NANP Board Practice Exam (Sample)

Study Guide

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Questions

1. Which foods are most associated with causing gas and bloating?

- **A. High protein foods and legumes**
- **B. High sugar foods and dairy**
- **C. High fiber foods and vegetables**
- **D. High fat foods and fruits containing sorbitol or mannitol**

2. Which is a common cause of gas and bloating?

- **A. Hypochlorhydria or inadequate digestive enzymes**
- **B. Intense physical exercise**
- **C. Low-fat diet**
- **D. Regular consumption of starches**

3. The term "plastic heredity" refers to:

- **A. Genes determining disease without environmental influence**
- **B. Your transformation through plastic surgery**
- **C. How lifestyle determines if genes related to disease are expressed**
- **D. The irreversible inheritance of genetic disorders**

4. What effect does cooking meat at high temperatures without marinating have on the body?

- **A. It reduces cholesterol levels**
- **B. It increases free radical formation**
- **C. It enhances the taste**
- **D. It has no effect on the body**

5. What is a common use for gums in the food industry?

- **A. Flavor enhancers**
- **B. Thickeners, gelling agents, emulsifiers, and stabilizers**
- **C. Preservatives**
- **D. Antioxidants**

6. When referring to the net effect of a food upon the body as alkaline or acidic, which nutrient acts as the primary determining factor according to most authors, even though all play an instrumental role?

A. Carbohydrates

B. Fats

C. Minerals

D. Proteins

7. Which type of carbohydrates are glucose, fructose, and galactose considered?

A. Complex carbohydrates

B. Disaccharides

C. Monosaccharides

D. Polysaccharides

8. Which dietary inhibitors can reduce the activity of enzymes COX1 and COX2 in the AA cascade?

A. Ginger and turmeric

B. Olive oil and sunflower oil

C. Calcium and magnesium

D. Iron and zinc

9. Members of the nightshade family are known for being high in solanine and can lead to problems such as back pain and arthritis in some individuals if cooked and consumed before being ripe. Which of the following is not a member of the nightshade family of vegetables?

A. Eggplant

B. Potatoes

C. Spinach

D. Tomatoes

10. Which of the following conditions is most associated with defects in sulfur amino acid metabolism?

A. Allergic rhinitis

B. Neurodegenerative diseases

C. Osteoarthritis

D. Type 2 diabetes

Answers

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

Explanations

1. Which foods are most associated with causing gas and bloating?

A. High protein foods and legumes

B. High sugar foods and dairy

C. High fiber foods and vegetables

D. High fat foods and fruits containing sorbitol or mannitol

Certain high fat foods and fruits containing sorbitol or mannitol are most commonly associated with causing gas and bloating. These foods can be difficult for the body to digest, leading to gas production and bloating. Options A, B, and C are incorrect because they mainly focus on one type of nutrient or food group, while the correct answer focuses on both. While high protein foods and legumes, high sugar foods and dairy, and high fiber foods and vegetables can also contribute to gas and bloating in some individuals, the link is not as strong and prevalent as with high fat foods and certain fruits. Additionally, it's important to note that there are also other factors that can contribute to gas and bloating, such as eating too quickly or consuming carbonated beverages.

2. Which is a common cause of gas and bloating?

A. Hypochlorhydria or inadequate digestive enzymes

B. Intense physical exercise

C. Low-fat diet

D. Regular consumption of starches

Gas and bloating are often caused by a condition called hypochlorhydria, which is an insufficient amount of stomach acid. This can also be caused by inadequate digestive enzymes, which are necessary for breaking down food and preventing gas and bloating. Intense physical exercise and a low-fat diet may contribute to gas and bloating, but they are not a common cause. Regular consumption of starches can also cause bloating, but it is not necessarily a common cause and does not address the issue of gas. Therefore, A is the best answer that accurately reflects a common cause of gas and bloating.

3. The term "plastic heredity" refers to:

A. Genes determining disease without environmental influence

B. Your transformation through plastic surgery

C. How lifestyle determines if genes related to disease are expressed

D. The irreversible inheritance of genetic disorders

The correct understanding of "plastic heredity" is that it refers to how lifestyle factors, including environmental influences and individual choices, affect the expression of genes related to health and disease. This concept emphasizes the dynamic interplay between genetics and the environment, suggesting that even if a person has certain genetic predispositions, their lifestyle choices can influence whether these genes are expressed and to what extent they impact health. This contrasts with the idea of genetic determinism, where genes would dictate disease outcomes without considering lifestyle or environmental factors. Thus, the focus on lifestyle in the context of gene expression aligns with the concept of plastic heredity, highlighting the importance of personal choices and environmental factors in shaping health outcomes.

4. What effect does cooking meat at high temperatures without marinating have on the body?

A. It reduces cholesterol levels

B. It increases free radical formation

C. It enhances the taste

D. It has no effect on the body

Cooking meat at high temperatures, especially without marinating, leads to the formation of compounds known as heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs). These compounds are generated when amino acids and creatine in the meat react with high heat. This process results in the production of free radicals, which are unstable molecules that can cause oxidative stress in the body. Oxidative stress occurs when there is an imbalance between free radicals and antioxidants in the body, leading to potential damage to cells, proteins, and DNA. This damage is associated with various health issues, including inflammation and cancer. The lack of marinating, which can introduce anti-oxidative compounds (such as those found in various marinades), means that the protective effects against oxidative processes are diminished. Thus, cooking meat at high temperatures without marinating indeed contributes to increased free radical formation, which is a significant health concern.

