joint contracture.

**Poster No. P520**
Possible Inhibitory Effect of Mesenchymal Stem Cells on BMP-2 Mediated Bone Healing in a Critical Size Defect Model
Motasem I. Refaat, MD, Sacramento, CA
Joel C. Williams, MD, Sacramento, CA
Mark A. Lee, MD, Sacramento, CA

The addition of MSC to the BMP-2 carrier construct demonstrated significantly reduced bone formation and failed to heal as compared to BMP-2 only constructs.

**Poster No. P521**
Technical Errors of ORIF for Displaced Proximal Humerus Fracture During the Learning Curve of Beginner Surgeons
Min Soo Shon, MD, Seoul, Republic of Korea
Tae Kang Lim, MD, Seoul, Republic of Korea
Kyoong-Hwan Koh, MD, Seoul, Republic of Korea
Seuk Min Lim, Seoul, Republic of Korea

Varus malunion and plate malposition were common technical errors of beginner orthopedic surgeons in their learning curve.

**Poster No. P522**
Coracoclavicular Ligament Suture Augmentation with Plate Fixation for Unstable Distal Clavicle Fracture
Min Soo Shon, MD, Seoul, Republic of Korea
Tae Kang Lim, MD, Seoul, Republic of Korea
Kyoong-Hwan Koh, MD, Seoul, Republic of Korea
Seuk Min Lim, Seoul, Republic of Korea

CC ligament suture augmentation with locking plate for fracture fixation for Neer IIB distal clavicle fracture could result in successful fracture healing.

**Poster No. P523**
Diaphyseal Atypical Fracture of the Femur Differ from Subtrochanteric Atypical Fracture
Kwang Woo Nam, MD, PhD, Boston, MA
Harry E. Rubash, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA
Guoan Li, PhD, Boston, MA, Republic of Korea
Tsung-Yuan Tsai, PhD, Boston, MA
Dimitris Dimitriou, MD, Cambridge, MA
Sang-Kim Kim, MD, Jeju, Republic of Korea
Hee J. Kim, MD, Seoul, Republic of Korea
Sung Wook Choi, Jeju, Republic of Korea

This study suggests different mechanism of failure may be associated with diaphyseal and subtrochanteric atypical insufficiency fracture of the femur.

**Poster No. P524**
Clopidogrel Use Prior to Hemiarthroplasty for Femoral Neck Fracture does not Preclude Good Outcome
Edgardo Parrilla, BS, Danville, PA
Raveesh Richard, MD, Danville, PA
Michael Rutter, MD, Danville, PA
Jove Graham, PhD, Danville, PA
Thomas R. Bowen, MD, Danville, PA
Elie S. Ghanem, MD, Danville, PA

Patients taking clopidogrel who sustain a hip fracture can safely undergo a hemiarthroplasty within 48 hours without precluding good outcome.

**Poster No. P525**
Percutaneous Intramedullary Nailing with the Backslap Technique for Two-part Humeral Surgical Neck Fractures
Thomas D’Ollonne, MD, Nice, France
Charles Bessiere, MD, Nice, France
Patrick Gendre, MD, Nice, France
Toby K. Barung, FRCS (Ortho), London, United Kingdom
Armodios M. Hatzidakis, MD, Denver, CO
Pascal Boileau, MD, Nice, France
Mark E. Morrey, MD, Rochester, MN

Percutaneous IM nailing with the backslap technique allows immediate use of the arm for ADL, to obtain fracture healing repeatedly and predictably, and avoids proximal humerus non-union or malunion.

**Poster No. P526**
Are Narcotic Requirements and Physical Examination Predictive of Adult Traumatic Compartment Syndrome?
Ehsan Jazini, MD, Baltimore, MD
Ebrahim Paryavi, MD, MPH, Baltimore, MD
Joshua M. Abzug, MD, Timonium, MD

In an adult trauma population the classic “6 Ps” in addition to pulse rate, and systolic blood pressure may be more useful indicators of developing compartment syndrome.
Poster No. P527

Effects of Systemic Pegylated Nell-1 on Fracture Healing and Bone Density in a Mouse Model

Elizabeth Lord, MD, Venice, CA
Justine Tanjaya, DDS, Los Angeles, CA
Jin Hee Kwak, DDS, MS, Los Angeles, CA
Eric Chen, BA, Los Angeles, CA
Kambiz Khatilinejad, Los Angeles, CA
Jeffrey C. Wang, MD, Sherman Oaks, CA
Chia Soo, Professor, Los Angeles, CA
Kang Ting, PhD, DM, Los Angeles, CA

This study investigated the effects of systemic administration of NELL-1 on fracture repair in an open fracture model in the mouse radius and on bone density in uninjured bones.

Poster No. P528

RUST Scoring and Radiographic and Biomechanical Union in a Sheep Ostectomy Model

Paul Tornetta III, MD, Boston, MA
Jody Litrenta, MD, Boston, MA
William M. Ricci, MD, St Louis, MO
Roy W. Sanders, MD, Tampa, FL
Robert V. O’Toole, MD, Baltimore, MD
Henry Faber, MS, Memphis, TN
Darren Wilson, York, United Kingdom

To determine the standard and modified RUST scores that represent biomechanical union, based on the torsional stiffness of the affected vs the contralateral tibia in the animals.

Poster No. P529

Comparison of Outcomes for Men and Women Sustaining Polytrauma

Sheila M. Algan, MD, Oklahoma City, OK
Julie Stoner, PhD, Oklahoma City, OK
Tabitha Garsue, PhD, Oklahoma City, OR
Sigrid Johannesen, BS, Oklahoma City, OK
Pravina Kota, MS, MBA, Oklahoma City, OK
William J. Ertl, MD, Oklahoma City, OK
David C. Teague, MD, Oklahoma City, OK

This is a retrospective comparison of the functional outcomes and quality of life scores to determine if there is a difference between poly-traumatized male and female patients one year post-injury.

Poster No. P530

CT Radiation Dosing can be Substantially Lowered in Evaluation and Operative Planning of Periarticular Fractures

Colin M. Mansfield, MD, Philadelphia, PA
Saqib Rehman, MD, Moorestown, NJ
Sayed Ali, MD, Philadelphia, PA
Kazmierz W. Komperda, MD, Philadelphia, PA

After cutting the standard radiation dose of a CT to less than half, there was still no significant difference when evaluating cadaveric pilon fractures for pre-operative planning.

Poster No. P531

Early Appropriate Care of Orthopaedic Injuries in Elderly Multiple-trauma Patients

Michael Reich, MD, Cleveland, OH
Andrea Dolenc, Rocky River, OH
Timothy A. Moore, MD, Shaker Heights, OH
Heather A. Vallier, MD, Cleveland, OH

Early appropriate care of mechanically unstable fractures in elderly patients may require more conservative resuscitative parameters to guide timing of fixation while minimizing complications.

Poster No. P532

U-shaped Sacral Fracture: An Easily Missed Fracture with High Morbidity

Luca Labianca, MD, Rome, Italy
Antonello MTro, MD, Rome, Italy
Francesco Turturro, MD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Francesca Manfroni, Roma, Italy
Andrea Ferretti, MD, Rome, Italy

An high index of suspicion of sacral fracture with proper clinical and radiographic assessments will decrease the incidence of missed diagnosis.

Poster No. P533

Risk Stratification of Geriatric Hip Fracture Patients using a New Geriatric Trauma Triage Score

Sanjit R. Konda, MD, Closter, NJ
Rachel Seymour, PhD, Charlotte, NC
Madyb A. Karunakar, MD, Charlotte, NC

The LE-GTTS is a valid triage tool in geriatric hip fracture patients. It is better than current ISIs at predicting in-hospital mortality.

Poster No. P534

Computer Aided Design Modeling for Evaluation of Safe Zones with Volar Plating of Distal Radius Fractures

Eric C. Fu, MD, Allston, MA
Chaitanya S. Mudgal, MD, Boston, MA

We use a novel methodology that combines 3DCT modeling and CAD software manipulation in order to establish normative values for safe screw lengths and zones for standard volar distal radius plates.

Poster No. P535

Is it Really Necessary to Restore Anatomic Parameters after Distal Radius Fractures?

Marco Guidi, MD, Capena, Italy
Dario Perugia, MD, Roma, Italy
Matteo Guzzini, MD, Rome, Italy
Carolina Civitenga, MD, Rome, Italy
Cristina Dominedò, MD, Rome, Italy

Good functional outcomes in distal radius fractures are related to the restoration of ulnar variance and volar tilt.

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TUMOR AND METABOLIC DISEASE

Poster No. P536
Analysis of the Orthopaedic In-training Exam Oncology Questions
William J. Molinari, MD, Rochester, NY
Richard Okafor, MD, Rochester, NY
Emily E. Carmody Soni, MD, Rochester, NY
Orthopaedic Oncology content on the OITE has not been evaluated recently. This study offers an updated analysis of the style of questions asked, their cited references, and subject matter.

Poster No. P537
Malignant Fibrous Histiocytoma and High-grade Undifferentiated Pleomorphic Sarcoma - What’s in a Name?
Gadini Delisca, BS, Nashville, TN
Nathan W. Mesko, MD, Cleveland, OH
Vignesh Alambad, BS, Charlotte, NC
Kristin Archer, PhD, Nashville, TN
Yanna Song, PhD, Nashville, TN
Jennifer L. Halpern, MD, Nashville, TN
Herbert S. Schwartz, MD, Nashville, TN
Ginger E. Holt, MD, Nashville, TN
We conducted a retrospective analysis comparing the prognostic implications of patients diagnosed with MFH versus those diagnosed with HGUPS. No identifiable prognostic implications were found.

Poster No. P538
Clinical Outcomes of the Patients with Myxofibrosarcoma
Yasutaka Murahashi, MD, Chitose, Japan
Mitsunori Kaya, MD, Sapporo, Japan
Makoto Emori, MD
Emi Mizushima, MD, Muroran, Japan
Toshiyuki Kunisada, MD, Okayama, Japan
Joe Hasei, Okayama, Japan
Ken Takeda, MD, PhD, Okayama, Japan
Tomohiro Fujii, Tokyo, Japan
Toshifumi Ozaki, MD, Okayama, Japan
The detection system using TelomeScan can be a new approach to visualize live human CTCs from bone and soft tissue sarcoma, and that CTC can be also a biomarker for bone and soft tissue sarcoma.

Poster No. P540
A Detection System for Circulating Tumor Cells Using TelomeScan in Bone and Soft Tissue Sarcoma
Chang-Bae Kong, MD, Seoul, Republic of Korea
Byung Hyun Byun, Seoul, Republic of Korea
Wan Hyeong Cho, Seoul, Republic of Korea
PET/CT is more sensitive and accurate than BS for diagnosing bone metastases in osteosarcoma. The combined use of PET/CT and BS improves sensitivity.

Poster No. P541
PET/CT is More Sensitive and Accurate than Bone Scintigraphy for Diagnosing Bone Metastases in Osteosarcoma
Chang-Bae Kong, MD, Seoul, Republic of Korea
Katsuyuki Kusuzaki, MD, Kyoto, Japan
Kyoji Okada, MD, Akita, Japan
Takahiro Moto, MD, PhD, Yamagata, Japan
Ryu Tsuchida, MD, PhD, Tokyo, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Akihiko Matsuume, MD, PhD, Tsu City, Mie, Japan
Akihiro Sudo, MD, Tsu City, Mie, Japan
Acridine Orange Therapy supported by photodynamic therapy, to 185 bone and soft tissue sarcomas, improved limb function by preserving normal tissues without local recurrence.

Poster No. P542
Impact of Advanced Age and Comorbidity Burden on Morbidity and Mortality after Musculoskeletal Tumor Surgery
Koichi Ogura, MD, Tokyo, Japan
Hideo Yasunaga, MD, PhD, Tokyo, Japan
Yusuke Shinoda, MD, PhD, Tokyo, Japan
Hirotaka Kawanuki, MD, PhD, Tokyo, Japan
Sakae Tanaka, MD, PhD, Tokyo, Japan
The morbidity and mortality in patients aged ≥80 years with Charlson Comorbidity Index ≥4 was increased three and six times, respectively, compared with patients aged ≤64 years with no comorbidity.

Poster No. P543
The Most Cited Articles in Orthopaedic Oncology
Akash Shah, Boston, MA
Paul H. Yi, MD, San Francisco, CA
Andrew B. Stein, MD, Sudbury, MA
This list of the most cited articles in orthopaedic oncology serves as a "must-read" list for surgeons and residents interested in orthopaedic oncology, alike.
**Poster No. P545**  
Clinical Significance of Serum Acid Phosphatase as a Tumor Marker in Giant Cell Tumor of Bone  
Sboji Shimose, MD, PhD, Hiroshima, Japan  
Tadabiko Kubo, MD, PhD, Hiroshima, Japan  
Jun Fujimori, MD, PhD  
Taisuke Furuta, MD, Hiroshima, Japan  
Mitsu Ochi, MD, PhD, Hiroshima, Japan  
The serum ACP level has potential as a tumor marker for confirming a diagnosis and for detecting local recurrence and metastasis in GCT over the age of 17 in males and 15 in females.

