Board Certified in Holistic Nutrition (BCHN) Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

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Questions

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1. Which disaccharide is composed of two glucose molecules?

A. Lactose

B. Fructose

C. Maltose

D. Sucrose

2. Which of the following is not classified as an electrolyte?

A. Calcium

B. Sodium

C. Manganese

D. Potassium

3. Which extract is known to increase blood flow to the brain and improve energy production in nerve cells?

A. Ginkgo Biloba

B. Ginseng

C. Gotu Kola

D. Rhodiola Rosea

4. What occurs when you crush a clove of garlic?

A. It changes color

B. It releases the antioxidant enzyme allicin

C. It loses its nutritional value

D. It releases a bitter flavor

5. Which of the following is an example of a goitrogenic food?

A. Rice

B. Carrot

C. Kale

D. Chicken

6. How many calories are in one gram of carbohydrates?

A. 2 calories

B. 4 calories

C. 9 calories

D. 7 calories

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7. Which factor is considered the primary risk factor for Nonalcoholic Fatty Liver Disease (NAFLD)?

A. Alcohol Consumption

B. High Sugar Intake

C. Insulin Resistance

D. Genetic Predisposition

8. When cooking oil begins to smoke, what chemical change occurs?

A. It is turning into trans fats

B. It is losing all nutritional value

C. It is oxidizing and breaking down

D. It is changing shape from Cis to Trans

9. In which part of the cell are phospholipids predominantly located?

A. Cytoplasm

B. Nucleus

C. Cell Membranes

D. Mitochondria

10. In mild to moderate cases of Prostate Enlargement (BPH), which herbal extract is recognized as effective?

A. Horsetail

B. Pumpkin Seed Oil

C. Saw Palmetto

D. Stinging Nettle

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Answers

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

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Explanations

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1. Which disaccharide is composed of two glucose molecules?

A. Lactose

B. Fructose

C. Maltose

D. Sucrose

Maltose is the disaccharide composed of two glucose molecules. It is formed through the condensation reaction of two glucose units, leading to the formation of a bond known as a glycosidic bond. Maltose can be found in various foods and is especially significant in the process of digestion, as it can be broken down into glucose units for energy. Lactose, on the other hand, is composed of glucose and galactose, while sucrose consists of glucose and fructose. Fructose is a monosaccharide by itself and does not form a disaccharide with glucose. Understanding the specific composition of disaccharides is essential in nutrition, as it helps identify their sources and how they are metabolized in the body.

2. Which of the following is not classified as an electrolyte?

A. Calcium

B. Sodium

C. Manganese

D. Potassium

Manganese is not classified as an electrolyte, whereas calcium, sodium, and potassium are all recognized as essential electrolytes in the body. Electrolytes are minerals that carry an electric charge and play critical roles in various physiological functions, including maintaining fluid balance, nerve transmission, and muscle function. Calcium is vital for bone health and muscle contraction, sodium helps regulate blood pressure and fluid balance, and potassium is crucial for heart function and muscle contractions. In contrast, manganese, while an essential trace mineral important for various metabolic processes, including antioxidant activity and bone formation, does not function as an electrolyte. It does not carry an electric charge in the same way that the other choices do, thus distinguishing it from the listed electrolytes. Understanding these distinctions is key in the study of nutrition and the roles different minerals play in maintaining health.

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3. Which extract is known to increase blood flow to the brain and improve energy production in nerve cells?

A. Ginkgo Biloba

B. Ginseng

C. Gotu Kola

D. Rhodiola Rosea

Ginkgo Biloba is recognized for its ability to enhance blood circulation, particularly in the brain, due to its effects on blood vessel dilation. This improvement in blood flow can help promote cognitive function and potentially support memory and focus. Ginkgo Biloba achieves this by acting as an antioxidant and reducing inflammation, which can further benefit neuronal health. Additionally, Ginkgo Biloba has been studied for its ability to protect nerve cells and support energy production within them, making it a valuable extract for improving overall brain function. The other options, while also having their own benefits, do not specifically target brain blood flow and energy production to the same extent as Ginkgo Biloba. This specific focus on cerebral blood flow and neural energy makes Ginkgo Biloba the most appropriate choice for this question.

