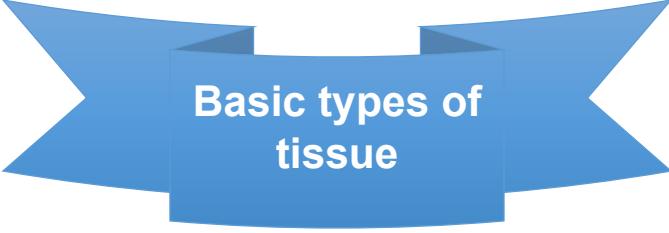


Histology: Is the study of the tissues of the body.

Tissue: Group of similar cells combined to perform a common function, the human body is composed of only 4



Basic types of tissue

1. Epithelial tissues.
2. Connective tissues.
3. Muscular tissues.
4. Nervous tissues.

Epithelial Tissues: Is a sheet of cells that covers a body surface or lines a body cavity.

- ❖ Nearly all substances received or given off by the body must pass through an epithelium layer.
- ❖ lacks of blood vessels, contains little intercellular material and are continually being replaced



Features of epithelium

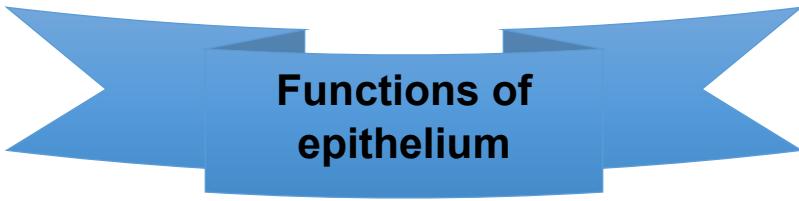
1. Covering & lining
2. Homeostasis

3. Intercellular space

4. No bl. Vessels

5. three germ layers

- Ectoderm-oral and nasal mucosa, cornea , epidermis, glands of skin, mammary glands
- Endoderm-Lining of respiratory and gastrointestinal tract, liver , pancreas
- Mesoderm-lining of urogenital system, circulatory system and body cavities lining-mesothelium.



Functions of epithelium

1. Protection

Skin protects from sunlight & bacteria & physical damage.

2. Secretion

Different glands produce perspiration, oil, digestive enzymes and mucus

3. Absorption

Lining of small intestine absorbing nutrients into blood

4. Cellular transport

Each Epithelium Tissue is given two names:

- The first name indicates the number of cell layers present.
 - Simple- one layer
 - Stratified- more than one layer
- The second describes the shape of its cells
 - Squamous, cuboidal, and columnar.

Simple squamous epithelium

➤ **Structure**

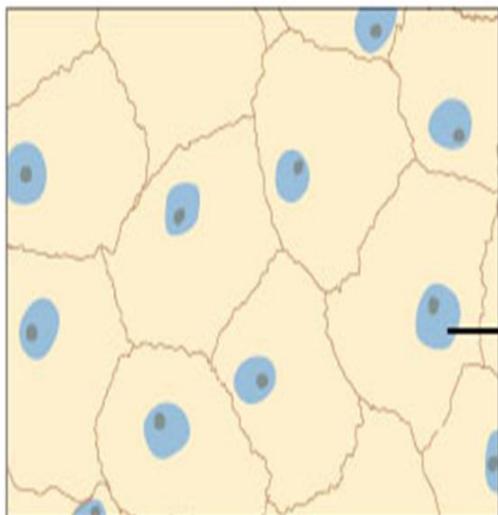
It is single layer of flat cells with disc central nuclei and sparse cytoplasm.

