Dear Colleague

Thank you for purchasing the AAOS 2012 Foot and Ankle Special Interest Examination. In order for you to gain the maximal benefit from this educational exercise, it is worthwhile to understand the history and rationale behind the design of this format. Originally designed as a “self-assessment exam” in the subspecialty of foot and ankle, it has become increasingly used as a means of preparing for in-training examinations and board testing, and somewhat less relevant to the intended audience of orthopaedic surgeons in clinical practice. This being understood, we are making an attempt to re-emphasize clinically relevant items posing various diagnostic and therapeutic situations, while de-emphasizing more abstract basic science subjects.

There are a variety of different item types included in the examination. Questions which are based on your ability to recall a piece of information, though important and worthwhile, are often clinically relevant in an indirect manner and therefore may seem less useful to you. Questions that test your ability to interpret radiographic or intraoperative images require the participant to have the ability to analyze the images in a more clinically meaningful way before arriving at the most appropriate answer. Finally, problem-solving questions are those that require an understanding of the clinical situation, interpretation of the radiographic images, and then a decision upon the appropriateness of the next step in treatment. These problem-solving questions are the ones that most simulate the practice environment and hopefully will be the most informative. The breadth of topics that are covered in the examination are broad and intended to cover the entire gamut of foot and ankle surgery.

Many participants will be using this examination to prepare or fulfill requirements for the ABOS Maintenance of Certification (MOC)™ process. With this in mind, we have included new types of questions utilizing both “serial” questions where information/images are used for more than one test item and “extended matching” questions. This format is intended to more closely resemble clinical practice decisions and we look forward to your comments regarding their use.

As the chair of this year’s examination, I thank you for choosing to use this educational resource. On behalf of myself, the members of the subcommittee, and the AAOS educational staff, we hope this educational tool is as helpful to you as it is intended to be.

Sincerely,

Arthur K. Walling, MD
Chair, Foot and Ankle Evaluation Subcommittee
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Independent Study (previously called Self-Scored) Examination Participants: The AAOS no longer awards CME credit for independent study as a result of new requirements from the American Medical Association’s Physician Recognition Award Program.

EDUCATIONAL OBJECTIVES
As a result of taking the 2012 Foot and Ankle Self-Assessment Examination I able to

• differentiate among treatment options for managing patients with pain in the foot and ankle.
• differentiate among treatment options for patients with deformities of the foot.
• apply knowledge of foot and ankle anatomy in determining surgical exposures for the forefoot, midfoot, hindfoot, and ankle.
• determine methods to treat musculoskeletal trauma of the foot and ankle.
• develop treatment plans for patients with diabetes mellitus, tendon and ligament ruptures, and neuropathies of the foot and ankle.
• determine methods to treat soft-tissue injuries in the foot and ankle.

It is the goal of the American Academy of Orthopaedic Surgeons to promote safe and effective orthopaedic care through all of our programs, products, and services.

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EXPIRATION DATE: December 31, 2014.
No CME credit will be awarded for this activity after December 31, 2014.
Produced by the American Academy of Orthopaedic Surgeons
Foot and Ankle Evaluation Subcommittee of
the Evaluation Committee

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Scored and Recorded Exam Participants

If you are taking this examination to fulfill the scored and recorded requirement mandated by the ABOS Maintenance of Certification (MOC)™ process or toward your general CME requirement, you must complete the electronic answer sheet and evaluation form found on the AAOS website. Please refer to the inside front cover of this book for instructions to access the electronic answer sheet. You must score above chance (21%) to be eligible to receive CME credit. There is a worksheet provided for your convenience.

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♦ CME credit will be posted to your AAOS transcript (www.aaos.org/transcript). You will have the option to print your CME transcript immediately or you may retrieve it at a later date.

♦ If you have problems accessing your transcript, please call Member Services (1-800-346-2267) for assistance.

♦ Your answer book will be mailed to you. Please allow 7 to 10 business days for shipping.

CME for this program expires on December 31, 2014.
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Follow directions on the screen
Figure 1

Question 1
Figure 1 is the radiograph of a 48-year-old man. He is of normal height and weight, medically healthy, and in good physical condition. What is the best treatment option?

1. Short-leg non-weight-bearing cast in plantar flexion
2. Excision of the fragment and reattachment of the Achilles tendon into the calcaneus
3. Immediate open reduction and internal fixation
4. Open reduction and fixation when swelling reduces
5. Percutaneous reduction and Kirschner wire fixation
Question 2
A 45-year-old man with a valgus recurvatum malunion of the distal tibia undergoes a multiplanar osteotomy. A stable 2 x 2 cm eschar develops perioperatively over the anterior tibia just distal to the osteotomy. Eight weeks after surgery, the patient reports the insidious development of increasing pain, erythema, and intermittent drainage from the eschar area; he denies fevers or other constitutional signs. Current radiographs are shown in Figures 2a and 2b. Surgical débridement reveals no gross purulence but intraoperative soft-tissue cultures yield methicillin-resistant *Staphylococcus aureus*. The surgical implant was visible deep within the wound. What is the most appropriate method of treatment?

1. Tibial saucerization and conversion to external fixation
2. Repeat surgical débridement, intravenous antibiotics, and implant removal
3. Intravenous antibiotics and hyperbaric therapy
4. Intravenous antibiotics and a negative pressure dressing
5. Wound coverage, antibiotic suppression, and implant removal after bone healing
Question 3

Figures 3a and 3b are the current AP and oblique radiographs of a 44-year-old man who underwent nonsurgical management of a left ankle fracture 6 months ago. What is the most appropriate course of management?

1. Arizona brace
2. Ankle arthroscopy with drilling of the talar osteochondral lesion
3. Medial ankle arthrotomy and débridement with correction of the fibular malunion
4. Ankle arthrodesis
5. Ankle and subtalar arthrodesis
Question 4
Figures 4a and 4b are the radiographs of an isolated injury. What is the next most appropriate step in management?

1. CT
2. MRI
3. Closed reduction and casting
4. Application of a spanning external fixator
5. Immediate open reduction and internal fixation (ORIF)
Question 5

Figure 5 shows the deformity that developed in a 49-year-old woman who had previously undergone a bunion correction. The patient’s great toe is easily corrected to a neutral position but tends to spring back to a varus position. She reports pain in the first metatarsophalangeal joint and has difficulty wearing most shoes. What is the most appropriate management plan?

1. 1-2 toe taping and closed toe shoes
2. Split extensor hallucis longus tendon transfer
3. Great toe fusion
4. Medial soft-tissue release and lateral capsule plication
5. Metatarsal osteotomy, medial capsule release, and split extensor hallucis longus tendon transfer
Question 6
A 28-year-old man has a progressive drop-foot deformity secondary to Charcot-Marie-Tooth disease. Examination reveals no tibialis anterior or peroneus brevis function. He has a 5-degree equinis contracture. Tibialis posterior and flexor digitorum longus are 5/5 strength. There are no fixed deformities of any joints. What is the most appropriate surgical option?

