CanFitPro Personal Training Specialist Practice Test (Sample)

Study Guide

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Questions

1. What triggers the activation of Golgi tendon organs (GTO)?

- **A. Muscle relaxation**
- **B. Increased tension on a muscle and tendon**
- **C. Decreased muscle fiber length**
- **D. A decrease in neural impulses**

2. Which plane of movement involves rotation?

- **A. Sagittal**
- **B. Frontal**
- **C. Transverse**
- **D. Multiple planes of movement**

3. What results from the plasticity of tissues?

- **A. They can glow in the dark**
- **B. They become impermeable**
- **C. Longer gains in ROM through sustained stretching**
- **D. They resist all forms of physical stress**

4. What properties does viscoelasticity combine?

- **A. Solid and liquid properties**
- **B. Elastic and plastic properties**
- **C. Rigid and flexible properties**
- **D. Heavy and light properties**

5. What happens at the beginning of an exercise session regarding oxygen use?

- **A. Your body uses more oxygen than at rest**
- **B. Your body immediately adapts to the increased activity**
- **C. Your body does not have the required amount of oxygen to maintain homeostasis**
- **D. Oxygen consumption is at its lowest**

6. What does the equation 'HRmax = 220 − age' represent?

- **A. A method to determine the maximum number of push-ups**
- **B. A formula to calculate the maximum amount of weight to lift**
- **C. A method for determining the maximum heart rate**
- **D. A formula to calculate nutritional needs based on age**

7. What does static stretching involve?

A. Rapid, bouncing movements

B. Holding a muscle stretch for 30 sec x 2-3 sets

C. Only breathing exercises

D. High-intensity interval training

8. Which is NOT a characteristic of muscle tissue?

A. Excitability

B. Contractility

C. Permeability

D. Elasticity

9. Which energy system predominates in a 200-400 m sprint?

A. ATP-CP (phosphagen) system

B. Anaerobic (glycolytic) system

C. Aerobic (glycolytic) system

D. Fatty acid oxidation system

10. For how long should a static post-training stretch be held?

A. 10 seconds

B. 20 seconds

C. 30 seconds

D. 60 seconds

Answers

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

Explanations

1. What triggers the activation of Golgi tendon organs (GTO)?

A. Muscle relaxation

B. Increased tension on a muscle and tendon

C. Decreased muscle fiber length

D. A decrease in neural impulses

When a muscle is under increased tension, Golgi tendon organs (GTO) are activated. These specialized sensory receptors are located in tendons and are sensitive to changes in muscle tension. When this tension increases, the GTO sends signals to the spinal cord, which then triggers a reflexive response to relax the muscle in order to prevent damage. Muscle relaxation (A), decreased muscle fiber length (C), and a decrease in neural impulses (D) do not directly trigger the activation of GTOs. Additionally, these options do not accurately describe the function of GTOs in response to muscle tension. Therefore, they are incorrect choices.

2. Which plane of movement involves rotation?

A. Sagittal

B. Frontal

C. Transverse

D. Multiple planes of movement

The correct answer is not A, B, or D because these planes of movement involve linear movement and not rotation. In the sagittal plane, movement occurs forward and backward, while in the frontal plane, movement occurs side to side. The transverse plane, in contrast, involves rotation around an axis, making it the correct answer for which plane of movement involves rotation. Option D is incorrect because it is not a specific plane of movement, but rather refers to multiple planes at once. These planes do not involve rotation, so it is not the answer we are looking for. Therefore, the most accurate choice is option C.

3. What results from the plasticity of tissues?

A. They can glow in the dark

B. They become impermeable

C. Longer gains in ROM through sustained stretching

D. They resist all forms of physical stress

The plasticity of tissues refers to their ability to change and adapt in response to external stimuli or physical stress. This can result in longer gains in range of motion (ROM) through sustained stretching. This means that the tissues can gradually become more flexible and allow for a greater range of movement without causing injury. Option A is incorrect because the plasticity of tissues does not affect their ability to glow in the dark. Option B is incorrect because while tissues can become more impermeable over time, this is not a direct result of their plasticity. Option D is incorrect because while tissues can become more resilient and resistant to stress through regular stretching and exercise, this is not solely due to their plasticity.

