D.PHARM • FIRST YEAR

Human Anatomy & Physiology

CHAPTER 3

Tissues of the Human Body



ENGLISH CHAPTER NOTES

DIPLOMA IN PHARMACY

EPITHELIAL TISSUE

STRUCTURE

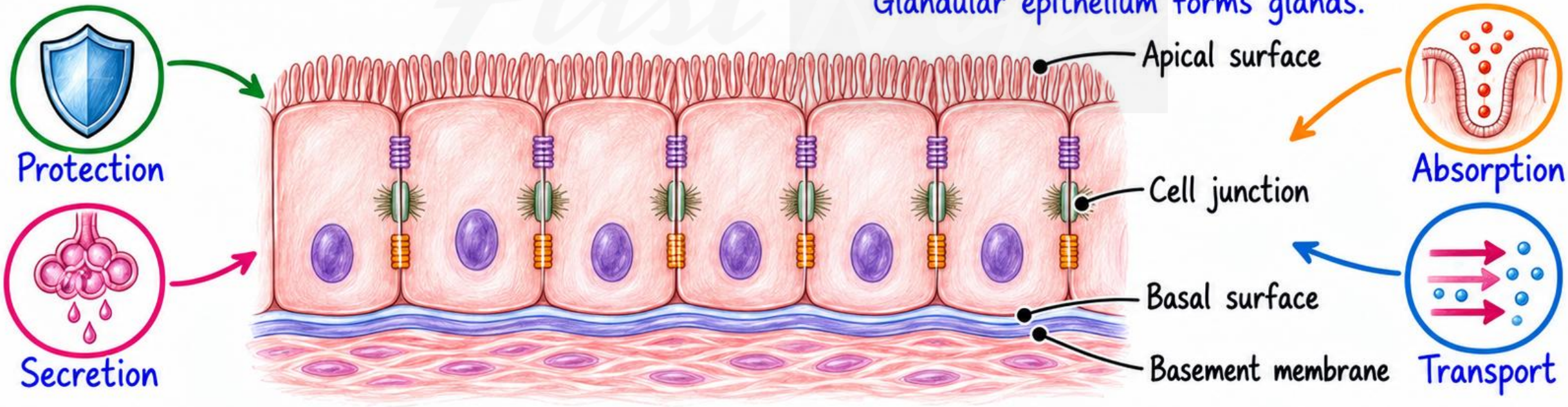
- Closely packed cells with little extracellular matrix.
- Apical surface faces a lumen or the exterior. Basal surface rests on a basement membrane.
- Tight junctions, desmosomes and gap junctions connect cells.

CLASSIFICATION

- Simple epithelium has one layer.
- Stratified epithelium has multiple layers.
- Cell shapes are squamous, cuboidal or columnar.

FUNCTIONS

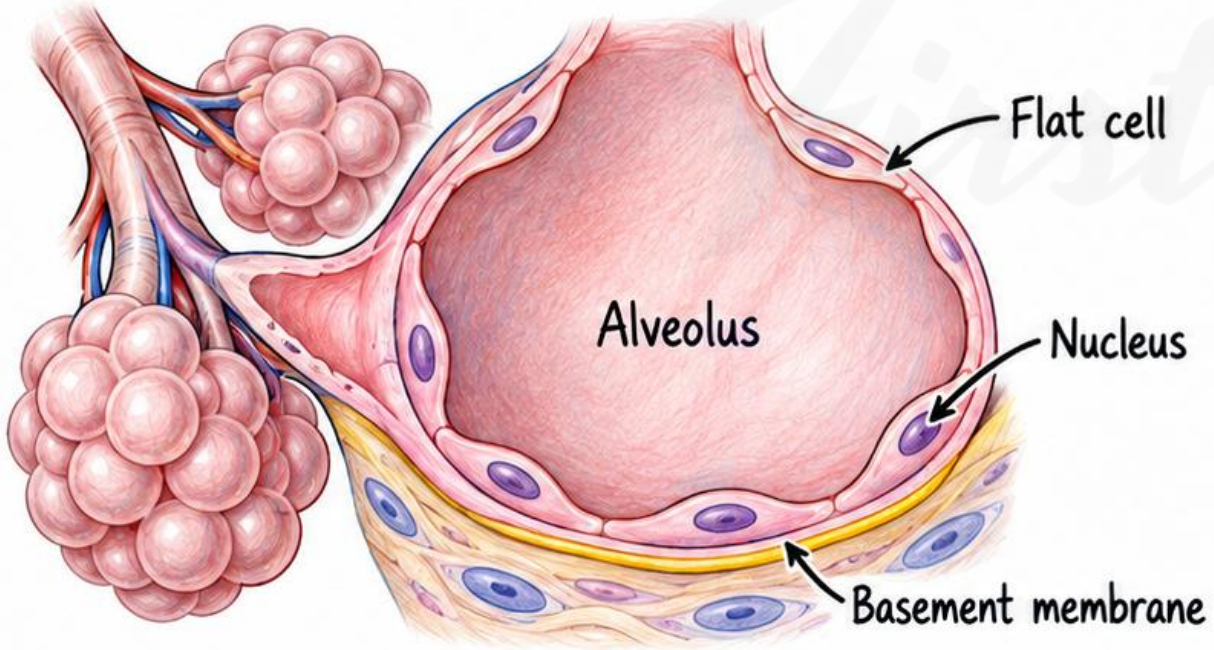
- Protection, secretion, absorption and transport.
- Surface epithelium lines surfaces. Glandular epithelium forms glands.