1. A gastrocnemius lengthening and transfer of the tibialis posterior tendon to the dorsum of the foot
2. A gastrocnemius lengthening and transfer of the peroneus brevis to the dorsum of the foot
3. Transfer of the flexor digitorum longus to the dorsum of the foot
4. An ankle fusion and transfer of the tibialis posterior to the dorsum of the foot
5. A triple arthrodesis to stabilize the drop-foot deformity
Question 7

Figures 7a and 7b are the weight-bearing radiographs of a 17-year-old girl who has great toe pain with push-off and stiffness 1 year after undergoing a proximal crescentic osteotomy for hallux valgus. Motion at the first metatarsophalangeal joint includes approximately 20° of dorsiflexion. What is the most appropriate treatment?

1. Proximal phalanx osteotomy
2. Double metatarsal osteotomy
3. Plantar flexion metatarsal osteotomy
4. Distal biplanar metatarsal osteotomy
5. Capsular release and aggressive physical therapy
Question 8

Figures 8a and 8b are the preoperative radiographs of a 47-year-old woman who is being treated for a supple pes plano abductovalgus deformity. She is unable to perform an ipsilateral single leg heel raise. Which of the following is the most likely soft-tissue procedure performed in combination with the bony surgery?

1. Flexor digitorum longus tendon transfer
2. Extensor hallucis longus tendon transfer
3. Spring ligament release
4. Peroneus longus tendon repair
5. Lateral collateral ligament reconstruction
Question 9

Figures 9a and 9b are the radiographs of a 32-year-old woman who has right foot pain after falling down a few steps. For the best long-term outcome, initial treatment should include which of the following?

1. Splinting with non-weight-bearing as the definitive treatment
2. Walking boot
3. Closed reduction and casting
4. Percutaneous pinning
5. Primary open reduction and internal fixation (ORIF)
Question 10

Figure 10 is the radiograph of a middle-aged woman who has had midfoot pain for the past several years without antecedent trauma. What is the most likely etiology of her condition?

1. Osteomyelitis
2. Kohler disease
3. Rheumatoid arthritis
4. Primary osteoarthritis
5. Osteochondritis dissecans
Question 11

Figure 11a is the radiograph of a 45-year-old woman with a moderate bunion deformity. A Chevron osteotomy was performed and after 6 weeks the patient was doing reasonably well. Six months later she reports increasing pain and stiffness in her toe. Clinically the toe is reasonably straight, but she has significant calluses and overload under the second and third metatarsals. A follow-up radiograph is shown in Figure 11b. The patient wants to be free of pain. What is the most appropriate treatment?

1. Revision bunion repair with a Lapidus procedure
2. Keller’s excision arthroplasty
3. Moberg osteotomy of the proximal phalanx
4. Metatarsophalangeal joint fusion with an autologous bone block
5. Allograft replacement of the metatarsal head
Question 12

Figure 12 is the radiograph of a patient with type 2 diabetes, a body mass index of 42, and an Hgb A1c of 8. What is the most appropriate management for this injury?

1. Fracture boot immobilization
2. Casting the ankle in its current position
3. Closed reduction and definitive casting
4. Closed reduction and application of external fixation
5. Open reduction and internal fixation (ORIF)
Question 13
A 28-year-old construction worker with a body mass index (BMI) of 31 sustained a Weber C fracture 3 years ago. An open reduction and internal fixation was performed, but he developed degenerative changes in the ankle as seen in Figure 13. Management consisting of bracing, shoe modifications, and other modalities has failed to provide relief. He is symptomatic enough that he wants definitive treatment. What is the best treatment option at this time?

1. Bipolar allograft replacement of the tibial plafond and talar dome
2. Low profile total ankle arthroplasty
3. Interpositional soft-tissue replacement
4. Arthroscopic ankle débridement
5. Ankle fusion
Question 14
Figures 14a through 14c are the MRI scans of a 37-year-old woman who sustained a traumatic laceration to the anterior aspect of the ankle. The wound was closed in the emergency department. On examination, she has a foot drop and ambulates with a steppage gait. With successful surgical repair, what is the most common long-term residual?

1. Numbness in the foot
2. Persistent foot drop
3. Persistent ankle pain
4. Decreased dorsiflexion strength
5. Use of an ankle-foot orthosis for ambulation
Question 15

Figures 15a and 15b are the radiographs of an active 65-year-old woman who has a 3-year history of increasing foot pain and flattening of the left foot. Inversion strength is 5+ and does not reproduce her symptoms. Bracing and nonsteroidal anti-inflammatory drugs have failed to provide adequate relief. She has a supple hindfoot and normal heel cord flexibility. What is the most appropriate treatment?

1. Lateral column lengthening and flexor digitorum longus transfer
2. Talonavicular arthrodesis
3. Medial Lisfranc arthrodesis
4. Subtalar arthrodesis
5. Triple arthrodesis
Question 16
Figure 16 is the lateral radiograph of a 40-year-old laborer who sustained a displaced intra-articular calcaneus fracture that was treated nonsurgically 1 year ago. He now reports pain with ankle dorsiflexion, as well as subfibular impingement. What is the most appropriate surgical treatment?

1. Lateral wall ostectomy
2. In situ subtalar arthrodesis
3. Triple arthrodesis
4. Distraction subtalar arthrodesis with lateral wall ostectomy
5. Ankle and subtalar arthrodesis
Question 17

Figures 17a and 17b are the radiographs of a 56-year-old man who has foot pain, swelling, and a limp after being injured in a motorcycle accident 2 months ago. The patient is a noninsulin-dependent diabetic, has palpable pulses, and has protective sensibility of his feet. What is the most appropriate management?

1. Cast immobilization and non-weight-bearing for 6 weeks
2. Closed reduction and percutaneous screw fixation
3. Open reduction and internal fixation
4. Lisfranc arthrodesis of the medial and lateral column
5. Lisfranc arthrodesis of the medial column and Kirschner wire fixation of the lateral column
Question 18
Figures 18a and 18b are the radiographs of an obese 75-year-old man with a rigid acquired flatfoot deformity. What is the best treatment option?

1. Double calcaneal osteotomy
2. Medial calcaneal osteotomy and tendon transfer
3. Lateral column lengthening and tendon transfer
4. Subtalar arthrodesis
5. Triple arthrodesis

Question 19
Which of the following occurs frequently after nonsurgical management of displaced intra-articular fractures of the calcaneus?

1. Return to normal function
2. Narrowing of the calcaneus
3. Lengthening of the calcaneus
4. Plantar flexion of the talus
5. Peroneal tendinitis
Question 20
What is the most appropriate tendon transfer and augmentation for surgical treatment of a chronic Achilles tendon rupture?

1. Flexor hallucis longus
2. Extensor digitorum longus
3. Peroneus longus
4. Tibialis anterior
5. Posterior tibialis

Question 21
Which of the following ligaments is commonly attenuated or torn in patients with an adult-acquired flatfoot deformity?