5. What is a common use for gums in the food industry?

A. Flavor enhancers

B. Thickeners, gelling agents, emulsifiers, and stabilizers

C. Preservatives

D. Antioxidants

The correct choice highlights the multifaceted role of gums in the food industry, where they are widely recognized for their functions as thickeners, gelling agents, emulsifiers, and stabilizers. Gums such as guar gum, xanthan gum, and agar contribute to the texture and consistency of various food products. They help maintain the desired viscosity, ensure that ingredients remain evenly distributed throughout the product, and prevent separation. This versatility makes them essential in a range of applications, from dairy products to sauces and dressings, enhancing sensory properties and overall product stability. The other options, while important in the food industry, do not accurately represent the primary function of gums. Flavor enhancers and preservatives serve specific roles related to taste and shelf-life rather than the structural properties that gums provide. Similarly, antioxidants are primarily focused on preventing oxidation and extending freshness, not on the texture or stability of food products.

6. When referring to the net effect of a food upon the body as alkaline or acidic, which nutrient acts as the primary determining factor according to most authors, even though all play an instrumental role?

A. Carbohydrates

B. Fats

C. Minerals

D. Proteins

Most authors and experts agree that when determining the net effect of a food upon the body as alkaline or acidic, the primary determining factor is carbohydrates. This is because carbohydrates are the main source of energy for the body and are broken down into simple sugars which can then affect the pH balance in the body. Fats and proteins also play a role in this process, but they are not the primary determining factor. Minerals are also important for maintaining a healthy pH balance, but they do not directly impact it as much as carbohydrates do.

7. Which type of carbohydrates are glucose, fructose, and galactose considered?

A. Complex carbohydrates

B. Disaccharides

C. Monosaccharides

D. Polysaccharides

Glucose, fructose, and galactose are classified as monosaccharides because they are the simplest form of carbohydrates. Monosaccharides consist of single sugar units that cannot be hydrolyzed further into smaller carbohydrate molecules. They serve as the basic building blocks for more complex carbohydrates. Monosaccharides are characterized by their straightforward chemical structure, typically comprising a single ring or chain of carbon atoms with attached functional groups, which is essential for their role in energy metabolism within the body. For example, glucose is a vital source of energy for cells, while fructose is primarily found in fruits and honey, and galactose is a component of lactose, the sugar found in milk. In contrast, the other types of carbohydrates mentioned, such as complex carbohydrates, disaccharides, and polysaccharides, involve multiple sugar units. Disaccharides are formed by the bond of two monosaccharides, while polysaccharides consist of long chains of monosaccharide units. Therefore, glucose, fructose, and galactose stand out as the simplest carbohydrates, making their classification as monosaccharides the accurate choice.

8. Which dietary inhibitors can reduce the activity of enzymes COX1 and COX2 in the AA cascade?

A. Ginger and turmeric

B. Olive oil and sunflower oil

C. Calcium and magnesium

D. Iron and zinc

Ginger and turmeric are known for their anti-inflammatory properties, primarily due to their active compounds, such as gingerol in ginger and curcumin in turmeric. These compounds have been shown to inhibit the activity of cyclooxygenase enzymes COX1 and COX2, which play a crucial role in the arachidonic acid cascade, responsible for producing inflammatory mediators. By reducing the activity of these enzymes, ginger and turmeric can help mitigate inflammation and provide relief from conditions such as arthritis or other inflammatory diseases. The other options, while having various health benefits, do not have a well-established mechanism of action regarding the inhibition of COX enzymes specifically in the context of the arachidonic acid pathway. Olive oil and sunflower oil are primarily sources of fats, which enjoy a reputation for health benefits, particularly in cardiovascular health, but they don't have a direct inhibiting effect on COX1 and COX2. Calcium and magnesium are essential minerals that play numerous roles in the body, including muscle function and bone health, but they do not exert significant influence over COX enzyme activity. Iron and zinc are important trace elements involved in various biochemical processes and immune function, yet they are not recognized for any effects on the COX enzymes within the ara

9. Members of the nightshade family are known for being high in solanine and can lead to problems such as back pain and arthritis in some individuals if cooked and consumed before being ripe. Which of the following is not a member of the nightshade family of vegetables?

A. Eggplant

B. Potatoes

C. Spinach

D. Tomatoes

Spinach is not a member of the nightshade family; it belongs to the amaranth family (Amaranthaceae). The nightshade family, known scientifically as Solanaceae, includes various plants that often contain alkaloids like solanine, which can be toxic in certain conditions, particularly when unripe. Eggplant, potatoes, and tomatoes are all classified under this family, which is why they may contain solanine and other compounds that could lead to health issues for some people when consumed improperly. In contrast, spinach does not possess these same properties and is generally considered safe to consume without the risk associated with nightshades. This distinction is important not only for identifying vegetables but also for understanding dietary choices, especially for individuals sensitive to the compounds found in nightshades.

10. Which of the following conditions is most associated with defects in sulfur amino acid metabolism?

A. Allergic rhinitis

B. Neurodegenerative diseases

C. Osteoarthritis

D. Type 2 diabetes

Neurodegenerative diseases, such as Parkinson's and Alzheimer's, are most commonly associated with defects in sulfur amino acid metabolism. Allergic rhinitis, osteoarthritis, and type 2 diabetes may have other underlying causes and are not directly linked to sulfur amino acid metabolism.