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THE JOURNAL OF BONE & JOINT SURGERY  
CONTINUING MEDICAL EDUCATION

CME

REVIEW QUESTIONS

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JANUARY, FEBRUARY, MARCH  
2004

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THE DEADLINE TO SUBMIT YOUR ANSWERS FOR GRADING THIS SET OF QUESTIONS IS JULY 15, 2004.

- 1. Which of the following is associated with the poorest functional outcome following scapulothoracic dissociation (closed forequarter amputation)?**
- injury mechanism
  - injury severity score (ISS)
  - associated vascular injury to the subclavian or axillary vessels
  - associated complete brachial plexus avulsion**
  - degree of scapular lateralization on the initial anteroposterior chest radiograph
- Zelle BA, Pape HC, Gerich TG, Garapatt R, Ceylan B, Krettek C.** Functional Outcome Following Scapulothoracic Dissociation. *J Bone Joint Surg Am.* 2004;86:2.
- 2. Which of the following clinical parameters is NOT associated with the likelihood that a nonanemic patient undergoing total hip arthroplasty will require a perioperative transfusion?**
- preoperative hemoglobin level of >110 g/L**
  - patient older than seventy-five years
  - male gender
  - hypertension
  - body mass index of <27
- Pola E, Papaleo P, Santoliquido A, Gasparini G, Aulisa L, De Santis E.** Clinical Factors Associated with an Increased Risk of Perioperative Blood Transfusion in Nonanemic Patients Undergoing Total Hip Arthroplasty. *J Bone Joint Surg Am.* 2004;86:57.
- 3. When a previously asymptomatic patient presents with lower-extremity swelling four years following total hip arthroplasty, the differential diagnosis should include all but which of the following:**
- deep-vein thrombosis
  - infection
  - compression of iliac vessels secondary to an intrapelvic cyst
  - osteolysis
  - occult lymphedema**
- Butler RA, Barrack RL.** Total Hip Wear Debris Presenting as Lower Extremity Swelling. A Report of Two Cases. *J Bone Joint Surg Am.* 2004;86:142.
- 4. Published studies have shown a wide range in the prevalence of dysphonia and dysphagia after anterior cervical spine surgery. The highest prevalence of the complications has been found in studies with which of the following characteristics?**
- sample size of less than fifty patients
  - patient assessment outcomes instruments**
  - surgery assessment outcomes instruments
  - use of an anterior cervical plate
  - multilevel procedures
- Edwards CC II, Karpitskaya Y, Cha C, Heller JG, Laurysen C, Yoon ST, Riew KD.** Accurate Identification of Adverse Outcomes after Cervical Spine Surgery. *J Bone Joint Surg Am.* 2004;86:251.
- 5. Which of the following factors was found to be the most important in decreasing the rate of loosening and polyethylene wear in patients undergoing total hip arthroplasty for developmental dysplasia?**
- lateralization of the hip center
  - use of an acetabular allograft
  - medialization of the hip center**
  - use of a cemented cup and stem
  - cup inclination angle of >45°
- Perka C, Fischer U, Taylor WR, Matziolis G.** Developmental Hip Dysplasia Treated with Total Hip Arthroplasty with a Straight Stem and a Threaded Cup. *J Bone Joint Surg Am.* 2004;86:312.
- 6. In a study of patients who elected to undergo surgery for a chronic rotator cuff tear, the presence of comorbidities had a significant negative impact on their self-reported:**
- alcohol use
  - employability
  - preoperative function**
  - surgical outcome
  - postoperative pain
- Tashjian RZ, Henn RF, Kang L, Green A.** The Effect of Comorbidity on Self-Assessed Function in Patients with a Chronic Rotator Cuff Tear. *J Bone Joint Surg Am.* 2004;86:355.
- 7. After insertion of a total elbow prosthesis into a patient with rheumatoid arthritis, paresthesias in the distribution of the ulnar nerve are significantly associated with:**
- duration of the disease
  - age of the patient
  - previous ulnar symptoms**
  - operative technique
  - position of the upper extremity during the operation
- Van Der Lugt JCT, Geskus RB, Rozing PM.** Primary Souter-Strathclyde Total Elbow Prosthesis in Rheumatoid Arthritis. *J Bone Joint Surg Am.* 2004;86:465.
- 8. Long-term steroid use by boys with Duchenne muscular dystrophy is associated with:**
- a high prevalence of osteonecrosis
  - multiple long-bone fractures
  - attenuation of the development of scoliosis**
  - muscle hypertrophy
  - need for ophthalmologic surgery for cataracts
- Alman BA, Raza SN, Biggar WD.** Steroid Treatment and the Development of Scoliosis in Males with Duchenne Muscular Dystrophy. *J Bone Joint Surg Am.* 2004;86:519.
- 9. The craniovertebral region is one of the most mobile segments of the spine. Which of the following is true with respect to this articulation?**
- the normal total range of flexion-extension is approximately 35°
  - odontoidectomy produces a significant change in axial rotation
  - the normal range of axial rotation is approximately 80°**
  - screw fixation does not substantially stabilize the C0-C2 segment

