



Introduction to Human Anatomy

Skin & Fascia

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SKIN (Integument)

□ Definition:

- Integument = Skin + skin appendages.
- Skin is the largest organ in the human body.

□ Functions:

- Protection of the underlying tissues.
- Protection of the body against microorganisms.
- Regulation of the body temperature.
- Formation of vitamin D.
- Absorption of certain substances (e.g. creams & ointments).
- Excretion of some waste products in sweat.
- Collection of information from the external environment.



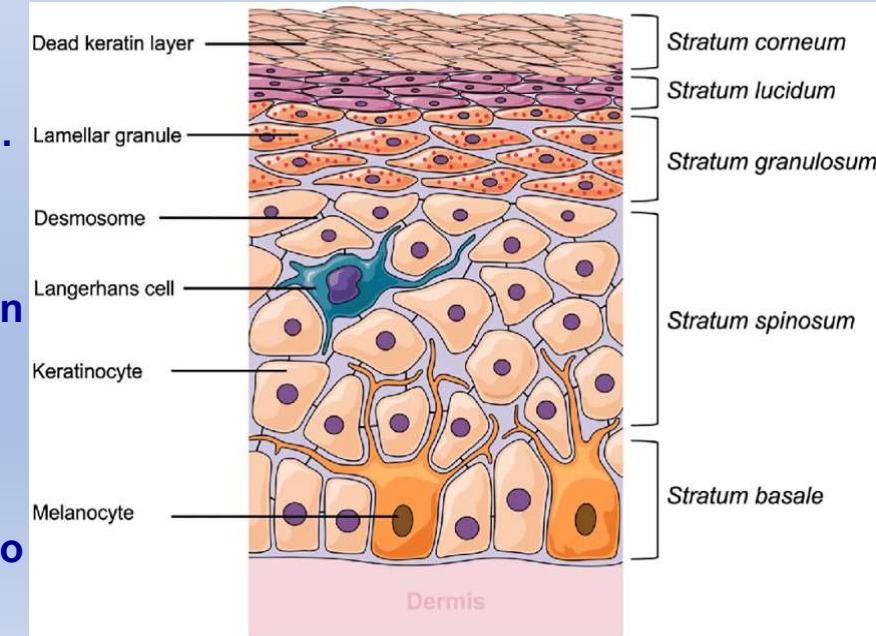
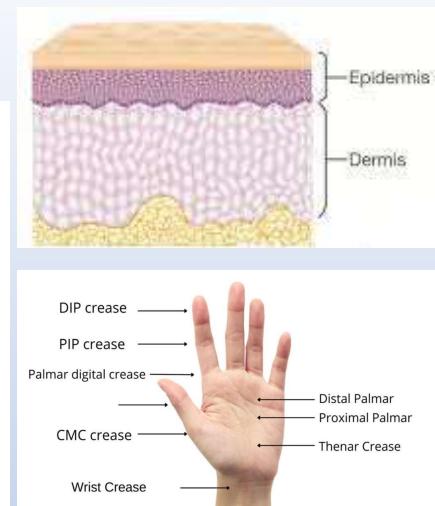
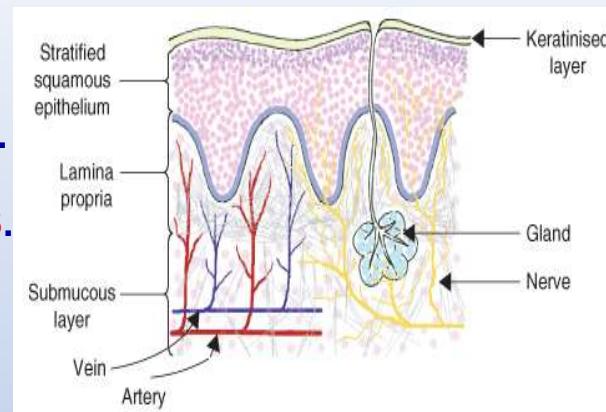
SKIN (Integument)

Structure:

- Skin is formed of 2 layers; dermis & epidermis.
- It folds over the joints forming **SKIN CREASES**.

