READING NOTES CHAPTER 5: TISSUES (HISTOLOGY)

**Name \_\_\_\_\_\_\_\_\_\_\_\_**

**Period \_\_\_\_\_\_\_\_\_\_\_**

**Introduction (p. 152)**

Tissues are layers/groups of similar cells with a common \_\_\_\_\_\_\_\_\_\_. Some tissues have cells that are separated from each other in \_\_\_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_ spaces that we call **matrix**. Others are tightly packed with structures called \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ that connect the cell membranes together. There are 3 types of ways these come together. For each, describe the traits/characteristics and provide an example of where it may be found in the body:

**Tight junction:**

**Desmosomes:**

**Gap junction:**

**Be sure to read the latest advances on how we can now treat patients across the blood-brain barrier in the inset box on page 153! This is a revolutionary technique that opens up tons of applications.**

**Tissue type 1: Epithelial tissues (pages 152 – 160)**

These are tissues that are found throughout the body and cover the body surface and \_\_\_\_\_\_, forms the inner lining of body \_\_\_\_\_\_, and lines \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_ anchors epithelium to underlying connective tissue. Cancer cells secrete a substance that dissolves this layer, enabling the cells to invade tissue layers.

As a rule, epithelial tissues:

1. Lack \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ and rely on diffusion to obtain nutrients.
2. Readily \_\_\_\_\_\_\_\_\_\_\_, so injuries heal rapidly
3. Are tightly \_\_\_\_\_\_\_\_\_, which means it **lacks a matrix.**
4. Are classified according to their ­­­­­­­­­\_\_\_\_\_\_\_\_ and the number of \_\_\_\_\_\_\_\_\_.

For each epithelial tissue type, describe the shape of the cells as well as a location in the body where it can be found:

**Simple squamous:**

**Simple cuboidal:**

**Simple columnar:**

**Pseudostratified:**

**Stratified squamous (keratinized):**

**Stratified squamous (nonkeratinized):**

**Stratified cuboidal:**

**Stratified columnar:**

**Transitional:**

**Glandular epithelium** is divided into two groups based on how they secrete. **Endocrine** **glands** secrete into the \_\_\_\_\_\_\_\_\_\_\_\_\_ and will be studied later. There are 3 types of **exocrine glands** and they are classified according to how they \_\_\_\_\_\_\_\_\_\_\_\_\_. For each of the types, describe how they secrete and list an example of where it can be found in the body:

**Merocrine:**

**Apocrine:**

**Holocrine:**

**Tissue type 2: Connective tissues (pages 161 – 169)**

Most of the body is composed of connective tissues (by weight) and it serves multiple functions. As a rule, connective tissues:

1. Have abundant \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_
2. Is composed of protein \_\_\_\_\_\_\_\_\_\_\_ and a ground \_\_\_\_\_\_\_\_\_\_.
3. Have varying degrees of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Can either be fixed or \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. If fibers are present, there can be 3 types. For each type, list traits and an example of where in the body they may be found:

**Collagenous:**

**Elastic:**

**Reticular:**

For each connective tissue type, describe the traits of the layer as well as a location in the body where it can be found:

**Connective proper**

**Loose areolar:**

**Loose adipose:**

**Loose reticular:**

**Dense regular:**

**Dense irregular:**

**Dense elastic:**

**Specialized connective:** There are 3 types – describe the traits as well as a location in the body where it can be found:

**Cartilage** (differs from proper connective because it is more rigid, contains mostly collagenous fibers, and lacks a direct blood supply). There are 3 types:

**Hyaline:**

**Elastic:**

**Fibrocartilage:**

**Bone:**

**Blood:**

**Tissue type 3: muscle (pages 171 – 172)**

Muscle tissue will be studied in depth in later chapters. General characteristics of this type of tissue include that they are \_\_\_\_\_\_\_\_\_\_\_, which means they can only pull or contract; they never push. They are composed of cells that are called \_\_\_\_\_\_\_\_\_\_ because they are elongated. There are three types of muscle tissue. For each describe the traits as well as a location in the body where it can be found:

**Skeletal:**

**Smooth:**

**Cardiac:**

**Tissue type 4: Nervous (page 173)**

Nervous tissues are found in the \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_ nerves. The basic cells are called \_\_\_\_\_\_\_\_\_\_\_ and are specialized. Incoming signals stimulate cellular processes called \_\_\_\_\_\_\_\_\_\_\_\_\_, which then transmit electrical impulses along processes called \_\_\_\_\_\_\_\_\_\_\_ to other nerves or muscles or glands. In addition to neurons, there is abundant \_\_\_\_\_\_\_\_\_\_\_\_\_\_, which are crucial to the functioning of neurons. These support and bind neurons and play a role in cell-to-cell \_\_\_\_\_\_\_\_\_\_\_\_. Many neurologic disorders such as dementia and Alzheimer’s disease have been found to be a breakdown of this essential material.

**Be sure to read the inset on page 174 to explore the challenges to developing a new organ such as the urinary bladder!**