➤ **Location**

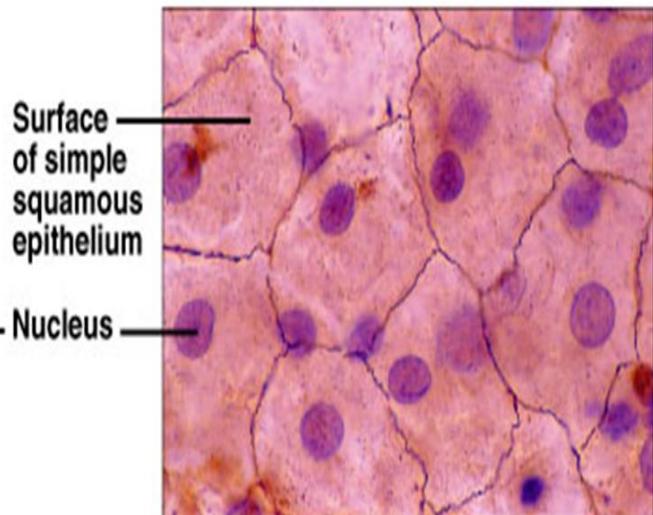
Bowman's capsule in kidneys, lungs, endothelium of blood vessels.

➤ **Function**

Allows passage of materials by diffusion and filtration in sites where protection is not important; secretes lubricating substances in serosae.



C



D

Simple cuboidal epithelium

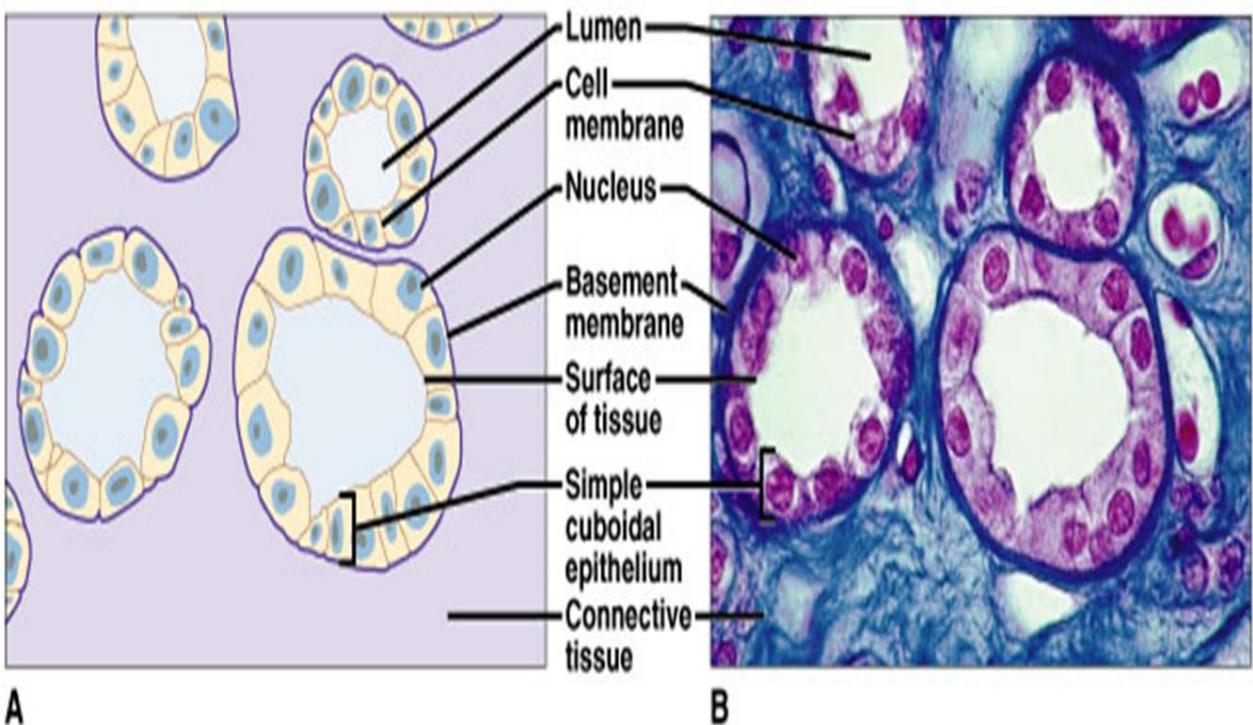
➤ Structure

Single layer of cubelike cells with large, spherical central nuclei.

➤ Location

Kidney tubules; ducts and secretory portions of small glands; ovary surface.

➤ Function



Secretion and absorption.