A. Epidermis:

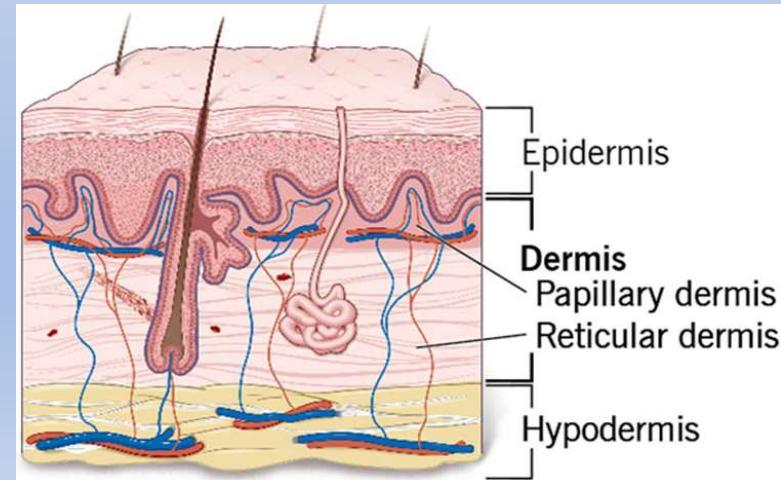
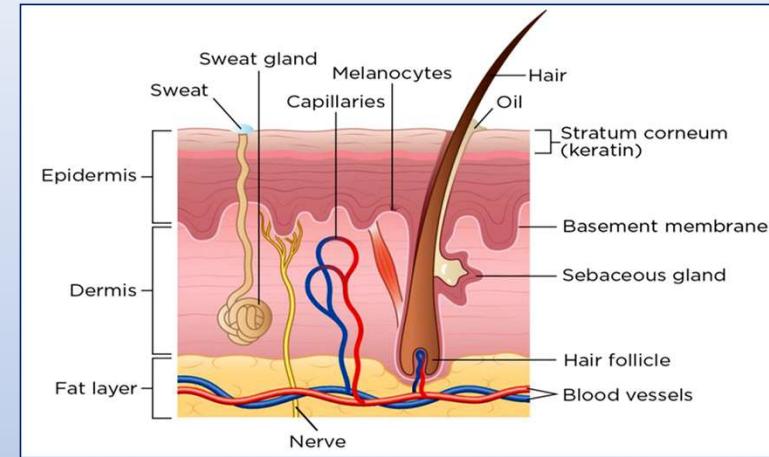
- It is the superficial layer of skin.
- Formed of keratinized stratified squamous epithelium.
- Superficial layer is formed of flat cells filled with keratin.
- Cells of the deep layer has the capacity to regenerate.
- Deep layer has melanocytes which secretes melanin (give dark color to skin).
- It is avascular but, it has sensory nerve endings.
- It is generally thin EXCEPT in the palm & sole to withstand wear & tear.



SKIN (Integument)

B. Dermis:

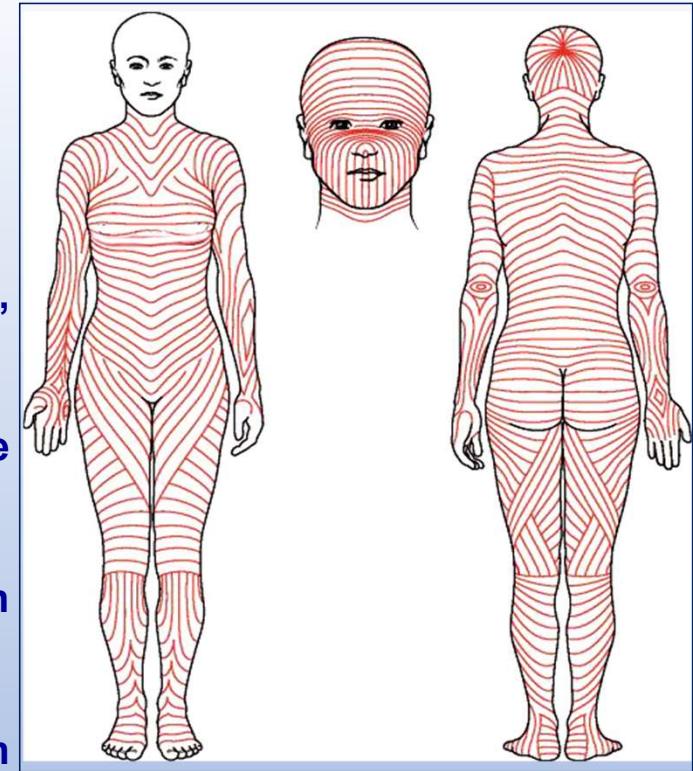
- It is the deep layer of skin.
- Formed of connective tissue.
- Divided into superficial papillary layer & deep reticular layer.
- Contains blood vessels, lymph vessels, sensory nerve endings, smooth muscles, hair follicles, sweat & sebaceous glands.
- It is thinner in females than males & on the anterior surface than on the posterior of the body.
- It is connected to the deeper structures by superficial fascia (subcutaneous tissue / hypodermis).



SKIN (Integument)

B. Dermis:

- Collagen fibers in its deep part are arranged in parallel rows, called lines of cleavage (**Langer's lines**).
- These lines are longitudinal in the limbs and circumferential in the neck & trunk.
- They are important in determining the direction for an incision (cut) during a surgery.
- A surgical incision along or between these lines causes minimum disruption of collagen so that the wound heals with a small scar.
- An incision made across these lines makes a disruption resulting in formation of a broad scar.