4. What occurs when you crush a clove of garlic?

A. It changes color

B. It releases the antioxidant enzyme allicin

C. It loses its nutritional value

D. It releases a bitter flavor

Crushing a clove of garlic activates an enzyme called alliinase that converts alliin, a sulfur compound present in garlic, into allicin, which is responsible for the characteristic aroma and many of the health benefits associated with garlic. Allicin is known for its antioxidant properties and ability to provide various health benefits, such as supporting cardiovascular health and exhibiting antimicrobial effects. This transformation occurs primarily when garlic is chopped or crushed, which helps to enhance its potency and nutritional value rather than diminish it. The release of allicin is a crucial aspect that underscores garlic's importance in holistic nutrition, as it contributes to the overall health benefits one can gain from its consumption. This reaction highlights not only the culinary uses of garlic but also its significance in nutritional practices.

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5. Which of the following is an example of a goitrogenic food?

A. Rice

B. Carrot

C. Kale

D. Chicken

Goitrogenic foods are those that contain substances which can interfere with thyroid function by inhibiting the synthesis of thyroid hormones. Kale is a member of the cruciferous vegetable family, which includes broccoli, Brussels sprouts, and cabbage. These vegetables are known to contain compounds called goitrogens—specifically, glucosinolates—which can lead to decreased iodine uptake in the thyroid gland. When consumed in large quantities, especially when raw, these goitrogens can pose a risk to individuals who have existing thyroid conditions or iodine deficiency, as they may contribute to the formation of goiters. In contrast, rice, carrots, and chicken do not possess significant goitrogenic properties. Rice is primarily a carbohydrate with minimal impact on thyroid function, carrots are rich in beta-carotene and do not affect the thyroid in a goitrogenic manner, and chicken is a source of protein and does not contain goitrogens. Thus, within the options provided, kale stands out as the example of a goitrogenic food due to its potential effects on thyroid hormone synthesis.

6. How many calories are in one gram of carbohydrates?

A. 2 calories

B. 4 calories

C. 9 calories

D. 7 calories

One gram of carbohydrates contains 4 calories. This value is based on the standard caloric energy release that carbohydrates provide when metabolized. Carbohydrates are a primary source of energy for the body, and their caloric value is consistent across different types of carbohydrate sources, such as sugars and starches. Understanding the caloric content of macronutrients is essential for nutrition professionals as it helps in dietary planning and understanding energy balance. For instance, when creating meal plans or analyzing food labels, knowing that carbohydrates provide 4 calories per gram allows for accurate calculations of total caloric intake from carbohydrates in the diet. In contrast, other macronutrients have different caloric values. Fats, for example, provide 9 calories per gram, and proteins provide 4 calories per gram, which is why distinguishing these values is important for effective nutritional guidance.

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7. Which factor is considered the primary risk factor for Nonalcoholic Fatty Liver Disease (NAFLD)?

A. Alcohol Consumption

B. High Sugar Intake

C. Insulin Resistance

D. Genetic Predisposition

Insulin resistance is considered the primary risk factor for Nonalcoholic Fatty Liver Disease (NAFLD) because it plays a crucial role in the development of the condition. Insulin is a hormone that helps regulate glucose levels and fat storage in the body. When the body becomes resistant to insulin, it leads to elevated levels of insulin and glucose in the bloodstream. This excess glucose is converted into fat, which the liver then accumulates, resulting in fatty liver. Furthermore, insulin resistance is often associated with metabolic syndrome, a cluster of conditions that increase the risk of heart disease, stroke, and diabetes, all of which are commonly linked with NAFLD. Addressing insulin sensitivity through dietary and lifestyle changes can significantly improve liver health and reduce the risk of developing NAFLD. Other factors, such as alcohol consumption, high sugar intake, and genetic predisposition, can contribute to liver health issues, but they do not have the same direct and primary role in the pathology of NAFLD as insulin resistance does. This makes insulin resistance a key factor in understanding and managing this condition.

