# Certified Sports Nutritionist from the International Society of Sports Nutrition (CISSN) Practice Exam (Sample)

## Study Guide


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# Questions

**1. What is the primary form of Vitamin D utilized in the body?**

**A. Vitamin D2**

**B. Cholecalciferol**

**C. Ergocalciferol**

**D. Calcitriol**

**2. Which of the following statements about selenium is true?**

**A. It is a macromineral required in large amounts**

**B. It can be synthesized by the body**

**C. It is critical for the function of certain enzymes**

**D. It is only found in animal products**

**3. What does EGCG stand for?**

**A. Enhanced Glycolysis Catechin Gallate**

**B. Epigallocatechin Gallate**

**C. Effective Glucose Carrier Glycerate**

**D. Endurance Glycolysis Catechin Gallate**

**4. What is the SI unit of energy?**

**A. Calorie**

**B. Joule**

**C. Watt**

**D. Newton**

**5. What is L-Carnitine primarily responsible for in living cells?**

**A. Transport of fatty acids into the mitochondria**

**B. Transport of glucose into the cells**

**C. Breakdown of proteins**

**D. Formation of amino acids**

**6. What structural form does selenium take in selenoproteins?**

**A. Metallic element**

**B. Amino acid**

**C. Polypeptide chain**

**D. Trace mineral**

**7. What is the reason carbohydrates are considered the preferred fuel source during intense exercise?**

**A. They are easily stored in adipose tissue**

**B. They provide quick and efficient energy for both anaerobic and aerobic metabolism**

**C. They require more oxygen for metabolism**

**D. They are the only source of energy for muscle contraction**

**8. What does the acronym RDI stand for in nutritional terminology?**

**A. Recommended Dietary Intake**

**B. Recommended Daily Intake**

**C. Registered Daily Intake**

**D. Regulated Daily Intake**

**9. What effect does an extremely high-protein/low-carbohydrate diet typically have on appetite?**

**A. Increases appetite due to low energy**

**B. Suppresses appetite due to increased satiety**

**C. No effect on appetite**

**D. Increases cravings for carbohydrates**

**10. Which macronutrient is most directly involved in energy production during high-intensity exercise?**

**A. Fats**

**B. Proteins**

**C. Carbohydrates**

**D. Vitamins**

# Answers

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

# Explanations

## 1. What is the primary form of Vitamin D utilized in the body?

**A. Vitamin D2**

**B. Cholecalciferol**

**C. Ergocalciferol**

**D. Calcitriol**

**The primary form of Vitamin D that is utilized in the body is calcitriol, which is the active form of vitamin D3. While vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol) are both important for overall vitamin D status and can be converted into active forms, calcitriol is the specific hormone responsible for directly regulating calcium and phosphate homeostasis in the body. Cholecalciferol (or vitamin D3) is indeed produced in the skin upon exposure to sunlight and can contribute to the body's vitamin D stores, yet it must be converted in the liver and kidneys to become calcitriol. Therefore, while cholecalciferol is a significant precursor to the active form, it is not the primary form utilized by the body for metabolic functions. Thus, calcitriol plays a crucial role in maintaining bone health and mineralization, making it the most bioactive and critical form of vitamin D in physiological processes.**

## 2. Which of the following statements about selenium is true?

**A. It is a macromineral required in large amounts**

**B. It can be synthesized by the body**

**C. It is critical for the function of certain enzymes**

**D. It is only found in animal products**

**Selenium is indeed critical for the function of certain enzymes, particularly those that act as antioxidants in the body. One of the primary roles of selenium is as a component of selenoproteins, which include important enzymes such as glutathione peroxidases. These enzymes protect cells from oxidative damage by neutralizing free radicals, thus playing a vital role in maintaining overall health and preventing various diseases. This function underscores why selenium is considered an essential nutrient, as it contributes significantly to metabolic processes and the body's defense mechanisms. While selenium is found in a variety of food sources, including nuts, grains, and meats, emphasizing its role in enzymatic activity is essential for understanding its value in nutrition and health topics. Considering the other statements, selenium is classified as a trace mineral rather than a macromineral, which indicates it is required in smaller amounts. It cannot be synthesized by the body, meaning it must be obtained from dietary sources. Lastly, selenium is not exclusively found in animal products; it is present in various plant sources as well, especially those grown in selenium-rich soils.**

