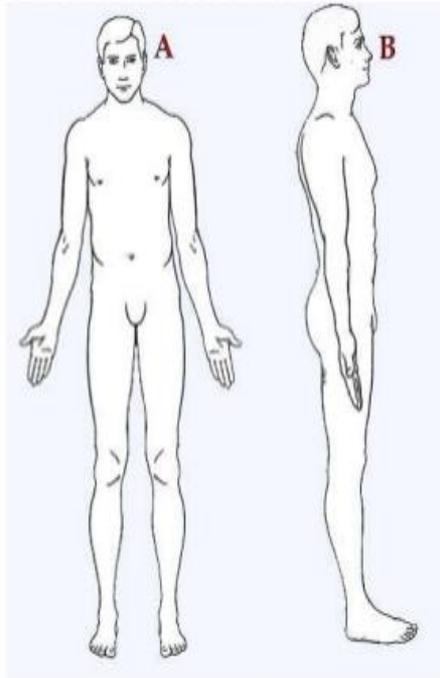


ANATOMICAL PLANES & POSITIONS

By Dr. Dalia MAHMOUD BIRAM

ANATOMICAL POSITION

- Body erect
- Head, eyes, toes directed forward
- Limbs at sides of body
- Palms directed forward



- When the body is lying face down in the anatomical position, this is called the **prone** position.
- When the body is lying face up, this is called the **supine** position.