SIMPLE SQUAMOUS AND CUBOIDAL EPITHELIUM

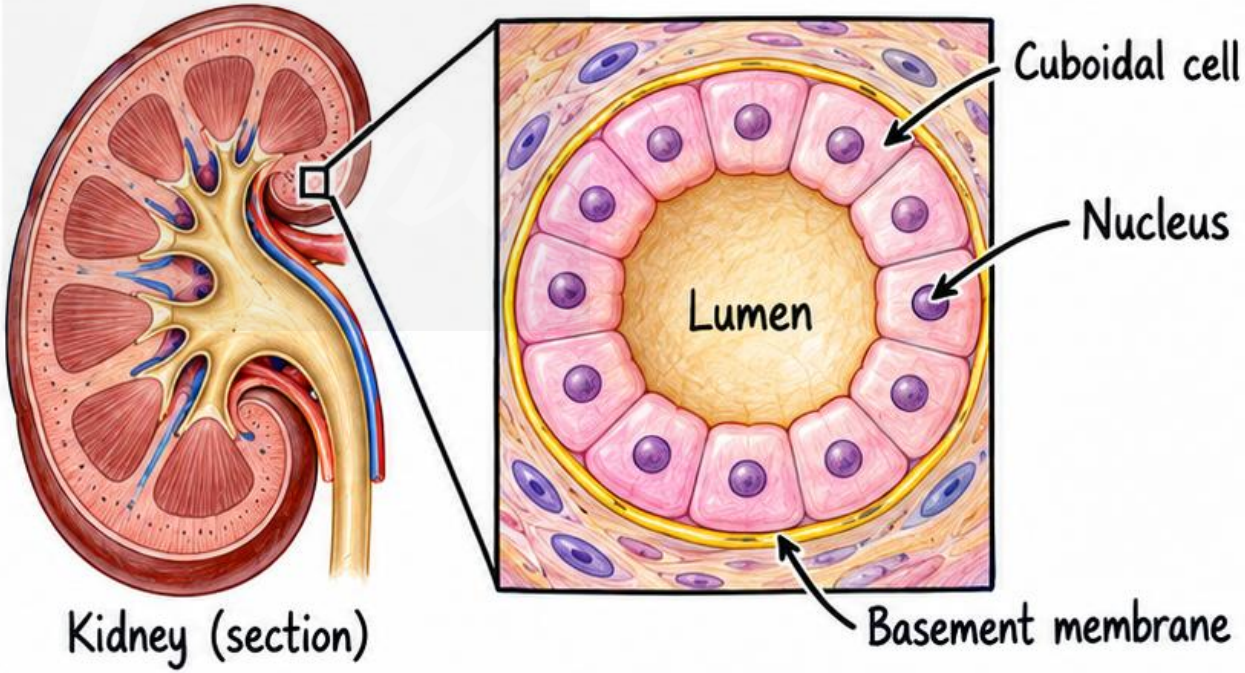
SIMPLE SQUAMOUS

1. One layer of flat, thin cells.
2. Allows rapid diffusion and filtration.
3. Locations include alveoli, vascular endothelium and parts of the renal corpuscle.



SIMPLE CUBOIDAL

1. One layer of cube-shaped cells with central nuclei.
2. Supports secretion and absorption.
3. Found in kidney tubules and many glands and ducts.

