Physical Medicine and Rehabilitation Q&A Review
Physical Medicine and Rehabilitation
Q&A Review
Second Edition

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We dedicate this book to Ari, Lauren, Helene, Kyle, Stefan, Becca, and Richard. You give life meaning and inspiration.—Jay M. Weiss and Lyn D. Weiss

I dedicate this book to Leigh.—Harry J. Lenaburg
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This book is for medical students and residents who are starting to learn about the field of physical medicine and rehabilitation. It is not meant as a board review, but rather as a tool to support learning throughout training. The question and answer (Q&A) format can be utilized to teach the basics of the field and reinforce knowledge acquired. Students are encouraged to use this format to learn in a consequence-free environment and to enhance understanding in the areas they find weaknesses.

The goal of this book is not merely to get the correct answer and test knowledge, but to promote a greater understanding of this broad field of medicine. Optimal learning requires an appreciation of why the other choices are incorrect. Students are encouraged to read the answers and rationales for all of the questions to solidify and add to their understanding. If the student finds that he or she is missing questions in one particular area, further study in that area is encouraged.

We took the comments regarding the first edition very seriously. We hope that the answers are more comprehensive so that the reader’s knowledge is expanded. The breadth and depth of the field has expanded. Therefore, we have expanded explanations, added questions, and included new sections.

We hope that this book stimulates learning about this ever-evolving and expanding field. If it does, our patients are the ones who will ultimately benefit.
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Musculoskeletal QUESTIONS

1. Scoliosis can be classified as structural or functional. Which one of the following is not characteristic of functional scoliosis?
   A) Can be due to muscle spasm
   B) Can be secondary to a herniated disc
   C) Can be due to senile changes in person’s spine
   D) Can be postural

2. Which finger is commonly affected in Dupuytren’s contracture?
   A) The index finger
   B) The middle finger
   C) The ring finger
   D) The pinky finger

3. Idiopathic brachial plexitis, usually preceded by a viral illness, is called:
   A) Thoracic outlet syndrome
   B) Erb’s palsy
   C) Guillain-Barré syndrome
   D) Parsonage-Turner syndrome

4. Which ligament is most commonly injured in lateral ankle sprains?
   A) Calcaneofibular ligament
   B) Anterior talofibular ligament
   C) Tibionavicular ligament
   D) Posterior talofibular ligament

5. Which bone is most commonly affected in a wrist fracture?
   A) Lunate
   B) Capitate
   C) Distal radius
   D) Scaphoid

6. Which of the following statements is not true regarding the meniscus?
   A) Partial meniscectomy for bucket-handle tearing will still preserve most of the meniscal function as long as the peripheral rim is intact
   B) The peripheral outer 1/3 of a meniscus is well vascularized, and the inner 2/3 poorly vascularized
   C) One of the important roles the meniscus plays is in proprioception of the knee
   D) The tibial-femoral contact area is decreased by up to 25% after total meniscectomy
7. Lateral epicondylitis most commonly affects which muscle or muscles?
   A) Extensor carpi radialis brevis and extensor digitorum communis
   B) Pronator teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris, and flexor digitorum superficialis
   C) Triceps muscle
   D) Biceps tendon

8. Which muscle is the most powerful forearm supinator?
   A) Supinator muscle
   B) Pronator teres muscle
   C) Biceps brachii muscle
   D) Brachioradialis muscle

9. The differential diagnosis of trigger finger includes all of the following except:
   A) Dupuytren’s disease
   B) Ganglion of the tendon sheath
   C) Rheumatoid arthritis
   D) Phalange fracture

10. The true leg length should be measured between:
    A) Greater trochanter and lateral malleolus
    B) Umbilicus and lateral malleolus
    C) Anterior superior iliac spine (ASIS) and medial malleolus
    D) Anterior inferior iliac spine and medial malleolus

11. Second impact syndrome occurs when a patient:
    A) Sustains a physical injury at the same time as a concussion
    B) Sustains a brain injury before the previous concussion symptoms have resolved
    C) Sustains a second concussion after previous concussion symptoms have resolved
    D) Sustains a medical condition after a concussion

12. Adhesive capsulitis or frozen shoulder:
    A) Results from thickening and contraction of the capsule around the glenohumeral joint
    B) Is more commonly seen in middle-aged men
    C) Has risk factors including psoriasis
    D) Is more frequently noted in colder climates

13. In sports, which knee ligament is the most commonly injured?
    A) Anterior cruciate ligament (ACL)
    B) Posterior cruciate ligament (PCL)
    C) Lateral collateral ligament (LCL)
    D) Medial collateral ligament (MCL)

