

IV Tissues

A. A group of similar cells working toward one goal.

B. Classification - 4 main types

1. Epithelial
2. Connective
3. Muscle
4. Nervous

C. Epithelial Tissue

1. Characteristics

a. Cells packed tightly together with very little intercellular material.

b. Cells arranged in sheets or membranes which cover or line body surfaces (internal or external)

c. One side of membrane is unattached (free) the other is anchored to the basement membrane which nourishes and supports it.

d. There is no blood in the epithelium. It gets all of its nourishment from the basement membrane. (you don't bleed from shallow scrapes)

e. Regenerates quickly. Necessary due to exposure.

f. Classified by shape and arrangement of cells.

1) simple = 1 layer

2) stratified = more than 1 layer. named for cells of top layer

3) squamous = flattened

4) cuboidal = square

5) columnar = tube shape

2. Functions

a. Protection - skin, dig. & resp tract

b. Absorption - Digestive

c. Filtration - kidneys, resp passages

d. Secretion - glands

3. Glands - two types

a. Endocrine - dumps secretions into the bloodstream (adrenal, thyroid)

b. Exocrine - dumps secretions into an open area (sweat, digestive, tears)

4. Epithelial Membranes

a. Epithelial tissue + connective tissue to which it is attached.

1. Mucous Membranes

- sometimes called mucosae
- any epithelial that line the body cavities that open to the outside.

2. Serous Membranes

- Sometimes called Serosa
- line body cavities that do not open directly to the outside, and the organs located in those cavities.
- Simple Squamous
- Serous fluid lubricates the membrane and reduces friction and abrasion

5. Types of Epithelium* See your Tissue Lab

D. Connective Tissue

1. Characteristics

- Most widely varied and distributed type in body*
- Cells are scattered (usually) with intercellular material called matrix. Matrix is secreted by the cells.*
- Usually highly Vascularized*
- Cells can reproduce, but regeneration is slow due to low # of cells.*
- range in density from a liquid (blood) to a dense solid (bone)*
- Classified by matrix type. Cells are usually very similar*

2. Types of matrix

- Amorphous - lacking visible fibers or structure. (Blood Plasma, Hyaline, Bone)*
- Fibrous - visible fibers of protein*
 - 1) Collagen - White, tough, flexible fibers (White fibrous, fibrocartilage)
 - 2) Elastin - Springy, yellow (elastic)

3. Functions

- Support (bone, cartilage)*
- Binding (tendons, ligaments, areolar)*
- Protection (bone)*
- Storage (adipose, osseous)*
- Nourishment & transportation (blood)*
- Production of blood cells (bone marrow)*

4. Types

- *Embryonic - undifferentiated. Acts as a generic starting tissue that can become any of the adult connective tissues*

E. Muscle Tissue

1. Characteristics

- a. Elongated cells called fibers*
- b. cells close together, supported and bound by connective tissue*
- c. blood vessels mostly in connective tissue*
- d. cells are contractile*

2. Functions

- a. Movement of Skeleton*
- b. Circulation of blood*
- c. Respiratory movement*
- d. Digestive movement*
- e. Excretion of waste (bladder)*
- f. Childbirth (uterus)*

4. Types - See Lab