

NEURAL CONTROL AND COORDINATION

HUMAN NEURAL SYSTEM

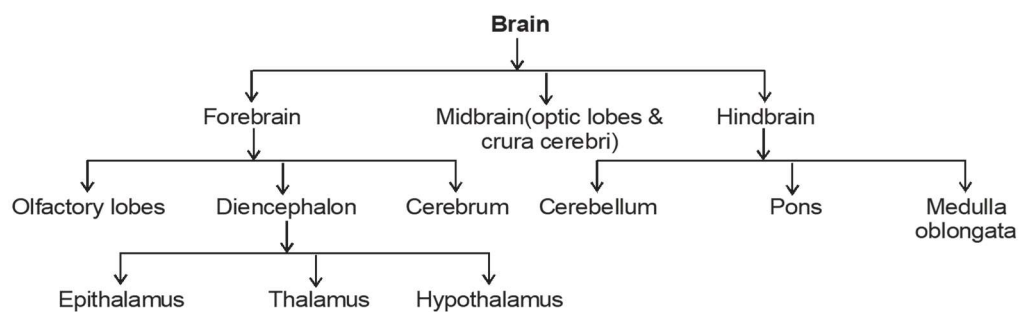
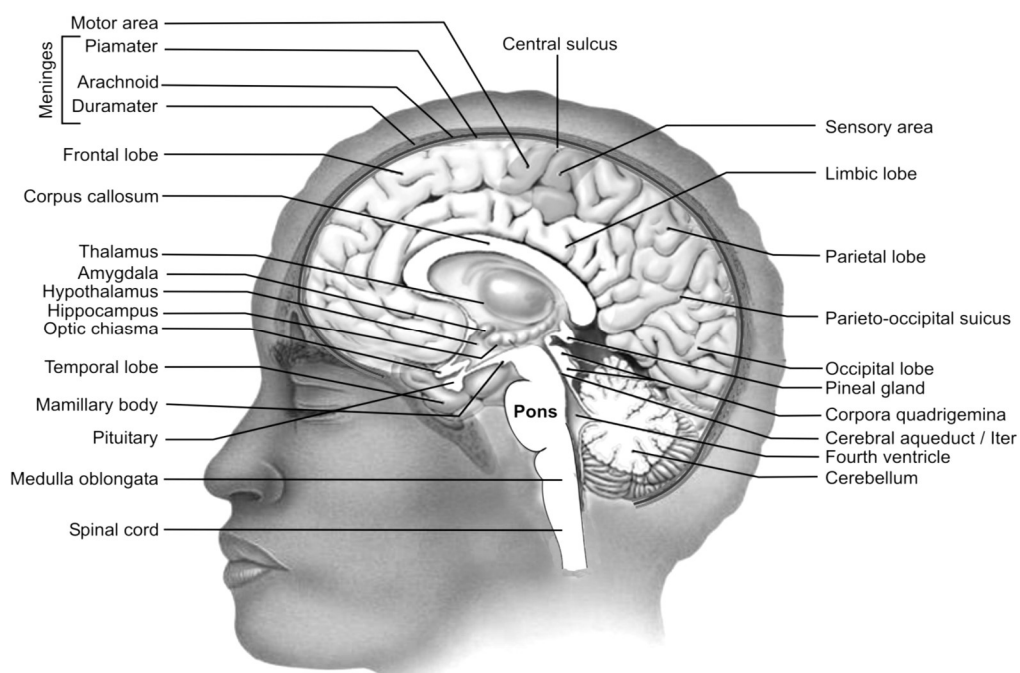
Human Neural System

Centra Neural System

- It includes the brain and the spinal-cord.
- These are formed from the neural-tube which develops from the ectoderm after the gastrula stage of embryo.

Development of CNS:

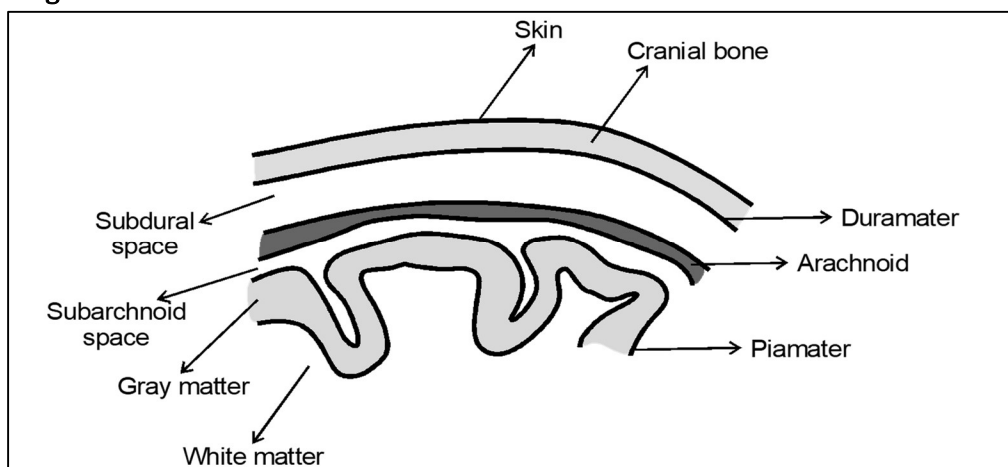
Anterior part of neural tube develops into brain while caudal part of neural tube develops into spinal cord. Brain's approximately 70-80% part develops in 2 year of age & complete development is achieved in 6 years of age & spinal cord develops completely in 4 to 5 years of age.



Human Brain

- The brain is the central information processing organ of our body and acts as the 'Command and control system'.
- It controls the voluntary movements, balance of the body, functioning of vital involuntary organs (e.g., lungs, heart, kidney etc.), thermoregulation, hunger and thirst, circadian (24 hours) rhythms of our body, activities of several endocrine glands and human behaviour.
- It is also site for processing of vision, hearing, speech, memory, intelligence, emotions and thoughts.
- It is situated in cranial box which is made up of 1 frontal bone, 2 parietal bone, 2 temporal bone, 1 sphenoid, 1 ethmoid, 1 occipital bone. The weight of brain of an adult male is 1400 gm and of female is 1250 gm.

Brain Meninges



(1) Duramater:

- This is the first and the outermost membrane which is thick, strong and elastic layer.
- At several places it forms cranial venous sinuses containing blood.

(2) Arachnoid:

- It is middle and delicate layer and found only in mammals. (Mammalian character)
- At several places it forms villi like folding to absorb CSF called arachnoid villi.
- Space between Duramater & arachnoid is called subdural space which is filled with serous fluid.

(3) Piamater:

- Inner most, thin and transparent membrane, which is firmly attached to the brain.
- At some places it merges deeply into sulci of brain to form telachoroidea.
- Space between arachnoid & Piamater is called subarachnoid space, which is filled with CSF.