

Test Yourself on Med School Musculoskeletal Education

It appears that medical schools realize there are deficiencies in their education regarding "musculoskeletal medicine." According to the author of a recent article,¹ "Despite generally improved levels of competency with each year at medical school, less than 50% of fourth-year students showed competency. Students who completed a musculoskeletal clinical elective scored higher and were more competent (78%) than students who did not take an elective."

In a survey of approximately 1,900 second-year residents in the United States in 2001, 26 percent felt ill-prepared in evaluating a patient with low back pain and 60 percent felt ill-prepared in evaluating foot pain.^{1,2} The following is an examination used in 1998. (Answers are listed below.) The authors of this examination used an open-ended response "to eliminate the possibility of the examinee scoring points by random guessing"^{1,3} The 1998 exam, which was validated by orthopedic surgeons, was criticized since it was thought that "surgeons overvalue topics with surgical relevance."³ The same exam was then re-evaluated in 2002 by directors of an internal medicine residency, who concluded, "A large majority of the examinees once again failed to demonstrate basic competency in musculoskeletal medicine on the examination. It is therefore reasonable to conclude that medical school preparation in musculoskeletal medicine is inadequate."³

Questions

1. What common problem must all newborns be examined for?
2. Acute septic arthritis of the knee may be differentiated from inflammatory arthritis by which laboratory test?
3. A patient punches his companion in the face and sustains a fracture of the 5th metacarpal and a 3 mm break in the skin over the fracture. What is the correct treatment, and why?
4. How is compartment syndrome treated?
5. A 25-year-old male is involved in a motor-vehicle accident. His left hip is in a position of flexion at the knee and hip, with internal rotation and adduction of the hip. What is the most likely diagnosis?
6. A patient has a disc herniation pressing on the 5th lumbar nerve root. How is motor function of the 5th lumbar nerve root tested?
7. A 12-year-old girl severely twists her ankle. Radiographs show only soft-tissue swelling. She is tender at the distal aspect of the fibula. What are two possible diagnoses?
8. A patient has a displaced fracture near the fibular neck. What structure is at risk for injury?
9. What are the five most common sources of cancer metastatic to bone?
10. Which malignancy may be present in bone, yet typically is not detected with a bone scan?
11. What is the difference between osteoporosis and osteomalacia?
12. What muscle(s) is/are involved in lateral epicondylitis (tennis elbow)?
13. What is a compartment syndrome?
14. A patient dislocates his or her knee in a car accident. What structure(s) is/are at risk for injury and therefore must be evaluated?
15. A patient comes to the office complaining of low back pain that wakes him from sleep. What two diagnoses are you concerned about?
16. A patient lands on his hand and is tender to palpation in the "snuff box" (the space between the thumb extensor and abductor tendons). Initial radiographs do not show a fracture. What diagnosis must be considered?
17. What nerve is compressed in carpal tunnel syndrome?
18. How is motor function of the median nerve tested in the hand?

19. A patient presents with new-onset low back pain. Under what conditions are radiographs indicated? Name five. (Example: history of trauma).
 20. A 20-year-old injured her knee while playing soccer. You see her on the same day, and she has a knee effusion. An aspiration shows frank blood. What are the three most common diagnoses?
 21. Name two differences between rheumatoid arthritis and osteoarthritis.
 22. What is the function of the normal anterior cruciate ligament in the knee?
 23. In elderly patients, displaced fractures of the femoral neck are typically treated with joint replacement, whereas fractures near the trochanter are treated with plates and screws. Why?
 24. Rupture of the biceps at the elbow results in weakness of both elbow flexion and _____.
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Answers

1. CDH (congenital dislocation of the hip), DDH (developmental dysplasia of the hip), dislocation, subluxation, hip instability all accepted.
2. Any analysis of fluid from aspiration (cell count, Gram stain, culture).
3. Irrigation and debridement; risk of infection.
4. Fasciotomy (surgery also accepted).
5. Hip dislocation.
6. Dorsiflexion of the great toe or toe extensors.
7. Ligament sprain and physeal fracture.
8. Common peroneal nerve (peroneal nerve also accepted).
9. Breast, prostate, lung, kidney, thyroid.
10. Myeloma (leukemia and lymphoma also accepted).
11. Osteoporosis - decreased bone density, osteomalacia - decreased bone mineral (also accepted: any true statement regarding epidemiology or pathophysiology).
12. Wrist extensors (any single wrist extensor accepted).
13. Increased pressure in a closed fascial space.
14. Popliteal artery.
15. Tumor and infection.
16. Scaphoid fracture.
17. Median nerve.
18. Any median nerve function in the hand (MCP flexion; thumb opposition, palmar abduction).
19. Age > 50 or postmenopausal, neurologic deficit, bowel or bladder changes; history of cancer, drug use or steroid use, systemic symptoms such as night pain or fever, skeletally immature.
20. Ligament tear, fracture, meniscal tear (patellar dislocation also accepted).
21. Any two correct statements (e.g., inflammatory vs. degenerative, PIP vs. DIP involvement).
22. Resists anterior translation of the tibia on the femur.
23. Tenuous blood supply to the femoral head (avascular necrosis and nonunion also accepted).
24. Supination.

References

1. Schmale GA. More evidence of educational inadequacies in musculoskeletal medicine. *Clin Orthop Rel Res* 2005;437:251-259.
2. Clawson DK, DW Jackson, DJ Ostergaard. It's past time to reform the musculoskeletal curriculum. *Acad Med* 2001;76.
3. Freedman KB, J Bernstein. The adequacy of medical school education in musculoskeletal medicine. *J Bone Joint Surg* 1998;80A.