

# Anatomy & Physiology: THE NERVOUS SYSTEM



► The **nervous system** controls the body's systems and provides the means of communication between the parts of the body.

## TERMS

**autonomic nervous system:** controls unconscious, involuntary body functions like heartbeat and digestion

**axons:** long extensions of neurons that transmit signals from the cell body to stimulate another neuron

**brain:** a complex, centralized organ located adjacent to many sensory organs and responsible for most bodily functions and behavior

**brain stem:** includes the medulla oblongata, pons, and midbrain, which collectively control messages as they move from the brain to the spinal cord and vice versa

**cerebellum:** helps the body maintain balance and equilibrium

**cerebrum:** dominant part of the brain; responsible for conscious thoughts and movements, higher-order thinking, and memory storage

**central nervous system:** the brain and spinal cord

**dendrites:** extensions of neurons that receive incoming impulses

**forebrain:** holds the cerebrum, thalamus, and hypothalamus

**gyri:** ridges in the brain

**hindbrain:** contains the pons, medulla oblongata, and cerebellum

**hypothalamus:** part of the brain that regulates many involuntary body activities

**medulla oblongata:** connects the spinal cord with the brain; regulates many automatic body activities

**midbrain:** responsible for receiving visual and auditory signals and sending sensory information to other parts of the brain

**motor nerves:** transmit information to muscles

**nerve impulses:** electrical signals that travel along neurons, allowing the body to monitor the environment and respond to both internal and external changes

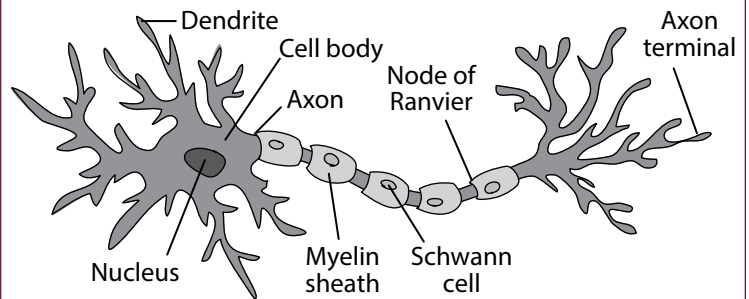
**neurons:** the basic cell units that transport nerve impulses

**occipital lobe:** part of the brain that processes visual information

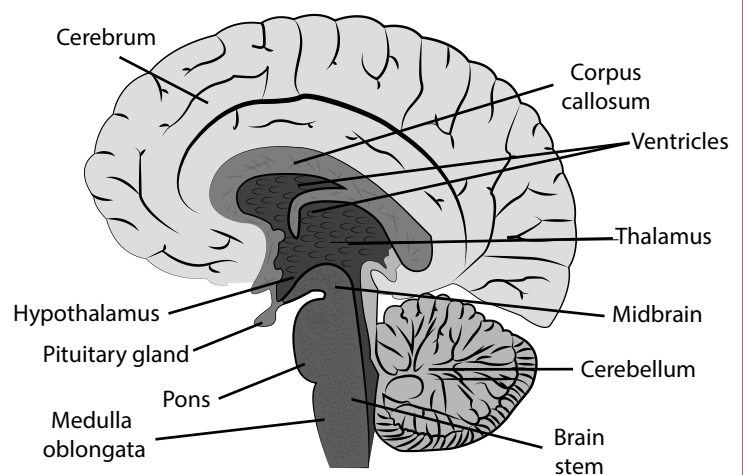
**parasympathetic nervous system:** slows the heartbeat and breathing rate and regulates other functions to conserve energy in normal, non-emergency situations

**pons:** bridges information from different parts of the brain

## NEURON



## THE HUMAN BRAIN



**sensory nerves:** transmit information from sensory organs to the central nervous system

**sensory receptors:** organs that can receive information from an outside stimulus and send that information through the nervous system to the brain

**somatic nervous system:** includes the movement of muscle as well as reflexes; animals have voluntary control over it

**spinal cord:** a long mass of nerve cells extending from the brain and serving as the main channel of impulse communication to and from the brain

**sulci:** valleys in the brain

**sympathetic nervous system:** primarily responsible for the flight or fight response of the body to outside stimuli; regulates metabolism and heart rate in response to emergency situations, among others

**synapse:** site of neuron communication between cells

**temporal lobe:** part of the brain that deals with language comprehension and emotion

**thalamus:** part of the brain that processes sensory information