# Questions

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(1) A 12-year-old gymnast has had elbow pain for 4 weeks. She denies any specific trauma to the elbow. An examination reveals lateral pain and no instability on testing. The range of motion is as follows: 15°, loss of elbow extension, normal flexion, and normal pronation and supination. Radiographs reveal a $3 \times 7$ mm radiolucency of the capitellum. A $T_1$-weighted MRI scan reveals a single solitary lesion, and $T_2$-weighted images reveal no signals around the lesion. There are no intra-articular loose bodies. The appropriate management should include which of the following?

(a) Arthroscopic debridement of the elbow.
(b) Open repair of the lesion.
(c) Open biopsy of the lesion.
(d) Continued participation in gymnastics until symptoms worsen.
(e) No participation in gymnastics until symptoms resolve and motion recovers.

(2) Which of the following statements best describes labral tears in the hip?

(a) They are unrelated to degenerative joint disease.
(b) They lead to increased movement of the femur relative to the acetabulum.
(c) They usually result from lesions of the ligamentum teres.
(d) They only occur with abnormal bone morphology.
(e) They commonly occur in the posteroinferior quadrant of the hip.

(3) What is the theoretical advantage of the open subpectoral technique of tenodesis of the long head of the biceps tendon over arthroscopic soft-tissue tenodesis techniques?

(a) Has improved cosmesis.
(b) Is simpler to perform in the lateral decubitus position.
(c) Has a shorter surgical time.
(d) Involves removal of the biceps tendon from the bicipital groove.
(e) Superior outcomes when compared with soft-tissue tenodesis in level I studies.

(4) Which allograft has the highest antigenicity when used for ligament reconstruction of the knee?

(a) The tibialis anterior used for anterior cruciate ligament (ACL) reconstruction.
(b) The tibialis anterior used for posterolateral reconstruction.
(c) The bone-patellar tendon-bone used for ACL reconstruction.
(d) The semitendinosus used for posterior cruciate ligament reconstruction.
(e) The semitendinosus used for medial collateral ligament reconstruction.

(5) Which of the following clinical findings is most commonly present in chronic exertional compartment syndrome of the anterior compartment of the leg?

(a) Absence of a dorsalis pedis pulse on exercise.
(b) Pain in the anterior compartment 30 min after exercise.
(c) Anterior leg pain with passive dorsiflexion of the toes 30 min after exercise.
(d) An intracompartmental pressure of 30 mmHg at 1 min after exercise.
(e) Sensory loss of the plantar aspect of the foot on exercise.

(6) Effective management of heterotopic ossification (HO) after total hip arthroplasty should include which of the following?

(a) Indomethacin treatment for 10 days postoperatively.
(b) Immediate excision of established HO, followed by radiation therapy or indomethacin treatment.
(c) Postoperative administration of ethylhydroxydiphosphonate.
(d) Preoperative administration of radiation therapy 1 week before surgery.
(e) Postoperative administration of radiation therapy.

(7) Which of the following statements best describes the kinematic behavior of the knee during motion from full extension to flexion?

(a) Both the medial and lateral knee tibiofemoral contact points rotate and translate equally on increasing knee flexion.
(b) The medial femoral condyle translates much less compared with the lateral femoral condyle on knee flexion.
(c) The lateral femoral condyle translates much less compared with the medial femoral condyle on knee flexion.
(d) The medial compartment rotates internally, whereas the lateral compartment rotates externally.
(e) The lateral compartment rotates internally, whereas the medial compartment rotates externally.

(8) A 68-year-old woman is undergoing a cementless medial/lateral tapered femoral placement during a total hip arthroplasty, and the surgeon notices a



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small crack forming in the anteromedial femoral neck on final implant insertion. The most appropriate management should include which of the following?

(a) Placement of a cerclage cable around the femoral neck above the lesser trochanter.
(b) Removal of the implant, placement of a cable around the femoral neck above the lesser trochanter, and reinsertion of the implant.
(c) Removal of the press-fit implant and cementing of the same femoral stem.
(d) Final seating of the cementless femoral component without additional measures.
(e) Removal of the cementless femoral component and revision with a modular tapered fluted femoral stem.

(9) Brace treatment is recommended for adolescent idiopathic scoliosis when which of the following findings is present?

(a) Any patient with a curve of greater than 25°.
(b) Boys with a curve of greater than 20°.
(c) Premenarchal girls with a curve of greater than 30°.
(d) More than 5° of progression in a growing child with a 20° curve.
(e) A girl who is Risser grade 4 with a 30° curve.

