

Republic of Iraq Ministry of Higher
Education and Scientific Research
Al-Zahraa University for Women
College of Pharmacy



Human Biology
First semester/ Lab.6
Skin and Nervous tissue

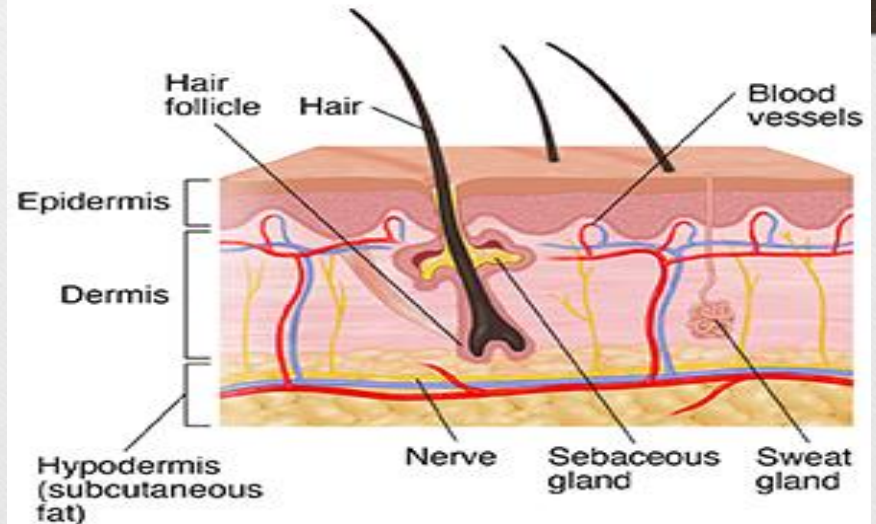
By:

Asst. Lec. Nabaa Faiz Abbas

Skin

Definition

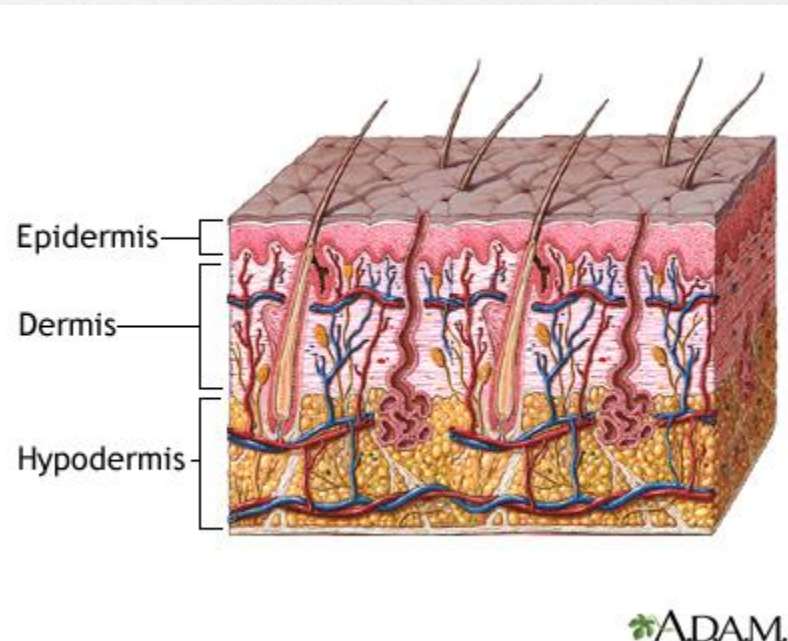
- The integumentary system, or skin, is the largest organ in the body.
- It comprises of skin and skin appendages including hairs, nails, sweat glands and sebaceous glands.
- The skin is the largest component of this system.
- It forms an outer, protective coat around the entire external surface of the body.
- The thickness of skin varies from 0.5mm thick on the eyelids to 4.0mm thick on the heels of feet.



Skin layers

The skin is organized as follows, from superficial to deeper layers:

- Epidermis
- Dermis
- Hypodermis



Epidermis

- Keratinized stratified squamous epithelium.
- It provides a barrier to infection from environmental pathogens and regulates the amount of water released from the body into the atmosphere.
- The epidermis does not contain blood vessels and is nourished by diffusion from the dermis.

Epidermis layers

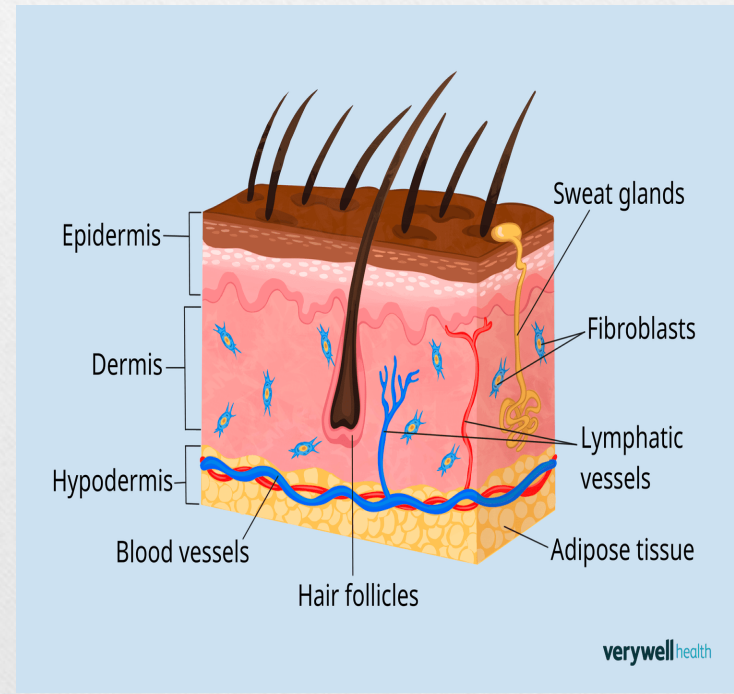
It is composed of the following layers(strata):

Stratum corneum,

Stratum lucidum,

Stratum granulosum,

Stratum spinosum and Stratum basale.



