American Board of Surgical Assistants (ABSA) Orthopedic Practice Test (Sample)

Study Guide

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Questions

1. What is the primary role of the flexor muscle group in joint movement?

A. To increase the angle of the joint

B. To stabilize the joint

C. To decrease the angle of the joint

D. To rotate the limb

2. The callus formation occurs at which stage of the bone healing process?

A. Initial stage

B. Early stage

C. Middle stage

D. Final stage

3. Which of the following is an indication for an orthopedic surgery?

A. Chronic pain affecting daily activities

B. Cuts and bruises on the skin

C. General fatigue without specific pain

D. Non-specific muscle weakness

4. Name a potential risk factor for developing osteoarthritis.

A. High levels of physical activity

B. Age and obesity

C. Healthy diet

D. Strong genetic predisposition

5. Which statement about screws as fixation implants is false?

A. Screws alone may be used for fixation of oblique or spiral fractures of long bones

B. Cancellous bone gives the best fixation

C. They must be long enough to penetrate both cortices

D. Cortical lag screws are used to hold compression plates in place

6. Which term describes a chronic systemic disease of unknown cause that involves inflammation of the synovium?

A. Osteoarthritis

B. Rheumatoid arthritis

C. Psoriatic arthritis

D. Septic arthritis

7. Which type of muscle decreases the angle of a joint?

A. Extensor

B. Flexor

C. Adductor

D. Rotator

8. What is the first stage of bone healing following a fracture?

A. Cellular proliferation

B. Hematoma

C. Callus formation

D. Consolidation

9. A rotator cuff tear is classified as which type of injury?

A. Injury to the cartilage in the knee

B. Injury to the muscles and tendons stabilizing the shoulder joint

C. Fracture of the arm near the elbow

D. Stretching or inflammation of the ligament in the ankle

10. What is the main objective in treating a fractured clavicle?

A. Hold the shoulder in normal position

B. Restore full range of motion immediately

C. Reduce swelling and improve blood flow

D. Secure the arm to prevent further injury

Answers

1. C
2. C
3. A
4. B
5. B
6. B
7. B
8. B
9. B
10. A

Explanations

1. What is the primary role of the flexor muscle group in joint movement?

A. To increase the angle of the joint

B. To stabilize the joint

C. To decrease the angle of the joint

D. To rotate the limb

The primary role of the flexor muscle group in joint movement is to decrease the angle of the joint. When flexor muscles contract, they pull the insertion point of the muscle closer to the origin, resulting in the bending of the joint. This action is critical in various movements, such as bending the elbow or knee, where the flexors work to bring the forearm or lower leg closer to the upper arm or thigh, respectively. This function is essential for many daily activities, including walking, lifting, and grasping. The ability to flex joints supports dynamic movement and contributes to overall strength and mobility in the musculoskeletal system. Understanding this fundamental role of flexor muscles is important for comprehending how different muscle groups facilitate movement and function in the body.

2. The callus formation occurs at which stage of the bone healing process?

A. Initial stage

B. Early stage

C. Middle stage

D. Final stage

Callus formation is a crucial part of the bone healing process and occurs during the middle stage of healing. This stage follows the initial inflammatory response to the injury, where blood supply increases and a hematoma forms at the fracture site. During the middle stage, the body starts to repair the broken bone by generating a soft callus, primarily composed of collagen and cartilage, which provides some stability to the fracture site. As healing progresses, this soft callus is then replaced with a hard callus formed by the mineralization of the newly formed tissue, which hardens it into new bone. This middle stage is characterized by significant osteoblastic activity, where bone-forming cells lay down new bone matrix, and the callus forms around the fracture to stabilize it, bridging the gap between the two ends of the fractured bone. Hence, understanding that callus formation signifies a transition from inflammation to active bone regeneration helps to clearly identify its occurrence in the middle phase of healing.

