

Tissues

By

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Contents

- Definition of tissue
- Types of tissue
- Identification of different types of tissues
- Functions of different types of tissues
- Definition of epithelial tissue
- Classification of epithelial tissue
- Function of epithelial tissue

Histology: the study of tissues.

Tissues

- **Tissue** may be defined as a groups of cells which are similar in structure and which perform a similar or common function ..
- it is a group of cells working together mainly inside an organ Similar cell, similar origin, performing a particular function

Types of Tissues

- Epithelial Tissue
- Connective Tissue
- Muscle Tissue
- Nervous Tissue

Epithelial Tissue

- Epithelial Tissue Locations:
 - Covers the body
 - Lines the cavities, tubes, ducts and blood vessels inside the body
 - Covers the organs inside body cavities

Epithelial Tissue Functions:

- Protection from physical & chemical injury,
- Protection against microbial invasion,
- Contains receptors which respond to stimuli,
- Filters, secretes & reabsorbs materials and
- Secretes serous fluids to lubricate structures

Connective Tissue

- **Connective Tissue:**
 - Most abundant & widely distributed tissue
- **Connective Tissue Functions:**
 - Connects, binds and supports structures,
 - Tendons, ligaments, etc.
 - Protects & cushions organs and tissues,
 - Insulates (fat) and
 - Transports substances (blood).

Muscle Tissue

- Muscle Tissue:
 - Associated with the bones of the skeleton, the heart and in the walls of the hollow organs of the body.
- Muscle Tissue Functions:
 - Movement
 - Locomotion
 - Maintains posture
 - Produces heat
 - Facial expressions
 - Pumps blood
 - Peristalsis

Nervous Tissue

- Nervous Tissue:
 - Main component of the nervous system, ie., brain, spinal cord & nerves.
- Nervous Tissue Functions:
 - Regulates & controls body functions
 - Generates & transmits nerve impulses
 - Supports and protects impulse generating neurons.

Four types of tissue



Connective tissue



Epithelial tissue



Muscle tissue



Nervous tissue

EPITHELIAL TISSUE

CONTENTS:

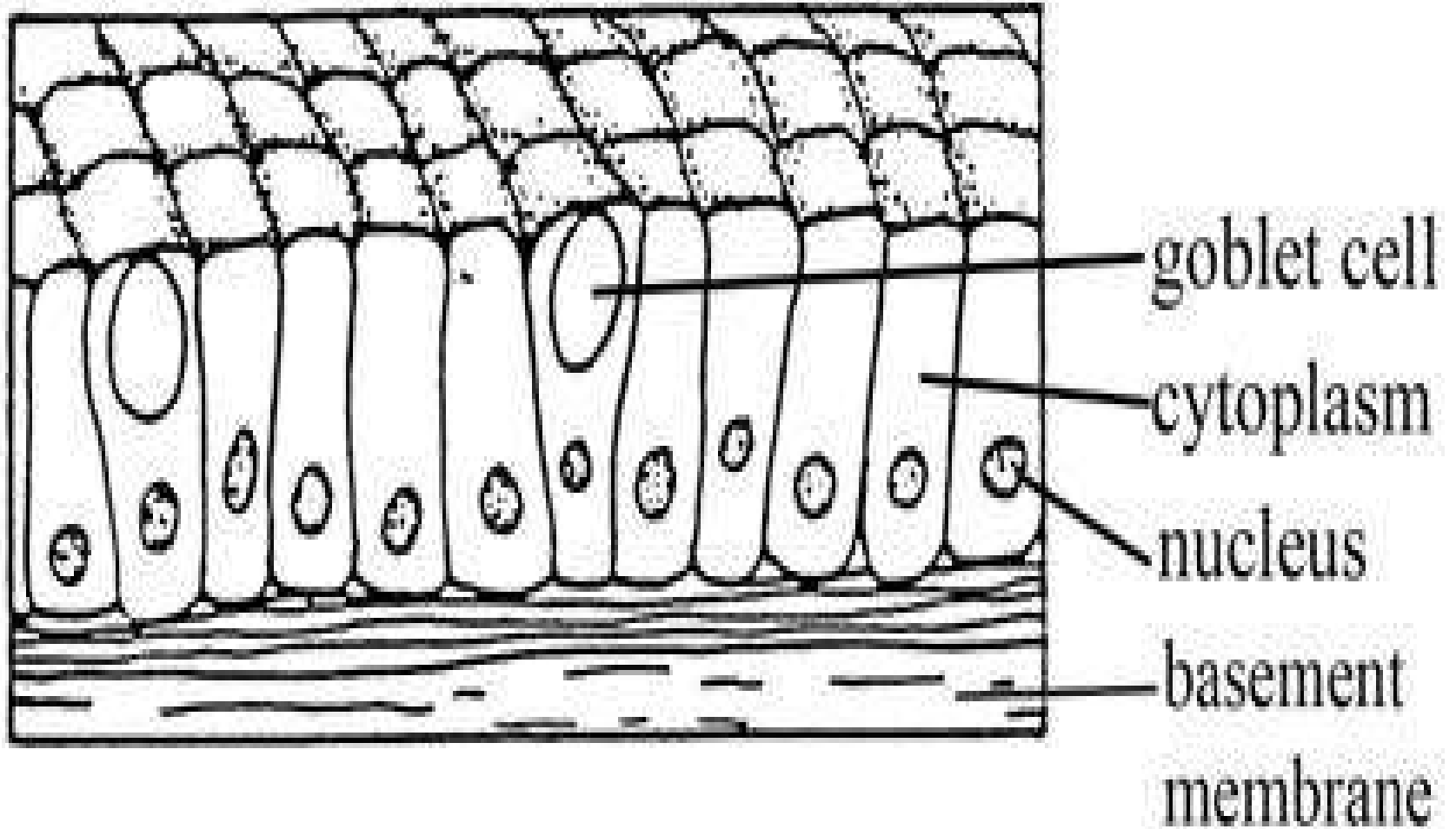
- Definition
- General Function
- Classification based on no of cell layers
- Classification based on shape of cell
- Types of Epithelial tissue
- Summary