- E. the normal range of unilateral bending is approximately 30°  
**Puttlitz CM, Melcher RP, Kleinstueck FS, Harms J, Bradford DS, Lotz JC.** Stability Analysis of Craniovertebral Junction Fixation Techniques. *J Bone Joint Surg Am.* 2004;86:561
- 10. The sensitivity of a diagnostic test refers to:**  
 A. the probability of having the condition given a positive test  
**B. the probability of a positive test in patients with the condition**  
 C. the probability of not having the condition given a negative test  
 D. the probability of a negative test in patients without the condition  
 E. the probability of a positive test in patients without the condition  
**Kocher MS, Zurakowski D.** Current Concepts Review. Clinical Epidemiology and Biostatistics: A Primer for Orthopaedic Surgeons. *J Bone Joint Surg Am.* 2004;86:607.
- 11. Assessment of the outcomes of total knee arthroplasty with a mail survey is subject to response bias. In a recent survey, patients who failed to respond were:**  
 A. non-English readers  
 B. in chronic care facilities  
 C. out of state  
 D. ethnically diverse  
**E. patients with lower general health scores**  
**Kim J, Lonner JH, Nelson CL, Lotke PA.** Response Bias: Effect on Outcomes Evaluation by Mail Surveys After Total Knee Arthroplasty. *J Bone Joint Surg Am.* 2004;86:15.
- 12. Some patients with chronic disabling work-related musculoskeletal disorders persist in seeking new health-care services, even after tertiary rehabilitation. The clinical implication of this finding is:**  
 A. such a subgroup cannot be effectively treated  
 B. tertiary rehabilitation is not effective  
**C. early identification of this subgroup can prevent overutilization of services**  
 D. health-care overutilization is a major problem with no known solution  
 E. underutilization can be as problematic as overutilization in the treatment of such patients  
**Proctor TJ, Mayer TG, Gatchel RJ, McGeary DD.** Unremitting Health-Care-Utilization Outcomes of Tertiary Rehabilitation of Patients with Chronic Musculoskeletal Disorders. *J Bone Joint Surg Am.* 2004;86:62.
- 13. Surgeons may encounter blue, green, or black discoloration of cortical bone during orthopaedic operations. Which of the following medications is most likely to cause this discoloration?**  
 A. isotretinoin  
 B. sulfamethoxazole  
 C. levofloxacin  
**D. minocycline**  
 E. amoxicillin  
**McCleskey PE, Littleton KH.** Minocycline-Induced Blue-Green Discoloration of Bone. A Case Report. *J Bone Joint Surg Am.* 2004;86:146.
- 14. In a long-term follow-up study that compared the durabilities of cementless and cemented acetabular components, which of the following was more prevalent when a cementless component had been used?**  
 A. acetabular component loosening  
**B. acetabular component polyethylene wear**  
 C. dislocation  
 D. infection  
 E. femoral component loosening  
**Gaffey JL, Callaghan JJ, Pedersen DR, Goetz DD, Sullivan PM, Johnston RC.** Cementless Acetabular Fixation at Fifteen Years. A Comparison with the Same Surgeon's Results Following Acetabular Fixation with Cement. *J Bone Joint Surg Am.* 2004;86:257.
- 15. Strength of the repair and resistance to tendon motion are two factors that the surgeon should consider when deciding when to initiate mobilization after flexor tendon repair. What conclusion can be drawn regarding the time to initiate tendon motion on the basis of a dog model in which this was studied?**  
 A. begin motion on day 1, since immobilization results in steadily increasing gliding resistance and decreasing repair strength  
 B. begin motion on postoperative day 3, which offers the best combination of high repair strength and low gliding resistance  
**C. begin motion on postoperative day 5, which offers the best combination of high repair strength and low gliding resistance**  
 D. begin motion at one to two weeks, since gliding resistance decreases and repair strength increases over time  
 E. there is no ideal time, as every starting point represents a compromise between increasing repair strength and increasing gliding resistance  
**Zhao C, Amadio PC, Paillard P, Tanaka T, Zobitz ME, Larson DR, An K-N.** Digital Resistance and Tendon Strength During the First Week After Flexor Digitorum Profundus Tendon Repair in a Canine Model In Vivo. *J Bone Joint Surg Am.* 2004;86:320.
- 16. Postoperative cerebrospinal fluid leak following anterior cervical spine surgery may be associated with:**  
 A. cardiovascular collapse  
 B. subarachnoid hemorrhage  
 C. brain herniation  
 D. electrolyte abnormality  
**E. acute airway obstruction**  
**Chang HS, Kondo S, Mizuno J, Nakagawa H.** Airway Obstruction Caused by Cerebrospinal Fluid Leakage After Anterior Cervical Spine Surgery. A Report of Two Cases. *J Bone Joint Surg Am.* 2004;86:370.
- 17. When compared with the results of primary total knee arthroplasty, total knee arthroplasty after a previous proximal tibial osteotomy was found to be followed by a higher prevalence of:**  
 A. infection  
 B. stiffness