**Poster No. P546**  
Phenotypic Consequences of Hypoxia-inducible Factors and Anchorage-independent Growth in Osteosarcoma  
Donald J. Scholten Jr, BA, Grand Rapids, MI  
Dominic Pelle, MD, Grand Rapids, MI  
Matthew R. Steensma, MD, Byron Center, MI  
Hyunwoo P. Kang, BS, MA, New York, NY  
Jocelyn T. Compton, MSc, BS, NYC, NY  
Defects After Resection of Musculoskeletal Tumors  
Biological Dressing and Vacuum Assisted Closure (VAC) for  
Poster No. P549  
Biological Dressing and Vacuum Assisted Closure (VAC) for  
Defects After Resection of Musculoskeletal Tumors  
Philip Kaiser, BA, Cambridge, MA  
Jocelyn T. Compton, MSc, BS, NYC, NY  
Hyunwoo P. Kang, BS, MA, New York, NY  
Christine T. Lazzari, RN, BS, Valhalla, NY  
Bret Taback, MD, New York, NY  
Francis Y. Lee, MD, PhD, New York, NY  
In this retrospective study, use of a vacuum assisted closure device and biological dressing after musculoskeletal tumor resection results in good cosmesis and no evidence of local tumor recurrence.

**Poster No. P550**  
Femoral Head Anteversion Relative to the Linea Aspera: Axial CT for Orientation of Endoprosthetic Replacement  
Brad T. Hyatt, MD, Fort Sam Houston, TX  
Daniel R. Possley, DO, Georgetowen, TX  
Taara Hassan, MD, San Antonio, TX  
Seth O'Brien, MD, San Antonio, TX  
Joseph F. Alderete Jr, MD, Boerne, TX  
Femoral neck anteversion can be measured relative to the linea aspera using axial CT. Using the linea aspera as a rotational landmark will help set the version of endoprosthetic replacements.

**Poster No. P551**  
Local Recurrence in Myxofibrosarcoma: An Analysis of Clinicopathologic and MRI Features  
Eun Seok Choi, MD, Seoul, Republic of Korea  
Han-Soo Kim, MD, PhD, Seoul, Republic of Korea  
Hyun-Gyu Kang, MD, Goyang-Si, Republic of Korea  
Ilkyun Han, MD, Seoul, Republic of Korea  
Myxofibrosarcoma exhibits considerable risk of local recurrence(LR). Presence of satellite lesion in preoperative MRI might be helpful in identifying high risk patients for LR.

**Poster No. P552**  
Clinical Presentation of Pelvic Sarcoma  
Muayad Kadhim, MD, Philadelphia, PA  
Richard B. Womer, MD, Philadelphia, PA  
John P. Dormans, MD, Philadelphia, PA  
Ewing sarcoma is the most common pelvic sarcoma tumor in children, with most subjects presenting with hip pain. The ilium is the most common location of boney pelvic sarcoma.

**Poster No. P553**  
Long-term Outcomes of Endoprosthetic Reconstruction for Periarticular Tumors of the Knee  
Matthew Houdek, MD, Rochester, MN  
Benjamin Wilke, MD, Rochester, MN  
Eric R. Wagner, MD, Rochester, MN  
Cody Wyles, BS, Rochester, MN  
Franklin H. Sim, MD, Rochester, MN  
Revision surgery following periarticular knee resection is high. Limb salvage was achieved in a majority of patients, with amputation only occurring in 12% of the patient population.

**Poster No. P554**  
Bone Cross-sectional Geometry of Atypical Femoral Fractures in Chronic Bisphosphonate Users  
Andrew C. Choe, BS, Singapore, Singapore  
Joyce S. Koh, MD, Outram Road, Singapore  
Alvin C. Ng, MBBS, MRCP, Thomson Euro-Asia, Singapore  
Meng Ai Png, MBBS, FRCR, Outram Road, Singapore  
David T. Chua, FRCS, MBBS, Singapore, Singapore  
David Ng, MBBS, MSc, Singapore, Singapore  
Tet S. Hour, MD, Singapore, Singapore  
Hip Structural Analysis of atypical femoral fracture patients reflects the protective effects of bisphosphonate therapy, but not on tensile failure.
TUMOR AND METABOLIC DISEASE

Poster No. P555
Does Anesthesia Type Influence Risk of Perioperative Complications in Hip Fracture Surgery?
Rachel V. Thakore, BS, Nashville, TN
Cesar S. Molina, MD, Nashville, TN
Paul S. Whiting, MD, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

In this prospective cohort of hip fractures patients, regional anesthesia was associated with a statistically significant increase in the risk of perioperative complications compared with general.

ORS POSTERS

Poster No. 556
Metal-on-Metal Hip Arthroplasty Modularity Effects Blood Metal Ion Levels Ratio
Kevin Ilo, Middlesex, United Kingdom
Karim Aboelmagd, MBBS BSc, Middlesex, United Kingdom
Harry Hothi, London, United Kingdom
Robert Whittaker, Middlesex, United Kingdom
Asaad Asaad, Middlesex, United Kingdom
Gordon Blunn, Middlesex, United Kingdom
John Skinner, Middlesex, United Kingdom
Alistar Hart, London, United Kingdom

There is a higher Cobalt: Chromium ratio in patients with a modular total hip arthroplasty.

Poster No. 557
Factors Influencing TKR Joint Mechanics in the Varus Knee
Clare K. Fitzpatrick, Denver, CO
Sherrod Woods, Warsaw, IN
Paul J. Rudkoetter, Denver, CO

Computational Evaluation of Surgical Factors Influencing TKR Joint Mechanics in the Varus Knee during a Stepdown Activity.

Poster No. 558
Predicting Tibial Stress Fields Around Total Ankle Replacements
Matthew A. Hamilton, Ph.D, Gainesville, FL
Phong Diep, Gainesville, FL
James Nunley, Durham, NC
James DeOrio, Durham, NC
Mark Easley, Durham, NC
Victor Valderrabano, Basel, Switzerland

Review of stresses around the tibial implants of total ankle replacements to identify risks of remodeling and shielding.

Poster No. 559
Multidimensional Ultrasound Imaging of the Wrist: Changes of Shape and Displacement of the Median Nerve and Tendons in Carpal Tunnel Syndrome
Anika Filius, MD, Rotterdam, Netherlands and Rochester, MN
Peter C. Amadio, MD, Rochester, MN
Marjan Scheltens, MD, Rotterdam, Netherlands
Hans G. Bosch, PhD, Rotterdam, Netherlands
Pieter A. van Doorn, MD PhD, Rotterdam, Netherlands
Hans J. Stam, MD PhD, Rotterdam, Netherlands
Steven E. R. Hovius, MD PhD, Rotterdam, Netherlands
Ruud W. Selles, PhD, Rotterdam, Netherlands

In CTS shape and mobility of the median nerve and tendons changes, and these changes can be related to CTS-severity.

Poster No. 560
Are patients with complex shoulder instability hard wired differently?
Anthony Howard, Leeds, United Kingdom
Joanne Powell, PhD, Liverpool, United Kingdom
David Hawkes, Liverpool, United Kingdom
Alison Kinghorn, Leeds, United Kingdom
Jo Gibson, Liverpool, United Kingdom
Omid Alizadehkhahayat, Liverpool, United Kingdom
Graham Kemp, Liverpool, United Kingdom
Simon Frostick, Liverpool, United Kingdom

A MRI Diffusion-Tensor Imaging study of patients with Polar-Type III shoulder instability, demonstrating different neural pathway within their white matter.

Poster No. 561
Progressive Pattern of Vertebral Deformity in a Population-based Cohort Study of Vertebral Fracture: Association with Bone Mineral Density
Junichi Yamada, MD, Tsu, Japan
Koji Akeda, MD, PhD, Tsu, Japan
Toshihiro Kato, Tsu, Japan
Koichiro Murata, MD, Tsu, Japan
Ko Kato, MD, PhD, Tsu, Japan
Akihiro Sudo, MD, PhD, Tsu, Japan

The biconcave type deformity has a tendency to change its extent and type, especially at the lumbar level.

Poster No. 562
The epigenetic regulation of SOX9 by miR-145 in human chondrosarcoma
Michelle Ghert, MD, FRCSC, Hamilton, Canada
Isabella Mak, Hamilton, Canada
Shalini Singh, PhD, Hamilton, Canada
Robert Turcotte, MD, FRCSC, Montreal, Canada

In this study, lentiviral transfection of miR-145 in human chondrosarcoma cells results in down regulation of Sox9 and downstream ETV5 and MMP2.

* 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.
BOS POSTERS

Poster No. P563
The Efficacy of a Single-Incision Versus Two-Incision Four-Compartment Fasciotomy of the Leg: A Cadaveric Model
Meredith Neal, MD, Portsmouth, VA
Andrew Henebry, MD, Portsmouth, VA
Christiaan Mamaczak, DO, South Bend, IN
Robert Ruland, MD, Portsmouth, VA

ALLIED HEALTH

Poster No. P564
The Affordable Care Act and Orthopaedic Care: Utilizing an OPA/OA
Jason S. Mazza, MSc, OTC, OPA-C, Trinity, FL
Orthopaedic Physician’s Assistants / Orthopaedic Assistants (OPA/OA) are well trained allied health providers who work directly with orthopedic surgeons to assist in all phases of orthopedic care.

Poster No. P565
American Fracture Association Allied Health Group
Diana D. Carr, MD, Sebring, FL
Alfonso E. Pino, MD, Dublin, TX
Judy L. Wright, MD, Bloomington, IL
Geoffrey M. Miller, MD, El Segundo, CA
The American Fracture Association was founded in 1938 to improve fracture care. We are particularly interested in practical solutions for the difficult cases seen by community orthopedists.

Poster No. P566
National Association of Orthopaedic Technologists
Bruce Davis, Indianapolis, IN
Sean Conkle, Bethlehem, PA
Cynthia Henderson, Spencer, OK
Established in 1982, the National Association of Orthopaedic Technologists (NAOT) is dedicated to the pursuit of excellence through the continued educational development of orthopaedic allied health care professionals who specialize in casting, splinting and bracing.
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 CAST1 and CAST2 courses. Each session is provider approved by the California Board of Registered Nursing, Provider Number CEP3432, for 4.00 contact hours for each NUR course and 8.00 contact hours for each the CAST1 and CAST2 courses.

**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.

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**NUR1 – Non-surgical Approaches to Orthopaedic Conditions / Pharmacology Related to Orthopaedics**

**Tuesday, March 24**
7:30 AM – 12:00 PM

**Room 4403**

**Course Co-Chairs:**
Nadine Trznadel, MSN, RN, CNS, ONC
Thomas Gleason, MD

**Overview**
This course will feature presentations about use of the internet, medical records, pediatric injuries, osteoporosis, and pharmacology related to pain management, anticoagulation, and infection control in orthopaedic patient care.

**Program**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>7:30 AM</td>
<td>Welcome</td>
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<tr>
<td></td>
<td>Harpal S. Khanuja, MD</td>
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<td>AAOS Allied Health Program Director</td>
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<td>Julie A. Twiss, BSN, RN, ONC</td>
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<td></td>
<td>2014-2015 NAON President</td>
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<tr>
<td>7:45 AM</td>
<td>Internet Enhanced, Patient-Centered Orthopedic Care</td>
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<td>Jonathan Paul, MD</td>
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<tr>
<td>8:15 AM</td>
<td>Treatment of Osteoporotic Spinal Compression Fractures</td>
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<td>Thomas Gleason, MD</td>
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<tr>
<td>8:45 AM</td>
<td>Dangers of Being a Kid — Ortho Injuries in Children</td>
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<td>Aaron Morgenstein, MD</td>
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<tr>
<td>9:15 AM</td>
<td>Break</td>
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<tr>
<td>9:30 AM</td>
<td>Osteoporosis — Epidemic, Silent, Preventable</td>
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<tr>
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<td>Christopher Wise, MD</td>
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<tr>
<td>10:00 AM</td>
<td>Multimodal Pain Management in Total Joint Replacement Patients&lt;sup&gt;®&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>Janine Bodden, MSN, NP-C, RN, ONC, RNFA</td>
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<tr>
<td>10:30 AM</td>
<td>Pain Management Consults from Orthopedic Surgery&lt;sup&gt;®&lt;/sup&gt;</td>
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<td>Misty Kirby-Nolan, MSN, APN/CNP, ANP-BC</td>
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<tr>
<td>11:00 AM</td>
<td>Anticoagulant Use in Orthopedics&lt;sup&gt;®&lt;/sup&gt;</td>
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<td>Nancy L. Hiltz, MS,RN,ONC</td>
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<tr>
<td>11:30 AM</td>
<td>Infection Control in Orthopaedic Trauma&lt;sup&gt;®&lt;/sup&gt;</td>
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<td>Debra L. Sietsema, PhD, RN</td>
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<tr>
<td>12:00 PM</td>
<td>Adjournment</td>
</tr>
</tbody>
</table>

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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.
NUR2 – Surgical Approaches to Orthopaedic Conditions
Tuesday, March 24
1:30 PM – 6:00 PM
Room 4403
Course Co-Chairs:
Nadine Trznadel, MSN, RN, CNS, ONC
Steven Marjedko, MD

Overview
Surgery is definitely an important management option for orthopaedic conditions. A variety of surgical treatments will be addressed, including those for the spine, hip, upper extremity, and knee, as well as safety and positioning of orthopaedic patients in the operating room.