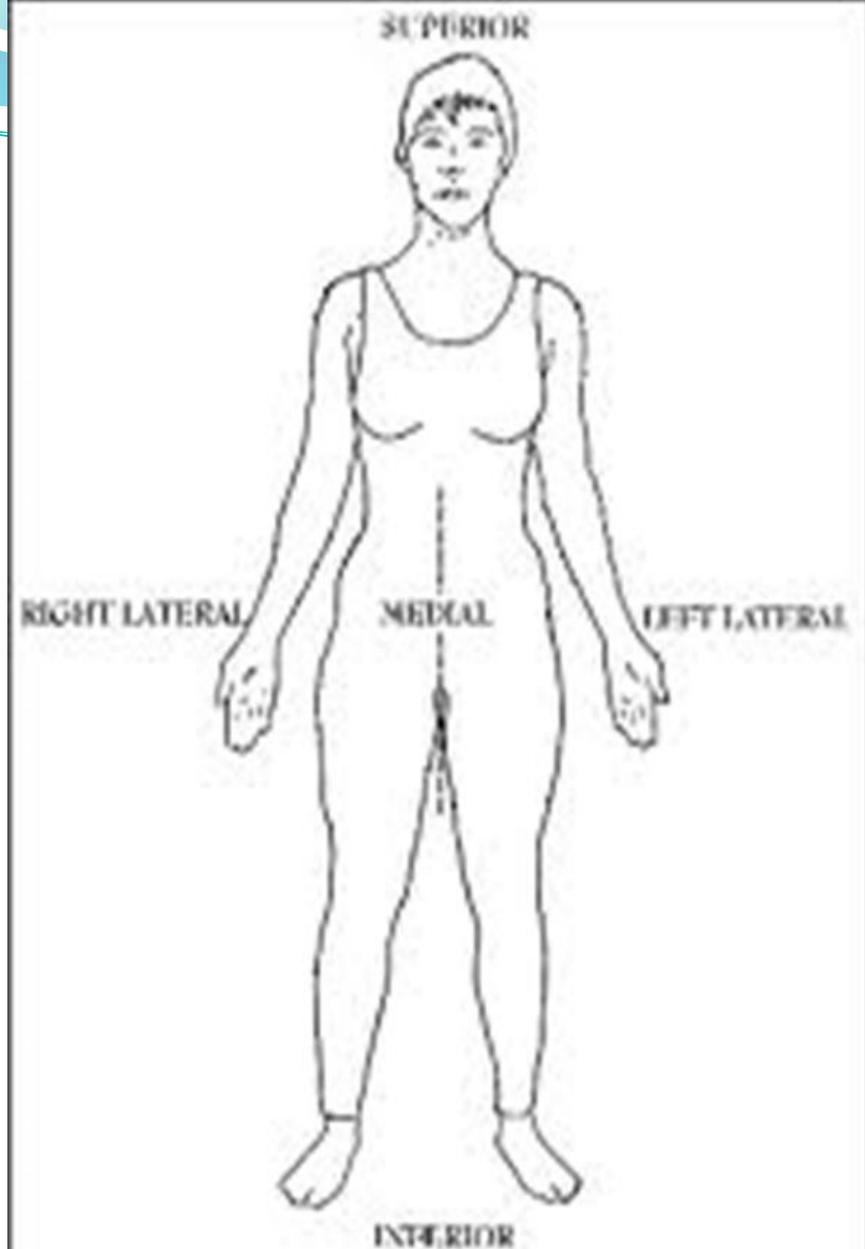


Figure 1 Anatomical terms

Terms of position

Superior= cranial

inferior= caudal

medial: near to the midline

lateral: away from midline

anterior= ventral

(near to the front of the body)

posterior= dorsal

(near to the back of the body)