(10) Congenital anomalies of the vertebral column are associated frequently with other organ system problems. In addition to radiographs of the spine, what other screening tests should be ordered?

(a) A spinal MRI and a coagulation panel.
(b) Liver enzymes tests and a coagulation panel.
(c) A renal ultrasound and examination of the upper and lower GI tract.
(d) Cardiac evaluation/echocardiography and examination of the upper and lower GI tract.
(e) A renal ultrasound, cardiac evaluation/echocardiography, and a spinal MRI.

(11) A 12-year-old girl is seen for left ankle pain. Radiographs reveal osteochondritis dissecans involving the talus. What should the parents be told as regards the management?

(a) No treatment is required because spontaneous healing is common.
(b) Nonsurgical management typically relieves pain and results in radiographic healing in less than 12 weeks.
(c) Nonsurgical management frequently relieves pain but often may not result in radiographic healing even 6 months after treatment.
(d) Hyperbaric oxygen treatment is helpful.
(e) Ankle fusion is frequently necessary.

(12) A 4-year-old child has droopy shoulders. Examination reveals that the child has a large head, short stature, and a narrow chest. Radiographs of the spine and chest show absent clavicles, delayed ossification of the pubis and ischium, and mild coxa vara. What is the inheritance pattern for this condition?

(a) Autosomal dominant.
(b) Autosomal recessive.
(c) Sex-linked recessive.
(d) Sex-linked dominant.
(e) No inheritance pattern.

(13) What is the most appropriate tendon transfer and augmentation for surgical treatment of a chronic Achilles tendon rupture?

(a) The flexor hallucis longus.
(b) The extensor digitorum longus.
(c) The peroneus longus.
(d) The tibialis anterior.
(e) The tibialis posterior.

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

(a) The superomedial calcaneonavicular.
(b) The dorsal cuneonavicular.
(c) The dorsal intercuneiform.
(d) The dorsal calcaneocuboid.
(e) The anterior tibiofibular.

(15) Which is the most important measure to be undertaken to reduce the risk of frostbite of the toes while hiking in extreme temperatures?

(a) Stop often for recovery breaks.
(b) Drink enough warm liquids.
(c) Reduce thermal heat loss from shoes.
(d) Use triple socks.
(e) Carbo-load adequately before the start.

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

(a) The use of cut or trimmed plates.
(b) The use of straight (uncontoured) plates.
(c) The use of locked plating.
(d) A low plate placement with a prominent screw head in the distal hole.
(e) A low antiglide plate placement.

(17) 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?

(a) A full-length accommodative insert.
(b) A semirigid insert with a mild medial arch support and a 5° medial post.

(c) A night splint.
(d) A cavus foot orthotic.
(e) A Visco gel heel cushion.

(18) Which of the following nerves is most susceptible to iatrogenic injury during bunion surgery?

(a) The terminal branch of the superficial peroneal nerve.
(b) The terminal branch of the saphenous nerve.
(c) The dorsolateral cutaneous nerve.
(d) The medial plantar hallucal nerve.
(e) The deep peroneal nerve.

(19) 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 carried out, but it was also noted that he sustained a complete transection of the peroneal nerve. A primary nerve repair was carried out, 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?

(a) Sural nerve cable grafting of the peroneal nerve.
(b) Transfer of the peroneus longus to the tibialis anterior tendon.
(c) Transfer of the tibialis posterior to the dorsum of the foot.
(d) Transfer of the extensor hallucis longus to the tibialis anterior tendon.
(e) Ankle fusion to eliminate the need for an ankle dorsiflexor.

(20) Which of the following is associated with tarsal tunnel syndrome?

(a) An adult-acquired flatfoot.
(b) Insertional Achilles tendinitis.
(c) A hypermobile first ray.
(d) A metatarsal stress fracture.
(e) Gastrocnemius contracture.

## Answers

1: Preferred response: 5
Discussion: This is a typical presentation for an osteochondral lesion of the capitellum. This patient is young and has, by definition, a stable lesion and an excellent potential to heal this lesion with nonsurgical management. However, the patient should stop her activities (gymnastics) to prevent further damage and the possible development of an unstable lesion that might then necessitate surgery. Surgical procedures are generally not necessary for the treatment of these lesions.

References: Byrd JW, Jones KS. Arthroscopic surgery for isolated capitellar osteochondritis dissecans in adolescent baseball players: minimum three-year follow-up. *Am J Sports Med* 2002; **30**:474–478.

