NPTE Physical Therapist Assistant (PTA) Practice Exam (Sample)

Study Guide

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Questions

1. Which of the following is not a function of orthotics?

A. Prevent deformities

B. Inhibit tone

C. Improve cardiovascular endurance

D. Assist weak limbs

2. What is the total average degrees of pelvic rotation during gait for an adult?

A. 6 degrees

B. 8 degrees

C. 10 degrees

D. 12 degrees

3. How long does the pre-prosthetic phase of rehabilitation typically last?

A. 4 weeks

B. 6 weeks

C. 8 weeks

D. 12 weeks

4. Which condition involves inflammation of the meninges?

A. Arachnoiditis

B. Meningitis

C. Cerebritis

D. Encephalitis

5. Which muscle action can result in passive insufficiency?

A. Muscle actively contracting

B. Muscle actively lengthening

C. Muscle being unable to lengthen further

D. Muscle sustaining maximum contraction

6. What is the function of the subscapular bursa?

A. To enhance shoulder stability

B. To prevent tendon rubbing against the scapula

C. To support the ligaments of the shoulder joint

D. To lubricate the rotator cuff muscles

7. What type of physical activity would most likely require the use of the ATP-PC energy system?

A. Long-distance running

B. 1-Repetition Maximum lifting

C. High-intensity interval sprints

D. Yoga and Pilates

8. What muscles are involved in scapular protraction?

A. Pec major and lats

B. Serratus anterior and pec minor

C. Rhomboids and lower traps

D. Upper traps and levator scap

9. Which structure does the median nerve pass through to enter the palm?

A. The cubital fossa

B. The carpal tunnel

C. The dorsal radiocarpal ligament

D. The anatomical snuffbox

10. What condition is a Hip-Knee-Ankle-Foot Orthosis (HKAFO) typically used to address?

A. Patients with spinal injuries

B. Patients with hip, foot, and ankle weakness

C. Patients with upper extremity paralysis

D. Patients with sensory deficits

Answers

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

Explanations

1. Which of the following is not a function of orthotics?

A. Prevent deformities

B. Inhibit tone

C. Improve cardiovascular endurance

D. Assist weak limbs

Orthotics are devices designed to support, align, or improve the function of movable parts of the body, particularly the limbs. Their primary roles include preventing deformities, assisting weak limbs, and sometimes inhibiting unwanted muscle tone or spasms. Preventing deformities is achieved by providing appropriate support and alignment to the structures they are applied to. This can help maintain function and minimize the risk of further injury or postural issues. Inhibiting tone is particularly relevant in conditions characterized by spasticity, where orthotics can help control or reduce excessive muscle tone. Assisting weak limbs involves providing stability and support to limbs that may not adequately support themselves due to weakness, allowing for improved function and mobility in daily activities. Improving cardiovascular endurance, on the other hand, is not a direct function of orthotics. While enhanced mobility and stability can indirectly support greater physical activity and, as a result, improved cardiovascular health over time, this is not an intended or immediate function of orthotic devices. Orthotics primarily focus on structural support and function rather than cardiovascular conditioning.

2. What is the total average degrees of pelvic rotation during gait for an adult?

A. 6 degrees

B. 8 degrees

C. 10 degrees

D. 12 degrees

The total average degrees of pelvic rotation during gait for an adult is typically around 8 degrees. This value represents the combination of both forward and backward rotation of the pelvis as part of the gait cycle. During walking, the pelvis rotates to accommodate the movement of the legs and to maintain balance and stability. The rotation is crucial in allowing for a natural stride and facilitating the efficient movement of the lower limbs, as it helps reduce the energy expenditure during ambulation. Additionally, the range of motion for pelvic rotation can be influenced by factors such as stride length, walking speed, and individual anatomical variations, but on average, 8 degrees is recognized as a standard measurement in clinical assessments and research regarding normal gait mechanics. This knowledge is essential for physical therapists and assistants when analyzing gait patterns and designing appropriate interventions for patients who may have gait abnormalities.

