

The Human Body: The Excretory System

(Second Edition, Revised) 12 Minutes

INSTRUCTIONAL DESIGN

The series, The Human Body, showcases the body's primary systems, and describes how these systems work together to maintain health and growth. Each presentation includes lucid, up-to-date animation of chemical processes and the workings of major organs within the body, supplemented by appropriate microscopic and X-ray images of living systems. In addition, special features within each episode bring experts on-camera to describe more subtle aspects of the body's systems, common disorders and their treatments and ways to preserve the body's systemic health.

OBJECTIVES

Viewers will:

1. Observe how chemical by-products of cell metabolism are filtered from the blood within the nephrons of the kidneys
2. Observe how the skin excretes water, mineral salts and excess heat
3. Observe how carbon dioxide is carried to and excreted from the alveoli of the lungs
4. Identify the principal cleansing actions conducted by the liver
5. Discover the feedback mechanism that enables the pituitary gland to govern the contents and consistency of the blood

VOCABULARY

Alveoli	Pituitary Gland	Antidiuretic Hormone
Plasma	Bowman's Capsule	Pulmonary Artery
Bronchial Tubes	Renal Arteries	Cell Metabolism
Sphincter	Glomerulus	Trachea
Glucose	Urea	Hemoglobin
Ureters	Insulin	Urethra
Nephron		

BEFORE VIEWING

1. Describe the means by which an ordinary home might handle the following kinds of waste products: food wastes, liquid wastes, gaseous wastes, airborne dust, excess heat.
2. What might happen if each kind of waste were not removed promptly?
3. What might you learn about the activities of the home's occupants by studying each kind of waste?
4. Why do some homes use filtered water? What kinds of substances can filtration remove? What kinds of substances are not removed by filtration?
5. Describe the gas exchanges that take place when you inhale and exhale. Where do you think these gases come from?

AFTER VIEWING

1. Diagram the parts of a kidney nephron, then explain how blood is filtered as it passes through this structure.
2. Describe two kinds of excretion testing that can be conducted in a hospital. What substances does each test for? What is indicated by the results of each kind of test?
3. Why is the skin considered an excretory organ? What kinds of wastes does it remove?
4. In what sense are the lungs organs of excretion? What do they remove? Where does that waste come from? How does it reach the lungs?
5. Research the action of antidiuretic hormones on kidneys. Where do these hormones come from? What triggers their release? How do scientists believe that they affect the kidneys' cells?



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