

The Nervous System

1-2

➤ Meninges

Are membranes of connective tissues located between the bones(skull) and the brain or spinal cord.

There are three meningeal layers:

- A. Dura mater: consisting of two layers:
 - 1) External is a dense elastic connective tissue.
 - 2) The internal is simple squamous epithelial tissue.

Dura mater is separated from the bones of spinal cords by epidural space which contains thin veins and areolar connective tissue and from next layer by subdural space.



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B. Arachnoid layer. Spider web like shape with two components: a sheet of connective tissue and a loose connective tissue with fibroblast and collagen.

C. Piamater: The third innermost layer, lined by flattened cells.

Note: between piamater and the neural elements, there is a layer of astrocytic processes forms physical barrier.

Blood vessels penetrate CNS through tunnels covered by pia mater.

The Nervous System

➤ Blood- brain barrier(BBB)

Function:

1. Allows much tighter control over the passage of substances moving from blood into brain and spinal cord.
2. Protects the nature of neural micro environment.
3. Allows stable composition constant balance of ions in fluid.

➤ the structural component of (BBB) is capillary endothelium.

The Nervous System

- Autonomic Nervous System
 - Autonomic nervous system is related to the control of smooth muscles, the secretion of some glands and cardiac rhythm. Its main function is maintaining a constant homeostasis.





