

# EXCRETORY SYSTEM

Our bodies create waste products. These wastes need to be removed through **excretion**. To remain healthy, the human body gets rid of waste products from the digestive and respiratory systems.

## Waste products

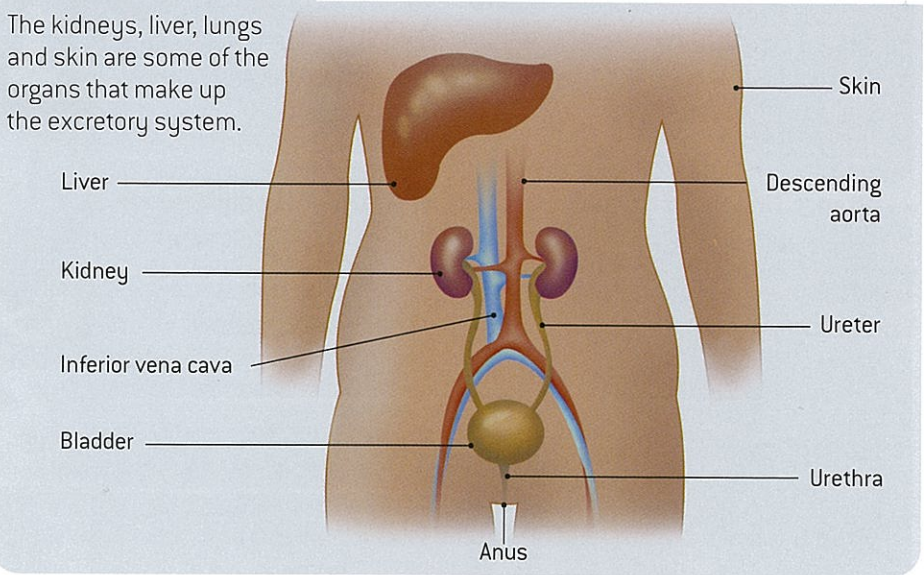
- » Heat – removed by evaporation of sweat through the skin's sweat glands
- » Carbon dioxide – removed through the lungs during exhalation
- » Urine – created by the kidneys, stored in the bladder, and then expelled through the urethra during urination
- » Faeces (poo) – the material that remains after absorption is expelled through the anus during defecation
- » Gas from the intestines – expelled through the anus during flatulence (farting)
- » Gas from the stomach – expelled through the mouth during eructation (burping)

### Flatulence

Flatulence, or farting, is a natural human process to get rid of gases created in the intestine. When a person eats more than usual, or eats different foods, the **bacteria** work harder to break down the food and therefore produce more gas. These gases escape through the **anus**.

### Excretory system

The kidneys, liver, lungs and skin are some of the organs that make up the excretory system.

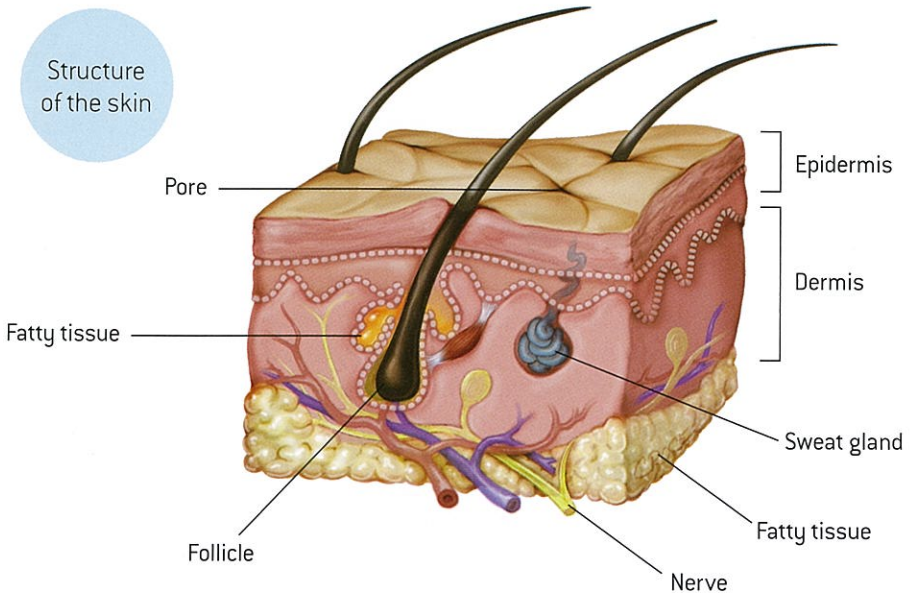


### Skin

Sweat or perspiration flows out through the skin to cool us down. Sweat also contains waste products such as salts and urea (also found in urine). There are two types of sweat glands:

- » eccrine sweat glands – more than two million found all over the body. Each gland has its own small opening or exit to the skin's surface, which is called a pore. Sweat from eccrine glands is made from water, salt and other chemicals.
- » apocrine sweat glands – found in armpits and in the genital and anal area. These glands start working when you reach puberty.

### Structure of the skin



### Kidneys

Humans have two kidneys, one on each side of the back, and each is approximately 10 centimetres long. Blood carrying waste products enters each kidney through the renal artery. The waste is then filtered by the millions of tiny filtering units, called nephrons.

