Ontario Registered Kinesiology Practice Exam (Sample)

Study Guide

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Questions

1. What is a likely cardiovascular concern for the client recovering from cardiac surgery?

A. Low blood sugar levels

B. High body fat percentage

C. Elevated blood pressure

D. High cholesterol levels

2. Why do children have higher heart rates than adults at rest and during exercise?

A. Children have lower peripheral resistance than adults

B. Children typically have a lower stroke volume than adults

C. Children have an increased ability to sweat

D. Children have increased vascular stiffness

3. As the most qualified practitioner on the bench, what should Anna the kinesiologist do if a player sustains hits to the head?

A. Insist that the athlete sit out for the remaining time.

B. Allow the coach to decide if he wants the athlete to remain on the court.

C. Ask the athlete if she is able to continue playing.

D. Inquire if there is a physiotherapist among the spectators to assess the athlete.

4. How many calories are in 1 gram of fat?

A. 4 calories

B. 7 calories

C. 9 calories

D. 5 calories

5. Which ligament is most likely injured when an ankle is forced into inversion while plantar flexed?

A. Calcaneofibular

B. Anterior tibiofibular

C. Tibiocalcaneal

D. Anterior talofibular

6. What is the primary focus of kinesiologists when developing exercise programs?

A. Building competitive athletic skills

B. Restoring movement and enhancing function

C. Competing in professional sports

D. Training for specific athletic events

7. Which energy system primarily produces energy for an individual running for 30 minutes?

A. ATP-CP

B. Non-oxidative

C. Oxidative

D. Lactate

8. What should the kinesiologist do after learning that a skater's partner has decreased energy for practice?

A. Have Susie complete a food diary

B. Refer Susie to a physician, dietitian and psychologist

C. Discuss the issue with the coach, Susie and John

D. Change Susie's training program to be less demanding

9. What does kinesthetic awareness enable individuals to do better?

A. Understand theoretical concepts in kinesiology

B. Enhance social interactions during physical activity

C. Perceive body position and movement efficiently

D. Increase the speed of learning new sports

10. What is the best response to ensure safety during an overlapping sports activity?

A. Encourage participants to schedule their own times.

B. Insist no one plays until another area is clear.

C. Supervise the activity closely to prevent injuries.

D. Use caution sign placement to alert participants.

Answers

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

Explanations

1. What is a likely cardiovascular concern for the client recovering from cardiac surgery?

A. Low blood sugar levels

B. High body fat percentage

C. Elevated blood pressure

D. High cholesterol levels

Following cardiac surgery, a common cardiovascular concern is elevated blood pressure. This condition can result from several factors, including the stress of surgery on the body, changes in medication, or fluid retention. Monitoring blood pressure is critical during the recovery phase, as both hypotension and hypertension can pose risks to the healing heart and may lead to complications. Elevated blood pressure can indicate that the heart is under excessive strain, potentially affecting overall recovery and increasing the risk of further cardiac events. The other options, while they may be relevant in a broader context, are less directly associated with immediate post-surgical recovery after cardiac procedures. High blood sugar levels are more commonly a concern in diabetes management; a high body fat percentage can be a chronic health concern rather than an immediate post-surgical issue; and while high cholesterol levels are significant in long-term cardiovascular health, they do not typically present the same immediacy of concern following surgery as elevated blood pressure does. Thus, focusing on blood pressure is essential for safely navigating the recovery process.

2. Why do children have higher heart rates than adults at rest and during exercise?

A. Children have lower peripheral resistance than adults

B. Children typically have a lower stroke volume than adults

C. Children have an increased ability to sweat

D. Children have increased vascular stiffness

The reason children typically have a higher heart rate than adults, both at rest and during exercise, is primarily due to their lower stroke volume. Stroke volume refers to the amount of blood pumped by the heart with each beat. In children, the heart's ability to fill completely and pump effectively is not as developed as in adults, so their bodies compensate for this by increasing the heart rate. To maintain adequate blood circulation and meet the metabolic demands during activity, children's hearts beat faster. This physiological adjustment helps ensure that sufficient oxygen and nutrients reach their developing muscles and organs despite the lower volume of blood pumped per contraction. Thus, while their stroke volume is lower, their elevated heart rate compensates, resulting in a significant difference in resting and exercising heart rates compared to adults. Understanding this relationship highlights the importance of cardiovascular development in children compared to adults and reflects the complexity of the cardiovascular system's adaptations to fulfill the body's requirements during growth and physical activity.