Dermis

The dermis is the layer of skin that lies below the epidermis.

It is the thickest layer of the skin, and is made up of fibrous and elastic tissue.

Thus it provides strength and flexibility to the skin.

It is comprised of two layers:

The papillary dermis

The reticular dermis

The **papillary dermis** is the more superficial of the two.

It is made up of **loose connective tissue**, which includes:

- Capillaries
- Elastic fibers
- Reticular fibers
- Collagen

The **reticular dermis** is the deeper and thicker layer of the dermis.

It contains **dense connective tissue**, which includes:

- Blood vessels
- Elastic fibers
- Collagen fibers
- Fibroblasts
- Mast cells
- Nerve endings

Hypodermis

The **hypodermis** (also called the subcutaneous layer or superficial fascia) is a layer directly below the dermis and serves to connect the skin to the underlying fascia (fibrous tissue) of the bones and muscles.

It consists of **loose connective tissue** and **adipose tissue**.

Adipose tissue present in the hypodermis consists of fat-storing cells called **adipocytes**. This stored fat can serve as an energy reserve, insulate the body to prevent heat loss, and act as a cushion to protect underlying structures from trauma.

Skin Functions

1. Protection (against external damage & Pathogens invasion).
2. Sensation (contains different receptors for touch, pressure, pain and temperature).
3. Thermoregulation (adipose tissue against heat lose & Secretion of sweat for cooling).
4. Metabolic function (Synthesis of Vit D by the action of UV light on precursor molecules).

Nervous tissue

Is a tissue that are specialized for receiving different types of stimuli.

Neuron Consists of:

Cell Body : contains Nucleus, Mitochondria, Nissl bodies

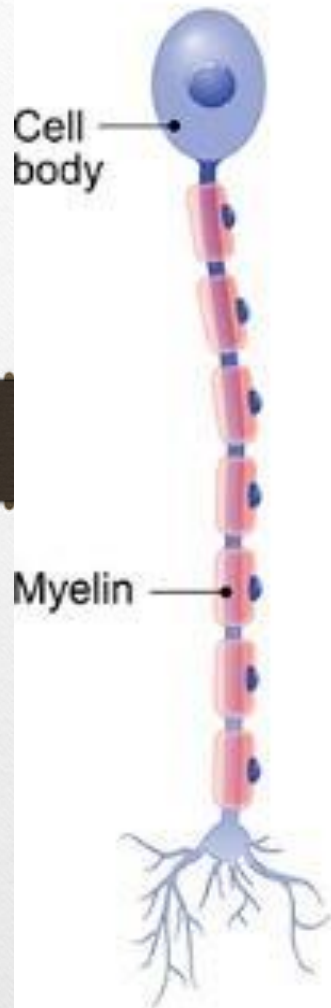
Dendrites: highly branched extensions of the cell body. Conduct impulses towards the cell body

Axon: a single long process. Conducts impulses away from the cell body.

Structural of Neurons:

1. **Multipolar neurons**: more than two processes one is the axon and the rest are dendrites
2. **Bipolar neurons**: have two processes one is axon and other one is dendrites
3. **Pseudo unipolar neurons**: have a single process close to the perikaryon.

Unipolar



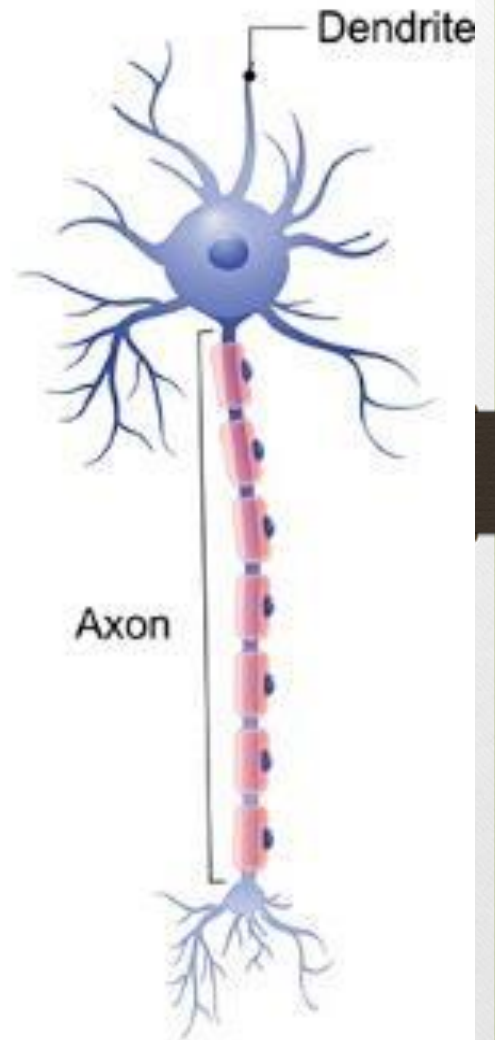
Bipolar



Pseudounipolar



Multipolar





THANK YOU

Nabaa Faiz Abbas