

Anatomy and Physiology

Nervous System

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The Peripheral Nervous System

- The nervous system is the controlling system of the body and is composed of nerve cells and organs.
- It is further classified into the central nervous system and the peripheral nervous system.
- The central nervous system comprises the brain and the spinal cord.
- The peripheral nervous system comprises the network of nerves connected to the brain and the spinal cord.
- The nerves fibres are of two types – afferent fibres and efferent fibres. The afferent nerve fibres are responsible for the transmission of impulses from the tissues to the central nervous system while the efferent nerve fibres are responsible for the transmission of impulses from central nervous system to the concerned tissues or organs.

Peripheral Nervous System Definition

Peripheral nervous system involves the parts of the nervous system outside the brain and the spinal cord.

Peripheral Nervous System Divisions

The peripheral nervous system has two divisions:

- Somatic Nervous System
- Autonomic Nervous System

Somatic Nervous System

- The main function of the somatic nervous system is to transfer impulses from CNS to skeletal muscles.
It consists of
 - Cranial Nerves
 - Spinal Nerves
- Cranial nerves are 12 pairs and they emerge from the brain.
- Spinal nerves have their point of emergence as the spinal cord. There are 31 pairs of spinal nerves. They emerge from the spinal cords into dorsal and ventral roots. At the junction of these two roots, the sensory fibres continue into the dorsal root and the motor fibres into the ventral root.

The Plexus

- A plexus is a bundle of intersecting nerves, blood vessels, or lymphatic vessels in the human body.
- These bundles typically originate from the same anatomical area and serve specific areas of the body. Bundles of nerves that form a plexus communicate information to your brain about pain, temperature, and pressure.
- These nerve plexuses also send messages from the brain to the muscles, allowing for movement to occur. A plexus serves as an area where spinal nerves come together, are sorted, and then travel to their respective areas of the body.

Plexus Locations

- Blood vessels that form a plexus are found throughout the body where arteries and veins branch into smaller capillaries. These plexuses serve to ensure that blood flow is undisturbed if one vessel becomes blocked or injured.

- This is also true for lymphatic plexuses. These groups of lymph vessels allow for the undisturbed movement of lymph in your body.
- Nerve bundles forming a plexus are also located throughout your body. There are two major groups of nerve plexuses in the body—the spinal plexus and the autonomic plexus. There are five distinct plexuses in each of these major groups of nerves. They are named based on the location or function of the plexus.

Spinal Plexus

Five plexuses originate from the spinal cord in your body.

The five plexuses include:

1. **Cervical plexus:** The cervical plexus originates from cervical level one through four and innervates the back of your head and the upper cervical muscles.
2. **Brachial plexus:** The brachial plexus originates from cervical levels five through eight and thoracic level one. This plexus of nerves innervates your chest, shoulder, and arms. The three major nerves of your arm originate from the brachial plexus, they are the median nerve, the ulnar nerve, and the radial nerve.
3. **Lumbar plexus:** The lumbar plexus originates from lumbar levels one through four and innervates muscles and skin in your hip and thigh. Two major nerves originate via the lumbar plexus—the femoral nerve and the obturator nerve. These nerves supply motor information to your hip and thigh muscles and communicate sensory information from your thighs and hips to your brain. Branches of the lumbar plexus also innervate areas of your pelvic girdle and genital area.
4. **Sacral plexus:** The sacral plexus originates from lumbar level four through sacral level four. Your sciatic nerve comes from this plexus and serves the muscles and skin of the back of your thighs, lower legs, and feet. Other nerves that originate from the sacral plexus innervate your gluteal and piriformis muscles of your hips.
5. **Coccygeal plexus:** This plexus serves a small area near your tailbone.

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