Simple columnar epithelium

➤ Structure

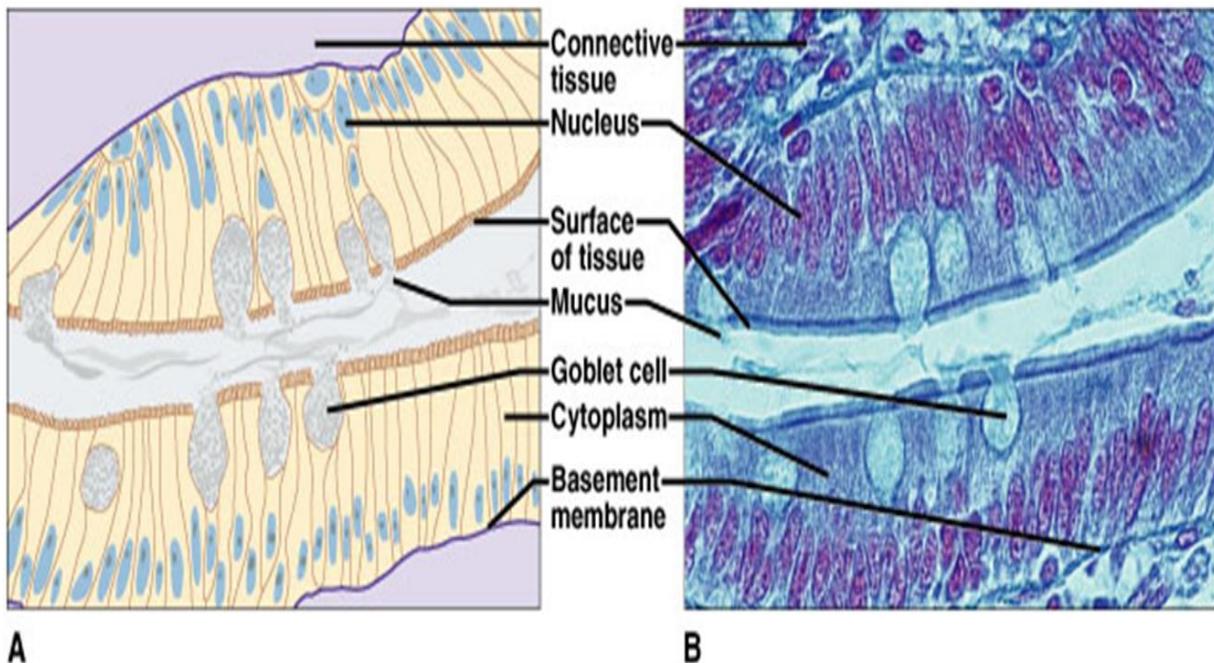
Single layer of tall cells with round to oval nuclei; some cells bear cilia; layer may contain mucus- secreting unicellular glands (goblet cells)

➤ Location

Non ciliated type lines most of digestive tract (stomach to anal canal), gallbladder, and excretory ducts of some glands; ciliated variety lines small bronchi, uterine tubes, and some regions of the uterus.

➤ Function

Absorption; secretion of mucus, enzymes, and other substances; ciliated type propels mucus (or reproductive cells) by ciliary action.



