University of Central Florida (UCF) HUN3011 Human Nutrition Practice Exam 3 (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. What type of insulin is described as having a rapid onset of action?

   A. Long-acting insulin

   B. Intermediate-acting insulin

   C. Rapid-acting insulin

   D. Pre-mixed insulin

2. Which B-vitamin is specifically known for preventing neural tube defects?

   A. Cobalamin

   B. Folate

   C. Pyridoxine

   D. Thiamine

3. How should individuals approach dietary changes for better health results?

   A. By making drastic changes immediately

   B. By implementing gradual and sustainable changes

   C. By following fad diets strictly

   D. By excluding entire food groups

4. What is the general name for the deficiency disorder characterized by the three D's: dementia, dermatitis, and diarrhea?

   A. Ariboflavinosis

   B. Pellagra

   C. Scurvy

   D. Beriberi

5. Which nutrient is essential for the production of hemoglobin?

   A. Vitamin C

   B. Calcium

   C. Iron

   D. Magnesium

6. What are proteins primarily made of?

A. Fatty acids

B. Starch molecules

C. Amino acids

D. Nucleotides

7. What is a function of dietary fiber?

A. To provide essential vitamins

B. To assist with digestion and promote gut health

C. To serve as an energy source

D. To increase cholesterol levels

8. What is the primary role of phytochemicals?

A. Disease fighting compounds

B. Vitamin enhancement

C. Mineral absorption

D. Protein synthesis

9. What is the function of probiotics in human health?

A. They act as a source of protein

B. They are beneficial bacteria that support gut health and digestion

C. They provide essential vitamins to the bloodstream

D. They enhance the absorption of carbohydrates

10. Which dietary fat type is NOT beneficial for heart health?

A. Monounsaturated fats

B. Trans fats

C. Saturated fats

D. Polyunsaturated fats

Answers

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

Explanations

1. What type of insulin is described as having a rapid onset of action?

A. Long-acting insulin

B. Intermediate-acting insulin

C. Rapid-acting insulin

D. Pre-mixed insulin

Rapid-acting insulin is characterized by its quick onset of action, typically beginning to work within 15 minutes after injection. This type of insulin is specifically formulated to mimic the natural insulin release that occurs in response to meals, making it highly effective for controlling blood sugar levels during and after meals. The rapid absorption and action allow individuals with diabetes to manage their postprandial (after meal) glucose levels more effectively. In contrast, long-acting insulin has a slower onset and is designed to provide a steady release of insulin over an extended period, making it suitable for maintaining baseline insulin needs. Intermediate-acting insulin falls between the two, having a moderate onset time and duration of action. Pre-mixed insulin contains a combination of different types of insulin, which can include both rapid and intermediate-acting formulations, but does not specifically represent just the rapid action. Thus, rapid-acting insulin is distinctly recognized for its swift action in regulating blood glucose levels.

2. Which B-vitamin is specifically known for preventing neural tube defects?

A. Cobalamin

B. Folate

C. Pyridoxine

D. Thiamine

Folate, also known as vitamin B9, is specifically recognized for its crucial role in preventing neural tube defects during early pregnancy. These defects can occur when the neural tube, which eventually develops into the brain and spinal cord, does not close properly. Adequate folate intake before conception and during the first trimester is vital since this period is when the neural tube forms. Folate is involved in DNA synthesis and cell division, which are essential processes in the development of the fetus. As a result, sufficient folate levels help ensure proper closure of the neural tube, thereby reducing the risk of malformations such as spina bifida and anencephaly. Public health guidelines often recommend that women of childbearing age take folic acid supplements to minimize these risks, emphasizing the nutrient's importance in prenatal care. The other B-vitamins listed, while essential for various bodily functions, do not have the same direct connection to preventing neural tube defects as folate does. Cobalamin (B12), pyridoxine (B6), and thiamine (B1) play various roles in metabolism and overall health but are not specifically targeted for neural tube defect prevention.