3. Which of the following is an indication for an orthopedic surgery?

A. Chronic pain affecting daily activities

B. Cuts and bruises on the skin

C. General fatigue without specific pain

D. Non-specific muscle weakness

Chronic pain affecting daily activities is a significant indication for orthopedic surgery. When patients experience persistent pain that disrupts their capability to perform routine tasks, it often points to underlying structural problems such as joint degeneration, tendon injuries, or other orthopedic conditions that may require surgical intervention. This pain can alter a patient's quality of life, limit mobility, and affect physical function, prompting the need for surgical procedures aimed at correcting the problem or alleviating pain, such as joint replacement, arthroscopy, or repair of torn ligaments. The other options presented relate to symptoms that do not typically necessitate orthopedic surgery. Cuts and bruises may require wound care but are not intrinsic orthopedic issues. General fatigue without specific pain usually signals systemic problems rather than localized orthopedic conditions. Non-specific muscle weakness can arise from various sources, including neurological or metabolic disorders, and would not usually lead to surgical intervention without further specific conditions requiring such measures being identified.

4. Name a potential risk factor for developing osteoarthritis.

A. High levels of physical activity

B. Age and obesity

C. Healthy diet

D. Strong genetic predisposition

The correct answer identifies age and obesity as significant risk factors for developing osteoarthritis. Osteoarthritis is a degenerative joint disease characterized by the breakdown of cartilage, and these two factors contribute notably to its prevalence. As individuals age, the cumulative wear and tear on the joints increases, leading to a higher likelihood of cartilage degeneration. Additionally, age-related changes in the body's ability to repair and regenerate cartilage also play a role in the development of osteoarthritis. Obesity further exacerbates the risk because the excess weight places additional stress on weight-bearing joints, such as the knees and hips. This mechanical load not only contributes to the wear of cartilage but also triggers inflammatory processes that aggravate joint degeneration. In contrast, high levels of physical activity can be beneficial when done in moderation, promoting joint health and maintaining muscle strength. A healthy diet is associated with a lower risk of obesity and can provide nutrients that support cartilage health. While strong genetic predisposition may play a role in some cases, it is not as universally recognized as the combination of age and obesity in contributing to the development of osteoarthritis.

5. Which statement about screws as fixation implants is false?

A. Screws alone may be used for fixation of oblique or spiral fractures of long bones

B. Cancellous bone gives the best fixation

C. They must be long enough to penetrate both cortices

D. Cortical lag screws are used to hold compression plates in place

The assertion that cancellous bone gives the best fixation is misleading. Generally, cortical bone provides superior fixation for screws compared to cancellous bone. This is because cortical bone is denser and offers a stronger surface for screw threads to grip, leading to greater stability. Cancellous bone, while valuable for certain applications such as securing implants in less load-bearing areas, does not provide the same level of fixation stability. It is often used in conjunction with constructs designed to optimize fixation, but it is not the optimal choice for achieving maximal stability alone. In contrast, the other statements correctly depict various aspects of screw fixation in orthopedic applications—indicating the versatility and requirements associated with using screws for fracture fixation, particularly in the context of oblique or spiral fractures, the necessity for proper screw length to ensure adequate fixation through both cortices, and the specific role of cortical lag screws in the context of compression plate stabilization.

6. Which term describes a chronic systemic disease of unknown cause that involves inflammation of the synovium?

A. Osteoarthritis

B. Rheumatoid arthritis

C. Psoriatic arthritis

D. Septic arthritis

The term that describes a chronic systemic disease of unknown cause involving inflammation of the synovium is rheumatoid arthritis. This autoimmune condition is characterized by the body's immune system mistakenly attacking the synovial membrane, leading to swelling, pain, and potential joint damage. Unlike osteoarthritis, which is primarily a degenerative joint disease related to wear and tear, or septic arthritis, which is caused by infection, rheumatoid arthritis involves a complex interplay of genetic and environmental factors that trigger inflammation throughout the body. Furthermore, psoriatic arthritis, while also an inflammatory condition, is specifically associated with psoriasis and may not affect the synovium in the same systemic and chronic manner as rheumatoid arthritis. The hallmark of rheumatoid arthritis is its systemic nature and joint involvement, making it distinct in its etiology and clinical presentation.