Pseudostratified columnar epithelium

➤ Structure

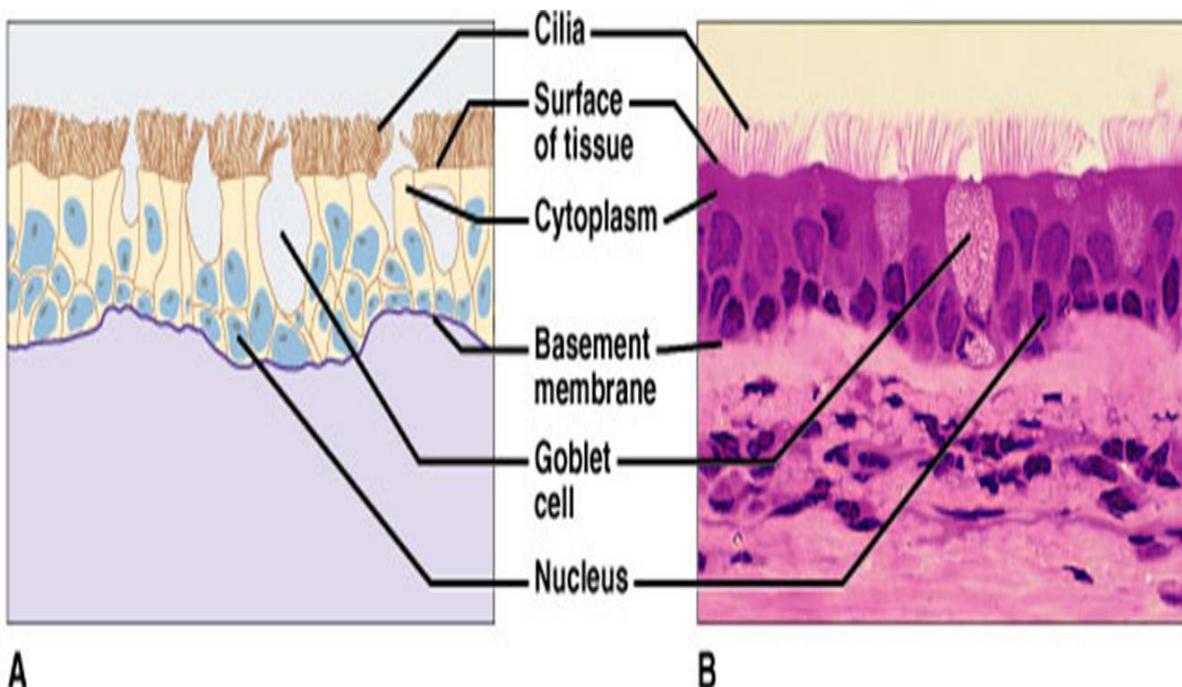
Single layer of cells of differing heights, some not reaching the free surface; nuclei seen at different levels; may contain mucus-secreting cells and bear cilia.

➤ Location

Non ciliated type in male's sperm-carrying ducts and ducts of large glands; ciliated variety lines the trachea, most of the upper respiratory tract.

➤ Function

Secretion, particularly of mucus; propulsion of mucus by ciliary action.