Program
1:30 PM  Welcome
Harpal S. Khanuja, MD
AAOS Allied Health Program Director
Julie A. Twiss, BSN, RN, ONC
2014-2015 NAON President

Introduction
Nadine Trznadel, MSN, RN, CNS, ONC
Steven Marjedko, MD

1:45 PM  Can We Improve Safety and Outcomes of Our Orthopaedic Surgical Patients in 2015?
William Robb, MD

2:15 PM  Positioning the Orthopedic Patient in Surgery: The OR Bed
Rosendo Villarreal, OPA-C, LSA CST/CSFA

2:45 PM  Painful Spinal Conditions in Childhood and Adolescence
Steven Marjedko, MD

3:15 PM  Cervical Spondylotic Myelopathy
Kris Siemionow, MD

3:45 PM  Break

4:00 PM  Non-Arthritic Hip Injuries
Shane Nho, MD

4:30 PM  Improved Planning and Precision of Reconstructive Hip and Knee Surgery
Stephen B. Murphy, MD

5:15 PM  Care of the Knee - Non-surgical and Surgical, through Arthritis and Sports injuries
Jim Reardon, MD

6:00 PM  Adjournment

NUR3 – Surgical Approaches to Orthopaedic Conditions / Unusual Orthopaedic Conditions / Non-Surgical Approaches to Orthopaedic Conditions
Wednesday, March 25
7:30 AM – 12:00 PM
Room 4403
Course Co-Chairs:
Elizabeth Turcotte, MSN RN-BC, ONC
Jeffrey Bush, MD

Overview
Surgical conditions, unusual conditions, and non-surgical approaches to orthopaedic conditions will include clinical information about perioperative warming, surgical site infection prevention, gender differences in osteoarthritis and ACL injuries, and orthopaedic oncology.

Program
7:30 AM  Welcome
Harpal S. Khanuja, MD
AAOS Allied Health Program Director
Julie A. Twiss, BSN, RN, ONC
2014-2015 NAON President

Introduction
Elizabeth Turcotte, MSN RN-BC, ONC
Jeffrey Bush, MD

7:45 AM  Perioperative Warming In Total Joint Arthroplasty: Are We Effective?
Claire E. Robbins, PT
Linda Cunningham, RN, BSN, CNOR
Jayne Campbell-Beaudet, RN, BSN, CPAN, CAPA

8:30 AM  Reducing the Incidence of Surgical Site Infections in Total Joint Surgery through Standard Processes in the Operating Room
Claire M Spanbock, RN
Nathan Greene, MD

9:15 AM  Break

9:30 AM  Reduction in Blood Utilization in Total Hip and Total Knee Replacement
Gina L Anderson-Malum, BSN, RN, ONC
Naomi Schneider, BSN
Kim Schaap, MD

10:15 AM  Healthcare Delivery in the Era of Healthcare Reform
Stephen Ondra, MD

11:00 AM  Beyond Bikini Medicine
Kimberly Templeton, MD

11:30 AM  Nursing implications for Orthopaedic Oncology
Amber Marie Stitz, RN, MS, ACNS-BC, OCNS-C
Kelly Derby, RN, MS, CNS

12:00 PM  Adjournment

An alphabetical faculty financial disclosure list can be found starting on page 332.

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NUR4 – Non-surgical Approaches to Orthopaedic Conditions / Surgical Approaches to Orthopaedic Conditions
Wednesday, March 25
1:30 PM – 6:00 PM
Room 4403
Course Co-Chairs:
Elizabeth Turcotte, MSN RN-BC, ONC
Jeffrey Bush, MD

Overview
Some orthopaedic conditions call for conservative management prior to surgical consideration. Others may justify treatment by surgical methods. This session will focus on some approaches to provide high quality care for orthopaedic patients with total hip or knee arthroplasty, sports injuries, fragility fractures, hip fractures, overuse injuries, and osteosarcoma.

Program
1:30 PM  Welcome
Harpal S. Khanuja, MD
AAOS Allied Health Program Director
Julie A. Twiss, BSN, RN, ONC
2014-2015 NAON President

1:45 PM  Improving Clinical Outcomes and Decreasing Length of Stay for Total Hip and Total Knee Patients through an Interdisciplinary Orthopedic Co-Management Collaborative
Patricia Gawrys, BSN, RN, CRRN, ONC
Karen Ramos, BSN, RN, ONC
Vincent Canestra, MD

2:30 PM  The Emerging Role of Nursing in Sports Medicine
Denise A McGinley, MSNAd, RN

3:15 PM  Break

3:30 PM  Fracture...Never Again!
Jennifer Boyer, RN, MBA
Tonya Reddy, NP

4:15 PM  The Use of Tele-Case Management to Coordinate Care and Improve Outcomes among Rural Elderly Hip Fracture Patients
Mary Atkinson Smith, DNP, FNP-BC, ONP-C, RNFA, CNOR
W. Todd Smith, MD

5:00 PM  Overuse Injury in the Young Athletes
Gregory Nicholson, MD

5:30 PM  Osteosarcoma: Current Concepts
Steven Gitelis, MD

6:00 PM  Adjournment

CAST1 – Casting and Splinting: Fundamentals
Thursday, March 26
8:15 AM – 5:45 PM
Palazzo Ballroom B
Course Co-Chairs:
Cynthia Henderson, OTC, CO
Continuing Education Chair, National Association of Orthopaedic Technologists
Harpal S. Khanuja, MD
AAOS Allied Health Program Director

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.

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  Casting Return Demonstration of Short Arm and Thumb Spica Casts
Cynthia Henderson, OTC, CO
Sean Conkle, OTC
Nicole Williams, OTC, MBA
Robyn Masseth, OTC
Kristie Woollems, OTC
Sam Brown, OTC

11:45 AM  Demonstration: Sugar Tong Splint
Kristie Woollems, OTC

12:05 PM  Casting Return Demonstration: Sugar Tong Splint
Cynthia Henderson, OTC, CO
Sean Conkle, OTC
Nicole Williams, OTC, MBA
Robyn Masseth, OTC
Kristie Woollems, OTC
Sam Brown, OTC

12:30 PM  Lunch (not provided)
1:30 PM  Demonstration: Short Leg Cast
Robyn Masseth, OTC

2:15 PM  Break
CAST2 – Casting and Splinting: Advanced
Friday, March 27
8:15 AM – 5:45 PM
Palazzo Ballroom B
Course Co-Chairs:
Cynthia Henderson, OTC, CO
Continuing Education Chair, National Association of Orthopaedic Technologists
Harpal S. Khanuja, MD AAOS Allied Health Program Director

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.

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
Nicole Williams, OTC, MBA
Robyn Masseth, OTC
Kristie Woolems, OTC
Sam Brown, OTC

12:30 PM  Lunch (not provided)

1:30 PM  Lecture: Total Contact Casting History & Treatment Options
Cynthia Henderson, OTC, CO

2:00 PM  Break

2:15 PM  Demonstration: Total Contact Casting
Cynthia Henderson, OTC, CO

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Call for Abstracts

2016 Annual Meeting
Orlando, Florida
March 1-5

Contribute to the advancement of orthopaedic science and practice

Share your research with orthopaedic surgeons from around the world at the 2016 Annual Meeting. Nowhere else will your discoveries reach such a wide-ranging orthopaedic audience.

Submissions open April 1, 2015. Watch for announcements!

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

ATTENTION SUBMITTERS:

Abstract Submissions due June 1, 2015
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, 2015. Abstracts will not be graded without all disclosures.
2015 Disclosures
Why Disclosure?

As an accredited provider of continuing medical education (CME), the Academy is required by the Accreditation Council for Continuing Medical Education (ACCE) to obtain and share with participants of any AAOS CME activity any potential conflicts of interest by faculty, program developers, and CME planners.

The ACCME Standards of Commercial Support, Standard 2 states the requirements:

2.1 The provider must be able to show that everyone who is in a position to control the content of an education activity has disclosed all relevant financial relationships with any commercial interest to the provider.

2.2 An individual who refuses to disclose relevant financial relationships will be disqualified from being a planning committee member, a teacher, or an author of CME, and cannot have control of, or responsibility for, the development, management, presentation or evaluation of the CME activity.

The AAOS Mandatory Disclosure Policy for Governance Groups (except Board of Directors), Continuing Medical Education Contributors, Senior Management Team Members, and Others requires that faculty submit all financial relationships with industry occurring within the past 12 months.

Each participant in the Annual Meeting has been asked to disclose if he or she has received something of value from any pharmaceutical, biomaterial or orthopaedic device equipment company and/or supplier.

The Academy has identified the options to disclose as follows:

1 – Royalties
2 – Speakers Bureau/paid presentations
3a. – Employee
3b. – Paid consultant
3c. – Unpaid consultant
4 – Stock or stock options
5 – Research or institutional support as a principal investigator has been received
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Prosthetics, Smith & Nephew, Ellipse
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Jayme Hiratazk, MD

Shannon Hiratzka, MPH

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<td>Yulian Huang, MD</td>
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<td>Paul M. Huddleston, MD</td>
<td>6 - DePuy, A Johnson &amp; Johnson Company; 7 - Wolters Kluwer Health - Lippincott Williams &amp; Wilkins</td>
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Dennis Ren, BA

Yuan Ren, PhD, MS

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The codes after the name are identified as 1 - Royalties; 2 - Speakers Bureau/paid presentations; 3a - Employee; 3b - Paid consultant; 3c - Unpaid consultant; 4 - Stock or stock options; 5 - Research or institutional support as a principal investigator has been received; 6 - Other financial or material support; 7 - Royalties, financial or material support from publishers; n - No conflicts to disclose

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<td>Khaled J. Salch, MSc, FRCS</td>
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<td>Matthew D. Saltzman, MD</td>
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<td>Eduardo Agustin Salvati, MD</td>
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<td>Andrew A. Sama, MD, PhD</td>
<td>3B - DePuy, A Johnson &amp; Johnson Company, Orthopedев Development Corporation; 2 - DePuy, A Johnson &amp; Johnson Company; 4 - Paradigm Spine, Sentio, LLC, Small Bone Innovations; 6 - AOSNA</td>
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<td>Elena Manuela Samaila, MD</td>
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<td>Vincent James Sammarco, MD</td>
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<td>Joshua Sampson, MD</td>
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<td>Thomas G. Sampson, MD</td>
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<td>Gail Lesley Samuel, MD</td>
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<td>Kathryn Samuelson, BS</td>
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<td>Hugo Banda Sanchez, MD, PhD</td>
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<td>Joaquin Sanchez-Sotelo, MD</td>
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<td>Linda J. Sandell, PhD</td>
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<td>David Sanders, MD, 3B</td>
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<td>AbbVie, GE Healthcare, Hospira</td>
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<td>Roy W. Sanders, MD</td>
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<td>John Saunders, MD</td>
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<td>Sheila Sanders, BSN</td>
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<td>Wudhav N. Sankar, MD</td>
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<td>Brandon Gerard Santoni, PhD</td>
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<td>Daniel B.E. Saris, MD, PhD, 2</td>
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<td>3B - DePuy, A Johnson &amp; Johnson Company, Medtronic; 5 - DePuy, A Johnson &amp; Johnson Company</td>
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<td>Yusufiho Sasaki</td>
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Giuseppe Tedesco, MD: .............................
Steven M. Teeny, MD: 2, 3B, 5 - Stryker
Craig C. Teerlink, PhD: 4 - Quadax
Robert Allan Teigte, MD: 3B - Synthes
Sam G. Tejwani: .............................

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Technical Exhibits
Halls A – D
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 650 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 361, 6422, and 6456
Wednesday and Thursday
3:30 – 4:00 PM
Friday
10:00 – 10:30 AM
Technical Exhibits
VISIT THE TECHNICAL EXHIBITS
Venetian/Sands EXPO - Halls A – D, Second Level
Wednesday and Thursday, 9:00 AM – 5:00 PM
Friday, 9:00 AM – 4:00 PM

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.

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.

- Over 650 companies will be featured
- Over 125 first-time exhibitors will be participating
- Specialty Areas:
  - Diagnostic Equipment......................... Booths 4822-5334
  - First-Time Exhibitors........................ Booths 165-776
  - Practice Productivity Exhibits..............Booth 4000-4815
  - Publishers and Educators Row..........Booths 1450-1864
- Unopposed Exhibit Time daily from 12:30 to 1:30 PM

While in the Exhibit Hall
AAOS Redemption Centers
Booths 162, 6620 and 6658
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 361, 6422 and 6456
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 Lobby G.

Biscotti Social
Booths 361, 6422 and 6456
Be sure to stop by the exhibit hall on Friday from 2:30-3:30 PM for a beverage and an Italian cookie, biscotti. These cookies are perfect for dunking in coffee!

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 Hall A - D.

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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## Ask an Expert Sessions – Booth 174, Hall A

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<td>9:30 – 10:15 AM</td>
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<td>Robert M. Molloy, MD</td>
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<td>Aaron G. Rosenberg, MD</td>
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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!

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### Electronic Skills Pavilion Presentation Schedule

**Booth 4402**

Presentations that showcase the latest technology and applications beneficial to orthopaedic surgeons and their staffs. Totally free, no ticket needed!

**Wednesday**

**10:30 - 11:15 AM**

**Using Google Docs and Cloud-Based Solutions to Maximize your Practice Potential**  
*Presenter: Andrew J. Pastor, MD*

Incorporate cloud-based solutions, like Google Apps, to impress your patients, aid in research endeavors, and give you the upper hand in future contract negotiations.

**11:30 AM - 12:15 PM**

**Creation of Surgical Videos with New Wearable Video Capture Technology: A “Closer Look” at Google Glass and GoPro Hero**  
*Presenter: Eric C. Makhni, MD and Charles M. Jobin, MD*

This Electronic Skills Pavilion session reviews the science behind using wearable video capture technology in creating surgical videos. Applications, limitations, and technical considerations are showcased.

