SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Approved by Pharmacy Council of India, New Delhi.
Coimbatore -641035

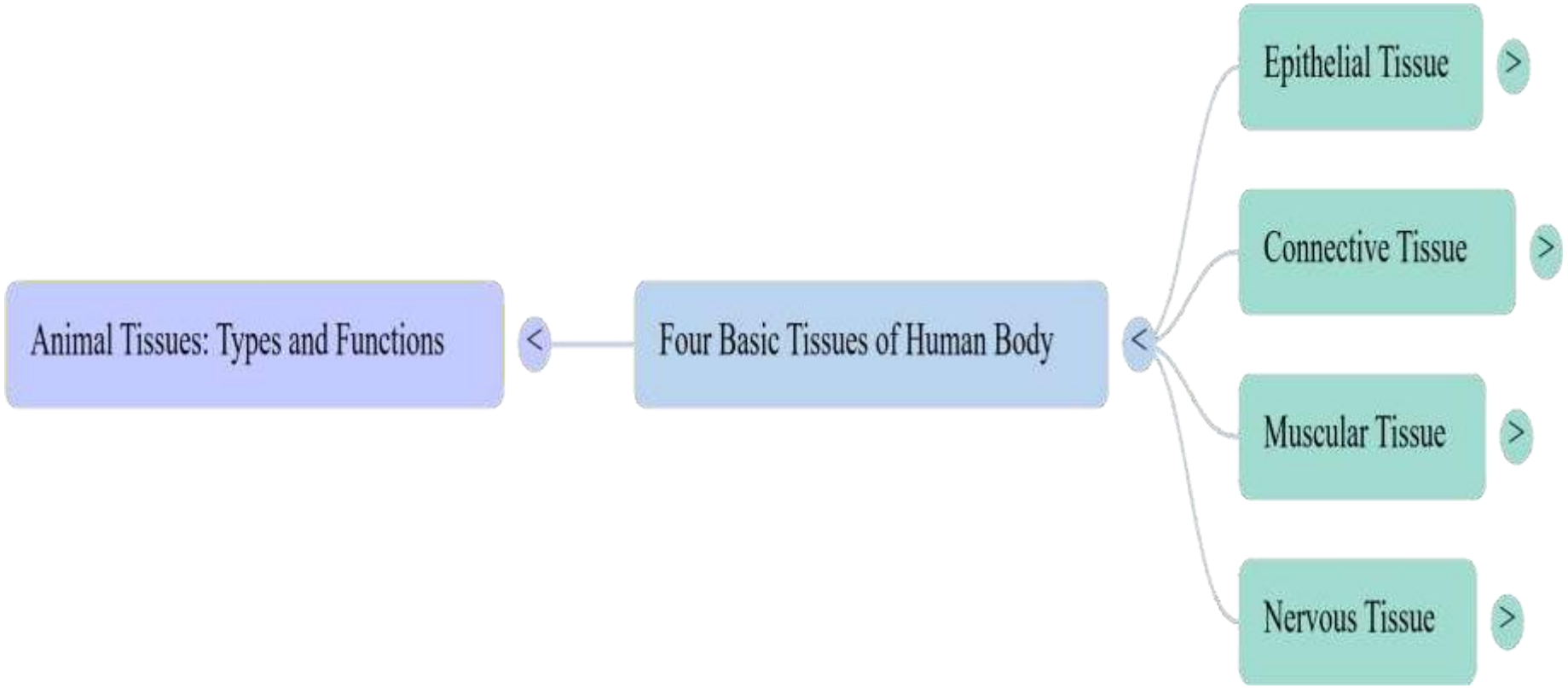
COURSE NAME : HUMAN ANATOMY AND PHYSIOLOGY

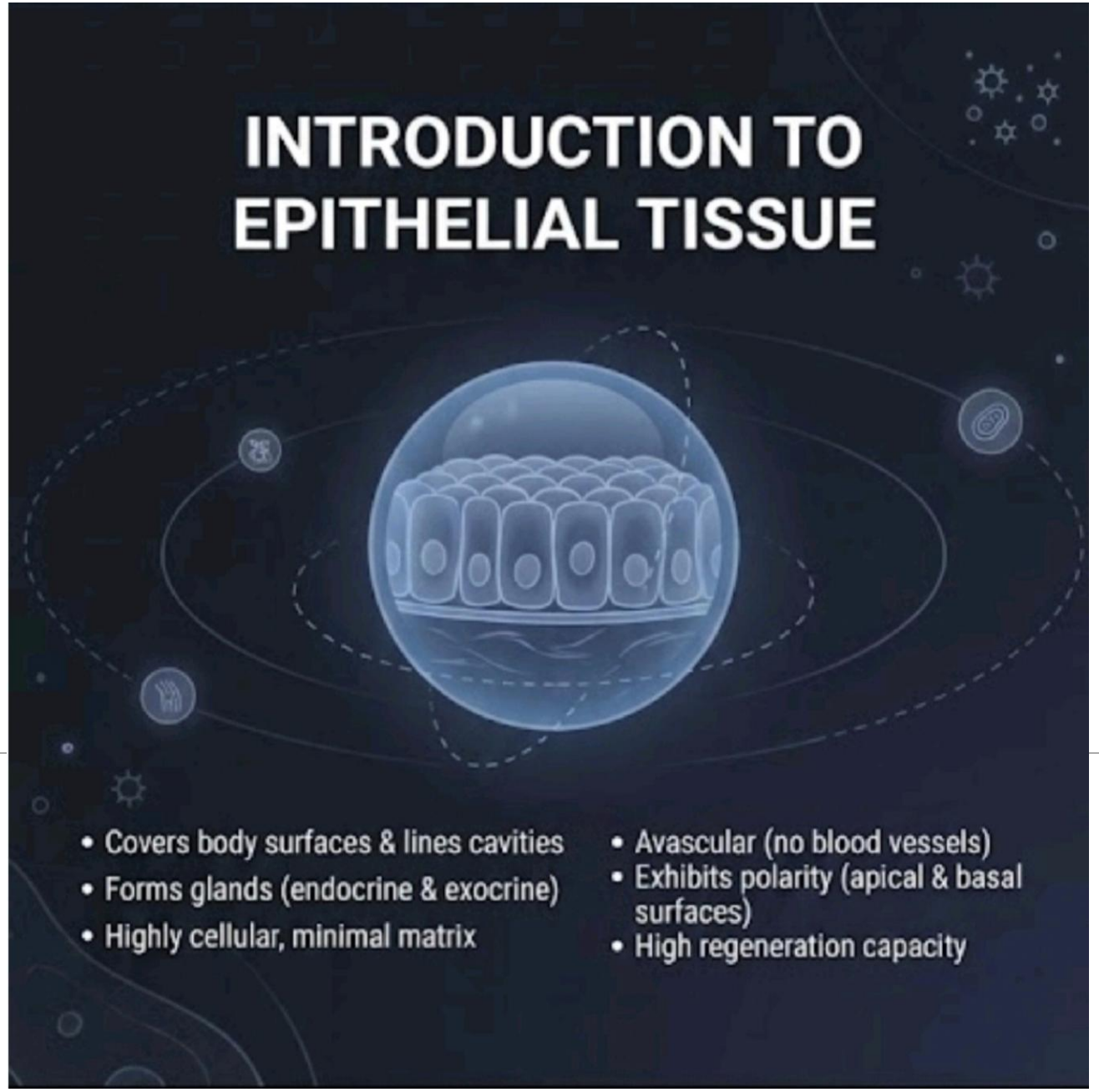
1ST YEAR PHARM D

TOPIC :THE ELEMENTARY TISSUES OF HUMAN BODY-II

THE TISSUES

MINDMAP




INTRODUCTION TO EPITHELIAL TISSUE
