ACSM Certified Exercise Physiologist (EP-C) Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. In behavioral strategies, what does stimulus control involve?

A. Increasing physical activity

B. Recognizing food triggers

C. Eating mindfully

D. Tracking weight weekly

2. Which pre-existing condition is considered a positive risk factor only if a person is older than 45 or has a higher BMI?

A. Overweight status

B. Hypertension

C. Prediabetes

D. High cholesterol

3. What is a common descriptor of atherosclerosis?

A. Increased blood flow to coronary arteries

B. Thinning of the artery wall

C. Development of fatty streaks in arteries

D. Increased heart rate

4. Which of the following is considered an intrinsic risk factor for injury?

A. Environmental hazards

B. History of previous injury

C. Improper footwear

D. Excessive workouts without rest

5. Which metabolic pathway generates energy without the use of oxygen?

A. Oxidative system

B. Aerobic glycolysis

C. Creatine Phosphate system

D. Anaerobic glycolysis

6. In resistance training, how many sets are typically required to assess 1RM effectively?

A. 1-2 sets

B. 3-4 sets

C. 5-6 sets

D. 7-8 sets

7. Which type of muscle fibers are characterized as slow twitch fibers?

A. Type I fibers

B. Type IIa fibers

C. Type IIb fibers

D. Type III fibers

8. What is typically the duration of the inflammatory phase of tissue healing?

A. 1-2 days

B. 2-3 days

C. 4-5 days

D. 6-7 days

9. What defines noncurrent liabilities?

A. Debts due within 30 days

B. Financial obligations that are paid on a monthly basis

C. Debts and expenses that are not due in the next 12 months

D. Liabilities associated with daily operations

10. Which vitamin is crucial for blood coagulation?

A. Vitamin B

B. Vitamin A

C. Vitamin C

D. Vitamin K

Answers

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

Explanations

1. In behavioral strategies, what does stimulus control involve?

A. Increasing physical activity

B. Recognizing food triggers

C. Eating mindfully

D. Tracking weight weekly

Stimulus control in behavioral strategies focuses on identifying and managing triggers that can lead to specific behaviors, especially concerning eating habits and physical activity. The essence of stimulus control is to modify the environment or responses to stimuli that prompt unhealthy behaviors. By recognizing food triggers, individuals can better understand what influences their eating patterns, allowing them to make more informed choices about when and what to eat. For example, if someone realizes that they tend to eat when they watch television, they can take steps to avoid eating while watching TV, thus breaking the association between the stimulus (watching TV) and the behavior (snacking). This awareness helps in establishing healthier habits and improving overall dietary management, making it a critical component in behavioral interventions aimed at weight management and healthy lifestyle changes.

2. Which pre-existing condition is considered a positive risk factor only if a person is older than 45 or has a higher BMI?

A. Overweight status

B. Hypertension

C. Prediabetes

D. High cholesterol

Prediabetes is recognized as a positive risk factor in the context of cardiovascular risk assessment, particularly as it relates to the age and body mass index (BMI) of the individual. According to established guidelines, prediabetes signifies a state of impaired glucose metabolism that increases the likelihood of developing type 2 diabetes and associated cardiovascular issues. However, prediabetes is classified as a positive risk factor only if the individual is older than 45, reflecting the increased likelihood of comorbidities with advancing age. Additionally, having a higher BMI, which often indicates increased body fat, is linked to a greater risk of developing metabolic syndrome and cardiovascular disease. This dual criterion emphasizes how age and BMI interact to influence health risk, making it specific to this condition. Other conditions, while they may indicate health risks, do not have the same specific age or BMI-related thresholds to be classified as positive risk factors. Overweight status, hypertension, and high cholesterol can contribute to overall risk but are not conditional on being over a certain age or having a higher BMI for their classification as risk factors. Thus, prediabetes stands out in this context due to its specific guidelines surrounding age and body mass index.

3. What is a common descriptor of atherosclerosis?

A. Increased blood flow to coronary arteries

B. Thinning of the artery wall

C. Development of fatty streaks in arteries

D. Increased heart rate

The development of fatty streaks in arteries is a common descriptor of atherosclerosis, which is a condition characterized by the buildup of plaques within the arterial walls. These plaques are primarily composed of lipids, cholesterol, inflammatory cells, and cellular debris, which begin as fatty streaks and progress into more advanced lesions that narrow the artery and can ultimately lead to cardiovascular issues such as heart attacks or strokes. The presence of these fatty streaks is an early hallmark of atherosclerosis, demonstrating the onset of the disease process and the beginning of arterial damage. In contrast, increased blood flow to the coronary arteries, thinning of the artery wall, and increased heart rate do not accurately describe atherosclerosis. Increased blood flow is typically a response to demand and not a direct feature of atherosclerosis. Thinning of the artery wall is associated with other conditions, while increased heart rate can be a physiological response to various factors, but does not directly correlate with the pathology of atherosclerosis itself. The significant characteristic of fatty streak formation serves as an important indicator of the disease's development and progression.

4. Which of the following is considered an intrinsic risk factor for injury?

A. Environmental hazards

B. History of previous injury

C. Improper footwear

D. Excessive workouts without rest

The history of previous injury is considered an intrinsic risk factor for injury because it relates to an individual's unique characteristics and past experiences that may predispose them to future injuries. An individual who has previously sustained an injury may have residual weakness, imbalances, or altered movement patterns that increase the risk of reinjury. This factor is internal to the person and reflects their physical condition, adaptation, and recovery capabilities. In contrast, the other options represent extrinsic factors. Environmental hazards involve external conditions that might lead to injuries, such as slippery surfaces or uneven terrain. Improper footwear pertains to external equipment choices that can affect performance and injury risk. Excessive workouts without rest, while related to training practices, still focus on external manipulation of training load rather than individual predispositions. Recognizing the difference between intrinsic and extrinsic factors is crucial for developing preventive strategies in exercise physiology.

