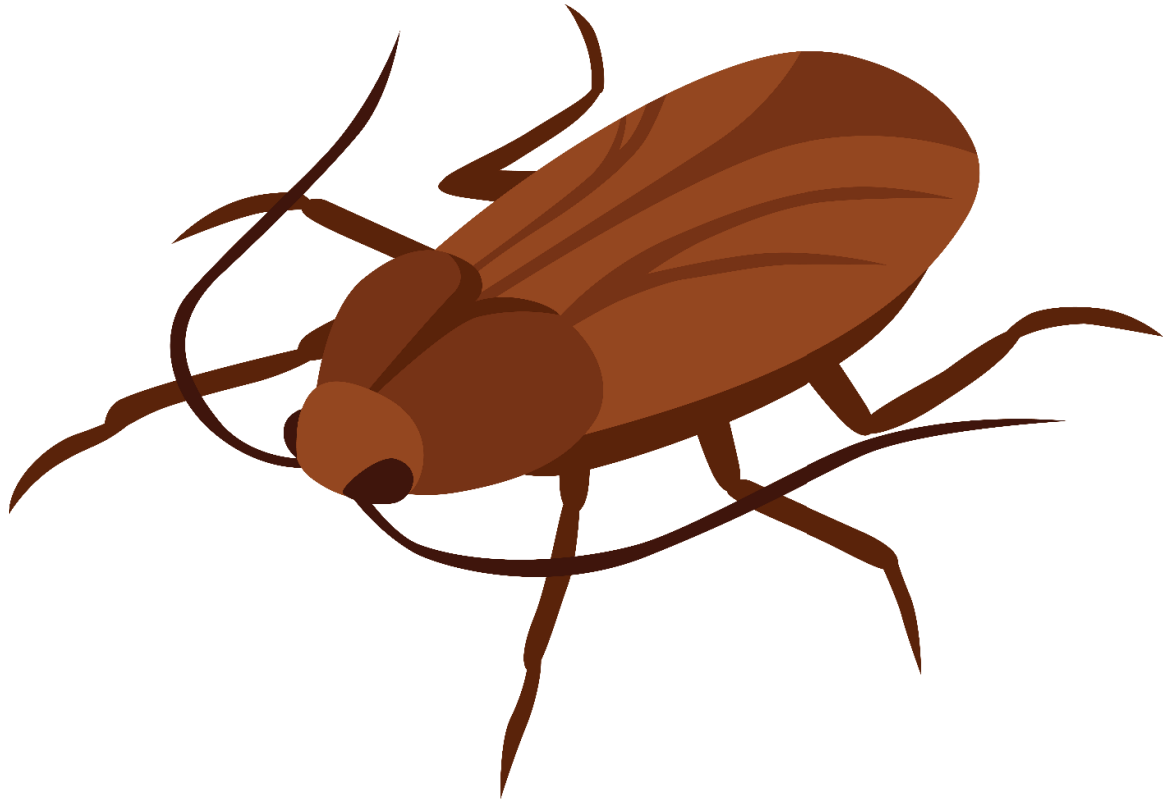


# STRUCTURAL ORGANISATION IN ANIMALS



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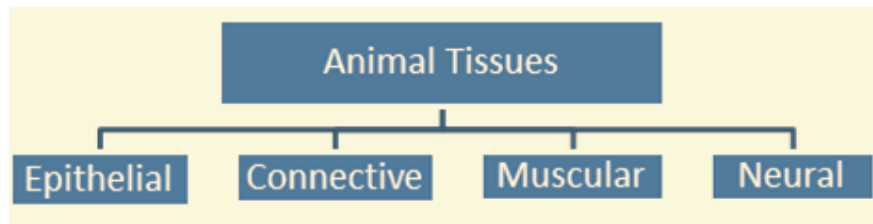


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# STRUCTURAL ORGANISATION IN ANIMALS

## Tissue

In multicellular organism a group of similar cells along with intercellular substances perform a specific function. Such organization is called tissue.



## Epithelial Tissue

This tissue provides covering or lining for some part of the body. Cells are compactly packed without intercellular space.