1. Superomedial calcaneonavicular
2. Dorsal cuneonavicular
3. Dorsal intercuneiform
4. Dorsal calcaneocuboid
5. Anterior tibiofibular

Question 22
What is the most important measure to take to reduce the risk of frostbite of the toes while hiking in extreme temperatures?

1. Stop often for recovery breaks.
2. Drink enough warm liquids.
3. Reduce thermal heat loss from shoes.
4. Use triple socks.
5. Adequately "carbo load" before the start.

Question 23
Which of the following factors has been shown to increase the risk of peroneal tendon pathology in patients who have undergone posterior plating of lateral malleolar fractures?

1. Use of cut or trimmed plates
2. Use of straight (uncontoured) plates
3. Use of locked plating
4. Low plate placement with a prominent screw head in the distal hole
5. Low antiglide plate placement
Question 24
A patient who sustained an Achilles tendon rupture does Internet research on his injury and its treatment before seeing an orthopaedic surgeon. The patient would like to have surgical repair of the tendon rupture using the technique shown in Figure 24. What can the surgeon tell the patient regarding the possible benefits of the use of this pictured technique versus an open technique for the repair of acute Achilles tendon ruptures?

1. Decreased rates of rerupture
2. Decreased rates of sural neuropathy
3. Statistically significantly greater calf circumference
4. Decreased local scarring
5. Overall the same rate of postoperative complications

Question 25
What is the most common complication with an anterior ankle arthroscopy using a standard lateral arthroscopy portal?

1. Injury to the superficial peroneal nerve
2. Injury to the tibial nerve
3. Vascular injury to the dorsalis pedis
4. Reflex sympathetic dystrophy
5. Deep infection
Figures 26a and 26b are the radiographs and MRI scan of a 15-year-old boy who reports midfoot pain for the past 4 months despite no history of injury. The patient plays soccer and is eager to get back to activity. What is the most appropriate treatment to return the patient back to full activity?

1. Open reduction and internal fixation
2. Restricted weight bearing in a short-leg cast
3. Weight bearing as tolerated in a fracture boot
4. An orthotic and a bone stimulator
5. A carbon fiber orthotic

Question 27

A 35-year-old woman has a 6-month history of plantar fasciitis. Which of the following orthoses has been shown to be effective in the treatment of chronic plantar fasciitis?

1. Full-length accommodative insert
2. Semi-rigid insert with a mild medial arch support and a 5° medial post
3. Night splint
4. Cavus foot orthotic
5. Visco gel heel cushion
Question 28
Which of the following nerves is most susceptible to iatrogenic injury during bunion surgery?

1. Terminal branch of the superficial peroneal nerve
2. Terminal branch of the saphenous nerve
3. Dorsolateral cutaneous nerve
4. Medial plantar hallucal nerve
5. Deep peroneal nerve

Figure 29

Question 29
A patient falls off a roof and sustains the fracture shown in Figure 29. What is the most likely complication that results from injury to the structure that is located at the arrow?

1. Paresthesias on the plantar aspect of the foot
2. Pain or popping with great toe flexion
3. Loss of the arch
4. Inability to flex the lesser toes
5. Spring ligament rupture
Figure 30

Question 30

Figure 30 shows the radiograph of a 27-year-old patient who has had a medial forefoot prominence since he was a child. Over the past 6 years he notes progressive pain in the first metatarsophalangeal joint. Modified shoe wear, custom orthotics, and use of pads and toe spacers have failed to provide relief. He continues to experience daily pain that affects both employment and recreation activities. Clinical examination reveals good maintenance of first metatarsophalangeal joint motion and no evidence of first tarsometatarsal joint hypermobility. What is the most appropriate treatment?

1. Continued nonsurgical management
2. Austin Chevron osteotomy
3. Biplanar distal first metatarsal Chevron osteotomy
4. Proximal first metatarsal osteotomy
5. Lapidus procedure
Question 31
A 24-year-old man dislocated his right knee in a motorcycle accident 1 year ago. At the time, an anterior cruciate, posterior cruciate, medial collateral, and lateral collateral ligament repair was done, but it was also noted that he sustained a complete transection of the peroneal nerve. A primary nerve repair was done, but he has not recovered any dorsiflexion of the ankle and continues to have a drop foot. Other than using an ankle-foot orthosis, what is the best surgical option to regain maximum function?

1. Sural nerve cable grafting of the peroneal nerve
2. Transfer of the peroneus longus to the tibialis anterior tendon
3. Transfer of the tibialis posterior to the dorsum of the foot
4. Transfer of the extensor hallucis longus to the tibialis anterior tendon
5. Ankle fusion to eliminate the need for an ankle dorsiflexor

Question 32
Figures 32a and 32b are the radiographs of a 34-year-old woman who has a painful ankle following an attempted fusion of her ankle 6 months ago. Infection work-up was negative. The subtalar joint is pain free with manipulation. What is the most appropriate treatment?

1. Removal of hardware and an intramedullary rod tibiocalcaneal fusion
2. Bone grafting of the nonunion
3. Use of an external bone stimulator
4. Removal of the plate and screws and the addition of an internal bone stimulator
5. Revision fusion with stable compression fixation and bone graft
Question 33
Which of the following is associated with tarsal tunnel syndrome?

1. Adult-acquired flatfoot
2. Insertional Achilles tendinitis
3. Hypermobile first ray
4. Metatarsal stress fracture
5. Gastrocnemius contracture

Question 34
A 50-year-old man is having difficulty walking. He has a history of an injury 6 months ago. Examination reveals that he is unable to toe off and has increased ankle dorsiflexion compared with the uninjured side. He has a positive Thompson test and a palpable defect in the Achilles tendon. An MRI scan shows a 4-cm defect in the Achilles tendon. What type of surgical reconstruction should be planned?

1. Primary end-to-end repair
2. V-Y advancement with or without flexor hallucis longus augmentation
3. Flexor hallucis longus tendon transfer
4. Flexor digitorum longus tendon transfer
5. Peroneus brevis tendon transfer

Question 35
An 18-year-old man sustained a traumatic laceration of the common peroneal nerve when glass fell on the outer part of his leg 1 year ago. He has used a molded foot and ankle orthosis for the past 10 months, but would now like surgical intervention. Electromyography shows no function in the anterior or lateral compartments. He has 5/5 muscle strength of the superficial and deep posterior compartments. What is the most appropriate treatment?

1. Gastrocsoleus recession
2. Subtalar fusion
3. Split anterior tibial tendon transfer
4. Split posterior tibial tendon transfer
5. Flexor hallucis longus tendon transfer
Question 36

Figures 36a and 36b are the AP and lateral radiographs of a 65-year-old woman who has a dislocated second toe and a prominent bunion. Besides repairing the bunion, what procedures are recommended to address the fixed second hammertoe and the resulting metatarsalgia?

