

BOC Athletic Training Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

- 1. In which myotome pattern would you expect to find impaired wrist extension?**
 - A. C6**
 - B. C7**
 - C. T1**
 - D. L2**
- 2. During an emergency call, which detail is essential for the dispatcher to know?**
 - A. Time of day**
 - B. Type of suspected injury**
 - C. Weather conditions**
 - D. Previous medical history of the athlete**
- 3. What type of fracture results in three or more fragments at the fracture site?**
 - A. Comminuted fracture**
 - B. Oblique fracture**
 - C. Impacted fracture**
 - D. Linear fracture**
- 4. What is the primary mechanism of the gate control theory?**
 - A. Emotional experiences influence pain perception.**
 - B. Neurotransmitters directly cause pain.**
 - C. A-beta fibers override pain information from A-gamma and C fibers.**
 - D. Sclerotomes define the pain's source.**
- 5. What does exertional hyponatremia result from?**
 - A. Inadequate hydration**
 - B. Excessive sodium intake**
 - C. Ingesting too much fluid**
 - D. Extreme sweating without replacement**

- 6. What is the myotome pattern associated with plantarflexion and hip extension?**
- A. S1**
 - B. S2**
 - C. L5**
 - D. L4**
- 7. What aspect is included in the clinical evaluation and diagnosis domain?**
- A. Immediate care**
 - B. Office management**
 - C. Patient referrals**
 - D. Injury assessment**
- 8. Which type of electrical stimulator generates outputs up to 500 volts?**
- A. Low voltage generators**
 - B. High voltage generators**
 - C. Biphasic generators**
 - D. Monophasic generators**
- 9. Which of the following best describes plasters in pharmacology?**
- A. Thin film applications for the skin**
 - B. Thicker substances used to relieve pain and decrease inflammation**
 - C. Liquid solutions for oral administration**
 - D. Gels for topical use that facilitate absorption**
- 10. What are starches primarily known for?**
- A. Providing high levels of fiber**
 - B. Being the principle source of glucose**
 - C. Being a primary fat source**
 - D. High protein content**

Answers

SAMPLE

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

SAMPLE

Explanations

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1. In which myotome pattern would you expect to find impaired wrist extension?

- A. C6
- B. C7**
- C. T1
- D. L2

The myotome pattern associated with wrist extension is primarily linked to the C7 nerve root. This is because the triceps brachii and the extensor muscles of the wrist receive their innervation predominantly from the C7 segment of the spinal cord. When there is an impairment or injury at this level, individuals may struggle with performing wrist extension effectively, leading to weakness or inability to hold the wrist in an extended position. The C6 myotome is primarily responsible for elbow flexion and wrist flexion, but does not significantly contribute to wrist extension. The T1 myotome relates more to the innervation of the intrinsic hand muscles, which assist with finger movement rather than wrist extension. Finally, the L2 myotome is associated with hip flexion and does not influence wrist motion. Therefore, the correct identification of C7 reflects an understanding of how specific spinal segments contribute to motor function in the upper extremities.

2. During an emergency call, which detail is essential for the dispatcher to know?

- A. Time of day
- B. Type of suspected injury**
- C. Weather conditions
- D. Previous medical history of the athlete

The type of suspected injury is crucial information for the dispatcher during an emergency call. Knowing the specific nature of the injury allows emergency services to prepare adequately before arriving on the scene. This detail can inform them about the necessary response, potential equipment needed, and whether specialized personnel should be dispatched. For example, if a dispatcher knows that the injury is a suspected spinal injury, they can ensure that the response team comes equipped with appropriate immobilization gear and is prepared to handle the situation with the necessary precautions. Other details, though potentially useful, do not carry the same level of urgency. The time of day may aid in logistics but does not directly affect the immediate care required. Weather conditions can be relevant but not as critical as understanding the specifics of the injury. Previous medical history may provide context for ongoing care but can often be gathered after emergency responders arrive. Hence, the type of suspected injury stands out as the most essential detail for effective response.

