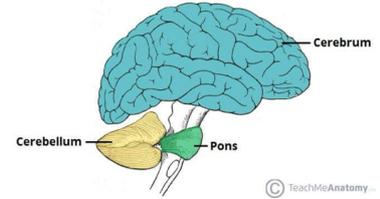


The Cerebellum – High Yield Summary



General Features

The cerebellum is the largest subdivision of the hindbrain. It lies posterior to the pons and medulla oblongata, separated from them by the 4th ventricle. It occupies most of the posterior cranial fossa and is covered by the tentorium cerebelli.

External Features

The cerebellum consists of a median vermis and two cerebellar hemispheres. It has superior and inferior surfaces.

Superior Surface

The middle raised part is the superior vermis. The lingula is the most anterior part. The hemispheres are nearly flat and slope downward laterally.

Inferior Surface

The inferior vermis lies in the vallecula and consists of the nodule, uvula, and pyramid. The tonsil lies lateral to the inferior vermis.

Cerebellar Notches

The anterior notch is large and contains the cerebellar peduncles. The posterior notch is smaller and contains the falx cerebelli.

Fissures

Primary fissure separates anterior and posterior lobes. Secondary fissure separates flocculonodular lobe from posterior lobe. Horizontal fissure separates superior and inferior surfaces. Numerous transverse fissures form folia.

Subdivisions of the Cerebellum

Anterior lobe (Paleocerebellum): muscle tone. Posterior lobe (Neocerebellum): coordination of voluntary movement. Flocculonodular lobe (Archicerebellum): equilibrium.

Functional Areas of the Cerebellar Cortex

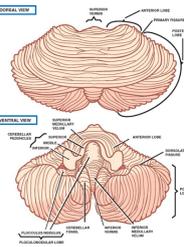
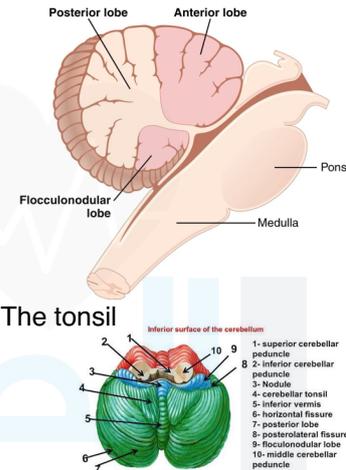
Vermis controls trunk muscles. Intermediate zone controls distal limb muscles. Lateral hemispheres are concerned with planning and assessment of movements.

Functions of the Cerebellum

Paleocerebellum controls muscle tone. Neocerebellum coordinates skilled movements. Archicerebellum controls equilibrium.

Internal Structure – Gray Matter

Cerebellar cortex has three layers: molecular layer, Purkinje cell layer, and granular layer. Deep cerebellar nuclei are Dentate, Emboliform, Globose, and Fastigial.



White Matter

Forms the white center of each hemisphere. It contains afferent and efferent cerebellar fibers, axons of Purkinje cells, mossy fibers, and climbing fibers.

Cerebellar Peduncles

Inferior peduncle connects medulla. Middle peduncle connects pons. Superior peduncle connects midbrain.

Blood Supply

Superior cerebellar artery, anterior inferior cerebellar artery, and posterior inferior cerebellar artery. Venous drainage into dural venous sinuses.

Applied Anatomy

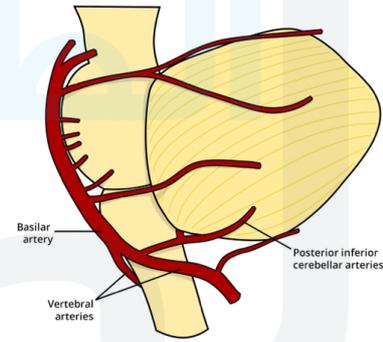
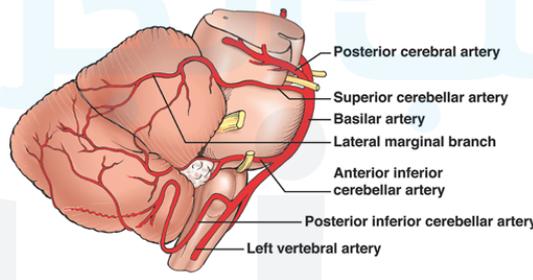
Cerebellar lesions cause ataxia, hypotonia, intention tremor, nystagmus, dysdiadochokinesia, and disturbance of equilibrium.

CEREBELLAR DEGENERATION

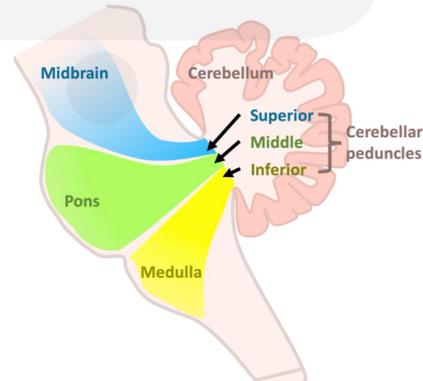
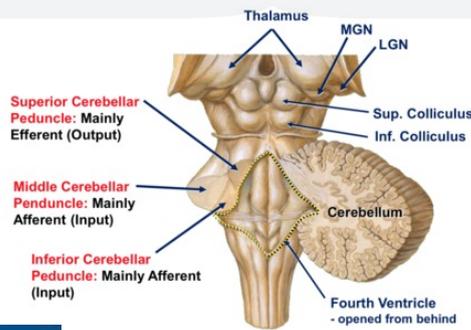
Typical features

- ▶ Progressive gait dysfunction
- ▶ Truncal ataxia
- ▶ Nystagmus
- ▶ Intention tremor or dysmetria
- ▶ Impaired rapid alternating movements (dysdiadochokinesia)
- ▶ Muscle hypotonia leading to a pendular knee reflex

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Cerebellar Peduncles- Posterior View



Cerebellar signs (DANISH)

- D** - **D**ysdiadochokinesia/
Dysmetria
- A** - **A**taxia
- N** - **N**ystagmus (horizontal)
- I** - **I**ntention tremor
- S** - **S**lurred speech
- H** - **H**ypotonia

4 Nuclei of Cerebellum D-E-F-G.

- D**-Dentate
- E**-Emboliform
- F**-Fastigial
- G**-Globose

@Dr_Abdul_Matin_M...

DR. AIMAN QAIS AFAR

DONE BY : RAGHAD MRAYAT

لَا حَوْلَ وَلَا قُوَّةَ إِلَّا بِاللَّهِ
"من كنوز الجنة"