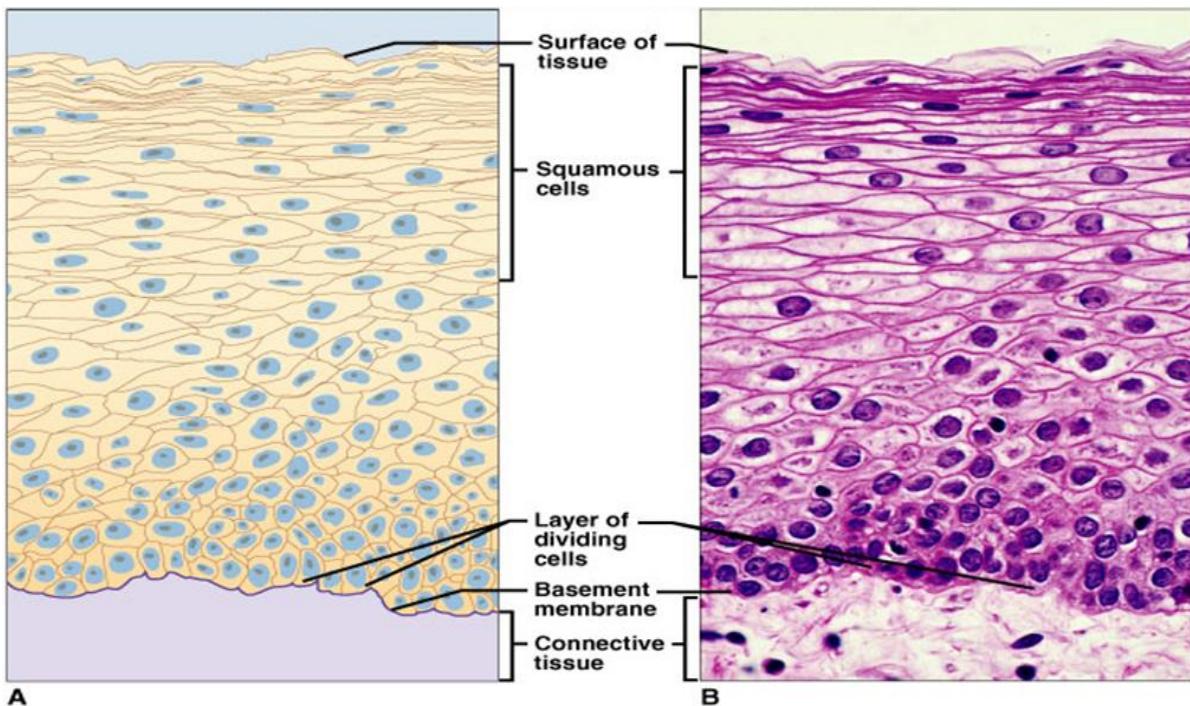
Stratified squamous epithelium

➤ Structure

It is thick multiple layers of flat cells in the surface and columnar or cuboidal like in the basal membrane with disc central nuclei.

➤ Location

Keratinized in skin, non-keratinized in esophagus, mouth, oral cavity, anal canal and internal lips.



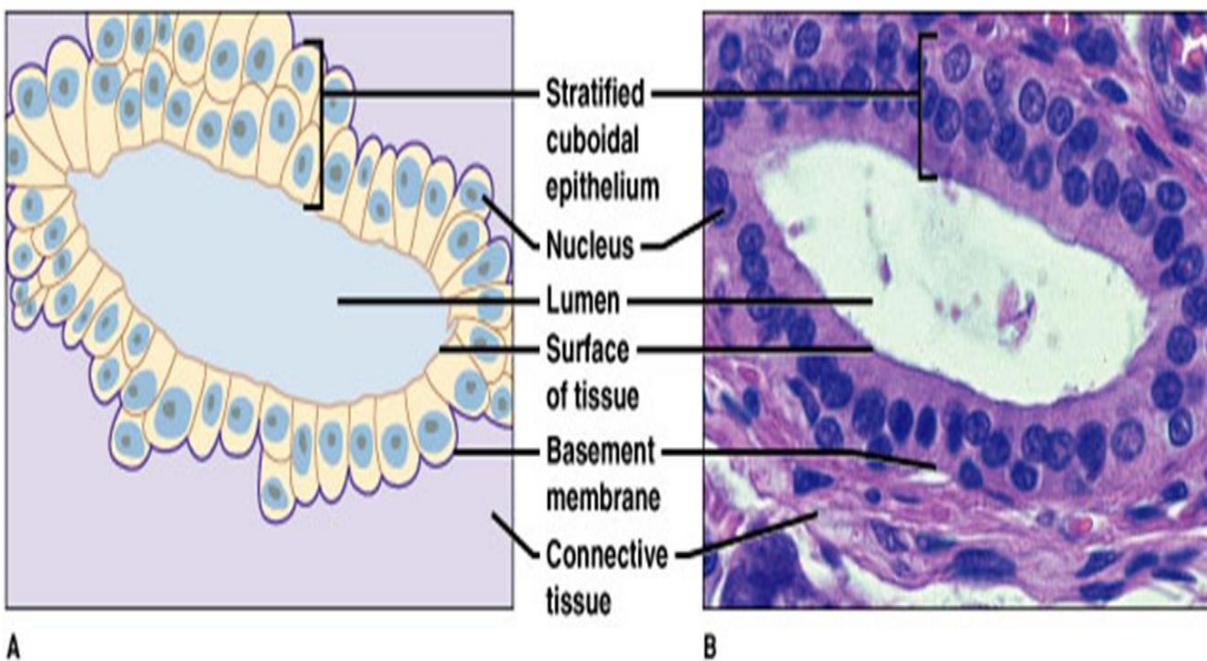
Stratified cuboidal epithelium

➤ Structure

It is two layers of cube – like cells with large spherical central nuclei.

➤ Location

Sweat gland.