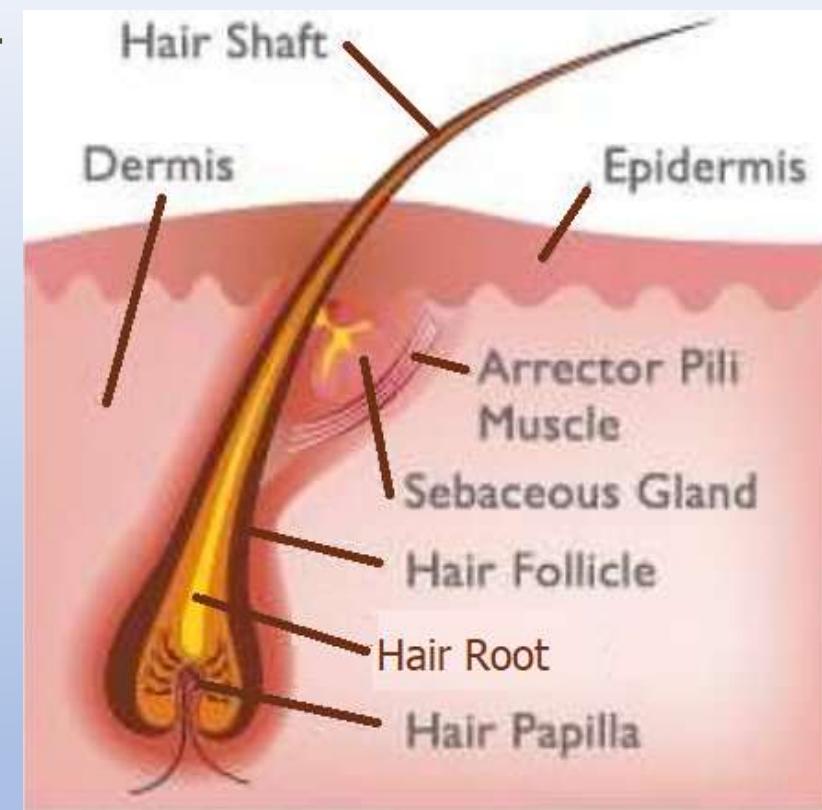


SKIN (Integument)

Skin appendages

□ Hair:

- It covers most of the body **EXCEPT:**
 - ✓ Palm & sole.
 - ✓ Sides of the feet, toes & fingers .
 - ✓ Dorsal surface od distal phalanges.
 - ✓ Red margin of lips.
 - ✓ Glans penis.
 - ✓ Clitoris, labia minora & inner surface of labia majora.
- The hair consists of:
 - ✓ Root: **the part embedded in the skin.**
 - ✓ Shaft: **the part projecting on the surface of skin.**
 - ✓ Hair follicle: **invagination from the epidermis into the dermis to surround the hair root.**
It lies oblique to the skin surface.
 - ✓ Hair papilla: **small conical vascular projection at the bottom of the hair follicle.**



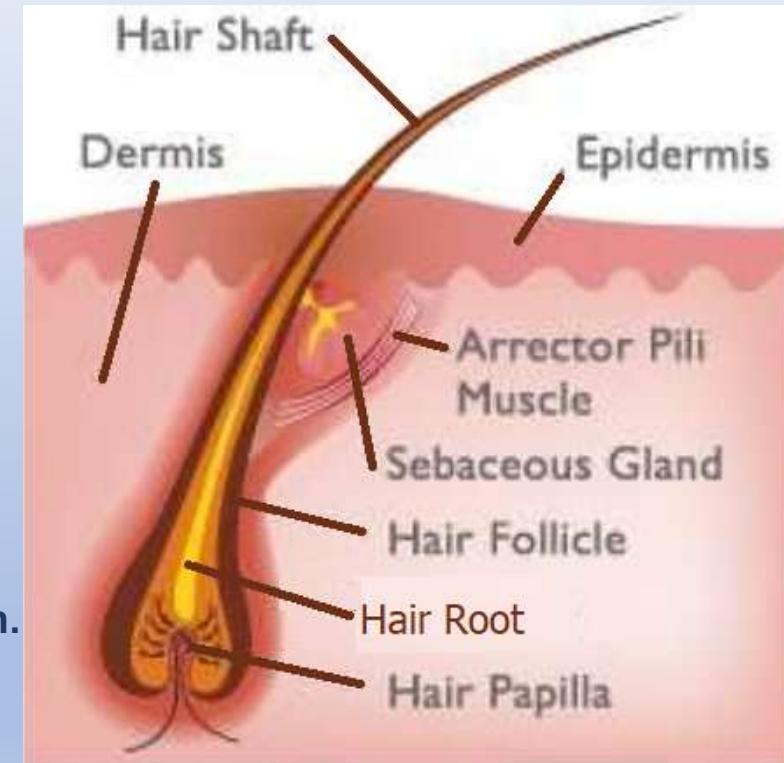
SKIN (Integument)

Skin appendages

□ Hair:

➤ Arrector pili muscle:

- ✓ Band of smooth muscle.
- ✓ Connecting the hair follicle to the superficial dermis.
- ✓ Innervated by sympathetic fibers.
- ✓ Contracts involuntary.
- ✓ Action:
 - Moves the hair in a more vertical position.
 - Squeezes the sebaceous gland to extrude its secretion.
 - Causes dimpling of the skin surface, so-called gooseflesh.



