

Structure of the skin

The skin is formed of:

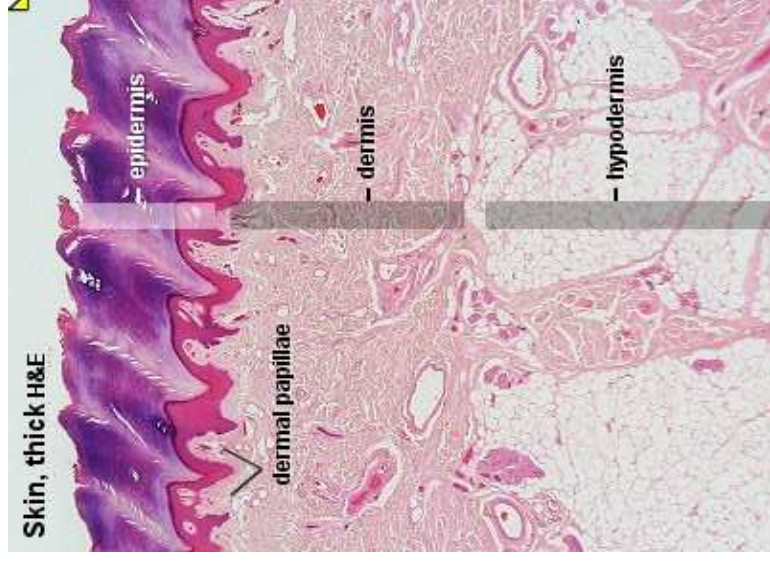
- Epidermis
- Dermis
- Hypodermis
- The hypodermis is a subcutaneous CT layer rich in fat cells, located under the dermis, and it binds the skin to the deeper structure.



Types of the skin

According to the thickness of the epidermis the skin is classified into:

1. **Thick (non-hairy) skin.**
2. **Thin (hairy) skin.**



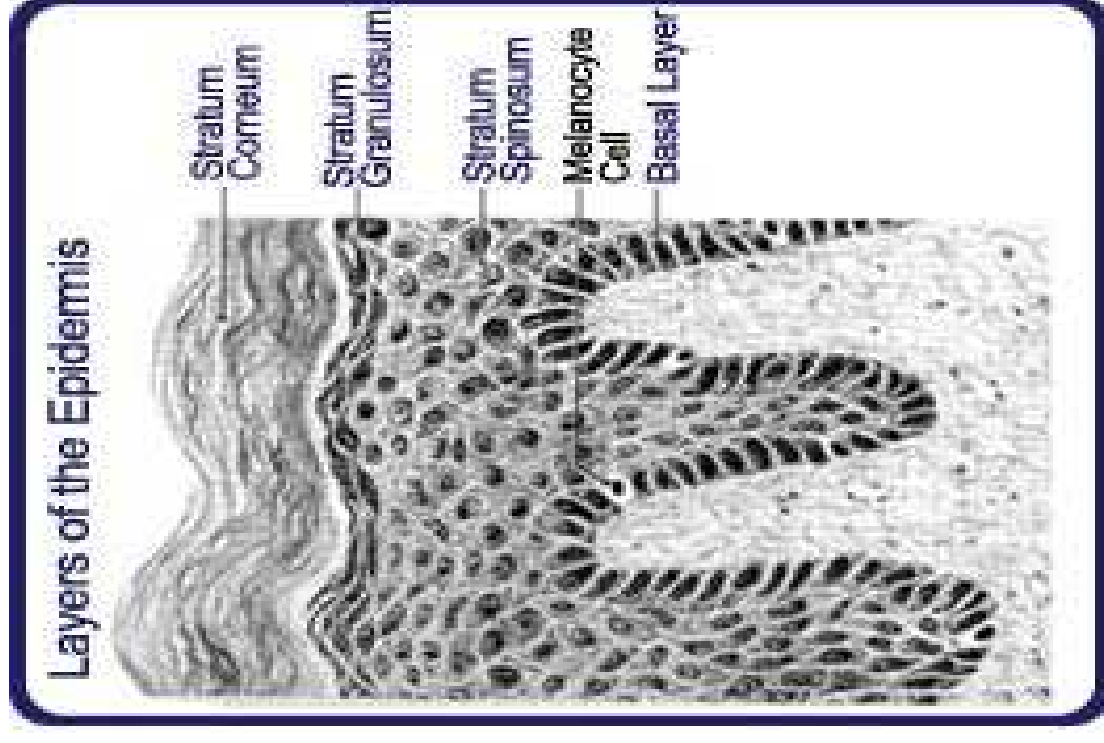
Structure of the thick skin

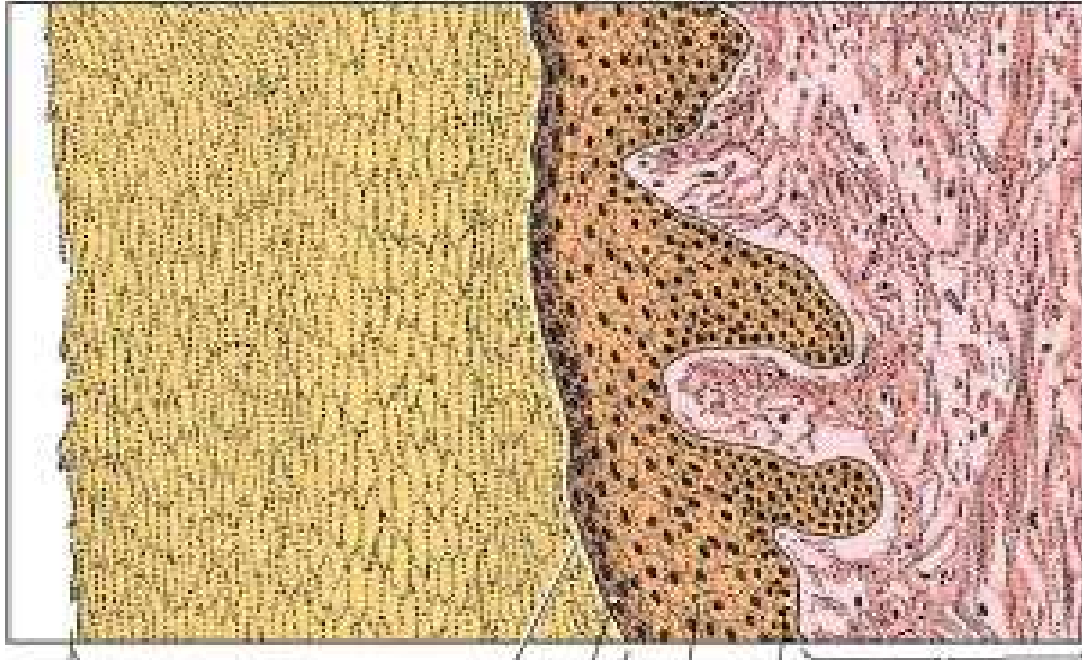
- It is present in the palms hands and soles of feet.

- It consists of epidermis, dermis, and hypodermis.

- The epidermis of the thick skin is formed of keratinized stratified squamous epithelium.

- The epithelial cells are called keratinized and are arranged in 5 layers:





Surface

LAYER

Stratum
corneum

Stratum
lucidum

Stratum
granulosum

Stratum
spinosum

Stratum
germinativum

Dermis



Epidermis

Dermis

Epidermis of thick skin

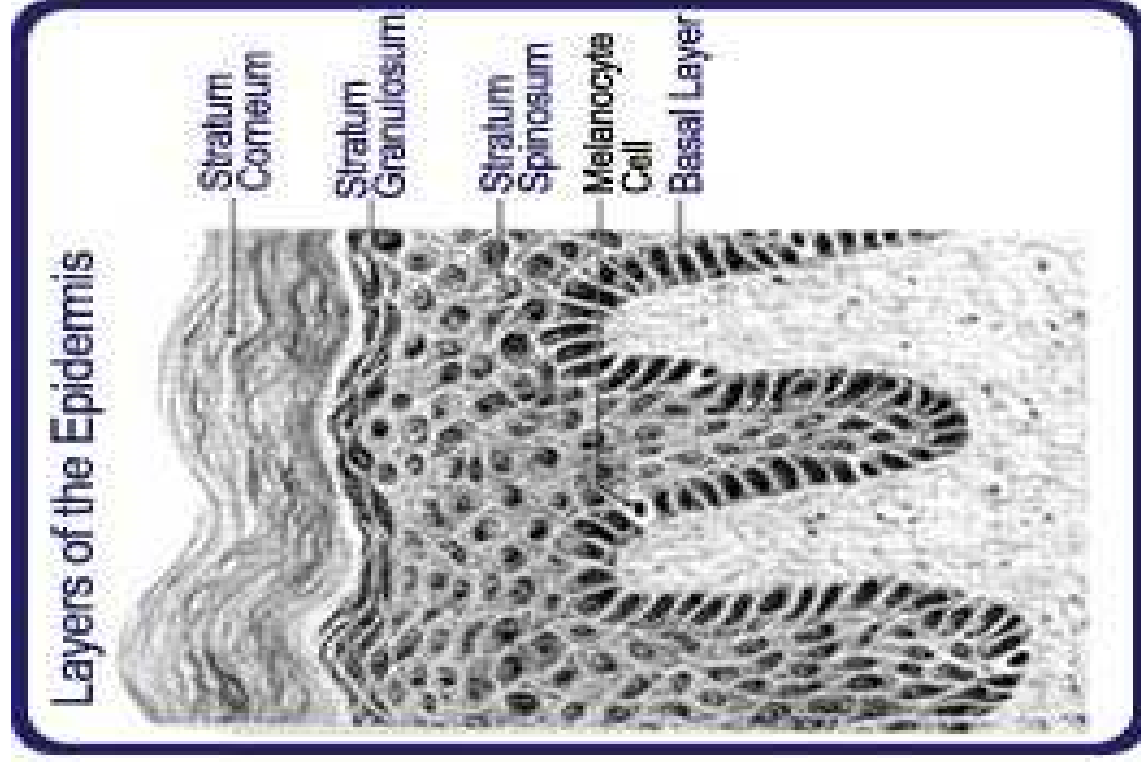
1. **Stratum basale (germinal layer):** it is formed of single layer of columnar epithelium resting on a basement membrane.

2. **Stratum spinosum:** it is formed of 2-6 layers of polygonal cells with central nuclei. The cells are joined together by desmosomes.

3. **Stratum granulosum:** it is consists of 3-5 layers of flat polygonal cells with central nuclei. The cytoplasm contains basophilic keratohyaline granules.