14. Which statement is not true regarding plantar fasciitis?
    A) Increased tension on the plantar fascia leads to chronic inflammation
    B) Heel spurs may contribute to its etiology
    C) A tight Achilles tendon is frequently associated with plantar fasciitis
    D) Night plantar flexion splints are not indicated

15. Heberden’s nodes are found in which condition?
    A) Rheumatoid arthritis
    B) Psoriatic arthritis
C) Osteoarthritis  
D) Gout

16. What radiographic finding is typical of osteoarthritis?  
    A) Periarticular osteopenia  
    B) “Pencil-in-cup” deformity  
    C) Subchondral cysts  
    D) Soft tissue swelling

17. Which joint is most commonly dislocated among pediatric patients?  
    A) Shoulder  
    B) Hip  
    C) Elbow  
    D) Proximal interphalangeal (PIP) joint

18. Which provocative test is useful in detecting rotator cuff impingement?  
    A) Drop arm test  
    B) O’Brien test  
    C) Apley scarf test  
    D) Neer’s test

19. What is the most common cause of adhesive capsulitis?  
    A) Diabetes  
    B) Female gender  
    C) Hypothyroidism  
    D) Idiopathic

20. Which of the following is a static stabilizer of the shoulder joint?  
    A) Biceps tendon  
    B) Labrum  
    C) Supraspinatus muscle  
    D) Subscapularis muscle

21. The cruciate ligaments are important knee structures which lie:  
    A) Inside the joint capsule, and within the synovial cavity as well  
    B) Outside the synovial cavity but within the fibrous joint capsule  
    C) Outside the fibrous joint capsule  
    D) Outside the synovial cavity and fibrous joint capsule

22. What is a sign that the stellate ganglion was successfully blocked?  
    A) Ipsilateral Horner’s syndrome  
    B) Increased paresthesias  
    C) Anesthesia in the limb  
    D) Increased pain symptoms

23. What is a Smith’s fracture?  
    A) Fracture of the distal radius with dorsal displacement  
    B) Fracture of the distal ulna with dorsal displacement  
    C) Fracture of the distal radius with volar displacement  
    D) Fracture of the distal ulna with volar displacement
1. C) Senile changes in a person’s spine result in the acquired type of structural scoliosis, which is not reversible. All other answer choices are characteristic of functional scoliosis and are reversible.

2. C) Dupuytren’s contracture most commonly involves the ring finger. This condition appears in the fourth to sixth decade of life and is more severe in males of northern European descent. The pathophysiology results in collagen type III hyperproliferation affecting the palmar fascia. Treatment includes serial triamcinolone injections in early stages, collagenase injections, and surgery.

3. D) Parsonage-Turner syndrome commonly affects the suprascapular nerve, axillary nerve, and/or long thoracic nerve, and can be mistakenly attributed to an athletic event because of its idiopathic nature. Its classic presentation is acute onset of pain lasting 1 to 2 weeks and a delayed onset of weakness.

4. B) In lateral ankle sprains, the ligaments within the lateral ligament complex are injured in a predictable sequence as forces increase: anterior talofibular ligament, calcaneofibular ligament, then posterior talofibular ligament.

5. D) Scaphoid fractures can be missed but should be suspected in patients with radial wrist pain after trauma. The scaphoid and triquetrum are the most common wrist fractures. Scaphoid and lunate fractures are highly susceptible to avascular necrosis.

6. D) The menisci appear to transmit approximately 50% of the compressive load through range of motion (ROM) of 0° to 90°. The contact area is increased, protecting articular cartilage from high concentrations of stress. The circumferential continuity of the peripheral rim of the meniscus is integral to meniscal function. Partial meniscectomy, or bucket-handle tearing, will still preserve meniscal function as long as the peripheral rim is intact. Conversely, if a radial tear extends to the periphery and interrupts the continuity of the meniscus, the load-transmitting properties of the meniscus are lost.

   The tibial femoral contact area is decreased by up to 75% in postmeniscectomy knees. This decrease results in a 235% increase in contact stresses after total meniscectomy. The peripheral outer 1/3 of a meniscus is well vascularized, and the inner 2/3 poorly vascularized. Therefore, no surgical repair is needed for the inner 2/3 of a meniscus tear. The meniscus also plays an important role in proprioception of the knee joint.

7. A) The pronator teres, flexor carpi radialis, palmaris longus, flexor carpi ulnaris, and flexor digitorum superficialis are affected in medial epicondylitis. The triceps muscle is affected in posterior elbow tendonitis. The biceps tendon is affected in bicipital tendonitis.
8. C) The most powerful forearm supinator is the biceps brachii. This muscle has two proximal attachments. The short head attaches to the coracoid process, whereas the long head attaches to the supraglenoid tubercle of the scapula. The distal attachment is at the radial tuberosity and bicapital aponeurosis into fascia of the forearm. The biceps brachii is innervated by the musculocutaneous nerve, and this muscle is best tested when the forearm is placed in flexion and supination.

