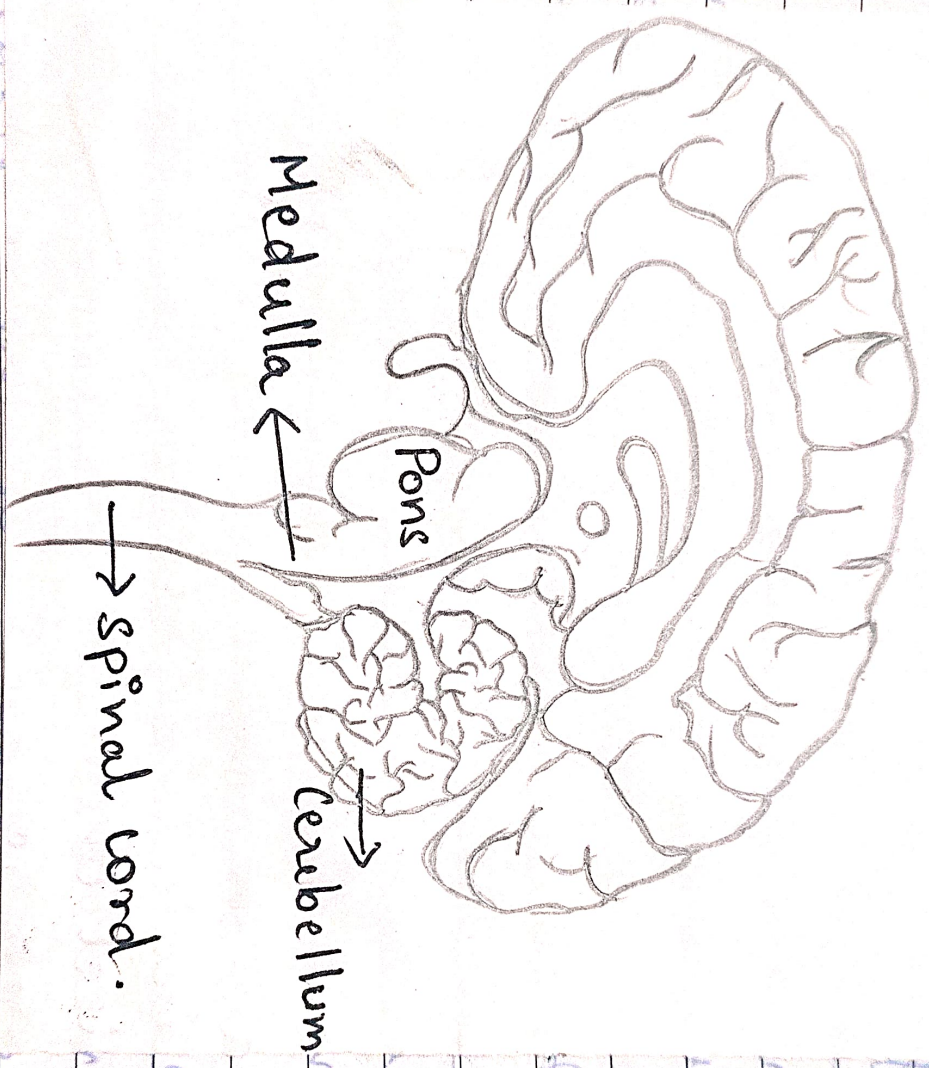


Hind Brain (Rhombencephalon)



- Hind Brain is the posterior part of the brain, consists of medulla, pons and cerebellum.

The medulla, and pons, the midbrain and some cranial structures of the forebrain constitutes the brainstem.

i) Myelencephalon (Medulla / Medulla oblongata).

Medulla can be regarded as an enlarged extension of the spinal cord. It is just above the spinal cord.

The medulla controls some vital reflexes - including breathing, heart rate, vomiting, salivation, coughing and sneezing. - through cranial nerves which controls sensations from head, muscle movements in the head and much of the parasympathetic output of the organs. Some of the cranial nerves include both sensory and motor movements components, others have just one of the other.

There are 12 pairs of cranial nerves (one of each pair on the right side of the brain and one on the left)

* Damage to medulla is frequently fatal, and large doses of opiates are life threatening because they suppress activities of medulla.

Cranial nerves

1	Olfactory	On	Smell
2	Optic	Old	Visual acuity
3	Oculomotor	Olympus	Opening of eyelids, eye movements
4	Trochlear	Touling	Eye movement
5	Trochlear	Top	Facial sensation & chewing movement
6	Abducens	A	Eye movement
7	Facial	French	Facial muscle movement & eyelid closing
8	Auditory	And	Hearing & Balance Facial muscle mov. & eyelid closing
9	Glossopharyngeal	German	Taste Hearing & Balance
10	Vagus	Vicard	Uvula & swallowing
11	Accessory	A	Shoulder shrug
12	Hypoglossal	Hop	Tongue Movement

* The cranial nerve nuclei for nerve through IX, X, XI are in the medulla and pons

* The cranial nerve nuclei for nerve I to IV are in the mid brain and forebrain.

ii)

Pons

The pons lies anterior and ventral to the medulla. Like the medulla it contains nuclei for several cranial nerves.

The term "pons" is Latin for "bridge" reflecting that fact that in the pons, axons from each half of the brain cross to the opposite side of the spinal cord so that the left hemisphere controls the muscles of the right side of the body and the right hemisphere controls the left side.

The medulla and pons also contain the reticular formation; which has ascending and descending portions. The descending portion is one of several brain areas that controls the motor areas of the spinal cord. The ascending portion sends output to much of the cerebral cortex selectively increasing arousal and attention in one area or another.

