
THE JOURNAL OF BONE & JOINT SURGERY

CONTINUING MEDICAL EDUCATION

CME

REVIEW QUESTIONS

JANUARY, FEBRUARY, MARCH
2006

THIS CME EXAM IS ALSO AVAILABLE AT JBJS.ORG AS AN
INTERACTIVE ONLINE EXAM OR AS A DOWNLOADABLE PDF FILE.

RECEIVE YOUR RESULTS IMMEDIATELY WHEN YOU
TAKE THE ONLINE VERSION FOR CREDIT OR PRACTICE.

THE DEADLINE TO SUBMIT YOUR ANSWERS FOR GRADING THIS SET OF QUESTIONS IS JULY 15, 2006.

PURPOSE

The purposes of this CME program are:

- To provide the general orthopaedic surgeon with an ability to assess his or her continuing competence in orthopaedics through the acquisition of contemporary scientific information.
- To provide a broad-based review and update of the major subspecialty areas in orthopaedics.
- To make *The Journal* reader aware of new advances in orthopaedic surgical techniques and technology.

INSTRUCTIONS

In order to benefit most from this educational experience and qualify for Continuing Medical Education credit, please observe the following instructions:

1. Read the learning objectives listed on the Response Form and be certain that they meet your individual learning needs.
2. These CME questions have been derived from the information presented in the January, February, and March issues of the American volume of *The Journal of Bone and Joint Surgery* (Volume 88-A, Numbers 1, 2, and 3). A careful study of each article should yield the best response to each question.
3. Read each question carefully, identify the best answer, and record that answer on the CME Response Form in the back of this document.
4. To receive CME credit, it is absolutely essential that you complete all portions of the attached Response Form and answer each question.
5. In order for the American Academy of Orthopaedic Surgeons to document your participation in the CME activity, Academy Fellows must provide their AAOS membership number in the designated area on the Response Form.
6. In addition to providing the answers to the CME questions, you must complete the examination evaluation questions. These questions are found on the Response Form. The way you answer these evaluation questions will not in any way affect the score that you achieve.
7. All completed answer sheets will be graded, and you will be advised of the results of this examination within four weeks after it is received. In order to qualify for CME credit, a score of more than 50% correct must be achieved on the examination. A charge of \$30 per quarter, or \$110 per year, must be paid at the time that the answer sheet is submitted. **The deadline to submit your answers for grading this set of questions is July 15, 2006.**

1. **Loss of reduction can occur following closed reduction and cast immobilization of distal forearm fractures in children. Which of the following factors was found to be most predictive of this complication?**
 - A. age
 - B. gender
 - C. initial fracture angulation
 - D. postreduction fracture angulation
 - E. cast type (above or below-the-elbow)
2. **Which of the following is the strongest predictor of a future osteoporotic fracture?**
 - A. an axial (hip and spine) dual-energy x-ray absorptiometry (DEXA) scan showing a T score consistent with osteoporosis
 - B. current use of postmenopausal estrogen replacement therapy
 - C. having a parent who sustained a low-energy fracture as an adult
 - D. a previous low-energy fracture as an adult
 - E. a lifelong history of poor calcium intake
3. **A sixty-five-year-old woman fell, injuring the elbow. Radiographs show a displaced fracture of the capitellum with minimal comminution. The preferred treatment of this fracture is:**
 - A. closed reduction and cast immobilization
 - B. open reduction and internal fixation through a lateral interval approach
 - C. excision of the displaced fragment
 - D. prosthetic replacement
 - E. exposure through an olecranon osteotomy followed by open reduction and internal fixation
4. **Which of the following factors was identified as having an adverse effect on the long-term survival of cemented acetabular components following total hip arthroplasty for osteoarthritis secondary to developmental dysplasia of the hip?**
 - A. older age at the time of the total hip arthroplasty
 - B. accelerated polyethylene wear
 - C. cup size
 - D. type of cement
 - E. absence of acetabular bone-grafting
5. **The long-term prognosis in children with a stable slipped capital femoral epiphysis is closely correlated with the severity of the slip. Demographic predictors of the severity of stable slips of the capital femoral epiphysis are:**
 - A. age and race
 - B. age and symptom duration
 - C. gender and weight
 - D. body-mass index and symptom duration
 - E. weight and race
6. **Augmenting cement with crossed screws engaging the opposite cortex was shown to result in a stronger reconstruction than cement alone for what type of defect about the knee?**
 - A. all defects about the knee
 - B. contained distal femoral defects
 - C. noncontained distal femoral defects