**1:30 - 2:15 PM**

**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.

**2:30 - 3:15 PM**

**Office Websites: How to Save 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.

**3:30 - 4:15 PM**

**Hottest NEW Apps for Orthopaedic Surgeons - 2015 Edition**  
*Presenter: Orrin Franko, MD*

Come learn about the newest “must have” app for busy surgeons, residents, orthopaedic providers, and patients. Bring your iPhone, iPad, or Android device for this live demonstration.

**Thursday**

**9:30 - 10:15 AM**

**Making Movies for the Orthopaedic Surgeon Not Just for Hollywood**  
*Presenter: Randipsingh R. Bindra, MD*

Attend this live demonstration of the key steps of editing and encoding your captured video into a slick movie that can be inserted into a PowerPoint presentation.

**10:30 - 11:15 AM**

**Keeping Your Digital Life Synced, Safe, and Secured**  
*Presenter: Dayne T. Mickelson, MD*

Learn to use cloud-based applications to keep your devices in sync while protecting your data using the latest privacy and security tools and principles.

**11:30 AM - 12:15 PM**

**Modernizing Resident Education - Leveraging the Digital Age**  
*Presenter: Dayne T. Mickelson*

Development, funding, management, and maintenance of a digital residency curriculum are presented. The session is focused on mobile hardware, digital content, and integration via a central ‘Resident Portal.’

**1:30 - 2:15 PM**

**Application of Wearable Technology in Orthopaedic Surgery**  
*Presenter: Christian Veillette, MD*

Learn about open source tools and initiatives including RedCAP, NIHPromis, and DADOS. These tools can provide flexible solutions for your electronic data capture needs for clinical outcomes and translational research, but not break your budget.

**2:30 - 3:15 PM**

**EHR and Meaningful Use for the Small Orthopaedic Office**  
*Presenter: A. Herbert Alexander, MD*

This session explores features of a good EHR, Meaningful Use implications, EHR integration into a totally electronic office, designing an office to be totally electronic, where to begin, and housekeeping issues after going totally electronic.

**3:30 - 4:15 PM**

**Effective Communication in the Digital Age - Mobile Devices**  
*Presenter: John Philip Andrawis, MD*

Mobile technology is changing how physicians can interact with their patients, reps, staff, and colleagues. Learn which apps will help you communicate fast and effectively.
Friday 9:30 - 10:15 AM
Killer Apps
Presenter: Ira H. Kirschenbaum, MD
Discuss the most current and timely apps. These are apps that will have a surgeon saying “I can’t live without this” or “This is absolutely necessary for my practice.”

Friday 10:30 - 11:15 AM
Leveraging Cloud Social Media for Surgeon Connectivity
Presenter: Ira H. Kirschenbaum, MD
This presentation discusses changes in the way social media platforms can be constructed for medical applications especially surgeon-to-surgeon and surgeon-to-others and presents practical examples of how to start using social media in a protected environment.

Friday 11:30 AM - 12:15 PM
Useful iPhone and iPad Apps for Your Practice and Life
Presenter: Scott F.M. Duncan, MD, MPH, MBA
This presentation reviews real-life scenarios in how orthopaedic surgeons can utilize certain apps on the iPhone and iPad in our professional and personal lives.

Friday 1:30 - 2:15 PM
Open Access Journals in Orthopaedics - Can You Trust Them?
Presenter: Orrin Franko, MD
Are open access journals legitimate? Should you submit your research to an unknown journal and are their manuscripts reliable and peer reviewed? Find out the answers.

Friday 2:30 - 3:15 PM
Hottest NEW Apps for Orthopaedic Surgeons - 2015 Edition
Presenter: Orrin Franko, MD
Come learn about the newest “must have” app for busy surgeons, residents, orthopaedic providers, and patients. Bring your iPhone
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 Room 2601 of Venetian/Sands EXPO.

Joseph T. Moskal, MD, Roanoke, VA, Chair
Jonathan J. Carmouche, MD, Roanoke, VA
Karen S. Duane, MD, Newberry, FL
Benjamin Goldberg, MD, Chicago, IL
Donald H. Lee, MD, Nashville, TN
John Walter Mann III, MD, Roanoke, VA
James V. Nepola, MD, Iowa City, IA
Rick F. Papandrea, MD, Waukesha, WI
Jeffrey M. Schwartz, MD, FACS, New York, NY
Fernando Techy, MD, Chicago, IL
Scott D. Weiner, MD, Akron, OH

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.

Latonia Booth, RTI Surgical
Marie Bukowski, Wright Medical Technology, Chair
Denise Cyr, Aesculap Implant Systems
Janet Gensingen, Tecomet
Bonnie Kerrigan, Covidien
Steven Marchese, FUJIFILM Medical Systems USA
Brent Mellecker, FusionOne, Inc.
Renee Power, Arthrex
Melanie Schimmer, DJO Global
Ana Sermeno-DeJesus, Hospital for Joint Diseases at NYU Langone Medical Center
Barbara Sharpe, Stryker Instruments
Tommy Thompson, Smith & Nephew Inc.

EXHIBITOR LISTINGS

AdvaMed and PhRMA

The product code ADVA following an exhibit company listing indicates that the exhibitor is a member of the Advanced Medical Technology Association and subscribes to its Code of Ethics that govern member relationships with health care professionals, including orthopaedic surgeons. AdvaMed is the world's largest trade association representing manufacturers of medical devices, equipment, diagnostic products and health information systems. AdvaMed members produce nearly ninety percent of the health care technology purchased annually in the U.S. and more than fifty percent purchased annually around the world. AdvaMed is a leader in compliance. Its Code of Ethics on Interactions with Health Care Professionals provides ethical and legal standards that are critical to the medical device industry's ability to continue its collaboration with health care professionals. This Code of Ethics went into effect in January 2004. The AdvaMed Code of Ethics may be found at www.advamed.org.

The product code PhRMA following an exhibit company listing indicates that the exhibitor is a member of the Pharmaceutical Research and Manufacturers of America. PhRMA represents the country's leading research-based pharmaceutical and biotechnology companies. Its members develop and market new medicines to enable patients to live longer, healthier and more productive lives. The PhRMA Code of Ethics on Interactions with Health Care Professionals went into effect in July 2002. The PhRMA Code of Ethics may be found www.phrma.org/principles-guidelines/code-on-interactions-with-health-care-professionals.

PRODUCT LISTINGS

For your convenience, the technical exhibiting companies are listed alphabetically and the products/services they offer are identified by the following codes.

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Exhibitor Listing as of January 26, 2015

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## Technical Exhibits

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### TECHNICAL EXHIBITS

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<td>Federacion Mexicana de Colegios de Ortopedia y Traumatologia AC (FEMECOT) Guadalajara, Jalisco 44680 Mexico Phone: 52 3331064388 Web: <a href="http://www.femecot.org.mx">www.femecot.org.mx</a> Product Codes: AO</td>
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<td>Saint Louis, MO 63132</td>
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<td>Phone: 314-262-8038</td>
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<tr>
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<tr>
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<td>Phone: 705-726-9383</td>
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<td>Phone: 210-522-3953</td>
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<tr>
<td>Phone: 913-451-4414 x303</td>
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Tianjin Walkman Biomaterial Co., Ltd. 6254
Tianjin, 301609
China
Phone: 86 1082258800
Web: www.walkman.com.cn
Product Codes: BNE, I, SI

Tianjin ZhengTian Medical Instrument Co., Ltd. 655
Beijing, 100082
China
Phone: 86 1082292929
Web: www.ztmed.cn
Product Codes: I, SI

Top Shelf Orthopedics 3015
Tracy, CA 95304
Phone: 800-726-9180
Web: www.topshelforthopedics.com
Product Codes: BB, DEV, I, O, P, SI

Tiemann Surgical 1438
Hauppauge, NY 11788
Phone: 516-849-3942
Web: www.georgetiemann.com
Product Codes: SURG, SI

Tornier 6437
Bloomington, MN 55437
Phone: 866-689-3942
Web: www.tornier.com
Product Codes: ADVA, AS, DEV, I, P, SI

Total Plastics 1935
Kalamazoo, MI 49004
Phone: 269-553-5848
Web: www.totalplastics.com
Product Codes: BB, DEV, I, O, P, SI

Townsend Design 3243
Bakersfield, CA 93313
Phone: 661-837-1795
Web: www.townsenddesign.com
Product Codes: O, REHB

T REX REHAB 6022
Southampton, NJ 08088
Phone: 609-257-3542
Web: www.kaisermedicalinc.com
Product Codes: DEV, FRST, REHB

Triangle 661
Upper Saddle River, NJ 07458
Phone: 508-944-0371
Web: www.trianglemfg.com
Product Codes: I, SI

Trice Medical 5025
King of Prussia, PA 19406
Phone: 610-989-8080
Web: www.tricemedical.com
Product Codes: AS, DEV, DI, FRST, ING

Trinity Orthopedics 4365
San Diego, CA 92121
Phone: 303-601-1047
Web: www.trinity-ortho.com
Product Codes: BNE, BB

True Tool Innovations 6846
Claremont, NH 03743
Phone: 603-287-8460
Web: www.truetoolinnovations.com
Product Codes: BNE, BB

TST R Tibbi Aletler San. Ve Tic. Ltd. Sti. 667
Pendik, Istanbul, 34912
Turkey
Phone: 90 533126791
Web: www.tstsan.com
Product Codes: FRST, I, P, SI

Tsunami S.r.L. 6646
Medolla, 41036
Italy
Phone: 39 53538397
Web: www.tsunamimedical.it
Product Codes: BNE, DEV, FRST, I, MRI, P

Tyx Consulting 4513
Sherman Oaks, CA 91403
Phone: 818-933-2641
Web: www.tyxconsulting.com
Product Codes: PH

UCSF/SFGH Orthopaedic Trauma Institute 5065
San Francisco, CA 94110
Phone: 415-999-9123
Web: www.orthotrauma.com
Product Codes: BNE, BB, EDU, P

UltraComfort America 775
Old Forge, PA 18518
Phone: 570-301-8033
Product Codes: BB, DEV, FRST, OTH

Union Surgical, LLC 3413
Philadelphia, PA 19107
Phone: 215-521-3004
Web: www.unionsurgical.com
Product Codes: I, SI

United Endoscopy 5425
Corona, CA 92879
Phone: 951-270-3400
Web: www.endoscopy.com
Product Codes: AS, DI, MS, SURG, SI

United Orthopedic Corporation 4261
Taipei, 23452
Taiwan
Phone: 886 229294567
Web: www.uoc.com.tw
Product Codes: I, P, SI

US Medical Innovations 4661
Takoma Park, MD 20912
Phone: 301-270-0147
Web: www.usmedinnovations.com
Product Codes: SURG, SI

US Orthopedics, Inc. 1219
Pompano Beach, CA 33060
Phone: 415-670-0788
Web: www.usorthopedic.com
Product Codes: DEV, I, SI

Velocity Orthopedics, Inc. 3119
Rancho Cucamonga, CA 91730
Phone: 909-987-4343
Web: www.velocityorthopedics.com
Product Codes: AS, DEV, SI

Venel 4809
Omaha, NE 68138
Phone: 402-889-5435
Web: www.venel.com
Product Codes: EDU, MKT, OTH

Via Christi Health 4411
Wichita, KS 67214
Phone: 316-268-8102
Web: www.viachristihealth.org
Product Codes: FRST, PR

Vilex, Inc. 4031
Mc Minnville, TN 37110
Phone: 800-521-5002
Web: www.vilex.com
Product Codes: BNE, DEV, I, SURG, SI

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COMPANY | BOOTH NO.
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Alpha Listings | 5324
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### W

**COMPANY** | **BOOTH NO.** | **COMPANY** | **BOOTH NO.** | **COMPANY** | **BOOTH NO.**
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**VirtaMed AG** | 3608 | **White Plume** | 4004 | **Wolters Kluwer Health** | 1864
Schlieren, Zuerich, 8952 | | Birmingham, AL 35209 | | Philadelphia, PA 19103 |
Switzerland | | Phone: 205-871-3833 | | Phone: 612-259-8114 |
Phone: 41 44 500 96 90 | | Web: www.whiteplume.com | | Web: www.wjw.com |
Web: www.virtamed.com | | Product Codes: COM, FRST | | Product Codes: PUB |
Product Codes: AM, BB, COM, EDU | | |

**VisionScope Technologies** | 5129 |
Littleton, MA 01460 |
Phone: 978-961-0961 |
Web: www.myvsi.com |
Product Codes: AS, DI |

**Vivorte, Inc.** | 6835 |
Louisville, KY 40204 |
Phone: 502-714-7234 |
Web: www.vivorte.com |
Product Codes: I, T |

**Vomaris Wound Care, Inc.** | 6267 |
Tempe, AZ 85281 |
Phone: 480-921-4948 |
Web: www.procellera.com |
Product Codes: BNE, MS, OTH |

**VQ OrthoCare** | 3250 |
Irvine, CA 92614 |
Phone: 949-261-3814 |
Web: www.vqorthocare.com |
Product Codes: ADVA, BLD, BNE, DEV, EDU, MS, O, REHB, SG |

**VSMPO-Tirus, US** | 6850 |
Leesdale, PA 15056 |
Phone: 724-251-9400 |
Web: www.vsmpo-tirus.com |
Product Codes: BB, I |

