



Tissues

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Microtechniques



Tissues

- Tissue is a group of structurally and functionally similar cells working together to perform a specific function.

Types

- Human body has 4 main types of tissues:
- **Epithelial tissue** – covers and protects surfaces
- **Connective tissue** – supports and connects body parts
- **Muscular tissue** – helps in movement
- **Nervous tissue** – carries messages/signals

Four types of tissue



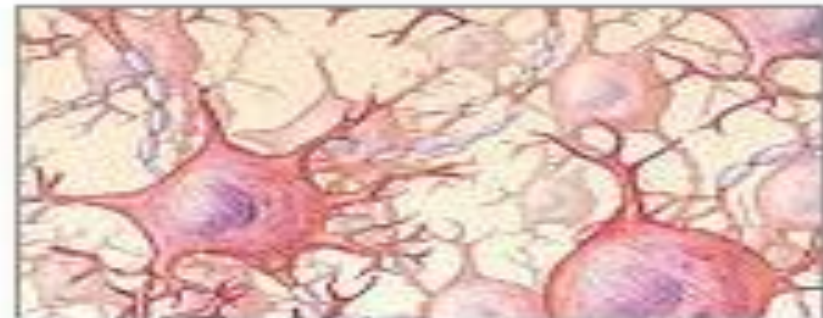
Connective tissue



Epithelial tissue



Muscle tissue



Nervous tissue



Epithelial Tissue

- Covers outer layer of organs and body surfaces
- Works like a protective cover or shield
- **Main Functions**
- Absorption (taking in food/nutrients)
- Secretion (releasing sweat, saliva, mucus)
- Sensation (feeling touch, pain, heat)
- Selective barrier (lets some things pass, blocks others)



Structure of Epithelial Tissue

- **Cellularity**
- Cells tightly packed together
- Due to this arrangement rapid exchange of molecules
- **Polarity**
- Cells have two surfaces
- **Top (apical)** side faces outside (air, cavity, or inside organ)
- **Bottom (basal)** side attached to support tissue



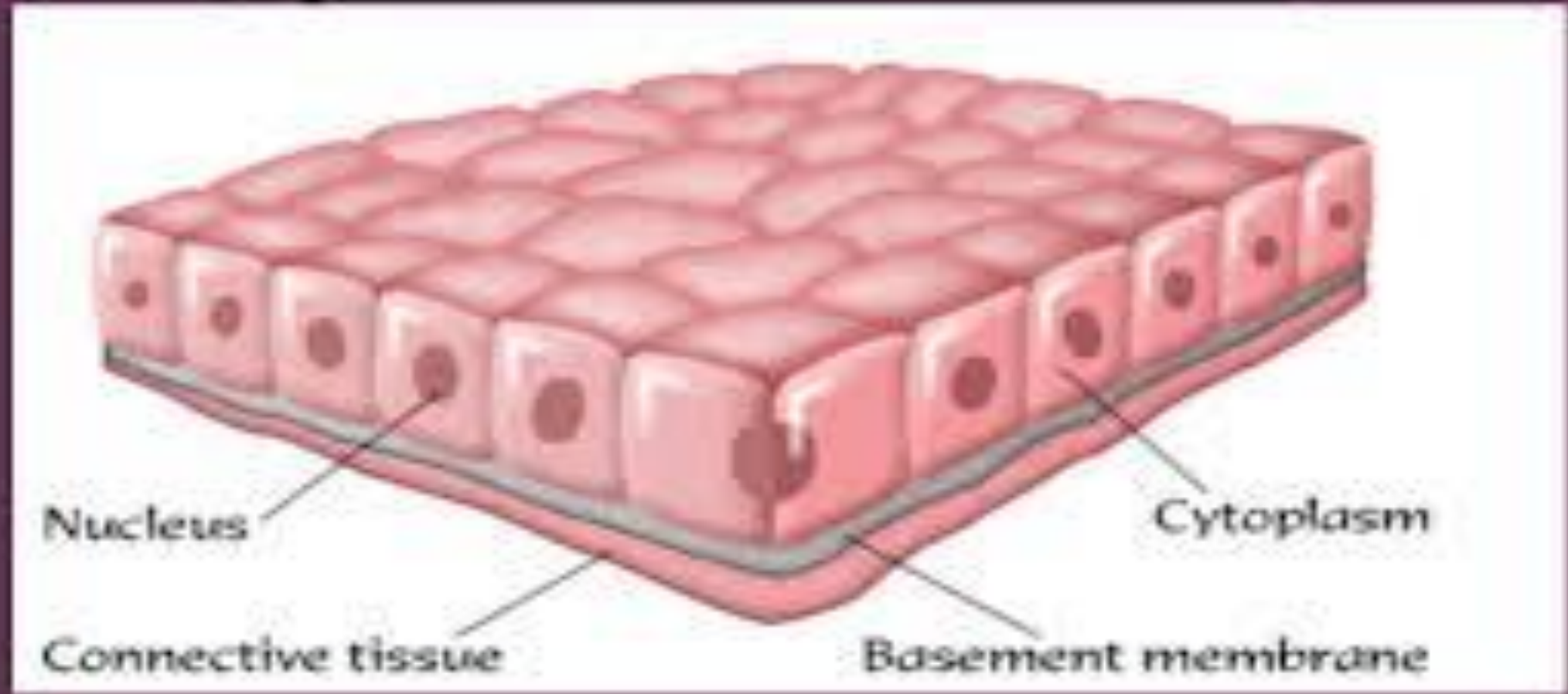
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- **Attachment**
- Fixed to a basement membrane
- Provide structural support and exchange of molecules between epithelium and connective tissue.



