



University of Baghdad

College of Medicine

2024-2025



Title: Integumentary System Histology Part 1

Grade: First

Module: -Histology- Lecture 1

Speaker: Assist Prof Dr Rana A Altae

Date: / / 2024

Objectives:

At the end of the lecture the *students* will be able to:

1. Describe the difference between Integument & Skin.
2. Identify the principal layers of the skin (epidermis, dermis and hypodermis) at the light microscope level and know the composition of each layer.
3. Identify the layers of the epidermis in thick and thin skin including the process of epidermal turnover and keratinization.
4. Know the cell types present in the epidermis and be able to identify keratinocytes and non-keratinocytes.



Overview of the Skin

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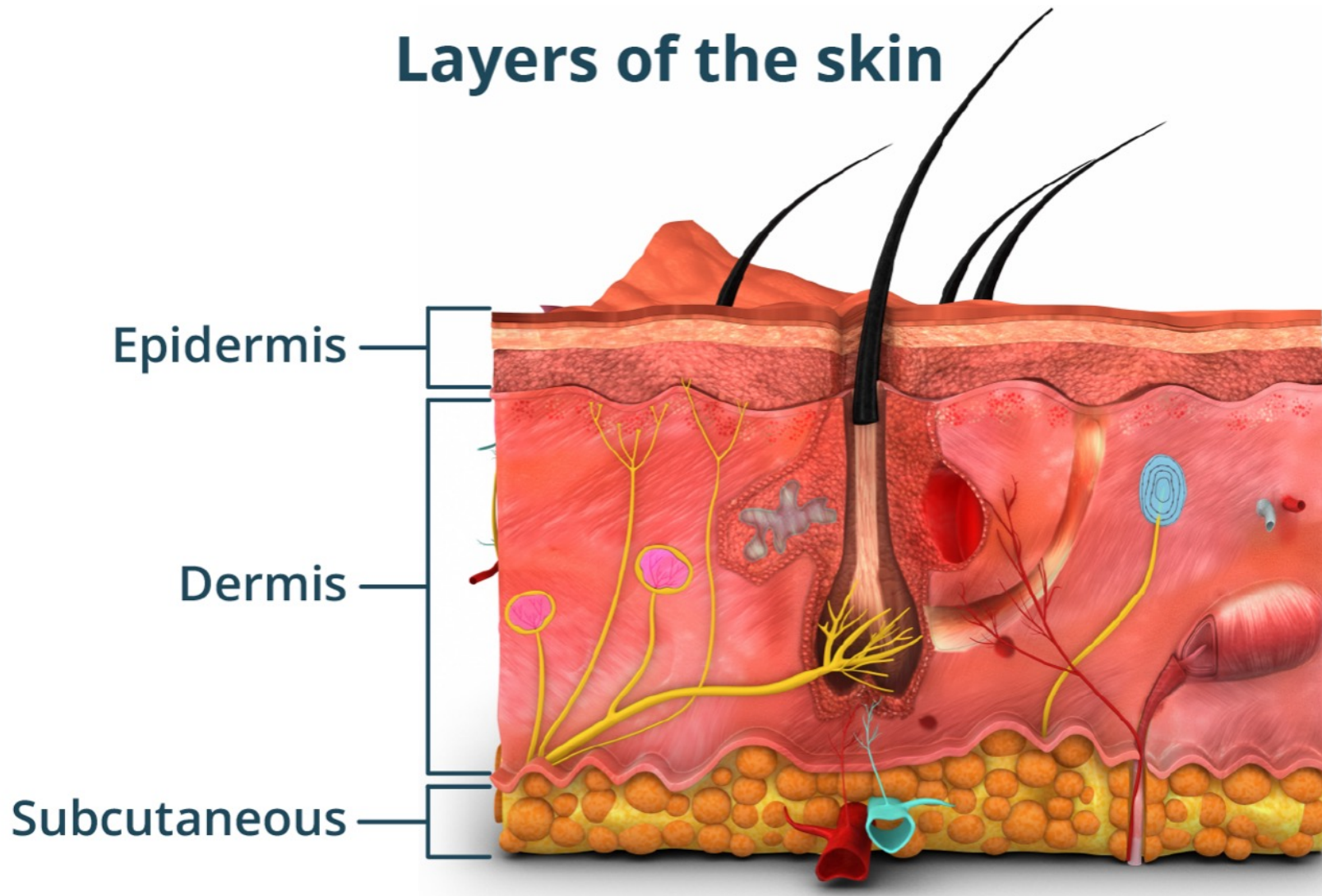


LAYERS OF SKIN

Epidermis

Dermis

Hypodermis/ Subcutis



Skin is composed of a superficial **stratified squamous keratinized epithelium** known as the **epidermis** and of a deeper connective tissue layer, the **dermis**