**C. radiographic loosening**

- D. avulsion of the patellar ligament insertion
- E. patellar fracture

**Parvizi J, Hanssen AD, Spangehl MJ.** Total Knee Arthroplasty Following Proximal Tibial Osteotomy: Risk Factors for Failure. *J Bone Joint Surg Am.* 2004;86:474.

**18. In a recent prospective study of the Insall-Burstein II posterior stabilized knee prosthesis, which of the following was found after a mean duration of follow-up of seven years?**

- A. high rate of femoral component loosening
- B. high rate of tibial component loosening
- C. rate of tibial osteolysis of 25%
- D. high rate of instability

**E. low rate of loosening and tibial osteolysis**

**Lachiewicz PF, Soileau ES.** The Rates of Osteolysis and Loosening Associated with a Modular Posterior Stabilized Knee Replacement. Results at Five to Fourteen Years. *J Bone Joint Surg Am.* 2004;86:525.

**19. Compared with the uninjured elbow, what are the most prevalent findings in the elbow of a patient who had a Mason type-II or III fracture of the radial head or neck more than fifteen years ago?**

- A. reduced joint space
- B. more pain in the elbow

**C. degenerative changes with cysts, irregular subchondral bone, and osteophytes**

- D. decreased range of motion
- E. positive Tinel sign

**Herbertsson P, Josefsson P-O, Hasselius R, Karlsson C, Besjakov J, Karlsson M.** Uncomplicated Mason Type-II and III Fractures of the Radial Head and Neck in Adults. A Long-Term Follow-up Study. *J Bone Joint Surg Am.* 2004;86:569.

**20. The p value refers to:****A. the chance of the study demonstrating a significant association when, in reality, there is no significant association**

- B. the chance of the study demonstrating no significant association when, in reality, there is a significant association
- C. the strength of the association between two variables
- D. the power of the study to demonstrate valid findings
- E. the chance of the study demonstrating a significant association when, in reality, there is a significant association

**Kocher MS, Zurakowski D.** Current Concepts Review. Clinical Epidemiology and Biostatistics: A Primer for Orthopaedic Surgeons. *J Bone Joint Surg Am.* 2004;86:607.

