

Nervous System

Nervous System

1. Overview:

- The nervous system is a complex network of nerves and cells that transmit signals between different parts of the body.
- It is divided into two main parts: the central nervous system (CNS) and the peripheral nervous system (PNS).

2. Central Nervous System (CNS):

- Consists of the brain and spinal cord.
- Responsible for processing information received from the body and coordinating responses.
- Controls thoughts, emotions, and movements.

3. Peripheral Nervous System (PNS):

- Comprises nerves that extend from the CNS to the rest of the body.
- Divided into the somatic nervous system (voluntary movements) and the autonomic nervous system (involuntary actions like heartbeat and digestion).

4. Neurons:

- Basic building blocks of the nervous system.
- Transmit electrical and chemical signals throughout the body.
- Comprise three main parts: cell body, dendrites (receive signals), and axon (transmits signals).

5. Types of Neurons:

- Sensory neurons: Transmit sensory information from sensory receptors to the CNS.
- Motor neurons: Transmit signals from the CNS to muscles and glands.
- Interneurons: Found in the CNS and facilitate communication between sensory and motor neurons.

6. Brain:

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- Control center of the nervous system.
- Divided into different regions responsible for specific functions like cognition, emotion, and motor control.
- Protected by the skull and meninges.

7. Spinal Cord:

- Connects the brain to the PNS.
- Responsible for reflex actions and transmitting messages between the brain and the rest of the body.
- Protected by the vertebrae.

8. Functions of the Nervous System:

- Sensory input: Receiving information from the environment through sensory organs.
- Integration: Processing and interpreting sensory information.
- Motor output: Initiating a response by activating muscles or glands.

9. Disorders of the Nervous System:

- Include conditions like Alzheimer's disease, Parkinson's disease, multiple sclerosis, and stroke.
- Can affect movement, cognition, sensation, and other bodily functions.

Understanding the structure and functions of the nervous system is crucial for comprehending how the body communicates and coordinates its activities.