DEFINITION:

❖ Epithelial tissues line the outer surfaces of organs and blood vessels through out the body, as well as the inner surfaces of cavities in many internal organs

❖ Closely aggregated, strongly adherent to each other and all the cell rest on a basement membrane.

Epithelial tissue is also called avascularTissue.



Function of Epithelium

- Protection
- Secretion
- Absorbtion
- Sensory
- Conduction

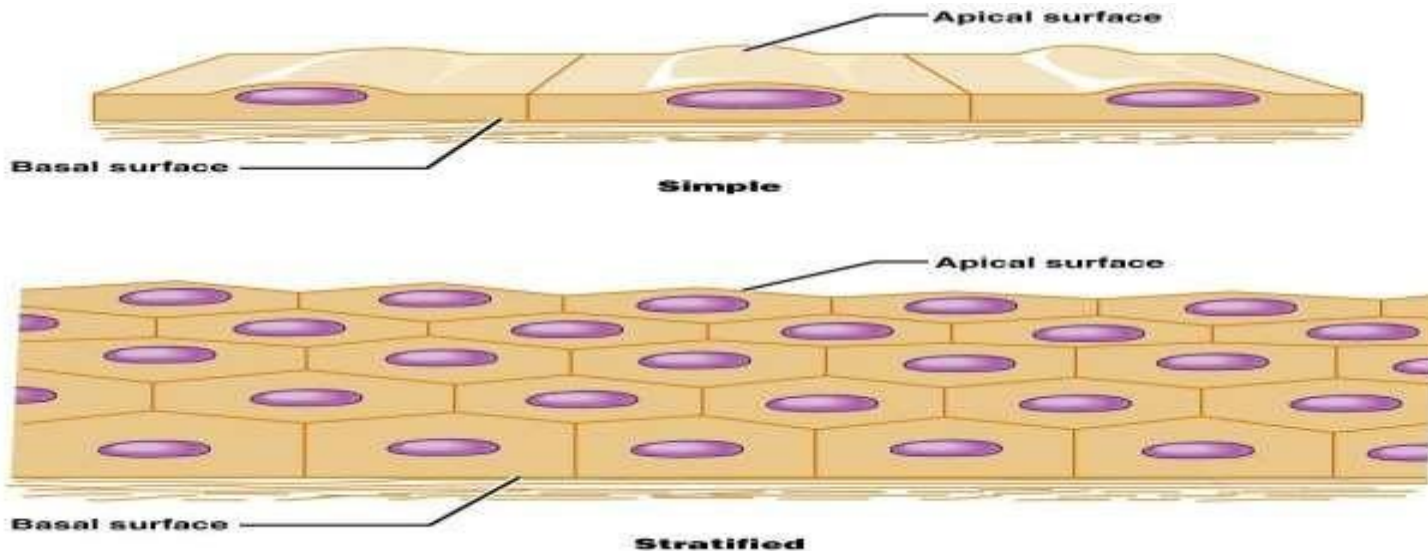
CLASSIFICATION BASED ON NO OF CELL LAYERS:

1) SIMPLE EPITHELIUM TISSUE:

One layered.

2) STRATIFIED EPITHELIAL TISSUE:

More than one layered.



Classification based on shape of cell:

1) Squamous Epithelium:

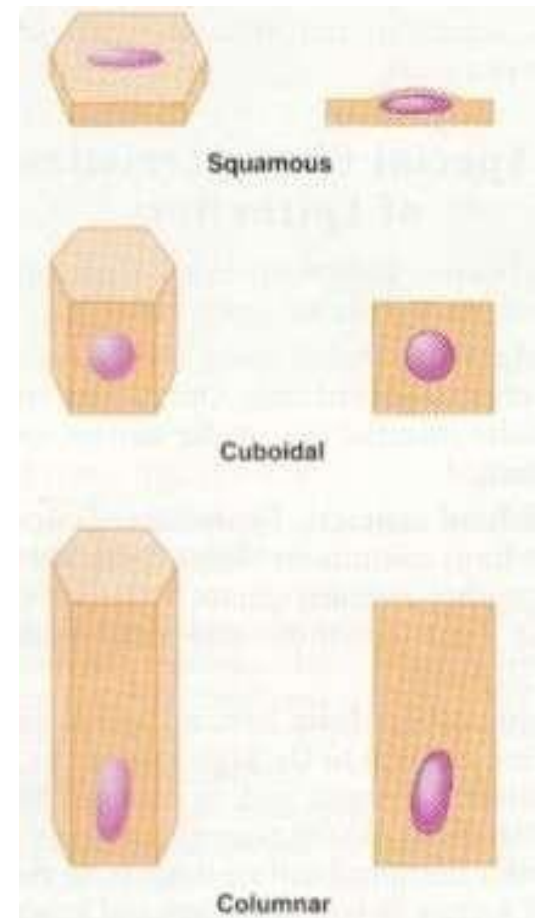
Flattened cells

2) Cuboidal Epithelium:

Cubic cells








3) Columnar Epithelium:

Column cells



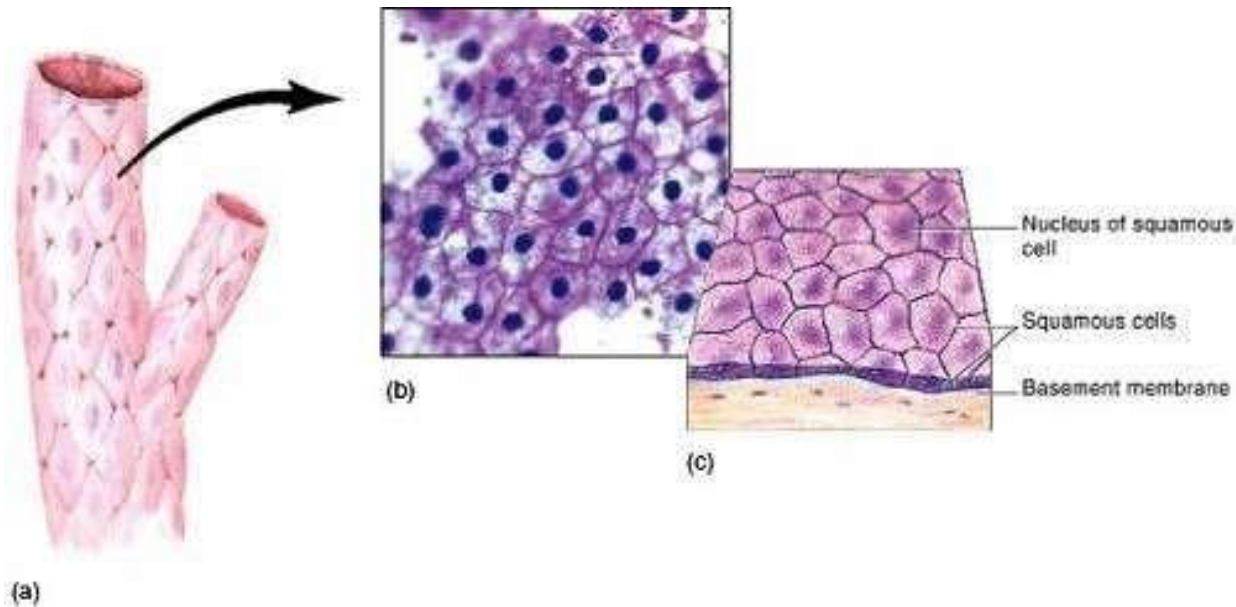
TYPES OF EPITHELIAL TISSUE:

- 1) Simple squamous epithelial tissue**
- 2) Simple cuboidal ET**
- 3) Simple columnar ET**
- 4) Pseudostratified columnar ET**
- 5) Stratified Squamous ET**
- 6) Stratified Cuboidal ET**
- 7) Stratified Columnar ET**
- 8) Transitional epithelium ET**

	Simple	Stratified	
Squamous	 <p>Simple squamous epithelium</p>	 <p>Stratified squamous epithelium</p>	
Cuboidal	 <p>Simple cuboidal epithelium</p>	 <p>Stratified cuboidal epithelium</p>	
Columnar	 <p>Simple columnar epithelium</p>	 <p>Stratified columnar epithelium</p>	Pseudostratified
			 <p>Pseudostratified columnar epithelium</p>