**21. Which factor is most predictive of recurrence following correction of a clubfoot deformity with the Ponseti method?**

- A. clinical severity of initial deformity

**B. noncompliance with bracing**

- C. family income
- D. marital status of parents
- E. gender of patient

**Dobbs MB, Rudzki JR, Purcell DB, Walton T, Porter KR, Gurnett CA.** Factors Predictive of Outcome After Use of the

Ponseti Method for the Treatment of Idiopathic Clubfeet. *J Bone Joint Surg Am.* 2004;86:22.

**22. The subclavius tendon reconstruction for sternoclavicular joint instability (Burrows technique):**

**A. reconstructs the costoclavicular ligament with use of the subclavius tendon**

- B. maintains the insertion of the clavicle and passes the rib origin around the first rib
- C. requires drill holes in the manubrium
- D. is a dependable choice because the subclavius tendon is always of adequate length
- E. requires resection of the medial aspect of the clavicle

**Spencer EE Jr, Kuhn JE.** Biomechanical Analysis of Reconstructions for Sternoclavicular Joint Instability. *J Bone Joint Surg Am.* 2004;86:98.

**23. An ultrasound follow-up study of arthroscopically repaired large rotator cuff tears revealed that the prevalence of recurrent tears was:**

- A. <20%
- B. 40%
- C. 60%
- D. >80%
- E. 0%

**Galatz LM, Ball CM, Teefey SA, Middleton WD, Yamaguchi K.** The Outcome and Repair Integrity of Completely Arthroscopically Repaired Large and Massive Rotator Cuff Tears. *J Bone Joint Surg Am.* 2004;86:219.

**24. Following the withdrawal of short-term post-operative immunosuppression, vascularized physeal allografts in rabbits demonstrated:**

- A. increased growth compared with that of the control physis that was not operated on
- B. growth arrest
- C. continued viability only if epiphyseal and metaphyseal circulation had been restored with osseous union
- D. continued viability only if epiphyseal but not metaphyseal circulation had been restored with osseous union
- E. continued viability only if metaphyseal but not epiphyseal circulation had been restored with osseous union

**Bray PW, Neligan PC, Bowen CVA, Boyer MI.** Survival of Microvascular Physeal Allograft Transplants Following Withdrawal of Short-Term Postoperative Immunosuppression. *J Bone Joint Surg Am.* 2004;86:281.

**25. Which of the following statements is true regarding proprioception after total knee arthroplasty?**

- A. proprioception cannot be restored because the articular mechanoreceptors are lost
- B. increased pain receptor activity enhances awareness of joint position
- C. sensory denervation after total knee arthroplasty causes a reduction in proprioception
- D. proprioception improves after total knee arthroplasty because laxity and inflammation are reduced