Cain EL Jr., Dugas JR, Wolf RS, *et al*. Elbow injuries in throwing athletes: a current concepts review. *Am J Sports Med* 2003; **31**:621–635.

2: Preferred response: 2
Discussion: Labral and chondral lesions are observed within the anterosuperior quadrant of the acetabulum. Tearing of the labrum markedly reduces resistance to joint motion, leading to instability. The most common associated lesions are chondral injuries. They can occur with or without abnormal bone morphology. The etiology for labral tears can be from traumatic and degenerative causes, structural abnormalities from femoroacetabular impingement, developmental abnormalities, and hip instability.

References: Beck M, Kalhor M, Leunig M, *et al*. Hip morphology influences the pattern of damage to the acetabular cartilage: femoroacetabular impingement as a cause of early osteoarthritis of the hip. *J Bone Joint Surg Br* 2005; **87**:1012–1018.

Ito K, Leunig M, Ganz R. Histopathologic features of the acetabular labrum in femoroacetabular impingement. *Clin Orthop Relat Res* 2004; **429**:262–271.

Crawford MJ, Dy CJ, Alexander JW, *et al*. The 2007 Frank Stinchfield Award. The biomechanics of the hip labrum and the stability of the hip. *Clin Orthop Relat Res* 2007; **465**:16–22.

3: Preferred response: 4
Discussion: A subpectoral biceps tenodesis requires an additional incision at the insertion of the pectoralis major tendon on the humerus. This technique can be difficult to perform in the lateral decubitus position and certainly does not decrease the surgical time when compared with arthroscopic soft-tissue techniques. There have been no level I studies comparing the two techniques; however, the theoretical advantage of open biceps subpectoral tenodesis is that the biceps tendon is removed from the bicipital groove, which may eliminate the source of pain in the biceps tendon.

References: Mazzocca AD, Rios CG, Romeo AA, *et al*. Subpectoral biceps tenodesis with interference screw fixation. *Arthroscopy* 2005; **21**:896.

Osbahr DC, Diamond AB, Speer KP. The cosmetic appearance of the biceps muscle after long-head tenotomy versus tenodesis. *Arthroscopy* 2002; **18**:483–487.

4: Preferred response: 3
Discussion: Although theoretically the intra-articular environment is slightly more immune privileged, the role of immunogenicity is related more to bone than to soft-tissues. Therefore, the bone-patellar tendon-bone used for ACL reconstruction would have the highest risk of immunogenicity if the storage and harvest techniques are kept similar. This also is true for bone plugs associated with meniscal allografts.

References: Rodeo SA, Seneviratne A, Suzuki K, *et al*. Histological analysis of human meniscal allografts: a

preliminary report. *J Bone Joint Surg Am* 2000; **82**:1071–1082.

West RV, Harner CD. Graft selection in anterior cruciate ligament reconstruction. J *Am Acad Orthop Surg* 2005; **13**:197–207.

5: Preferred response: 4

Discussion: Chronic exertional compartment syndrome of the leg is characterized by pain (often of a burning nature) in the involved compartment(s) (typically anterior) that worsens with activity and completely subsides within 15 min of activity cessation. A high index of suspicion is warranted for this condition. The intracompartmental pressure thresholds considered diagnostic are: a 1-min postexercise pressure of 30 mmHg and a 5-min postexercise pressure of 20 mmHg. This condition is not associated with the classic findings of an acute compartment syndrome. In this particular example, anterior leg pain with passive dorsiflexion of the toes and sensory loss of the plantar aspect of the foot would not be expected with an exertional compartment syndrome of the anterior compartment.

References: Pedowitz RA, Hargens AR, Mubarek SJ, *et al.* Modified criteria for the objective diagnosis of chronic compartment syndrome of the leg. *Am J Sports Med* 1990; **18**:35–40.

Rorabeck CH, Fowler PJ, Nott L. The results of fasciotomy in the management of chronic exertional compartment syndrome. *Am J Sports Med* 1988; **16**:224–227.

6: Preferred response: 5

Discussion: Postoperative administration of ethylhydroxydiphosphonate results in a delay in the mineralization of the osteoid, but ultimately the HO formation is not decreased. In addition, the delay in mineralization does not improve the range of motion of the involved hips. Indomethacin has proven to be an effective long-term therapy. To be most effective, radiation therapy must be administered during the immediate postoperative period.

References: lorio R, Healy WL. Heterotopic ossification after hip and knee arthroplasty: risk factors, prevention, and treatment. *J Am Acad Orthop Surg* 2002; **10**:409–416.