3. As the most qualified practitioner on the bench, what should Anna the kinesiologist do if a player sustains hits to the head?

A. Insist that the athlete sit out for the remaining time.

B. Allow the coach to decide if he wants the athlete to remain on the court.

C. Ask the athlete if she is able to continue playing.

D. Inquire if there is a physiotherapist among the spectators to assess the athlete.

The most appropriate action for Anna, as the most qualified practitioner present, is to insist that the athlete sit out for the remaining time after sustaining hits to the head. This is crucial because head injuries, especially concussions, can have serious and potentially life-threatening consequences if not properly managed. When an athlete experiences impacts to the head, they may not be aware of their own symptoms or the seriousness of their condition, which makes self-reporting unreliable. Anna's role as a kinesiologist involves prioritizing the safety and health of the player, and removing the athlete from play is a crucial step to prevent further injury. In any situation involving a possible concussion, adhering to established protocols, such as those outlined in concussion management guidelines, is essential. This includes a thorough assessment and ensuring that the athlete does not return to play until cleared by a qualified healthcare professional who can conduct a comprehensive evaluation. By insisting that the athlete sit out, Anna is fulfilling her responsibility to safeguard the player while also adhering to best practices in sports safety.

4. How many calories are in 1 gram of fat?

A. 4 calories

B. 7 calories

C. 9 calories

D. 5 calories

1 gram of fat provides 9 calories of energy. This is based on the biochemical understanding of macronutrients, where fats are the most calorie-dense of the three major macronutrient groups, which also include carbohydrates and proteins. Fats, as a macronutrient, play a crucial role in energy storage, absorption of fat-soluble vitamins, and as precursors for hormones. The high caloric value of fat is significant in dietary planning and understanding energy balance, which is essential for weight management and overall health. In contrast, carbohydrates typically provide about 4 calories per gram, and proteins also yield approximately 4 calories per gram. Understanding these values helps in nutrient calculations for both dietary recommendations and meal planning. The specific caloric value of fat is critical when considering macronutrient ratios in various diets.

5. Which ligament is most likely injured when an ankle is forced into inversion while plantar flexed?

A. Calcaneofibular

B. Anterior tibiofibular

C. Tibiocalcaneal

D. Anterior talofibular

The anterior talofibular ligament is the most likely ligament to be injured when the ankle is forced into inversion while in a plantar flexed position. This injury mechanism is common in ankle sprains, particularly when the foot is pointed downwards (plantar flexion) and turned inwards (inversion). In this position, the anterior talofibular ligament, which connects the talus to the fibula, experiences excessive stress and is at risk of tearing due to the increased lateral motion of the ankle. Understanding the biomechanics involved in ankle injuries is crucial, as it highlights how specific movements can lead to certain ligamentous injuries. The anterior talofibular ligament is known for being one of the first ligaments affected during such an inversion injury, mainly because of its anatomical position and role in stabilizing the ankle joint. While other ligaments, such as the calcaneofibular and anterior tibiofibular ligaments, play important roles in overall ankle stability, their involvement is less likely in this specific mechanism of injury when compared to the anterior talofibular ligament. The tibiocalcaneal ligament also does not play a primary role in lateral stability and is typically not involved in an inversion injury at the ankle

6. What is the primary focus of kinesiologists when developing exercise programs?

A. Building competitive athletic skills

B. Restoring movement and enhancing function

C. Competing in professional sports

D. Training for specific athletic events

The primary focus of kinesiologists when developing exercise programs is to restore movement and enhance function. This emphasis stems from the core principles of kinesiology, which prioritizes improving individuals' overall health, mobility, and quality of life through movement. Kinesiologists assess a person's physical capabilities, functional limitations, and personal goals, and then create tailored exercise plans designed to promote rehabilitation, preventive health, and optimal physical performance. In this context, the approach is holistic, aiming not just at competitive success or athlete training but addressing the diverse needs of clients, which may include injury recovery, chronic disease management, or improving daily living activities. This focus on functionality and movement restoration ensures that programs are accessible and beneficial to a broader population, including those with varying levels of fitness and health conditions.

