Energy Balance, Metabolism, and Nutrition

Health Science · Answer Key · 12 Questions

1. What does Basal Metabolic Rate (BMR) represent?

A) The energy required at complete rest to keep vital organs functioning
B) The energy burned strictly during high-intensity exercise
C) The total calories burned over an entire week
D) The energy required solely for digesting complex carbohydrates

2. Which component accounts for the largest portion of daily energy expenditure?

A) Thermic Effect of Food (TEF)
B) Structured exercise
C) Basal Metabolic Rate (BMR)
D) Non-exercise activity thermogenesis (NEAT)

3. What is the Thermic Effect of Food (TEF)?

A) Energy required by the body to digest, absorb, and process food
B) Calories burned while performing cardio exercises
C) Resting heart rate measured during sleep
D) Heat produced by muscle contraction during strength training

4. What happens to body weight during a state of energy equilibrium?

A) Rapid weight loss occurs
B) Body weight remains stable
C) Fat storage increases significantly
D) Muscle mass decreases rapidly

5. What occurs during a positive energy balance (caloric surplus)?

A) Energy intake is less than energy expenditure
B) Body weight decreases
C) Energy intake exceeds expenditure, leading to weight gain
D) The body burns fat reserves for fuel

6. What is the primary outcome of a negative energy balance (caloric deficit)?

A) Weight loss as the body uses stored energy
B) Weight gain from increased fat storage
C) Complete shutdown of the basal metabolic rate
D) Immediate loss of essential organ function

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7. According to the 3-3-3 rule for weight loss, how many meals should be eaten per day?

A) 1 meal
B) 3 meals
C) 6 meals
D) 5 meals

8. Which three food components should be included in each meal under the 3-3-3 framework?

A) Refined sugars, saturated fats, and alcohol
B) Proteins, healthy fats, and fiber-rich carbohydrates
C) Dairy, simple sugars, and fruit juice
D) Processed meats, white flour, and sodium

9. What is the effect of consuming refined carbohydrates on blood glucose levels?

A) Slow and steady release of energy
B) Rapid spike in blood glucose levels
C) Immediate lowering of blood sugar levels
D) No effect on blood glucose levels

10. Which combination of nutrients provides steady blood sugar and sustained energy?

A) White flour and added sugar
B) Fruit juice and candy
C) Complex carbohydrates, fiber, lean proteins, and healthy fats
D) Soda and refined pastries

11. Where is excess energy stored in the body during a caloric surplus?

A) As water weight only
B) As fat tissue, glycogen, and protein
C) As pure blood glucose
D) As bone density

12. What two components make up total daily physical activity energy expenditure (PAE)?

A) Structured exercise and non-exercise activity
B) Digesting food and breathing
C) Basal metabolic rate and resting heart rate
D) Sleeping and sitting

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