




# The Nervous System



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# The Nervous System

- Human nervous system is the most complex histologically physiologically. Consists of:
  - A. A network of many billion nerve cells called neurons.  
Functions: Processing information and generating responses.
  - B. Many more supporting glial cells.
- Nervous System Is divided 
  - A. Central nervous system consisting of brain and spinal cord.
  - B. Peripheral nervous system composed of cranial spinal and peripheral nervous.  
Function: conducting impulses to and from (CNC).

Note: Stimuli. Is environmental changes that neuron respond.  
- Nervous system stabilizes the intrinsic of the body , such as blood pressure ' O<sub>2</sub> and CO<sub>2</sub>' PH' blood sugar and hormones within normal ranges.

# The Nervous System

## □ Neurons

- Are the functional units of C. N. S and P.N.S. It consisting of:
  - A. Cell body (perikaryon). 
  - B. Dendrites: many elongated processes specialized to receive stimuli from environ.
  - C. Axon: A single process socialized and generating and conducting nerve impulses to other cells.
  - D. Terminal distal parts

# The Nervous System

## □ Neurons

-Neurons can be divided according to their function

- A. Motor( efferent ) neurons: control muscles and endocrine glands.
- B. Sensory( afferent) neurons: Involved in reception of sensory stimuli from the environment and within.
- C. Interneurons: Establish relationships among other neurons.

# The Nervous System

## □ Neurons

-Neurons can be divided according to their number of processes

- A. Multipolar neurons which have one axon and two or many dendrites.
- B. Bipolar with one dendrites and one axon.
- C. Unipolar which have a single process found in spinal ganglia.


# The Nervous System

## □ Glia cells

Functions: furnish a micro environment ideal for neural activity. There are six types:

- A. Oligodendrocyte: For myelin production and electrical insulation
- B. Astrocyte: Structural support, repair and blood brain barrier.
- C. ependymal cells: Lining cavities of CNS.
- D. Microglia: Immune related activity.
- E. Schwann cells: Trophic interaction and allow myelination of axons.
- F. Satellite cells: Trophic supportive role.

# Quiz

- ▶ What are the main sense organs in human?
- ▶ What are the most important histological diseases in nervous system tissues. 

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