Lec.3

Tissue

Tissue is a group of similar cell and their intercellular substance that have a similar embryological origin and function together to perform a specialized activity. The various tissues of the body are classified in to four principal parts according to their function & structure.

1 - Epithelial (epithelium)

It is a cellular layer which lines the body surface , skin , mucous membranes and glands. Epithelia tissues have many characteristics that distinguish them from other tissue types:

1. Cellularity. Epithelia are composed almost entirely of cells.

2. Specialized contacts. Adjacent epithelial cells are directly joined at many points by special cell junctions.

3. Polarity. All epithelia have a free upper (apical) surface and a lower (basal) surface.

4. Support by connective tissue.

5. Avascular but innervated:- meaning it lacks blood vessels.

6. Regeneration. Epithelial tissue has a high regenerative capacity.

General functions of epithelial tissue :

1- Selective diffusion. 2- Protection .

3- Transport. 4- Secretion.

5- Excretion. 6- Absorption.

7- Sensory reception. 8- Lubrication.

2- Connective Tissues

As different as they are Cartilage, bone, and blood are all connective tissues. the function of connective tissue are support, connect, or separate different types of tissues and organs in the body. All connective tissues share the same simple structural plan.

1. Relatively few cells, lots of extracellular matrix (The cells of connective tissues are separated from one another by matrix).

2. Extracellular matrix composed of ground substance and fibers. The extracellular matrix is produced by the cells of the connective tissue.

3. Embryonic origin. Another feature common to connective tissues is that they all originate from the embryonic tissue called mesenchyme.

3-Muscular Tissues

is an organ specializing in the transformation of chemical energy into movement. This type of tissue consist of three types - skeletal, cardiac, smooth muscles.

Functions of muscle tissue:

1-Body movement (Locomotion).

2- Heart beat. 3-Maintenance of posture.

4- Production of body heat (Thermogenesis).

5. Respiration. 6. Communication.

7. Constriction of organs and vessels. 8. Stabilizing joints

3- Nervous tissue

Nervous tissue is the main component of the nervous organs—the brain, spinal cord, and nerves—which regulate and control body functions. It is the specialized tissue that makes up the central nervous system and the peripheral nervous system.

Tissue Membranes

A **tissue membrane** is a thin layer or sheet of cells that either covers the outside of the body (*e.g.*, skin), lines an internal body cavity (*e.g.*, peritoneal cavity), lines a vessel (e.g., blood vessel), or lines a movable joint cavity (e.g., synovial joint). Two basic types of tissue membranes are recognized based on the primary tissue type (Figure 2)

1- **Connective Tissue Membranes**

A **connective tissue membrane** is built entirely of connective tissue(e.g. kidney). When lining a joint, this membrane is referred to as a **synovial membrane**.

2- **Epithelial Membranes**

An **epithelial membrane** is composed of an epithelial layer attached to a layer of connective tissue.

A. mucous membrane (mucosa)

1- It is found in lining portions of the digestive, respiratory, excretory, and reproductive tracts.

2- Mucus are coats the epithelial layer.

B. serous membrane

1- Serous fluid reduces abrasion and friction between organs.

2- Serous membranes are identified according to location. Three serous membranes are pleura, pericardium, and peritoneum.

C. cutaneous membrane is a multi-layered membrane composed of epithelial and connective tissues. The apical surface of this membrane exposed to the external environment and is covered with dead, keratinized cells that help protect the body from desiccation and pathogens.

