

Name: _____

Date: _____

Answer Key: Hack Your Metabolism: 9th Grade Bioavailability & Nutrition Quiz

How does your body prioritize nutrient absorption? Analyze the biochemical impact of micronutrients and metabolic pathways on your long-term health.

1. Which of the following describes the 'thermic effect of food' (TEF) and its impact on your metabolic rate?

Answer: B) The energy expended by the body to digest, absorb, and process nutrients.

The thermic effect of food represents the metabolic cost of processing different macronutrients; proteins typically have the highest TEF.

2. Fat-soluble vitamins such as A, D, E, and K are stored in the body's liver and fatty tissues, meaning they do not need to be consumed as frequently as water-soluble vitamins.

Answer: A) True

Unlike water-soluble vitamins (B-complex and C) which are excreted in urine, fat-soluble vitamins are stored, which increases the risk of toxicity if consumed in extreme excess.

3. The process of _____ refers to the degree to which a nutrient is absorbed from the digestive tract and used for various physiological functions.

Answer: A) Bioavailability

Bioavailability is a crucial concept in nutrition science, explaining why the total amount of a nutrient in a food doesn't always equal what the body actually absorbs.

4. High-density lipoprotein (HDL) is often termed 'good cholesterol' because its primary physiological role is to:

Answer: C) Carry excess cholesterol from the tissues back to the liver for disposal.

HDL functions as a scavenger, removing cholesterol from the blood and arterial walls, which helps prevent atherosclerosis.

5. Essential amino acids are those that the human body can synthesize on its own from other carbon and nitrogen sources.

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Answer: B) False

Essential amino acids cannot be manufactured by the body and must be obtained through dietary sources like soy, hemp, or animal proteins.

6. Consuming _____ carbohydrates, such as those found in lentils or oats, leads to a slower rise in blood glucose compared to simple sugars.

Answer: B) Complex

Complex carbohydrates contain longer chains of sugar molecules and fiber, requiring more time for the body to break down, which provides sustained energy.

7. Which of these is a likely consequence of a diet consistently lacking in dietary fiber?

Answer: C) Altered gut microbiome and increased risk of diverticular disease.

Fiber is essential for gut motility and supporting the beneficial bacteria in the microbiome, which impacts metabolic and immune health.

8. The _____ is a numerical scale used to indicate how quickly a carbohydrate-containing food raises blood glucose levels.

Answer: C) Glycemic Index

The Glycemic Index (GI) helps individuals understand the impact of different foods on blood sugar and insulin secretion.

9. Electrolytes like magnesium and potassium are minerals that carry an electric charge and are vital for muscle contraction and nerve signaling.

Answer: A) True

Electrolytes maintain fluid balance and facilitate the transmission of electrical impulses required for heart and muscle function.

10. When assessing a food label, why should a consumer be wary of 'Daily Value' (DV) percentages based on a 2,000-calorie diet?

Answer: A) Individual caloric needs vary significantly based on age, sex, and activity level.

The 2,000-calorie benchmark is a general guideline; athletes or growing adolescents often have higher requirements, while others may need less.

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