4. What properties does viscoelasticity combine?

A. Solid and liquid properties

B. Elastic and plastic properties

C. Rigid and flexible properties

D. Heavy and light properties

Viscoelasticity combines both elastic and plastic properties. This means it displays both solid-like behavior (elasticity) and liquid-like behavior (plasticity). Options A, C, and D are incorrect because they do not accurately describe the properties that viscoelasticity combines. Viscoelastic materials are not a combination of solid and liquid, rigid and flexible, or heavy and light properties.

5. What happens at the beginning of an exercise session regarding oxygen use?

A. Your body uses more oxygen than at rest

B. Your body immediately adapts to the increased activity

C. Your body does not have the required amount of oxygen to maintain homeostasis

D. Oxygen consumption is at its lowest

At the beginning of an exercise session, our body experiences an increase in oxygen demand to support the increased physical activity. This demand exceeds the available oxygen supply, leading to a temporary oxygen deficit. Oxygen consumption is not at its lowest as our body needs more oxygen to meet the demands of the physical activity. Option A is incorrect because the increase in oxygen demand cannot be met immediately. Option B is incorrect because it takes some time for the body to adapt to the increased activity. Therefore, at the beginning of an exercise session, our body does not have the required amount of oxygen to maintain homeostasis, as stated in option C.

6. What does the equation 'HRmax = 220 − age' represent?

A. A method to determine the maximum number of push-ups

B. A formula to calculate the maximum amount of weight to lift

C. A method for determining the maximum heart rate

D. A formula to calculate nutritional needs based on age

This equation represents a method for determining the maximum heart rate based on an individual's age. It is not a formula for calculating nutritional needs or the maximum amount of weight to lift. Additionally, while some may use this equation as a method for setting fitness goals, it is not specifically for determining the maximum number of push-ups that an individual can do.

7. What does static stretching involve?

A. Rapid, bouncing movements

B. Holding a muscle stretch for 30 sec x 2-3 sets

C. Only breathing exercises

D. High-intensity interval training

Static stretching involves holding a muscle stretch for 30 seconds, usually repeated for 2-3 sets. This helps to improve flexibility and range of motion. Option A, rapid bouncing movements, would be considered dynamic stretching, which has been shown to be less effective in improving flexibility and can increase the risk of injury. Option C, only breathing exercises, does not involve any stretching at all. Option D, high-intensity interval training, is a type of cardiovascular exercise and does not involve any stretching.

8. Which is NOT a characteristic of muscle tissue?

A. Excitability

B. Contractility

C. Permeability

D. Elasticity

Muscle tissue is specialized for contraction, which is the ability to shorten and generate force. This is known as contractility. Excitability refers to the ability of muscle cells to receive and respond to stimuli, such as nerve impulses. Elasticity refers to the ability to stretch and recoil. Permeability, on the other hand, is the ability of a substance to pass through or be absorbed by a tissue. This is not a characteristic of muscle tissue, as it is not primarily responsible for absorption or filtering of materials.

9. Which energy system predominates in a 200-400 m sprint?

A. ATP-CP (phosphagen) system

B. Anaerobic (glycolytic) system

C. Aerobic (glycolytic) system

D. Fatty acid oxidation system

The anaerobic (glycolytic) system predominates in a 200-400m sprint because it provides a high rate of ATP production, allowing the muscles to keep contracting at a high intensity for a short period of time. The ATP-CP system (choice A) only provides energy for about 10 seconds, so it would not be efficient for a longer sprint. The aerobic (glycolytic) system (choice C) relies on oxygen and is more suited for long distance endurance activities. The fatty acid oxidation system (choice D) is also more suited for endurance activities and does not produce ATP quickly enough for a sprint.

10. For how long should a static post-training stretch be held?

A. 10 seconds

B. 20 seconds

C. 30 seconds

D. 60 seconds

A) Holding a post-training stretch for only 10 seconds may not give enough time for the muscle fibers to fully relax and lengthen, thus reducing the effectiveness of the stretch. B) Holding a post-training stretch for 20 seconds may still not give enough time for the muscle fibers to fully relax and lengthen. Research suggests that for optimal stretching results, a longer duration of up to 30 seconds is recommended. D) Holding a post-training stretch for 60 seconds may lead to overstretching or even causing injury to the muscles. It is important to listen to your body and not push too far beyond your limits when stretching. The correct answer is C, 30 seconds. This is because holding a stretch for this amount of time allows for the muscle fibers to fully relax and lengthen, increasing flexibility and reducing the risk of injury. A shorter duration, like 10