**Histology-Guided Notes**

**Tissues**

Histology-the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Groups of \_\_\_\_\_\_ that are \_\_\_\_\_\_\_\_\_\_\_\_\_ in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and perform a common or related \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4 Primary Types

-Epithelial (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

-Connective (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

-Muscle (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

-Nervous (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

Epithelial

Epithelial tissue is used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (ex: organs or \_\_\_\_\_\_\_\_\_\_\_\_).

Epithelial Functions- protection, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, filtration, excretion, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, sensory reception.

Characteristics of Epithelial Tissue:

-Innervated

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-High \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ capacity

-\_\_\_\_\_\_\_\_\_\_\_\_-apical surface=free; basal surface= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Lots of cells-forms \_\_\_\_\_\_\_\_\_\_\_\_\_

2 names for epithelia:

-Layers: \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Shapes: squamous, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or columnar

**Simple Squamous:**

\_\_\_\_\_\_\_\_\_\_, permeable for filtration or \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Found in lungs and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2 Types:

Endothelium- \_\_\_\_\_\_\_\_\_ covering, \_\_\_\_\_\_\_\_\_\_ friction \_\_\_\_\_\_\_\_\_\_\_\_\_\_ lining of vessels

Mesothelium- \_\_\_\_\_\_\_\_\_\_\_\_\_ covering, lining the \_\_\_\_\_\_\_\_\_\_\_\_\_ body cavity

**Simple cuboidal:**

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and absorption, found in \_\_\_\_\_\_\_\_\_\_\_. A \_\_\_\_\_\_\_\_\_ consists of one or more \_\_\_\_\_\_\_\_\_\_ that make and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ a product.

Endocrine gland- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, absorb and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ product by \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (thyroid, \_\_\_\_\_\_\_\_\_\_\_\_\_, pituitary).

Exocrine gland- \_\_\_\_\_\_\_\_\_\_ (salivary, \_\_\_\_\_\_\_\_, liver, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

**Simple Columnar:**

-lines the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tract from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to rectum

Examples:

-Microvilli-lines \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, absorbs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Goblet cells- secretes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lubricating \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Stratified Squamous:**

-is the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, thick, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and is the external part of the \_\_\_\_\_\_\_\_\_\_. It also covers the \_\_\_\_\_\_\_\_\_\_\_\_\_\_, lines mouth, throat, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, anal canal, and vagina.

-Epidermis- the \_\_\_\_\_\_\_\_\_\_\_\_ layer of the \_\_\_\_\_\_\_\_\_\_ that contains a protective \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**-Stratified cuboidal and stratified columnar** are rarer types (make up some \_\_\_\_\_\_\_\_\_\_\_)

**Connective Tissue**

Mesenchyme (\_\_\_\_\_\_\_\_\_\_\_\_\_\_ origin)

Connective Tissue Proper

1. Loose connective

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Adipose

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Dense connective

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-irregular

-Areolar (connective tissue proper)-gel-like, \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_ organs

-Adipose (\_\_\_\_\_\_) connective tissue proper-matrix contains \_\_\_\_\_\_\_\_\_\_\_ neutral fat \_\_\_\_\_\_\_. Acts as a \_\_\_\_\_\_\_\_\_\_\_\_ absorber and \_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Reticular connective tissue proper-forms a \_\_\_\_\_\_\_\_\_ internal skeleton (stroma). Found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organs

-Dense \_\_\_\_\_\_\_\_\_\_\_\_\_\_ connective tissue proper-parallel \_\_\_\_\_\_\_\_\_\_\_\_\_ fibers, includes tendons and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-Dense \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ connective tissue proper-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bundles of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fibers. Form \_\_\_\_\_\_\_\_\_\_\_\_ in body areas where \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is exerted in different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Found in fibrous \_\_\_\_\_\_\_\_\_\_\_\_\_ capsules, \_\_\_\_\_\_\_\_\_\_\_

Cartilage

-tough, but \_\_\_\_\_\_\_\_\_\_\_\_\_

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-devoid of \_\_\_\_\_\_\_\_\_\_\_\_\_

-80% water, heals \_\_\_\_\_\_\_\_\_\_\_\_

**Cartilage-3 Types**

1. Hyaline

3. Fibrocartilage

3. Elastic

**Hyaline cartilage**

-forms \_\_\_\_\_\_\_\_\_\_\_\_ skeleton; found at ends of \_\_\_\_\_\_\_ bone

-coastal cartilage (\_\_\_\_\_\_\_, nose, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, larynx, supports, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, flexible

**Fibrocartilage**

-\_\_\_\_\_\_\_\_\_\_\_\_ collagen fibers, found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ discs

**Elastic cartilage**

-more \_\_\_\_\_\_\_\_\_\_\_\_\_\_ fibers, found in the ear and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Bone**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone

Bone is made of a hard, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ matrix and is very well \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Gives the body \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Blood**

-various \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells

-atypical connective tissue. Blood cells= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, wbc, \_\_\_\_\_\_\_\_. Matrix- \_\_\_\_\_\_\_\_\_\_\_\_\_. Fibers= soluble \_\_\_\_\_\_\_\_\_\_\_\_ that are visible in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Carries \_\_\_\_\_\_\_, nutrients, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, etc.

**Nervous Tissue: makes up brain, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, nerves**

-neurons- highly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nerve cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and conduct nerve \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-supporting cells- \_\_\_\_\_\_ conducting but help to support, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ neurons

**Muscle Tissue**

-highly \_\_\_\_\_\_\_\_\_\_\_\_\_\_, highly cellular. Function is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Skeletal Muscle Tissue

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, attaches to \_\_\_\_\_\_\_\_\_ and skin. Gross body movements, long, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, many nuclei. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (banded)

Cardiac Muscle Tissue

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, found in walls of the heart. It’s \_\_\_\_\_\_\_\_\_\_\_\_, branched, and fits together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ discs

Smooth Muscle Tissue

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Function = to \_\_\_\_\_\_\_\_\_\_\_\_ (squeeze). Found in walls of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organs (uterus), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system, urinary system, \_\_\_\_\_\_\_\_\_\_\_ vessels. They are spindle shaped, have a \_\_\_\_\_\_\_\_\_\_\_\_ nucleus with \_\_\_\_\_\_\_ striations.

**Functions of Tissue Protection**

-Mechanical protection= (barrier) \_\_\_\_\_\_\_\_\_\_\_, mucosa

-Ciliary protection= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (trachea)

-Chemical protection= \_\_\_\_\_\_\_\_\_\_\_\_

**Inflammatory Response**

-Occurs when \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_ and is non-specific

Immune Response

-\_\_\_\_\_\_\_\_\_\_\_\_\_. Takes longer to come to \_\_\_\_\_\_\_\_\_\_\_\_\_. Involves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Tissue Repair

Three steps:

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Organization

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Inflammation

-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 macrophage, \_\_\_\_\_\_\_\_\_ cell. Capillaries \_\_\_\_\_\_\_\_\_\_\_ and leak \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ proteins. Clot🡪 \_\_\_\_\_\_\_\_\_\_

Organization

-Clot🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tissue

-New blood \_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 collagen fibers 🡪 \_\_\_\_\_\_\_\_\_

Regeneration

-epithelial cells \_\_\_\_\_\_\_\_\_\_\_\_ across \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tissue and thickens

The Ability to Regenerate:

-Good-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_, epidermis, mucosa)

-Limited-\_\_\_\_\_\_\_\_\_\_\_\_\_ muscle, dense regular connective tissue (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, tendons)

-\_\_\_\_\_\_\_\_- skeletal muscle, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_