

Module 1:Human Nervous System

Lecture 4:Forebrain

The Lecture Contains:

Fore brain

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Fore brain

The human fore brain is comparatively much more evolved than any other animal. The prominent structures of the fore brain are thalamus, hypothalamus, limbic system, and the cerebrum. Hypothalamus secretes various hormones which in turn regulates behaviour. The most important role of the hypothalamus is to maintain internal consistency, a process referred to as homeostasis. Thalamus is situated above the hypothalamus and mediates impulses coming from all the sense organs except touch. Therefore, it is also called as the 'relay station' of sensory messages. The limbic system is a union of cortical and subcortical structures such as hypothalamus, amygdala, hippocampus, septal area, mammillary bodies and cingulate gyrus. It modulates motivation, libido, appetite, and sleep cycle. It is directly involved in the processing of sense of smell. Remember that sexual behaviour has a strong affinity with pheromones and smell as well as libido is mediated by the limbic system. The limbic system also sets the normal as well as abnormal tone of the mind filtering the external events and tagging them as internally important.

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Cranial Nerves

Human beings have twelve pairs of cranial nerves. They are either connected to glands or internal organs, involved in transmitting information from the sense organs to the brain, or controlling the muscles. You can see them if you look at the ventral surface of the brain. They are sequentially numbered (rostral to caudal) on the basis of their origin from the brain. The table given below summarizes the functions performed by these cranial nerves. Further, the animation given below illustrates the twelve cranial nerves.

Table: Cranial nerves and their functions.

Cranial nerves	Functions
Olfactory	Smell
Optic	Vision
Oculomotor	Eye movement, pupillary constriction, and accomodation
Trochlear	Eye movement
Trigeminal	Mastication muscles and eardrum tension. General sensations from anterior parts of head (face, meninges, nose and mouth)
Abducen	Eye movement
Facial	Facial expression and tension of ear bones
Vestibulocochlear	Hearing and equilibrium
Glossopharyngeal	Swallowing movement, visceral sensation, salivation, and taste
Vagus	Swallowing movement, laryngeal control, and visceral sensation
Spinal accessory	Movement of shoulder and head
Hypoglossal	Tongue movement

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