

## TENDER HEART HIGH SCHOOL

Class - VII      Subject - Biology  
Chapter - 6      Nervous System.  
Teacher : Ms. Nidhi

Good Morning Children! This lesson is of Class-VII, Subject - Biology, Chapter no-6, Nervous System of your textbook Concise Biology. In the last lecture we have learnt the structure of neuron and different types of neurons and nerves present in human body. Today, we are going to discuss different parts of brain and its functions. This lesson is being submitted to you on 02.12.2024

Human nervous system consists of

1. Central Nervous System
2. Peripheral Nervous System

Now, let us discuss the Central Nervous system. Central nervous system consists of brain and spinal cord. The brain lies well-protected inside the skull, while the spinal cord is protected within the vertebral column.

Brain is the control centre of our body. It controls all body parts and their activities.



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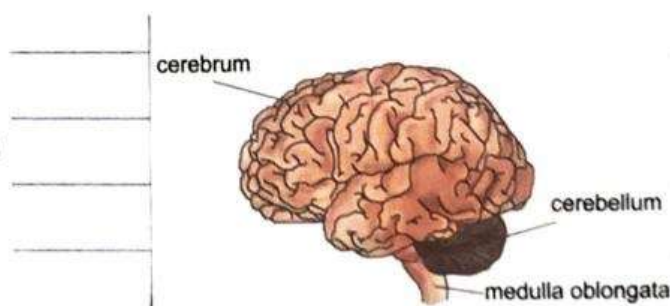
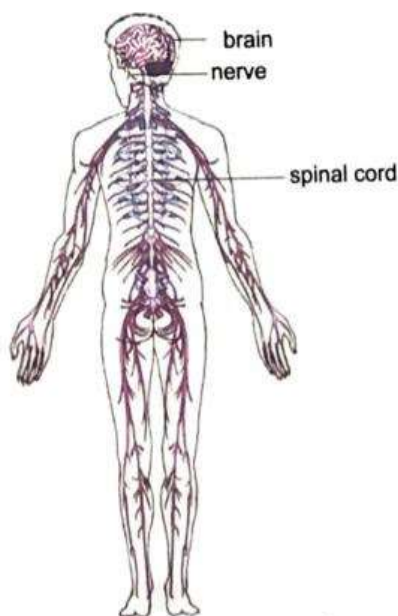
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The left side of the brain controls the muscles on the right side of the body, while the right side controls the muscles on the left side of the body.

Brain consists of three main parts.

Cerebrum, Cerebellum, Medulla oblongata.



Structure of brain.

Human nervous system

→ Cerebrum is the largest and the uppermost part of the brain. It is divided into two halves called right cerebral hemisphere and left cerebral hemisphere.

The external surface of cerebrum is thrown into grooves and ridges so that the total surface area is increased to accommodate more neurons.



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The cerebrum is the seat of intelligence, willpower and consciousness. It is the centre for perceiving pain, sound, touch, taste and smell. It enables us to think, learn, memorise and apply logic.

→ Cerebellum is the smaller part of the brain and is located just under the cerebrum at the base of the head.

Its main function is to balance the body and coordinate muscular activities. It is because of cerebellum only that we can stand upright, move around and maintain our balance.

→ Medulla oblongata is the lowest part of the brain and connects the brain with the spinal cord.

Its main function is to control the activities of the internal organs like heart beat, breathing and digestion.

With this topic, I am ending up today's lesson. Kindly give a thorough reading to the chapter from your textbook also.



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02.12.2024

In the last lesson we have discussed the different parts of brain - Cerebrum, Cerebellum and medulla oblongata and their functions. Today, we are going to discuss the functions of spinal cord, the peripheral nervous system and the autonomic nervous system.

Spinal cord is a long, narrow, cylindrical cord-like structure. It extends from the medulla oblongata and runs down almost through the whole length of the backbone. It is protected by the vertebral column.

The inner portion of the spinal cord is made up of cell bodies. It is called grey matter. The outer portion is made up of axons. It is called white matter.

Functions :

1. Spinal cord controls the reflex action below the neck.

(A reflex is an involuntary and nearly instant movement in response to a stimulus. For example: when we accidentally touch a hot utensil, we immediately move our hand away)



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2. To carry messages from the skin (in the form of electrical impulses) and muscles to the brain.
3. To carry orders from the brain to muscles of the trunk and limbs.

The peripheral nervous system

It consists of the nerves passing to and from the central nervous system, reaching out to all parts of the body.

The peripheral nervous system consisting of two types of nerves - the cranial nerves and spinal nerves.

The cranial nerves emerge from the brain. There are 12 pairs of cranial nerves. These nerves are basically sensory nerves which carry information from the sense organs, such as eyes, to the brain (for vision). Similarly, auditory nerves from the ears to hear; olfactory nerves from the nose to smell.

The spinal nerves emerge from the spinal cord. There are 31 pairs of spinal nerves. Each spinal nerve is a mixed nerve which consists of both sensory and motor nerve fibres. The sensory fibres carry messages from sense organs (example - skin to the spinal cord or brain) while the motor fibres carry orders from brain or spinal cord to the effector organs, such as a gland and a muscle.

Autonomic Nervous System :

The autonomic nervous system includes a chain



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of nerves and ganglia found on either side of the spinal cord. It controls the involuntary functions of the internal organs of the body. This is not under our conscious control. It operates through two systems - **Sympathetic and parasympathetic systems**

→ **Sympathetic nervous system**: It prepares the body for intense physical activity, commonly referred to as flight or fight response.

→ **Parasympathetic nervous system**: It relaxes the body and slows down many functions that require more energy, commonly called rest and digest response.

**Both these systems control the same group of body functions, but they have opposite (antagonistic) effects on the functions they regulate.** For example: the sympathetic nervous system increases heart rate, whereas parasympathetic nervous system relaxes it.

2. Sympathetic nervous system stimulates release of glucose, whereas parasympathetic nervous system inhibits its release.
3. Sympathetic nervous system inhibits digestion, whereas parasympathetic system stimulates digestion.



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Now Children, let us recapitulate and revise the content of the chapter completed today with the help of the questions given below.

1. The number of spinal nerves
2. The number of cranial nerves
3. An action which occurs without our conscious choice or will
4. An automatic action and instantaneous movement in response to a stimulus.
5. A long, thick bundle of nerves which extends from the medulla.
6. The control centre of the body.

Answers are :

1. 31 pairs
2. 12 pairs
3. Involuntary action
4. Reflex action
5. Spinal cord
6. Brain

With this, I am ending up today's interactive session. Kindly do questions 1, 2 and 3 of your textbook given on Page no - 63 and 64.

Thankyou Children!