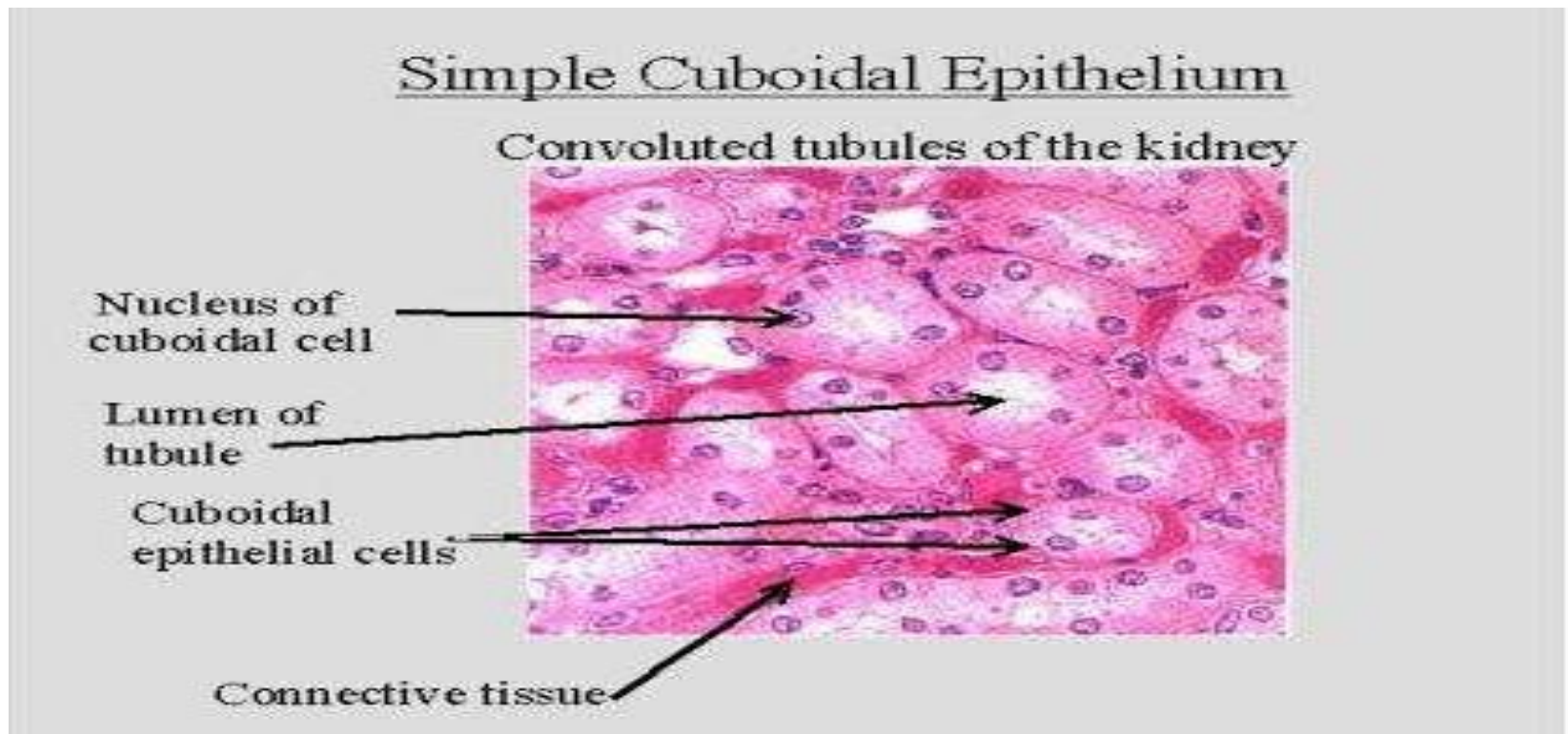
1) Simple squamous epithelial tissue:

- A single layered of flat cells present in kidney, lungs , lining of Heart , blood vessel etc assist in filtration or diffusion of small molecules.



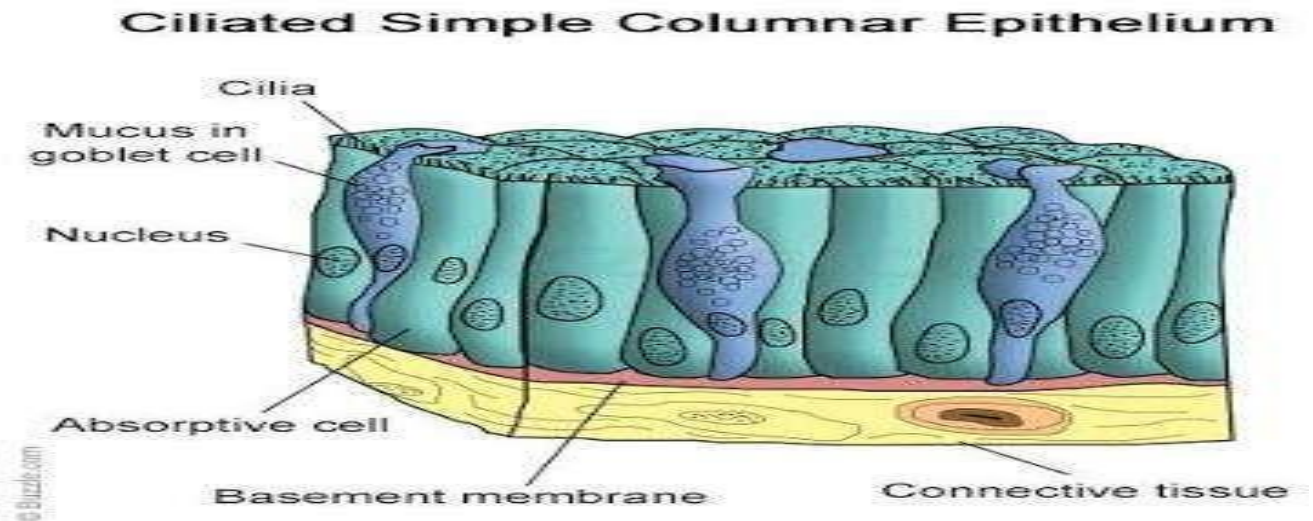
2) Simple cuboidal epithelial tissue:

- Single layered cubical shaped cells tissue present in salivary gland , kidney tubules and ovary surface specialized for secretion and absorption



3) Simple columnar epithelium tissue:

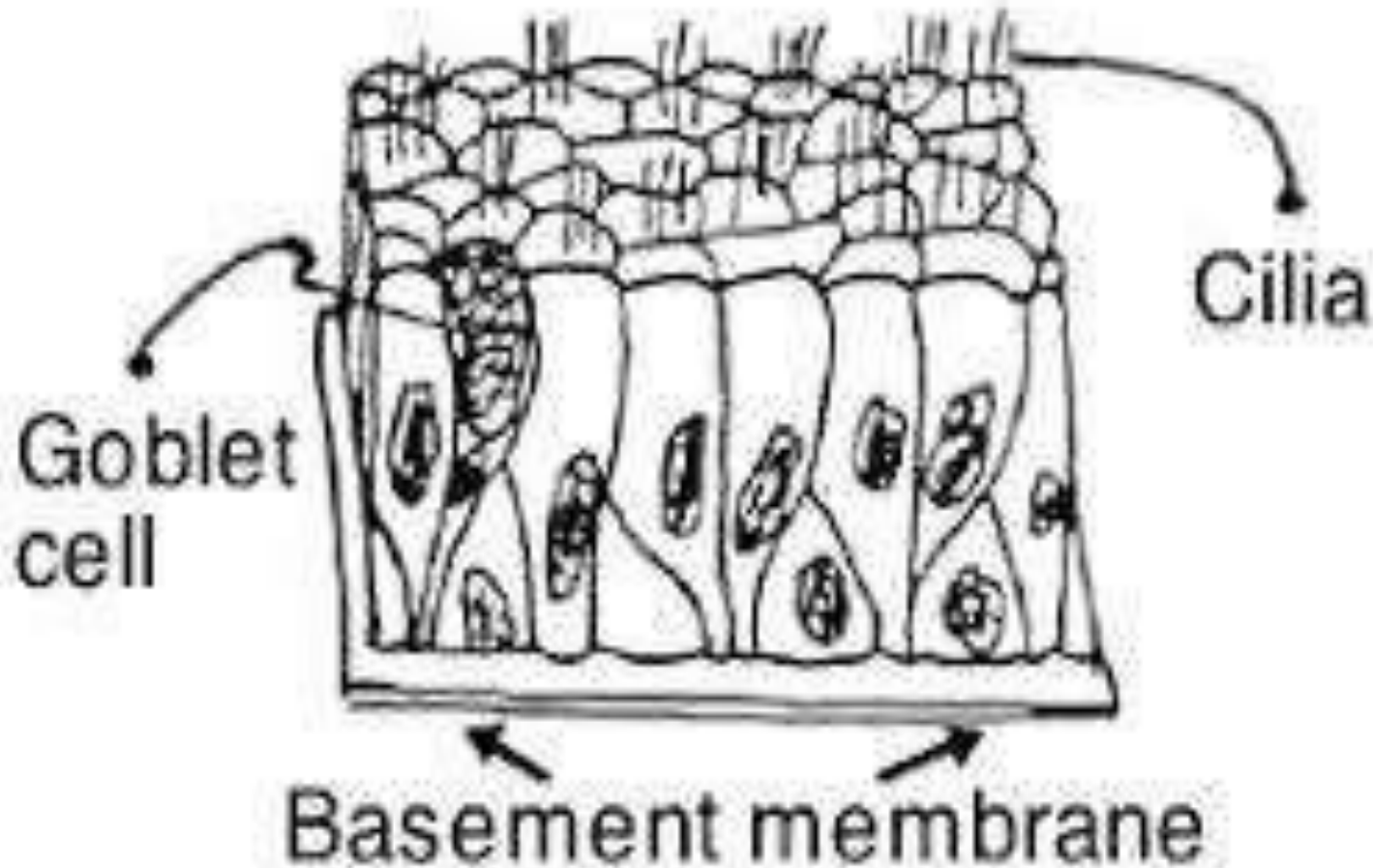
- A single layered column shaped cells tissue present in digestive , gall bladder , uterine tubes and some region of the nucleus helped in absorption , secretion of mucous and enzymes.



4) Pseudostratified columnar ET:

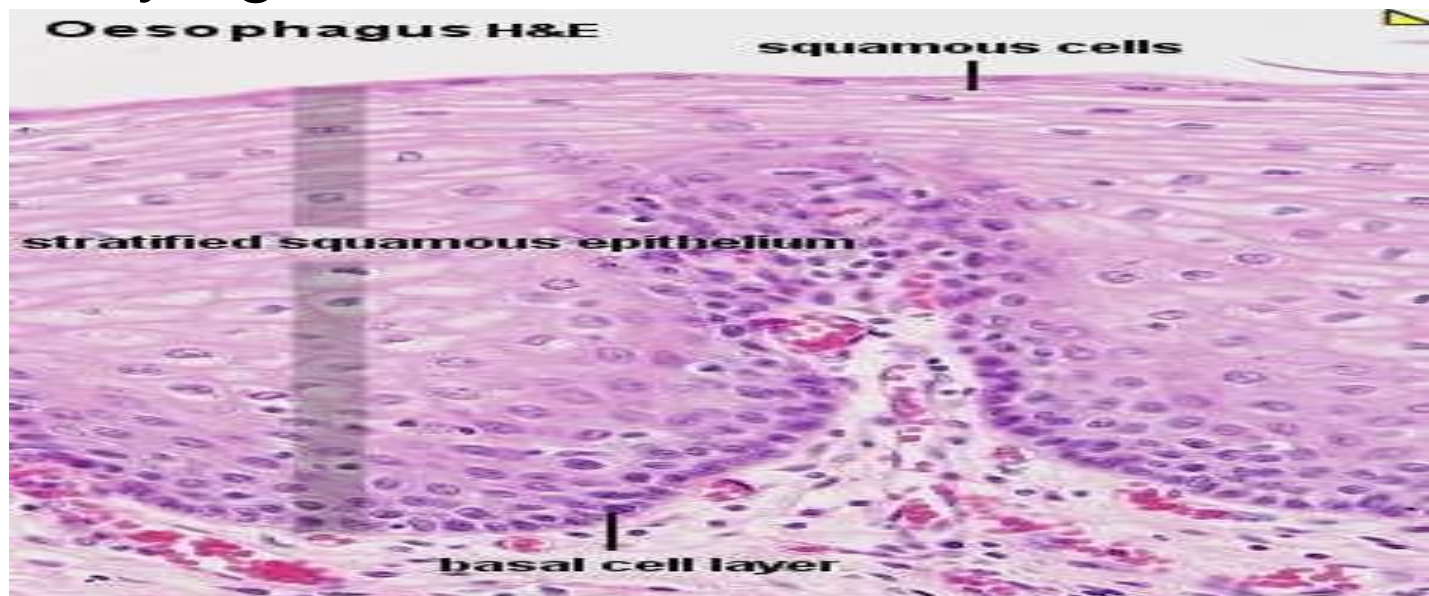
- Single layered different height column shaped cells tissue present in sperm carrying ducts , ducts of large glands and upper respiratory tract helping in secretion

Pseudostratified (ciliated) columnar



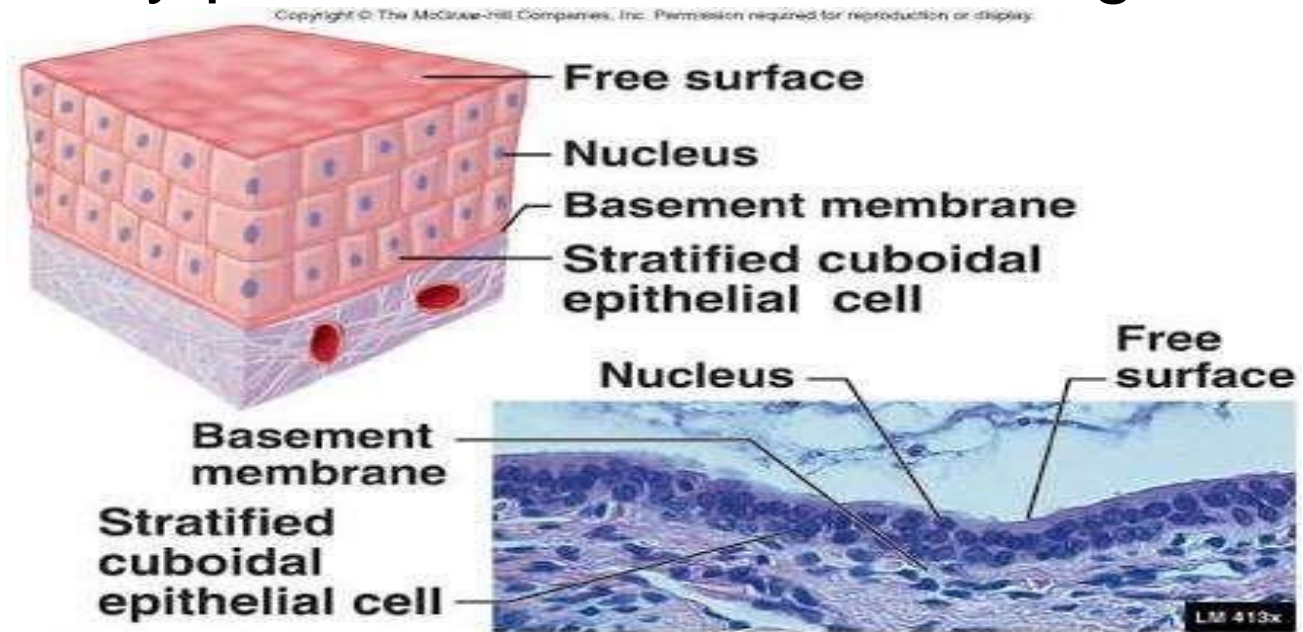
5) Stratified Squamous ET:

- A multi layered flattened cells shaped tissue present in lining of oesophagus , mouth and epidermis of the skin assesting in protecting underlying tissues.



6) Stratified Cuboidal ET:

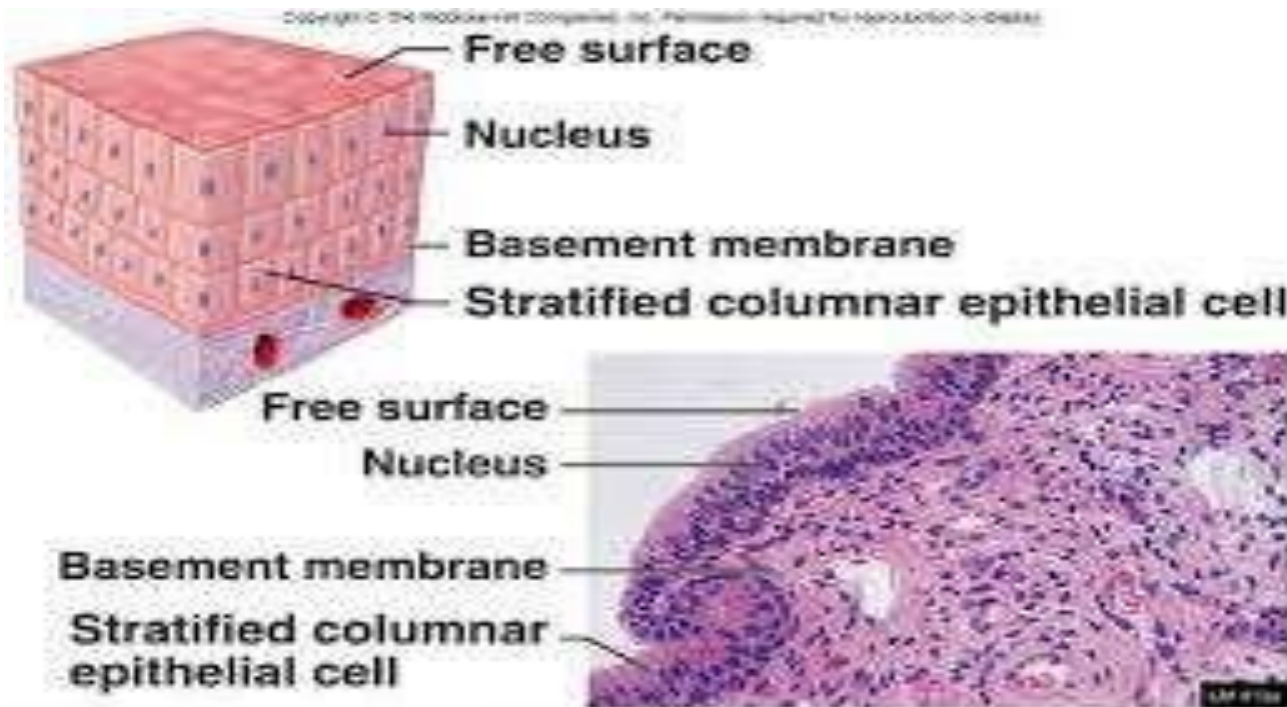
- A multi layered cubic shaped cells tissue present in sweat glands , salivary glands where they protect the ducts of these glands.



(e) Stratified cuboidal epithelium

7) Stratified Columnar ET:

- A rare multi layered column shaped cells tissue present in parts of pharynx , uterus and vas daferens

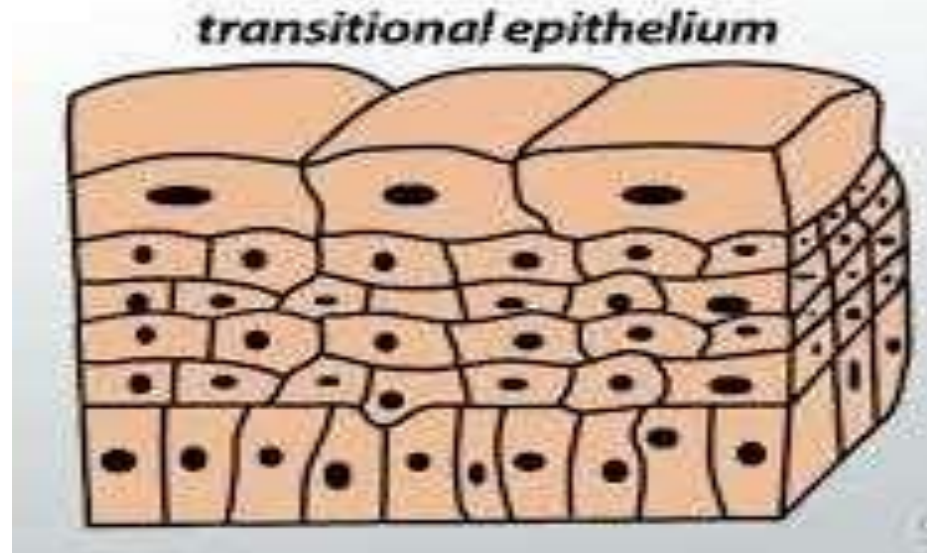


(f) Stratified columnar epithelium

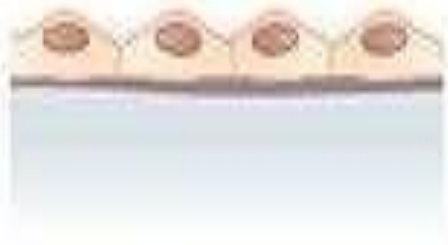
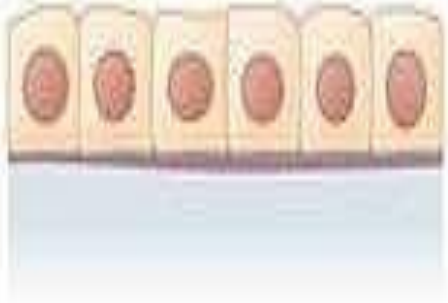
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8) Transitional epithelium ET:


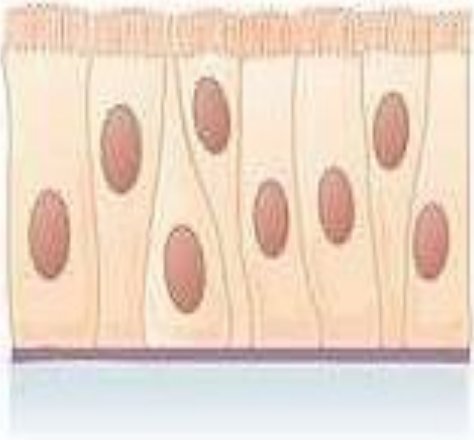
A transitional tissue between stratified squamous and stratified cuboidal tissue present in ureters , urinary bladder and urethra



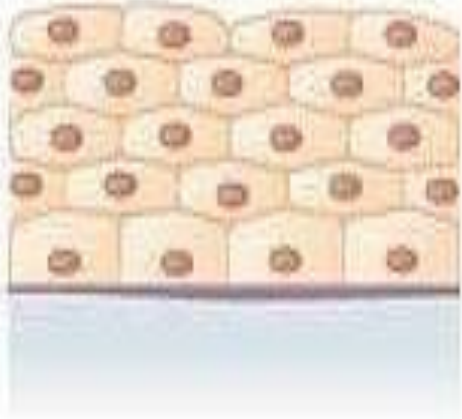
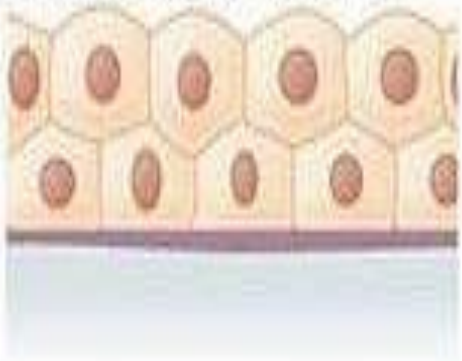
SUMMARY:

Cells	Location	Function
<p data-bbox="123 325 610 396">Simple squamous epithelium</p>  <p>The diagram shows a single layer of four flat, squamous epithelial cells. Each cell is roughly rectangular with a thin, flattened shape. They are arranged side-by-side, with their nuclei positioned near the center. The cells are connected to a light blue basement membrane below them.</p>	<p data-bbox="803 334 1286 558">Air sacs of lungs and the lining of the heart, blood vessels, and lymphatic vessels</p>	<p data-bbox="1335 334 1715 629">Allows materials to pass through by diffusion and filtration, and secretes lubricating substance</p>
<p data-bbox="123 796 581 868">Simple cuboidal epithelium</p>  <p>The diagram shows a single layer of six cube-shaped epithelial cells. Each cell is roughly square with a prominent, centrally located nucleus. They are arranged side-by-side, resting on a light blue basement membrane.</p>	<p data-bbox="803 796 1286 1015">In ducts and secretory portions of small glands and in kidney tubules</p>	<p data-bbox="1335 796 1682 858">Secretes and absorbs</p>

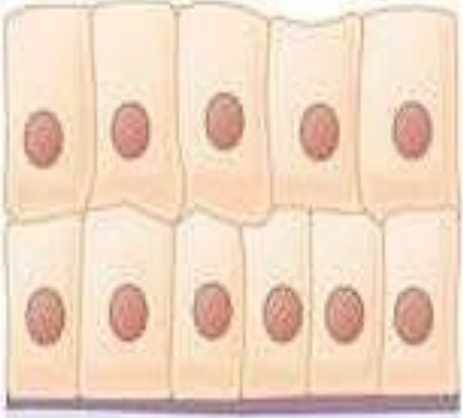
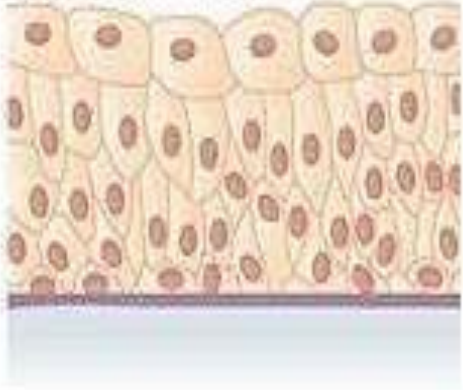
SUMMARY:

<p>Simple columnar epithelium</p> 	<p>Ciliated tissues are in bronchi, uterine tubes, and uterus; smooth (nonciliated tissues) are in the digestive tract, bladder</p>	<p>Absorbs; it also secretes mucous and enzymes</p>
<p>Pseudostratified columnar epithelium</p> 	<p>Ciliated tissue lines the trachea and much of the upper respiratory tract</p>	<p>Secretes mucus; ciliated tissue moves mucus</p>

SUMMARY:

<p>Stratified squamous epithelium</p> 	<p>Lines the esophagus, mouth, and vagina</p>	<p>Protects against abrasion</p>
<p>Stratified cuboidal epithelium</p> 	<p>Sweat glands, salivary glands, and the mammary glands</p>	<p>Protective tissue</p>

SUMMARY:

<p>Stratified columnar epithelium</p> 	<p>The male urethra and the ducts of some glands</p>	<p>Secretes and protects</p>
<p>Transitional epithelium</p> 	<p>Lines the bladder, urethra, and the ureters</p>	<p>Allows the urinary organs to expand and stretch</p>

THANKS