

TENDER HEART HIGH SCHOOL

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

Good Morning Children! This lesson is of Class VII for the subject of Biology, topic Nervous System, Chapter no-6 of your textbook Concise Biology, Selina Publications. It is being submitted to you on 25.11.2024
Today we are going to discuss the term 'Coordination' and structure of 'Neuron'.

As you know Children, all living organisms respond to changes in the environment around them. These changes are called 'stimuli'.

Living organisms show some movement for a particular stimulus. This is called 'response'.

Let us understand these terms with the help of an example.

When you touch a hot utensil accidentally, you quickly pull your hand away.

Here, heat is the stimulus and moving the hand away is the response.

Similarly, when we are hungry, we eat food. Here, hunger is the stimulus and eating food is the response.

The response to a stimulus involves many organs of the body. For example, when we run, our muscles need more energy. To produce more energy, more oxygen is required. To increase the oxygen supply, the breathing rate increases. So, it is necessary that all the organs involved in a particular response work with one another in a systematic manner.

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The working together of the various organs of an organism in a systematic manner so as to produce a proper response to a stimulus is called coordination.

There are two types of coordination

1. Nervous coordination
2. Chemical coordination

★ Nervous Coordination involves the nervous system. The nervous system is made up of the brain, spinal cord and nerves.

Let us understand this with the help of an example.

You are hungry and you want to eat food.

A number of coordinated activities occur to give a proper response. Your eyes look at the food. They send message to the brain. The brain takes a decision and sends a message to the hand. The hand and fingers pick up the food and put it into the mouth. The food down in the alimentary canal. It is digested and absorbed by the blood.

★ Chemical Coordination involves the endocrine system. The endocrine system is made up of the endocrine glands and hormones secreted by them.

We shall learn about chemical coordination in the higher class. In this lesson, we shall

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Learn about the nervous system, its main organs and their functions.

The nervous system is made up of special cells called nerve cells or neurons.

A neuron is the structural and functional unit of the nervous system. It is made up of

(a) Cyton, (b) axon, (c) dendrons and dendrites.

(a) Cyton (Cell body) : A cyton contains cytoplasm and a centrally placed nucleus.

(b) Axon : An axon is a single, long and cylindrical structure. It arises from the cyton. An axon is covered by a protective covering called the myelin sheath. The end of the axon is branched. These branches are called terminal branches. The end of each terminal branch has a bulb-like structure called a synaptic knob.

(c) Dendrons and Dendrites : Dendrons are short cytoplasmic extensions of the cyton. They further divide into dendrites.

Function : The neurons transmit messages all over the body in the form of electrical signals. These electrical signals are called nerve impulses.

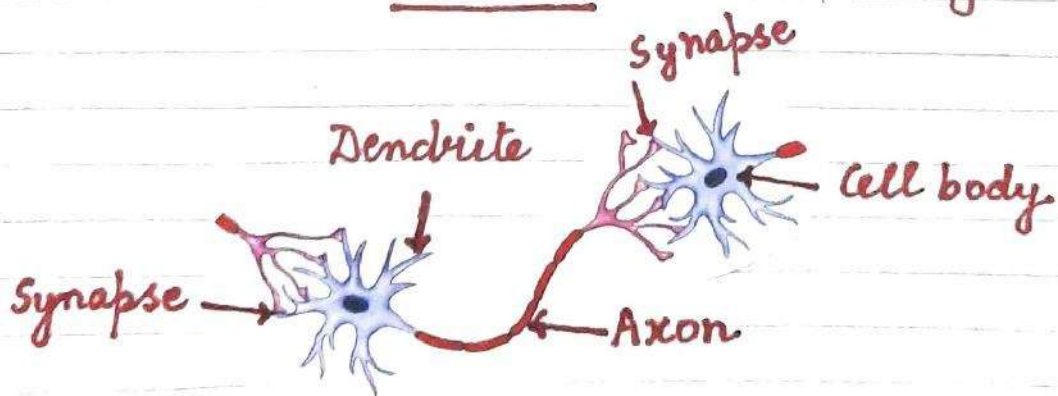
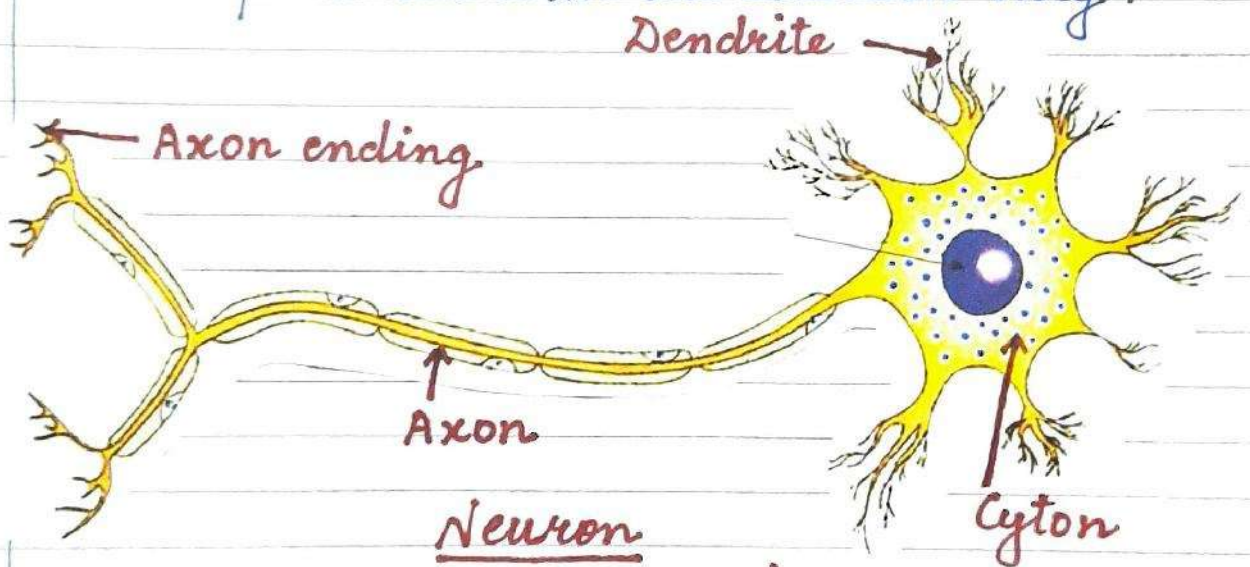
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Now, let us see, how does a message transmit.

