



-the skin is made up from 2 main layers : epidermis and dermis((also other additional tissues ((hypodermis)) and structures ((hair, nail, arrector pili muscle , different glands...etc))

Firstly ,the epidermis ((stratified squamous keratinized epithelium)) is made up from:

Stratum Basale	Stratum spinosum	Stratum granulosum	Stratum lucidum	Stratum corneum
-deepest layer -made from superficial cuboidal cells -highly mitotic and progenitor for all epidermal cells	-thickest on epidermal layer (thickest in thick skin) -made from polyhedral cell active in keratin synthesis -their keratin filaments become tonofibrils while preparing tissue for shedding -stratum germinativum= cells which they are close to stratum Basale are also mitotically active	-formed from 3-5 layers of cells -has 2 types of granules: 1-Kerato-hyaline granules 2-lamellar granules Note: The lamellar granules are rich in lipid so by exocytosis they make a hydrophobic barrier that prevents water loss	-are translucent(without color) found only in thick skin -formed from eosinophilic squamous cells with no nuclei and organelles -cytoplasm is filled with keratin (that's why it is eosinophilic)	-are the most superficial layer ,thick in thick skin -Formed of 15-20 layers of thin squamous cells which are called squames. These are nothing more than cell membranes filled with keratin.(dead cells) Note : Calluses is thickening of stratum corneum .

Notes :

-((thick skin:thick epidermis))/((total skin thickness: the thickness of dermis and epidermis)).

-the epidermis is made from non epithelial cells in addition to keratinocytes for example: melanocytes , langerhans cells and merkel cells.

-melanin is produced in melanocytes but it is mostly found in keratinocytes .

-the dermal-epidermal junction ((jigsaw-like epidermal ridges –dermal papillae arrangement)) is prominent in thick skin which they are like grooves and ridges (basis of fingerprints).

Secondly ,the dermis (connective tissue layer) is made from:

1-pappillary region

loose areolar connective tissue.

Contains:

- Blood capillary loops
- Lymphatic vessels
- Nerves
- Meissner's corpuscles (of touch)

2- reticular region

dense collagenous irregular

connective tissue.

Contains:

- Collagen and elastic fibers
- Lymphatic and blood vessel plexuses
- Sensory receptors and nerves
- Hair follicle
- Arrector pili muscle
- Glands

Notes :

-there are 2 types of vascular plexus in the dermis((Subpapillary plexus, Deep dermal plexus))

-Sweat glands, the arrector pili muscle, and blood vessels are supplied by postganglionic sympathetic nerves, No parasympathetic nerves supply the skin.

-there are 2 types of sensory receptors :capsulated and uncapsulated;

unencapsulated receptors

-are not covered by a glial or collagenous capsule.

1-Tactile discs(light touch)

2-Free nerve

endings(temperature,pain,itching)

3-Root hair plexuses(movement of the hairs)

encapsulated receptors

1-Meissner corpuscles

*Elliptical structure located in the dermal papillae perpendicular to the epidermis.

*Responsible for the sensation of light touch.

* Most numerous in the fingertips, palms, and soles.

2-Lamellated (Pacinian) corpuscles

*Large oval structures located deep in the reticular dermis and hypodermis.

*Responsible for the sensation of deep touch, pressure, and vibration.

* May be found in other organs.

3-Ruffini corpuscles(stretch)

4-Krause end bulbs(vibration.)

Note :

***Hypodermis layer** is :

1- Loose connective tissue layer

2-contains adipocytes and a vascular plexus.

3-Functions:

- Enables the skin to slide over underlying structures .
- Fat in this layer acts as an energy storage site, insulator, and shock absorber .
- The rich vasculature enables rapid intake of drugs injected into this layer.

-**The Hair**

Definition :elongated keratinized structures derived from

epidermal invaginations,found throughout the body, except in certain areas like the palms, soles, lips, glans penis, clitoris, and the labia minora .. it is important in the body because it gives protection ,reduction of heat loss ,sensation of light touch.

Parts of the hair :

1-shaft ((the superficial part of the hair extends beyond the surface of the skin.))

2-hair root ((deeper part of the hair that reaches down into the dermis. It's surrounded by the hair follicle.)) formed of 3 concentric layers:

1) The medulla: The innermost layer of large, vacuolated cells.

2) The cortex: The middle layer of cuboidal cells.

3) The cuticle: The outermost layer, arranged like shingles on house roofs.

**the hair follicle is downward extension of the epidermis that surrounds the hair
_Root and Formed of (from the inside out):

1. Epithelial root sheath ((derived from the epidermis, formed of two layer: (a)internal root sheath/ (b)external root sheath))

2. Glassy membrane ((basement membrane that separates the epithelial and dermal root sheaths.))

3. Dermal root sheath ((derived from the connective tissue of the dermis.))

_The lower part of the hair follicle is expanded to form the hair bulb.((Contains the hair matrix, Within the hair matrix, we have melanocytes that give hair its color.))

*Hair growth is cyclical. However, it's asynchronous((doesn't happen at the same time)) and occur at different rates in different regions of the body (even in the same region) ..In 3 phases : Anagen, Catagen, Telogen.

-there are two types of glands in the skin sebaceous and sweat glands

Sebaceous glands

- Simple branched acinar holocrine glands.
- They are absent in the palms and soles.
- Duct opens into hair follicle. In hairless regions (eyelids, nipples, penis, and clitoris), the duct opens directly onto the epidermal surface.
- Secretion of these glands is called sebum

Sweat glands

- They are simple coiled merocrine glands
- we have 2 types of sweat glands : eccrine and apocrine

Feature	Eccrine	Apocrine
Location	All over the body, especially palms and soles	Axillary and perianal regions
Type	Simple coiled	Simple coiled
Secretion	Watery	More viscous
Method of secretion	Merocrine	Merocrine
Secretory portion	Small lumen. Stratified epithelium	Large lumen. Simple epithelium
Open	Usually on the surface of the skin	Into the hair follicle
Control	Nervous (cholinergic)	Nervous (adrenergic) + Hormonal
Onset of action	From birth	At puberty
Functions	Thermoregulation Excretion	Stimulated during emotional stress

Notes:

-the eccrine glands have 3 types of cells clear cells, dark cells and myoepithelial cells

-Acne vulgaris (disorder of hair follicle + sebaceous gland) is an inflammatory disorder of the pilosebaceous unit in which there is excessive keratinization and sebum production that leads to blockage of the duct of the gland.

-the nail:

-Hard plates of keratinized cells **found on the dorsal surface of the distal phalanges.**

-the nail is formed of a nail plate (body) surrounded by three folds (two lateral and one proximal) with a distal free edge (the part that we cut).

-The proximal part of the nail is the nail root which is covered by the proximal nail fold. At this fold, **the stratum corneum doesn't pass with the other layers of the epidermis but continues distally as the eponychium**

-**The nail root is formed from the nail matrix** derived from the epidermis. As more cells are added, the root grows and the plate extends distally over the nail bed. Proximally in the nail plate, we have a whitish area called the **lunula.**

-**The nail bed is thin formed of stratum basale and spinosum only.**

-Distally, the free edge of the nail is adhered to the fingertip by a fold of epidermis called **the hyponychium.**

التلخيص شامل أهم النقاط في الهستولوجي والتلخيص للمراجعة

😊 موفقين يا رب