**Waldemar Link GmbH & Co. KG** | 1231 |
Hamburg, 22339 |
Germany |
Phone: 49 40539950 |
Web: www.linkhh.de |
Product Codes: DEV, I, P, SI |

**Weigao Orthopaedic Device Co., Ltd.** | 2514 |
Weihai City, Shandong 264203 |
China |
Phone: 86 06315788927 |
Web: www.en.wegortho.com |
Product Codes: BB, I, SI |

**Westlake Plastics** | 1443 |
Lenni, PA 19052-0127 |
Phone: 610-459-1000 |
Web: www.westlakepolymers.com |
Product Codes: BB |

**Whale Imaging** | 229 |
Beijing |
China |
Phone: 81 61412121292 |
Web: www.whaleimaging.com |
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The Physicians Video Studio
UCSF/SFGH Orthopaedic Trauma Institute
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VQ OrthoCare
Your Practice Online, LLC
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Aprima Medical Software
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<td>CoorsTek Medical</td>
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<td>Core Essence Orthopaedics Inc.</td>
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<td>Hans Biomed USA, Inc.</td>
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<td>IHH Ionbond Inc.</td>
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<td>Joined Orthopaedic Innovators</td>
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<td>LifeLink Tissue Bank</td>
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<td>LifeNet Health</td>
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<td>MedCare, Inc.</td>
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<td>Medmix Systems AG</td>
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<td>NuTech</td>
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<tr>
<td>Osiris Therapeutics, Inc.</td>
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<td>Research for Life, LLC</td>
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<td>Science Care</td>
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© 2015 American Academy of Orthopaedic Surgeons
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<td>Tenex Health, Inc. .................................. 2564</td>
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<td>THI - Total Healthcare Innovation GmbH .......... 1265</td>
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<td>Vivorte, Inc ........................................ 6835</td>
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<td>Wright Medical Technology ......................... 3425</td>
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<td>Quantum Medical Imaging ............................ 5038</td>
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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 361, 6422, and 6456**
  - **Wednesday and Thursday:** 3:30 – 4:00 PM
  - **Friday:** 10:00 – 10:30 AM
About our Members and Volunteers
## AAOS Committee Meetings

**All events will take place at the Venetian/Sands EXPO.**

### AAOS NOW Forum on Business of Orthopaedics
- **Educational Meeting**
  - Monday, March 23
  - 12:00 PM - 5:00 PM
  - Room 701

### AAOS Women's Health Issues Advisory Board
- **Luncheon**
  - Wednesday, March 25
  - 12:00 PM - 3:30 PM
  - Room 507

### AAOS/OTA Hip Fracture Simulator Project Team Meeting
- **Business Meeting**
  - Friday, March 27
  - 3:30 PM - 5:00 PM
  - Room 507

### Advocacy Resources Committee
- **Business Meeting**
  - Wednesday, March 25
  - 4:00 PM - 5:00 PM
  - Room 705

### Ambassadors/Capitol Club
- **Luncheon**
  - Friday, March 27
  - 11:30 AM - 1:00 PM
  - Palazzo Ballroom C

### Annual Meeting Committee
- **Breakfast Meeting**
  - Saturday, March 28
  - 6:15 AM - 7:30 AM
  - Room 4601

### Biological Implants Committee
- **Breakfast Meeting**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 603

### Biomedical Engineering Committee
- **Breakfast Meeting**
  - Friday, March 27
  - 6:00 AM - 8:00 AM
  - Room 603

### Board of Councilors Economic Issues Committee
- **Business Meeting**
  - Thursday, March 26
  - 2:00 PM - 4:00 PM
  - Room 503

### Board of Specialty Societies
- **Communications Committee**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 802

- **Education Committee**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 701

- **Fellowship Match**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 503

- **Oversight Committee**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 503

- **Health Policy Committee**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 505

- **Research Committee**
  - Thursday, March 26
  - 6:00 AM - 8:00 AM
  - Room 606

- **Special Forum - ACGME Fellowship Overview**
  - Thursday, March 26
  - 5:00 PM - 6:00 PM
  - Room 601

- **Business Meeting**
  - Friday, March 27
  - 6:00 AM - 8:00 AM
  - Palazzo Ballroom E

### Candidate, Resident and Fellow Committee
- **Breakfast Meeting**
  - Thursday, March 26
  - 6:30 AM - 8:30 AM
  - Room 703

### Central Evaluation Committee
- **Luncheon**
  - Thursday, March 26
  - 12:00 PM - 1:30 PM
  - Room 601

### Central Instructional Course Committee
- **Breakfast Meeting**
  - Saturday, March 28
  - 7:30 AM - 9:00 AM
  - Room 4609

### Communications Cabinet
- **Business Meeting**
  - Thursday, March 26
  - 2:00 PM - 4:00 PM
  - Palazzo Ballroom D

### CSMP & TeamSTEPPS Group
- **Business Meeting**
  - Friday, March 27
  - 8:00 AM - 9:00 AM
  - Room 601

### Diversity Advisory Board
- **Business Meeting**
  - Thursday, March 26
  - 3:30 PM - 6:00 PM
  - Room 806

### Committee on Evidence Based Quality and Value
- **EBQV Volunteer Appreciation and Networking Reception**
  - Thursday, March 26
  - 11:00 AM - 2:00 PM
  - Room 804

### Evaluation Committees (OSIE)
- **Business Meeting**
  - Friday, March 27
  - 12:00 PM - 1:30 PM
  - Room 601

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All events will take place at the Venetian/Sands EXPO.

**Evaluation Leadership**
Meeting & Luncheon
Wednesday, March 25
11:30 AM - 12:30 PM
Room 601

**Evaluation New Member Orientation and Item Writing Workshop**
Meeting
Wednesday, March 25
1:00 PM - 4:00 PM
Room 601

**Evaluation Work Sessions**
Meeting
Friday, March 25
1:30 PM - 4:00 PM
Room 601

**Exhibits Committee**
Business Meeting
Tuesday, March 24
4:00 PM - 6:00 PM
Room 4601

Breakfast Meeting
Wednesday, March 25
7:00 AM - 9:00 AM
Room 4601

**Exhibitors Advisory Council**
Luncheon
Friday, March 27
11:30 AM - 1:30 PM
Room 4601

**HRET Meeting**
Luncheon
Friday, March 27
12:00 PM - 1:00 PM
Room 507

**International Committee**
Business Meeting
Thursday, March 26
12:00 PM - 2:00 PM
Room 705

**International Presidents Breakfast and World Opinion Forum**
Breakfast Meeting
Wednesday, March 25
7:30 AM - 9:00 AM
Palazzo Ballroom M

**JAAOS Deputy Editors Breakfast Meeting**
Breakfast Meeting
Friday, March 27
7:00 AM - 9:00 AM
Room 501

**Leadership Development Committee**
Luncheon
Friday, March 27
12:00 PM - 2:00 PM
Room 801

**Leadership Fellows Program**
Graduation & Orientation
Friday, March 27
6:00 AM - 8:00 AM
Room 806

Reception
Friday, March 27
6:00 PM - 7:00 PM
Palazzo Ballroom F

**Medical Liability Committee**
Meeting
Wednesday, March 25
2:00 PM - 4:00 PM
Room 801

**Membership Committee**
Breakfast Meeting
Thursday, March 26
8:00 AM - 10:00 AM
Room 801

**OrthInfo Editorial Board**
Breakfast Meeting
Wednesday, March 25
9:00 AM - 11:00 AM
Room 501

**Orthopaedic Learning Center**
Board of Directors Meeting
Friday, March 27
6:30 AM - 8:30 AM
Room 4601

**Orthopaedic Learning Center Members**
Business Meeting
Thursday, March 26
6:30 AM - 7:30 AM
Room 507

**PAC Luncheon**
Luncheon
Wednesday, March 25
11:30 AM - 1:30 PM
Palazzo Ballroom M

**Patient Education Committee**
Breakfast Meeting
Thursday, March 26
7:00 AM - 9:00 AM
Room 501

**Patient Safety Committee**
Breakfast Meeting
Wednesday, March 25
6:00 AM - 8:00 AM
Room 501

**Periodicals Reception**
Reception
Friday, March 27
6:00 PM - 8:00 PM
Room 804

**Practice Management**
Committee Meeting
Wednesday, March 25
8:00 AM - 10:30 AM
Room 505
All events will take place at the Venetian/Sands EXPO.

### Program Committees

**Committee Meeting**  
Wednesday, March 25  
7:00 AM - 7:50 AM  
Room 4609

### State Societies Executive Directors

**Luncheon**  
Friday, March 27  
11:30 AM - 1:30 PM  
Room 305

### Affiliate Committee Meeting Hotels

<table>
<thead>
<tr>
<th>Hotel</th>
<th>Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bally's Las Vegas</td>
<td>3645 Las Vegas Boulevard</td>
<td>(877) 603-4390</td>
</tr>
<tr>
<td>Bellagio</td>
<td>3600 Las Vegas Boulevard</td>
<td>(888) 987-6667</td>
</tr>
<tr>
<td>Caesars Palace</td>
<td>3570 Las Vegas Boulevard</td>
<td>(866) 227-5938</td>
</tr>
<tr>
<td>The Cosmopolitan of Las Vegas</td>
<td>3708 Las Vegas Boulevard</td>
<td>(702) 698-7000</td>
</tr>
<tr>
<td>Harrah's</td>
<td>3475 Las Vegas Boulevard</td>
<td>(800) 214-9110</td>
</tr>
<tr>
<td>The Mandarin Oriental</td>
<td>3752 Las Vegas Boulevard</td>
<td>(702) 590-8888</td>
</tr>
<tr>
<td>The Mirage Casino-Hotel</td>
<td>3400 Las Vegas Boulevard</td>
<td>(702) 791-7111</td>
</tr>
<tr>
<td>Paris Las Vegas</td>
<td>3655 Las Vegas Boulevard</td>
<td>(877) 796-2096</td>
</tr>
<tr>
<td>Planet Hollywood</td>
<td>3667 Las Vegas Boulevard</td>
<td>(866) 919-7472</td>
</tr>
<tr>
<td>The Venetian</td>
<td>The Palazzo</td>
<td>3355 Las Vegas Boulevard</td>
</tr>
<tr>
<td>Wynn</td>
<td>Encore</td>
<td>3131 Las Vegas Boulevard</td>
</tr>
</tbody>
</table>
All events will take place at the Venetian/Sands EXPO unless noted otherwise.

**Abbott Society**

Alumni Reception  
Thursday, March 26  
6:00 - 9:00 PM  
Caesars Palace, Florentine I

**Allegheny General Hospital**

Alumni Reception  
Friday, March 27  
6:00 - 9:00 PM  
Bally’s Las Vegas, Palace 2

**American Association of Hip and Knee Surgeons (AAHKS)**

AAHKS/JOA Editorial Meeting  
Wednesday, March 25  
3:30 - 5:30 PM  
Room 4609

Board of Directors Meeting  
Wednesday, March 25  
5:30 - 8:00 PM  
Palazzo Ballroom G

Industry Breakfast  
Thursday, March 26  
6:00 - 8:00 AM  
Room 902

Membership Committee  
Thursday, March 26  
7:00 - 8:00 AM  
Room 4804

International Committee  
Friday, March 27  
6:30 - 8:00 AM  
Room 1004

Communication Committee  
Saturday, March 28  
12:00 - 1:00 PM  
Room 902

**American Association of Latino Orthopaedic Surgeons**

Alumni Luncheon  
Friday, March 27  
12:00 – 2:00 PM  
Wynn Las Vegas, Lafleur Room

**American Orthopaedic Association (AOA)**

Officer’s Meeting  
Tuesday, March 24  
3:00 - 4:00 PM  
Room 2803

Own the Bone Steering Committee Meeting  
Tuesday, March 24  
4:00 - 6:30 PM  
Room 4701

Surgical Skills Task Force  
Wednesday, March 25  
7:00 - 8:00 AM  
Room 2803

Development Committee Meeting  
Wednesday, March 25  
8:00 - 10:00 AM  
Room 2804

CORD Accreditation & Compliance Committee  
Wednesday, March 25  
8:30 - 10:00 AM  
Room 4701

CORD Education Committee  
Wednesday, March 25  
10:30 AM - 12:30 PM  
Room 905

Membership Committee  
Wednesday, March 25  
12:30 - 2:00 PM  
Room 2804

Fellowships Coordinating Committee  
Wednesday, March 25  
2:00 PM - 3:00 PM  
Room 2803

Finance and Investment Committees  
Wednesday, March 25  
2:00 - 3:00 PM  
Room 907

Finance Committee  
Wednesday, March 25  
3:00 - 4:00 PM  
Room 907

OMeGA Board/RC  
Wednesday, March 25  
4:00 - 6:00 PM  
Room 2803

Young Leaders Committee  
Wednesday, March 25  
4:00 - 5:30 PM  
Room 2804

Nominating Committee  
Wednesday, March 25  
4:00 - 6:00 PM  
Room 4805

Fellowships Alumni Reception  
Wednesday, March 25  
6:00 - 7:00 PM  
Room 1001

Critical Issues Committee  
Thursday, March 26  
11:00 AM - 2:00 PM  
Room 1004

Leadership Development Committee  
Thursday, March 26  
2:00 - 3:30 PM  
Room 2804

CORD Governing Committee  
Thursday, March 26  
3:30 - 5:30 PM  
Room 2803

Academic Leadership Committee  
Thursday, March 26  
5:30 - 7:00 PM  
Room 1004

CORD Conference  
Friday, March 27  
7:00 - 10:00 AM  
Palazzo Ballroom G
All events will take place at the Venetian/Sands EXPO unless noted otherwise.

