

Metabolism Quiz Questions and Answers PDF

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What is the primary energy carrier in cells?

- NADH
- ATP ✓
- FADH₂
- ADP

■ The primary energy carrier in cells is ATP.

Which metabolic process involves the breakdown of glucose to produce energy?

- Lipolysis
- Glycolysis ✓
- Gluconeogenesis
- Photosynthesis

■ The metabolic process that involves the breakdown of glucose to produce energy is glycolysis.

Which hormone is primarily responsible for lowering blood glucose levels?

- Glucagon
- Thyroxine
- Insulin ✓
- Cortisol

■ The hormone primarily responsible for lowering blood glucose levels is insulin.

What factors can influence basal metabolic rate? (Select all that apply)

- Gender ✓
- Temperature ✓

Stress levels ✓

Blood type

Factors that can influence basal metabolic rate include gender, temperature, and stress levels.

Which processes are involved in energy production in cells? (Select all that apply)

Glycolysis ✓

Krebs cycle ✓

Electron Transport Chain ✓

Photosynthesis

Processes involved in energy production in cells include glycolysis, Krebs cycle, and the electron transport chain.

Which of the following are considered metabolic disorders? (Select all that apply)

Diabetes ✓

Hyperthyroidism ✓

Asthma

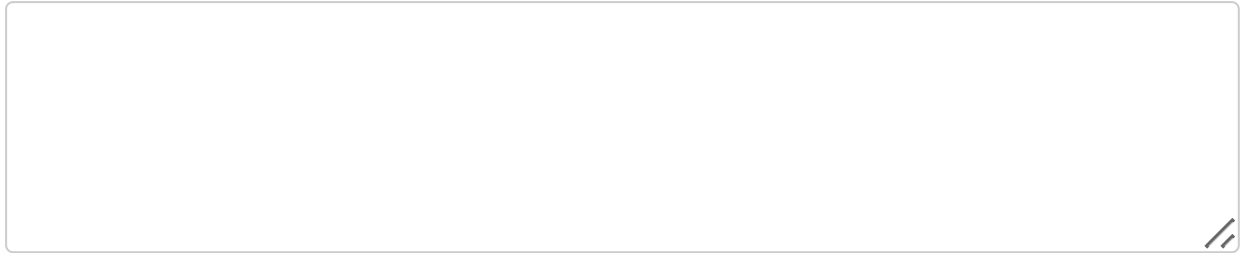
Metabolic syndrome ✓

Metabolic disorders include diabetes, hyperthyroidism, and metabolic syndrome.

Explain the role of ATP in cellular metabolism.

ATP serves as the primary energy currency in cells, providing energy for various biochemical reactions and processes.

Describe how enzymes function as catalysts in metabolic reactions.



Enzymes lower the activation energy of reactions, increasing the rate at which they occur without being consumed in the process.

What is the main function of enzymes in metabolism?

- Store energy
- Act as catalysts ✓**
- Provide structural support
- Transport nutrients

The main function of enzymes in metabolism is to act as catalysts.

Which organ is primarily responsible for regulating basal metabolic rate?

- Liver
- Pancreas
- Thyroid gland ✓**
- Adrenal gland

The organ primarily responsible for regulating basal metabolic rate is the thyroid gland.

Which metabolic pathway is responsible for the synthesis of glucose from non-carbohydrate sources?

- Glycolysis
- Lipolysis
- Gluconeogenesis ✓**
- Krebs cycle

The metabolic pathway responsible for the synthesis of glucose from non-carbohydrate sources is gluconeogenesis.

What is the process called where the body adapts to changes in environment and diet?

- Catabolism
- Anabolism
- Adaptive Thermogenesis ✓**
- Homeostasis

The process where the body adapts to changes in environment and diet is called adaptive thermogenesis.

Which of the following factors does NOT influence metabolic rate?

- Age
- Muscle mass
- Eye color ✓**
- Activity level

The factor that does NOT influence metabolic rate is eye color.

Which of the following are types of metabolic pathways? (Select all that apply)

- Catabolism ✓**
- Anabolism ✓**
- Photosynthesis
- Glycolysis ✓**

The types of metabolic pathways include catabolism, anabolism, and glycolysis.

Which hormones play a critical role in regulating metabolism? (Select all that apply)

- Insulin ✓**
- Glucagon ✓**
- Thyroxine ✓**
- Melatonin

The hormones that play a critical role in regulating metabolism include insulin, glucagon, and thyroxine.

Which of the following are components of the citric acid cycle? (Select all that apply)

- Acetyl-CoA ✓
- NADH ✓
- Pyruvate
- FADH2 ✓

■ The components of the citric acid cycle include acetyl-CoA, NADH, and FADH2.

Discuss the impact of exercise on metabolic rate and energy expenditure.

■ **Exercise increases metabolic rate by enhancing energy expenditure, promoting muscle growth, and improving efficiency of metabolic pathways.**

How does the body regulate blood glucose levels through hormonal control?

■ **The body uses insulin to lower blood glucose levels and glucagon to raise them, maintaining homeostasis.**

What is the significance of the Krebs cycle in cellular respiration?

The Krebs cycle generates electron carriers (NADH and FADH₂) that are crucial for ATP production in the electron transport chain.

Explain how genetic factors can influence an individual's metabolism.

Genetic factors can determine enzyme efficiency, hormone levels, and metabolic rate, affecting how efficiently the body processes nutrients.