- D. contained proximal tibial defects
E. noncontained proximal tibial defects
- 7. In a cadaver shoulder model, 10-mm antero-inferior arthroscopic suture plication was associated with:**
- A. significant limitation in anterior, posterior, and inferior translations; significant restriction of external rotation; and superior shift of the humeral head center of rotation
B. significant limitation in anterior, posterior, and superior translations; significant restriction of external rotation; and superior shift of the humeral head center of rotation
C. significant limitation in anterior, posterior, and superior translations; no change in external rotation; and posterior-inferior shift of the humeral head center of rotation
D. significant limitation in anterior, posterior, and inferior translations; significant restriction of external rotation; and posterior-inferior shift of the humeral head center of rotation
E. significant limitation in anterior, inferior, and superior translations; significant restriction of external rotation; and a posterior-inferior shift of the humeral head center of rotation
- 8. A fifty-year-old man sustained an isolated closed comminuted fracture of the right tibial shaft in a motorcycle accident. He underwent reamed tibial nailing with static locking on the day of the injury. Eighteen weeks later, there are no signs of radiographic healing. He has continued pain at the fracture site when walking and no clinical signs of infection. The best next step would be:**
- A. continued walking with weight-bearing as tolerated and repeat radiographic examination in six weeks
B. removal of the intramedullary nail and placement of an external fixator
C. removal of the intramedullary nail and application of a long leg cast
D. reamed exchange tibial nailing
E. removal of the intramedullary nail and treatment with a compression plate
- 9. Consent for surgery requires the surgeon to respect the patient's autonomy. This can be accomplished by:**
- A. offering experimental surgery to the patient
B. defining the risks and benefits of the surgical procedure
C. providing additional sources of patient information such as independent web sites or the literature
D. providing an opinion as to what procedure is best for the patient
E. guaranteeing nonmaleficence of the procedure
- 10. Which of the following statements regarding changes in bone mineral density after total knee arthroplasty was found to be correct?**
- A. bone mineral density around the knee increases after total knee arthroplasty
B. bone mineral density at the distal part of the femur and proximal part of the tibia does not change after total knee arthroplasty
C. bone mineral density increases at the distal part of the femur but decreases at the proximal part of the tibia after total knee arthroplasty
D. bone mineral density decreases at the distal part of the femur but increases at the proximal part of the tibia after total knee arthroplasty
E. bone mineral density of the distal part of the femur and proximal part of the tibia decreases after total knee arthroplasty, and oral administration of alendronate improves bone mineral density effectively
- 11. Use of a multimodal postoperative analgesia protocol that included periarticular injection of long-lasting local anesthetics was found to be associated with which of the following?**
- A. an improved range of knee motion at the time of discharge from the hospital
B. reduction in narcotic-related side effects like nausea
C. increased postoperative knee wound discharge
D. increased surgical time
E. decreased perioperative blood loss
- 12. In one study, sodium hyaluronate injection was found to be safe and effective for treating osteoarthritis of the ankle. Of interest, control patients who received saline solution alone had a significant benefit as well. A possible explanation for the improvement in the control group is:**
- A. placebo effect
B. lysis of scar tissue
C. lubricating effect
D. dilution of lytic enzymes
E. all of the above
- 13. According to most pain specialists, what time-period should be used to designate a disability injury as "chronic?"**
- A. one month
B. two months
C. three months
D. four months
E. five months
- 14. The Shriners Hospital for Children Upper Extremity Evaluation (SHUEE) was designed as a measure of upper-extremity function for children with:**
- A. arthrogryposis
B. syndactyly
C. hemiplegic cerebral palsy
D. radial clubhand
E. obstetric birth plexus palsy
- 15. The most significant predictor of outcome following latissimus dorsi tendon transfer for the treatment of irreparable posterior-superior rotator cuff tears was:**
- A. synchronous firing of the latissimus dorsi
B. active range of motion and strength in flexion and external rotation