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<tr>
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<th>Date/Time</th>
<th>Room</th>
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<tbody>
<tr>
<td>Executive Committee</td>
<td>Friday, March 27 10:30 AM - 1:00 PM</td>
<td>Room 1004</td>
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<tr>
<td>OMeGA Board Meeting</td>
<td>Friday, March 27 1:00 - 3:00 PM</td>
<td>Room 2804</td>
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<tr>
<td>American Orthopaedic Foot &amp; Ankle Society (AOFAS)</td>
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<tr>
<td>IFFAS Council Luncheon</td>
<td>Thursday, March 26 12:00 - 1:30 PM</td>
<td>Room 1006</td>
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<tr>
<td>OFAR Managerial Board/VTED Study</td>
<td>Thursday, March 26 1:30 - 3:30 PM</td>
<td>Room 1006</td>
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<td>Research Committee</td>
<td>Thursday, March 26 3:30 - 4:30 PM</td>
<td>Room 1006</td>
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<tr>
<td>FAI Managerial Board</td>
<td>Thursday, March 26 4:30 - 5:30 PM</td>
<td>Room 1006</td>
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<tr>
<td>Awards &amp; Scholarships Committee</td>
<td>Friday, March 27 7:00 - 8:00 AM</td>
<td>Room 905</td>
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<td>FAI Reviewers</td>
<td>Friday, March 27 7:00 - 8:00 AM</td>
<td>Room 1006</td>
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<td>Young Physicians Committee</td>
<td>Friday, March 27 8:30 - 9:30 AM</td>
<td>Room 905</td>
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<td>Education Committee</td>
<td>Friday, March 27 8:30 - 10:00 AM</td>
<td>Room 1006</td>
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<tr>
<td>Post Graduate Education &amp; Training Committee</td>
<td>Friday, March 27 10:00 - 11:00 AM</td>
<td>Room 905</td>
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<td>CPT/RUC Committee</td>
<td>Friday, March 27 10:00 - 11:15 AM</td>
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<td>Public Education Committee/Luncheon</td>
<td>Friday, March 27 12:00 - 1:00 PM</td>
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<td>Evidence Based Medicine Committee</td>
<td>Friday, March 27 1:00 - 2:00 PM</td>
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<td>Humanitarian Services Committee/Luncheon</td>
<td>Friday, March 27 1:00 - 2:15 PM</td>
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<td>Membership Committee</td>
<td>Friday, March 27 2:30 - 3:30 PM</td>
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<td>Health Policy Committee</td>
<td>Friday, March 27 2:30 - 3:30 PM</td>
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<tr>
<td>Board of Directors</td>
<td>Friday, March 27 4:00 - 5:15 PM</td>
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<td>Member Reception</td>
<td>Saturday, March 28 5:00 - 7:00 PM</td>
<td>Palazzo Ballroom E</td>
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<td>Ortho Foot &amp; Ankle Foundation Board</td>
<td>Friday, March 27 5:15 - 6:00 PM</td>
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<tr>
<td>Foot &amp; Ankle Fellowship Directors Meeting</td>
<td>Saturday, March 28 6:00 - 7:00 AM</td>
<td>Room 4709</td>
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<tr>
<td>American Orthopaedic Society for Sports Medicine (AOSSM)</td>
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<td>Corporate Relations Committee</td>
<td>Thursday, March 26 6:30 - 7:30 AM</td>
<td>Room 4805</td>
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<tr>
<td>Education &amp; Industry Relations Committee</td>
<td>Thursday, March 26 12:00 - 1:00 PM</td>
<td>Room 3805</td>
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<td>Education Committee Meeting</td>
<td>Thursday, March 26 2:00 - 4:00 PM</td>
<td>Room 4709</td>
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<td>PICME Committee Meeting</td>
<td>Friday, March 27 7:00 - 8:00 AM</td>
<td>Room 4805</td>
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<td>OKO Committee Meeting</td>
<td>Friday, March 27 8:30 - 9:30 AM</td>
<td>Room 4803</td>
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<tr>
<td>Fellowship Match Committee</td>
<td>Friday, March 27 9:00 - 10:00 AM</td>
<td>Room 1003</td>
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<tr>
<td>Team Physician Committee Meeting</td>
<td>Friday, March 27 9:00 - 10:00 AM</td>
<td>Room 3803</td>
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<tr>
<td>Fellowship Committee</td>
<td>Friday, March 27 10:30 - 11:30 AM</td>
<td>Room 3803</td>
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</table>
## All events will take place at the Venetian/Sands EXPO unless noted otherwise.

### Nominating Committee Meeting
- **Friday, March 27**
- **10:30 AM - 12:00 PM**
- **Room 4804**

### Council of Delegates
- **Friday, March 27**
- **12:00 - 1:30 PM**
- **Room Palazzo Ballroom E**

### Hall of Fame Committee Meeting
- **Friday, March 27**
- **12:00 - 1:30 PM**
- **Room 3803**

### Fellowship Directors Meeting
- **Friday, March 27**
- **12:00 - 1:30 PM**
- **Room 4103**

### OJSM Editorial Board Meeting
- **Friday, March 27**
- **12:00 - 1:30 PM**
- **Room 4709**

### Research Committee Meeting
- **Friday, March 27**
- **12:00 - 2:00 PM**
- **Room 4609**

### Enduring Education Committee Meeting
- **Friday, March 27**
- **12:00 - 1:30 PM**
- **Room 4805**

### American Shoulder and Elbow Surgeons (ASES)
- **JSES Board of Trustees Meeting**
  - **Friday, March 27**
  - **10:00 AM - 12:30 PM**
  - **Room 3804**

### Executive Committee Meeting
- **Friday, March 27**
- **12:30 - 4:00 PM**
- **Room 3804**

### American Sports Medicine Fellowship Society
- **Alumni Reception**
  - **Friday, March 27**
  - **6:00 - 8:00 PM**
  - **Harrah’s Las Vegas, Studio 1**

### Andrews Institute
- **Alumni Reception**
  - **Friday, March 27**
  - **6:00 - 8:00 PM**
  - **Harrah’s Las Vegas, Studio 1**

### Arthroscopy Association of North America (AANA)
- **AANA/ISAKOS**
  - **Thursday, March 26**
  - **12:00 - 2:00 PM**
  - **Room 4701**

### Archives Committee
- **Friday, March 27**
- **12:00 - 1:00 PM**
- **Room 4803**

### MOC Task Force
- **Friday, March 27**
- **3:00 - 5:00 PM**
- **Room 4803**

### Association of Bone and Joint Surgeons (ABJS)
- **CORR Editorial Advisory Board Meeting**
  - **Wednesday, March 25**
  - **7:00 - 8:00 AM**
  - **Room 4709**

### CORR Publishers Meeting
- **Wednesday, March 25**
- **8:30 - 11:30 AM**
- **Room 4805**

### CORR Board of Trustees Meeting
- **Wednesday, March 25**
- **11:30 AM - 2:30 PM**
- **Room 4805**

### Executive Committee
- **Thursday, March 26**
- **1:30 - 4:30 PM**
- **Room 4803**

### ABJS/CORR Reception
- **Friday, March 27**
- **7:00 - 10:00 PM**
- **La Tache Room, Wynn Las Vegas**

### Association of Residency Coordinators in Orthopaedic Surgery (ARCOS)
- **TAGME Certification**
  - **Tuesday, March 24**
  - **8:00 AM - 1:00 PM**
  - **Paris Las Vegas, Versailles 1**

### Reception
- **Tuesday, March 24**
- **6:00 - 9:00 PM**
- **Paris Las Vegas, Versailles 1**

### Breakfast & Lunch
- **Wednesday, March 25**
- **7:00 AM - 3:00 PM**
- **Paris Las Vegas, Champaign 1**

### Meeting
- **Wednesday, March 25**
- **7:00 AM - 5:00 PM**
- **Paris Las Vegas, Champaign 2**

### Breakfast & Lunch
- **Thursday, March 26**
- **7:00 AM - 3:00 PM**
- **Paris Las Vegas, Champaign 1**

### Meeting
- **Thursday, March 26**
- **7:00 AM - 5:00 PM**
- **Paris Las Vegas, Champaign 2**

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All events will take place at the Venetian/Sands EXPO unless noted otherwise.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Association of VA Orthopedic Surgeons</td>
<td>Thursday, March 26</td>
<td>12:00 - 2:00 PM</td>
<td>Paris Las Vegas, Champagne 4</td>
</tr>
<tr>
<td>Balboa Naval Hospital San Diego</td>
<td>Friday, March 27</td>
<td>6:30 - 9:00 PM</td>
<td>Bally's Las Vegas, Palace 7</td>
</tr>
<tr>
<td>Baylor College of Medicine</td>
<td>Thursday, March 26</td>
<td>6:00 - 7:30 PM</td>
<td>TAO Asian Bistro, Lounge 1, 3377 Las Vegas Blvd South, Suite 2025</td>
</tr>
<tr>
<td>Beaumont Health System</td>
<td>Friday, March 27</td>
<td>6:00 - 9:00 PM</td>
<td>Wynn Hotel, South Show Terrace</td>
</tr>
<tr>
<td>Boston University Orthopaedic Surgical Associates, Inc.</td>
<td>Thursday, March 26</td>
<td>6:00 - 9:00 PM</td>
<td>Bally’s Las Vegas, Palace 1</td>
</tr>
<tr>
<td>Brown University</td>
<td>Thursday, March 26</td>
<td>7:00 - 9:00 PM</td>
<td>Caesars Palace, Consul Boardroom</td>
</tr>
<tr>
<td>Brown University/Rhode Island Hospital</td>
<td>Thursday, March 26</td>
<td>6:00 - 9:00 PM</td>
<td>Zeffirino Restaurant, #2095, VIP Room, 3377 Las Vegas Blvd</td>
</tr>
<tr>
<td>California Orthopaedic Association</td>
<td>Thursday, March 26</td>
<td>6:00 - 9:00 PM</td>
<td>Bally’s Las Vegas, Skyview 5</td>
</tr>
<tr>
<td>Carolinas Medical Center - Orthopaedic Surgery Residency Alumni</td>
<td>Friday, March 27</td>
<td>7:00 - 9:00 PM</td>
<td>Caesars Palace, Florentine 1</td>
</tr>
<tr>
<td>Cervical Spine Research Society (CSRS)</td>
<td>Friday, March 27</td>
<td>7:00 AM - 12:00 PM</td>
<td>Room 2606</td>
</tr>
<tr>
<td>Charles R. Drew University</td>
<td>Friday, March 27</td>
<td>6:00 - 8:00 PM</td>
<td>Bally’s Las Vegas, Palace 4</td>
</tr>
<tr>
<td>Cleveland Clinic</td>
<td>Thursday, March 26</td>
<td>6:30 - 8:30 PM</td>
<td>Bally’s Las Vegas, Palace 2</td>
</tr>
<tr>
<td>Columbus Orthopaedic Society</td>
<td>Thursday, March 26</td>
<td>6:00 - 8:00 PM</td>
<td>Planet Hollywood, Melrose 2</td>
</tr>
<tr>
<td>Drexel University</td>
<td>Thursday, March 26</td>
<td>6:00 - 7:30 PM</td>
<td>Harrah’s Las Vegas, Laughlin Room</td>
</tr>
<tr>
<td>Einstein Montefiore Orthopaedic Alumni Association</td>
<td>Thursday, March 26</td>
<td>6:00 - 9:00 PM</td>
<td>Caesars Palace, Roman 1</td>
</tr>
<tr>
<td>Emory Orthopaedics, Kelly Society</td>
<td>Friday, March 27</td>
<td>6:00 - 8:00 PM</td>
<td>Harrah’s Las Vegas, Studio 2</td>
</tr>
<tr>
<td>Federation of Spine Associations (FOSA)</td>
<td>Saturday, March 28</td>
<td>6:00 - 8:00 AM</td>
<td>Room 2803</td>
</tr>
<tr>
<td>Freiberg Society</td>
<td>Thursday, March 26</td>
<td>6:30 - 9:00 PM</td>
<td>Paris Las Vegas, Chablis Room</td>
</tr>
<tr>
<td>George Washington University Orthopaedic Surgery</td>
<td>Friday, March 27</td>
<td>6:30 - 8:30 PM</td>
<td>Caesars Palace, Pompeian 1</td>
</tr>
</tbody>
</table>

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## AAOS Affiliate & Alumni Meetings

All events will take place at the Venetian/Sands EXPO unless noted otherwise.

