

Respiration and Excretion

Chapter 5: Life Processes · Topic 2

Key Concept

In humans, aerobic respiration occurs primarily in mitochondria, producing significantly more ATP (energy currency) per glucose molecule than anaerobic respiration, which occurs during intense exercise when oxygen supply is insufficient, causing muscle fatigue from lactic acid buildup. The human excretory system, centred on the kidneys, filters blood through millions of tiny units called nephrons, removing urea and excess substances to form urine, which is then stored in the bladder before being expelled from the body.

Quick Revision Notes

- Aerobic respiration: uses oxygen, produces more energy, CO_2 , and water.
- Anaerobic respiration: no oxygen, less energy, produces lactic acid (muscles) or alcohol (yeast).
- The kidneys, containing nephrons, filter blood to remove urea and excess substances as urine.
- Lactic acid buildup during intense exercise causes muscle fatigue.

Practice Questions

- 1 Name the main excretory organ in the human body.
- 2 Explain the difference between aerobic and anaerobic respiration.
- 3 Why does muscle fatigue occur during intense exercise?