

Texas A&M University (TAMU) NUTR222 Nutrition for Health and Health Care Exam 4 Practice (Sample)

Study Guide



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Questions

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1. What criteria must be met to diagnose metabolic syndrome?
 - A. High cholesterol and low blood pressure
 - B. Three or more of specified conditions
 - C. Only family history of diabetes
 - D. Insulin production tests only
2. Why is glycemic control important for pregnant women with diabetes?
 - A. Reduces labor time
 - B. Increases fetal size
 - C. Prevents high blood glucose-related birth defects
 - D. Enhances maternal nutrition
3. What hormone is produced when blood glucose levels are low?
 - A. Insulin
 - B. Glucagon
 - C. Cortisol
 - D. Adrenaline
4. Hyperglycemia can occur in which types of diabetes?
 - A. Type I only
 - B. Type II only
 - C. Type I and II
 - D. Gestational diabetes only
5. What is a risk associated with radiation therapy for cancer?
 - A. Reduced energy needs
 - B. Development of new cancer
 - C. Enhanced quality of life immediately
 - D. No side effects

6. Which of the following typically occurs during a stress response?
- A. Increased nutrient storage
 - B. Lower heart rate and respiration
 - C. Nutrients are mobilized from storage
 - D. Lower blood pressure
7. What dietary restriction is recommended for individuals who have experienced a heart attack?
- A. Low protein
 - B. High fiber
 - C. Low sodium
 - D. High sugar
8. Which nutrient levels can be negatively affected by alcohol abuse?
- A. Vitamin C, B12, and Potassium
 - B. Vitamin A, Folate, and Thiamine
 - C. Iron, Vitamin D, and Calcium
 - D. Protein, Fiber, and Omega-3 fatty acids
9. What is a common lifestyle change recommended for managing hypertension?
- A. Decreasing physical activity
 - B. Moderate alcohol consumption
 - C. Increased salt intake
 - D. Skipping meals
10. What are some acute symptoms of Hepatitis?
- A. Fatigue and nausea
 - B. Pain in liver area and jaundice
 - C. Elevated liver enzymes
 - D. All of the above

Answers

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

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Explanations

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1. What criteria must be met to diagnose metabolic syndrome?

- A. High cholesterol and low blood pressure
- B. Three or more of specified conditions
- C. Only family history of diabetes
- D. Insulin production tests only

The diagnosis of metabolic syndrome is based on the presence of three or more specific conditions that increase an individual's risk for cardiovascular disease and type 2 diabetes. These conditions typically include obesity (especially abdominal obesity), elevated blood pressure, high blood sugar levels, high triglyceride levels, and low HDL (good) cholesterol levels. By requiring the presence of multiple risk factors, the definition underscores the multifaceted nature of metabolic syndrome. This comprehensive approach reflects the understanding that metabolic syndrome is not merely about individual risk factors but rather the cumulative effect of several interrelated factors that can significantly impact health. Recognizing the syndrome with this criteria enables healthcare providers to implement preventive measures and interventions effectively.

2. Why is glycemic control important for pregnant women with diabetes?

- A. Reduces labor time
- B. Increases fetal size
- C. Prevents high blood glucose-related birth defects
- D. Enhances maternal nutrition

Glycemic control is crucial for pregnant women with diabetes primarily because it helps prevent high blood glucose-related birth defects. Maintaining stable blood sugar levels throughout pregnancy is essential to reduce the risk of complications for both the mother and the developing fetus. Elevated blood glucose levels during pregnancy can lead to several adverse outcomes, including congenital anomalies such as heart defects, neural tube defects, and abnormalities in the spinal cord. By managing blood sugar levels effectively, the risk of these birth defects can be significantly decreased, leading to better health outcomes for both the mother and her baby. Moreover, good glycemic control helps mitigate other complications associated with diabetes in pregnancy, such as macrosomia (larger-than-average baby) and preeclampsia, which can further contribute to a safer delivery process.