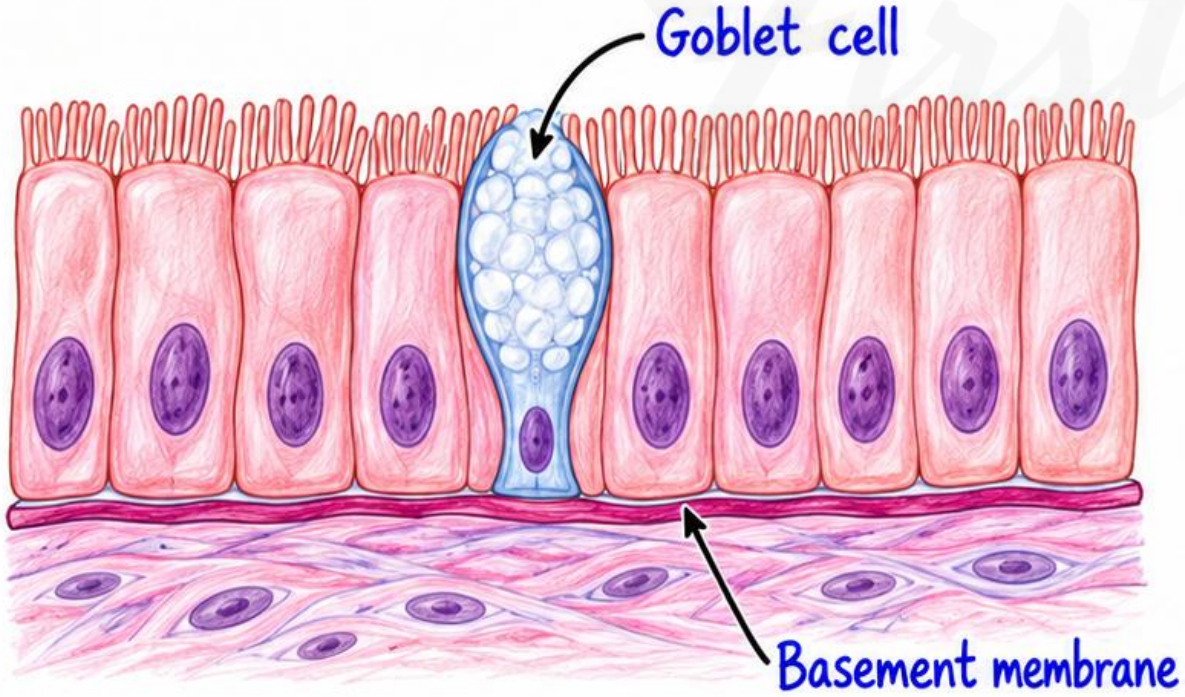


All simple epithelial cells touch the basement membrane.

Columnar and Pseudostratified Epithelium

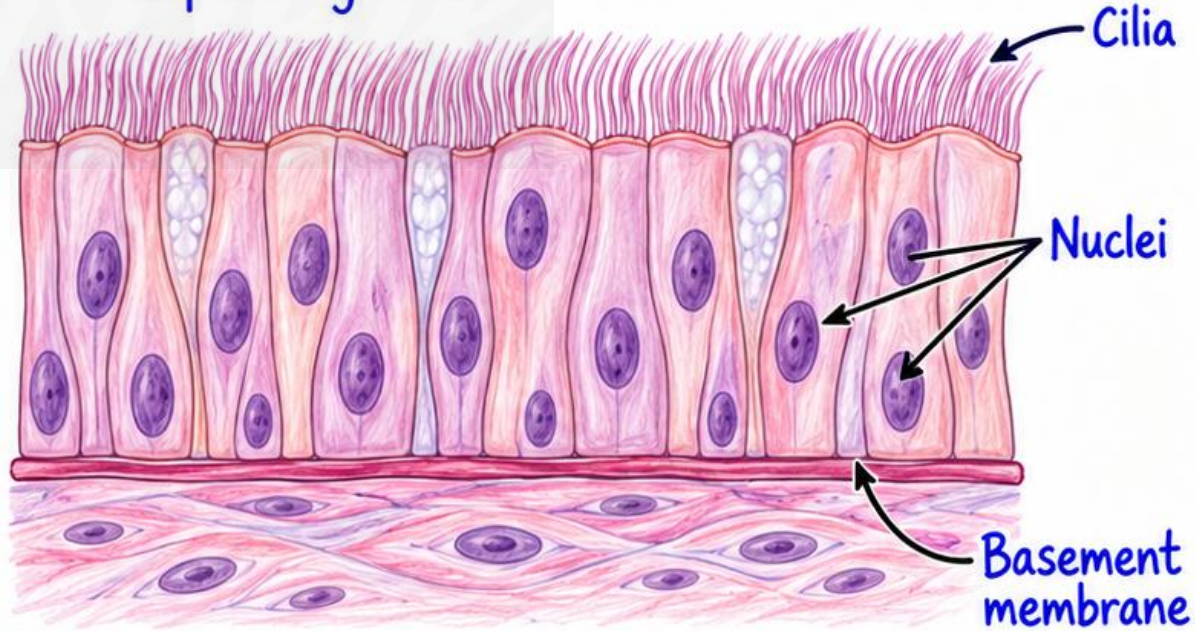
Simple Columnar

1. One layer of tall cells.
2. Absorbs substances and secretes mucus or other products.
3. Found in the stomach, intestines and gallbladder. Goblet cells may secrete mucus.



Pseudostratified Columnar

1. Nuclei lie at different heights, creating a layered appearance.
2. Every cell contacts the basement membrane.
3. Ciliated respiratory epithelium moves mucus and trapped particles.
4. Found in the trachea and much of the upper respiratory tract.