**Simple Epithelial:** Composed of single layer of cells & Functions as lining for body cavities, ducts and tubes.

**Squamous Epithelium:** Single thin layer of flattened cells found in walls of blood vessels, air sacs of lungs.

**Cuboidal Epithelium:** Single layer of cube like cells found in ducts of glands and tubular parts of nephron.

**Columnar Epithelium:** Single layer of tall and slender cells & free surface may have microvilli & found in lining of stomach and intestine.

**Ciliated Epithelium:** Columnar or cuboidal cells with cilia move particles or mucus in specific direction, in bronchioles, fallopian tubes.

## Cell junctions

In nearly all animal tissues, specialized junction provide structural and functional links between its individual cells.

### Three Types of Cell junctions:

- i. **Tight junctions:** Plasma membranes of adjacent cells are fused at intervals. They help to stop substances from leaking across a tissue.
- ii. **Adhering junctions:** Perform cementing function to keep neighbouring cells together.
- iii. **Gap junction:** Facilitate the cells to communicate with each other by connecting the cytoplasm of adjoining cells for rapid transfer of ions, small molecules and sometimes big molecules.

## Compound Epithelium

- Made of more than one layer of cells.
- Provide protection against chemical and mechanical stresses.

- Cover dry surface of skin, moist cavity, pharynx, inner lining of ducts of salivary glands and pancreatic ducts.

## Glandular Epithelium

- Exocrine glands
- Endocrine glands

### Exocrine glands

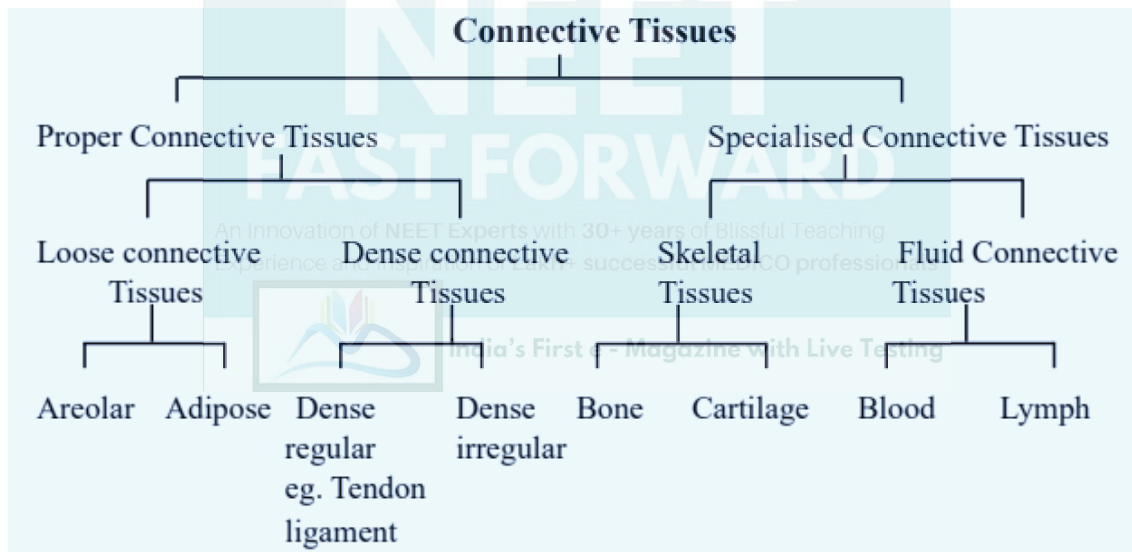
- Secrete mucus, saliva, oil, milk digestive enzymes.
- Products released through ducts.

### Endocrine glands

- Secrete hormones.
- Secrete directly into the fluid bathing the gland.

## Connective tissue

They are most abundant and widely distributed tissues which link and support the other tissues. All connective tissues except blood cells, secrete fibers of structural protein called collagen or elastin to provide elasticity and flexibility.



**Loose Connective Tissue:** contain cells and fibers loosely arranged in semi-fluid ground substance. It includes areolar tissue and adipose tissue.