SKIN (Integument)

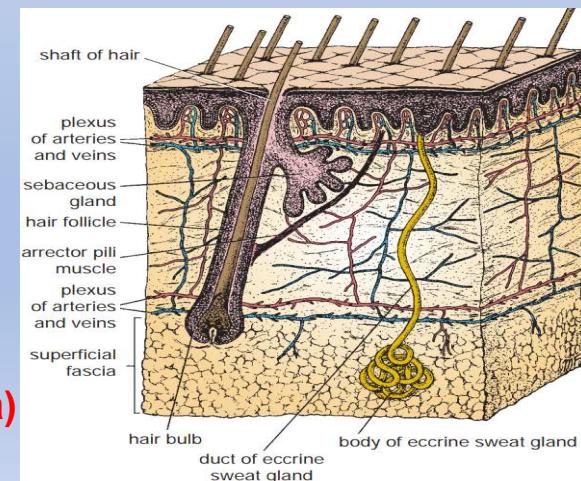
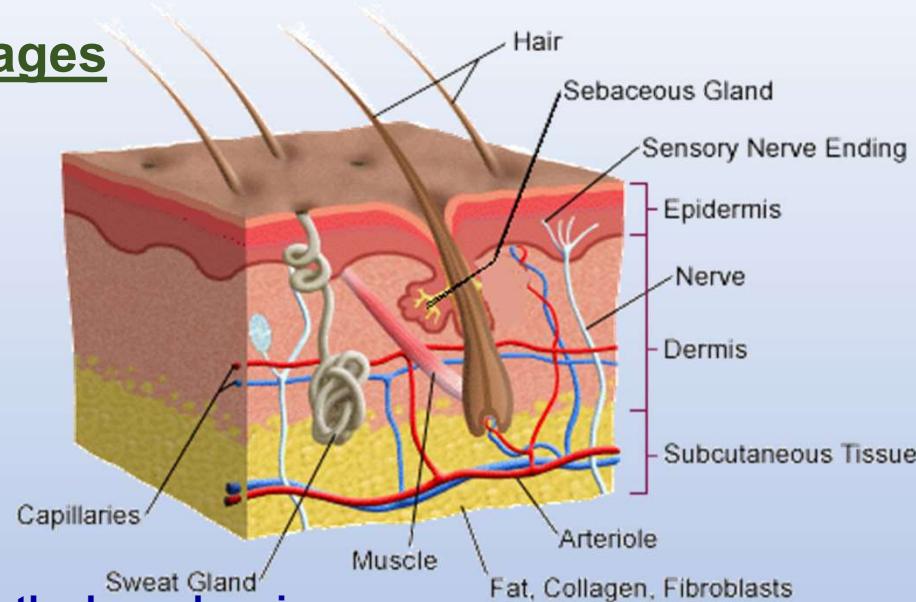
Skin appendages

□ Sebaceous gland:

- Present in the superficial layer of dermis.
- Its duct opens in the hair follicle.
- It secretes sebum (oily material).
- Its secretion softens the skin & lubricates the hair.

□ Sweat gland:

- Long spiral tubular glands.
- Present in the deep layer of dermis & may extend into the hypodermis.
- Its duct opens on the surface of skin.
- It secretes sweat (watery material).
- Its secretion regulates the body temperature & contains wastes.
- Distributed all over the body **EXCEPT**; nail bed, lip margin, glans penis & clitoris.
- Apocrine sweat glands (present in the axilla, areola & external genitalia) functions at puberty.

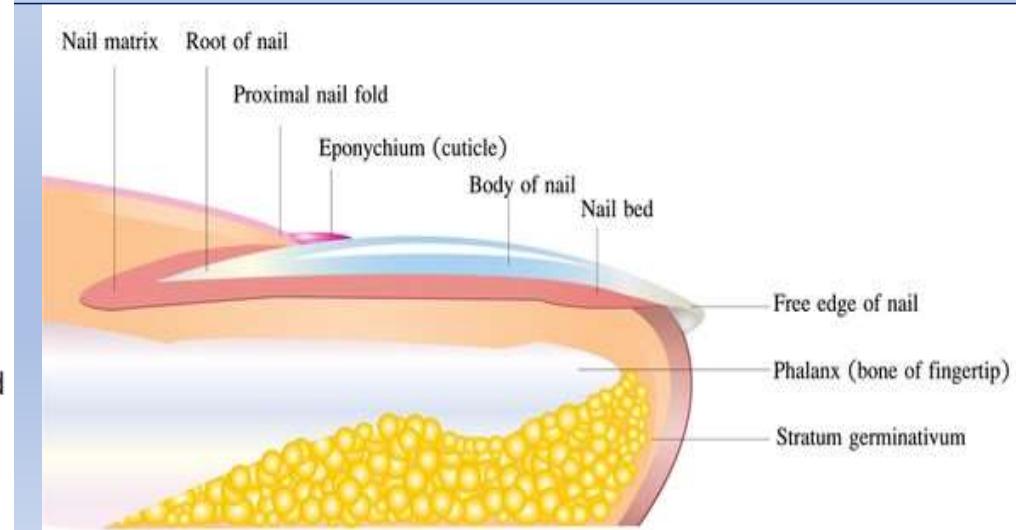
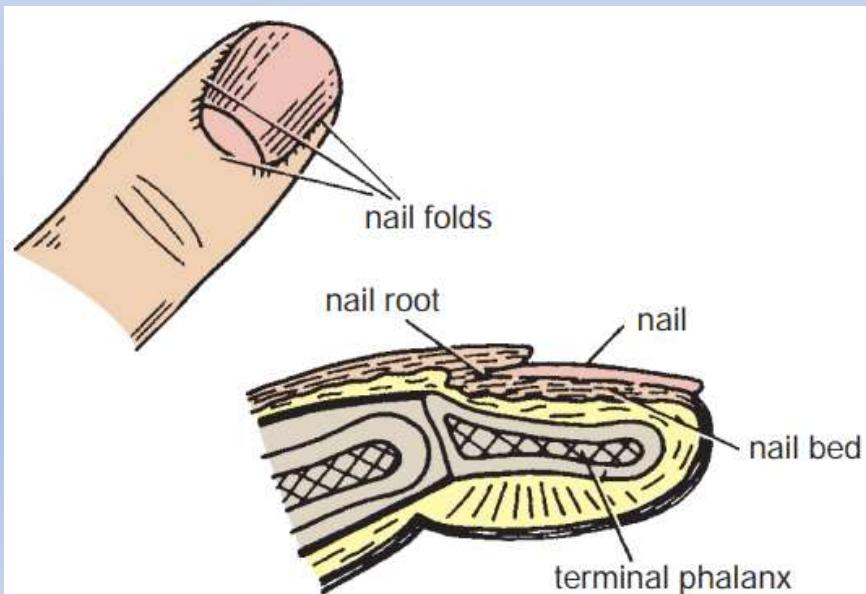