- E. mechanoreceptors repopulate capsuloligamentous tissue and improve proprioception  
**Swanik CB, Lephart SM, Rubash HE.** Proprioception, Kinesesthesia, and Balance after Total Knee Arthroplasty with Cruciate-Retaining and Posterior Stabilized Prostheses. *J Bone Joint Surg Am.* 2004;86:328.
- 26. When the ceramic head of a total hip prosthesis is scratched on a metal surface, the scratched area of the head may become black. What is the source of the black discoloration?**
- A. damage to the surface polishing of the ceramic head  
B. bloody joint fluid coating the ceramic head  
C. phase transformation of the ceramic  
**D. metallic debris transfer from the metal surface**  
E. fissuring of the ceramic  
**Yoo JJ, Kim HJ, Kim Y-M.** Damage of an Alumina-on-Alumina Bearing Surface from a Difficult Reduction of a Total Hip Arthroplasty. A Report of Three Cases. *J Bone Joint Surg Am.* 2004;86:376.
- 27. When a diaphyseal fitting stem is used in revision total hip arthroplasty, which of the following factors is most highly associated with the likelihood of an intraoperative femoral fracture?**
- A. surgical approach  
**B. preoperative bone loss**  
C. previously cemented femoral stem  
D. use of a bowed stem  
E. female gender  
**Meek RMD, Garbuz DS, Masri BA, Greidanus NV, Duncan CP.** Intraoperative Fracture of the Femur in Revision Total Hip Arthroplasty with a Diaphyseal Fitting Stem. *J Bone Joint Surg Am.* 2004;86:480.
- 28. The presence of scoliosis in a patient with known polyostotic fibrous dysplasia is most likely:**
- A. if there is a midline café-au-lait skin lesion in the midthoracic area  
B. if the patient reports a history of back pain without lower-extremity pain  
C. if a lesion of fibrous dysplasia is seen on a radiograph of the pelvis  
D. if a blood serum IGF-1 level establishes the diagnosis of acromegaly  
**E. if a bone scan demonstrates a lesion consistent with fibrous dysplasia in the thoracic spine**  
**Leet AI, Magur E, Lee JS, Wientroub S, Robey PG, Collins MT.** Fibrous Dysplasia in the Spine: Prevalence of Lesions and Association with Scoliosis. *J Bone Joint Surg Am.* 2004;86:531.
- 29. Elevation of the humeral head center during total shoulder arthroplasty may impair shoulder function by which of the following mechanisms?**
- A. subacromial impingement  
B. inferior dislocation on abduction  
C. aseptic loosening of the humeral component  
**D. reduction of abduction torque**  
E. increase of the lever arms of the rotator cuff  
**Nyffeler RW, Sheikh R, Jacob HAC, Gerber C.** Influence of Humeral Prosthesis Height on Biomechanics of Glenohumeral Abduction. An In Vitro Study. *J Bone Joint Surg Am.* 2004;86:575.
- 30. Which of the following grafts are now considered to be the gold standard for anterior cruciate ligament reconstruction?**
- A. hamstring graft only  
B. bone-patellar tendon-bone graft only  
**C. both hamstring and bone-patellar tendon-bone grafts**  
D. quadriceps graft only  
E. allograft only  
**Miller MD.** Specialty Update. What's New in Sports Medicine. *J Bone Joint Surg Am.* 2004;86:653.
- 31. The benefits of increased femoral offset include all of the following EXCEPT:**
- A. improved abductor muscle function  
B. lower joint reaction forces  
C. adequate soft-tissue tension without limb-lengthening  
D. reduced polyethylene wear  
**E. lower femoral loosening rates**  
**Silva M, Lee KH, Heisel C, dela Rosa MA Schmalzried TP.** The Biomechanical Results of Total Hip Resurfacing Arthroplasty. *J Bone Joint Surg Am.* 2004;86:40.
- 32. The most important variable affecting the initial stability of a cemented femoral stem that is tapered in the coronal plane was found to be:**
- A. thickness of the cement mantle  
B. presence of a collar  
C. presence of a distal centralizer  
D. stem size  
**E. stem surface finish**  
**Ebramzadeh E, Sangiorgio SN, Longjohn DB, Buhari CF, Dorr LD.** Initial Stability of Cemented Femoral Stems as a Function of Surface Finish, Collar, and Stem Size. *J Bone Joint Surg Am.* 2004;86:106.
- 33. Following anterior cruciate ligament reconstruction with a four-stranded semitendinosus-gracilis graft, follow-up lateral knee radiographs revealed:**
- A. tibial tunnel contraction and femoral tunnel expansion  
B. tibial tunnel expansion and femoral tunnel contraction  
C. tibial tunnel expansion and femoral tunnel not visible  
**D. tibial tunnel expansion and femoral tunnel expansion**  
E. no change in either the tibial or the femoral tunnel  
**Williams RJ III, Hyman J, Petrigliano F, Rozental T, Wickiewicz TL.** Anterior Cruciate Ligament Reconstruction with a Four-Strand Hamstring Tendon Autograft. *J Bone Joint Surg Am.* 2004;86:225.