#### Areolar Tissue

- Present beneath the skin.
- Contains fibroblasts, macrophages and mast cells.
- Serves as a support framework for epithelium.

#### Adipose Tissue

- Located beneath the skin.
- Cells are specialized to store fats.

**Dense connective Tissue:** Dense connective Tissue contains fibers and fibroblast compactly packed. The orientation of fibers may be regular or irregular pattern In dense regular connective tissues collagen fibers are present in rows between parallel bundles of fibers as in tendons and ligaments.

## Tendon

- Tendon connects bones to skeletal muscles.
- It is made up of white fibrous tough tissue.

## Ligament

- Ligament connects one bone to another bone.
- It is made up of yellow elastic tissue with collagen fibers.

## Cartilage

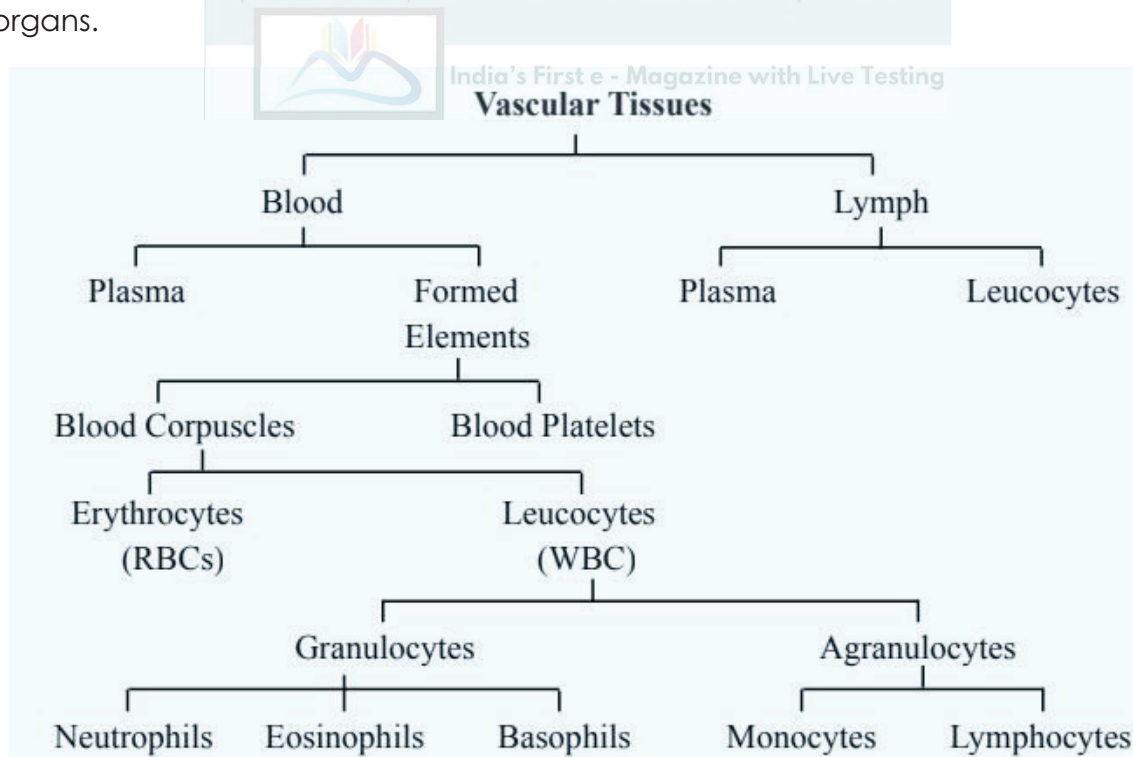
- They are soft skeletal tissue.
- chondrocyte are enclosed in small cavities with matrix.
- They are present in tips of nose, outer ear, between vertebral bones.

## Bone

- Bones are hard skeletal tissue.
- They are rich in Calcium salt and collagen fibers.
- They form the skeletal framework of vertebrates like limbs, legs, etc.

## Blood

Blood is fluid connective tissue containing plasma, red blood cells, white blood cells and platelets. It helps in transportation of various substances between organs.





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