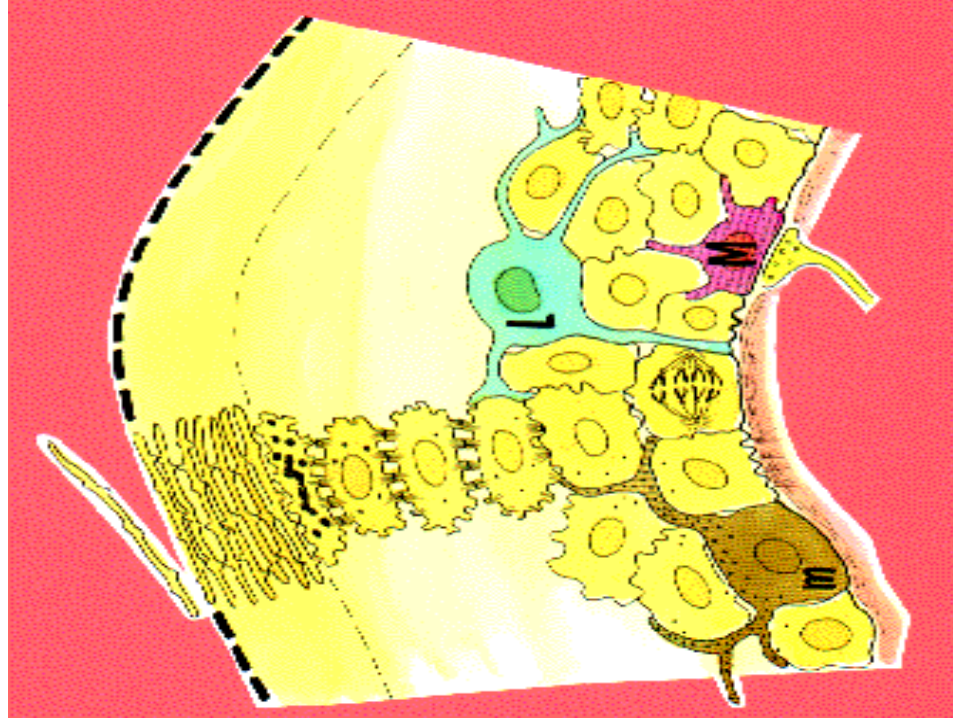
4. **Stratum lucidum:** it is translucent thin layer of acidophilic flat cells with no nuclei or organelles, the cells are formed of packed tonofilaments.

5. **Stratum corneum:** it consists of many layers of flattened non-nucleated keratinized cells filled with keratin.



Other cells of Epidermis

1. Melanocytes: have spherical cells bodies and cytoplasmic processes, found in stratum basale, and are responsible for formation of melanin pigment of the skin.
2. Langerhan's cells: are branched star-shaped cells, present in stratum spinosum, and have a role in immunity.
3. Merkel's cells: are present in thick skin, resemble keratinocytes, and act as sensory receptor.



Dermis

- The dermis is formed of papillary layer and reticular layer.

- The papillary layer is the superficial layer, formed of loose CT rich in cells and blood capillaries.

- The reticular layer is the thick deep layer, formed of CT rich in collagen and elastic fibers.

- Sweat glands are present in the dermis.



Thin skin

- It covers the body except the palm and sole.

- The epidermis of thin skin is essentially the same as the thick skin but with the following differences:

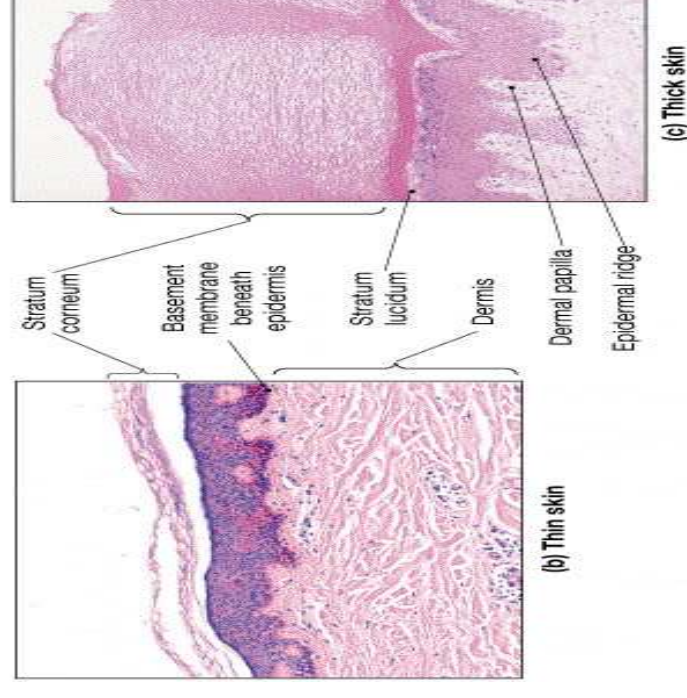
- The thickness of the epidermis is less than that of the thick skin.