- 34. The lifetime risk of sustaining a traumatic fracture by the age of sixty-five years is higher than the lifetime risk for all but which of the following?**
- A. stroke
  - B. major depression
  - C. coronary artery disease**
  - D. breast cancer
  - E. type-II diabetes mellitus
- Brinker MR, O'Connor DP.** The Incidence of Fractures and Dislocations Referred for Orthopaedic Services in a Capitated Population. *J Bone Joint Surg Am.* 2004; 86:290.
- 35. In patients with cirrhosis of the liver who underwent total knee arthroplasty, the most common postoperative complication was:**
- A. wound dehiscence
  - B. stroke
  - C. delirium tremens
  - D. edema
  - E. infection**
- Shih L-Y, Cheng C-Y, Chang C-H, Hsu K-Y, Hsu RW-W, Shih H-N.** Total Knee Arthroplasty in Patients with Liver Cirrhosis. *J Bone Joint Surg Am.* 2004;86:335.
- 36. As assessed by magnetic resonance imaging or plain roentgenography, disc degeneration in competitive athletes is:**
- A. present in >95% of participants
  - B. found more frequently than in nonathletes**
  - C. found less frequently than in nonathletes
  - D. not related to the type or intensity of the sports activity
  - E. a rare finding
- Bono CM.** Current Concepts Review. Low-Back Pain in Athletes. *J Bone Joint Surg Am.* 2004;86:382.
- 37. A comparison of the Lapidus and Hohmann procedures for correction of hallux valgus deformity shows:**
- A. a higher rate of nonunion after the Hohmann procedure
  - B. superior clinical results of the Lapidus procedure when hypermobility of the first tarsometatarsal joint existed preoperatively
  - C. equal clinical results**
  - D. more radiographic shortening after the Lapidus procedure
  - E. better reduction of pain after the Hohmann procedure
- Faber FWM, Mulder PGH, Verhaar JAN.** Role of First Ray Hyper Mobility in the Outcome of the Hohmann and the Lapidus Procedure. A Prospective, Randomized Trial Involving One Hundred and One Feet. *J Bone Joint Surg Am.* 2004;86:486.
- 38. Which of the following patient characteristics has been shown to correlate with a reduced therapeutic effect after the intra-articular injection of hyaluronic acid in a patient with degenerative arthritis of the knee?**
- A. younger age (less than sixty-five years old)
  - B. advanced osteoarthritis with complete loss of joint space**
  - C. male gender
  - D. socioeconomic status
  - E. activity level
- Wang C-T, Lin J, Chang C-J, Lin Y-T, Hou S-M.** Therapeutic Effects of Hyaluronic Acid on Osteoarthritis of the Knee. A Meta-analysis of Randomized Controlled Trials. *J Bone Joint Surg Am.* 2004;86:538.
- 39. In patients with a clubfoot and a congenitally absent posterior tibial artery, what is the dominant arterial supply to the foot?**
- A. anterior tibial artery
  - B. medial plantar artery
  - C. peroneal artery**
  - D. lateral plantar artery
  - E. dorsalis pedis artery
- Dobbs MB, Walton T, Gordon JE, Schoenecker PL.** Absent Posterior Tibial Artery Associated with Idiopathic Clubfoot. A Report of Two Cases. *J Bone Joint Surg Am.* 2004;86:599.
- 40. Which four hand and wrist conditions have the highest prevalence among patients referred for orthopaedic services?**
- A. fracture, thoracic outlet syndrome, tendinitis/tenosynovitis, and ganglion/synovial cyst
  - B. fracture, carpal tunnel syndrome, osteoarthritis, and ganglion/synovial cyst
  - C. fracture, carpal tunnel syndrome, tendinitis/tenosynovitis, and nail disorders
  - D. fracture, carpal tunnel syndrome, tendinitis/tenosynovitis, and ganglion/synovial cyst**
  - E. fracture, sprain, carpal tunnel syndrome, and tendinitis/tenosynovitis
- Crouch CC, O'Connor DP, Pierce P, Brinker MR.** Utilization of Orthopaedic Services for Hand and Wrist Conditions in a Capitated Population. *J Bone Joint Surg Am.* 2004;86:51.
- 41. What may be the clinical relevance of metaphyseal radiolucent changes observed in patients with Legg-Calvé-Perthes disease?**
- A. no relevance
  - B. the end of the fragmentation stage
  - C. associated with a growth disturbance of the proximal femoral physis**
  - D. associated with a prolonged disease course
  - E. signifies a need for a pelvic or femoral osteotomy
- Kim HKW, Skelton DN, Quigley EJ.** Pathogenesis of Metaphyseal Radiolucent Changes Following Ischemic Necrosis of the Capital Femoral Epiphysis in Immature Pigs. A Preliminary Report. *J Bone Joint Surg Am.* 2004; 86:129.
- 42. Which motion has been shown to decrease with time following débridement arthroplasty for primary osteoarthritis of the elbow?**
- A. extension**
  - B. flexion
  - C. flexion-extension range of motion
  - D. pronation