1. Proximal interphalangeal joint (PIP) resection arthroplasty
2. PIP resection arthroplasty, extensor tendon lengthening, and Weil osteotomy
3. Flexor to extensor tendon transfer and metatarsal head excision
4. PIP fusion and DuVries arthroplasty
5. Metatarsal head excision and proximal phalanx resection
Question 37
During gait evaluation of a 25-year-old patient who had polio at age 5, it is noted that the right foot slaps the floor at heel strike, and the toes extend during the swing phase. Examination reveals a flexible cavus foot, claw toes, and an equinus deformity. The patient has tried various orthoses and would like surgical correction if possible. What is the most appropriate treatment?

1. Calcaneal osteotomy, Achilles tendon lengthening, metatarsal osteotomies
2. Calcaneal osteotomy, Achilles tendon lengthening, extensor hallucis longus transfer to the first metatarsal neck, flexor digitorum longus to extensor digitorum longus transfer of the lesser toes
3. Calcaneal osteotomy, plantar fascia release, Achilles tendon lengthening, tibialis posterior transfer to the dorsum of the foot, flexor digitorum longus to extensor digitorum longus transfer of the lesser toes
4. Triple arthrodesis, Achilles tendon lengthening, extensor hallucis longus transfer to the first metatarsal neck, flexor digitorum longus to extensor digitorum longus transfer of the lesser toes
5. Plantar fascia release, Achilles tendon lengthening, extensor hallucis longus transfer to the first metatarsal neck, tibialis posterior transfer to the dorsum of the foot, flexor digitorum longus to extensor digitorum longus transfer of the lesser toes

Question 38
A 45-year-old man has a grade 4 hallux rigidus secondary to a turf toe sustained as a football player in high school. He is an avid golfer and plays tennis on occasion. His activities are severely limited because of pain in his great toe and nonsurgical management has failed to provide relief. His goal is to be pain free, continue with his activities, and require no further orthopaedic care in the future. What is the best treatment option for this patient?

1. Keller’s excision arthroplasty
2. Bipolar replacement
3. Cheilectomy and débridement
4. Great toe metatarsophalangeal (MTP) fusion
5. Fascia lata interposition graft
Question 39

Figure 39 is the radiograph of a 67-year-old woman with rheumatoid arthritis who reports an 8-month history of increasing pain, swelling, and deformity. Anti-inflammatory drugs, orthotics, and extra-depth shoes have failed to provide relief. What is the next most appropriate step in treatment?

1. First metatarsophalangeal joint arthrodesis and lesser metatarsal head resections
2. First metatarsophalangeal joint replacement and lesser metatarsal head resections
3. Keller arthroplasty and lesser metatarsal head resections
4. Distal Chevron osteotomy and lesser metatarsal head resection
5. Lapidus procedure and Weil osteotomies
Question 40

Figures 40a and 40b are the radiographs of a 53-year-old woman. If her symptoms warrant, what is the most appropriate surgical management?

1. Plantar release
2. Dorsal cheilectomy
3. Interpositional soft-tissue arthroplasty
4. Arthrodesis
5. Prosthetic replacement
Figures 41a through 41c are the radiographs and Figure 41d is the biopsy specimen of a 14-year-old girl who has had increasing foot pain for several months. What is the most likely diagnosis?

1. Infection
2. Giant cell tumor
3. Unicameral bone cyst
4. Aneurysmal bone cyst
5. Hemangioma
Question 42
Figures 42a through 42c are the MRI scans of a 42-year-old woman who has a 1.5-cm medial ankle mass. She has pain when shoes compress the area. A positive Tinel’s sign is noted over the tarsal tunnel. What is the most likely diagnosis?

1. Astrocytoma
2. Neurilemoma
3. Neurofibroma
4. Lipoma
5. Ganglion
Question 43

Figures 43a and 43b are the MRI scans of a 54-year-old woman who reports a 2-year history of progressive shooting and burning-type pain in the posteromedial ankle. What is the most appropriate management?

1. Needle aspiration
2. Tarsal tunnel release
3. Incisional biopsy
4. Surgical excision
5. Referral to an orthopaedic surgeon specializing in oncology
Figures 44a through 44c are the MRI scans of a 45-year-old man who has an enlarging mass on the right foot and has difficulty wearing shoes. What is the most appropriate management for this tumor?

1. Amputation
2. Marginal excision
3. Radical excision
4. Local excision with adjuvant chemotherapy
5. Radiation therapy

Question 44

Figures 44a through 44c are the MRI scans of a 45-year-old man who has an enlarging mass on the right foot and has difficulty wearing shoes. What is the most appropriate management for this tumor?
Question 45
Figures 45a through 45e are the MRI scans, gross specimen, and histology of the specimen of a 19-year-old man who has an enlarging mass in the second interspace. He reports forefoot pain that is worse with athletic activity. Radiographs show erosive changes of the third metatarsal head. What is the most common complication associated with incomplete excision?

1. Metastatic disease
2. Malignant degeneration
3. Recurrence
4. Pathologic fracture
5. Infection

Question 46
Figures 46a and 46b are the radiographs of a 20-year-old collegiate varsity athlete who reports lateral foot pain. What is the most appropriate management at this time?

1. Rest and nonsteroidal anti-inflammatory drugs
2. Orthosis and non-weight-bearing status
3. Orthosis, weight bearing as tolerated, and use of a bone stimulator
4. Short-leg cast
5. Internal fixation
Figure 47

Question 47

The lesion in Figure 47 would most likely cause which of the following symptoms?

1. Anterior tarsal tunnel paresthesias
2. Burning and numbness on the bottom of the foot
3. Heel pain that is worst in the morning
4. Night pain in the heel
5. Loss of toe extension
A 42-year-old woman sustained an open grade 3B tibial shaft fracture with a severe degloving injury involving the anterior and lateral compartments 1 year ago. She underwent multiple débridements, definitive fracture treatment, and flap coverage. She now reports that she has difficulty ambulating. Examination includes a 20° equinovarus contracture, 2+ dorsiflexion, 2+ eversion, 5+ inversion, and 5+ plantar flexion strength. She has a supple forefoot and intact sensation throughout. Figures 48a through 48c are current weight-bearing radiographs. Attempted surgical correction should include Achilles lengthening, calcaneal osteotomy, and

1. flexor hallucis longus to peroneal transfer.
2. posterior tibial tendon transfer.
3. split anterior tibial tendon transfer.
4. first metatarsal osteotomy.
5. ankle arthrodesis.
Question 49
A 45-year-old woman with type 2 diabetes (BMI 38, Hgb A1c 7.4) has a grade II ulcer under the first metatarsal head. Previous treatment with a custom orthosis and total contact casting has provided only temporary healing. Her ankle-brachial index is 0.95, she has no foot deformity, and there is no evidence of infection. What is the next most appropriate step in management?