TICKET
ALL THE WAY TO THE FRONT

Epithelial Tissues





Classification by Shape

- **Squamous epithelium**
- Thin, flat cells that allows for easy diffusion
- Found in lungs (air sacs) & blood vessels
- **Function:** quick exchange of gases or substances
- **Cuboidal epithelium**
- Cube-shaped cells
- Found in kidney tubules & glands
- **Function:** secretion and absorption



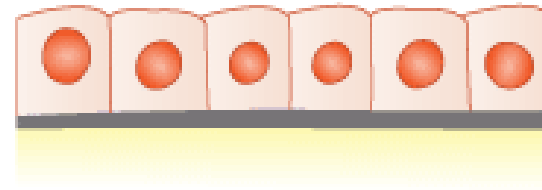
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- **Columnar epithelium**
- Tall, rectangular cells
- Found in digestive tract lining
- **Function:** absorption of food & secretion of enzymes/mucus

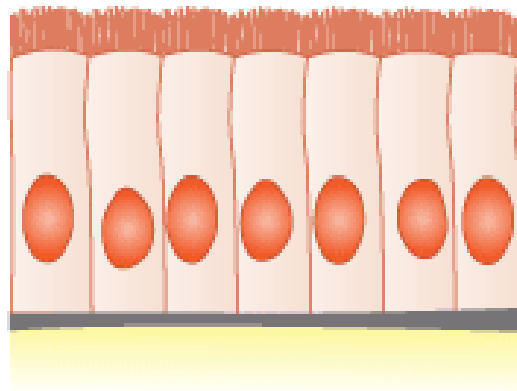
EPITHELIAL TISSUE



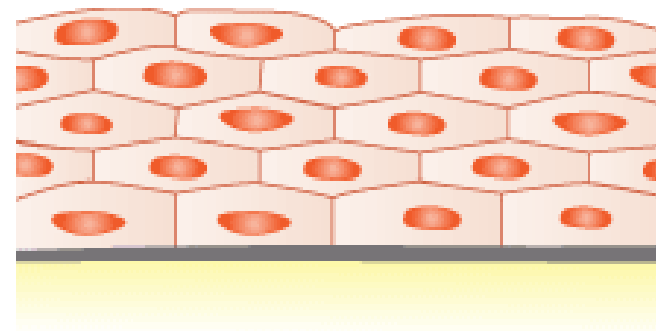
Simple squamous
epithelium



Cuboidal epithelium



Columnar epithelium



Stratified squamous epithelium



Next Lecture

- Epithelial tissues classification on layers
- Functions
- Types



Quiz

- Tissue processing
- Cytopathology
- Hematopathology
- Anatomical Pathology
- Experimental Pathology



Any Questions?





THANK
YOU