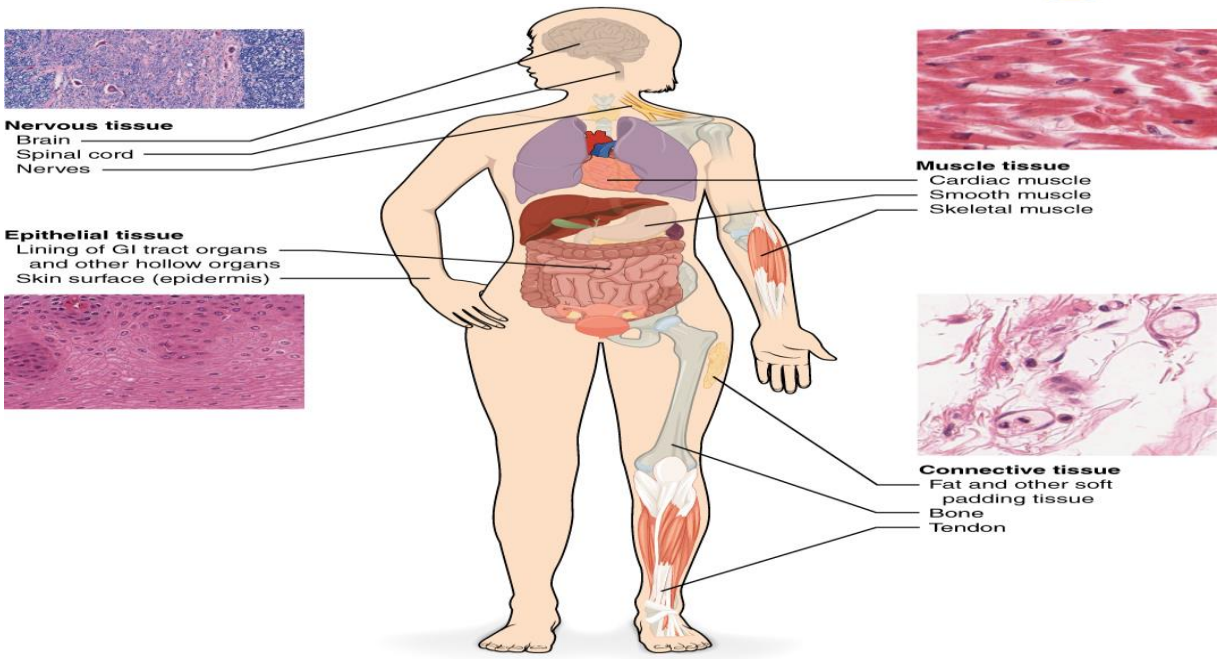

Figure.1. tissue of body.

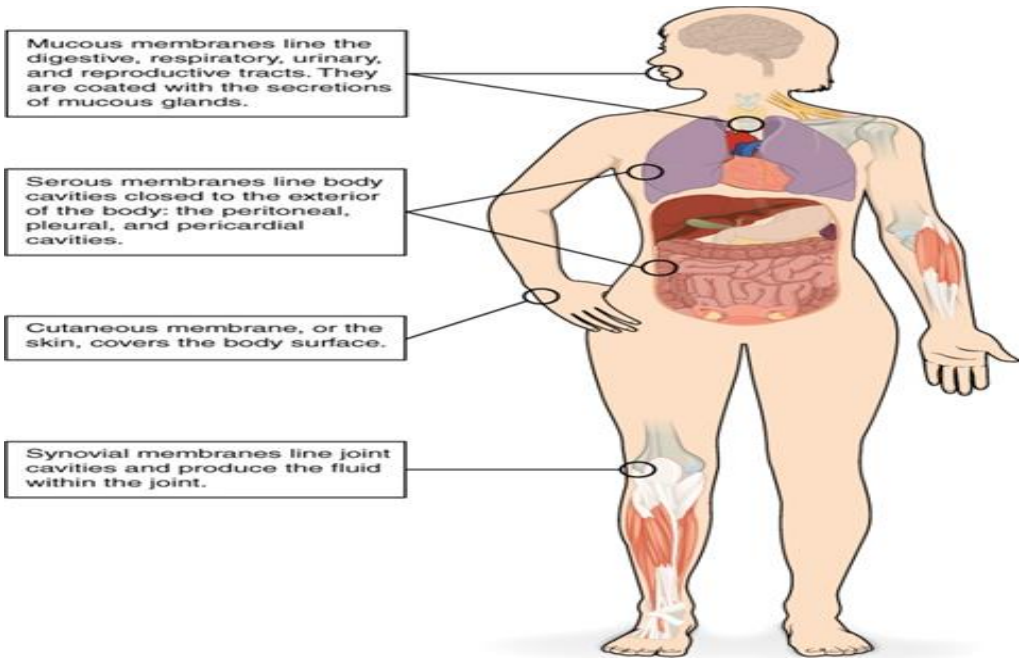

Figure.2. body membrane