• Covers body surfaces & lines cavities
• Forms glands (endocrine & exocrine)
• Highly cellular, minimal matrix
• Avascular (no blood vessels)
• Exhibits polarity (apical & basal surfaces)
• High regeneration capacity

Epithelial Tissue Classification

Simple Epithelium

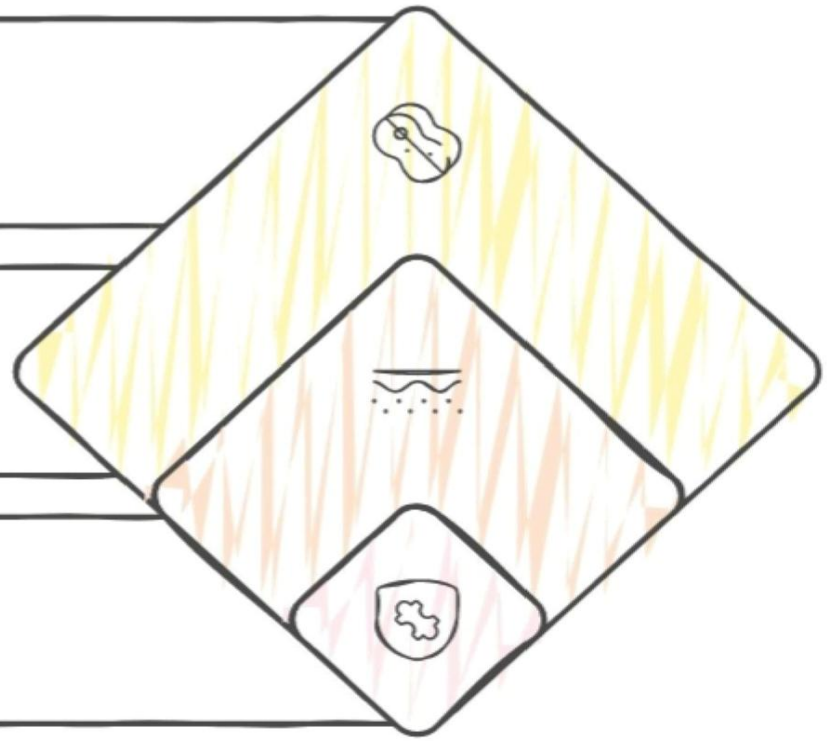
Facilitates absorption, secretion, and filtration