### Girdlestone Orthopaedic Society
- **Reception**
  - Thursday, March 26
  - 6:00 - 8:00 PM
  - Wynn Las Vegas

### Henry Ford Hospital Orthopaedic Surgery
- **Alumni Reception**
  - Friday, March 27
  - 6:00 - 8:00 PM
  - Carmine's Italian Restaurant (Rotondo Room), The Forum Shops at Caesars Palace

### Hip Society
- **Fellowship & Mentorship Committee**
  - Wednesday, March 25
  - 9:00 - 10:00 AM
  - Room 902
- **Board of Directors Meeting**
  - Thursday, March 26
  - 6:00 - 7:30 AM
  - Room 1004

### Hospital for Joint Diseases, NYU Langone Medical Center
- **Alumni Reception**
  - Friday, March 27
  - 6:00 - 9:00 PM
  - Caesars Palace, Pompeian III-IV

### Hospital for Special Surgery
- **Alumni Luncheon**
  - Thursday, March 26
  - 11:30 AM - 1:30 PM
  - Venetian Restaurant Row, AquaKnox, Aqua Room
- **Alumni Luncheon**
  - Friday, March 27
  - 11:30 AM - 1:30 PM
  - Venetian Restaurant Row, AquaKnox, Aqua Room
- **Alumni Reception**
  - Friday, March 27
  - 6:00 - 8:00 PM
  - Wynn Las Vegas, Sunset Terrace

### Indiana University Alumni Association
- **Orthopaedic Reception**
  - Thursday, March 26
  - 6:00 - 8:00 PM
  - Bally's Las Vegas, Las Vegas 1

### International Geriatric Fracture Society
- **Breakfast**
  - Friday, March 27
  - 6:30 - 8:00 AM
  - Harrah's Las Vegas, Studio 4

### International Society for Technology in Arthroplasty
- **Board of Directors Meeting**
  - Wednesday, March 25
  - 4:00 - 6:00 PM
  - Harrah's Las Vegas, Studio 1

### International Society of Arthroplasty Registries
- **Steering Committee Meeting**
  - Thursday, March 26
  - 4:30 - 6:00 PM
  - Bally's Las Vegas, Skyview 3

### Irish-American Orthopaedic Association
- **Reception**
  - Friday, March 27
  - 6:30 - 9:30 PM
  - Bally's Las Vegas, Las Vegas 2

### J. Robert Gladden Orthopaedic Society (JRGOS)
- **Board of Directors Meeting**
  - Thursday, March 26
  - 6:00 AM - 10:00 AM
  - Room 4609
- **Annual Luncheon**
  - Thursday, March 26
  - 12:30 - 2:30 PM
  - Palazzo Ballroom G
- **Medical Student Mentoring Program**
  - Thursday, March 26
  - 3:30 - 6:00 PM
  - Room 1003
- **Medical Student Networking Reception**
  - Thursday, March 26
  - 6:00 - 7:30 PM
  - Room 1001
- **Trilogy Breakfast**
  - Friday, March 27
  - 7:00 - 8:00 AM
  - Room 4701

### Johns Hopkins
- **Alumni Reception**
  - Thursday, March 26
  - 6:00 - 8:30 PM
  - Planet Hollywood, Melrose 4

### Knee Society
- **Executive Board Meeting**
  - Friday, March 27
  - 6:00 - 7:30 AM
  - Room 4609

### Lenox Hill Hospital
- **Alumni Reception**
  - Thursday, March 26
  - 6:00 - 8:00 PM
  - Planet Hollywood, Melrose 1

### Limb Lengthening and Reconstruction Society (LLRS)
- **Executive Board Meeting**
  - Thursday, March 26
  - 6:00 - 9:00 PM
  - Room 4701

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All events will take place at the Venetian/Sands EXPO unless noted otherwise.

<table>
<thead>
<tr>
<th>Event Name</th>
<th>Reception Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loma Linda University</td>
<td>Thursday, March 26 6:00 - 8:30 PM Harrah's Las Vegas, Studio 1</td>
</tr>
<tr>
<td>Long Island Jewish Medical Center</td>
<td>Friday, March 27 6:00 - 7:30 PM Caesars Palace, Verona</td>
</tr>
<tr>
<td>Louisiana State University - New Orleans</td>
<td>Wednesday, March 25 6:00 - 8:30 PM Caesars Palace, Pompeian III</td>
</tr>
<tr>
<td>Loyola University Medical Center - Sofield</td>
<td>Friday, March 27 6:00 - 8:00 PM Harrah's Las Vegas, Laughlin Room</td>
</tr>
<tr>
<td>Mayo Clinic</td>
<td>Friday, March 27 6:00 - 9:00 PM Paris, Champagne 4</td>
</tr>
<tr>
<td>Medical College of Virginia</td>
<td>Thursday, March 26 6:00 - 8:00 PM Harrah's Las Vegas, Elko</td>
</tr>
<tr>
<td>Medical College of Wisconsin</td>
<td>Friday, March 27 6:00 - 8:00 PM Encore Las Vegas</td>
</tr>
<tr>
<td>Medical University of South Carolina</td>
<td>Friday, March 27 7:00 - 10:00 PM Caesars Palace, Genoa</td>
</tr>
<tr>
<td>Meniscus Transplantation Study Group</td>
<td>Friday, March 27 12:00 - 2:00 PM Harrah's Las Vegas, Laughlin Room</td>
</tr>
<tr>
<td>Mount Sinai Orthopaedics</td>
<td>Thursday, March 26 6:30 - 8:30 PM Caesars Palace, Messina</td>
</tr>
<tr>
<td>Mt. Sinai Medical Center (Cleveland)</td>
<td>Thursday, March 26 6:00 - 9:00 PM Wynn Las Vegas</td>
</tr>
<tr>
<td>Musculoskeletal Tumor Society (MSTS)</td>
<td>Friday, March 27 1:00 - 4:30 PM Room 4804</td>
</tr>
<tr>
<td>Naval Medical Center Portsmouth</td>
<td>Thursday, March 26 6:00 - 8:00 PM Caesars Palace, Pisa</td>
</tr>
<tr>
<td>New York Medical College</td>
<td>Thursday, March 26 6:00 - 8:00 PM Carnevino Restaurant (Barbaresco Room) at the Palazzo Hotel</td>
</tr>
<tr>
<td>Northwestern University Orthopaedic Alumni</td>
<td>Thursday, March 26 6:30 - 8:30 PM Bally's Las Vegas, Palace 3</td>
</tr>
<tr>
<td>Nth Dimensions</td>
<td>Wednesday, March 25 7:00 -10:00 PM Caesars Palace, Pompeian I</td>
</tr>
<tr>
<td>NYOH Alumni Association / Columbia Orthopedics</td>
<td>Friday, March 27 6:00 - 9:00 PM Caesars Palace, Florentine 4</td>
</tr>
<tr>
<td>Ochsner Health System</td>
<td>Friday, March 27 6:00 - 8:00 PM Caesars Palace, Turin</td>
</tr>
<tr>
<td>Ohio State University Orthopaedic Alumni</td>
<td>Thursday, March 26 6:00 - 8:00 PM Planet Hollywood, Melrose 2</td>
</tr>
<tr>
<td>Orthopaedic Laser Society of North America</td>
<td>Thursday, March 26 6:00 - 7:30 AM Caesars Palace, Consul Boardroom</td>
</tr>
<tr>
<td>Orthopaedic Trauma Association (OTA)</td>
<td>Wednesday, March 25 12:00 - 2:00 PM Room 4701</td>
</tr>
</tbody>
</table>

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### AAOS Affiliate & Alumni Meetings

All events will take place at the Venetian/Sands EXPO unless noted otherwise.

<table>
<thead>
<tr>
<th>Committee</th>
<th>Date/Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military Committee</td>
<td>Wednesday, March 25 7:00 - 8:00 AM</td>
<td>Room 4804</td>
</tr>
<tr>
<td>Classification &amp; Outcomes Committee</td>
<td>Wednesday, March 25 8:00 - 11:00 AM</td>
<td>Room 4803</td>
</tr>
<tr>
<td>SRI Work Group</td>
<td>Wednesday, March 25 9:00 - 10:00 AM</td>
<td>Room 4804</td>
</tr>
<tr>
<td>EBVQ Committee</td>
<td>Wednesday, March 25 2:00 - 3:30 PM</td>
<td>Room 4804</td>
</tr>
<tr>
<td>Board of Directors Meeting</td>
<td>Wednesday, March 25 6:00 - 8:00 PM</td>
<td>Palazzo Ballroom P</td>
</tr>
<tr>
<td>HWB Meeting</td>
<td>Thursday, March 26 6:00 - 8:00 AM</td>
<td>Palazzo Ballroom C</td>
</tr>
<tr>
<td>Annual Program Committee</td>
<td>Thursday, March 26 6:30 - 7:30 AM</td>
<td>Room 3804</td>
</tr>
<tr>
<td>Membership Committee</td>
<td>Thursday, March 26 6:30 - 7:30 AM</td>
<td>Room 3803</td>
</tr>
<tr>
<td>Fund Development Committee</td>
<td>Thursday, March 26 7:00 - 8:00 AM</td>
<td>Room 907</td>
</tr>
<tr>
<td>Fellowship Committee</td>
<td>Thursday, March 26 9:00 - 10:00 AM</td>
<td>Room 907</td>
</tr>
<tr>
<td>COTA Board Meeting</td>
<td>Thursday, March 26 9:00 - 11:00 AM</td>
<td>Room 3804</td>
</tr>
<tr>
<td>Fellowship Directors Meeting</td>
<td>Thursday, March 26 10:00 - 11:00 AM</td>
<td>Room 1003</td>
</tr>
<tr>
<td>Public Relations Committee</td>
<td>Thursday, March 26 12:00 - 1:00 PM</td>
<td>Room 3804</td>
</tr>
<tr>
<td>Management Preparedness Committee</td>
<td>Thursday, March 26 1:00 - 2:00 PM</td>
<td>Room 4804</td>
</tr>
<tr>
<td>Practice Management Committee</td>
<td>Thursday, March 26 2:00 - 3:00 PM</td>
<td>Room 3804</td>
</tr>
<tr>
<td>International Committee</td>
<td>Friday, March 27 8:00 - 9:00 AM</td>
<td>Room 2803</td>
</tr>
<tr>
<td>Humanitarian Committee</td>
<td>Friday, March 27 9:00 - 10:00 AM</td>
<td>Room 2804</td>
</tr>
<tr>
<td>Health Policy &amp; Planning Committee</td>
<td>Friday, March 27 12:00 - 1:00 PM</td>
<td>Room 3805</td>
</tr>
<tr>
<td>COT Meeting</td>
<td>Friday, March 27 1:00 - 2:00 PM</td>
<td>Room 2606</td>
</tr>
<tr>
<td>Basic Science Committee</td>
<td>Friday, March 27 4:00 - 5:00 PM</td>
<td>Room 3805</td>
</tr>
<tr>
<td>AO/OTA Committee</td>
<td>Saturday, March 28 9:00 - 10:00 AM</td>
<td>Room 903</td>
</tr>
<tr>
<td>Orthopaedics Overseas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Directors Meeting</td>
<td>Thursday, March 26 4:30 - 6:00 PM</td>
<td>Harrah’s Las Vegas, Ely</td>
</tr>
<tr>
<td>Luncheon</td>
<td>Friday, March 27 12:00 - 2:00 PM</td>
<td>Harrah’s Las Vegas, Reno Ballroom</td>
</tr>
<tr>
<td>Pediatric Orthopaedic Society of North America (POSNA)</td>
<td>Board of Directors Meeting Wednesday, March 25 9:00 AM - 3:00 PM</td>
<td>Room 1004</td>
</tr>
<tr>
<td>Penn State Hershey Orthopaedics &amp; Rehabilitation</td>
<td>Alumni Reception Friday, March 27 6:30 - 8:30 PM</td>
<td>Bally’s Las Vegas, Palace 6</td>
</tr>
<tr>
<td>Piedmont Orthopedic Society</td>
<td>Alumni Reception Friday, March 27 6:30 - 8:30 PM</td>
<td>Planet Hollywood, Wilshire Ballroom</td>
</tr>
<tr>
<td>Rush Orthopedic Alumni Association</td>
<td>Reception Friday, March 27 6:00 - 9:30 PM</td>
<td>Wynn Las Vegas, Petrus Room</td>
</tr>
</tbody>
</table>
All events will take place at the Venetian/Sands EXPO unless noted otherwise.

