**Parts of the Brain and Their Functions**



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The human brain is a complex organ that holds the most importance in the entire human body. The objective of this article is to give you an introduction about the parts of the brain and their functions rather than a detailed review of the research that has been done on the brain. The brain weighs just 3 pounds but is responsible for controlling behaviour, interpreting the senses and initiating body movement. It is the source of intelligence in our body and is located in a bony shell that is protected by brain fluid. The brain is the reason for all of the qualities we possess that make us human beings.

**Parts of the Brain and Their Functions**

**Cerebrum**

The cerebrum constitutes the largest part of the human brain. It is also known as the cortex and is responsible for performing a great number of important brain functions, including action and thought processing. The cerebrum is further subdivided into four different sections that have their own respective functions and are termed as lobes. The names of these lobes are; frontal lobe, occipital lobe, parietal lobe and temporal lobe.

* **Frontal Lobe:**The frontal lobe is tasked with the duty of performing functions like expressive language, reasoning, higher level cognition and motor skills. It is positioned at the front portion of the brain. Any damage to it can lead to changes of socialization, attention, sexual habits, etc.
* **Parietal Lobe:**The parietal lobe is responsible for processing the information sent to the brain by the tactile senses like pain, pressure and touch. It is placed in the centre of the brain. Any damage to it can cause problems with language, ability of controlling eye gaze and verbal memory.
* **Occipital Lobe:**The occipital lobe is tasked with the duty of interpreting the information being sent to the brain by the eyes. It is positioned at the back of the brain. If it is damaged, your visual ability will be affected, like unable to recognize colours, words and objects.
* **Temporal Lobe:**The temporal lobe is responsible for forming memories and processing the sounds being recorded by the ears. It is placed at the bottom of the brain. Any damage to it can cause problem with language skills, speech perception and memory.



**Cerebellum**

The cerebellum is known as the little brain and resembles the cerebrum for it has a highly folded surface and distributed in 2 hemispheres. This part of the brain is responsible for performing functions like balance, posture and coordination of movement. Even though the cerebellum is smaller in size, it contains more neurons than the entire brain itself. The cerebellum is located at the back of the brain stem and on top of the pons.

**Limbic System**

The limbic system lies inside the cerebrum. It is also sometimes called the emotional brain because it takes charge of our emotional response. The thalamus, hypothalamus, amygdala and the hippocampus are the four different sections that make up the limbic system.

* **Thalamus:**Thalamus is a substantial piece of grey matter that lies deep inside the forebrain. It performs motor and sensory functions. All sensory information, except olfaction, sent to the brain enters the thalamus and from there is sent to the overlying cortex by neurons.
* **Hypothalamus:**Hypothalamus is associated with functions like circadian rhythms, homeostasis, hunger, emotions and thirst. Besides these functions, it is also responsible for controlling the pituitary glands which is responsible for producing hormones. The hypothalamus is located ventral to the thalamus and is a component of the diencephalon.
* **Amygdala:**The amygdala, as a part of the telencephalon, is positioned in the temporal lobe and is associated with fear, memory and emotion. It is present just under the front and medial sections of the temporal lobe.
* **Hippocampus:**The hippocampus helps in learning and memory building. It is where short term memories are converted into permanent ones. Moreover, the hippocampus also helps in recalling the spatial relationships about us in the world. It is located in the basal medial section of the temporal lobe.



**Brain Stem**

When we talk about parts of the brain and their functions, brain stem should never be overlooked. The brain stem is located underneath the limbic system. This section of the brain is tasked with the duty of supervising important tasks such as blood pressure, breathing and heartbeat. Moreover, the brain stem organizes reflexes and coordinates the fine movement of the face and limbs. It is composed by midbrain, pons and medulla.

* **Midbrain:**The midbrain is located at the mouth of the brain stem and is made up of the tegmentum and the tectum. It controls functions like body movement, hearing, vision and eye movement. The cerebral peduncle is located at the anterior portion of the midbrain. It is basically a large bundle of axons that play an important part in transferring messages and controlling voluntary motor function.
* **Pons:**Pons is responsible for performing sensory analysis and controlling motor function and the information coming to the brain from the ears enters the pons first. It is responsible for sleep and maintaining levels of consciousness. Some parts of it are linked to the cerebellum and thus are associated with posture and movement.
* **Medulla:**The medulla is located in between the spinal cord and the pons. It is the tail-end of the brain stem and is tasked with the duty of controlling vital body functions like heart rate and breathing.

