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Wednesday 15/ 1 /2025

# Animal tissues

**Tissues**: are groups of similar cells that perform a particular function.

There are four types of tissues found in animals:

1- Epithelial tissue 2- Nerve tissue

3- Connective tissue 4- Muscular tissue

We will be studying the human tissues as an example of animal tissues.

## 1-Epithelial Tissue

1- Cells are bundled tightly and localized on the basement membrane.
2- Covers the external body surface
3- lines the internal surfaces and cavities of body.
4- Performs many function such as: Protection, Absorption & Secretion.

### ❖ Types of Epithelial tissues:

According to the number of cell layers and the shape of the cells , there are two types:

A-**Simple Epithelium**: contains a single layer of cells, classified according to the shape of cell.

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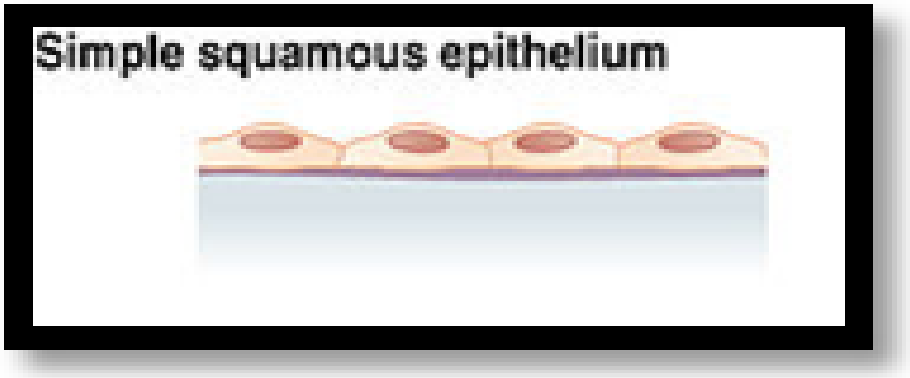
B- **Stratified Epithelium**: contains multiple layers of cells, classified depending on the shape of superficial cells.

- A- simple Epithelium tissues have 4 types :

**1- Simple squamous epithelial tissue**:




Structure: Simple squamous epithelium is one-cell layer ,celles are thin and flat ,. Nucleus has a spherical or oval shape centrally located. The cells lie on basement membrane.

Location: lining of lung, mouth and wall of all blood vessels, forming blood capillaries and Bowman's capsule

Function: Responsible for diffusion substances across the cells.

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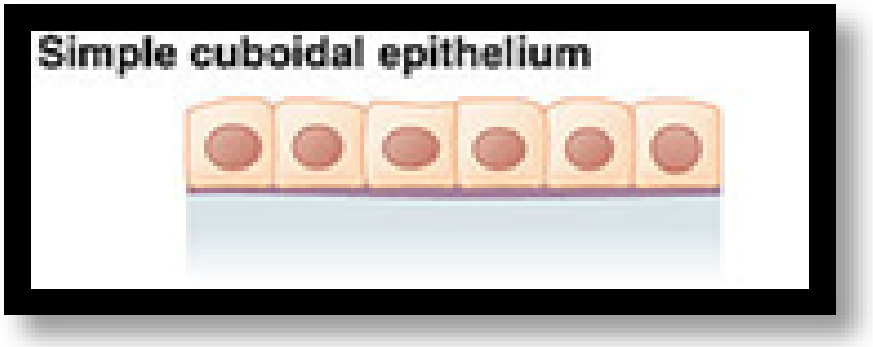
## 2-Simple Cuboidal epithelial tissue




Structure : Cubic-like with large spherical central nucleus.

Location: lining ducts of most glands and kidney tubules, forming Secretory portion of some glands covering of ovaries

Function: secretion and absorption.

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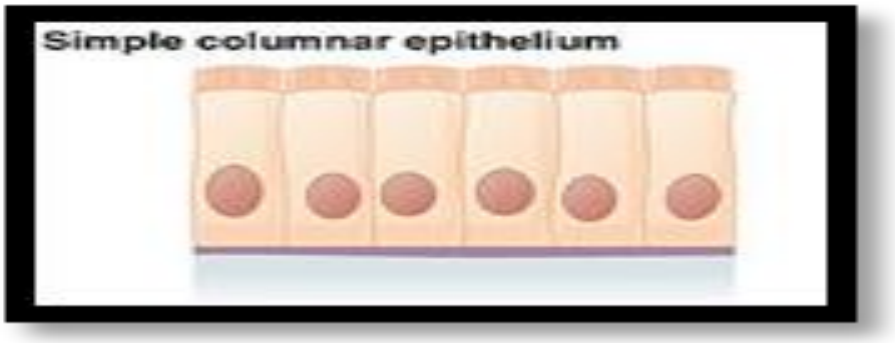
## 3-Simple Columnar epithelial tissue:

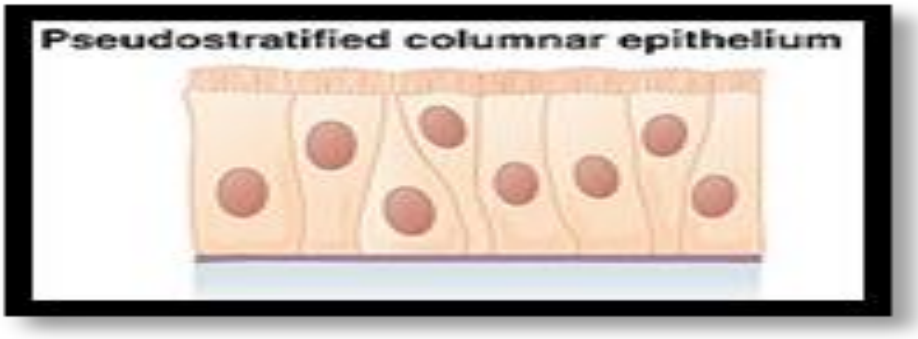



Structure: Elongated cells, with oval nuclei located at the base of the cell.

Location: lining of digestive tract, parts of respiratory tracts, reproductive system

Function: secretion and absorption. Have goblet cells that secrete mucus.

## 4-Pseudostratified epithelial tissue:




Structure : appears to be stratified but is not (why?) it's single layer of different shape of cells and all cells are in contact with the basement

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membrane, and contain nuclei that are arranged at different levels, making it appear to be stratified

Location: lining trachea and larger passage- ways of Respiratory system with cilia

Function: protection.

## 2-The Nerve tissue

The Nerve tissue is the main tissue of our nervous system. It monitors and regulates the functions of the body and it is consisting of two cells:

1-nerve cells or neurons

2-glial cells, which helps transmit nerve impulses and also provides nutrients to neurons.

Brain, Spinal Cord, and nerves are composed of nerve tissue, they are specialized for being stimulated to transmit stimulus from one to another part of the body rapidly.

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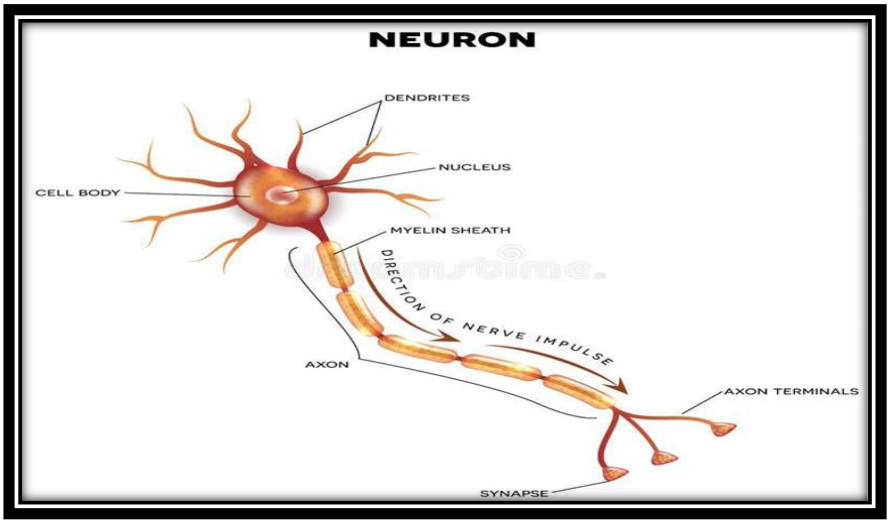
## Structure Of NerveTissue:-

• It is made of Neurons and the main part is the Cell body which contains the nucleus, cytoplasm and cell organelles.

- Extensions of the cell membrane are referred to as Dendrite , they are responsible for receiving information from other neurons and synapses.
- The third part of neurons is the axons (rectangular structures arising from the cell body) responsible for communicating with other cells by passing impulses through them to the target cells.

• Information in a neuron is unidirectional as it passes through neurons from dendrites, across the cell body down the axon.



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## Nervous Tissue Location:-

The nerve tissue is the chief tissue component of the two major parts of the :-

1-Central nervous system(CNS) formed by the spinal cord and the brain

2-The peripheral nervous system (PNS) that control and regulate the functions of the body and their activities.

## Function Of Nervous Tissue

The main function of nervous tissue is to receive stimuli and send signals to the brain and spinal cord. These signals are sent to the muscles via the nerves.