- C. male gender
D. severe preoperative weakness of active shoulder elevation
E. poor general muscle strength
- 16. Although the finding was not significant, the topical treatment associated with the lowest prevalence of pin-track infection following external fixation for a distal radial fracture was found to be:**
- A. pin-cleansing with H₂O₂
B. a dry dressing placed snugly about the pins
C. betadine swabbing daily
D. use of chlorhexidine-impregnated topical sponges
E. use of triple antibiotic cream
- 17. Patients compensate for tibia vara deformity by abducting the hip during stance. On an anteroposterior radiograph, an anatomically normal distal part of the femur will appear to be:**
- A. in normal alignment
B. in varus
C. in valgus
D. in external rotation
E. in internal rotation
- 18. In patients who sustain a rerupture after open rotator cuff repair, all of the following are adversely affected except:**
- A. acromiohumeral distance
B. clinical outcome
C. fatty muscle infiltration of the infraspinatus
D. fatty muscle infiltration of the supraspinatus
E. glenohumeral osteoarthritis
- 19. All but which of the following interventions is supported by evidence that it improves the health status of individuals with Marfan syndrome?**
- A. beta blocker therapy
B. routine ultrasound monitoring of aortic root size
C. triradiate epiphysiodesis
D. prophylactic surgery for critical aortic arch aneurysms
E. ophthalmologic screening
- 20. Osteoarthritis of the tarsometatarsal joints is a common sequela after Lisfranc joint injuries. Which of the following has been shown to be most highly associated with the subsequent development of osteoarthritis?**
- A. open foot injury
B. displaced fracture of the base of the metatarsal without dislocation
C. removal of hardware after open reduction and internal fixation
D. displaced avulsion fracture of the Lisfranc ligament (fleck sign)
E. associated ipsilateral ankle fracture
- 21. Which of the following factors is the most important for achieving the best long-term range of motion following synovectomy of the elbow in patients with early rheumatoid arthritis?**
- A. long-term pain relief
B. immediate postoperative commencement of rehabilitation
C. resection of ligamentous or muscular tissue supports
D. radical synovectomy involving the capsule
E. minimal surgical insult
- 22. Long and mid-term clinical outcome studies of patients who have undergone an ankle fusion have revealed a substantial prevalence of ipsilateral lower-extremity arthritis. Which of the following joints is most commonly affected?**
- A. calcaneocuboid joint
B. naviculocuneiform joints
C. subtalar joint
D. talonavicular joint
E. metatarsocuneiform joints
- 23. Which of the following planes of wrist motion is the primary motion plane of the midcarpal joint?**
- A. the sagittal plane (the flexion-extension plane)
B. the coronal plane (the radioulnar deviation plane)
C. the axial plane (the supination-pronation plane)
D. the dart-throwing plane (the radial deviation/extension-ulnar deviation/flexion plane)
E. the opposite dart-throwing plane (the ulnar deviation/extension-radial deviation/flexion plane)
- 24. A nine-year-old patient with Marfan syndrome presents with a six-month history of progressive groin pain during dancing. A diagnosis of protrusio acetabuli is made. Her father is wheelchair-bound because of severe hip pain. If she becomes a candidate for surgery, which of the following operations is most suitable for her?**
- A. total hip arthroplasty with cementing of the acetabular component
B. total hip arthroplasty without cementing of the acetabular component
C. varus intertrochanteric osteotomy
D. valgus intertrochanteric osteotomy
E. closure of the triradiate physis of the acetabulum
- 25. A forty-three-year-old patient was asked to lift a heavy box by her employer, and an hour later her shoulder was sore. Over the next few weeks, the shoulder feels loose to her. A contrast magnetic resonance image is interpreted as showing attenuation of the labrum. On the basis of this information, this patient is most likely to benefit from:**
- A. a Bankart repair
B. a bone block
C. biofeedback
D. diagnostic arthroscopy followed by treatment as indicated
E. a directed history and physical examination
- 26. The use of local anesthetic with epinephrine in the finger is:**
- A. malpractice
B. associated with an increased risk of finger necrosis