3. How long does the pre-prosthetic phase of rehabilitation typically last?

A. 4 weeks

B. 6 weeks

C. 8 weeks

D. 12 weeks

The pre-prosthetic phase of rehabilitation typically lasts about 6 weeks, making this the most appropriate timeframe. This phase is crucial for preparing individuals for the successful use of a prosthesis following limb loss. During these 6 weeks, the focus is on rehabilitation strategies such as pain management, wound healing, and developing the residual limb's strength, range of motion, and function. Patients often engage in physical therapy to enhance their mobility and prepare for the fitting and use of their prosthetic device. Progress during this time is essential, as it lays the foundation for a smoother transition into the prosthetic phase of rehabilitation. Other timeframes would not align with the typical duration observed in clinical practice, as the pre-prosthetic phase is designed to be thorough yet time-efficient, ensuring that individuals have the best chance for a successful adaptation to their prosthesis.

4. Which condition involves inflammation of the meninges?

A. Arachnoiditis

B. Meningitis

C. Cerebritis

D. Encephalitis

Meningitis is characterized by the inflammation of the meninges, which are the protective membranes that cover the brain and spinal cord. This inflammation can result from various causes, including viral infections, bacterial infections, or, less commonly, fungal infections. Symptoms often include headaches, fever, neck stiffness, and sensitivity to light, reflecting the body's response to the infection and irritation of the meninges. In contrast, other conditions listed, such as arachnoiditis, cerebritis, and encephalitis, describe different pathologies. Arachnoiditis specifically refers to inflammation of the arachnoid membrane, one of the three layers of the meninges, but the term does not encompass inflammation of all meninges as a whole. Cerebritis describes the inflammation of the brain tissue itself, typically due to infection or injury, rather than the protective layers surrounding it. Encephalitis refers to inflammation of the brain, usually caused by a viral infection, rather than the membranes. Understanding the specifics of these conditions clarifies why meningitis is the correct answer, as it directly pertains to inflammation affecting all layers of the meninges.

5. Which muscle action can result in passive insufficiency?

A. Muscle actively contracting

B. Muscle actively lengthening

C. Muscle being unable to lengthen further

D. Muscle sustaining maximum contraction

Passive insufficiency occurs when a multi-joint muscle cannot lengthen enough to allow for full range of motion at all joints that it crosses. This lack of available length leads to restricted movement due to the muscle being unable to stretch sufficiently in response to the demands placed upon it. The correct choice pertains to the situation where the muscle is unable to lengthen further. For instance, if a muscle crosses over multiple joints (such as the hamstrings, which cross the hip and knee), they may be in a position where full range at both joints cannot be achieved simultaneously when the muscle is at rest or in a stretched position. This limits movement passively, thus demonstrating passive insufficiency. In contrast, when a muscle actively contracts, as in the first option, or actively lengthens, as mentioned in the second, the muscle generates tension that can affect joint movements but does not typically lead to passive insufficiency. The fourth scenario, where a muscle sustains maximum contraction, does not address the ability of the muscle to lengthen and similarly does not result in passive insufficiency.

6. What is the function of the subscapular bursa?

A. To enhance shoulder stability

B. To prevent tendon rubbing against the scapula

C. To support the ligaments of the shoulder joint

D. To lubricate the rotator cuff muscles

The subscapular bursa is a small sac filled with synovial fluid located between the subscapularis muscle and the scapula. Its primary function is to decrease friction and provide a cushioning effect, especially during movements of the shoulder. By preventing the tendon of the subscapularis from rubbing directly against the scapula, the bursa helps to protect the tendon from wear and tear, which can lead to inflammation or other injuries. This anatomical function is essential for maintaining normal biomechanics during shoulder activities, especially those involving rotation and lifting. By mitigating friction, the subscapular bursa plays a critical role in preserving tendon integrity and promoting smooth movement. Other options do not accurately reflect the focus of the subscapular bursa's function. While enhancing shoulder stability, supporting ligaments, or lubricating the rotator cuff muscles relate to shoulder joint function, they are not primary roles of the subscapular bursa specifically. Instead, these aspects are more associated with the overall anatomy and physiology of the shoulder complex.