3. How should individuals approach dietary changes for better health results?

A. By making drastic changes immediately

B. By implementing gradual and sustainable changes

C. By following fad diets strictly

D. By excluding entire food groups

Implementing gradual and sustainable changes to one's diet is the most effective approach for achieving better health results. This method allows individuals to adjust their eating habits over time, which makes it more likely that they will stick to these changes in the long run. Gradual modifications help in avoiding feelings of deprivation that can arise from drastic dietary shifts. Additionally, sustainable changes encourage individuals to incorporate a variety of foods, promoting a balanced diet that ensures all nutritional needs are met. This approach fosters a healthier relationship with food and can help in developing lifelong healthy eating habits without the stress or frustration that often accompanies extreme dietary regimens. It emphasizes the importance of consistency and patience in achieving lasting health improvements.

4. What is the general name for the deficiency disorder characterized by the three D's: dementia, dermatitis, and diarrhea?

A. Ariboflavinosis

B. Pellagra

C. Scurvy

D. Beriberi

The deficiency disorder characterized by the three D's—dementia, dermatitis, and diarrhea—is known as Pellagra. This condition is specifically caused by a deficiency of niacin (vitamin B3) or tryptophan, which the body can convert into niacin. The symptoms mentioned are classic indicators of Pellagra, making it critical for understanding the role of niacin in maintaining health. Dementia refers to cognitive decline, which can significantly affect daily functioning. Dermatitis presents as a skin rash, typically in sun-exposed areas, while diarrhea offers insight into the digestive system's response to the lack of sufficient niacin. The acronym "the three D's" is commonly used in nutritional studies and serves as a mnemonic to recall the key symptoms associated with Pellagra. Understanding these symptoms is vital for identifying and addressing nutritional deficiencies in patients.

5. Which nutrient is essential for the production of hemoglobin?

A. Vitamin C

B. Calcium

C. Iron

D. Magnesium

Iron is essential for the production of hemoglobin, which is a protein found in red blood cells responsible for transporting oxygen throughout the body. Hemoglobin's structure includes iron atoms that bind to oxygen molecules, allowing blood to carry oxygen from the lungs to tissues and organs. Iron deficiency can lead to decreased hemoglobin production, resulting in conditions like anemia, characterized by fatigue and weakness due to insufficient oxygen delivery to cells. While other nutrients, like vitamin C, can enhance iron absorption, they do not play a direct role in hemoglobin synthesis. Calcium and magnesium are important for various bodily functions such as bone health and muscle contractions, but they are not involved in hemoglobin production. Thus, iron is the critical nutrient specifically required for the formation of hemoglobin.

6. What are proteins primarily made of?

A. Fatty acids

B. Starch molecules

C. Amino acids

D. Nucleotides

Proteins are primarily made of amino acids, which are organic compounds composed of carbon, hydrogen, oxygen, and nitrogen. Amino acids serve as the building blocks of proteins, and they link together through peptide bonds to form polypeptides. Each protein's unique sequence of amino acids determines its structure and function in the body. Unlike fatty acids, which are components of lipids, and starch molecules, which are carbohydrates used for energy storage, amino acids specifically play a critical role in the formation of proteins. Nucleotides, on the other hand, are the building blocks of nucleic acids like DNA and RNA, rather than proteins. Thus, the correct answer highlights the fundamental role amino acids play in protein synthesis and the biological significance of proteins in various physiological processes.