3. What hormone is produced when blood glucose levels are low?

- A. Insulin
- B. Glucagon
- C. Cortisol
- D. Adrenaline

When blood glucose levels are low, the body responds by secreting glucagon, which plays a crucial role in maintaining homeostasis of glucose levels. Glucagon is produced by the alpha cells of the pancreas and acts in opposition to insulin, which is secreted when glucose levels are high. The primary function of glucagon is to stimulate the liver to convert stored glycogen into glucose, releasing it into the bloodstream to raise blood sugar levels back to a normal range. Additionally, glucagon promotes gluconeogenesis, a process in which the liver produces glucose from non-carbohydrate sources, further helping to elevate blood glucose levels. This feedback mechanism is crucial for ensuring that the body has a steady supply of glucose, particularly during fasting or between meals, when blood sugar levels might drop. The rapid response to low blood glucose is vital for energy supply, especially for the brain, which relies heavily on glucose for its functioning.

4. Hyperglycemia can occur in which types of diabetes?

- A. Type I only
- B. Type II only
- C. Type I and II
- D. Gestational diabetes only

Hyperglycemia is characterized by elevated levels of glucose in the blood, and this condition can arise in various types of diabetes, particularly Type I and Type II diabetes. In Type I diabetes, the body does not produce insulin, which is essential for glucose to enter cells and be utilized for energy. As a result, when glucose enters the bloodstream, it remains there, leading to hyperglycemia. This condition is a hallmark of Type I diabetes, primarily because of the lack of insulin production due to the autoimmune destruction of insulin-producing beta cells in the pancreas. Similarly, in Type II diabetes, the body becomes resistant to the effects of insulin or does not produce enough insulin to maintain normal glucose levels. This insulin deficiency, coupled with the body's inability to effectively use insulin, results in increased blood glucose levels, thereby contributing to hyperglycemia. Additionally, gestational diabetes can cause hyperglycemia as well, but it is specifically related to pregnancy and typically resolves after childbirth. Therefore, while hyperglycemia can occur in gestational diabetes, it is not limited to this type alone. Thus, hyperglycemia is relevant in both Type I and Type II diabetes, making the answer that includes both of these types correct.

5. What is a risk associated with radiation therapy for cancer?

- A. Reduced energy needs
- B. Development of new cancer
- C. Enhanced quality of life immediately
- D. No side effects

Radiation therapy for cancer is a treatment that uses high doses of radiation to kill or damage cancer cells. One of the notable risks associated with this form of therapy is the potential for the development of new cancer. This occurs because exposure to radiation can also affect healthy, normal cells, which may later become cancerous. The risk for secondary cancers is particularly relevant many years after the initial treatment, as the radiation may induce genetic mutations in the surviving cells. This understanding of radiation's impact highlights the importance of careful consideration and management in selecting radiation therapy as a treatment option, weighing the immediate benefits of tumor control against the long-term risks. The development of new cancer is a significant concern that both patients and healthcare providers must discuss thoroughly when considering treatment plans.

6. Which of the following typically occurs during a stress response?

- A. Increased nutrient storage
- B. Lower heart rate and respiration
- C. Nutrients are mobilized from storage
- D. Lower blood pressure

During a stress response, the body activates a range of physiological changes aimed at mobilizing resources to manage the perceived threat or challenge. One of the key components of the stress response is the mobilization of nutrients from storage to ensure that the body has adequate energy and resources to respond effectively. This process typically involves the release of hormones, such as cortisol and adrenaline, which stimulate the breakdown of glycogen (stored glucose) in the liver and the release of fatty acids from adipose tissue. Such mobilization provides quick access to energy and essential nutrients required to support heightened metabolic demands associated with the stress response. In contrast, options like increased nutrient storage and lower heart rate and respiration reflect physiological states that are more geared toward rest and recovery rather than the active response required during stress. Lower blood pressure also does not align with the body's reaction to stress; instead, stress typically results in elevated blood pressure and heart rate as part of the fight-or-flight response.