Pellegrini VD Jr., Gregoritch SJ. Preoperative irradiation for prevention of heterotopic ossification following total hip arthroplasty. *J Bone Joint Surg Am* 1996; **78**:870–881.

Pellegrini VD Jr., Konski AA, Gastel JA, *et al*. Prevention of heterotopic ossification with irradiation after total hip arthroplasty: radiation therapy with a single dose of eight hundred centigray administered to a limited field. *J Bone Joint Surg Am* 1992; **74**:186–200.

7: Preferred response: 2

Discussion: During normal knee flexion, the knee kinematic analysis reveals that the medial tibiofemoral contact point moves very little (translates) in the anteroposterior direction, whereas the lateral contact point moves much more in the anteroposterior direction (translates), resulting in more lateral translation, rollback, and medial pivoting.

References: Churchill DL, Incavo SJ, Johnson CC, *et al.* The transepicondylar axis approximates the optimal flexion axis of the knee. *Clin Orthop Relat Res* 1998; **356**:111–118.

8: Preferred response: 2

Discussion: The recognized treatment of the proximal periprosthetic fracture is first to identify its extent and then to optimize the correction. Removing the implant seems logical to accomplish the identification. Several studies indicate that proximal cerclage wiring is adequate to create a 'barrel hoop' stability of the proximal femur. The postoperative management may also include protected weight bearing and periodic radiographs.

References: Barrack RL, Booth RE Jr., Lonner JH, *et al.* (editors). Orthopaedic knowledge update: hip and knee reconstruction 3. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2006. pp. 475–503.

Warren PJ, Thompson P, Fletcher MD. Transfemoral implantation of the Wagner SL stem: The abolition of subsidence and enhancement of osteotomy union rate using Dall-Miles cables. *Arch Orthop Trauma Surg* 2002; **122**:557–560.

9: Preferred response: 3

Discussion: Brace treatment is recommended for a patient with a substantial growth potential (Risser grade 2), any curve of greater than 30°, or a curve of greater than 20–25°, with more than 5° of documented progression. Skeletally immature patients who have a curve of greater than 25° are not considered for bracing. If a boy has a curve of 20°, progression would be necessary to recommend bracing. A premenarchal girl with a curve of greater than 45° is best treated with early surgical intervention, as progression is extremely likely. A girl who is Risser grade 4 with a 30° curve on presentation should be observed.

References: Fischgrund JS (editor). Orthopedic knowledge update 9. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2008. p. 698.

10: Preferred response: 5

Discussion: Approximately 60% of patients with congenital anomalies of the spine have other associated findings. The spine develops around the same time as the cardiovascular system, the genitourinary system, and the musculoskeletal system. Around 20% of patients with congenital scoliosis have an associated urological abnormality. Approximately 25% of patients with congenital scoliosis have an associated cardiac defect. In one study, spinal cord abnormalities occurred in approximately 37% of patients with congenital scoliosis.

References: Basu PS, Elsebaie H, Noordeen MH. Congenital spinal deformity: a comprehensive assessment at presentation. *Spine* 2002; **27**:2255–2259.

Ferguson RL. Medical and congenital comorbidities associated with spinal deformities in the immature spine. *J Bone Joint Surg Am* 2007; **89**:34–41.

McMaster MJ, Ohtsuka K. The natural history of congenital scoliosis: a study of two hundred and fifty-one patients. *J Bone Joint Surg Am* 1982; **64**: 1128–1147.

11: Preferred response: 3

Discussion: Nonsurgical management of osteochondritis dissecans of the talus in skeletally immature individuals frequently results in a fairly rapid decrease in the symptoms; however, radiographic abnormalities can frequently be found even 6 months after treatment. Spontaneous resolution of this condition is rare. Hyperbaric oxygen treatment has not been shown to be beneficial for this condition. Progression of the condition to the point of requiring an ankle fusion is rare.

References: Peramal V, Wall E, Babekir N. Juvenile osteochondritis dissecans of the talus. *J Pediat Orthop* 2007; **27**:821–825.

Letts M, Davidson D, Ahmer A. Osteochondritis dissecans of the talus in children. *J Pediatr Orthop* 2003; **23**:617–625.

12: Preferred response: 1

Discussion: The child has the clinical and radiographic features of cleidocranial dysostosis. This is a disorder of the bones resulting from intramembranous ossification. It is inherited as an autosomal dominant condition. About two-thirds of cases are familial.