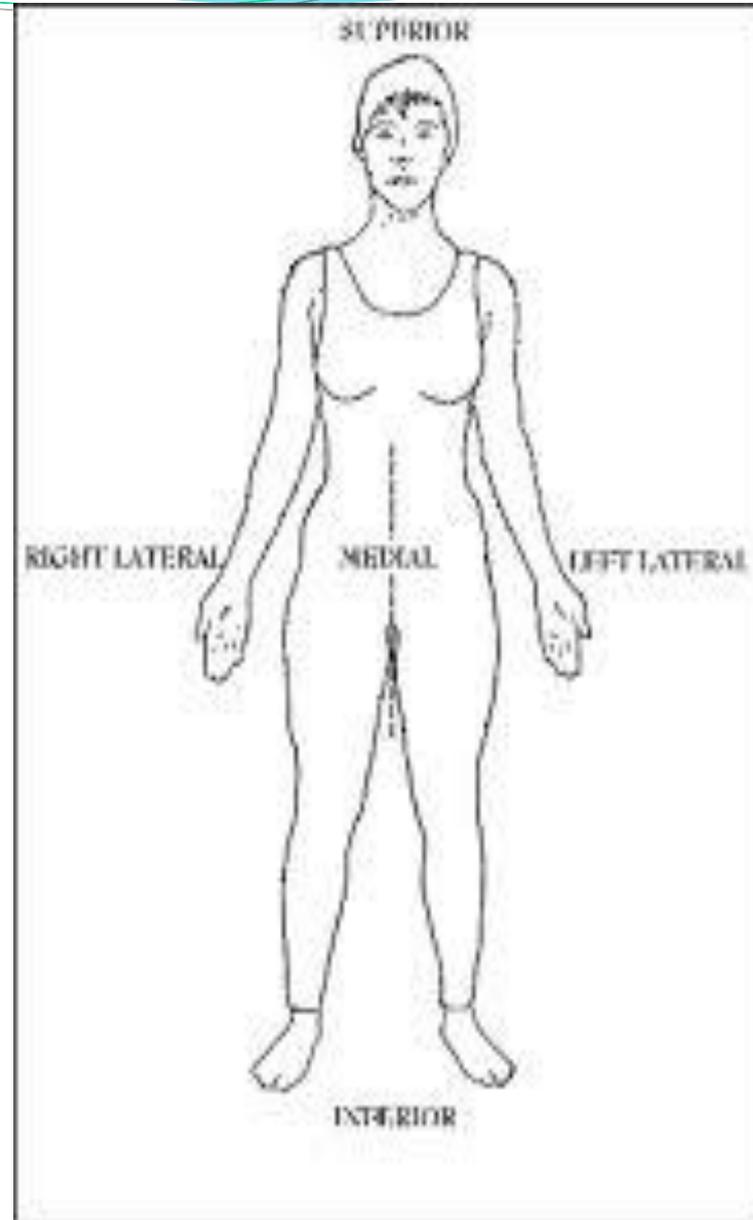
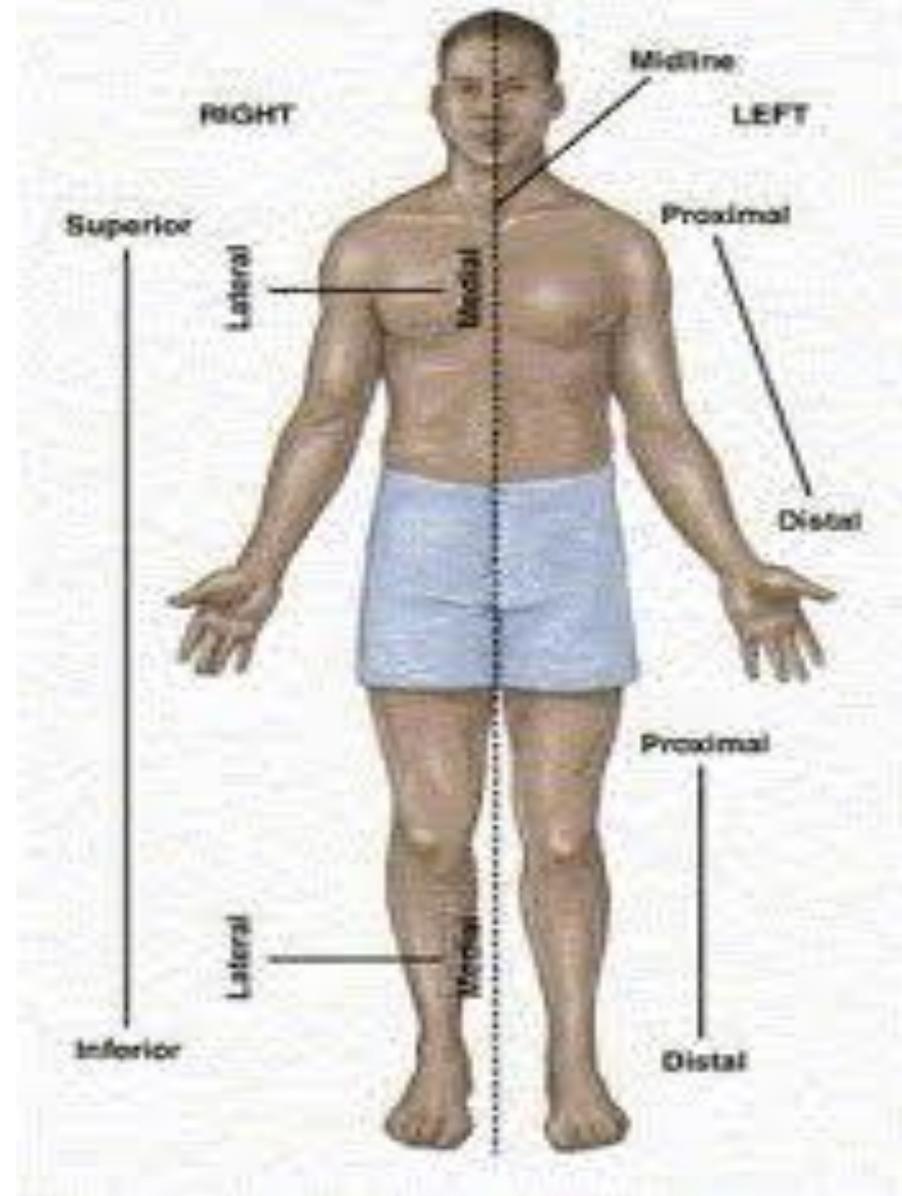