## 3. What does EGCG stand for?

**A. Enhanced Glycolysis Catechin Gallate**

**B. Epigallocatechin Gallate**

**C. Effective Glucose Carrier Glycerate**

**D. Endurance Glycolysis Catechin Gallate**

**EGCG stands for Epigallocatechin Gallate, which is a type of catechin, a natural antioxidant found predominantly in green tea. It is known for its health benefits, including potential effects on metabolism, fat oxidation, and cardiovascular health. Research has indicated that EGCG may help improve exercise performance by enhancing endurance and promoting fat loss, making it a popular subject of study in sports nutrition. The other options mentioned do not represent known compounds or terms in the context of nutrition or biochemistry, reflecting either misinterpretations or fabricated terms. Understanding the correct terminology is crucial in sports nutrition, as it helps professionals communicate accurately about topics like supplementation, performance, and overall health.**

## 4. What is the SI unit of energy?

**A. Calorie**

**B. Joule**

**C. Watt**

**D. Newton**

**The SI unit of energy is the joule. This unit is defined as the amount of energy transferred when a force of one newton is applied over a distance of one meter. In practical terms, a joule quantifies the work done or the energy spent in various physical processes. It is a fundamental measurement in physics, making it essential for understanding energy in both scientific research and applications, including sports nutrition and exercise science. Calorie, while commonly used to measure energy in food and nutrition, is not the SI unit and is instead a derived unit based on the energy required to raise the temperature of water. The watt is the SI unit of power, which is the rate of energy transfer and is defined as one joule per second. Newton is the SI unit of force, not energy. Understanding the role of these units helps clarify their distinctions and their specific applications in various fields, including nutrition and exercise.**

## 5. What is L-Carnitine primarily responsible for in living cells?

**A. Transport of fatty acids into the mitochondria**

**B. Transport of glucose into the cells**

**C. Breakdown of proteins**

**D. Formation of amino acids**

**L-Carnitine plays a crucial role in cellular metabolism, specifically in the transportation of fatty acids into the mitochondria, where they are oxidized for energy production. This process is vital because fatty acids are a primary energy source, especially during prolonged physical activity or when carbohydrate stores are low. In living cells, L-Carnitine facilitates the transfer of long-chain fatty acids across the inner mitochondrial membrane, a critical step for beta-oxidation to occur. Once inside the mitochondria, these fatty acids can be metabolized to produce ATP, the energy currency of the cell. The efficiency of this process is particularly important for muscles and other tissues that rely heavily on fat for energy, making L-Carnitine essential for optimal energy production and exercise performance. The other options do not accurately represent L-Carnitine's primary function. While glucose transport is essential for cellular energy, it is primarily facilitated by different transport proteins, and not by L-Carnitine. Breakdown of proteins and the formation of amino acids are also unrelated to the main function of L-Carnitine, which is firmly centered on fatty acid transport and metabolism.**

## 6. What structural form does selenium take in selenoproteins?

**A. Metallic element**

**B. Amino acid**

**C. Polypeptide chain**

**D. Trace mineral**

**Selenium is an essential trace mineral that plays a vital role in human health, particularly in the formation of selenoproteins. Selenoproteins contain selenium in the form of the amino acid selenocysteine, which is often referred to as the 21st amino acid due to its unique incorporation into proteins as directed by the genetic code. This is a notable distinction since, while selenocysteine is derived from an amino acid, selenium itself is categorized as a trace mineral, essential for various physiological processes, including antioxidant functions and thyroid hormone metabolism. In the context of how selenium is represented in selenoproteins, it is essential to recognize that its classification as a trace mineral reflects its requirement in minute amounts by the body for health benefits, rather than being classified as a metallic element or a polypeptide chain. The term "trace mineral" accurately captures its role and structures, such as its incorporation into proteins, aligning with scientific understanding and nutritional guidelines on selenium's importance in human nutrition.**