Medulla and pons also contains reticular system which also sends axons to much of the forebrain modifying the brain's readiness to respond to stimuli.

(iii) Cerebellum.

The cerebellum is a large hind brain structure with many deep folds. It has long been known for its contribution to the control of movement and "balance and coordination".

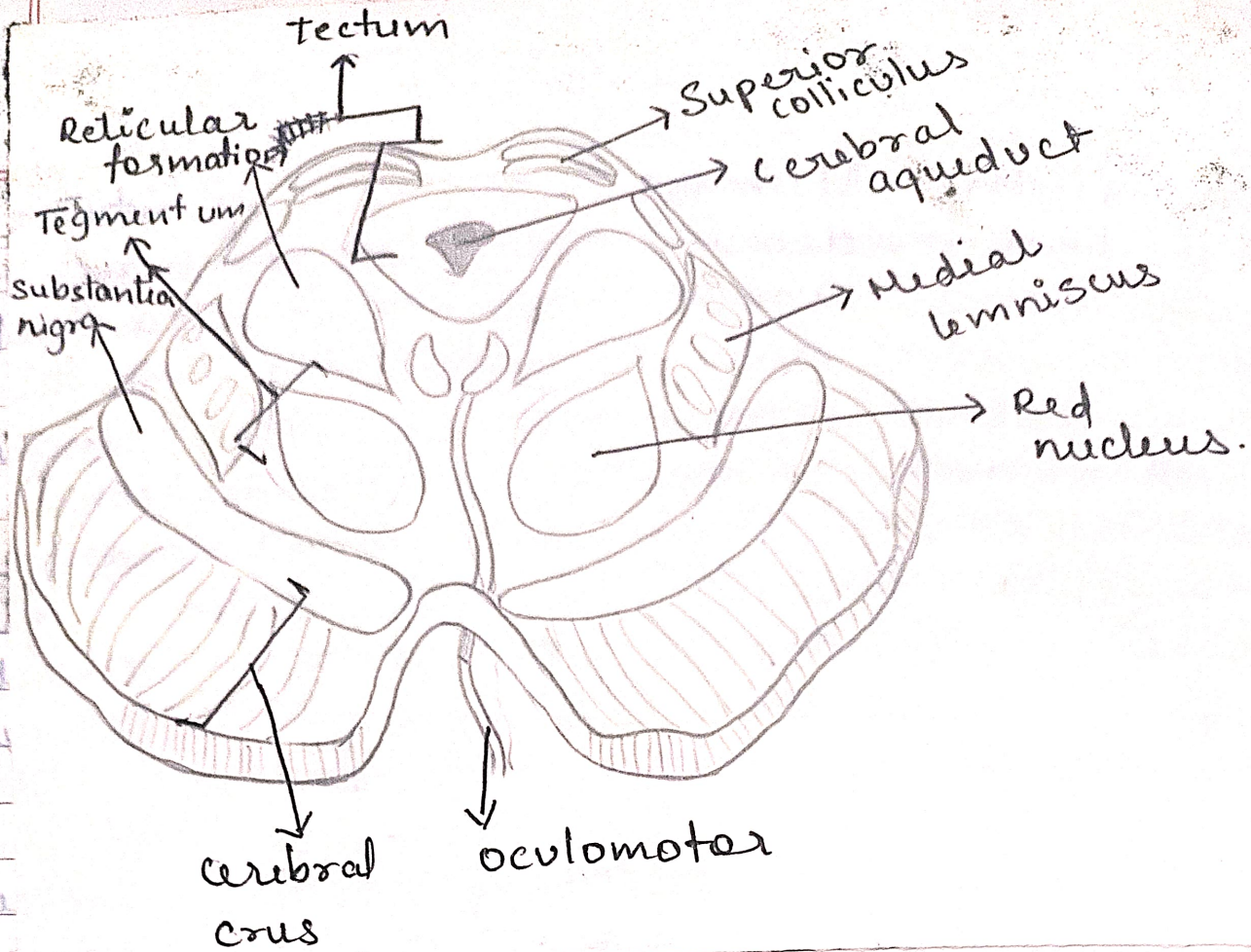
People with cerebellar damage are clumsy and lose their balance, but the functions of the cerebellum extend far beyond balance and coordination.

People with damage to the cerebellum have trouble shifting their attention back and forth between auditory and visual stimuli. They have difficulty with timing, such as judging whether one rhythm is faster than other. The cerebellum is also critical for certain types of learning and conditioning.

Midbrain. (Mesencephalon)

Midbrain is in the middle of the brain, although in adult mammal it is dwarfed and surrounded by the forebrain.

In birds, amphibians, and fish, the midbrain is a more prominent feature structure.



It has two divisions
 The roof of the midbrain is called tectum (Latin word means "roof". The same root occurs in the geological term "plate tectonics").
 There is swelling on each side of the tectum - superior colliculus and the inferior colliculus.

The inferior colliculus has auditory function, while the superior colliculus has visual-motor functions, specifically to direct the body's orientation toward or away from particular visual stimuli.

Under the tectum lies the tegmentum, the intermediate level of midbrain. (In Latin, tegmentum means a "covering" such as a rug on the floor. The tectum covers the tegmentum covers several other midbrain structures). It contains 3 colourful structures. — Another midbrain structure, the substantia nigra (black substance), gives rise to a dopamine-containing pathway that facilitates readiness for movement. The periaqueductal gray is a gray matter situated around the cerebral aqueduct, the duct conducting connecting the 3rd and 4th ventricles; it is of special interest because of its role in mediating the analgesic (pain-reducing) effects of opioid drugs. The third is red nucleus.