References: Dietz FR, Mathews KD. Update on the genetic bases of disorders with orthopaedic manifestations. *J Joint Bone Surg Am* 1996; **78**:1583–1598.

Lee B, Thirunavukkarasu K, Zhou L, *et al*. Missense mutations abolishing DNA binding of osteoblast-specific transcription factor OSF2/CBFA1 in cleidocranial dysplasia. *Nat Genet* 1997; **16**:307–310.

13: Preferred response: 1

Discussion: Flexor hallucis longus tendon transfer provides a biomechanically strong structure to bridge the defect in surgical treatment of a chronic Achilles tendon rupture. Although the flexor hallucis longus remains the optimal tendon for transfer, others studies have described tendon transfer and augmentation with the plantaris, peroneus brevis, posterior tibial, and flexor digitorum longus. Tibialis anterior and extensor digitorum longus reside in the anterior compartment of the leg and would be out-of-phase transfers.

References: Wilcox DK, Bohay DR, Anderson JG. Treatment of chronic Achilles tendon disorders with flexor hallucis longus tendon transfer/augmentation. *Foot Ankle Int* 2000; **21**(12):1004–1010.

Den Hartog BD. Flexor hallucis longus transfer for chronic Achilles tendonosis. *Foot Ankle Int* 2003; **24**(3):233–237.

Hansen ST. Trauma to the heel cord. In: Jahss MH, editor. *Disorders of the foot and ankle*, 2nd ed. Philadelphia; PA: WB Saunders; 1991. pp. 2355–2360.

Sands AK. Achilles tendon reconstruction with flexor hallucis longus transfer augmentation. In: Pfeffer G, Easley M, Frey C, Hintermahn B, Sands A, editors. *Operative techniques: foot and ankle surgery.* Philadelphia, PA: Saunders Elsevier; 2010. pp. 668–678.

14: Preferred response: 1

Discussion: The spring ligament (calcaneonavicular) extends from the anterior aspect of the sustentaculum tali to the plantar medial surface of the navicular, supporting the plantar medial margin of the talar head. The spring ligament has two components: superomedial calcaneonavicular ligament and the inferior calcaneonavicular ligament, the former of which is commonly attenuated or torn in patients with an adult-acquired flatfoot deformity. The distal portion of the deltoid ligament blends into the spring ligament and is also frequently attenuated in patients with this foot deformity. The dorsal intertarsal ligaments and the anterior tibiofibular ligament of the ankle are not affected.

References: Pinney SJ, Lin SS. Current concept review: acquired adult flatfoot deformity [review]. *Foot Ankle Int* 2006; **27**(l):66–75.

Pomeroy GC, Pike RH, Beals TC, Manoli A 2nd. Acquired flatfoot in adults due to dysfunction of the posterior tibial tendon [review]. *J Bone Joint Surg Am* 1999; **8l**(8):1173–1182.

Gazdag AR, Cracchiolo A 3rd. Rupture of the posterior tibial tendon. Evaluation of injury of the spring ligament and clinical assessment of tendon transfer and ligament repair. *J Bone Joint Surg Am* 1997; **79**(5):675–681.

15: Preferred response: 3

Discussion: Several studies have shown that the most reliable method to reduce the risk of cold exposure injury is to reduce thermal heat loss. This can be achieved with a combination of protective socks and shoes and reducing the moisture in shoes.

References: Kuklane K. Protection of feet in cold exposure. *Ind Health* 2009; **47**(3):242–253.

Kuklane K. The use of footwear insulation values measured on a thermal foot model. *Int J Occup Saf Ergon* 2004; **10**(l):79–86.

Kuklane K, Ueno S, Sawada S, 'Holmer I. Testing cold protection according to EN ISO 20344: is there any professional footwear that does not pass? *Ann Occup Hyg* 2009; **53**(l):63–68.

Kuklane K, Afanasieva R, Burmistrpva O, Bessonova N, Holmer I. Determination of heat loss from the feet and insulation of the footwear. *Int J Occup Saf Ergon* 1999; **5**(4):465–476.

16: Preferred response: 4

Discussion: Low plate positioning with a prominent screw head in the most distal hole of the plate has been

shown to be correlated with peroneal tendon lesions. Distal plate placement in the absence of prominent screws has not been associated with tendon lesions. Trimmed plates, locked plates, and uncontoured plates have not been shown to increase the risk of peroneal tendon pathology.

References: Weber M, Krau.se F. Peroneal tendon lesions caused by antiglide plates used for fixation of lateral malleolar fractures: the effect of plate and screw position. *Foot Ankle Int* 2005; **26**(4):281–285.