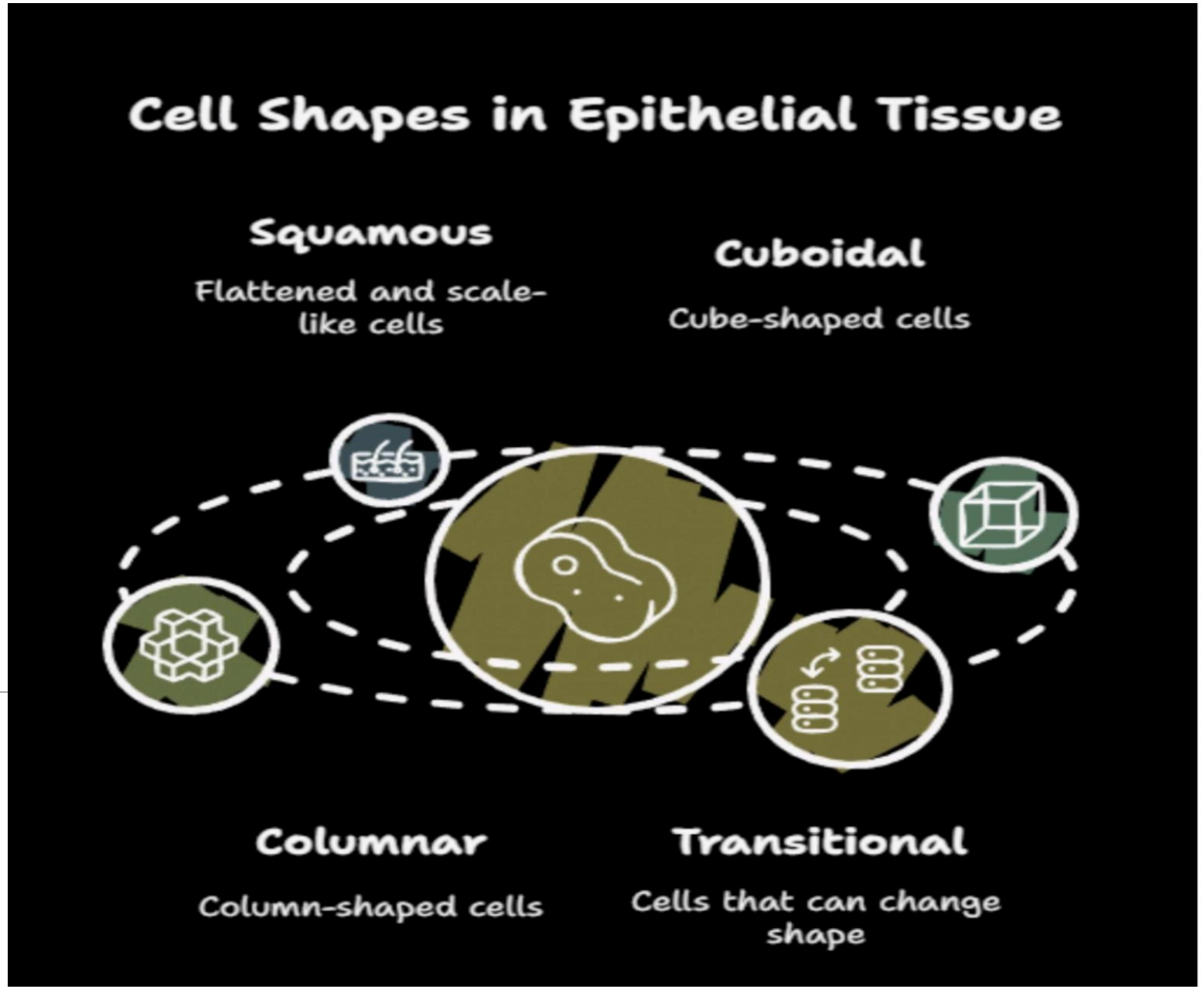
Pseudostratified Epithelium

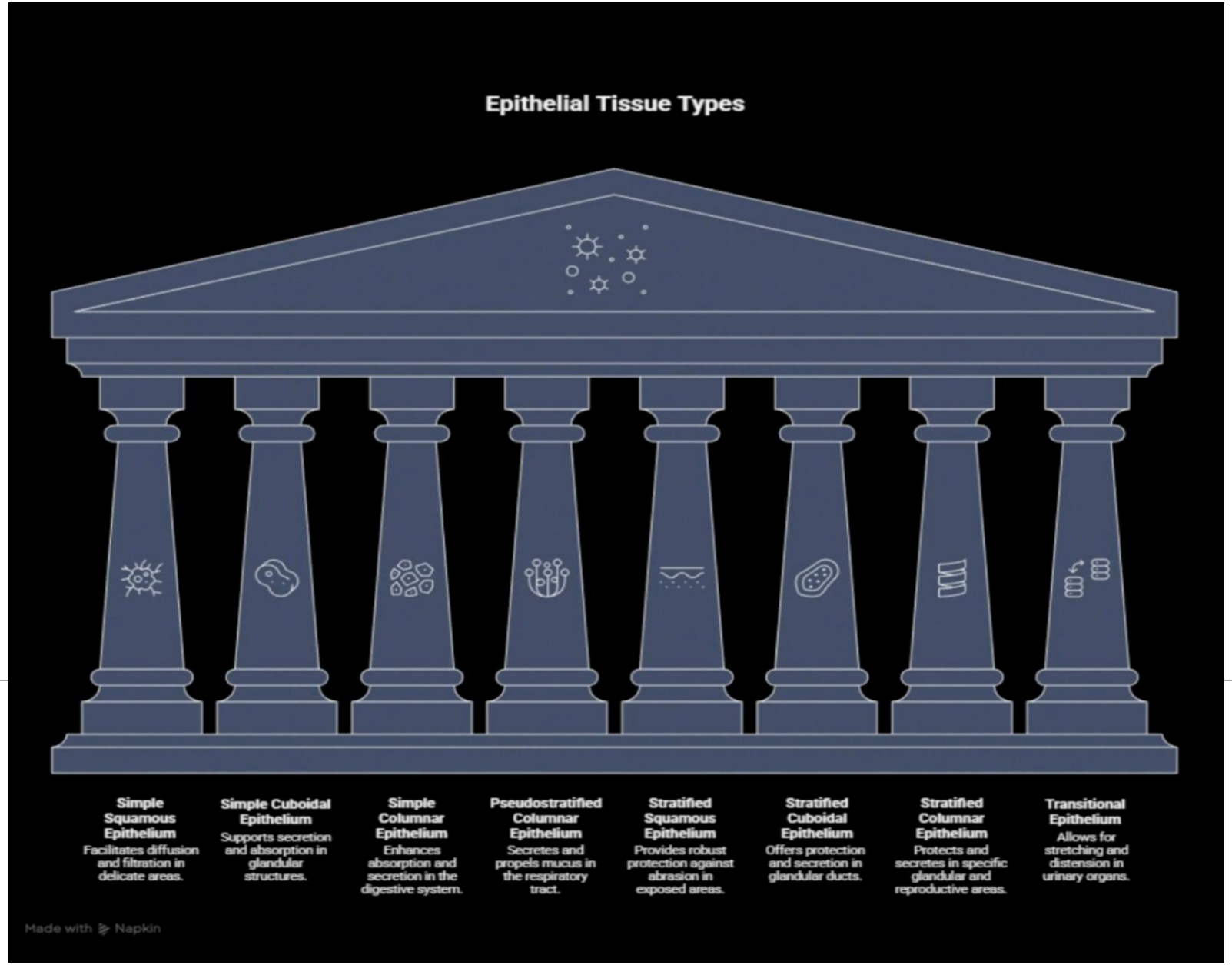
Single layer with varying cell heights

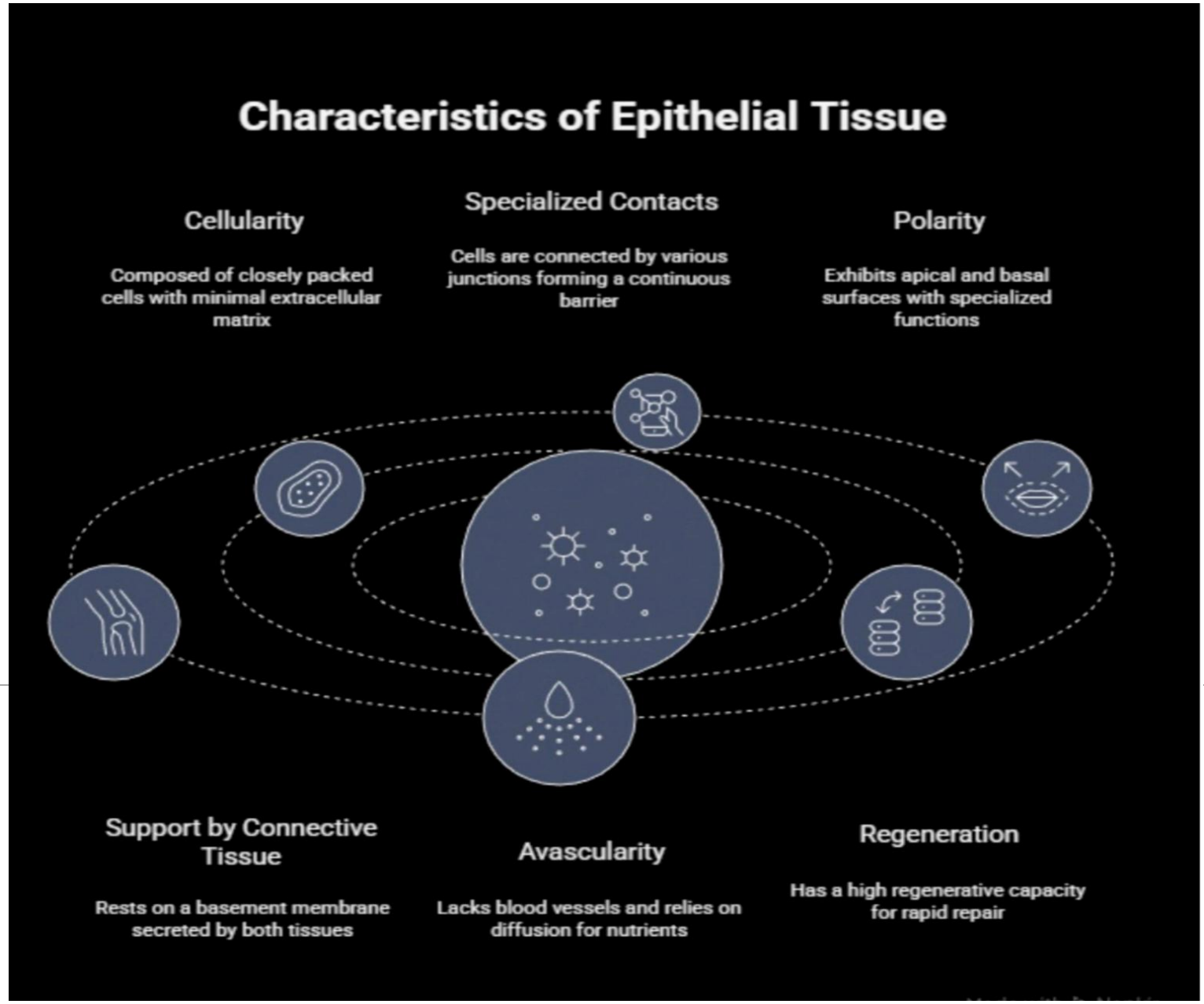
Stratified Epithelium

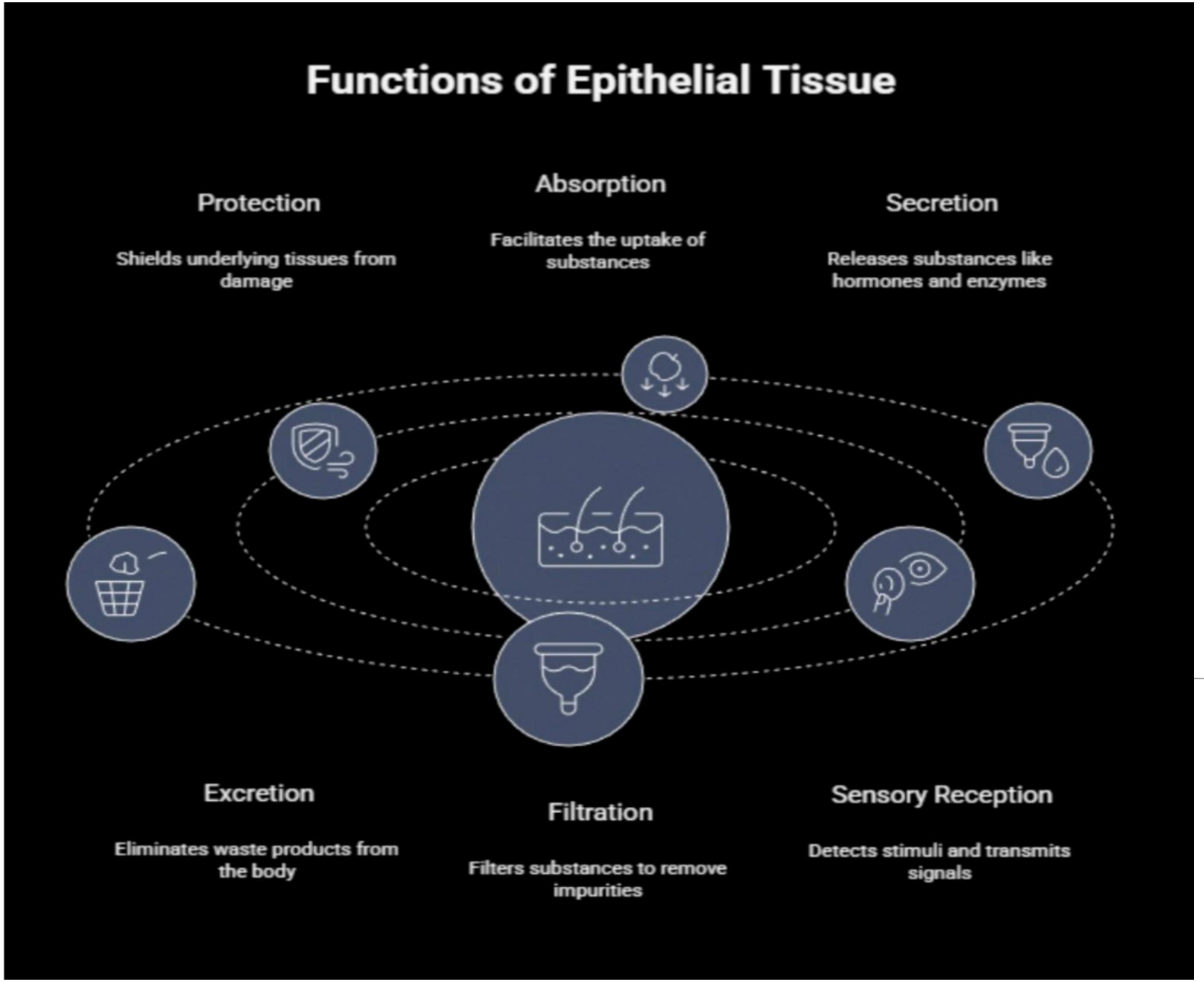
Durable protection against abrasion



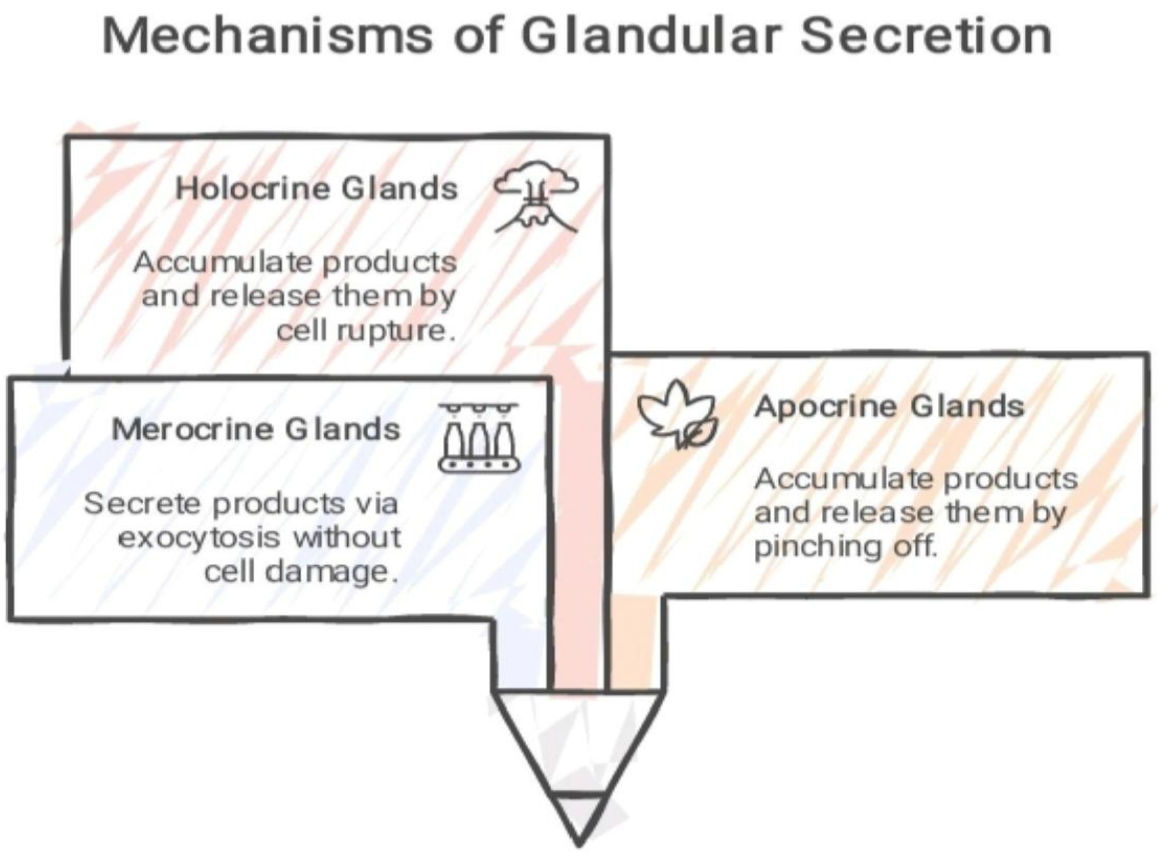

Cell Shapes in Epithelial Tissue
Squamous
Flattened and scale-like cells
Cuboidal
Cube-shaped cells
Columnar
Column-shaped cells
Transitional
