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## Excretory System: Poison Protection

If you knew there was poison hidden in your house, you would surely do everything possible to find and remove that poison. If you didn't, you and your family would slowly die. How would you find it? How would you remove it? You would probably figure out a system of searching and removing. That would be an excretory system.

Your body does the same thing every day. Hidden throughout your body are dangerous poisons that must be removed in order for it to survive. The process of excretion involves finding and removing waste materials produced by the body.

The primary organs of excretion are the lungs, kidneys, and skin. Waste gases are carried by blood traveling through the veins to the lungs where respiration takes place. Dead cells and sweat are removed from the body through the skin which is part of the integumentary system.

Liquid waste is removed from the body through the kidneys. Located beside the spine in your back within your ribcage, the kidneys are small (about 10 centimeters long) reddish-brown organs that are shaped like beans.

During circulation, blood passes through the kidneys in order to deposit used and unwanted water, minerals, and a nitrogen-rich molecule called urea. The kidneys filter the wastes from the blood, forming a liquid called urine. The kidneys funnel the urine into the bladder along two separate tubes called ureters. The bladder stores the urine until muscular contractions force the urine out of the body through the urethra. Each day, your kidneys produce about 1.5 liters of urine. All of it needs to be removed from your system. This occurs through urination.

If your kidneys are diseased and not working properly, the buildup of waste in your system will eventually lead to death. Some kidney diseases can be treated with medication. Severe kidney diseases require more intense treatment. One treatment is called dialysis. The patient's blood is pumped through a dialysis machine which filters the waste from the blood and returns the clean blood. A dialysis patient has to spend nearly sixty hours each week attached to the machine.

The most radical treatment for kidney disease is a kidney transplant. Healthy people can live comfortably with only one kidney. Therefore, their other kidney can be donated to a person with kidney disease. The donor and patient must have very similar genetic structures in order for the patient to accept the new kidney without complications. The patient also receives anti-rejection drugs. During a kidney transplant operation, the healthy kidney is placed in the abdomen of the patient and attached to the blood vessels and bladder. The patient's original kidneys are not removed.

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