

Biology for Kids

The Nervous System



The nervous system is made up of the [brain](#), the spinal cord, and a large network of nerves that covers all parts of the body. Together the nervous system helps different parts of our body communicate and allows our brain to control what is going on. Without the nervous system our brain would be mush. It wouldn't know anything that was going on in the outside world and wouldn't be able to control our body.

The brain and the spinal cord make up what is called the central nervous system. The rest of the nerves together are called the peripheral nervous system.

Nerves - Peripheral Nervous System

Nerves are sort of like wires that carry communication signals or impulses around the body. Inside each nerve is a bundle of nerve fibers. Some nerves are really long, like the ones that go all the way from your feet to your spinal cord. Nerve cells are called neurons.

There are two main types of nerves: motor nerves and sensory nerves.

- Motor nerves - Motor nerves allow the brain to control our muscles. The brain sends signals over the motor nerves to tell our muscles to expand or contract so we can move.
- Sensory nerves - The second type of nerves are called sensory nerves. These nerves carry signals to the brain to tell it about what is going on in the outside world. They come from our skin (touch), eyes (sight), tongue (taste), nose (smell), and ears (hear).

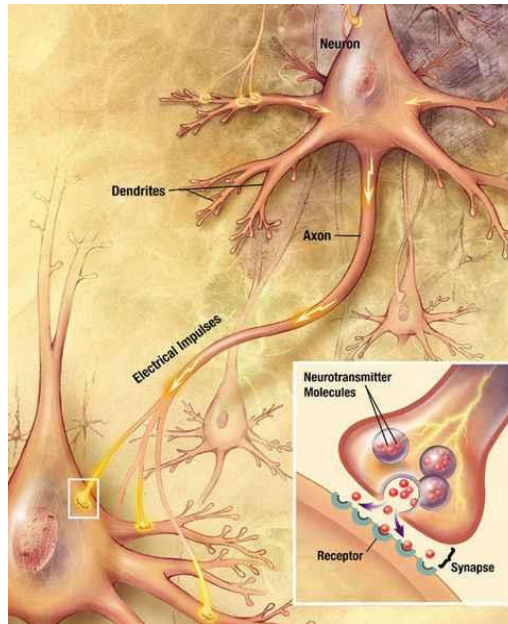
In each case, the signals only go in one direction: The motor nerve signals travel from the brain to the muscle and the sensory nerve signals travel from the senses to the brain. Within the peripheral nervous system there are also two main sets of nerves: the autonomic nervous system and the somatic nervous system.

- Autonomic nervous system - This set of nerves works automatically. We don't have to think about them, the brain does it all for us. It would take a lot of concentration if we had to constantly tell our heart to beat or our digestive system to release certain enzymes. I'm sure I'd forget and would be dead in no time! Fortunately, the autonomic nervous system takes care of this for us.

- Somatic nervous system - These are the nerves that we actively control, like jumping with our legs or moving our arms.

The Neuron

Each nerve is made up of many cells called neurons. To learn more about neurons, let's take the motor neuron for example. Each motor neuron has three important parts: the cell body, dendrites, and the axon. Dendrites are branches off the main cell body. They talk to dendrites from the cell next to them over something called a synapse. Axons connect to the muscles and tell them what to do.



Reflex

Our bodies are super smart. Sometimes we need to move so fast that our brains don't have time to think. So our body just bypasses the brain. This happens when we touch something hot. Our hand actually moves before the brain tells it to. The brain eventually finds out what is going on, but our body has done the smart thing and moved first. Your doctor will test out your reflex by hitting your knee in a certain place to see if your leg will move without you thinking about it.