(Basic Structures)

* Skin :

The skin **[** integumentary system **]** is divided into three distinct parts :-

1. **Epidermis** : the superficial part , it's a stratified epithelium whose cells become flattened as they mature & rise to the surface.

- It's extremely *thick* on the palms of the hands & the soles of the feet, to withstand the wear & tear that occurs in these regions. In other areas of the body, e.g. the anterior surface of the arm & forearm, it's *thin*.

2. **Dermis** : the deep part of skin. It's composed of dense connective tissue containing many blood vessels, lymphatic vessels & nerves.

- It shows considerable variation in thickness in different parts of the body, tending to be thinner on the anterior than on the posterior surface, it's thinner in women than in men.

3. **Hypodermis (** superficial fascia, subcutaneous tissue **)** : it's a mixture of loose areolar & adipose tissue that unites the dermis of the skin to the underlying deep fascia or bones.

* Lines of cleavage **(** Langer's lines **)** : in the dermis, the bundles of collagen fibers are mostly arranged in parallel rows. The direction of the rows of collagen is known as the lines of cleavage, and they tend to run longitudinally in limbs & circumf-erentially in neck & trunk.

* Skin creases : it's folded skin over joints. At these sites, the skin is thinner than elsewhere & is firmly tethered to underlying structures by strong bands of fibrous tissue.

* Skin appendages *

(1) Nails : are keratinized plates on the dorsal surfaces of the tips of the fingers and toes.

- root of the nail: the proximal edge of the plate.
- nail bed: the surface skin covered by the nail.
- nail folds: the folds of skin surrounding & overlapping the nail *except* the distal edge of the plate.

(2) Hair follicles : are invaginations of the epidermis into the dermis. They lie obliquely to the skin surface.

Hairs are distributed in various numbers over the whole surface of the body, *except* on the lips, palms of the hands, sides of fingers, soles & sides of feet & sides of

toes, glans penis in male, (clitoris + labia minora + internal surface of labia majora) in females.

- arrector pili muscle : connects the undersurface of the follicle to the superficial part of the dermis. It's innervated by sympathetic nerve fibers, it's contraction causes the hair to move into a more vertical position, it also compresses the sebaceous gland & causes it to extrude some of it's secretion. It also causes dimpling of the skin surface, so called gooseflesh.

(3) Sebaceous glands : they are situated on the sloping undersurface of the hair follicles & lie within the dermis.

- sebum : an oily material helps preserve the flexibility of the emerging hair. It also oils the surface epidermis around the mouth of the follicle.

(4) Sweat glands : are long, spiral, tubular glands distributed over the surface of the body, *except* on the red margins of the lips, nail beds, glans penis & clitoris.

These glands extend through the full thickness of the dermis & their extremities may lie in the superficial fascia.

* Fasciae :- can be divided into two types :

[1] Superficial fascia: or subcutaneous tissue, it hold the skin firmly to the deeper structures.

[2] Deep fascia: it's a membranous layer of connective tissue that invests the muscles & other deep structures.

In the *neck*, it forms well-defined layers that may play an important role in determining the path taken by pathogenic organisms during the spread of infection.

In the *thorax* & *abdomen*, it's a thin film of areolar tissue covering the muscles & aponeuroses.

In the *limbs*, it forms a definite sheath around the muscles & other structures holding them in place. Fibrous septa extend from the deep surface of the membrane, between the groups of muscles, & in many places, divide the interior of the limbs into compartments.

In the *joints*, it may be considerably thickened to form restraining bands called **retinacula**. Their function is to hold underlying tendons in position or to serve as pul-leys around which the tendons may move.

* **Mucous membranes**: the lining of organs or passages that communicate with the surface of the body.

It may or may not secrete mucous on it's surface.

*** Serous membranes:** line the cavities of the trunk & are reflected onto the mobile viscera lying within these cavities.

- parietal layer : the serous membrane lining the wall of the cavity
  { sensitive, spinal nerves }
- visceral layer : the serous membrane lining the viscera
  { insensitive, A.N.S. }
- cavity : the narrow, slit like interval that separates these two layers & contain small amount of serous liquid called serous exudates.

Function of this liquid: 1- lubricates the surfaces of the membranes
2- allows the two layers to slide on each other

e.g. : in the lungs ⟶ pleural cavity
in the heart ⟶ pericardial cavity
in the abdomen ⟶ peritoneal cavity