- C. an ineffective method of hemostasis
 D. a useful alternative in procedures where the cooperation of the patient is needed intraoperatively
 E. contraindicated in fracture and tendon surgery
- 27. A seven-year-old boy fell 5 ft (1.5 m) from a tree house and landed on his outstretched right hand. The wrist was grossly deformed, and radiographs revealed fractures of the distal metaphyses of the radius and ulna. Both bones were completely displaced and had 60° of apex volar angulation. The patient underwent a closed reduction, and a long arm plaster cast was applied. Residual angulation of 8° was measured on the postreduction radiographs. In this patient, the maintenance of a closed reduction during immobilization in the cast was most closely related to:**
- A. the magnitude of the initial fracture displacement
 B. the magnitude of the residual postreduction angulation
 C. adequate molding of the cast
 D. use of a long arm cast
 E. the mechanism of injury
- 28. A principal goal of the Osteoporosis Exemplary Care Program is to:**
- A. ensure that orthopaedic surgeons treat osteoporosis in all patients who have had a fracture
 B. increase rates of identification, and referral for osteoporosis care, of patients who have had a fragility fracture
 C. document the rate of recurrent fractures following osteoporosis intervention
 D. identify the causes of noncompliance in taking osteoporosis medications
 E. document physician prescribing behaviors, in order to compare male and female patients receiving osteoporosis care
- 29. Important determinant(s) of pathologic fracture through a lytic bone lesion include:**
- A. size of the lesion
 B. location of the lesion
 C. material properties and cross-sectional geometry of the host bone
 D. magnitude of applied loads during patient-specific activity
 E. all of the above
- 30. The Anderson and D'Alonzo classification for dens fractures:**
- A. has been shown to be highly reliable across different raters
 B. has been shown to be highly reproducible by individual raters
 C. has better reliability and reproducibility when based on reformatted computed tomography scans instead of plain radiographs
 D. should not be used for geriatric patients
 E. has no relationship to the prognosis for fracture-healing
- 31. A clinician used ultrasound to measure torsion in the right tibia. The difference between the proximal and distal measurements was 22.9°. What is the best estimate of the actual torsion within the bone?**
- A. 20.4°
 B. 25.4°
 C. 21.2°
 D. 24.8°
 E. 22.9°
- 32. Compared with early initiation of enoxaparin alone, a combination of mechanical prophylaxis and delayed enoxaparin prophylaxis to prevent deep-vein thrombosis resulted in all of the following, except:**
- A. a significant reduction in the risk of large or occlusive deep-vein thrombosis
 B. less cost
 C. a significantly lower prevalence of wound complications
 D. no significant difference in the prevalence of all types of deep-vein thrombosis
 E. no significant difference in the prevalence of pulmonary embolism
- 33. When a dose of extended-release epidural morphine is being selected, which of the following patient characteristics is the most important consideration?**
- A. age
 B. body mass index
 C. body surface area
 D. gender
 E. type of anesthesia
- 34. Which of the following factors is the most important for decreasing the overall cost of treating dislocations after primary total hip replacement?**
- A. decreasing the number of replacements performed yearly
 B. decreasing the prevalence of dislocation after hip replacement
 C. recommending revision surgery for every patient after the first dislocation episode
 D. developing an algorithm for treating dislocation after hip replacement
 E. reducing indirect costs of revision surgery
- 35. What is considered the new "fifth vital sign" that should be assessed by physicians?**
- A. pulse
 B. blood pressure
 C. temperature
 D. respiration
 E. pain
- 36. Which of the following patients would be considered the most suitable candidate for a McKeever tibial hemiarthroplasty?**
- A. an obese patient with isolated lateral compartment degenerative disease
 B. a patient with a history of anterior cruciate ligament insufficiency
 C. an elderly patient with tricompartmental disease