Cells that can change shape


Epithelial Tissue Types
Simple Squamous Epithelium
Facilitates diffusion and filtration in delicate areas.
Simple Cuboidal Epithelium
Supports secretion and absorption in glandular structures.
Simple Columnar Epithelium
Enhances absorption and secretion in the digestive system.
Pseudostratified Columnar Epithelium
Secretes and propels mucus in the respiratory tract.
Stratified Squamous Epithelium
Provides robust protection against abrasion in exposed areas.
Stratified Cuboidal Epithelium
Offers protection and secretion in glandular ducts.
Stratified Columnar Epithelium
Protects and secretes in specific glandular and reproductive areas.
Transitional Epithelium
Allows for stretching and distension in urinary organs.
Made with Napkin


Characteristics of Epithelial Tissue
Cellularity
Composed of closely packed cells with minimal extracellular matrix
Specialized Contacts
Cells are connected by various junctions forming a continuous barrier
Polarity
Exhibits apical and basal surfaces with specialized functions
Support by Connective Tissue
Rests on a basement membrane secreted by both tissues
Avascularity
Lacks blood vessels and relies on diffusion for nutrients
Regeneration
Has a high regenerative capacity for rapid repair


Functions of Epithelial Tissue
Protection
Shields underlying tissues from damage
Absorption
Facilitates the uptake of substances
Secretion
Releases substances like hormones and enzymes
Excretion
Eliminates waste products from the body
Filtration
Filters substances to remove impurities
Sensory Reception
Detects stimuli and transmits signals

Overview of Epithelial Tissue


Mechanisms of Glandular Secretion
Holocrine Glands
Accumulate products and release them by cell rupture.
Merocrine Glands
Secrete products via exocytosis without cell damage.
Apocrine Glands
Accumulate products and release them by pinching off.