7. Which type of muscle decreases the angle of a joint?

A. Extensor

B. Flexor

C. Adductor

D. Rotator

To decrease the angle of a joint, the muscle that is involved is a flexor. Flexor muscles work by contracting, which brings two bones closer together at a joint, thereby reducing the angle between them. This action is commonly seen in movements such as bending the elbow or knee. For instance, when you bend your arm at the elbow, the biceps brachii muscle acts as a flexor to reduce the angle at that joint. This concept is fundamental in understanding muscle groups and their actions in the context of human movement and anatomy. In contrast, extensor muscles work to increase the angle of a joint; adductor muscles are responsible for moving limbs toward the body's midline; and rotator muscles facilitate rotation around a joint. Each of these different muscle types performs distinct functions that contribute to a range of movements in the body.

8. What is the first stage of bone healing following a fracture?

A. Cellular proliferation

B. Hematoma

C. Callus formation

D. Consolidation

The initial stage of bone healing following a fracture is the formation of a hematoma. When a fracture occurs, blood vessels in the bone and surrounding tissue are disrupted, leading to the immediate accumulation of blood at the fracture site, which forms a hematoma. This hematoma serves several important purposes: it helps to stabilize the fracture, provides a scaffold for the migration of cells, and serves as a signaling platform for the recruitment of various growth factors and cells necessary for the healing process. As the hematoma develops, it creates an environment conducive to the subsequent stages of healing. These include the inflammatory response, which involves the infiltration of immune cells that help to clear debris and initiate the healing process, followed by the stages of cellular proliferation, callus formation, and finally, consolidation. Each of these stages plays a critical role in the repair and regeneration of bone tissue after a fracture. Understanding the sequence of phases in bone healing helps anticipate the needs for treatment and potential complications in orthopedic care. The hematoma is a fundamental first step that sets the foundation for the complex processes that follow in restoring bone integrity.

9. A rotator cuff tear is classified as which type of injury?

A. Injury to the cartilage in the knee

B. Injury to the muscles and tendons stabilizing the shoulder joint

C. Fracture of the arm near the elbow

D. Stretching or inflammation of the ligament in the ankle

A rotator cuff tear is classified as an injury to the muscles and tendons that stabilize the shoulder joint. The rotator cuff comprises a group of muscles and their associated tendons that play a crucial role in shoulder mobility and stability. These structures help to keep the humeral head securely positioned in the glenoid cavity of the shoulder blade, allowing for a wide range of motion while also maintaining joint stability. When a tear occurs, either from acute trauma or chronic wear and tear, it can lead to pain, weakness, and a limited range of motion in the shoulder. This classification emphasizes the specific nature of the injury as it directly involves the shoulder's soft tissues rather than hard tissues like bone or cartilage found in other injuries, such as knee injuries or fractures of the arm.

10. What is the main objective in treating a fractured clavicle?

A. Hold the shoulder in normal position

B. Restore full range of motion immediately

C. Reduce swelling and improve blood flow

D. Secure the arm to prevent further injury

The main objective in treating a fractured clavicle is to hold the shoulder in a normal position. This approach is essential because the clavicle plays a pivotal role in stabilizing the shoulder and connecting the arm to the body. By properly aligning and immobilizing the shoulder, the treatment promotes healing of the fractured bone and minimizes the risk of complications such as malunion or nonunion. Maintaining the shoulder's normal position helps ensure that the surrounding muscles and ligaments function correctly and that the arm can regain its strength and mobility after healing. While it is important to consider other aspects of treatment, such as managing swelling and protecting the injury, the priority is to ensure the shoulder remains aligned and stable during the healing process. Restoring full range of motion and improving blood flow can be addressed once the initial healing has begun, and securing the arm is typically a part of overall positioning rather than the primary focus. Thus, the correct focus on holding the shoulder in a normal position is crucial for effective recovery.