8. When cooking oil begins to smoke, what chemical change occurs?

A. It is turning into trans fats

B. It is losing all nutritional value

C. It is oxidizing and breaking down

D. It is changing shape from Cis to Trans

When cooking oil begins to smoke, it is undergoing a thermal decomposition process, which involves oxidizing and breaking down. This is marked by a change in the chemical structure of the oil, leading to the formation of various potentially harmful substances, including free radicals and acrolein, among others. When oil reaches its smoke point, it indicates that the fats and oils have been subjected to heat beyond their stability limits, resulting in a chemical change. At this point, the oil may produce smoke due to the release of volatile compounds during this breakdown. The transformation from cis to trans fats specifically involves the alteration of the geometric configuration of unsaturated fatty acids, usually occurring during hydrogenation processes rather than merely from overheating. Therefore, the situation does not necessarily indicate that the oil is changing shape in this manner at the smoke point. The key concept here is that smoking indicates oxidation and degradation rather than a straightforward conversion to trans fats or a total loss of nutritional value. While some nutritional properties may diminish, the assertion that the oil loses all value is an oversimplification. Hence, the correct understanding of the smoking process hinges on recognizing its relationship with oxidation and the breakdown of the oil's chemical structure.

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9. In which part of the cell are phospholipids predominantly located?

A. Cytoplasm

B. Nucleus

C. Cell Membranes

D. Mitochondria

Phospholipids are predominantly located in cell membranes, which is critical for their function in forming the lipid bilayer. This bilayer acts as a barrier that separates the interior of the cell from the extracellular environment, playing a key role in maintaining homeostasis. The hydrophilic (water-attracting) heads of phospholipids face outward toward the watery environments both inside and outside the cell, while the hydrophobic (water-repelling) tails face inward, shielded from water. This unique arrangement is fundamental for membrane fluidity and the functionality of various embedded proteins, which are involved in transport, signaling, and cell recognition. In contrast, while cytoplasm contains various molecules and organelles, it is not the primary location for phospholipids. The nucleus is primarily composed of nuclear materials and proteins necessary for genetic function, not phospholipids. Mitochondria, known as the powerhouse of the cell, do contain their own lipid bilayer due to their unique role in energy production, but the vast majority of phospholipids are associated with the cell membranes rather than being concentrated in mitochondria. Thus, cell membranes are the primary site for phospholipids, emphasizing their essential role in cellular structure

10. In mild to moderate cases of Prostate Enlargement (BPH), which herbal extract is recognized as effective?

A. Horsetail

B. Pumpkin Seed Oil

C. Saw Palmetto

D. Stinging Nettle

Saw palmetto is widely recognized for its effectiveness in managing mild to moderate cases of benign prostatic hyperplasia (BPH). The herbal extract is derived from the berries of the Serenoa repens plant and has been extensively studied for its impact on prostate health. Research indicates that saw palmetto can help reduce symptoms associated with BPH, such as urinary frequency, urgency, and difficulty in starting and maintaining urination. The active compounds in saw palmetto may work by inhibiting the conversion of testosterone to dihydrotestosterone (DHT), a hormone linked to prostate growth. This action is believed to help alleviate the enlarged prostate symptoms and improve overall urinary function. Due to its efficacy and the supportive scientific evidence backing its use, saw palmetto stands out as a preferred herbal option for those dealing with the symptoms of BPH. While other herbs, such as pumpkin seed oil and stinging nettle, are also mentioned in relation to prostate health and may provide certain benefits, saw palmetto remains the most recognized and extensively researched option for addressing BPH symptoms specifically.

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