3. What type of fracture results in three or more fragments at the fracture site?

A. Comminuted fracture

B. Oblique fracture

C. Impacted fracture

D. Linear fracture

A comminuted fracture is characterized by the presence of three or more fragments at the fracture site. This type of fracture often occurs due to high-impact trauma, such as car accidents or falls from significant heights, where the force applied to the bone exceeds its strength. The resulting fragmentation indicates a severe injury, making treatment more complex. In contrast, the other types of fractures have distinct characteristics. An oblique fracture involves a diagonal break across the bone, commonly resulting from a slanted impact. An impacted fracture occurs when one fragment of bone is driven into another, usually from a compression force. A linear fracture is a straightforward break that follows a straight line along the length of the bone, which does not involve fragmentation. Understanding the specifics of these fracture types is crucial for proper diagnosis and treatment.

4. What is the primary mechanism of the gate control theory?

A. Emotional experiences influence pain perception.

B. Neurotransmitters directly cause pain.

C. A-beta fibers override pain information from A-gamma and C fibers.

D. Sclerotomes define the pain's source.

The primary mechanism of gate control theory involves the concept that non-painful stimuli can inhibit pain sensations. This theory proposes that A-beta fibers, which are associated with the sensation of touch and pressure, can block or "override" pain signals transmitted by A-delta and C fibers. These pain fibers are responsible for conveying sharp, acute pain and dull, throbbing pain sensations, respectively. When A-beta fibers are activated, they can effectively "close the gate" at the spinal cord level, reducing the perception of pain. This mechanism is significant because it suggests that stimulation of non-painful inputs can diminish the perception of pain. For instance, when rubbing a sore area, the sensation from the A-beta fibers competes with the pain signals, leading to reduced pain perception. This understanding has practical applications in pain management strategies, such as transcutaneous electrical nerve stimulation (TENS) therapy and other techniques that utilize tactile stimulation to alleviate pain.

5. What does exertional hyponatremia result from?

- A. Inadequate hydration**
- B. Excessive sodium intake**
- C. Ingesting too much fluid**
- D. Extreme sweating without replacement**

Exertional hyponatremia occurs when an individual consumes an excessive amount of fluids during or after exertion, leading to a dilution of sodium in the bloodstream. This condition is often seen in endurance athletes who may overhydrate in an attempt to stay hydrated, mistakenly believing that more fluid is always better. When the body takes in more water than it can effectively excrete, particularly when sodium intake is not appropriately balanced, the sodium concentration in the blood drops. This dilution can lead to symptoms such as headache, confusion, nausea, and in severe cases, seizures or coma. Thus, the key contributor to exertional hyponatremia is the ingestion of too much fluid without adequate sodium intake, which disrupts the normal balance of electrolytes. Understanding this condition emphasizes the importance of not only staying hydrated during physical activity but also ensuring that electrolyte levels are maintained, particularly sodium, to prevent complications related to hyponatremia.

6. What is the myotome pattern associated with plantarflexion and hip extension?

- A. S1**
- B. S2**
- C. L5**
- D. L4**

The myotome pattern associated with plantarflexion and hip extension is rooted in the innervation provided by the sacral nerves, specifically S1 and S2. These myotomes are primarily responsible for the muscles involved in these movements. Plantarflexion is mainly controlled by the gastrocnemius and soleus muscles, which are innervated by the tibial nerve that branches from the S1 and S2 nerve roots. In addition, hip extension is caused primarily by the gluteus maximus, which is also influenced by the posterior divisions of the sacral plexus, including the S1 and S2 nerves. When considering the combined movements of plantarflexion and hip extension, S1 is particularly significant as it is commonly regarded as the main contributor to these actions. Although S2 also plays a role, S1 is often highlighted in clinical scenarios for its influence on both movements collectively. Therefore, the correct answer reflects the primary myotome responsible for both plantarflexion and hip extension.