SKIN (Integument)

Skin appendages

Nail:

- Flat horny (keratinized) plate on the dorsum of distal phalanges of fingers & toes.
- Structure of nail:
 - ✓ **Body:** the exposed part which has free edge.
 - ✓ **Root:** the part embedded in the skin.
 - ✓ **Nail fold:** the skin fold surrounding the nail root.



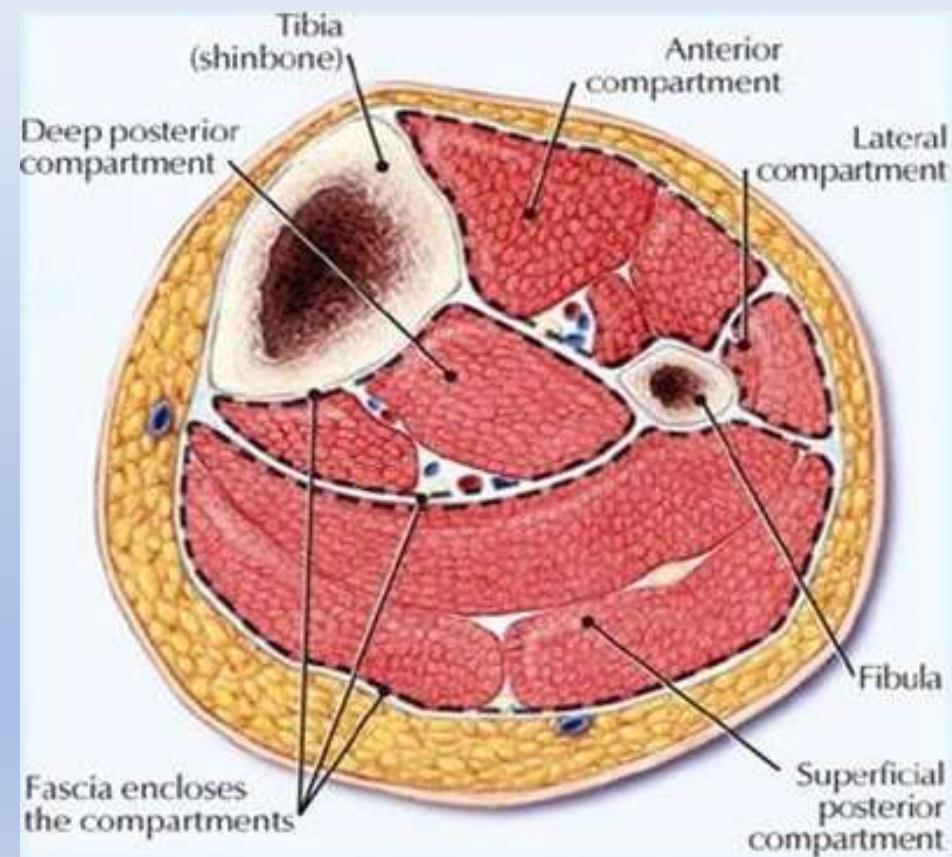
Fascia

□ Definition:

- It is the connective tissue deep to the skin.

□ Types:

- Superficial Fascia.
- Deep Fascia.