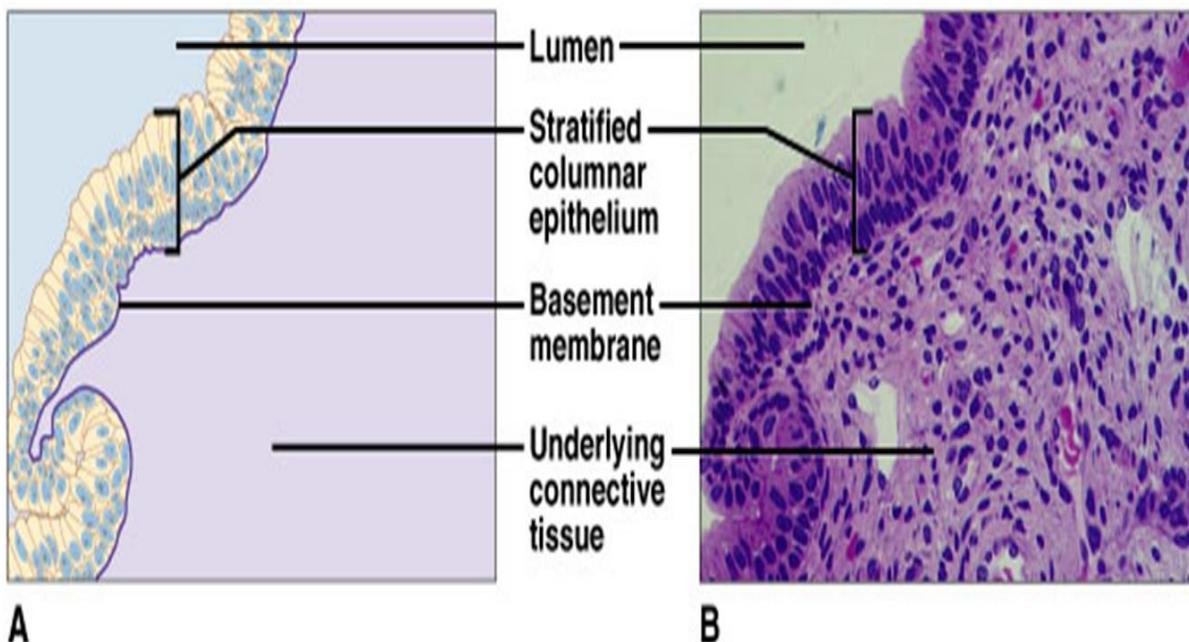
Stratified columnar epithelium

➤ **Structure**

It is multiple layers of column cells with oval nuclei.