Figure 1 Anatomical terms

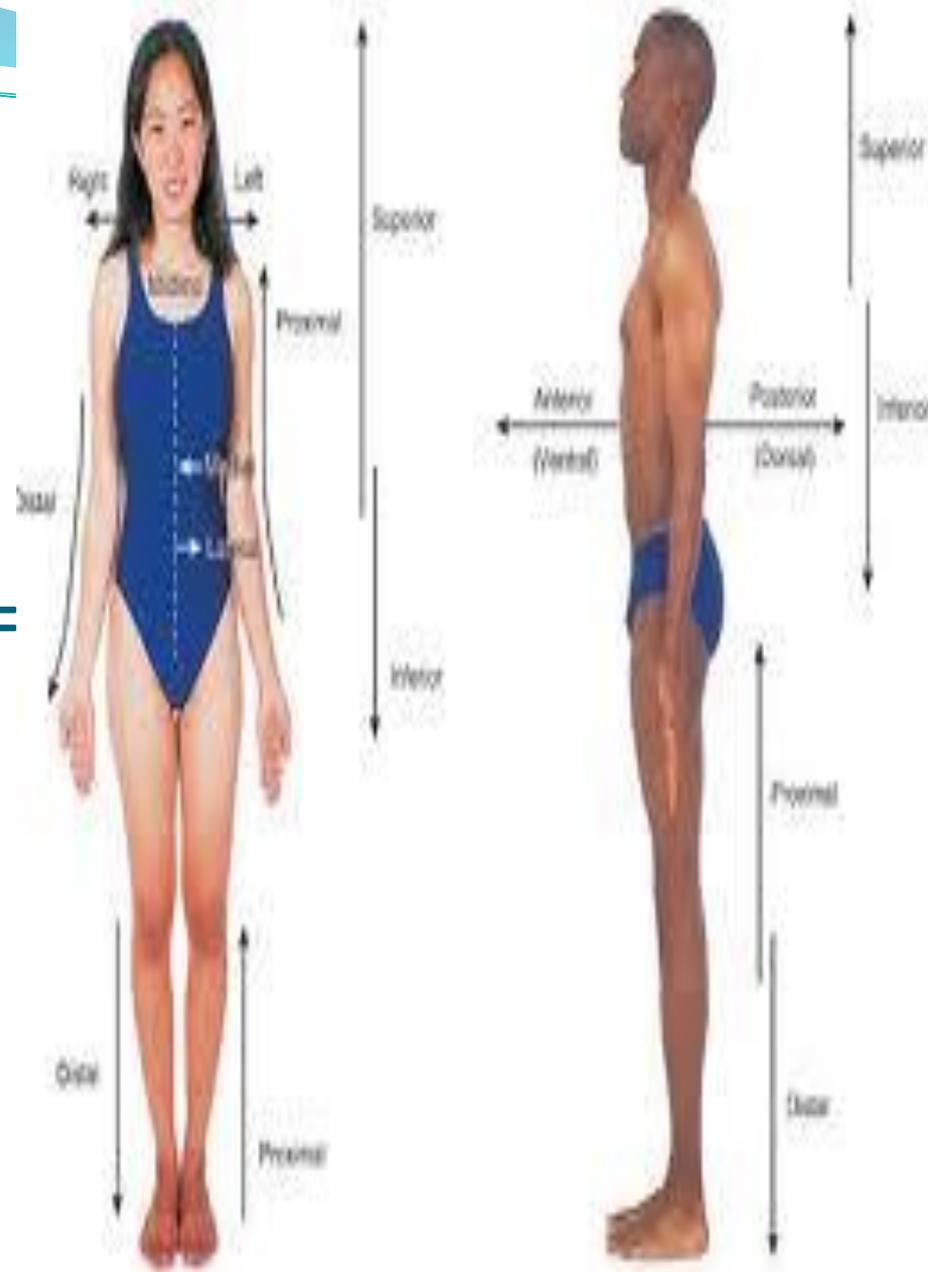
Superficial :near to the skin
deep: far away
from the skin

proximal: near to the root of
the limb

distal: far away from the
root of the limb



palm of the hand
dorsum of the hand
planter surface of foot=
sole of the foot
dorsum of foot



