Anatomy & Physiology

Chapter 4 Review

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The study of tissues; Levels of organization between cells and organs

Tissue types: (4)

Epithelial tissue

* Closely packed, sheets
* Many junctions, especially \_\_\_\_\_\_\_\_\_\_\_\_\_ junctions
* High rate of \_\_\_\_\_\_\_\_\_\_\_\_\_\_, but because they grow fast more often damaged.

The 5 most important characteristics of epithelial tissue include

* Cellularity
* Polarity
* Attachment, (basement membrane not same as plasma membrane)
* Avascularity
* Regenerative

Apical and basal surfaces

\_\_\_\_\_\_\_\_\_\_\_\_tiny hair projections on the apical surface of some cells

Functions of epithelial tissue (4)

Intercellular connections:

CAMS-

Tight junctions-

Gap junctions-

Desmosomes-

Hemidesmosomes –

*Figure 4.2*

Simple vs. stratified

3 shapes of cells + transitional

*Table 4.1*

Simple Squamous- flat, \_\_\_\_\_\_\_\_ layer thick, allows for quick diffusion

**Examples allowing drug diffusion**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ line the inside of blood vessels and heart, **IV injections**

Lung alveoli

Anesthetic inhalation

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ line the ventral body cavitity,  **IP injections** (intraperitoneal)

Simple cuboidal – single layer, \_\_\_\_\_\_\_\_\_\_-shaped cells

Nuclei appear \_\_\_\_\_\_\_

Function: secretion and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tubules

Simple Columnar – single layer, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells

Nuclei sometimes \_\_\_\_\_\_\_\_\_

May have \_\_\_\_\_\_\_\_\_\_\_\_\_\_, finger-like projections on the apical surface

May secrete mucus (goblet cells)

Pseudostratified

Actually only \_\_\_\_\_\_\_\_\_\_ layer

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are at different heights, all cells touch \_\_\_\_\_\_\_\_\_\_\_\_\_\_ membrane

May have \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the apical surface

Stratified squamous

Major function - \_\_\_\_\_\_\_\_\_

Examples include:

Stratified cuboidal

Major function – secretion

In \_\_\_\_\_\_\_\_\_\_\_ of exocrine \_\_\_\_\_\_\_\_\_\_\_\_\_\_, e.g. salivary, sweat, mammary

Stratified columnar

Rare, function: secretion and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Transitional epithelium

\_\_\_\_\_\_\_\_\_\_\_\_\_ which allows changes in cell shape

Located:

Endocrine glands

Released-

Secretions called -

Which - Ducts/ductless

Exocrine glands

Released –

Which – ducts/ductless

Modes of secretion

* Merocrine
* Apocrine
* Holocrine

Types of secretion

* Serous
* Mucous
* Mixed

Connective Tissue

Most abundant, scattered cells, rarely touch

3 Basic components

* Specialized cells -
* Extracellular protein fiber -
* Ground substance –

Extracellular matrix –

Fills space

Fluid (blood)

Semifluid (adipose tissue)

Fibrous (dense regular tissue)

Calcified (bone)

Many conn. tissue are highly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (have a blood supply) with the exception of tendons/ligaments/cartilage

Connective tissue cells

Immature =blast, mature = cyte

Fixed cells:

Fibroblasts

* Most common CT cells
* Large, flat, branched
* Form matrix
* Make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Adipocytes

* Fat cells
* Contain a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ droplet (triglyceride)
* Expandable
* Found in \_\_\_\_\_\_\_, greater \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Macrophages (fixed or wandering)

* Garbage workers of the body
  + Eat foreign matter by the process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Wandering cells:

Macrophages – reinforce the fixed macrophages

Leukocytes (WBC)

* Lymphocytes develop into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Mast cells contain \_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to stimulate local inflammation

Melanocytes

* Synthesize and store \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Adipose tissue:

* Provides:
* Found where?
* Difference between white and brown fat

Dense connective tissue:

* Difference between tendons and ligaments

Cartilage

* Cells called \_\_\_\_\_\_\_\_\_\_\_\_
* Avascular

3 types of cartilage

* Hyaline
  + Most abundant type
  + Smooth, hard, flexile, (gristle)
  + Ends of bones, Adam’s apple,
* Fibrocartilage
  + Few cells, mostly fibers
  + Function=support and fusion
  + Between spinal vertebrae, pubic bones of the pelvis
* Elastic
  + High concentration of chondrocytes
  + Function: support and flexibility
  + External ear, epiglottis, larynx

Bone

* Bone cells = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Blood

* Part of the vascular tiussue
* Liquid matrix with no fibers
  + Erythrocytes
  + Leukocytes
  + Platelets

Muscle Tissue

* Skeletal
  + Connects bones (movement)
  + Striated
  + Parallel fibers (pulling part of one bone to part of another bone in one direction)
  + Multinucleated =
  + voluntary