1. Custom-molded Plastizote orthotics
2. Gastrocsoleus recession and peroneus longus to brevis tendon transfer
3. Resection of the first metatarsal head
4. First-ray amputation
5. Transmetatarsal amputation

Figure 50

Question 50
The MRI scan of the ankle shown in Figure 50 reveals a tear of what structure?

1. Superficial peroneal retinaculum
2. Posterior tibial tendon
3. Peroneus longus tendon
4. Peroneus brevis tendon
5. Anterior talofibular ligament (ATFL)
Question 51
What is the most common pathogen for soft-tissue infection of the foot caused by a puncture wound?

1. *Staphylococcus aureus*
2. *Pseudomonas aeruginosa*
3. *Eikenella corrodens*
4. *Pasteurella multocida*
5. *Vibrio species*

Question 52
A 38-year-old man with a congenital pes cavus deformity reports lateral foot pain that has become increasingly debilitating. He has calluses over the lateral column and 3/5 muscle strength of the lateral compartment muscles. Nonsurgical management has failed to provide relief. In surgery, he undergoes a plantar fascial release, peroneus longus to brevis transfer, dorsiflexion osteotomy of the first metatarsal, and a Dwyer osteotomy. He has a hyperextended deformity of the first metatarsophalangeal joint. What tendon transfer will help to address this deformity?

1. Flexor hallucis longus
2. Extensor hallucis longus
3. Extensor hallucis brevis
4. Extensor digitorum longus
5. Tibialis anterior

Question 53
What is the most common complication following surgical treatment of a displaced talar neck fracture?

1. Osteonecrosis
2. Varus malunion
3. Posttraumatic arthritis
4. Fracture delayed union/nonunion
5. Wound dehiscence/delayed wound healing
Question 54
A 44-year-old woman with forefoot pain has pain with weight bearing during toe-off. She reports the pain is worse when she is barefoot and better when wearing tennis shoes. She has no numbness or tingling. Examination reveals increased pain with second toe dorsiflexion and plantar flexion. Traction to the second toe decreases pain with motion. She has no pain with medial lateral forefoot compression. Radiographically, her second metatarsal is longer than the first. What is the most likely diagnosis?

1. Second metatarsal stress fracture
2. Second metatarsophalangeal (MTP) synovitis
3. Second to third web space neuroma
4. Second flexible hammer toe
5. Transfer metatarsalgia

Figure 55

Question 55
Figure 55 is the radiographs of a 37-year-old patient who reports pain and swelling over the lateral forefoot (fifth metatarsal) that has become progressively worse over time. Shoe wear modifications have not been successful. Based on the radiographs, what is the appropriate treatment at this time?

1. Chevron osteotomy
2. Diaphyseal osteotomy
3. Metatarsal head resection
4. Exostectomy of the lateral eminence
5. Exostectomy of the lateral eminence with a fifth toe extensor tenotomy and capsular release
Question 56

Figures 56a through 56c are the lateral radiograph and MRI scans of a 32-year-old woman who reports a 3-week history of heel pain, tenderness, swelling, and onset following an increase in running activity. What is the most likely diagnosis?

1. Plantar fasciitis
2. Atrophic heel pad
3. Achilles tendinitis
4. Retrocalcaneal bursitis
5. Stress fracture of the calcaneus
Question 57
A 32-year-old ballet dancer has chronic early stage 2 hallux rigidus. Over the past year she has been treated with several nonsurgical options, but continues to be increasingly symptomatic. She decided that she can take a 3-month hiatus in her career to deal with this problem. What is the most appropriate treatment option?

1. Cheilectomy, débridement, and a Moberg dorsiflexion osteotomy if needed
2. Great toe metatarsophalangeal (MTP) joint fusion
3. Keller excision arthroplasty
4. Unipolar replacement
5. Bipolar replacement

Figure 58

Question 58
Figure 58 is the radiograph of a laborer who has hindfoot and ankle pain. He is a type 1 diabetic, and has a BMI of 25 and a Hgb A1c of 6. What is the most appropriate management at this time?

1. Total contact casting
2. Arthrodesis
3. Open reduction and internal fixation
4. Bed rest
5. Standard walking boot
A 26-year-old competitive skier sustained an injury to her right ankle and now reports pain and clicking. Radiographs obtained at the time of the injury did not show any abnormality. She was diagnosed with an ankle sprain and treated in a short-leg cast for 6 weeks. While in the cast she was comfortable but the pain and clicking returned almost immediately after the immobilization was discontinued. Physical therapy has only made the problem worse. Current MRI scans are shown in Figures 59a and 59b. What is the most appropriate treatment at this time?

1. A stirrup splint
2. Continuation of cast immobilization until the clicking stops
3. Débridement and repair of longitudinal tears within the peroneal tendons
4. Débridement of the peroneal tendons, fibular groove deepening, and repair of the superior peroneal retinaculum
5. Excision of the region of the diseased peroneal tendon, tenodesis of the stumps to the intact tendon, and repair of the peroneal retinaculum
Question 60

Figure 60 is the radiographs of a patient who underwent surgery to alleviate pain under her second metatarsal that is worsened by wearing high heel shoes. What is the most common complication of the osteotomy shown in the radiographs?

1. Osteonecrosis
2. Nonunion of the osteotomy
3. Significant transfer lesions
4. Metatarsophalangeal (MTP) arthritis
5. Dorsiflexion contracture at the MTP joint
Question 61
Figures 61a and 61b are the radiographs of a 56-year-old woman who reports medial foot and ankle pain and notes a progressive change in the shape of her foot over the past year. Her normal activities are limited by pain. Nonsurgical management has failed to provide relief. Pain is present from the navicular to the medial malleolus. Single leg heel rise is accompanied by correction of hindfoot valgus but is painful. What is the best course of treatment?

1. Débridement of the posterior tibial tendon
2. Transfer of the flexor digitorum longus to the medial navicular
3. Medializing calcaneal osteotomy with transfer of the flexor digitorum longus to the medial navicular
4. Medializing calcaneal osteotomy with lateral column lengthening and flexor digitorum longus transfer to the medial navicular
5. Triple arthrodesis
Question 62
A 72-year-old woman with a moderately reducible hallux varus has pain in the first metatarsophalangeal (MTP) joint that is activity related and reports that she cannot find any comfortable shoes. She wants to know what treatment plan offers her the most predictable outcome in terms of pain relief, activity, and the ability to get into shoes?

1. First MTP fusion  
2. MTP joint replacement  
3. Great toe amputation  
4. Keller resection arthroplasty  
5. Tendon transfer and capsular release

Question 63
A 43-year-old woman with long-standing rheumatoid arthritis has a large prominence with soft-tissue swelling under the fifth metatarsal head and over the lateral eminence of the fifth metatarsophalangeal (MTP) joint. She has minimal hammer toes with no significant metatarsalgia. Radiographs show a 4-5 intermetatarsal angle of 7° and a congruent fifth MTP joint. What is the recommended surgical treatment to address this problem?

