University of Central Florida (UCF) APK4163 Sport Nutrition and Exercise Metabolism Final Practice Exam (Sample)

Study Guide

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Questions

1. What is the recommended fat intake for athletes in a balanced diet?
   A. Fat intake should comprise about 10 to 20% of total daily calories.
   B. There is no recommended fat intake for athletes.
   C. Fat intake should comprise about 20 to 35% of total daily calories.
   D. Fat intake should be eliminated from the diet.

2. Which of the following supplements is not banned by the NCAA?
   A. Clenbuterol
   B. Ephedrine
   C. EGCG
   D. Citrus Aurantium

3. What is the primary source of energy utilized during aerobic exercise?
   A. Proteins
   B. Fatty acids and glucose
   C. Sugars only
   D. Ketones

4. How is protein intake commonly expressed for athletes?
   A. Calories per meal
   B. Grams per kg of body weight
   C. Amount per day
   D. Percent of total calories

5. What is a nutritional strategy that can help improve athletic performance?
   A. Focusing solely on protein intake
   B. Avoiding all fats
   C. Maintaining a balanced diet with adequate carbohydrates
   D. Only using supplements

6. What is the most important goal following endurance type training besides hydration?

A. Muscle recovery

B. Weight loss

C. Glycogen repletion

D. Fat oxidation

7. How many calories are provided by one gram of protein?

A. 7 calories

B. 9 calories

C. 4 calories

D. 10 calories

8. What is the main benefit of consuming antioxidants for athletes?

A. They improve muscle recovery times

B. They help reduce oxidative damage from intense exercise

C. They enhance overall endurance performance

D. They increase muscle mass

9. What does the term 'nutrient timing' refer to?

A. The timing of vitamin supplementation

B. The scheduling of meals around workouts

C. The distribution of macronutrients throughout the day

D. The number of meals consumed each day

10. Which type of carbohydrate is more beneficial immediately before a high-intensity workout?

A. Complex carbohydrates

B. Simple sugars

C. Fiber-rich carbohydrates

D. Whole grains

Answers

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

Explanations

1. What is the recommended fat intake for athletes in a balanced diet?

A. Fat intake should comprise about 10 to 20% of total daily calories.

B. There is no recommended fat intake for athletes.

C. Fat intake should comprise about 20 to 35% of total daily calories.

D. Fat intake should be eliminated from the diet.

For athletes, a balanced diet is crucial for optimal performance, and fat plays an important role in this context. The recommended fat intake of 20 to 35% of total daily calories is based on the understanding that fats are essential for providing energy, supporting cell structure, and aiding in the absorption of fat-soluble vitamins (A, D, E, and K). Including fat in the diet helps in maintaining hormonal balance, promoting satiety, and providing essential fatty acids that the body cannot synthesize on its own, such as omega-3 and omega-6 fatty acids. These fatty acids are important for overall health, including the inflammatory response and recovery processes. Training demands and individual energy needs might influence where within the 20 to 35% range an athlete's fat intake falls, but completely eliminating fat from the diet or reducing it to as low as 10% (which could compromise health and performance) is not advisable. Such a low intake would not provide enough energy or nutrients needed for athletic performance. Therefore, the 20 to 35% recommendation strikes a balance, ensuring that athletes receive enough fats for energy while also supporting their overall health and athletic performance.

2. Which of the following supplements is not banned by the NCAA?

A. Clenbuterol

B. Ephedrine

C. EGCG

D. Citrus Aurantium

The correct answer, which is EGCG (Epigallocatechin gallate), is not banned by the NCAA because it is a naturally occurring compound found in green tea. EGCG is often studied for its potential health benefits, particularly in relation to weight management and antioxidant properties. Unlike substances such as clenbuterol, which is a performance-enhancing drug, or ephedrine and citrus aurantium, both of which have stimulant effects and have been banned due to safety concerns and their potential to enhance athletic performance, EGCG does not possess the same risk profile. This distinction allows it to be utilized by athletes without concern for violating NCAA regulations, emphasizing the importance of understanding the regulatory landscape surrounding dietary supplements in sports nutrition.