9. D) Trigger finger is defined as the triggering, snapping, or locking of the finger as it is flexed and extended. This is due to localized inflammation or nodular swelling of the flexor tendon sheath, which inhibits the normal tendon glide. Typically, the thumb, middle, and ring fingers of the dominant hand in middle-aged women are most commonly affected.

10. C) The true leg length should be measured from anterior superior iliac spine to medial malleolus. Apparent leg length discrepancy should be assessed if no true leg length discrepancy exists by measuring from a nonfixed point (eg, umbilicus) to a fixed point (eg, medial malleolus), which may be associated with pelvic obliquity.

11. B) A second trauma can be relatively minor, but the body’s response can be fatal. It is believed that the brain’s autoregulation becomes impaired from the first injury leading to engorgement within the cranium. This leads to increased intracranial pressures and possible herniation of the medial temporal lobes through the tentorium or herniation of cerebellar tonsils through the foramen magnum.

12. A) Frozen shoulder often follows a period of prolonged shoulder immobilization and results in a decreased range of motion (ROM) of the shoulder. Thickening and contraction of the capsule occurs around the glenohumeral joint. Risk factors include diabetes. It is more commonly seen in middle-aged women.

13. D) The MCL is the most common knee ligament injury in sports. It is usually caused by a valgus force to the knee joint, causing stretching or tearing of the MCL. Isolated complete tears of the MCL can be treated nonoperatively.

14. D) Plantar fasciitis is caused by inflammation of the plantar fascia. Increased tension on the plantar fascia, such as pes cavus, pes planus, obesity, tight Achilles tendon, or bone spurs can lead to chronic inflammation. Treatment options are mostly conservative, including modalities, nonsteroidal anti-inflammatory drugs (NSAIDs), orthotics or shoe modification (heel pads, cushion, and lift), as well as Achilles tendon and plantar fascia stretching. Anesthetic/corticosteroid injection is effective. Injection from the medial side of the heel helps avoid injection into subcutaneous tissue or fascial layer, which may cause fat pad atrophy/necrosis and fascia rupture. Nighttime dorsiflexion splints may be used if other conservative measures fail.

15. C) Heberden’s nodes are swellings of the distal interphalangeal joints seen in osteoarthritis. Contents of these swellings are gelatinous hyaluronic acid. These growths arise in the chronic phase of osteoarthritis.

16. C) Typical radiographic features of osteoarthritis include joint space narrowing, osteophyte formation, and subchondral cysts. Periarticular osteopenia/osteoporosis and soft tissue swelling are typically seen in rheumatoid arthritis. Pencil-in-cup deformity is a finding in psoriatic arthritis.

17. C) The most commonly dislocated joint in children is the elbow. The elbow is the second most commonly dislocated joint in adults.
18. D) Four muscles (infraspinatus, supraspinatus, subscapularis, and teres minor) form the rotator cuff. The insertion point of these four muscles is subject to repetitive microtrauma and impingement between the acromion and greater tuberosity of the humerus. Impingement syndrome, supraspinatus syndrome, and bursitis are terms commonly used. Neer’s test will be positive in the setting of impingement. Hawkins’ test can also be performed to further confirm impingement. Drop arm test is used to detect rotator cuff tears. O’Brien test can be used to detect superior labrum anterior to posterior (SLAP) lesions or acromioclavicular (AC) joint abnormalities. Apley scarf test is also used to detect AC joint pathology.

19. D) Adhesive capsulitis is usually an idiopathic condition resulting in the loss of both active and passive range of motion (ROM) of the shoulder. It most commonly affects middle-aged adults (40–60 years). Associated risk factors include female gender, diabetes (most common risk factor), and hypothyroidism, among other conditions. None of the aforementioned risk factors have been determined to be primary causes of this condition. Adhesive capsulitis is divided into three stages: freezing stage, frozen stage, and thawing stage.

20. B) Static and dynamic stabilizers contribute to shoulder joint stability. Static stabilizers are glenoid, labrum, articular congruity, glenohumeral ligaments and capsule, and negative intraarticular pressure. The dynamic stabilizers are rotator cuff muscles/tendons, biceps tendon, and periscapular muscles.


22. A) Ipsilateral Horner’s syndrome (dropping eye, pupillary constriction, and increased skin temperature or flushing) indicates that the block was adequate.

23. C) Smith’s fracture is when the distal radius becomes fractured and the distal fragment is displaced toward the palm (volar). It is also called a reverse Colle’s fracture because in a Colle’s fracture the distal radial fragment is displaced dorsally.