1. Simple exostectomy  
2. Metatarsal head excision  
3. Distal metatarsal osteotomy  
4. Diaphyseal metatarsal osteotomy  
5. Simple exostectomy with soft-tissue mass excision

Question 64
A 15-year-old boy has a unilateral flatfoot that is preventing sporting activities. After nonsurgical management fails, he undergoes surgery to correct a calcaneonavicular coalition. What procedure will most likely allow him to return to sports?

1. No surgical procedure is likely to allow a return to sports  
2. Subtalar fusion  
3. Arthroereisis  
4. Closed manipulation under anesthesia  
5. Bar resection with tissue interposition
Figure 65c

Question 65

Figures 65a through 65c are the weight-bearing radiographs of a 42-year-old male manual laborer who has a 6-month history of persistent great toe swelling and pain after undergoing a total joint arthroplasty for hallux rigidus 9 months ago. He denies postoperative wound complications, recent fevers, chills, or other constitutional signs; however, he has never been able to ambulate without pain since his return to work. Examination reveals moderate diffuse swelling, but no fluctuance or drainage. Range of motion includes 25° of dorsiflexion. Laboratory studies show an erythrocyte sedimentation rate of 18 mm/h and a c-reactive protein level of <0.7 mg/L. What is the most likely source of his symptoms?

1. Septic arthritis
2. Mechanical failure
3. Periprosthetic fracture
4. Aseptic loosening from polyethylene debris
5. Metatarsal shortening/transfer metatarsalgia
Question 66
A patient with foot pain is noted to have a cavovarus foot. The heel corrects to slight valgus on Coleman block testing. This finding indicates that the deformity should correct with which of the following procedures?

1. Triple arthrodesis
2. Subtalar arthrodesis
3. Peroneal brevis lengthening
4. Medializing calcaneal osteotomy
5. Dorsiflexion first metatarsal osteotomy

Question 67
A 19-year-old woman sustained a displaced talar neck fracture while cliff jumping. The fracture is managed with open reduction and internal fixation. Which of the following best describes the findings in the 2-months postoperative radiographs shown in Figures 67a and 67b, and subsequent treatment plan?

1. There is a positive Hawkins sign, indicating the patient is unlikely to develop osteonecrosis.
2. There is a positive Hawkins sign, indicating the patient has developed osteonecrosis.
3. Hawkins sign cannot be determined on radiographs; therefore, MRI is required.
4. No Hawkins sign is visible, and therefore the patient is not likely to develop osteonecrosis.
5. No Hawkins sign is visible; therefore, the patient should be kept non-weight-bearing until a Hawkins sign appears.
Question 68
A middle-aged man sustains traumatic loss of the second, third, and fourth toes in a lawnmower accident. The wound is grossly contaminated with soil. Penicillin is added to his antibiotic regimen for coverage of what bacteria?

1. Clostridium
2. Acinetobacter
3. Pseudomonas
4. Mycobacterium
5. Staphylococcus aureus

Question 69
A 35-year-old man sustains a large degloving injury overlying the distal tibia. The traumatic wound is managed with surgical débridement, followed by application of a negative pressure dressing. Compared with standard damp-to-dry dressing changes, use of a negative pressure dressing offers which of the following advantages?

1. Increased limb vascularity
2. Decreased hospital stay
3. Decreased bacterial count
4. Decreased need for repeat débridement
5. Accelerated granulation tissue formation

Question 70
What is the most common cause of persistent pain after excision of a Morton neuroma?

1. Tarsal tunnel syndrome
2. Painful plantar scar formation
3. Metatarsophalangeal joint synovitis
4. Presence of an amputation stump neuroma
5. Inadequate resection of an interdigital neuroma
Question 71
A 40-year-old man with lateral column overload and a cavovarus foot has failed to respond to nonsurgical management. Examination reveals an Achilles tendon contracture. With the knee in extension, ankle dorsiflexion is to neutral; with the knee in flexion, ankle dorsiflexion is to 15°. In addition to correction of the cavovarus deformity, what is the most appropriate surgical management with regard to the Achilles tendon contracture?

1. Heel cord lengthening
2. Percutaneous Achilles tendon lengthening
3. Open Achilles tendon lengthening
4. Gastrocnemius recession
5. Gastrocnemius and soleus recession

Question 72
A 28-year-old man reports a 3-month history of foot pain and swelling after stepping on a nail while working at a construction site. He was wearing rubber-soled boots at the time he sustained this deep puncture wound. Initial management consisted of tetanus prophylaxis, superficial wound cleansing, and oral antibiotics. Imaging shows no evidence of bony infection. What is the most appropriate treatment?

1. IV antibiotics
2. Reinstitution of oral antibiotics
3. CT-guided drainage procedure and IV antibiotics
4. Surgical wound exploration with débridement followed by hydrotherapy
5. Surgical wound exploration with débridement and IV broad-spectrum antibiotics
Question 73
Figures 73a through 73c are the radiographs of a 14-year-old girl who sustained an ankle injury in a fall. What ligament is attached to the displaced fragment?

1. Long plantar ligament
2. Anterior talofibular ligament
3. Posterior talofibular ligament
4. Anterior inferior tibiofibular ligament
5. Posterior inferior tibiofibular ligament

Question 74
What is the most common associated pathology to look for in patients with fifth metatarsal stress fractures?

1. Hindfoot varus deformity
2. Lateral ligament instability
3. Talocalcaneal tarsal coalition
4. Peroneus brevis tendon rupture
5. Anterior process calcaneal fracture
Question 75
Hallux rigidus can lead to which of the following?

1. Everted gait
2. Increased push-off
3. Haglund deformity
4. Transfer metatarsalgia
5. Flexor hallucis longus rupture

Question 76
When using a single-incision flexor hallucis longus transfer for augmentation of a repair for chronic Achillae tendon rupture, which of the following can be expected?

1. Low functional scores (AOFAS MTP-IP scores)
2. Significantly decreased hallucal phalangeal pressure
3. Transfer metatarsalgia of the lesser metatarsal heads
4. Increased plantar pressure at the first metatarsal head
5. Increased recruitment of the short hallucal flexors

Question 77
Following surgery for an ankle fracture, which of the following is considered the most important factor in achieving a satisfactory outcome?

1. Physical therapy
2. Early weight bearing
3. Anatomic alignment
4. Early range of motion of the ankle
5. Calcium and vitamin D administration

Question 78
Recurrence of hallux valgus deformity after corrective surgery has been shown to be related to which of the following?

1. Inversely correlated with presence of bipartite fibular sesamoid
2. Associated with residual increased tibial sesamoid displacement
3. Associated with squared lateral first metatarsal shape
4. Unrelated to preoperative 1-2 intermetatarsal angle
5. Unrelated to preoperative hallux valgus angle
Question 79
A 33-year-old woman has had plantar first metatarsophalangeal joint pain for 3 years. Examination reveals that she is tender under the medial sesamoid. She has no swelling or ecchymosis. The first metatarsophalangeal joint motion is equal and stable bilaterally. Radiographically, there is some fragmentation of the medial sesamoid with increased density in some of the fragments. Various orthotic and shoe modifications have failed to provide relief. What is the most appropriate management?