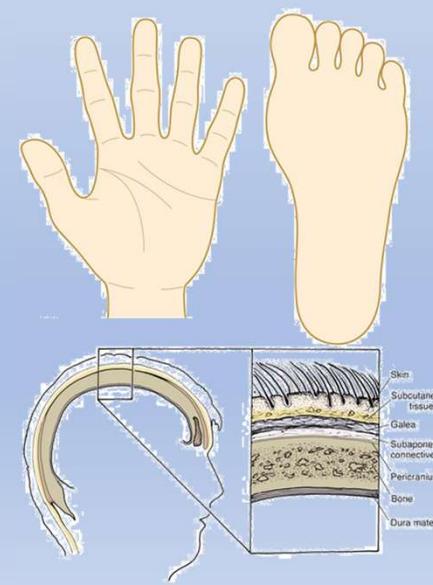
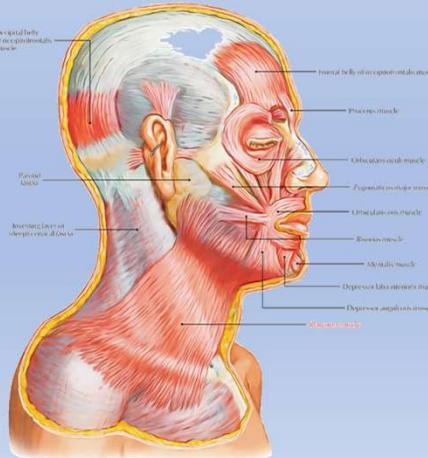
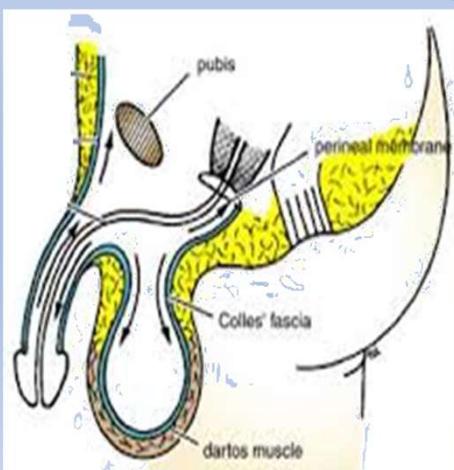
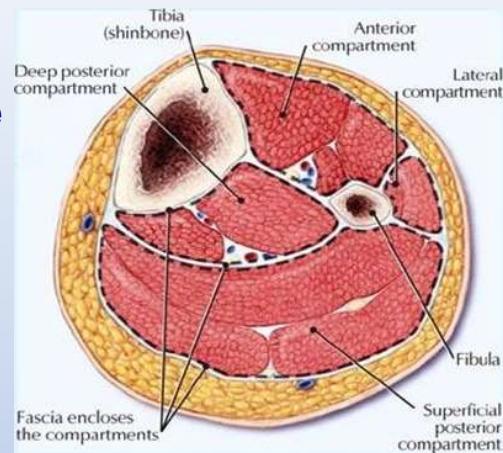
Superficial Fascia (Subcutaneous Tissue)

Definition:

- Loose areolar (adipose) tissue that unites the dermis of the skin to the underlying deep fascia.

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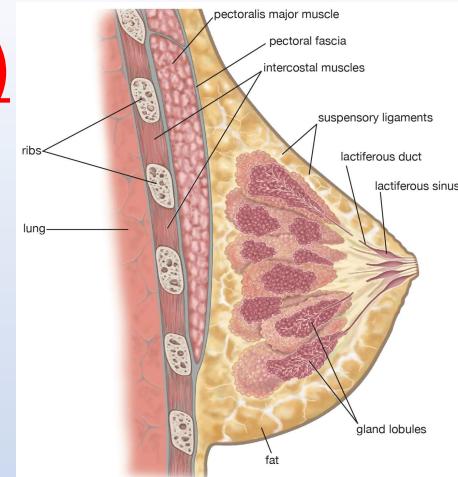
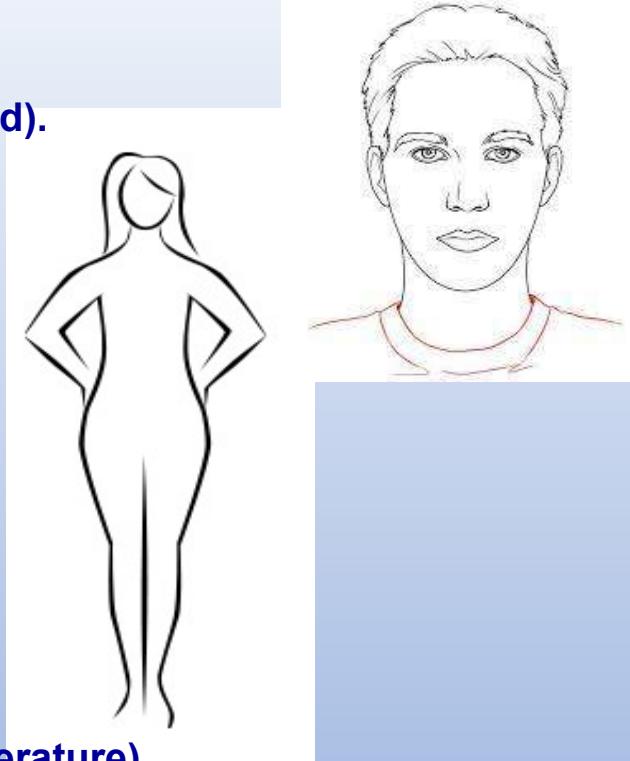
- Loose except in some areas (sole, palm, scalp & back of neck where it firmly connects the skin to the deeper structures).
- Contains fat, blood vessels, lymph vessels and nerves.
- May contain sheets of muscles (platysma & dartos muscle).



Superficial Fascia (Subcutaneous Tissue)

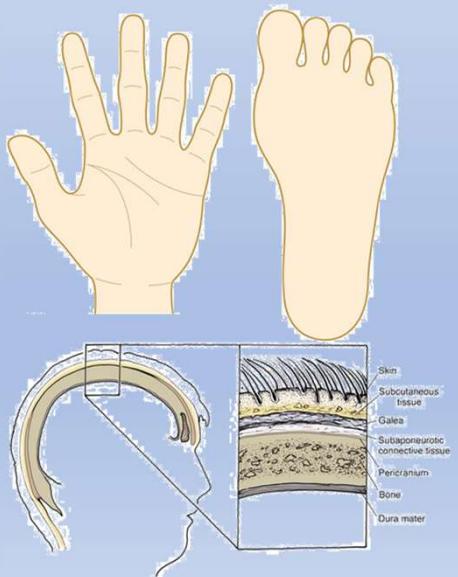
Characters:

- May contain glands (as the mammary gland).
- Devoid of adipose tissue in:
 - ✓ Eye lid.
 - ✓ Ear & auricle.
 - ✓ Penis, scrotum & clitoris.