7. Which energy system primarily produces energy for an individual running for 30 minutes?

A. ATP-CP

B. Non-oxidative

C. Oxidative

D. Lactate

The oxidative energy system is the primary source of energy for an individual running for 30 minutes due to its ability to efficiently produce ATP through the breakdown of carbohydrates and fats in the presence of oxygen. This energy system becomes dominant during prolonged, moderate-intensity activities, such as a steady run. When the body is engaged in an aerobic exercise, it relies on oxygen to metabolize nutrients, which leads to sustained energy production. In contrast, during shorter, high-intensity efforts, such as a sprint, the ATP-CP (adenosine triphosphate - creatine phosphate) and non-oxidative systems (also known as anaerobic systems) might be more relevant, but they are not suitable for an endurance activity lasting 30 minutes due to their limited capacity and quick depletion of energy resources. The lactate system, while involved in higher intensity activities, depends on anaerobic glycolysis and would not be the primary energy producer during a longer duration of exercise that relies significantly on aerobic metabolism. Thus, the oxidative system is the most appropriate choice for sustained energy production in endurance activities, such as running for 30 minutes.

8. What should the kinesiologist do after learning that a skater's partner has decreased energy for practice?

A. Have Susie complete a food diary

B. Refer Susie to a physician, dietitian and psychologist

C. Discuss the issue with the coach, Susie and John

D. Change Susie's training program to be less demanding

The correct course of action after observing that a skater's partner has decreased energy for practice involves a multifaceted approach to address potential underlying issues. Referring Susie to a physician, dietitian, and psychologist is appropriate because it allows for thorough assessment and intervention from various professional angles. A decrease in energy could stem from a variety of factors including physical health issues, nutritional deficits, or psychological stressors. By consulting with a physician, any potential medical concerns such as underlying health problems can be addressed. Involving a dietitian ensures that nutritional factors are examined, which could affect her energy levels and overall performance. Lastly, a psychologist can assist in assessing any mental health concerns that may be impacting Susie's motivation or energy. Addressing these areas comprehensively ensures that Susie receives the support she needs rather than making assumptions or adjustments based solely on surface observations. This holistic approach aligns with best practices in kinesiology, emphasizing the importance of overall well-being in athletic performance.

9. What does kinesthetic awareness enable individuals to do better?

A. Understand theoretical concepts in kinesiology

B. Enhance social interactions during physical activity

C. Perceive body position and movement efficiently

D. Increase the speed of learning new sports

Kinesthetic awareness refers to the ability to perceive and understand one's body position, movement, and spacing in relation to the environment. This sensorimotor capability is essential for effective movement and coordination, allowing individuals to navigate their physical space with greater skill and efficiency during various activities. Having a strong sense of kinesthetic awareness enables individuals to execute movements more fluidly and accurately, as they can gauge how their body is positioned and how different limbs are moving. This is particularly important in sports and physical activities where body control and spatial orientation are critical. This understanding of body mechanics not only enhances athletic performance but also facilitates injury prevention, as it allows individuals to recognize when they are moving in ways that could lead to strain or injury. Ultimately, kinesthetic awareness supports overall physical literacy, helping individuals to engage in activities with confidence and competence.

10. What is the best response to ensure safety during an overlapping sports activity?

A. Encourage participants to schedule their own times.

B. Insist no one plays until another area is clear.

C. Supervise the activity closely to prevent injuries.

D. Use caution sign placement to alert participants.

Supervising the activity closely to prevent injuries is essential in overlapping sports activities because it allows for real-time monitoring of participants and the environment. Sports activities can often lead to unpredictable scenarios, especially when multiple groups or individuals are participating in close proximity. A supervisor can observe potential hazards, intervene when necessary, and provide immediate assistance in case of an injury. Having a presence on the field or court helps ensure that participants adhere to safety rules and can significantly reduce the likelihood of accidents. This proactive approach enables the supervisor to manage conflicts, enforce proper conduct, and make quick decisions that prioritize the well-being of all participants. While scheduling participants at different times can reduce overlap, it may not be practical or enforceable in every situation. Insisting that no one plays until another area is clear could unnecessarily halt the activity and lead to frustration. Similarly, while placing caution signs can be helpful, they do not provide the immediate oversight that active supervision does.