7. What type of physical activity would most likely require the use of the ATP-PC energy system?

A. Long-distance running

B. 1-Repetition Maximum lifting

C. High-intensity interval sprints

D. Yoga and Pilates

The ATP-PC energy system, also known as the phosphagen system, is primarily engaged during short bursts of high-intensity activities that last for a duration of about 10 seconds or less. This energy system relies on the stored adenosine triphosphate (ATP) and phosphocreatine (PC) in the muscles, allowing for quick energy release without the need for oxygen. High-intensity interval sprints are characterized by short, explosive effort followed by brief recovery periods, which perfectly aligns with the ATP-PC system's capabilities. During high-intensity interval sprints, the body predominantly utilizes this system due to the rapid demand for energy, which cannot be sustained for longer durations. The quick, dynamic nature of such sprints means they leverage the immediate energy provided by ATP and phosphocreatine stores before gradually transitioning to other energy systems (like anaerobic glycolysis) as activity continues beyond the immediate energy needs. In contrast, long-distance running, 1-repetition maximum lifting, and activities like yoga and Pilates primarily utilize other energy systems, including aerobic metabolism, which provides energy over longer durations or at submaximal intensities.

8. What muscles are involved in scapular protraction?

A. Pec major and lats

B. Serratus anterior and pec minor

C. Rhomboids and lower traps

D. Upper traps and levator scap

Scapular protraction is primarily accomplished through the action of the serratus anterior and the pectoralis minor muscles. The serratus anterior is a key muscle that pulls the scapula forward around the thorax, positioning it for optimal function and movement. It is crucial in stabilizing the scapula against the rib cage, allowing for effective upper limb movements. The pectoralis minor assists in this action by helping to pull the scapula forward and downward, supporting the protraction movement. Together, these muscles create a synergistic effect to achieve protraction, making them the correct choice for this question. In contrast, other muscle groups listed, like the rhomboids and lower trapezius or the upper trapezius and levator scapulae, are primarily involved in retraction and elevation of the scapula, respectively, rather than protraction. The pectoralis major and latissimus dorsi, mentioned as another option, do not play a significant role in scapular protraction either. This understanding emphasizes the specific contribution of serratus anterior and pectoralis minor in efficiently performing this movement.

9. Which structure does the median nerve pass through to enter the palm?

A. The cubital fossa

B. The carpal tunnel

C. The dorsal radiocarpal ligament

D. The anatomical snuffbox

The median nerve passes through the carpal tunnel to enter the palm. The carpal tunnel is a narrow passageway on the palm side of the wrist, surrounded by bones and ligaments. Within this tunnel, the median nerve travels alongside the flexor tendons and is responsible for the sensory and motor innervation of the palm and fingers. This configuration is critical for the function of the hand, as the median nerve innervates several muscles involved in fine motor skills and provides sensation to parts of the hand, particularly the thumb, index, middle finger, and part of the ring finger. Entrapment or compression of the median nerve in the carpal tunnel can lead to conditions like carpal tunnel syndrome, which highlights the importance of this structure in clinical practice. The other structures mentioned do not serve as pathways for the median nerve to enter the palm. The cubital fossa is associated with the cubital region of the arm and the elbow joint, while the dorsal radiocarpal ligament relates to stabilization on the dorsal side of the wrist. The anatomical snuffbox is a space on the lateral aspect of the wrist associated with certain tendons and arteries but not a conduit for the median nerve.

10. What condition is a Hip-Knee-Ankle-Foot Orthosis (HKAFO) typically used to address?

A. Patients with spinal injuries

B. Patients with hip, foot, and ankle weakness

C. Patients with upper extremity paralysis

D. Patients with sensory deficits

The Hip-Knee-Ankle-Foot Orthosis (HKAFO) is specifically designed to assist individuals who experience weakness in the hip, foot, and ankle areas. This type of orthosis provides stabilization and support throughout the lower extremities, allowing for improved mobility and functional performance. For patients with hip weakness, the HKAFO helps maintain proper alignment and control during movement, addressing challenges such as hip instability or difficulty with weight-bearing activities. In addition, by incorporating support for the knee, ankle, and foot, it enhances the overall biomechanical function, facilitating standing and walking. The other options refer to different clinical needs that would not typically be addressed by an HKAFO. For example, while spinal injuries might require other specialized braces or interventions targeting the spine, upper extremity paralysis would be better served by supports designed for the arms and hands, rather than lower limb orthoses. Lastly, sensory deficits usually involve different therapeutic approaches focused on the nervous system and may not necessitate an orthotic device like the HKAFO, which primarily addresses muscular weaknesses and joint stability in the lower extremities.