7. What dietary restriction is recommended for individuals who have experienced a heart attack?

- A. Low protein
- B. High fiber
- C. Low sodium
- D. High sugar

A dietary restriction that is recommended for individuals who have experienced a heart attack focuses on reducing sodium intake. Lowering sodium helps to manage blood pressure, which is critical for heart health, especially after a cardiac event. High sodium diets can lead to fluid retention and increased blood pressure, both of which put additional strain on the heart. By limiting sodium, individuals can help reduce the risk of further complications and support overall cardiovascular function. While high fiber intake is generally beneficial for heart health, especially in terms of improving cholesterol levels and promoting heart-friendly eating habits, it is not as specifically crucial as sodium reduction following a heart attack. Protein needs may also be maintained or adjusted depending on individual recovery requirements, and a high-sugar diet is generally discouraged for its negative impacts on heart health. Therefore, focusing on a low sodium intake is a targeted recommendation for recovery and reducing the risk of subsequent heart issues.

8. Which nutrient levels can be negatively affected by alcohol abuse?

- A. Vitamin C, B12, and Potassium
- B. Vitamin A, Folate, and Thiamine
- C. Iron, Vitamin D, and Calcium
- D. Protein, Fiber, and Omega-3 fatty acids

The correct choice highlights the specific nutrients that can be adversely impacted by excessive alcohol consumption. Alcohol abuse has a particularly detrimental effect on vitamin levels due to its interference with absorption, utilization, and metabolism. Vitamin A is affected because alcohol can impair the liver's ability to convert beta-carotene to vitamin A, leading to deficiencies. Folate is critical for DNA synthesis and repair, and alcohol can disrupt its absorption in the intestines, further leading to deficiencies that may have severe health implications, such as anemia and increased homocysteine levels. Thiamine (vitamin B1) is especially crucial as it plays a role in energy metabolism and nerve function; alcohol impairs its absorption and can lead to Wernicke-Korsakoff syndrome, a serious neurological disorder. Each of these nutrients is essential for overall health, and their deficiencies due to alcohol abuse can lead to various health complications. This choice correctly captures the direct impacts of alcohol on nutrient levels that are vital to maintaining health and well-being.

9. What is a common lifestyle change recommended for managing hypertension?

- A. Decreasing physical activity
- B. Moderate alcohol consumption
- C. Increased salt intake
- D. Skipping meals

Moderate alcohol consumption can be part of a lifestyle change for managing hypertension, but it is crucial to clarify that the recommendation is typically for individuals who already consume alcohol. Moderate consumption means limiting intake to a small amount, which for most guidelines is defined as up to one drink per day for women and up to two drinks per day for men. This approach can potentially provide cardiovascular benefits and may be associated with lower blood pressure compared to heavy drinking or abstinence in some individuals. In contrast, decreasing physical activity can exacerbate hypertension, as regular exercise is known to help lower blood pressure. Increasing salt intake is counterproductive, as high sodium consumption is linked to elevated blood pressure. Skipping meals is also discouraged, as it can lead to unhealthy eating patterns and potential weight gain, both of which can negatively impact blood pressure. Therefore, moderate alcohol consumption is recognized as a lifestyle choice that, when approached responsibly, can be included in a management plan for hypertension.

10. What are some acute symptoms of Hepatitis?

- A. Fatigue and nausea
- B. Pain in liver area and jaundice
- C. Elevated liver enzymes
- D. All of the above

The choice indicating that all of the listed symptoms are acute symptoms of Hepatitis is accurate. Acute Hepatitis can manifest with a variety of symptoms that affect individuals differently. Fatigue and nausea are common early signs associated with the viral infection as the body's immune system responds to the presence of the virus. This intense fatigue can limit daily activities and is a key symptom of many liver diseases, including Hepatitis. Pain in the liver area, known as hepatomegaly, occurs because the inflamed liver can become enlarged and tender, while jaundice, characterized by a yellowing of the skin and eyes, results from the liver's inability to process bilirubin properly. Both pain and jaundice provide visual and palpable signs of liver distress. Elevated liver enzymes in the blood, typically measured through laboratory tests, indicate liver damage or inflammation and are a hallmark of Hepatitis. These enzyme levels are monitored to assess the extent of liver injury and to diagnose the condition. Thus, the broad spectrum of symptoms—including fatigue, nausea, localized pain, jaundice, and changes in liver enzyme levels—demonstrates how multifaceted acute Hepatitis can be, confirming that all these aspects are indeed relevant to understanding the condition.