**Rutgers, New Jersey Medical School**

- **Alumni Dinner**  
  Friday, March 27  
  7:00 - 10:00 PM  
  Table 10 at the Palazzo, 2nd Level

**Rutgers, Robert Wood Johnson Medical School**

- **Alumni Reception**  
  Friday, March 27  
  6:00 - 7:30 PM  
  Canaletto Restaurant at the Venetian

**Ruth Jackson Orthopaedic Society (RJOS)**

- **Board of Directors Meeting**  
  Tuesday, March 24  
  1:00 - 4:00 PM  
  Room 4803

- **Annual Business Meeting**  
  Tuesday, March 24  
  5:00 - 9:30 PM  
  Palazzo Ballroom G

- **Perry Initiative Outreach Program**  
  Wednesday, March 25  
  4:00 - 8:00 PM  
  Palazzo Ballroom E

**Saint Louis University School of Medicine**

- **Alumni Reception**  
  Friday, March 27  
  6:00 - 9:00 PM  
  Planet Hollywood, Melrose 2

**Sandia Orthopaedic Alumni Society**

- **Alumni Reception**  
  Friday, March 27  
  6:00 - 9:30 PM  
  Paris Las Vegas, Chablis Room

**Scoliosis Research Society (SRS)**

- **2015 POSNA/SRS Kid’s Forum for Pediatric Device Development**  
  Friday, March 27  
  12:00 - 2:00 PM  
  Room 4701

**SFORP at St. Mary’s Medical Center**

- **Alumni Reception**  
  Friday, March 27  
  6:00 - 9:00 PM  
  Wynn Las Vegas, Chambertin 1

**Société Internationale de Chirurgie Orthopédique et de Traumatologie (SICOT)**

- **US Section Luncheon**  
  Friday, March 27  
  12:30 - 2:00 PM  
  Room 902

**Society of Military Orthopaedic Surgeons (SOMOS)**

- **Board of Directors Meeting**  
  Thursday, March 26  
  3:00 - 7:00 PM  
  Room 4609

- **Walter Reed Bethesda Orthopaedic Alumni Association Reception**  
  Thursday, March 26  
  6:30 - 7:00 PM  
  Palazzo Ballroom G

- **Member Reception**  
  Thursday, March 26  
  7:00 - 10:00 PM  
  Palazzo Ballroom G

**Sports Medicine & Arthroscopy Review (SMAR)**

- **Editorial Board Meeting**  
  Thursday, March 26  
  6:30 - 8:00 AM  
  Wynn Las Vegas, Raval Room

**St. Luke’s Roosevelt Orthopaedic Surgery**

- **Alumni Reception**  
  Friday, March 27  
  7:00 - 9:00 PM  
  Bally’s Las Vegas, Palace 4

**Stanford Orthopaedic Alumni**

- **Reception**  
  Thursday, March 26  
  6:30 - 9:30 PM  
  Caesars Palace, Pompeian III-IV

**State University of New York Downstate Medical Center**

- **Alumni Reception**  
  Friday, March 27  
  7:00 - 10:00 PM  
  The Mirage Casino-Hotel, Trinidad A

**Summa Health System**

- **Alumni Dinner**  
  Thursday, March 26  
  6:00 - 9:00 PM  
  Bally’s Las Vegas, Palace 7

**SUNY Stony Brook Orthopaedic Alumni Association**

- **Reception**  
  Friday, March 27  
  6:00 - 8:00 PM  
  Caesars Palace, Messina

**The Herodicus Society**

- **Reception**  
  Friday, March 27  
  6:00 - 9:00 PM  
  Bally’s Las Vegas, Skyview 4

**Tufts Medical Center / TUSM / New England Baptist Hospital**

- **Alumni Reception**  
  Friday, March 27  
  6:30 - 9:00 PM  
  Bally’s Las Vegas, Skyview 1
All events will take place at the Venetian/Sands EXPO unless noted otherwise.

**UCLA/OIC Orthopaedic Surgery Alumni Association**

Alumni Reception  
Friday, March 27  
6:00 - 8:00 PM  
Caesars Palace, Pompeian II

**University of Alabama at Birmingham**

Alumni Reception  
Thursday, March 26  
6:00 - 9:00 PM  
Renaissance Las Vegas (The Rainbow Room - 2nd Floor), 3400 Paradise Road

**University at Buffalo**

Alumni Reception  
Friday, March 27  
7:00 - 9:00 PM  
Harrah’s Las Vegas, Studio 2

**University of California, San Diego Orthopaedic Alumni Association**

Alumni Reception  
Thursday, March 26  
6:00 - 8:00 PM  
Caesars Palace, Pompeian I

**University of California San Francisco**

Alumni Reception  
Thursday, March 26  
6:00 - 9:00 PM  
Caesars Palace, Florentine I

**University of Chicago**

Alumni Reception  
Friday, March 27  
6:30 - 8:30 PM  
Bally’s Las Vegas, Las Vegas 1

**University of Cincinnati**

Alumni Reception  
Thursday, March 26  
6:30 - 9:00 PM  
Paris Las Vegas, Chablis Room

**University of Connecticut**

Alumni Reception  
Friday, March 27  
6:00 - 8:00 PM  
Planet Hollywood, Melrose 1

**University of Florida**

Alumni Reception  
Friday, March 27  
6:00 - 9:00 PM  
Hyde Restaurant at the Bellagio

**University of Illinois at Chicago Orthopaedic Alumni Association**

Reception  
Thursday, March 26  
7:00 - 9:00 PM  
Bally’s Las Vegas, Las Vegas 5

**University of Kansas**

Alumni Reception  
Thursday, March 26  
6:00 - 8:00 PM  
Canaletto Restaurant, Venetian Grand Canal Shoppes (Near Gondola Dock)

**University of Kansas SOM-Wichita**

Alumni Reception  
Thursday, March 26  
6:30 - 8:00 PM  
Bally’s Las Vegas, Palace 5

**University of Maryland**

Alumni Reception  
Thursday, March 26  
7:00 - 10:00 PM  
Bally’s Las Vegas, Palace 6

**University of Massachusetts**

Alumni Reception  
Friday, March 27  
6:00 - 9:00 PM  
Bally’s Las Vegas, Palace 5

**University of Miami Orthopaedic Alumni**

Reception  
Thursday, March 26  
6:00 - 8:00 PM  
Harrah’s Las Vegas, Silver Room

**University of Michigan**

Alumni Reception  
Thursday, March 26  
6:00 - 8:00 PM  
Canaletto Restaurant (Rialto Room) at the Venetian

**University of Minnesota - Residency Alumni**

Reception  
Friday, March 27  
6:00 - 8:00 PM  
Harrah’s Las Vegas, Silver Room

**University of Nebraska Medical Center**

Alumni Reception  
Thursday, March 26  
6:00 - 8:00 PM  
db Brasserie Level 1, Restaurant Row at The Venetian

**University of North Carolina**

Alumni Reception  
Thursday, March 26  
6:00 - 8:00 PM  
Firefly Tapas Kitchen & Bar, 3824 Paradise Road

**University of Pennsylvania**

Alumni Reception  
Friday, March 27  
6:00 - 9:00 PM  
Paris Las Vegas, Versailles 1
All events will take place at the Venetian/Sands EXPO unless noted otherwise.

<table>
<thead>
<tr>
<th>University</th>
<th>Event Details</th>
</tr>
</thead>
</table>
| University of Rochester     | Alumni Reception  
  Friday, March 27  
  7:00 - 10:00 PM  
  Harrah's Las Vegas, Studio 3 |
| University of Texas Medical Branch at Galveston | Alumni Reception  
  Wednesday, March 25  
  6:00 - 8:00 PM  
  The Mandarin Oriental, MOzen Room |
| University of Toledo        | Alumni Reception  
  Thursday, March 26  
  6:00 - 8:00 PM  
  Bally's Las Vegas, Las Vegas 7 |
| University of Toronto       | Alumni Reception  
  Friday, March 27  
  6:30 - 10:00 PM  
  Planet Hollywood, Melrose 4 |
| University of Utah          | Alumni Reception  
  Thursday, March 26  
  6:00 - 9:00 PM  
  Planet Hollywood, Wilshire B |
| University of Vermont       | Alumni Reception  
  Friday, March 27  
  6:00 - 8:00 PM  
  Planet Hollywood, Celebrity Ballroom 1 |
| University of Virginia      | Alumni Reception  
  Thursday, March 26  
  6:30 - 9:00 PM  
  Paris Las Vegas, Champagne 1 |
| University of Washington    | Alumni Reception  
  Friday, March 27  
  6:00 - 8:00 PM  
  Paris Las Vegas, Versailles 4 |
| University of Wisconsin     | Alumni Reception  
  Thursday, March 26  
  6:00 - 8:00 PM  
  Caesars Palace, Sicily |
| USC Graduate Orthopaedic Society (SOGOS) | Reception  
  Thursday, March 26  
  6:00 - 9:00 PM  
  TAO Nightclub at the Venetian, North Mezzanine, 2nd Level |
| Vanderbilt Orthopaedic Society | Alumni Reception  
  Friday, March 27  
  6:30 - 9:30 PM  
  Bally's Las Vegas, Palace 1 |
| Washington State Orthopaedic Association | Reception  
  Friday, March 27  
  6:00 - 8:00 PM  
  Paris Las Vegas, Versailles 4 |
| Wayne State University Orthopaedic Surgery | Alumni Reception  
  Thursday, March 26  
  6:00 - 10:00 PM  
  Caesars Palace, Pompeian II |
| West Virginia University    | Alumni Reception  
  Friday, March 27  
  6:00 - 7:30 PM  
  Bally's Las Vegas, Las Vegas 1 |
| Willis C. Campbell Club     | Alumni Reception  
  Friday, March 27  
  6:30 - 8:30 PM  
  Room 703 |
| Yale Orthopedic Association | Reception  
  Thursday, March 26  
  6:00 - 8:00 PM  
  Bally's Las Vegas, Bronze 4 |
Active Fellows

A
Chad Elliot Aarons, MD
Ayesha Abdeen, MD
Joshua Matthew Abzug, MD
Jesse Alfonso, MD
Ajay Aggarwal, MD
Juan F. Agudelo, MD
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## New International Affiliate Members

<table>
<thead>
<tr>
<th>Country</th>
<th>Members</th>
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<tbody>
<tr>
<td>Mongolia</td>
<td>Munkhsaikhan Togtмол, MD</td>
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<td>Netherlands</td>
<td>Pieter Haen, MD, Dagmar Kempink, MD, Roland Klein Nagelvoort, MD, Dennis Kok, MD, Paul Schreuder, MD, Frank-Christiaan Wagenaar, MD, MSc</td>
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<td>Netherlands Antilles</td>
<td>Elco De Windt, MD, Elco Sixtus De Windt, MD, Frits Kooi, MD</td>
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<td>New Zealand</td>
<td>Ali Bayan, FRACS, Michael O’Malley, FRCS (Ortho), MSc, ChB, MB, Joanna Sinclair, MD, Richard Willoughby, FRACS</td>
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<td>Nicaragua</td>
<td>Mario Gonzalo Arteaga, MD, Mario Cuadra, MD</td>
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<td>Nigeria</td>
<td>Samuel Babatunde Agaja, FWACS, Idumagbodi Amupitan, MD, Abdullahi Badrudeen, MBBS, Aaron Friday Enwumelu, MD, Olatunji Samul Idowu, MD, Shopekhai Emmanuel Itakpe, MD, Emeka Bide Izuagba, MD, Emmanuel Laiyemo, MD, Anthony Olasiinde, MBBS, MD, Chukwuemeka Paul Onyeabo, MBBS, MSc</td>
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<td>Philippines</td>
<td>Lyndon Bathan, MD, Rodolfo P. Berгоніо, MD, Rolando Gerardo Fausto Dela Cruz, MD, Frederic Joseph Franco Diyro, MD, Romina Veneracion Mendoza-Torres, MD, Jonathan Ronquillo, MD, Andrew Gabriel Jacinto Tabberah, MD, Benedict Francis Dizon Valdecanas, MD, MSc</td>
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<td>Poland</td>
<td>Pawel Legosz, MD, Robert Sławski, Sr, PhD, MD, Radoslaw Stempin, MD, Krzysztof Tokarczuk, MD</td>
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<td>Portugal</td>
<td>Antonio Jose Andrade, MD, Pedro Neves, MD</td>
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<td>Puerto Rico</td>
<td>Jaime Francisco Fumero, MD</td>
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<td>Qatar</td>
<td>Amr Abdelkader, MD, Mohammed Fakhri Al-Janabi, MD</td>
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<td>Romania</td>
<td>Tibor S. Borz, MD, Radu Dragos, MD, Radu Floaca, MD, PhD, Brinda Ioan, MD, Bataga Tiberiu, MD, PhD</td>
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<td>Russian Federation</td>
<td>Vasiliy Babushkin, MD, Dmitrii Borzunov, MD, Butay G. Butaev, MD, Michail Dryagin, MD, Alexander Gubin, MD, Alexander Kazemyrsky, MD, Andrey Kobyzev, MD, Alexey Lubnin, MD, Boris Maximov, MD, Mikhail Molodov, MD, Iuri Muranchik, MD, Konstantin Piastopulo, MD, Yaroslav Rukin, PhD, Igor Shlykov, MD, Vyacheslav Sivkov, MD, Alexey Sorokin, MD, Vasily Aleksandrovich Stroganov, MD, Alexander Yudin, MD</td>
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<td>Saudi Arabia</td>
<td>Elhamy Abdelrahman, MD, Malek Abualnadi, MD, Ali Omar Alamoudi, MD, Nabil Alassaf, MD, FRCS, Ayed Abdullah Alshahrani, MD, Abbas Alshaihki, MBBS, Sammy Al Shammari, MBBS, PhD, Abdulkarim Ahmed Alsharaifi, MD, Ali Alshehri, MBBS</td>
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<td>Matthew P. Abdel, MD</td>
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<td>Mahmoud Abdel Karim, MBCh, MSc, MD</td>
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<td>Behrooz A. Akbarnia, MD</td>
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<td>Annunziato Amendola, MD</td>
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<td>Jeffrey Anglen, MD, FACS</td>
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<td>Tomasz T. Antkowiak, MD, MS</td>
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<td>Eva Umoh Asomugha, MD</td>
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<td>Vinip Asopa, MRCS</td>
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<td>Champ Baker III, MD</td>
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<td>Rahul Banerjee, MD, FACS</td>
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**Orthopaedic Surgeon-Industry Relationships**

**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 used 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

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Orthopaedic Surgeon-Industry Relationships

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do not disclose this fact to the patient if such royalties relate to the patient’s treatment. It is unethical for an orthopaedic surgeon to receive compensation of any kind from industry for using a particular product. Fair market reimbursement for reasonable administrative costs in conducting or participating in a scientifically sound research clinical trial is acceptable.

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.

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 the orthopaedic surgeon is connected has received anything of value from its inventor or manufacturer.

Mandatory Standards:
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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References: 1. MONOVISC® High Molecular Weight Hyaluronan Full Prescribing Information

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