3. What is the primary source of energy utilized during aerobic exercise?

A. Proteins

B. Fatty acids and glucose

C. Sugars only

D. Ketones

During aerobic exercise, the primary sources of energy utilized are fatty acids and glucose. This is because aerobic exercise relies on oxygen to help convert these macronutrients into usable energy. When the body is engaged in sustained, moderate-intensity tasks, such as running at a steady pace or cycling, it primarily uses fatty acids as a fuel source. These fatty acids are derived from the breakdown of fat stores in the body. In addition, glucose, which comes from carbohydrates, is also a significant energy source, particularly during the earlier stages of exercise or when the intensity increases. Both fatty acids and glucose undergo oxidation processes in the presence of oxygen, which leads to the production of ATP (adenosine triphosphate), the energy currency of the cell. This ability to utilize both fat and glucose efficiently allows athletes to maintain performance levels over longer durations of exercise. Conversely, while proteins and ketones can serve as energy sources at certain times, they are not the primary fuels used during typical aerobic exercise.

4. How is protein intake commonly expressed for athletes?

A. Calories per meal

B. Grams per kg of body weight

C. Amount per day

D. Percent of total calories

Protein intake for athletes is commonly expressed in grams per kilogram of body weight. This measurement is particularly useful because it accounts for individual variations in body size and composition, enabling a more tailored approach to protein requirements based on the athlete's specific weight. For instance, recommendations typically range from 1.2 to 2.0 grams of protein per kilogram of body weight, depending on the type of sport, training intensity, and goals such as muscle building or recovery. This clear standardized measure helps athletes and nutritionists determine appropriate protein intake to support muscle repair, recovery, and overall performance in a more precise way compared to other methods. Other options, such as calories per meal or amount per day, do not provide the same level of personalized insight, as they may not consider an athlete's weight or specific needs. Percent of total calories might also be too vague, as it does not give a direct indication of how much protein someone should consume based on their weight. Thus, expressing protein needs in grams per kilogram of body weight is the most effective and widely accepted method in sports nutrition.

5. What is a nutritional strategy that can help improve athletic performance?

A. Focusing solely on protein intake

B. Avoiding all fats

C. Maintaining a balanced diet with adequate carbohydrates

D. Only using supplements

Maintaining a balanced diet with adequate carbohydrates is essential for improving athletic performance. Carbohydrates serve as the primary fuel source during exercise, especially in high-intensity and endurance activities. They are stored in the muscles and liver as glycogen, which is readily accessible energy during physical activity. A diet rich in carbohydrates ensures that glycogen stores are replenished, thereby enhancing endurance, sustaining energy levels through prolonged exercise, and reducing fatigue. Moreover, a balanced diet that includes proteins, fats, vitamins, and minerals is vital for overall health and recovery. Proper nutrition supports immune function, muscle repair, and adaptation to training, all of which are crucial for athletes aiming to maximize their performance. Therefore, focusing on a well-rounded nutritional strategy that provides sufficient carbohydrates, along with other essential nutrients, enhances both performance and recovery, making it the optimal choice for athletes.

6. What is the most important goal following endurance type training besides hydration?

A. Muscle recovery

B. Weight loss

C. Glycogen repletion

D. Fat oxidation

Following endurance-type training, glycogen repletion is crucial because intense and prolonged exercise depletes the body's glycogen stores in the muscles and liver. Glycogen is the primary fuel source during endurance activities, and once these stores are depleted, performance can decline significantly, and recovery may be impaired. Restoring glycogen levels through proper post-exercise nutrition, particularly by consuming carbohydrates, is essential not only for recovery but also for preparing the body for subsequent training sessions or competitions. This process helps replenish energy stores, restore muscle function, and reduce muscle soreness, making it a top priority after endurance training. While muscle recovery is important, it is largely dependent on the restoration of glycogen and the role of protein in repairing muscle tissues. Weight loss and fat oxidation, while they can be beneficial outcomes, are not the immediate priorities post-endurance exercise compared to repleting glycogen, which directly affects subsequent performance and recovery.

