



How Nerves Carry Messages Around Your Body

KS3 Ages 11-14 ⌚ 3 min read

What Are Nerves?

Nerves are tiny communication cables that run throughout your body, connecting your **brain** and **spinal cord** to every muscle, organ, and piece of skin. There are billions of nerve cells, called **neurons**, and together they form your **nervous system**. Your nerves work **24 hours a day** to keep you alive and help you interact with the world around you.

Think of it like a telephone network. Your brain is the telephone exchange, your nerves are the wires, and different parts of your body are the phones. Messages travel along the wires so everyone can talk to each other.

How Do Nerves Send Messages?

Nerves send messages using two main methods: **electrical signals** and **chemicals**. When you touch something hot, your fingers send an electrical signal up a nerve to your **spinal cord**. This signal travels incredibly fast—sometimes at **over 100 metres per second**. That's why you pull your hand away almost instantly!

When the electrical signal reaches the end of one nerve cell, it must jump to the next nerve cell. This is where **chemicals called neurotransmitters** come in. These special chemicals cross the tiny gap between nerve cells, delivering the message onwards. Your brain uses this system to receive information and send commands back to your body.

Think of it like a relay race. Runners (electrical signals) sprint along a track (nerve cells), then pass a baton (neurotransmitters) to the next runner to keep the race going.

What Messages Do Nerves Carry?

Your nerves carry three main types of messages. **Sensory nerves** send information *to* your brain—telling you're hot, cold, hurt, or that you smell pizza! **Motor nerves**

send commands *from* your brain to your muscles, making you move, jump, and dance. **Autonomic nerves** control things you don't think about, like your heartbeat and digestion.

Some nerve pathways are so quick they bypass your brain entirely. These are called **reflexes**. When you touch something burning hot, your spinal cord sends the pull-away message without waiting for your brain to decide. That's why reflexes are faster than conscious decisions!

Why Does This Matter?

Without your nervous system, you couldn't move, feel, think, or survive.

Understanding how nerves work helps doctors treat injuries and illnesses. Scientists are even working on ways to repair damaged nerves and help people with paralysis walk again. Your nervous system is one of the most amazing communication systems in nature.