Epidermis

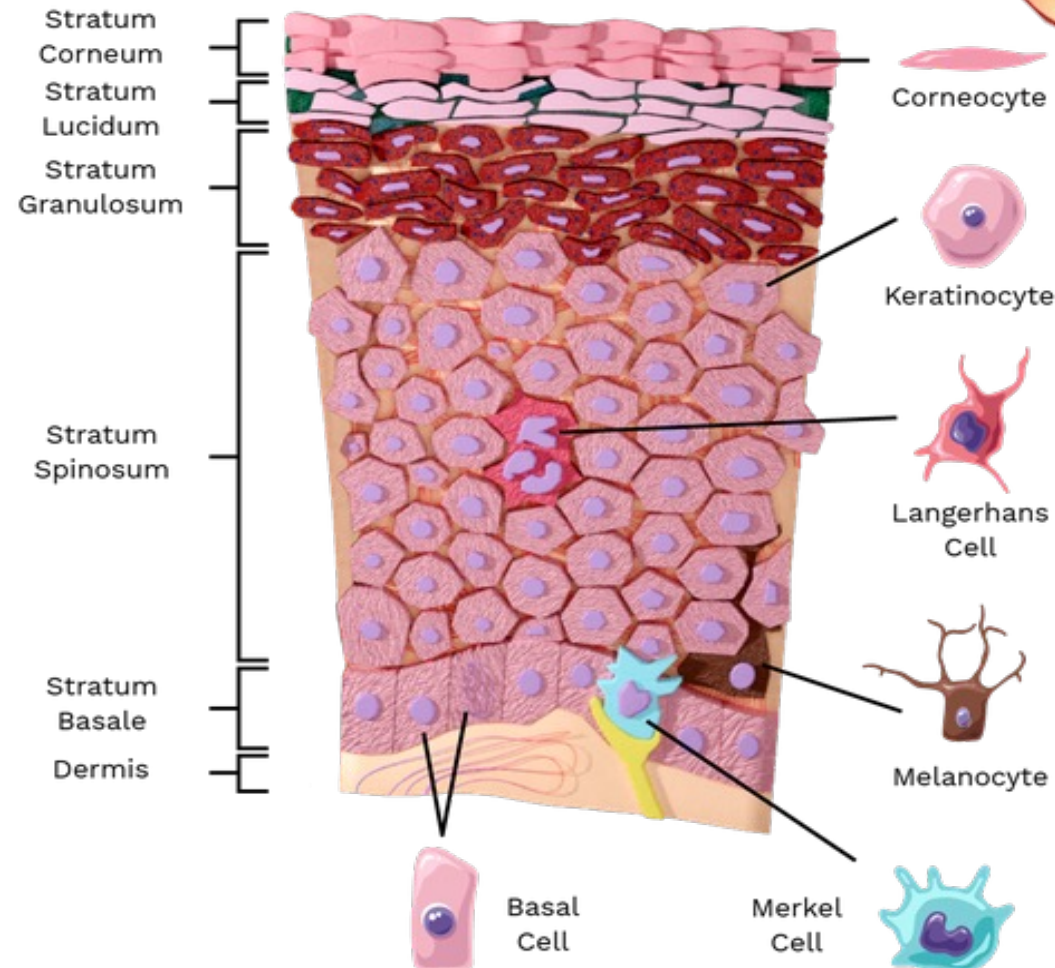
- Most superficial layer of the skin
- Composed of multiple layers and keratin

Types of Cells:

1. Keratinocytes

2. Non-keratinocytes

- Melanocytes
- Merkel cells
- Langerhans



EPIDERMAL MELANIN UNIT

- Ratio of Melanocytes to Keratinocytes in Epidermal basal layer **1:4 to 1:10** depending on the site of the body.
- Increases on repeated exposure to **UV light**
- **RACIAL DIFFERENCE**- due to differences in the amount of melanin contained in the Keratinocytes rather than the number of Melanocytes