7. What aspect is included in the clinical evaluation and diagnosis domain?

- A. Immediate care**
- B. Office management**
- C. Patient referrals**
- D. Injury assessment**

In the clinical evaluation and diagnosis domain, injury assessment is a fundamental aspect as it involves the systematic process of evaluating a patient's condition to determine the nature and extent of an injury. This process typically includes collecting a detailed patient history, conducting a thorough physical examination, and utilizing diagnostic tools and techniques to identify the specific injury or condition. Accurate injury assessment is critical for athletic trainers as it allows them to develop appropriate treatment plans and make informed decisions regarding patient management. It also plays a crucial role in determining whether a patient can return to their sport or activity safely. The focus on injury assessment reflects the core responsibilities of athletic trainers within this domain, emphasizing their role in ensuring optimal care and recovery for their patients.

8. Which type of electrical stimulator generates outputs up to 500 volts?

- A. Low voltage generators**
- B. High voltage generators**
- C. Biphasic generators**
- D. Monophasic generators**

High voltage generators are designed to produce outputs up to 500 volts, making them distinct from other types of electrical stimulators. They are specifically utilized in therapeutic modalities such as pain management and tissue healing. The high voltage output allows for deeper penetration into tissues and can stimulate sensory and motor responses effectively. These generators work by delivering a series of electrical pulses, which can facilitate various physiological responses, enabling athletic trainers to utilize them in rehabilitation protocols. The application of high voltage stimulation can improve circulation, reduce edema, and enhance tissue repair. Other types of generators, such as low voltage generators, generally operate at significantly lower voltages and serve different therapeutic purposes, often focusing on muscle stimulation at more superficial levels. Biphasic and monophasic generators refer to the waveform characteristics of the electrical output rather than their voltage capability, and while they can have therapeutic applications, their outputs would not reach the high levels that high voltage generators can achieve.

9. Which of the following best describes plasters in pharmacology?

- A. Thin film applications for the skin**
- B. Thicker substances used to relieve pain and decrease inflammation**
- C. Liquid solutions for oral administration**
- D. Gels for topical use that facilitate absorption**

Plasters in pharmacology refer to thicker substances that provide localized therapeutic effects, such as relieving pain and reducing inflammation. They are typically adhesive preparations that adhere to the skin, allowing for the controlled delivery of active ingredients directly to the affected area. This method of administration can be particularly effective for managing chronic conditions, muscle strain, or joint pain as it provides sustained release of the medication over time. The other options describe different forms of drug delivery: - Thin film applications are typically used for products like transdermal patches, which release medication gradually but do not necessarily signify the thicker consistency that characterizes plasters. - Liquid solutions intended for oral administration are fundamentally different in that they are consumed rather than applied topically, targeting systemic effects rather than localized treatment. - Gels for topical use serve a distinct purpose as well; while they may facilitate absorption, they are generally not classified as plasters and can be more fluid in consistency compared to the thicker formulations that characterize plasters. Understanding the characteristics and applications of these various forms of drug delivery is essential for selecting the appropriate treatment based on a patient's specific needs and conditions.

10. What are starches primarily known for?

- A. Providing high levels of fiber**
- B. Being the principle source of glucose**
- C. Being a primary fat source**
- D. High protein content**

Starches are primarily known for being the principal source of glucose, which is a vital energy source for the body. When consumed, starches are broken down into glucose through the process of digestion. This glucose is then utilized by cells for energy, making starches an important component of the diet, particularly for individuals engaged in physical activities. Unlike options that suggest a focus on fiber, fats, or protein, starches specifically serve as a carbohydrate source. While some starchy foods may contribute fiber or have small amounts of protein, their primary function in nutrition is to provide a readily available form of energy through glucose. This is essential for maintaining energy levels during both rest and physical exertion.