Functions:

- Bad heat conductor (keeps the body temperature).
- Gives the body smooth rounded appearance (particularly in females).
- Facilitates movement of the skin over the underlying structures (**EXCEPT**).



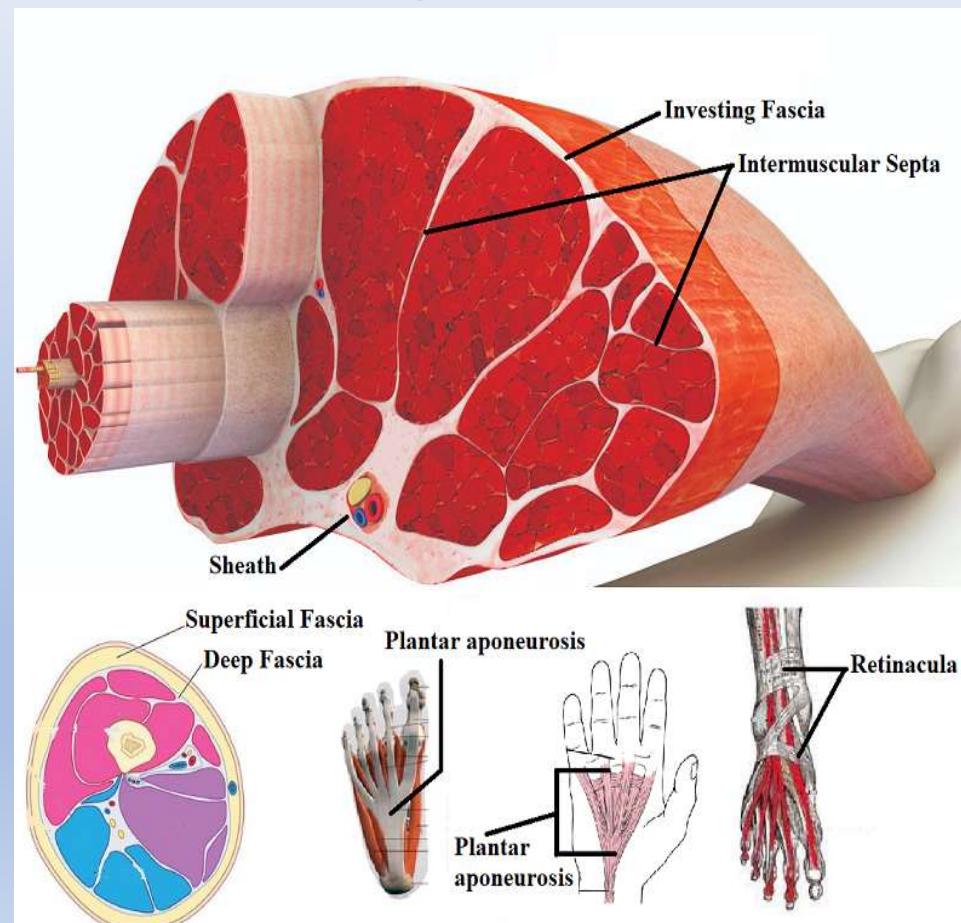
Deep Fascia

Definition:

- Membranous layer of connective tissue that invests muscles & other deeper structures.