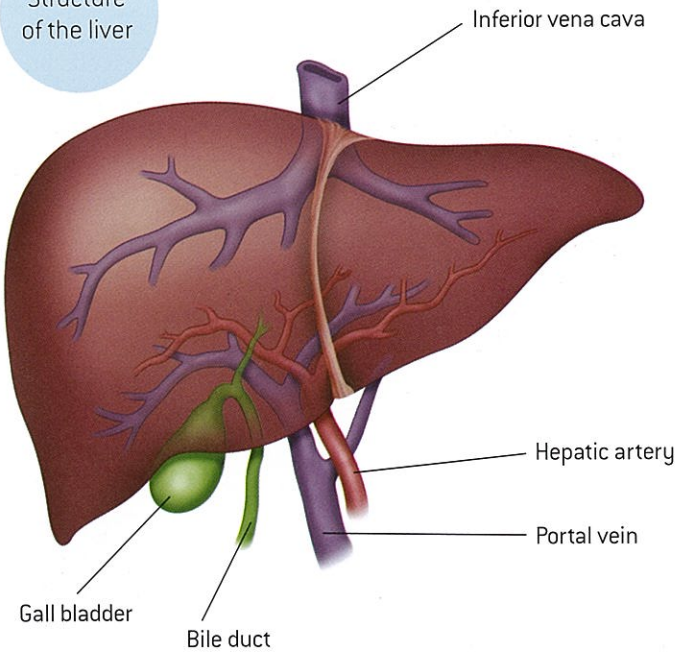
The waste from the filtering process combines with water to make urine. The urine travels down the **ureters** and collects in the **bladder**. When the bladder is about half full, your body tells you to go to the toilet. When you urinate, the urine passes from the bladder through the **urethra** (a small tube) and out of your body.

### Liver

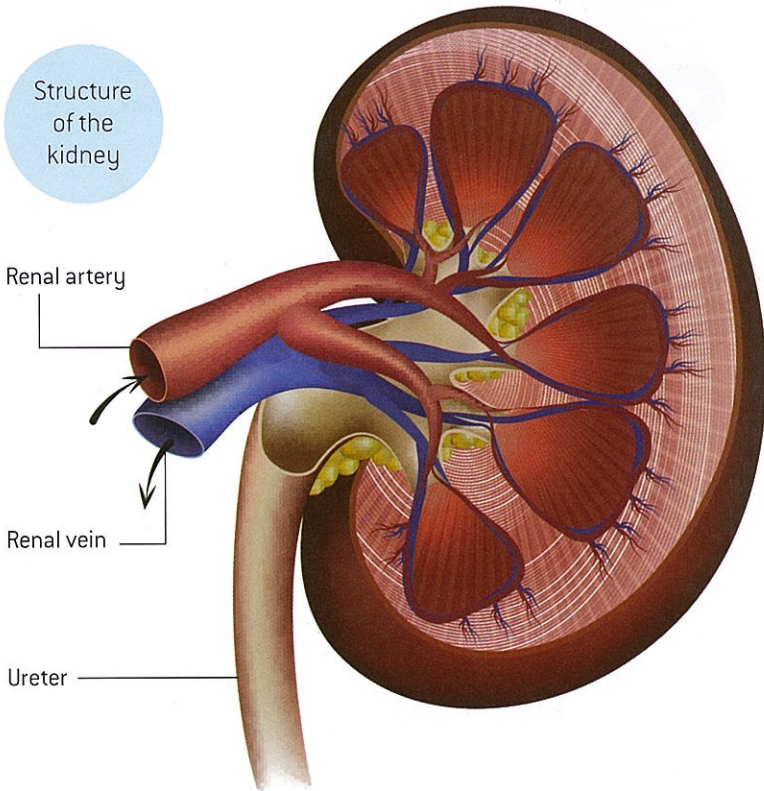
The liver is our body's biggest internal organ. It performs many roles, including removing toxins (chemicals that could harm the body) and making proteins that allow the blood to clot during injuries.

The liver also makes bile, a substance needed to break down fats and absorb some vitamins from food. Bile is stored in the gall bladder. Dangerous chemicals such as ammonia (a toxic chemical produced when making protein) are changed by the liver into a safer form (urea), which the body releases in urine.

### Structure of the liver



### Structure of the kidney



### LOOK IT UP

- anus** the opening at the end of the digestive system through which solid waste matter leaves the body
- bacteria** unicellular microorganisms that have cell walls but no nuclei (singular: bacterium)
- bladder** a hollow organ in the pelvis that stores urine
- excretion** the removal of waste products from the body
- ureters** a pair of tubes through which urine passes from the kidney to the bladder
- urethra** the tube that leads from the bladder; transports and discharges urine outside the body

### CHECK IT OUT

1 Match the waste product to the method by which it is released from the body:

Waste product	Method released
gas from stomach	defecation
gas from the intestine	flatulence
urine	eructation
faeces	urination

- 2 What waste do the lungs remove?
- 3 What are the two different ways in which sweat glands remove waste?
- 4 How do kidneys filter the blood and remove the waste products?
- 5 What role does the liver play in treating and removing waste from our body?