## 7. What is the reason carbohydrates are considered the preferred fuel source during intense exercise?

**A. They are easily stored in adipose tissue**

**B. They provide quick and efficient energy for both anaerobic and aerobic metabolism**

**C. They require more oxygen for metabolism**

**D. They are the only source of energy for muscle contraction**

**Carbohydrates are widely recognized as the preferred fuel source during intense exercise primarily because they provide quick and efficient energy for both anaerobic and aerobic metabolism. When engaging in high-intensity activities, the body relies heavily on carbohydrates as they can be rapidly broken down into glucose, which is then utilized for energy production. During anaerobic metabolism, which occurs in the absence of sufficient oxygen (such as during sprinting or weightlifting), carbohydrates can be oxidized quickly to generate ATP, the energy currency of the cell, through processes like glycolysis. This pathway allows for an immediate source of energy, supporting intense physical exertion. In aerobic metabolism, which occurs when oxygen is plentiful (like during prolonged, steady-state exercise), carbohydrates are still a preferred source because they can be completely oxidized to produce a significant amount of ATP, also yielding carbon dioxide and water as byproducts. This efficient conversion is crucial during intense workouts where rapid energy delivery is needed. While other macronutrients, such as fats, can also be utilized for energy, they are metabolized more slowly and typically become the primary fuel source during lower intensity exercise or at rest. Additionally, the assertion that carbohydrates are solely the source of energy for muscular contractions is inaccurate, as muscles can also**

## 8. What does the acronym RDI stand for in nutritional terminology?

**A. Recommended Dietary Intake**

**B. Recommended Daily Intake**

**C. Registered Daily Intake**

**D. Regulated Daily Intake**

**The acronym RDI stands for Recommended Daily Intake. This term is widely used in nutritional contexts to refer to the daily intake levels of essential nutrients that are considered adequate to meet the nutritional needs of most healthy individuals. The purpose of RDIs is to provide guidelines for nutrient intake that can help individuals achieve optimal health and prevent deficiencies. This standardized measure is important for formulating dietary recommendations and nutrition labeling, ensuring that consumers have a clear understanding of how much of each nutrient they should aim to consume regularly. Adhering to the RDI helps in promoting balanced diets and healthy eating patterns among the population.**

## 9. What effect does an extremely high-protein/low-carbohydrate diet typically have on appetite?

**A. Increases appetite due to low energy**

**B. Suppresses appetite due to increased satiety**

**C. No effect on appetite**

**D. Increases cravings for carbohydrates**

**An extremely high-protein/low-carbohydrate diet is known to suppress appetite, primarily due to the increased feeling of satiety that protein provides. Protein has a higher thermic effect than carbohydrates and fats, meaning that the body burns more calories digesting protein than it does with other macronutrients. Additionally, protein consumption has been associated with the release of certain hormones like peptide YY (PYY) and glucagon-like peptide-1 (GLP-1), which play a role in making individuals feel full and satisfied after eating. These factors contribute to a reduced overall caloric intake and can lead to weight loss, as individuals on such diets may consume fewer calories without intentionally restricting their food intake. This appetite-suppressing effect is a key reason why high-protein diets are often utilized in weight management strategies. Other options, mentioning increased appetite or cravings, do not align with the physiological responses associated with high-protein intake; rather, these responses are typically contradictory to the well-documented findings surrounding protein's role in satiety.**

## 10. Which macronutrient is most directly involved in energy production during high-intensity exercise?

**A. Fats**

**B. Proteins**

**C. Carbohydrates**

**D. Vitamins**

**Carbohydrates are the primary macronutrient utilized for energy production during high-intensity exercise. During such activities, the body relies heavily on anaerobic metabolism, which primarily uses glucose derived from carbohydrates. This process allows for rapid energy release, essential for sustaining high-intensity efforts. When engaging in activities like sprinting or heavy weight lifting, the demand for quick energy is significant, as these exercises require immediate fuel to maintain performance. Carbohydrates can be stored in the muscles and liver as glycogen, which can be quickly converted to glucose and utilized for ATP production in the muscles. This is critical during high-intensity exercise, where the demand for fuel outstrips the supply of oxygen, thus relying on carbohydrates rather than fats or proteins for immediate energy. While fats can provide a substantial energy source during prolonged low to moderate-intensity exercise, their utilization is slower and less efficient in the context of high-intensity efforts. Proteins can contribute to energy production, but they are generally used in lesser amounts, primarily for muscle repair and growth rather than as a primary energy source during exercise. Vitamins, on the other hand, do not serve as direct sources of energy but play important roles in various metabolic processes and energy production pathways. In summary,**