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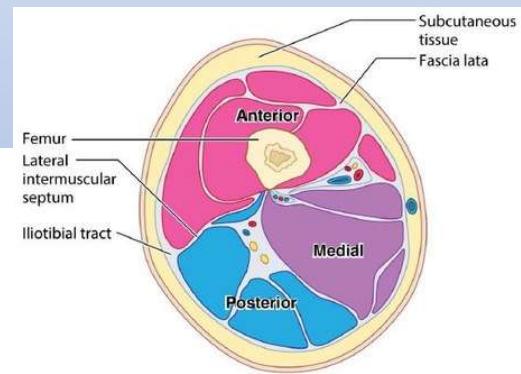
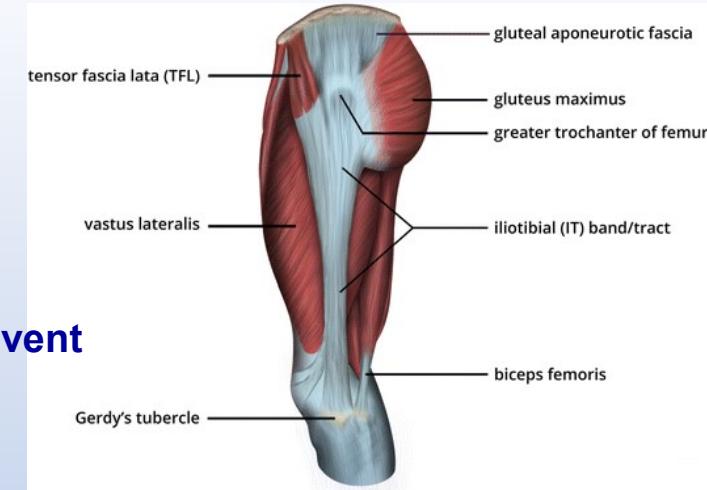
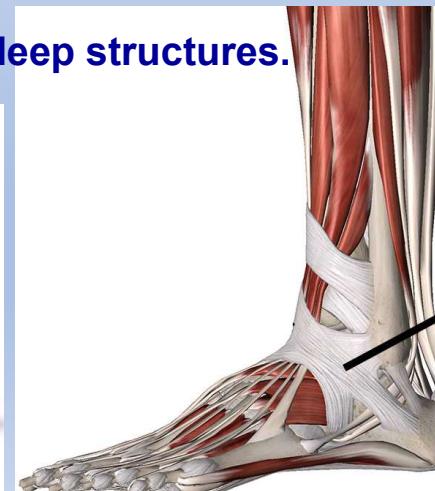
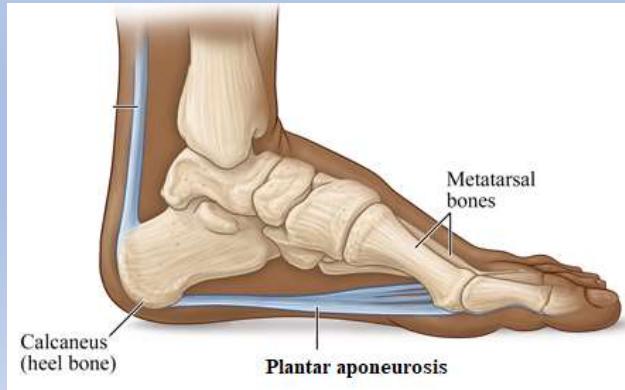
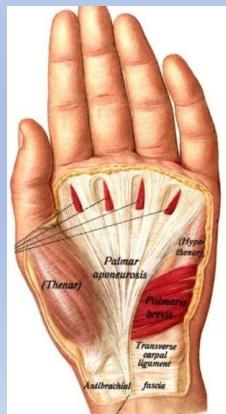
- Dense and usually form membranes.
- Forms special structures at some sites as:
 - ✓ *Investing fascia.*
 - ✓ *Intermuscular septa.*
 - ✓ *Sheathes.*
 - ✓ *Aponeurosis.*
 - ✓ *Retinacula.*



Deep Fascia

Functions:

- Gives attachment to some muscles.
- Intermuscular septa divide the limbs into compartments so, prevent spread of blood or pus.
- Muscle pump (peripheral heart).
- Retinacula hold the tendons in place to facilitate the action of muscles.
- The palmar and plantar aponeuroses protect the deep structures.



Serous Membranes

Definition:

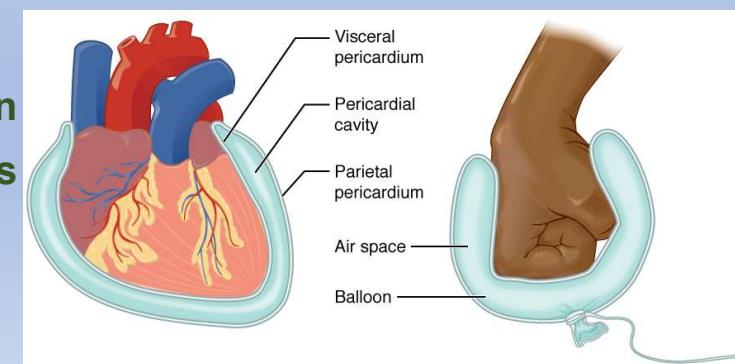
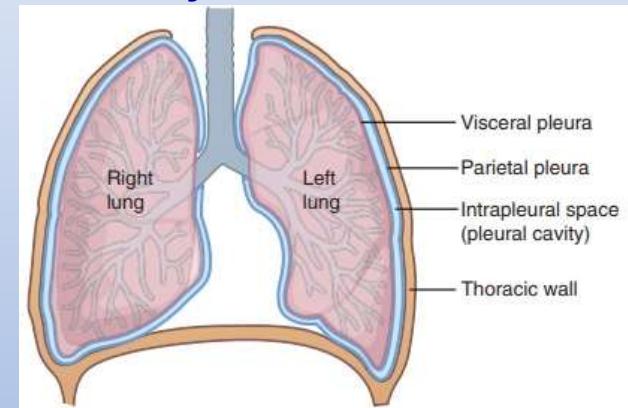
- Membranes that line the cavities of the trunks & reflected onto the mobile viscera inside these cavities.

Sites:

- Pleura (covers the lungs) & pericardium (covers the heart) in the thoracic cavity.
- Peritoneum in the abdominopelvic cavity.

Layers:

- **Parietal layer:** outer layer that lines the body wall. It is supplied by somatic nerves so, it is sensitive to pain, touch & temperature.
- **Visceral layer:** inner layer that covers the organs. It is supplied by autonomic nerves so, it is sensitive to stretch.
- Between the 2 layers there is a cavity that contains very thin film of serous fluid which lubricates the surfaces of the membranes and allows the two layers to slide readily on each other.



Thank

you!

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الحساب