➤ **Location**

Pharynx, epiglottis, urethra, salivary gland



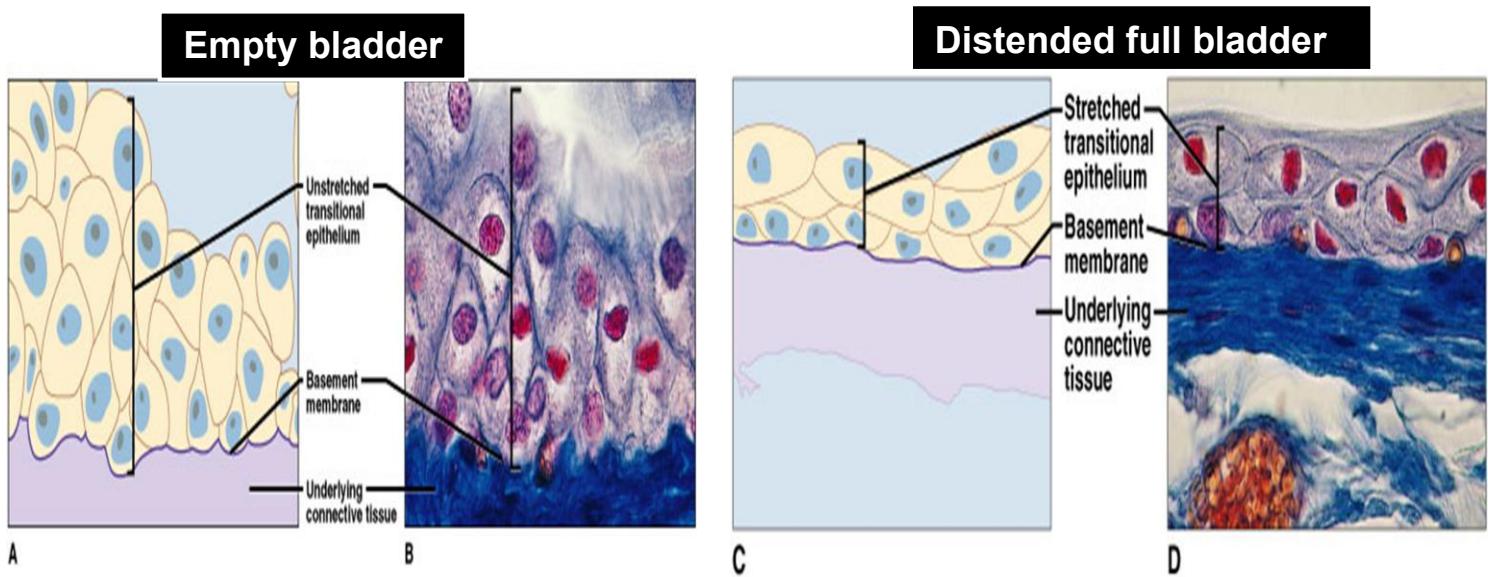
Transitional epithelium

➤ Structure

It is multiple layers of epithelium cuboidal or columnar shaped of cells that can contract and expand (able to distend).

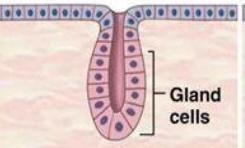
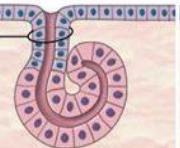
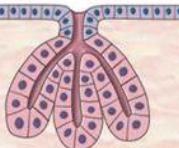
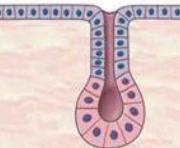
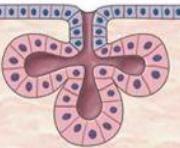
➤ Location

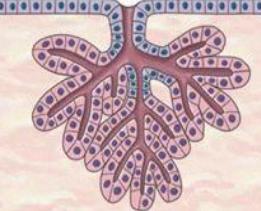
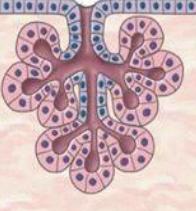
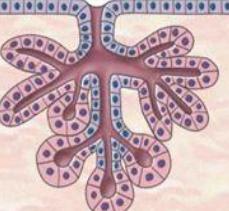
urinary bladder, ureters, renal pelvis



Gland: Is a group of cells in an animal's body that synthesizes substances (such as hormones) for release into the bloodstream (endocrine gland) or into cavities inside the body or its outer surface (exocrine gland).

Type of gland

SIMPLE GLANDS				
				
SIMPLE TUBULAR	SIMPLE COILED TUBULAR	SIMPLE BRANCHED TUBULAR	SIMPLE ALVEOLAR (ACINAR)	SIMPLE BRANCHED ALVEOLAR
<i>Examples:</i> •Intestinal glands	<i>Examples:</i> •Merocrine sweat glands	<i>Examples:</i> •Gastric glands •Mucous glands of esophagus, tongue, duodenum	<i>Examples:</i> •Not found in adult; a stage in development of simple branched glands	<i>Examples:</i> •Sebaceous (oil) glands

COMPOUND GLANDS		
		
COMPOUND TUBULAR	COMPOUND ALVEOLAR (ACINAR)	COMPOUND TUBULOALVEOLAR
<i>Examples:</i> •Mucous glands (in mouth) •Bulbourethral glands (in male reproductive system) •Testes (seminiferous tubules)	<i>Examples:</i> •Mammary glands	<i>Examples:</i> •Salivary glands •Glands of respiratory passages •Pancreas

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Mode of secretion

Exocrine glands can secrete their products in three different ways:

- Merocrine secretion (salivary gland , sweat gland)
- Apocrine secretion (mammary gland)
- Holocrine secretion (sebaceous gland)