5. Which metabolic pathway generates energy without the use of oxygen?

A. Oxidative system

B. Aerobic glycolysis

C. Creatine Phosphate system

D. Anaerobic glycolysis

The metabolic pathway that generates energy without the use of oxygen is anaerobic glycolysis. This process occurs in the cytoplasm of cells and involves the breakdown of glucose to produce ATP, the energy currency of the cell, while also generating lactic acid as a byproduct. Anaerobic glycolysis is particularly important during short bursts of high-intensity exercise, where the demand for energy exceeds the rate at which oxygen can be delivered to the muscle tissues. In contrast, the oxidative system operates in the presence of oxygen to generate a larger amount of ATP through aerobic processes. Similarly, aerobic glycolysis also requires oxygen to efficiently convert glucose into energy. The creatine phosphate system provides a rapid source of energy for short-duration, high-intensity activities, but it relies on available phosphate stores and does not produce ATP through a breakdown of glucose. Therefore, while these other pathways may contribute to energy production, it is anaerobic glycolysis that specifically functions without oxygen, making it the correct answer.

6. In resistance training, how many sets are typically required to assess 1RM effectively?

A. 1-2 sets

B. 3-4 sets

C. 5-6 sets

D. 7-8 sets

To effectively assess a one-repetition maximum (1RM) in resistance training, typically 3-4 sets are recommended. This approach allows for a systematic progression in weight, starting with sub-maximal lifts to prepare the individual and assess their capacity. The initial sets involve lifting lighter weights for higher repetitions to establish a baseline of performance and gauge readiness for increased loads. As the sets progress, weights are incrementally increased, usually as the individual approaches their maximum capacity. This stepwise method helps to warm up the muscles, increases neuromuscular efficiency, and allows for safer attempts as lifters work towards finding their true maximum without risking injury. Using 3-4 sets strikes a balance between thorough preparation and the need to efficiently reach the individual's maximum lifting capability, making it an optimal choice in resistance training settings focused on determining 1RM.

7. Which type of muscle fibers are characterized as slow twitch fibers?

A. Type I fibers

B. Type IIa fibers

C. Type IIb fibers

D. Type III fibers

Type I fibers, commonly known as slow twitch fibers, are specialized muscle fibers that are designed for endurance activities. They have a high oxidative capacity, which means they use oxygen as a primary energy source, making them highly efficient for prolonged, low-intensity exercise. These fibers contain a significant amount of myoglobin (a protein that binds oxygen), and they have numerous mitochondria, allowing for aerobic metabolism. The slow twitch fibers are resistant to fatigue, making them ideal for activities such as long-distance running, cycling, or swimming, where sustained muscle contractions over extended periods are required. Their properties significantly contrast with fast twitch fibers, which are less efficient for prolonged use but can generate quick bursts of strength and speed. Understanding the characteristics of Type I fibers is crucial for exercise physiologists when prescribing exercise programs, especially for individuals whose goals may focus on improving endurance or overall aerobic capacity.

8. What is typically the duration of the inflammatory phase of tissue healing?

A. 1-2 days

B. 2-3 days

C. 4-5 days

D. 6-7 days

The inflammatory phase of tissue healing usually lasts about 2 to 3 days. During this phase, the body responds to injury or trauma with a series of biochemical events that lead to inflammation. This involves the accumulation of various cells, such as white blood cells, to the injury site to begin the healing process. This phase is crucial as it helps to prevent infection, clear out damaged cells, and set the stage for the subsequent phases of healing. The duration is generally established based on the physiological processes involved and the expectation of the body's response, peaking around the 48 to 72 hour mark post-injury. This timeframe aligns closely with the typical clinical observations and research on tissue healing, emphasizing how the healing process progresses after this initial inflammatory response.

9. What defines noncurrent liabilities?

A. Debts due within 30 days

B. Financial obligations that are paid on a monthly basis

C. Debts and expenses that are not due in the next 12 months

D. Liabilities associated with daily operations

Noncurrent liabilities are defined as debts and financial obligations that are not due in the next 12 months. This classification is important in accounting and finance because it provides insight into the long-term financial obligations of an entity. Noncurrent liabilities typically include long-term loans, deferred tax liabilities, and bonds payable, which are settled over a period that extends beyond one year. Understanding the distinction between current and noncurrent liabilities helps in assessing a company's financial health, as it indicates how much of its obligations will require cash outflows in the near term versus over a longer horizon. This separation also aids investors and stakeholders in evaluating the risk and liquidity position of the organization.

10. Which vitamin is crucial for blood coagulation?

A. Vitamin B

B. Vitamin A

C. Vitamin C

D. Vitamin K

Vitamin K plays a critical role in blood coagulation, which is essential for the body's ability to stop bleeding and heal wounds. This vitamin is necessary for the synthesis of certain proteins known as clotting factors, which are crucial for the coagulation process. Without adequate vitamin K, the body cannot effectively produce these proteins, leading to an increased risk of excessive bleeding. Vitamin K is predominantly found in leafy greens (such as spinach and kale), as well as in some vegetable oils and fermented foods. There are two main forms of vitamin K: K1 (phylloquinone), primarily found in plant sources, and K2 (menaquinone), found in animal products and fermented foods. Both forms contribute to maintaining proper clotting function. Other vitamins mentioned, such as the B vitamins, vitamin A, and vitamin C, serve different physiological functions but are not directly involved in the blood coagulation process. For example, vitamin C is important for the synthesis of collagen and has antioxidant properties, while vitamin A is essential for vision and immune function. Therefore, when considering the role of vitamins in blood coagulation, vitamin K stands out as the key nutrient required for this vital process.