- D. a patient with tibiofemoral subluxation on radiographs
E. a patient with marked medial collateral ligament laxity
- 37. Which patient characteristic results in the largest increase in the predicted rate of mortality following total knee replacement?**
- A. Charlson comorbidity index of >2
B. Charlson comorbidity index of 1
C. low hospital volume of total knee replacements
D. intermediate hospital volume of total knee replacements
E. male gender
- 38. The use of a patient-derived questionnaire to assess outcomes after shoulder arthroplasty was shown to:**
- A. have a high level of agreement between physicians and patients
B. be a reliable method of patient follow-up
C. be a strong predictor of long-term outcomes
D. have a negative effect on the physician-patient relationship
E. be a strong predictor of patient functional gains
- 39. Which of the following treatment options for Lisfranc fracture-dislocation will most likely be associated with the poorest functional outcome?**
- A. partial arthrodesis (medial two or three tarsometatarsal joints)
B. complete arthrodesis (all five tarsometatarsal joints)
C. open reduction and screw fixation
D. open reduction and percutaneous fixation
E. anatomic reduction and internal fixation
- 40. The DASH (Disabilities of the Arm, Shoulder and Hand) score assesses which of the following outcome parameters?**
- A. self-reported functional outcome of the upper extremity
B. objective functional outcome of the upper extremity
C. general health status
D. upper-extremity pain
E. upper-extremity impairment
- 41. Acute colonic pseudo-obstruction (Ogilvie syndrome) is a rare complication of total joint arthroplasty that is associated with substantial morbidity. Which of the following is the most common presenting symptom of Ogilvie syndrome after total joint arthroplasty?**
- A. nausea and vomiting
B. abdominal discomfort
C. absence of flatus
D. abdominal distention
E. tachycardia
- 42. Perhaps the most effective way for orthopaedists to increase bone mass in the general population is to:**
- A. encourage adequate exercise, dietary habits, and calcium intake during adolescence
B. encourage use of bisphosphonates by middle-aged and older patients
C. encourage screening dual-energy x-ray absorptiometry scans for patients over fifty years of age
D. educate all patients with fractures about risk factors for osteoporosis
E. facilitate referral of all adult patients with low-energy fractures for medical consultation
- 43. Hip displacement in children with cerebral palsy is most closely correlated with:**
- A. motor type (e.g., spastic, mixed, dystonic, ataxic, or hypotonic)
B. severity of the cerebral lesion as seen on magnetic resonance imaging
C. age of the child
D. child's level of gross motor function, according to the Gross Motor Function Classification System (GMFCS)
E. presence of medical comorbidities such as epilepsy
- 44. Pain relief with use of continuous epidural administration of local anesthetics following total knee arthroplasty has been associated with all of the following side effects except:**
- A. pruritus
B. nausea
C. hypotension
D. peroneal nerve palsy
E. pulmonary embolism
- 45. The risk of a pin-track-related complication in association with external fixation for a distal radial fracture was found to be approximately:**
- A. 5%
B. 20%
C. 60%
D. 80%
E. nearly 100%
- 46. The normal knee is very stable at high degrees of flexion. Which of the following structures prevents posterior roll-off of the femoral condyles from the tibia?**
- A. anterior cruciate ligament
B. posterior cruciate ligament
C. concave medial tibial plateau
D. convex lateral tibial plateau
E. meniscus
- 47. Gait analysis of patients who have undergone an ankle fusion reveal a decreased range of sagittal motion in all of the following joints except:**
- A. knee joint
B. ankle joint
C. hip joint
D. Chopart joints (talonavicular-calcaneocuboid)
E. midtarsal joints
- 48. Which of the following was found to be the most common complication following unconstrained shoulder arthroplasty performed for treatment of fixed anterior shoulder dislocation?**
- A. recurrent anterior instability

- B. axillary nerve palsy
- C. humeral fracture
- D. glenoid fracture
- E. humeral component loosening

49. Which of the following best completes the next sentence? The deformities that result from internal rotation contractures secondary to brachial plexus birth palsy:

- A. will not improve despite corrective surgery that improves function
- B. are equally treatable in all age-groups
- C. are capable of remodeling if external rotation power is restored by a muscle transfer
- D. are capable of remodeling if the passive range of external rotation is restored
- E. are best treated with a rotational osteotomy of the humerus