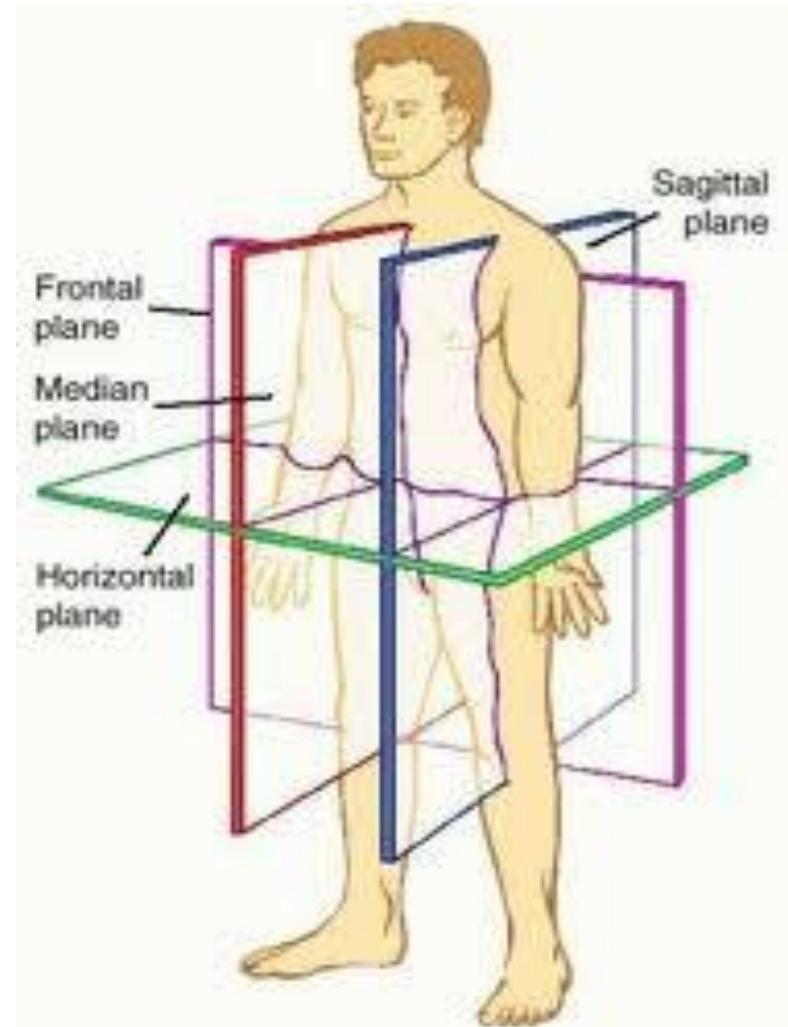
Anatomical planes

Median sagittal plane: vertical Plane pass through the middle of the body divide it into 2 equal halves

Paramedian plane (sagittal Plane)

