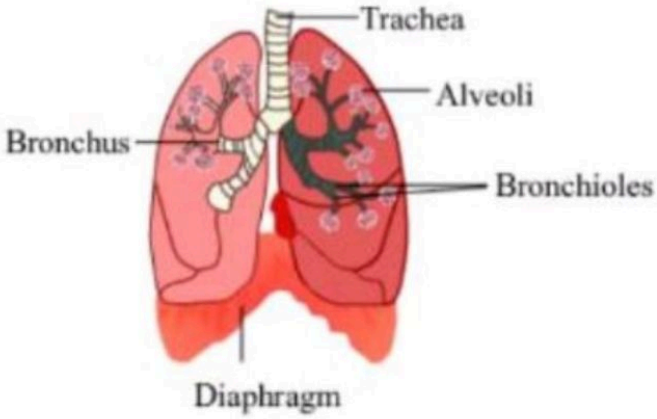
Excretion in Humans

Excretion and Its Importance

Excretory system consists of groups of organs that are responsible for excreting waste materials such as, harmful chemicals and other impurities from the body. The major excretory organ is kidney. However, there are some other organs also that perform the function of excretion.

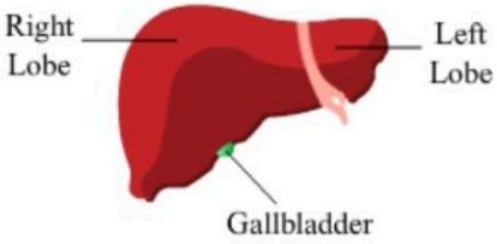
Let us understand the function of the following organs as excretory organs.

Lungs



Respiration is a necessary process that provides energy for cellular activities. During respiration, carbon dioxide gets accumulated in the cells, from where it diffuses into the bloodstream and is finally transported to the lungs. From lungs, this carbon dioxide leaves the body every time we exhale.

Liver



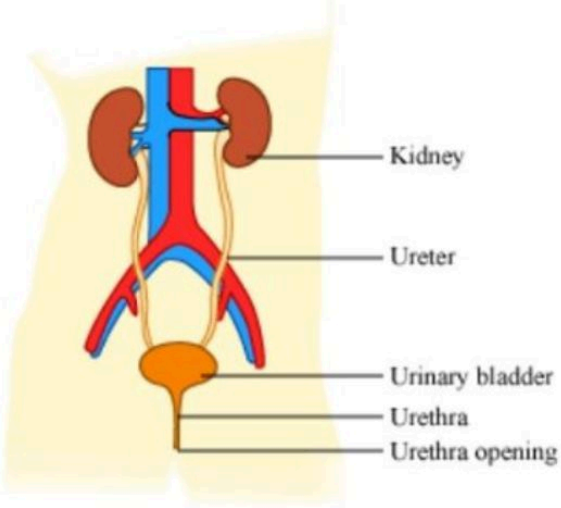
Liver helps in the excretion of various unneeded substances in the body. It converts toxic ammonia into urea, a harmless fluid, by the process of deamination. This urea is then filtered by the kidney into urine. It does not directly eliminate excretory substances.

Skin also acts as an excretory organ. It possesses glands, namely, sweat glands and sebaceous glands. Sweat is a watery fluid that consists of metabolic wastes like water, sodium chloride, lactic acid, amino acids, urea, glucose, etc.

Besides excreting metabolic wastes from the body, sweat also has a cooling effect on the body. On the other hand, sebaceous glands help in excretion of sebum which consists of lipids, fatty acids, etc.

How the other kinds of waste materials removed from the body? Is there a particular organ system that functions to remove waste materials from the body?

The organ system that performs the function of excretion is known as the **excretory system**. The excretory system removes the waste materials present in the blood.



Which organs are involved in this process? What mechanism is required for filtering blood?

The primary components of the excretory system are the kidneys, the ureter, the urinary bladder, and the urethra.

When blood reaches the kidneys, useful substances are absorbed back into blood, while the waste materials are dissolved in water and removed from the body in the form of **urine**.

The urine enters a long tube-like structure called the **ureter**. The ureter then passes the urine into the **urinary bladder**, which stores it until it is passed out of the body. Urine is passed out of the body through a muscular tube-like structure called the **urethra**.

Waste materials are also removed from the body through sweat. During sweating, water and salts are removed from the body.

Excretory System in Humans

Kidneys

They eliminate nitrogenous wastes from the body and are helpful in maintaining the water balance of the body by removing excess fluids.

The various nitrogenous wastes such as urea, uric acid etc. are supplied from the blood to the kidneys (this is similar to the removal of CO_2 from the blood to the lungs). Thus, the basic filtration unit of the excretory system lies in the kidneys.

Structure of kidneys:

Kidneys are reddish brown bean shaped structures which are found in pairs. Each kidney is divided into two parts - an outer dark region called cortex and inner lighter region called medulla. Each kidney has several microscopic tubular structures called nephrons.

The kidneys consist of a cluster of very thin-walled capillaries. Each cluster is associated with a cup-shaped end of a tube, in which filtered urine is collected. These basic filtering units of the kidneys are called **nephrons**. Each kidney possesses a large number of nephrons (approximately 1- 1.5 million).