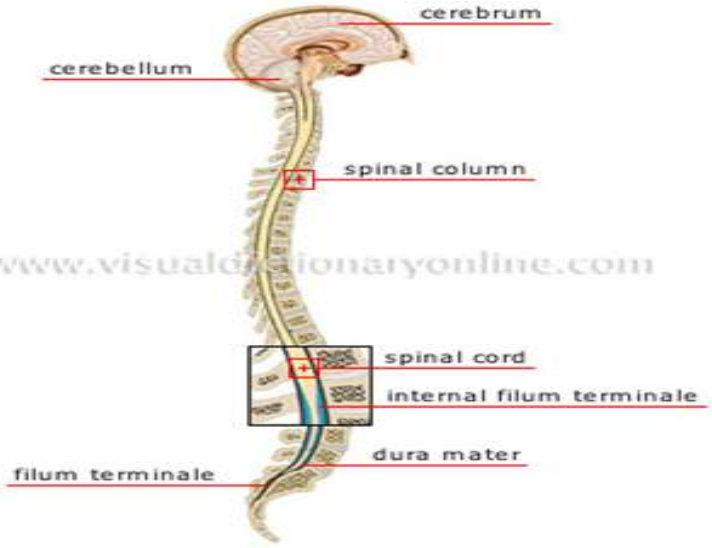
Nervous System

Parts and it's functions



Cerebrum

The cerebrum, also called as **telencephalon**, is divided into approximately symmetric left and right cerebral hemispheres. With the assistance of the cerebellum, the cerebrum controls all voluntary actions in the body.

Functions:

- Movement: It directs the conscious or volitional motor functions of the body. Damage to these areas can lead to certain types of motor neuron disease. This kind of damage results in loss of muscular power and precision rather than total paralysis.
- Sensory processing: It receives and process visual, auditory, somatosensory, gustatory, and olfactory information. These brain regions synthesize sensory information into our perceptions of the world around us.
- Olfaction: Damage to this part results in a loss of the sense of smell.
- Language and communication: Speech and language are mainly attributed to parts of the cerebral cortex. Damage to this area results in expressive aphasia (non-fluent aphasia) and receptive aphasia (also called fluent aphasia).
- Learning and memory: Explicit or declarative (factual) memory formation is attributed to the hippocampus and associated regions of the medial temporal lobe. This association was originally described after a patient known as HM had both his hippocampuses (left and right) surgically removed to treat severe epilepsy. After surgery, HM had anterograde amnesia, or the inability to form new memories.

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Cerebellum (Latin for *little brain*)
A region of the brain that plays an important role in motor control. It may also be involved in some cognitive functions such as attention and language, and in regulating fear and pleasure responses, but its movement-related functions are the most solidly established. The cerebellum does not initiate movement, but it contributes to coordination, precision, and accurate timing. Damage to the cerebellum does not cause paralysis, but instead produces disorders in fine movement, equilibrium, posture, and motor learning.

Spinal Column
Also known as backbone or spine, is a bony structure which houses and protects the spinal cord in its spinal canal.

Spinal cord
A long, thin, tubular bundle of nervous tissue and support cells that extends from the brain. The brain and spinal cord together make up the central nervous system (CNS). The spinal cord has three major functions: a passageway for motor information, which travels down the spinal cord, a passageway for sensory information in the reverse direction, and finally as a center for coordinating certain reflexes.

Internal filum terminale
Is about 15 cm. long and reaches as far as the lower border of the second sacral vertebra. It is continuous above with the pia mater and contained within a tubular sheath of the dura mater.

Dura mater
Is the outermost of the three layers of the meninges surrounding the brain and spinal cord. The other two meningeal layers are the pia mater and the arachnoid mater. The dura surrounds the brain and the spinal cord and is responsible for keeping in the cerebrospinal fluid. The dura has been described as "tough and inflexible" and "leather-like".
The dura mater is a sac that envelops the arachnoid mater. It surrounds and supports the dural sinuses and carries blood from the brain toward the heart.

Filum terminale
Also called "Terminal thread" is a delicate strand of fibrous tissue. It gives longitudinal support to the spinal cord.

Questions: (Express your ideas)

- What are expressive aphasia and receptive aphasia?
- How many vertebrae are there?
- What are the differences between motor and sensory function?
- What is the function of the dura mater?
- How many parts of filum terminale are there?