Coronal plane: divide the body Into anterior and posterior

Horizontal plane: divide the body into upper and lower parts



TERMS OF MOVEMENT

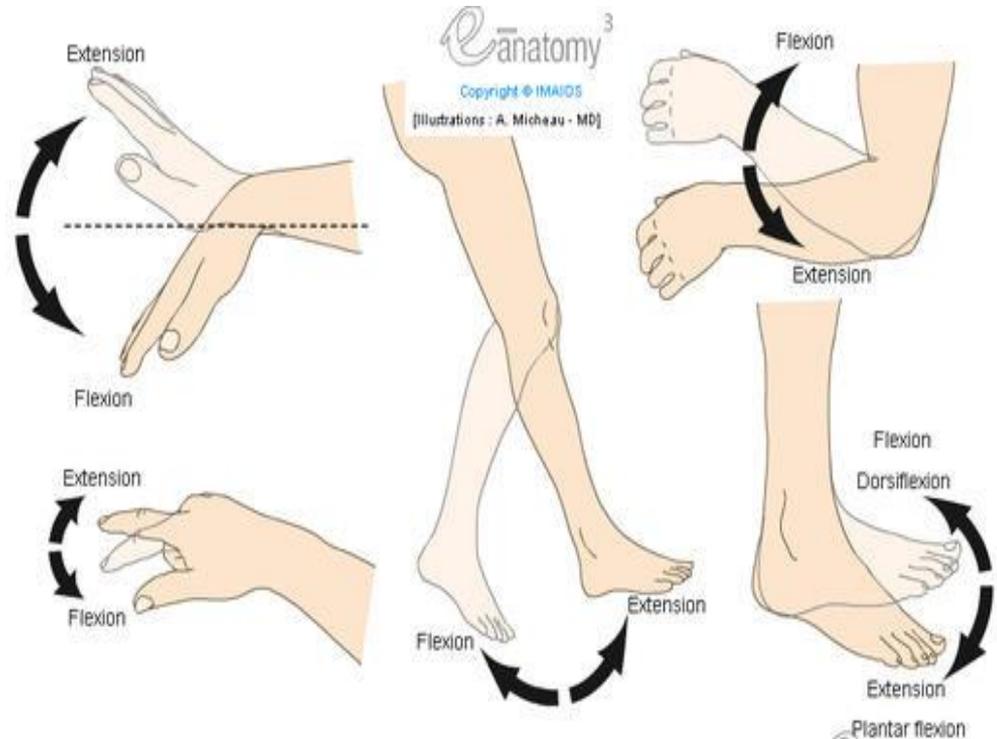
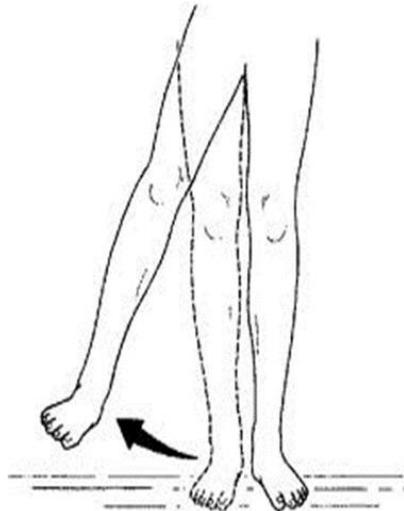
Flexion, extension:

Flexion: means bending.

Extension: means straightening.

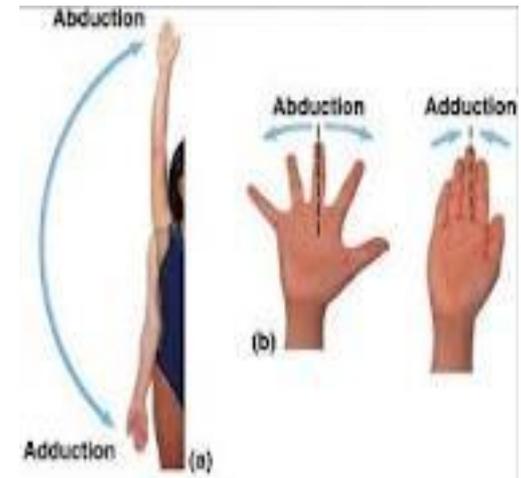
Abduction: means movement away from the median plane

-Adduction: means movement towards the median plane.



Abduction & adduction :

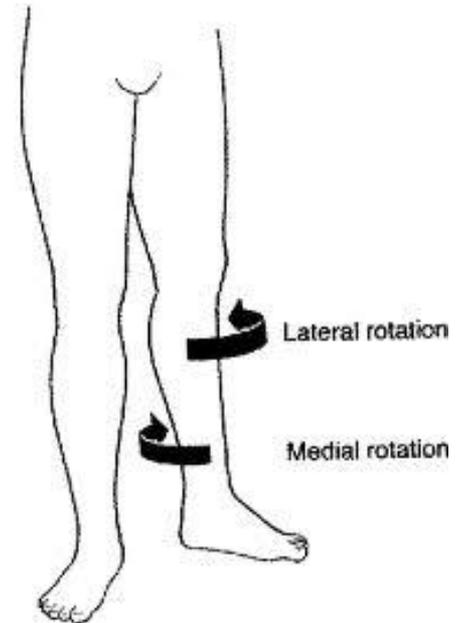
Circumduction: It is a circular movement which includes the previous movements (flexion, abduction, extension and adduction). Circumduction occurs in few joints as the **shoulder** and the **hip joint**.