STRATIFIED SQUAMOUS EPITHELIUM

STRUCTURE

- Several cell layers with flattened cells at the surface.
- Deeper cells may be cuboidal or columnar.

FUNCTION

- Protects against abrasion and physical injury.

KERATINIZED

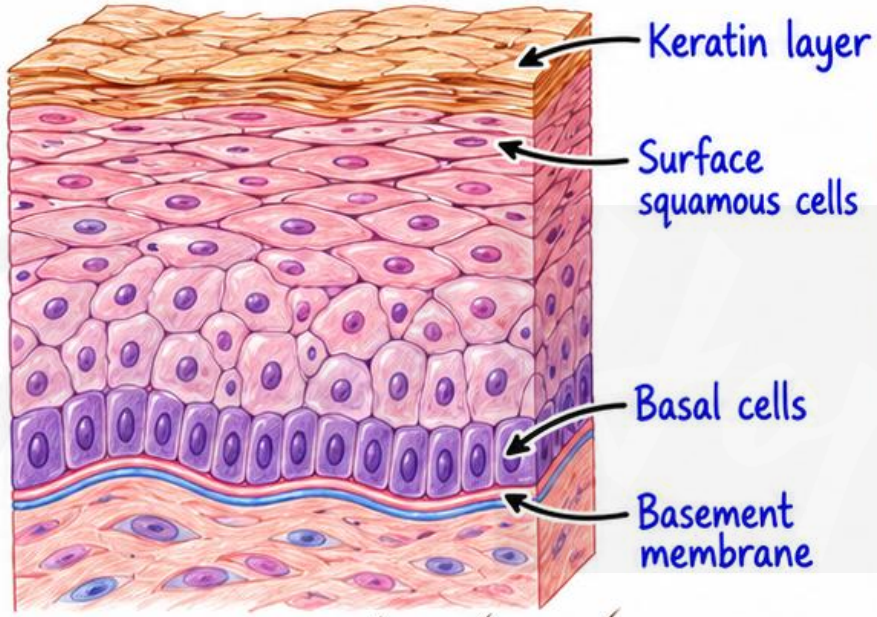
- The epidermis has a protective keratinized surface.

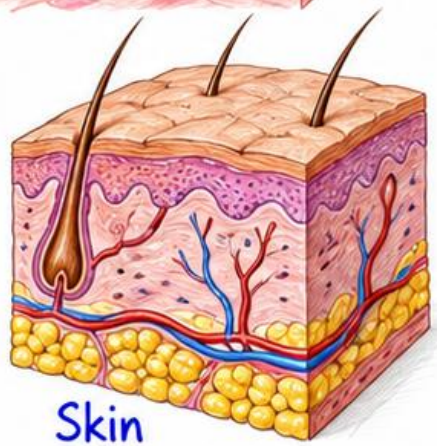
NON-KERATINIZED

- Moist linings include the mouth, esophagus and vagina.

Classification uses the shape of the surface cells, not the deeper cells.

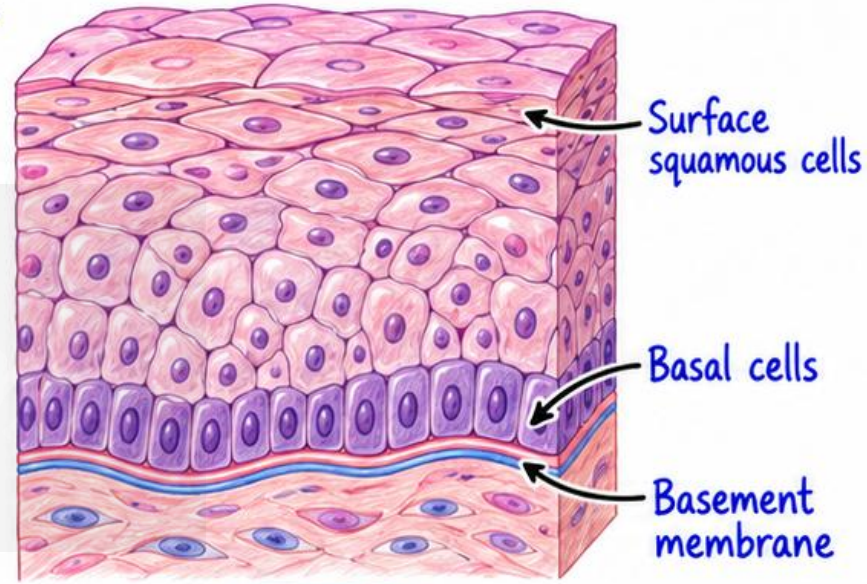
KERATINIZED (Skin - Epidermis)





Skin

NON-KERATINIZED (Mouth)





Mouth

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