- The dendrites receive a message called nerve impulse from an organ. They transmit it to the axon through the cell body. The axon endings pass the nerve impulse to another nearby neuron. The neurons are not joined to one another completely. There is a small gap between the dendrites of a neuron and the axon terminal of another neuron. This is called a synapse. The synapse ensures that nerve impulses travel in one direction only.

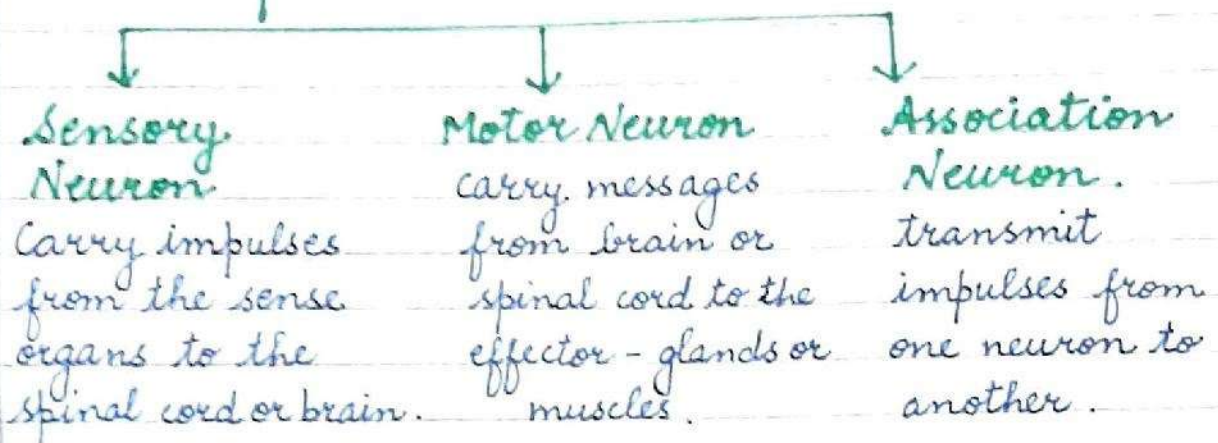


Synapse.

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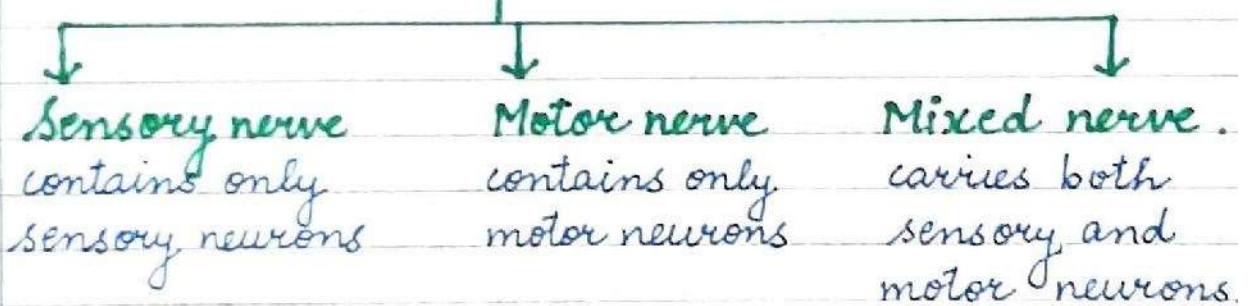
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Types of neurons



Nerve A nerve is formed of a bundle of axons enclosed in a tubular medullary sheath. Medullary sheath acts like an insulation and prevents mixing of impulses in the adjacent fibres.

Types of nerves.



With this topic I am ending up today's lesson. In the next session we will study about the human nervous system.

Kindly draw diagram of neuron in your notebook.