

## UNIT-1 MENINGES

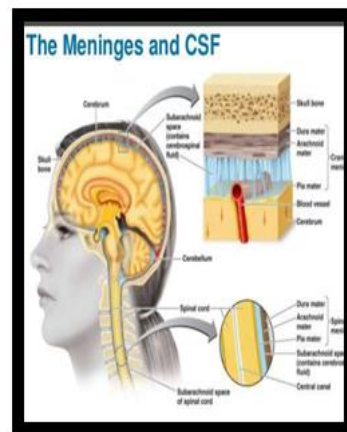
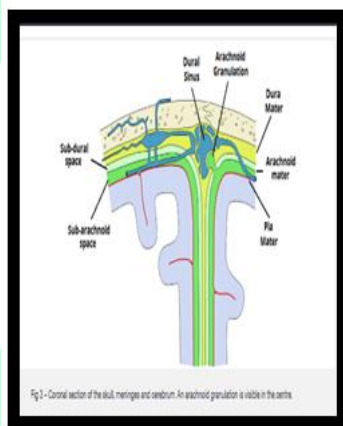
The Meninges are the membrane covering the brain and spinal cord.

The Meninges consist of three membranes: 1. The dura mater, 2. The arachnoid mater, 3. The pia mater.

These coverings have two major functions:

- Provide a **supportive framework** for the cerebral and cranial vasculature.
- Acting with cerebrospinal fluid to **protect** the CNS from mechanical damage.

### MEMBRANES OF MENINGES



### Dura Mater

- The dura mater is the **outermost** layer of the meninges, lying directly underneath the bones of the skull and vertebral column. It is thick, tough and inextensible.
- Within the cranial cavity, the dura contains two connective tissue sheets:
- **Periosteal layer** – lines the inner surface of the bones of the cranium.
- **Meningeal layer** – deep to the periosteal layer inside the cranial cavity. It is the only layer present in the vertebral column.

- Between these two layers, the **dural venous sinuses** are located. They are responsible for the venous vasculature of the cranium, draining into the **internal jugular** veins.
- In some areas within the skull, the meningeal layer of the dura mater folds inwards as **dural reflections**.
- They partition the brain, and divide the cranial cavity into several compartments.
- For example, the **tentorium cerebelli** divides the cranial cavity into supratentorial and infratentorial compartments.
- The dura mater receives its own vasculature; primarily from the **middle meningeal** artery and vein. It is innervated by the **trigeminal nerve** (V1, V2 and V3).

### Arachnoid Mater

- The arachnoid mater is the middle layer of the meninges, lying directly underneath the dura mater.
- It consists of layers of connective tissue, is **avascular**, and does not receive any innervation.
- Underneath the arachnoid is a space known as the **sub-arachnoid space**.
- It contains [cerebrospinal fluid](#), which acts to cushion the brain.
- Small projections of arachnoid mater into the dura (known as **arachnoid granulations**) allow CSF to re-enter the circulation via the dural venous sinuses.

### Pia Mater

- The pia mater is located underneath the sub-arachnoid space.
- It is very thin, and **tightly adhered** to the surface of the brain and spinal cord.
- It is the only covering to follow the contours of the brain (the gyri and fissures).
- Like the dura mater, it is **highly vascularised**, with blood vessels perforating through the membrane to supply the underlying neural tissue.