

Module 1: Knowledge Check

Obesity Pathophysiology

1. Body weight regulation reflects the complex interplay between energy intake, energy expenditure, and energy storage, each of which are impacted by multiple factors. Which of the following related statements is true?

- A. For an average person, the energy expenditure of physical activity is the largest component of total energy expenditure.
- B. Ghrelin, insulin, and leptin are important peripheral signals of satiety.
- C. Genetic factors influence energy intake, energy expenditure, and energy storage, accounting for about 10% of the heritability of body weight.
- D. The central nervous system plays a major role in regulating food intake in response to peripheral hunger and satiety signals.

2. Metabolic and hormonal adaptation to caloric restriction and weight loss may contribute to weight regain following weight loss. What is the **usual** pattern of weight loss with lifestyle modification (such as changes in diet and physical activity):

- A. Maximum weight loss is seen within 4 weeks, followed by a plateau for one year and gradual regain.
- B. Maximum weight loss is achieved at 6 months, followed by a plateau and gradual regain over time.
- C. Maximum weight loss is achieved at 3 months, followed by a gradual regain over time.
- D. Weight loss continues for up to 3 years if a reduced calorie diet and physical activity are continued.

Which metabolic and hormonal adaptations occur with caloric restriction and weight loss, favoring weight regain?

- A. Hunger and satiety hormones increase and energy expenditure decreases.
- B. There is a decrease in energy expenditure that is greater than expected based on changes in body mass.
- C. Levels of GLP-1, PYY, and CCK increase.
- D. After weight loss, the brain's reward system is less active.

Answers: D, B, B

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