Feinblatt J, Graves SC. Disorders of the anterior tibial, peroneal, and Achilles tendons. In: Pinzur MS, editor. *Orthopaedic knowledge update: foot and ankle 4.* Rosemont, IL: American Academy of Orthopaedic Surgeons; 2008. pp. 115–133.

17: Preferred response: 3

Discussion: Of the possible responses, only the night splint has been shown to be effective in the treatment of chronic plantar fasciitis. The role of inserts in plantar fasciitis is controversial, with limited scientific data. Although a cavus foot orthotic can be of benefit with respect to plantar fascia symptoms, it is an indirect benefit of accommodating the plantar-flexed first ray and has not been scientifically proven.

References: Jeng CL, Logue J. Shoes and Orthotics. In: Pinzur MS, editor. *Orthopaedic knowledge update: foot and ankle 4.* Rosemont, IL: American Academy of Orthopaedic Surgeons; 2008. pp. 15–24.

Wapner KL. Conservative treatment of the foot. In: Coughlin MJ, Mann RA, Saltzman CL, editors. *Surgery of the foot and ankle.* Vol 1. 8th ed. Philadelphia, PA: Mosby; 2007. pp. 133–149.

18: Preferred response: 1

Discussion: The dorsomedial cutaneous nerve, which is the terminal branch of the superficial peroneal nerve, is most susceptible to iatrogenic injuries, primarily because of the location of the surgical incisions. The dorsolateral cutaneous nerve is typically a branch of the deep peroneal nerve. The medial plantar hallucal nerve is a branch of the medial plantar nerve. The terminal branch of the saphenous nerve provides sensation to the dorsomedial hindfoot.

References: Miller SD. Nerve disorders of the hallux [review]. *Foot Ankle Clin* 2009; **14**(l):67–75.

Miller SD. Dorsomedial cutaneous nerve syndrome: treatment with nerve transection and burial into bone. *Foot Ankle Int* 2001; **22**(3):198–202.

19: Preferred response: 3

Discussion: With no recovery of dorsiflexion power 1 year after a peroneal nerve repair, it can be assumed that the nerve will not recover. The peroneus brevis and extensor hallucis longus are supplied by the peroneal nerve, therefore they will remain nonfunctional. A nerve grafting after an initial repair is less reliable compared with a transfer of the tibialis posterior tendon in restoring active dorsiflexion to the ankle. An ankle fusion should not be the first choice for an active young patient.

References: Goitz RJ, Tomaino MM. Management of peroneal nerve injuries associated with knee dislocations [review]. *Am J Orthop (Belle Mead NJ).* 2003; **32**(l):14–16.

Garozzo D, Ferraresi S, Buffatti P. Surgical treatment of common peroneal nerve injuries: indications and results. A series of 62 cases. *J Neurosurg Sci* 2004; **48**(3):105–112; Discussion 112.

Niall DM, Nuttori RW, Keating JF. Palsy of the common peroneal nerve after traumatic dislocation of the knee. *J Bone Joint Surg* Br 2005; **87**(5):664–766.

Ozkan T, Tuncer S, Ozturk K, Aydin A, Ozkan S. Tibialis posterior tendon transfer for persistent drop foot after peroneal nerve repair. *J Reeonstr Miciosurg* 2009; **25**(3):157–164.

Vigasio A, Marcoccio I, Patelli A, Mattiuzzo V, Prestini G. New tendon transfer for correction of drop-foot in common peroneal nerve palsy. *Clin Orthop Relat Res* 2008; **466**(6):1454–1466.

20: Preferred response: 1

Discussion: Of the possible answer choices, only adult-acquired flatfoot is associated with tarsal tunnel syndrome. The so-called 'heel pain triad' includes adult-acquired flatfoot, plantar fasciitis, and tarsal tunnel syndrome, in which failure of the dynamic and static supports of the medial longitudinal arch increases traction on the tibial nerve.

References: Hill KJ. Peripheral nerve disorders. In: Pinzur MS, editor. *Orthopaedic knowledge update; foot and ankle 4.* Rosemont, IL: American Academy of Orthopaedic Surgeons 2008. pp. 307–327.

Schon LC, Mann RA. Diseases of the nerves. In: Coughlin MJ, Mann RA, Saltzman CL, editors. *Surgery of the foot and ankle.* Vol 1. 8th ed. Philadelphia, PA: Mosby; 2007. pp. 613–686.