7. What is a function of dietary fiber?

A. To provide essential vitamins

B. To assist with digestion and promote gut health

C. To serve as an energy source

D. To increase cholesterol levels

Dietary fiber plays a crucial role in the digestive system and is essential for maintaining gut health. It helps to promote regular bowel movements by adding bulk to the stool, which facilitates its passage through the intestines. This action can prevent constipation and contribute to a lower risk of developing gastrointestinal disorders such as diverticulitis. Moreover, certain types of dietary fiber, particularly soluble fiber, can aid in regulating blood sugar levels by slowing down the absorption of sugar, thereby improving overall glucose control. Additionally, fibers can contribute to a feeling of fullness, which can help with weight management. The presence of fiber in the diet is also linked with beneficial effects on gut microbiota, promoting the growth of healthy bacteria that are crucial for overall digestive health. In contrast, the other options mention functions that do not align with the primary roles of dietary fiber. Essential vitamins are typically found in fruits, vegetables, and grains but are not provided by fiber. Fiber itself does not serve as an energy source, as it is not digested and absorbed like other macronutrients. Finally, dietary fiber can actually help to lower cholesterol levels rather than increase them, particularly soluble fiber found in oats and legumes, which can bind to cholesterol in the digestive system and help excrete it from the

8. What is the primary role of phytochemicals?

A. Disease fighting compounds

B. Vitamin enhancement

C. Mineral absorption

D. Protein synthesis

Phytochemicals are naturally occurring compounds found in plants that have been shown to provide numerous health benefits, primarily through their roles in disease prevention and health promotion. The primary role of phytochemicals is to act as disease-fighting compounds. They possess antioxidant, anti-inflammatory, and immune-boosting properties, which can help lower the risk of various chronic diseases such as heart disease, cancer, and diabetes. Research indicates that many phytochemicals can neutralize free radicals, which are unstable molecules that can cause cellular damage and contribute to the development of diseases. Additionally, they may influence biological processes in the body, thereby enhancing overall health and well-being. The other options focus on various nutrients like vitamins, minerals, and proteins but do not encompass the main function of phytochemicals. While they may play a role in supporting nutrient absorption or metabolism, their unique benefit lies in their potential to combat disease, making the first choice the most accurate representation of their primary role.

9. What is the function of probiotics in human health?

A. They act as a source of protein

B. They are beneficial bacteria that support gut health and digestion

C. They provide essential vitamins to the bloodstream

D. They enhance the absorption of carbohydrates

Probiotics play a crucial role in human health primarily by being beneficial bacteria that support gut health and digestion. These live microorganisms, when consumed in adequate amounts, help maintain a balanced gut microbiota, which is essential for various functions in the body. A healthy gut microbiome can improve digestion by assisting in the breakdown of food, enhancing the absorption of nutrients, and even producing certain compounds that our bodies can use. Probiotics are known to help prevent and treat gastrointestinal disorders such as diarrhea, irritable bowel syndrome, and inflammatory bowel disease. They can also bolster the immune system by promoting a healthy balance of gut flora and inhibiting the growth of harmful bacteria. The other options do not accurately reflect the primary functions of probiotics. While some bacteria can produce vitamins, the main role of probiotics is related to their digestive and health-promoting properties rather than acting as a direct vitamin source or influencing carbohydrate absorption. By supporting gut health through these mechanisms, probiotics contribute significantly to overall health and wellness, making them a valuable component of the diet.

10. Which dietary fat type is NOT beneficial for heart health?

A. Monounsaturated fats

B. Trans fats

C. Saturated fats

D. Polyunsaturated fats

Trans fats are considered detrimental to heart health due to their negative impact on lipid profiles and overall cardiovascular risk. They are created through an industrial process that adds hydrogen to liquid vegetable oils, which makes them more solid and shelf-stable. This process not only increases the shelf life of food products but also raises levels of low-density lipoprotein (LDL) cholesterol, commonly known as "bad" cholesterol, while lowering levels of high-density lipoprotein (HDL) cholesterol, or "good" cholesterol. Consequently, the consumption of trans fats is associated with an increased risk of heart disease and other cardiovascular conditions. In contrast, monounsaturated fats and polyunsaturated fats are beneficial for heart health. These healthy fats help reduce overall cholesterol levels and inflammation. Saturated fats, while they have a more controversial status and are recommended to be consumed in moderation, are generally not as harmful as trans fats regarding heart health. Emphasizing the avoidance of trans fats is crucial for promoting cardiovascular wellness.