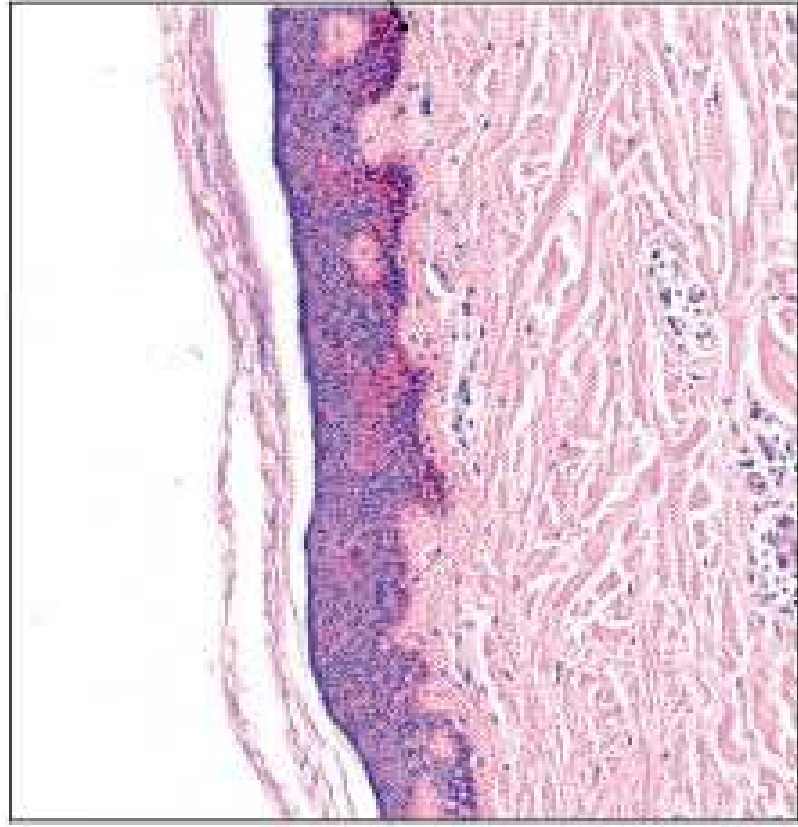
- The stratum corneum is thinner.

- Stratum lucidum is absent.

- The stratum granulosum is thinner.

- The stratum spinosum is thinner.





(b) Thin skin



(c) Thick skin

Stratum
corneum

Basement
membrane
beneath
epidermis

Stratum
lucidum

Dermis

Dermal papilla

Epidermal ridge

- The dermis is similar to that of the thick skin but it contains also hair follicles, sebaceous gland and sweat glands.

Thin skin

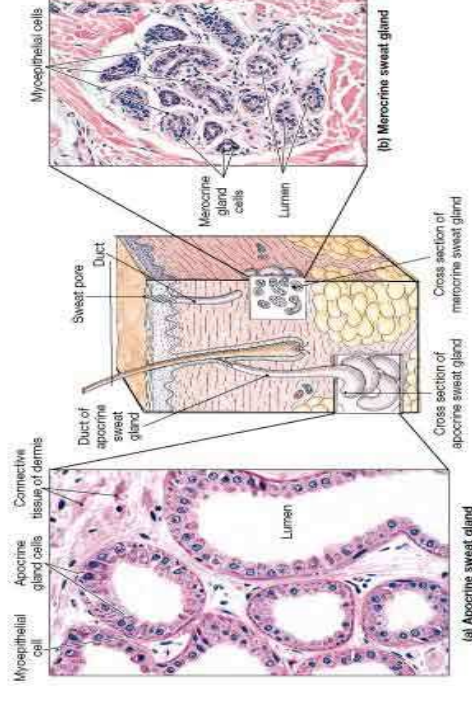


FIGURE 5-9 Sweat Glands. (a) Apocrine sweat glands are located in the axillae, groin, and nipples. These glands produce a thick, odorous fluid by apocrine secretion. (LM $\times 369$) (b) Merocrine sweat glands produce a watery fluid by merocrine secretion. (LM $\times 194$)