1. First metatarsophalangeal joint arthrodesis
2. Open reduction and internal fixation of the medial sesamoid
3. Medial sesamoid excision
4. Shoe wear and heel heights modifications
5. Corticosteroid injection of the first metatarsophalangeal joint

Question 80
What is the most common organism in osteomyelitis of the foot that results from a puncture wound in a non-diabetic patient?

1. Proteus
2. Clostridia
3. Pseudomonas
4. Streptococcus
5. Staphylococcus aureus

Question 81
A patient underwent an open reduction and internal fixation of a calcaneus fracture 6 months ago via an extensile lateral approach. He now reports burning pain on the lateral side of his ankle and foot. A local cortisone injection at the site of the tenderness, about 7 cm above the lateral heel, provided temporary relief of the pain. What is the recommended course of management for the persistent burning pain?

1. Subtalar fusion
2. Neuroplasty of the superficial peroneal nerve
3. Neuroplasty of the sural nerve and implant removal
4. Excision and burial of the sural nerve in deep muscle or vein
5. Electromyography/nerve conduction velocity studies to evaluate local nerve entrapment versus radiculopathy
Question 82
Many incisions around the foot and ankle are associated with potential nerve problems. Which of the following is the most appropriate pairing of surgical incision and the likely nerve injury?

1. Gastroc recession-injury to the sural nerve
2. Anterior total ankle approach-injury to the tibial nerve
3. Tarsal tunnel release-injury to the deep peroneal nerve
4. Peroneal tendon repair-injury to the superficial peroneal nerve (SPN)
5. Open reduction and internal fixation of the calcaneus-injury to the lateral plantar nerve

Question 83
A cavovarus foot reconstruction is planned. Which of the following tendon transfers will decrease the plantar flexion forces being applied to the first metatarsal head?

1. Split anterior tibial tendon transfer
2. Peroneal longus to peroneal brevis
3. Flexor digitorum to posterior tibial tendon
4. Flexor digitorum longus to extensor digitorum longus
5. Posterior tibial tendon transfer through the interosseous to the dorsal lateral cuneiform

Question 84
A tall, thin 17-year-old basketball player and his parents request an evaluation of his flexible (hypermobile) pes planus/planovalgus foot deformities. As part of his evaluation, the orthopaedic surgeon notes pectus excavatum, disproportionately long arms, and scoliosis. In addition to providing treatment of his feet, what test or evaluation should the patient be referred for?

1. Cardiovascular evaluation
2. Ophthalmologic evaluation
3. MRI of the spine
4. Radiographs of the hip
5. Genetic testing
Question 85

A 35-year-old man sustained a Lisfranc dislocation 2 years ago. He was treated with standard open reduction and fixation. At 4 months, the screws were removed. He now has increasing pain and discomfort. A current radiograph is shown in Figure 85. What is the best treatment option?

1. Reduction and fusion of the medial three tarsometatarsal (TMT) joints
2. Reduction and fusion of all five tarsometatarsal joints
3. Revision open reduction and internal fixation with bridge plates to avoid further damage to the joints
4. Revision open reduction and internal fixation but leave the screws in indefinitely
5. Soft-tissue interpositional grafts for the tarsometatarsal joints
Question 86

Figures 86a and 86b are the AP and lateral radiographs of an active, healthy 60-year-old man who has had a 1-year history of swelling and pain in the right foot. He denies any history of trauma. Nonsteroidal anti-inflammatory drugs and an orthosis have failed to provide relief of his symptoms. What is the most appropriate treatment?

1. Triple arthrodesis
2. Subtalar arthrodesis
3. Talonaviculocuneiform arthrodesis
4. Pantalar arthrodesis with calcaneal osteotomy
5. Calcaneal osteotomy and dorsiflexion osteotomy of the first metatarsal
Question 87
Figures 87a and 87b are the radiographs and MRI scan of a 17-year-old cross country runner who reports pain in his forefoot around the third and fourth metatarsals. The pain is mostly on top of the foot and appears to be activity related. There is minimal swelling on examination and diffuse tenderness over the third and fourth metatarsal shafts. What is the most appropriate management?

1. Three-phase bone scan
2. Bone density examination
3. Non-weight-bearing short-leg cast
4. Fracture boot with weight bearing as tolerated
5. Limit his miles and repeat radiographs in 2 weeks

Question 88
The peroneus brevis is the primary antagonist to which of the following structures?

1. Anterior tibialis
2. Posterior tibialis
3. Peroneus longus
4. Flexor hallucis longus
5. Extensor hallucis longus
Question 89
Lisfranc’s ligament connects which of the following structures?

1. Base of the first metatarsal to the base of the second metatarsal
2. Base of the first metatarsal to the middle cuneiform
3. Base of the second metatarsal to the middle cuneiform
4. Base of the second metatarsal to the medial cuneiform
5. Medial cuneiform to the middle cuneiform

Question 90
A football player who injured his right lower extremity during a game could not get up and reported extreme pain. The initial sideline evaluation showed a probable anterior cruciate, posterior cruciate, and lateral collateral ligament rupture with a very unstable knee. He also reports pain in his ankle and is unable to dorsiflex the ankle. He has limited sensation over the dorsum of his foot. Examination reveals no swelling of the ankle and no pain with passive range of motion of the ankle. What is the most likely diagnosis?

1. Tibial nerve injury
2. Associated ankle fracture
3. Acute compartment syndrome
4. Injury to the common peroneal nerve
5. Rupture of the tibialis anterior tendon
Question 91
Figures 91a through 91c are the radiographs of a 10-year-old boy who has a 6-month history of progressive heel pain. The patient is a year-round soccer player and now experiences pain with most every step. What is the most appropriate management?

1. MRI
2. Custom orthotics
3. Activity modification
4. Calcaneal epiphysiodesis
5. Percutaneous Achilles tendon lengthening
Question 92
Figures 92a through 92c are the clinical photographs and radiograph of a 22-year-old man who has had a 6-month history of lateral ankle pain following minor ankle trauma. He has undergone physical therapy, which only made it more symptomatic. What is the most appropriate management?

1. Arthrodesis
2. Bar resection
3. Immobilization
4. Corrective osteotomy
5. Injection of the peroneal tendons
Question 93
A 50-year-old woman with a mild flexible planovalgus foot deformity has lateral hindfoot pain. What is the simplest modification of her shoe wear to help offload the lateral hindfoot?

