

* The integumentary system (skin)

other structure of skin
ساختارهای دیگر پوست: ساختارهای دیگر پوست



integumentary system: formed of the skin and its accessory structures.

include:?

① hair ② sebaceous and sweat gland ③ Arrector pili muscle

④ Nails.

Function of skin :-

- ① synthesis of vitamin D
- ② protection
- ③ Cutaneous sensation
- ④ excretion and absorption
- ⑤ Regulation of body temperature
- ⑥ Blood reservoir.

Structure of the skin

* skin cover the body and its the largest organ of the body

by ① surface area ② weight

* weight of skin about 16% of body weight.

* the thinnest skin → eyelids

the thickest skin → heels.

Two layers of skin?

[1] the outer layer → epidermis

[2] the inner layer → dermis

→ Beneath the dermis (subcutaneous layer) also called hypodermis which attaches skin to the underlying tissues and organs.

i] The epidermis

composed of :- stratified squamous keratinized epithelium.

4 types of cell?!

[1] Keratinocytes : 90% of cells in epidermis.

and produce keratin which is tough fibrous protein that provides protection.

[2] Melanocytes : produce the pigment melanin that protects from damage by ultraviolet radiation.

[3] Langerhans cells : involved in immune responses.

[4] Merkel cells : which function in the sensation of ~~tough~~^{touch} along with tactile discs

* Layers of epidermis:-

Epidermis is formed of 4 layers in (thin skin) and 5 layers in (thick skin).

[1] Stratum basale: the deepest layer, cell division occurs to produce all the other layers.

[2] Stratum spinosum: 8-10 layers of keratinocytes.

[3] Stratum granulosum:- contains granules that could be keratohyalin or lamellar granules.

[4] Stratum lucidum: present only in thick skin
fingertips, soles, palms.

[5] Stratum corneum: composed of many sublayers of flat, dead keratinocyte called corneocytes or squames.

Notes about the layers ?!

[1] Merkel and mechanocytes → موجودين في Stratum basale

branches of melanocytes → موجودين بين keratinocytes
حتى توجد بها صبغة melanin

[2] Lamellar granules → متصلة ب cell membrane
حتى تزيد من افراز Lipids-rich وتحمي بين الخلايا حتى يقل فقدان الماء.

[3] Keratin ب keratin desmosomes حتى يسهل الالتصاق

* dermis



والتى تتصل بالجلد
Connective tissue
Structural & nutritional support. للـ epidermis

Formed of two region ?

① Dermal papillae.

② reticular region.

والتى تتصل بالجلد
papillary region
epidermis

: Loose areolar connective tissue.

→ dermal papillae.

epidermal tissue passing down into the dermis. ⇐ epidermal ridges
موجبة] → increase the area of contact between the epidermis and dermis.

: dermal papillae

① capillary loops

② corpuscles of touch and nerve endings.

* overlapping between dermis and epidermis → fingerprints or footprint.

وظيفة : يزيد تماسك الطبقتين ويزيد قوة الالتصاق.

→ reticular region : consist of dense collagenous irregular connective tissue.
: تتكون من

① Adipose cells

② Hair follicles

③ Nerves

④ sebaceous and sweat gland.
glands.

* The subcutaneous tissue:-

contains and (sometimes dermis) → lamellated corpuscles which detect external pressure applied to the skin.

and contains → Fatty acid.

* subcutaneous contain?

① lamellated corpuscles

② fatty acid.

Function:-

- ① serves as an energy storage site.
- ② attaches the skin to the underlying organs and tissues.
- ③ Acts as insulator
- ④ Absorbs shocks. (in palms - soles)

* Accessory structure of the skin

① hair (pili)

columns of keratinized cells.

: موجود في كل الجسم خاصة

① palms ② soles.

Function:-

- ① protection (Hair on head protect scalp, eyelashes and eyebrows protect eye)
- ② Reduction of heat loss.
- ③ sensation of Light touch.

* parts of Hair

- ① the shaft → superficial of the hair
- ② The Root → deeper part. (from dermis to epidermis)
surrounded by hair follicle.

The shaft and root formed of 3 layer?

1 The medulla: the innermost layer

2 The cortex: the middle layer

3 The cuticle: the outermost layer.

* Sweat gland

Eccrine

Apocrine

- onset of action

from birth

puberty

- opens

on the surface of the skin

into hair follicle.

- secretion

watery

more viscous

- Functions

1 help cool the body

2 Elimination waste products

1 stimulated during emotional stress.

Method of secretion

Merocrine

Merocrine

- controls

Nervous

hormonal

- shape

coiled

coiled.

- Location

over the body specially soles and palms

- Axilla and groin