Clinical Correlate

Vetiligo



Albinism



Epidermal Layers

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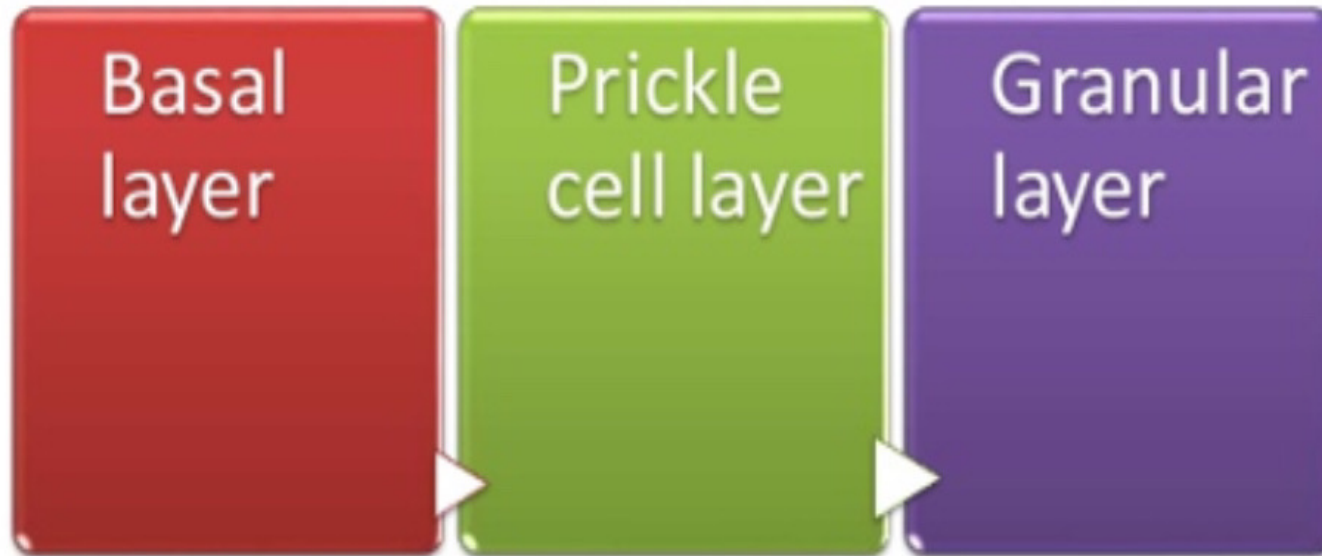
Thick skin

1.	Stratum corneum (Cornified cell layer)	Composed of several layers of dead, anucleated, flattened keratinocytes (squames) that are being sloughed from the surface. As many as 50 layers of keratinocytes are located in the thickest skin (e.g., sole of the foot).	Only about five or so layers of keratinocytes (squames) comprise this layer in the thinnest skin (e.g., eyelids).
2.	Stratum lucidum (Clear cell layer)	Poorly stained keratinocytes filled with keratin compose this thin, well-defined layer. Organelles and nuclei are absent.	Layer is absent but individual cells of the layer are probably present.
3.	Stratum granulosum (Granular cell layer)	Only three to five layers thick with polygonal-shaped nucleated keratinocytes with a normal complement of organelles as well as keratohyalin and membrane-coating granules	Layer is absent but individual cells of the layer are probably present.
4.	Stratum spinosum (prickle cell layer)	This thickest layer is composed of mitotically active and maturing polygonal keratinocytes (prickle cells) that interdigitate with one another via projections (intercellular bridges) that are attached to each other by desmosomes. The cytoplasm is rich in tonofilaments, organelles, and membrane-coating granules. Langerhans cells are present in this layer.	This stratum is the same as in thick skin but the number of layers is reduced.
5.	Stratum basale (stratum germinativum)	This deepest stratum is composed of a single layer of mitotically active tall cuboidal keratinocytes that are in contact with the basal lamina. Keratinocytes of the more superficial strata originate from this layer and eventually migrate to the surface where they are sloughed. Melanocytes and Merkel cells are also present in this layer.	This layer is the same in thin skin as in thick skin.