50. A twenty-three-year-old man fell while skiing and dislocated the shoulder anteriorly, requiring a manipulative reduction. He returned to skiing after some physical therapy, but he had recurrent dislocations provoked by less and less trauma. An arthroscopic Bankart repair prevented recurrent dislocations, but often

the shoulder did not feel "in place." The patient could not throw with that shoulder, and he felt apprehensive while skiing moguls. He had several episodes in which he felt as if the shoulder had "slipped." In the physician's office, he clearly indicated that the shoulder position that caused worry was abduction, extension, and external rotation. An examination showed no resistance to anterior translation, even when the humeral head was pressed in the socket. Plain radiographs showed substantial loss of the anterior glenoid osseous lip. On the basis of this information, this patient is most likely to benefit from:

- A. physical therapy
- B. an arthroscopic Bankart repair
- C. an open Bankart repair
- D. a capsular T-plasty shift and Bankart repair
- E. an anterior glenoid bone block

Conflict of Interest

The author of these CME questions does not have any financial conflict of interest with regard to the subject matter discussed in these review questions.

RESPONSE FORM

EXAMINATION EVALUATION

Did the April 2006 CME Review Questions meet these educational objectives*:

1. Provide a broad-based review and update specifically in the areas of upper extremity and sports medicine? Yes No
2. Strengthen your problem-solving abilities related to patient care particularly in the areas of sports medicine and upper extremity surgery? Yes No
3. Make you aware of new advances in orthopaedic surgical techniques and technology? Yes No

Comments (please comment on the quality of the questions and their relationship to your practice): _____

*Note: These objectives will change every quarter.

SURVEY (optional)

1. Which of the following best describes your practice type?
 - General orthopaedics
 - General orthopaedics with subspecialty interest
 - Exclusively subspecialty
 - Resident or student
 - Researcher
 - Other: _____
2. What are your specialty interests? Please rank in order of importance (1 = highest importance).

___ Adult	___ Spine
___ Geriatric	___ Hand
___ Pediatric	___ Rheumatology
___ Rehabilitation	___ Foot and Ankle
___ Sports	___ Other: _____
___ Trauma	
3. Which is your number-one priority to read when you receive *The Journal* (American volume only) each month?
 - Commercial advertising
 - Current Concepts
 - Classified advertising
 - Letters to The Editor
 - Clinical scientific articles
 - Basic scientific articles
 - Orthopaedic Forum
 - Instructional Course Lectures

ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the American Academy of Orthopaedic Surgeons (AAOS) and *The Journal of Bone and Joint Surgery* (JBJS). The AAOS is accredited by the ACCME to provide continuing medical education for physicians. The AAOS designates this educational activity for up to 10 hours of category-1 credit toward the AMA Physicians' Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

The deadline to submit your answers for grading this set of questions is July 15, 2006.

QUESTIONS?

For payment questions, contact the Subscription Department at 781-449-9780, x140. For questions regarding submitted tests, contact Melissa Viola at 781-449-9780, x124. E-mail all other questions to cme@jbjs.org.

ANSWER KEY

Black out the correct answers

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

*Required. Please enter the number of CME credit hours you are claiming for this exam. You must complete this field to receive CME credit.

AAOS Member Number _____

(Without this number, the AAOS will not track your CME credits.)

Last Name _____ First Name _____ Degree _____

Mailing Address _____

State _____ Zip Code _____

Phone Number _____

Fax Number _____ E-mail Address (optional) _____

PAYMENT OPTIONS

Payment must accompany the CME Response Form.

Mail to: CME Division, The Journal of Bone and Joint Surgery, 20 Pickering Street, Needham, MA 02492

Subscription (4 quarterly exams) \$110.00

Single exam \$30.00

Please check one:

- Check/money order made payable to *The Journal of Bone and Joint Surgery* (drawn on a U.S. bank or U.S. bank draft only)
- Mastercard Visa AMEX

Account number: _____

Expiration date: ____ / ____

Name as it appears on card: _____

I authorize my credit card to be charged \$ _____ for this activity.

Signature _____