7. How many calories are provided by one gram of protein?

A. 7 calories

B. 9 calories

C. 4 calories

D. 10 calories

One gram of protein provides 4 calories. This is a fundamental concept in nutrition and exercise metabolism, rooted in the biochemical makeup of macronutrients. Proteins are made up of amino acids, and when they are metabolized in the body, they yield energy as a byproduct. This energy is quantified in calories, which serve as a measure of energy. Proteins, along with carbohydrates, provide approximately 4 calories per gram. This caloric value is essential for nutrition planning and understanding how different macronutrients contribute to overall energy intake. This knowledge is particularly valuable for athletes and individuals engaged in regular exercise, as it helps them manage their dietary intake to support performance and recovery. In contrast, fats provide a higher caloric density at 9 calories per gram, while alcohol contributes about 7 calories per gram. Understanding these differences helps in structuring a balanced diet that meets specific energy and macronutrient needs.

8. What is the main benefit of consuming antioxidants for athletes?

A. They improve muscle recovery times

B. They help reduce oxidative damage from intense exercise

C. They enhance overall endurance performance

D. They increase muscle mass

The main benefit of consuming antioxidants for athletes lies in their ability to help reduce oxidative damage from intense exercise. During vigorous physical activity, the body produces reactive oxygen species (ROS), which can lead to oxidative stress. This oxidative stress can damage cells, proteins, and DNA, potentially impairing recovery and performance. Antioxidants, such as vitamins C and E, can neutralize these free radicals, thereby minimizing oxidative stress and protecting the cells from potential damage. By reducing oxidative damage, antioxidants support the body's recovery processes and can help athletes maintain their performance levels over time. While other benefits of antioxidants may be discussed in the context of athletic performance, such as muscle recovery and potentially contributing indirectly to enhanced endurance or muscle mass, their primary role is centered around mitigation of oxidative damage, which directly impacts an athlete's ability to train effectively and recover afterward.

9. What does the term 'nutrient timing' refer to?

A. The timing of vitamin supplementation

B. The scheduling of meals around workouts

C. The distribution of macronutrients throughout the day

D. The number of meals consumed each day

Nutrient timing refers to the scheduling of meals and nutrient intake in relation to physical activity, particularly around workouts. This concept is based on the idea that the timing of nutrient consumption can enhance performance, recovery, and adaptations to training. When athletes or individuals engage in exercise, their body's metabolism and nutrient needs change, making it beneficial to strategically plan meal and snack times. For instance, consuming carbohydrates and protein before and after workouts can help maximize energy levels, promote muscle protein synthesis, and replenish glycogen stores. This strategy is particularly important for those involved in intense training or endurance sports. Other options, while related to nutrition and dietary habits, do not capture the essence of nutrient timing. For example, timing of vitamin supplementation and the distribution of macronutrients throughout the day emphasize different aspects of nutrition rather than the critical relationship between nutrient intake and workout schedules. Similarly, the number of meals consumed each day does not directly address how the timing of those meals impacts athletic performance or recovery. Thus, the correct answer is that nutrient timing centers on the scheduling of meals around workouts.

10. Which type of carbohydrate is more beneficial immediately before a high-intensity workout?

A. Complex carbohydrates

B. Simple sugars

C. Fiber-rich carbohydrates

D. Whole grains

Simple sugars are particularly beneficial immediately before a high-intensity workout because they are rapidly digested and absorbed into the bloodstream, leading to a quick increase in blood glucose levels. This fast-acting source of energy is crucial during high-intensity exercise, where the body relies on readily available glucose to support performance. Complex carbohydrates, while they provide longer-lasting energy due to their gradual digestion, may not offer the immediate boost needed right before intense activity. This slower release can lead to delayed energy availability, which is not optimal when quick bursts of power and speed are required. Fiber-rich carbohydrates and whole grains, although nutritious and part of a well-rounded diet, can also slow digestion due to their higher fiber content. This can result in potential discomfort during exercise, making them less suitable for consumption immediately before a workout where quick energy is desired. Therefore, simple sugars serve as the most effective choice for athletes looking to maximize their performance in a high-intensity workout scenario due to their quick energy-release properties.