Types of Animal Tissues

Categories of Tissues:-

- **Epithelium**
- **Connective**
- **Muscle**
- **Nervous**

Epithelium:-

- Lines, covers, and protects other tissues and organs.
- Characterized by: Cells tightly **junked together** ,the presence of a cell secretion called the **basement membrane**.
- Named by:-**Cell shape**, other characteristics of the cells.

  -Squamous, Cuboidal, and Columnar

Squamous Epithelium:-

- Cells very thin, much wider than they are thick.

A- Simple Squamous Epithelium

- Air sacs of respiratory
- Lining of blood **vessels, heart and lymphatic tubes**.

B- Stratified Squamous Epithelium

- **Skin, Vagina, Esophagus, Mouth .**

Cuboidal Epithelium

- Cells cube shaped- secretion and absorption.

  -Kidney tubules, Duct and small glands, Surface of ovary

Columnar Epithelium

- Elongated cells, much longer than they are wide.

  A- Simple Columnar Epithelium

    - A single layer of cells that line the digestive tract, **gallbladder and excretory ducts of some glands**. Has microvilli at surface for absorption.

  -Pseudostratified ciliated columnar epithelium

    - Lines the **bronchi**, **trachea**, **uterine tubes and some of the uterus.** Propels mucus or reproductive cells by ciliary action.

Connective Tissue

- Characterized by the cells widely separated from each other in a matrix that is produced by the cells.
- Tissue protects and supports.
- Cell Matrix composed of two regions

  -Ground:- Liquid , Gel, Gum or solid

  -Fibers:- Non-elastic (= white or Collagen),Elastic (= yellow fiber

Types of Connective Tissue

- **Loose (Areolar) Connective Tissue**
- **Dense Connective Tissue**
- **Adipose**
- **Cartilage**
- **Bone**

- **Blood**

Loose Connective Tissue (Areolar)

- Gel like ground with both elastic and non-elastic fibers running though the ground in many directions.

  -Wraps and cushions organs.

  -Under the skin.

Dense Regular Connective Tissue

- Nuclei and fibers arranged in parallel rows.

  -Tendons and ligaments

  -Fibers mostly non-elastic

Adipose (Fat)

- Function as **storage cells for adipose** (lipids).
- Adipose cells contain a **large vacuole** which in the live cell contains lipids.

Cell **nucleus and cytoplasm are pushed out to edge** of cell membrane

Cartilage

- Ground of **matrix is gum** like.
- Cells are found in **Lacunae** within the matrix.
- Fibers may be **elastic or non-elastic**, or a form of non-elastic called **reticular**(where the non-elastic fibers of very thin)

  -Hyaline Cartilage-example on the **ends of bones**

  -Elastic Cartilage- example **ear cartilage**

  -Non-elastic Cartilage- example **nose cartilage**.

Bone

-Ground of matrix is Solid (Calcium carbonate).

-Has blood supply and nerves running through the Haversian canal systems.

Vascular Tissue (Blood)

- Liquid matrix = plasma

  -90% water

  -10%Plasma proteins, electrolytes, hormones, oxygen, glucose etc.

- Formed elements:-

  -Erythrocytes -48billion(female) to 54 billion (male) cell / ml of blood in humans.

  -Leukocytes -about 7.5 million / ml of blood.

  -Platelets -blood clotting.

Muscle Tissue

- Tissue with cells having fibers specialized for contraction.

A-Skeletal Muscle (Striated, voluntary), Parallel elongated cells (fibers), multinucleated and each cell is the length of the muscle.

B-Smooth Muscle (Visceral, involuntary),Cells are long and tapered.

C-Cardiac Muscle:-Intercalated disc, Myogenic. Branched.

Nervous Tissue

- Cells specialized to polarize and depolarize, Cell is a neuron.