1. Medial hindfoot posting
2. Lateral hindfoot posting
3. Rigid foot orthotic
4. Semi-rigid foot orthotic
5. Accommodative foot orthotic
Question 94
Figures 94a through 94d are the weight-bearing radiographs of a 45-year-old man who is an avid tennis player and has intermittent lateral midfoot pain. He has sustained three ankle sprains in the past 10 years and has occasional sensations of instability. Examination includes mild laxity with lateral ankle ligament testing, normal ankle and hindfoot motion, a supple forefoot, and no ankle joint line pain. What is the most appropriate management?

1. MRI
2. Boot immobilization
3. Nonsteroidal anti-inflammatory drugs (NSAIDs) and lace-up bracing
4. Physical therapy and an orthotic with mild arch support and 5° medial posting
5. Physical therapy and an orthotic with lateral forefoot posting and first metatarsal head recessing
Question 95
A 49-year-old woman underwent a successful right ankle fusion. She now reports an altered gait. In an attempt to improve her gait, what is the most appropriate device?

1. Arizona brace
2. Rocker-bottom sole
3. Double upright drop-lock brace
4. Non-articulated ankle-foot orthosis
5. Carbon fiber insert with a Morton’s extension

Question 96
A 31-year-old woman underwent a left Kidner procedure 3 months ago. She now has pain overlying the medial column of the foot. She withdraws the foot when touching of the medial foot is attempted. Examination reveals allodynia, pain, hyperalgesia, and edema of the medial foot. What is the most likely diagnosis?

1. Shingles
2. Cellulitis
3. Charcot foot
4. Osteomyelitis
5. Reflex sympathetic dystrophy
Question 97
With respect to the clinical photograph shown in Figure 97, what artery provides the most blood supply to the area of the planned incision?

1. Lateral tarsal
2. Lateral calcaneal
3. Lateral malleolar
4. Common peroneal
5. Artery of the tarsal sinus

Question 98
A 39-year-old woman sustains a grade III inversion ankle sprain and is treated with boot immobilization, crutches, and physical therapy, through her primary care physician. The patient is referred for evaluation 3 weeks later because of persistent pain and inability to bear weight. Examination reveals mild residual swelling and exquisite tenderness to light touch overlying the anterolateral ankle and dorsolateral foot. Passive range of motion also reproduces extreme pain. Radiographs are negative for fracture and an MRI scan shows a tear of the anterior talofibular ligament. What is the most appropriate management?

1. Cast immobilization
2. Anticonvulsant therapy
3. Brostrom ligament reconstruction
4. Ankle arthroscopy with débridement
5. Proprioceptive physical therapy and a lace-up ankle brace
Question 99
Which of the following factors predisposes patients undergoing lateral ankle reconstruction to surgical failure?

1. Low functional demand
2. Anatomic reconstruction
3. Cavovarus foot deformity
4. Planovalgus foot deformity
5. History of acute instability (preoperative)

Question 100
A 63-year-old man has long-standing type 2 diabetes. He has had associated ongoing neuropathy for approximately 5 years. He now reports a red, hot, swollen right foot for the past 2 days. You place him supine in your office with the foot elevated for 30 minutes. You return to see that the redness has dissipated. What is the most likely diagnosis?

1. Cellulitis
2. Osteomyelitis
3. Charcot arthropathy
4. Sjogren syndrome
5. Reynaud syndrome
CLINICAL SITUATION FOR QUESTIONS 101 THROUGH 103
A 27-year-old woman has had pain in her right ankle for 2 years. Examination reveals a slightly warm joint, without erythema. Ankle range of motion is limited by pain. Radiographs are unremarkable. Because management consisting of immobilization, nonsteroidal anti-inflammatory drugs, and physiotherapy has failed to provide relief, MRI scans are obtained and shown in Figures 101a and 101b. An intraoperative image and the histology are shown in Figures 101c and 101d.
Question 101
What is the best descriptor for the lesion shown in Figures 101a and 101b?

1. Normal anatomic variant
2. Inflammatory
3. Dedifferentiated malignancy
4. Well-differentiated malignancy
5. Locally aggressive

Question 102
The orthopaedic surgeon treats the lesion arthroscopically. An intraoperative image is shown in Figure 101c. What is the most appropriate immediate treatment?

1. Careful removal of the instrumentation without disrupting the lesion
2. Obtain a tissue biopsy, removal of the instrumentation, and wound closure
3. Obtain a tissue biopsy and perform an extensive arthroscopic débridement
4. Place a supramalleolar tourniquet to prevent metastasis of tumor cells
5. Transilluminate the lesion with the arthroscope and place sutures in the overlying skin for future brachytherapy catheter placement

Question 103
The histology of the lesion is shown in Figure 101d. What is the most likely complication after treatment of this lesion?

1. Arthrofibrosis
2. Local recurrence
3. Chondrolysis
4. Disseminated infection
5. Metastasis

END OF SERIES
RESPONSES FOR QUESTIONS 104 THROUGH 106

1. Toe is fused too straight (plantar flexed)
2. Toe is fused in too much valgus
3. Toe is fused in too much dorsiflexion
4. There is a nonunion of the fusion
5. Excessive shortening of the first metatarsal during preparation for fusion

What is the most likely diagnosis for each patient?

Question 104
A 32-year-old woman has had increasing pain in her great toe when she tries to run and finds it impossible to wear shoes with a heel. She has noticed an increasing callous build-up on the lateral border of her foot. She is pain-free with flat shoes and can walk without pain when walking slow.

Question 105
A man reports a painful soft corn on the medial side of the second toe, and a corresponding callus on the lateral side of the great toe. He reports some relief if he places a soft spacer between the toes. The symptoms are not aggravated or relieved by any type of footwear.

Question 106
A woman who underwent fusion of her great toe 15 months ago now is unhappy with the result. The foot is asymptomatic in the morning but by evening is more swollen and painful, especially if she is very active. She reports increased pain when wearing shoes with heels and feels best in flat, stiff-soled shoes. As she increases her activity level, the symptoms are getting worse rather than better.

END OF SERIES
CLINICAL SITUATION FOR QUESTIONS 107 AND 108

Figures 107a and 107b are the coronal and axial CT scans of a 19-year-old woman who sustained a twisting ankle injury that was previously diagnosed as an ankle sprain. She reports a feeling of giving out in the ankle and continues to have pain despite rest and immobilization. She denies any history of problems with the ankle.

Question 107
What structure attaches at the fracture site shown in Figures 107a and 107b?

1. Anterior talofibular ligament (ATFL)
2. Anterior inferior tibiofibular ligament (AITFL)
3. Deltoid ligament
4. Calcaneofibular ligament (CFL)
5. Superficial peroneal retinaculum (SPR)
Question 108
Because of the ongoing pain and instability and the demonstration of radiographic instability when the ankle is stressed, what surgical procedure should be performed to restore stability to the ankle joint based on the CT findings?

1. Brostrom procedure
2. Syndesmosis repair or stabilization
3. Allograft lateral ligament reconstruction
4. Excision of loose body/fracture fragment
5. Repair of the SPR with possible fibular groove deepening

END OF SERIES