

# Excretory System

**Excretion system:** an **excretory** system is a process by which an organism gets rid of waste products of its metabolism. The three terms excretion, secretion, and egestion all describe the passing out of substances from organisms or cells. Removal of nitrogenous substances like urea, ammonia, uric acid, etc. formed during metabolism from the body of the human is called excretion.

Various animals and their excretory organs	
Animals	Excretory organs
Unicellular animals	Diffusion/Osmosis
Coelenterates	Direct by cells
Platyhelminthes	Flame cells
Aschehelminthes	Renette cells
Annelida	Nephridia
Porifera	Canal system

The main excretory organs of human are as follows –

**(i) Kidneys:** kidneys are the most vital and prominent organ in the excretory system. The excretory process is mostly done by kidneys.

- In the human being, there exists a pair of the kidney which is dark-red, bean-shaped.
- Its weight is **140 grams**.
- There are two parts to it. The outer part is called cortex and the inner part is called medulla.
- A kidney has about ten lakh structural and functional units, called **nephrons**.
- Bowman's capsule is a cup-like structure in every nephron called.
- Glomerulus of thin blood vessels is found in the Bowman's capsule which is made up of two **types of arterioles**.

**(a) Afferent arteriole:** An afferent arteriole connects the renal artery to the glomerular capillary network in kidney's nephron, Which carries the blood to the glomerulus, starting the filtering process.

**(b) Efferent arteriole:** it has less diameter than afferent arteriole and takes blood out of the glomerulus.

**Functions of the kidney:**

- It maintains the PH of blood.
- **Ultra filtration** – it is the process of filtration of liquids into the cavity of Bowman's capsule.
- It maintains salt contents of the body.
- It eliminates toxic substances of the body.
- Homeostasis – kidney removes various unwanted materials from the blood, it helps in keeping the internal environment of the body constant.

- Kidney secretes an enzyme Renin which change the plasma protein, the angiotensinogen.

**(ii) Skin: Oil gland and sweat glands** secrete sebum and sweat respectively. Along with sebum and sweat some other excretory substance to enhance the excretory process.

**(iii) Liver:** the cells of the liver transform the excessive amino acids and ammonia of the blood into urea which is the main excretory substance. And spleen split the damaged blood cells and separate them from the blood flow.

**(iv) Lungs:** in general Lungs are associated with the respiratory system but it also plays an important role in the excretory system. Lungs do the excretion of the gaseous substance. CO<sub>2</sub> and water vapours and some substances like garlic, onion, and some species are also excreted by lungs.

### **Different excretory Products**

List of various excretory products are as follow-

- Nitrogenous waste material
- Mineral Salts
- CO<sub>2</sub>
- Water
- Pigments
- Creatine and creatinine
- Vitamins and Hormones