Cellularity in Epithelial Tissue

Minimal Extracellular Matrix

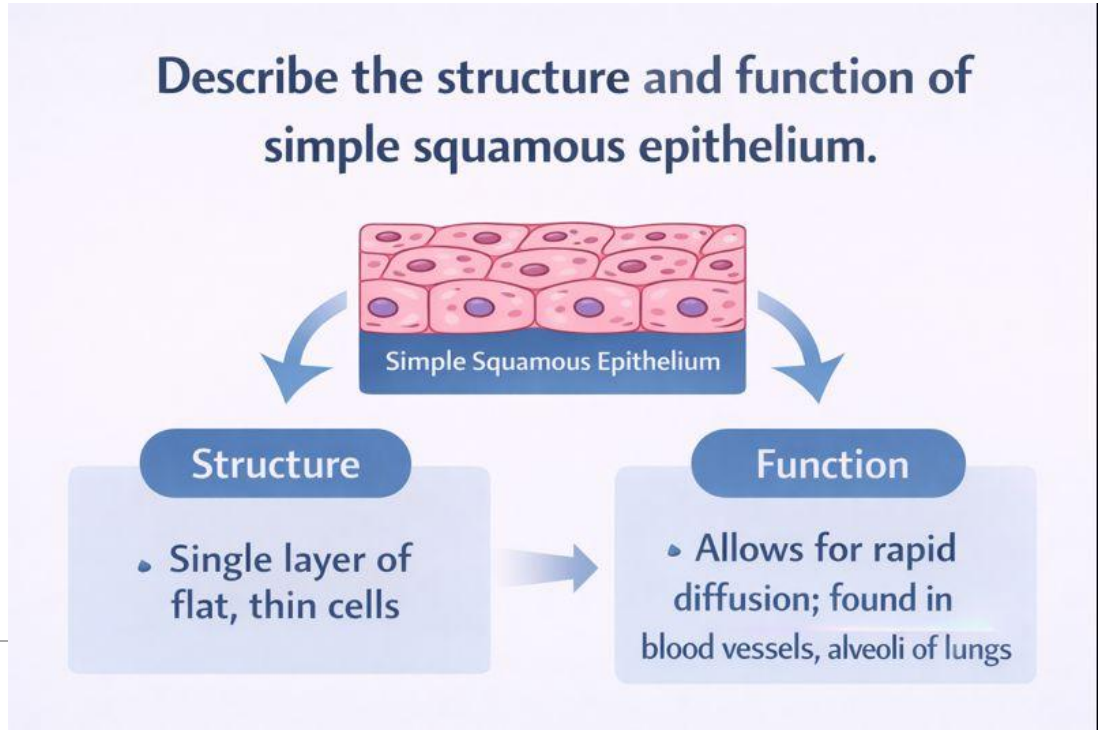
Cells are in close proximity due to minimal matrix.

Close Proximity

Cells are tightly packed, ensuring close interaction.

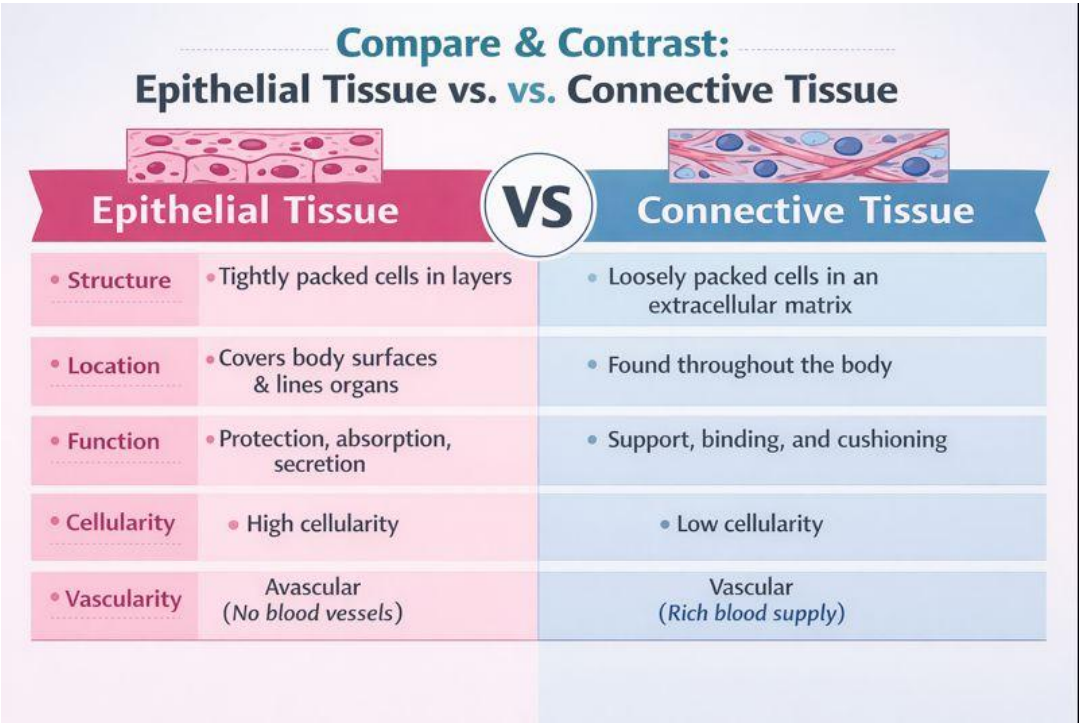
ASSESSMENT

1. Describe the structure and function of simple squamous epithelium.



ASSESSMENT

2. Compare and contrast epithelial tissue and connective tissue.



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- ✓ A Textbook of Human Anatomy and Physiology-I, SIA Publishers


Thank You