- E. supination  
**Wada T, Isogai S, Ishii S, Yamashita T.** Débridement Arthroplasty for Primary Osteoarthritis of the Elbow. *J Bone Joint Surg Am.* 2004;86:233.
- 43. When compared with patients of normal stature who undergo total hip arthroplasty, patients of small stature were more likely to sustain which of the following complications?**
- A. postoperative infection  
 B. deep-vein thrombosis  
 C. dislocation  
**D. periprosthetic fracture**  
 E. wound hematoma  
**Chiavetta JB, Parvizi J, Shaughnessy WJ, Cabanela ME.** Total Hip Arthroplasty in Patients with Dwarfism. *J Bone Joint Surg Am.* 2004;86:298.
- 44. In a recent study, the most frequent long-term complication of acetabular revision with a porous-coated component and multiple screw fixation was:**
- A. polyethylene wear  
 B. infection  
 C. limb-length discrepancy  
**D. dislocation**  
 E. component loosening  
**Jones CP, Lachiewicz PF.** Factors Influencing the Longer-Term Survival of Uncemented Acetabular Components Used in Total Hip Revisions. *J Bone Joint Surg Am.* 2004;86:342.
- 45. Several methods are currently being used to treat articular defects. Which of the following procedures produces its effects through a mechanism other than marrow stimulation?**
- A. microfracture  
 B. drilling  
**C. mosaicplasty**  
 D. abrasion  
 E. débridement  
**Knutsen G, Engebretsen L, Ludvigsen TC, Drogset JO, Grontvedt T, Solheim E, Strand T, Roberts S, Isaksen V, Johansen O.** Autologous Chondrocyte Implantation Compared with Microfracture in the Knee. A Randomized Trial. *J Bone Joint Surg Am.* 2004;86:455.
- 46. Which of the following factors is associated with an increased risk of loosening of the tibial implant after unicompartmental knee arthroplasty?**
- A. increased posterior slope of the tibial implant**  
 B. absence of the anterior cruciate ligament at the time of implantation  
 C. an intact but partially degenerated anterior cruciate ligament at the time of implantation  
 D. the position of the femoral implant on the lateral radiograph  
 E. the weight of the patient  
**Hernigou P, Deschamps G.** Posterior Slope of the Tibial Implant and the Outcome of Unicompartmental Knee Arthroplasty. *J Bone Joint Surg Am.* 2004;86:506.
- 47. The tension in the plantar fascia has been found to correlate with the force carried by the Achilles tendon. During which stage of the gait cycle would you expect the greatest tension to be present in the plantar fascia?**
- A. heel-strike  
 B. swing  
 C. toe-off  
**D. late stance**  
 E. midstance  
**Erdemir A, Hamel AJ, Fauth AR, Piazza SJ, Sharkey NA.** Dynamic Loading of the Plantar Aponeurosis in Walking. *J Bone Joint Surg Am.* 2004;86:546.
- 48. After traumatic elbow dislocation, which of the following is least likely to be entrapped in the ulnohumeral joint?**
- A. osteochondral fragment  
 B. radial nerve  
**C. lateral triceps**  
 D. median nerve  
 E. brachial artery  
**Liu GS, Jupiter JB.** Posterolateral Rotatory Elbow Subluxation with Intra-articular Entrapment of the Radial Nerve. A Case Report. *J Bone Joint Surg Am.* 2004;86:603.
- 49. In an Asian population undergoing total knee arthroplasty, which of the following statements is true:**
- A. low-molecular-weight heparin and indomethacin significantly reduced the prevalence of deep-vein thrombosis**  
 B. the prevalence of postoperative deep-vein thrombosis was <30% in untreated patients  
 C. the majority of patients with venographically proven deep-vein thrombosis were symptomatic  
 D. postoperative venography found the majority of deep-vein thromboses to be present proximal to the knee  
 E. the prevalence of venographically proven preoperative deep-vein thrombosis was <1%  
**Wang C-J, Wang J-W, Weng L-H, Hsu C-C, Huang C-C, Yu P-C.** Prevention of Deep-Vein Thrombosis After Total Knee Arthroplasty in Asian Patients. Comparison of Low-Molecular-Weight Heparin and Indomethacin. *J Bone Joint Surg Am.* 2004;86:136.
- 50. Rectus femoris tendon transfer is performed in patients with cerebral palsy to improve knee flexion during walking. Data from magnetic resonance imaging suggest that the improvements in knee flexion after surgery are most likely due to which of the following?**
- A. an angular deviation in the rectus femoris muscle path after surgery  
**B. reduction of the knee extension moment generated by the rectus femoris**  
 C. scar tissue constraining the motion of the rectus femoris  
 D. increased knee flexion moment due to conversion of the rectus femoris to a knee flexor  
 E. selection of transfer site  
**Asakawa DS, Blemker SS, Rab GT, Bagley A, Delp SL.** Three-Dimensional Muscle-Tendon Geometry after Rectus Femoris Tendon Transfer. *J Bone Joint Surg Am.* 2004;86:348.

