

The Excretory System

In the Chapter



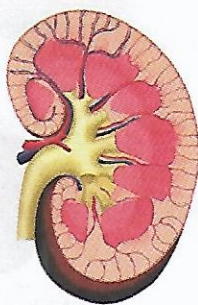
Syllabus : Excretory System : A brief introduction to the excretory organs; parts of the urinary system; structure and function of the kidneys; blood vessels associated with kidneys; structure and function of nephron.

Scope of Syllabus :

- A brief idea of different excretory organs in the human body.
- External and internal structure of the kidney.
- Parts of the urinary system along with the blood vessels entering and leaving the kidney; functions of various parts of the urinary system (emphasis on diagram with correct labelling). A general idea of the structure of a kidney tubule/nephron.
- A brief idea of ultra-filtration (emphasis on the diagram of malpighian capsule); selective reabsorption and tubular secretion in relation to the composition of blood plasma and urine formed.

A large number of waste products are formed during metabolic activities in the body.

- Large amounts of CO₂ and H₂O are produced by metabolism of carbohydrates, fats and proteins.
- Nitrogenous wastes such as ammonia, urea, uric acid, etc., are formed during metabolism of proteins and other complex nitrogenous compounds.
- These nitrogenous products become toxic or harmful if retained inside our body in higher concentration or for a longer time and hence are sent out with the help of the excretory system.



9.1 EXCRETION (ex : out, crete: flow)

The process of removal of chemical wastes (mainly nitrogenous wastes) from the body is known as '**excretion**'. Excretion plays an important role in maintaining the homeostatic (steady state) condition of the body.

Organs which are concerned with the formation, storage and elimination of urine constitute the '**excretory system**'.

Excretory system or Urinary system ?

Excretion should not be confused with defaecation (meaning passing out faeces, *i.e.* the undigested food through the rectum).

Similarly, passing out CO₂ through the lungs is a part of respiration and not excretion.

In humans, the term **urinary system** is more appropriate than the excretory system for the elimination of nitrogenous waste products.

9.2 SUBSTANCES TO BE ELIMINATED

There are a number of chemical substances which are regularly formed in our body or which are absorbed through the food that must be eliminated — otherwise they become harmful. Some such substances are : (1) Carbon dioxide and water (respiratory products), (2) Nitrogenous metabolic wastes, (3) Excess salts and vitamins, (4) Water, (5) Bile pigments.

- (1) **Carbon dioxide and water** : Every living cell liberates energy by oxidizing glucose with the production of carbon dioxide and water.
- Carbon dioxide is eliminated through the lungs.
 - The extra water is released out of the body in the form of sweat.