Thin Skin

STRATUM MALPIGHII

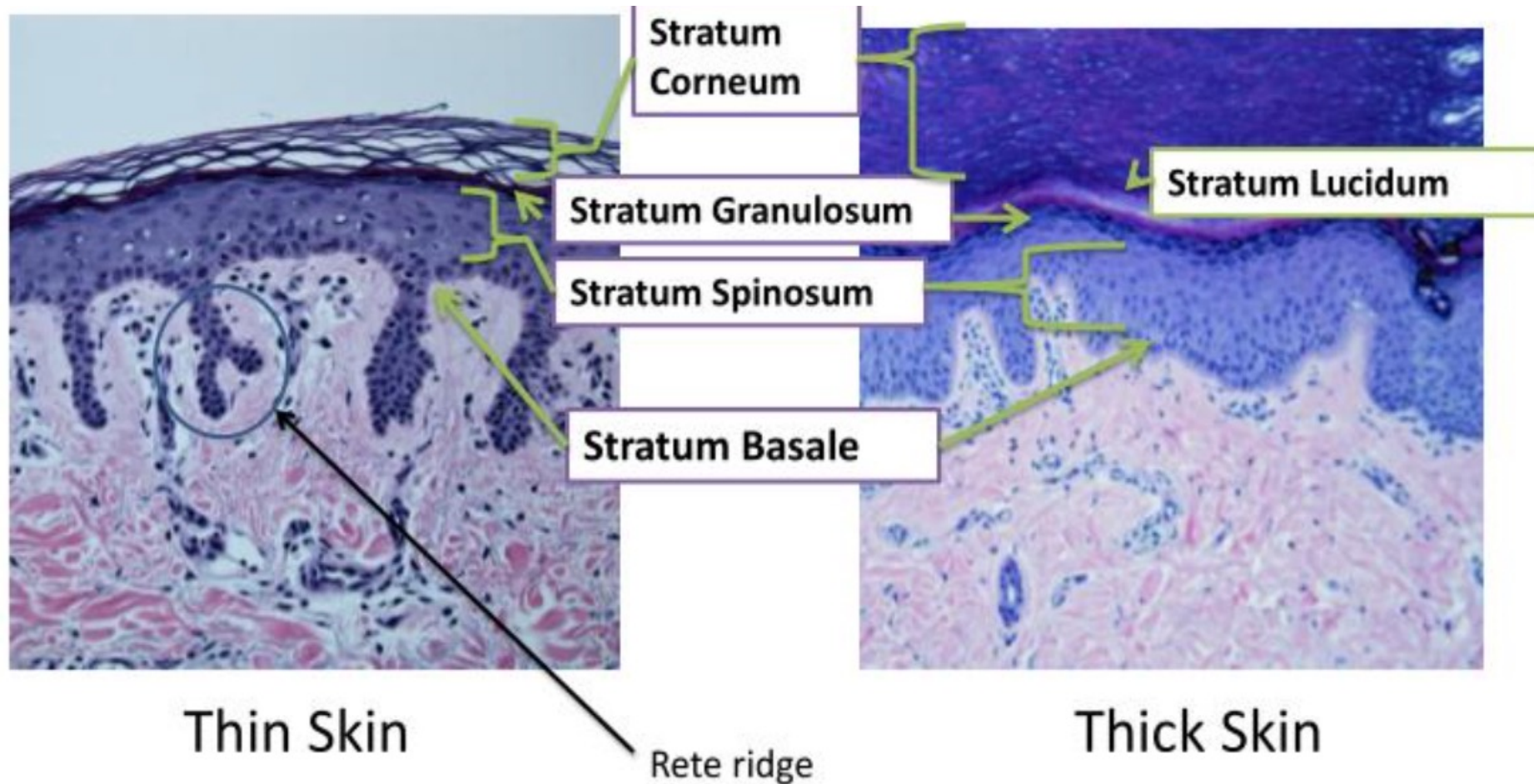
- Rete Malpighii





Epidermis : Layers

Come Lets Get Sun Burned



Differences between thin & thick skin



Thin Skin

- Entire body except thick skin areas.
- Less than 5 layers of stratum corneum with no stratum lucidum
- Hair follicles present except lips, labia minora, and glans penis

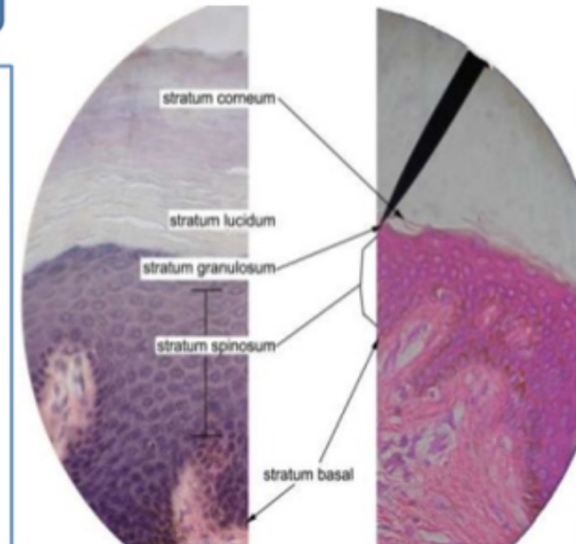
Thick Skin

- Palms of hands and soles of feet = acral skin
- 5 layers thick stratum corneum with increased granular layer
- More sensory receptors
- Lack sebaceous glands and increased eccrine glands
- No hair follicles

Types of skin

Thick skin

- * 5 layers
- * Prominent stratum corneum
- * Well developed stratum granulosum
- * Palms of the hands and soles of the feet
- * Thinner dermis
- * No hair and sebaceous glands



Thin skin

- * 4 layers
- * less Prominent stratum corneum
- * Less developed stratum granulosum
- * Dominant and lines most of the body surface
- * Thicker dermis
- * hair and sebaceous glands

What is a Fingerprint?

- The epidermis and dermis interdigitate with each other by the formation of **epidermal ridges** and **dermal ridges (dermal papillae)**