**ANSWER KEY****The correct answers are blacked out.**

- |                      |                      |                      |
|----------------------|----------------------|----------------------|
| 1. A B C <b>D</b> E  | 18. A B C D <b>E</b> | 35. A B C D <b>E</b> |
| 2. <b>A</b> B C D E  | 19. A B <b>C</b> D E | 36. A <b>B</b> C D E |
| 3. A B C D <b>E</b>  | 20. <b>A</b> B C D E | 37. A B <b>C</b> D E |
| 4. A <b>B</b> C D E  | 21. A <b>B</b> C D E | 38. A <b>B</b> C D E |
| 5. A B <b>C</b> D E  | 22. <b>A</b> B C D E | 39. A B <b>C</b> D E |
| 6. A B <b>C</b> D E  | 23. A B C <b>D</b> E | 40. A B C <b>D</b> E |
| 7. A B <b>C</b> D E  | 24. A B <b>C</b> D E | 41. A B <b>C</b> D E |
| 8. A B <b>C</b> D E  | 25. A B C <b>D</b> E | 42. <b>A</b> B C D E |
| 9. A B <b>C</b> D E  | 26. A B C <b>D</b> E | 43. A B C <b>D</b> E |
| 10. A <b>B</b> C D E | 27. A <b>B</b> C D E | 44. A B C <b>D</b> E |
| 11. A B C D <b>E</b> | 28. A B C D <b>E</b> | 45. A B <b>C</b> D E |
| 12. A B <b>C</b> D E | 29. A B C <b>D</b> E | 46. <b>A</b> B C D E |
| 13. A B C <b>D</b> E | 30. A B <b>C</b> D E | 47. A B C <b>D</b> E |
| 14. A <b>B</b> C D E | 31. A B C D <b>E</b> | 48. A B <b>C</b> D E |
| 15. A B <b>C</b> D E | 32. A B C D <b>E</b> | 49. <b>A</b> B C D E |
| 16. A B C D <b>E</b> | 33. A B C <b>D</b> E | 50. A <b>B</b> C D E |
| 17. A B <b>C</b> D E | 34. A B <b>C</b> D E |                      |

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**QUESTIONS?**

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