Rotation: It is the movement around the long axis of the bone.

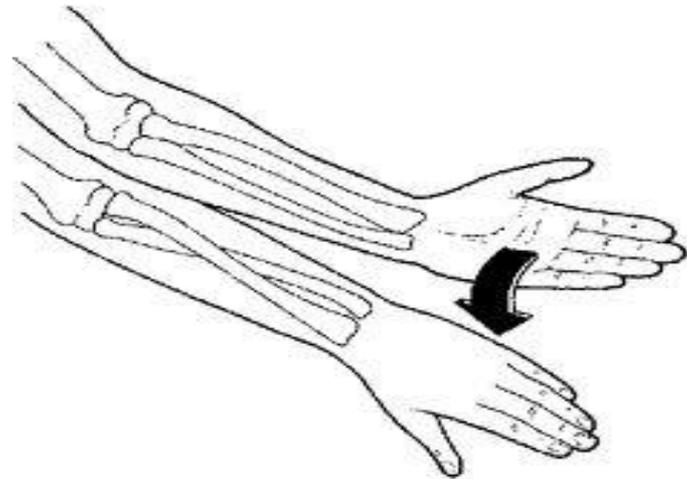
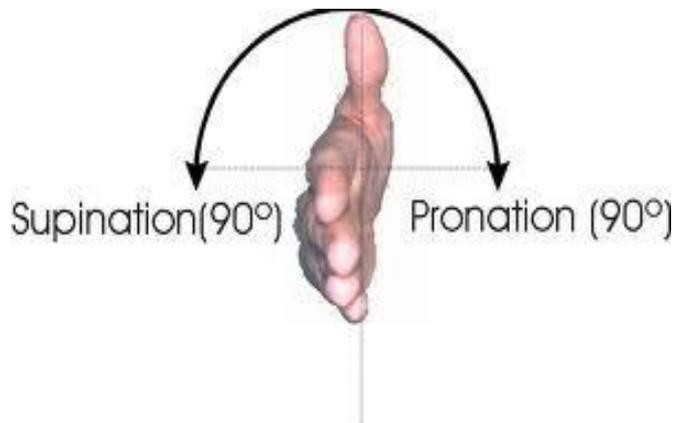
Medial rotation: where the anterior surface of the bone faces medially.

-Lateral rotation: where the anterior surface of the bone faces laterally.



Supination & pronation:

- **Supination:** It is the normal resting position of the forearm, where the palm of the hand faces forwards, the radius and the ulna are parallel and the thumb is lateral.
- **-Pronation:** It is opposite to supination, that is the palm of the hand faces backwards, the radius and the ulna are crossed and the thumb is medial.



Inversion & eversion

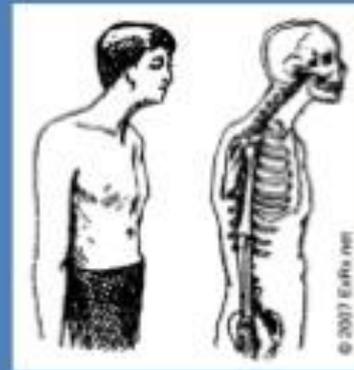
- **Inversion:** This movement occurs only in **the feet** where the planter surface of the foot faces medially.
- **-Eversion:** It is opposite to inversion, where the planter surface of the foot faces laterally.



Protraction

*-moving in an anterior
(forward) direction*

-occurs in sagittal plan



Retraction

*-moving in a posterior
(backward) direction*

-occurs in sagittal plane

Opposition

*-thumb comes into contact with
another finger*

Reposition

*-return thumb to anatomical
position*



LAYERS OF THE BODY

skin

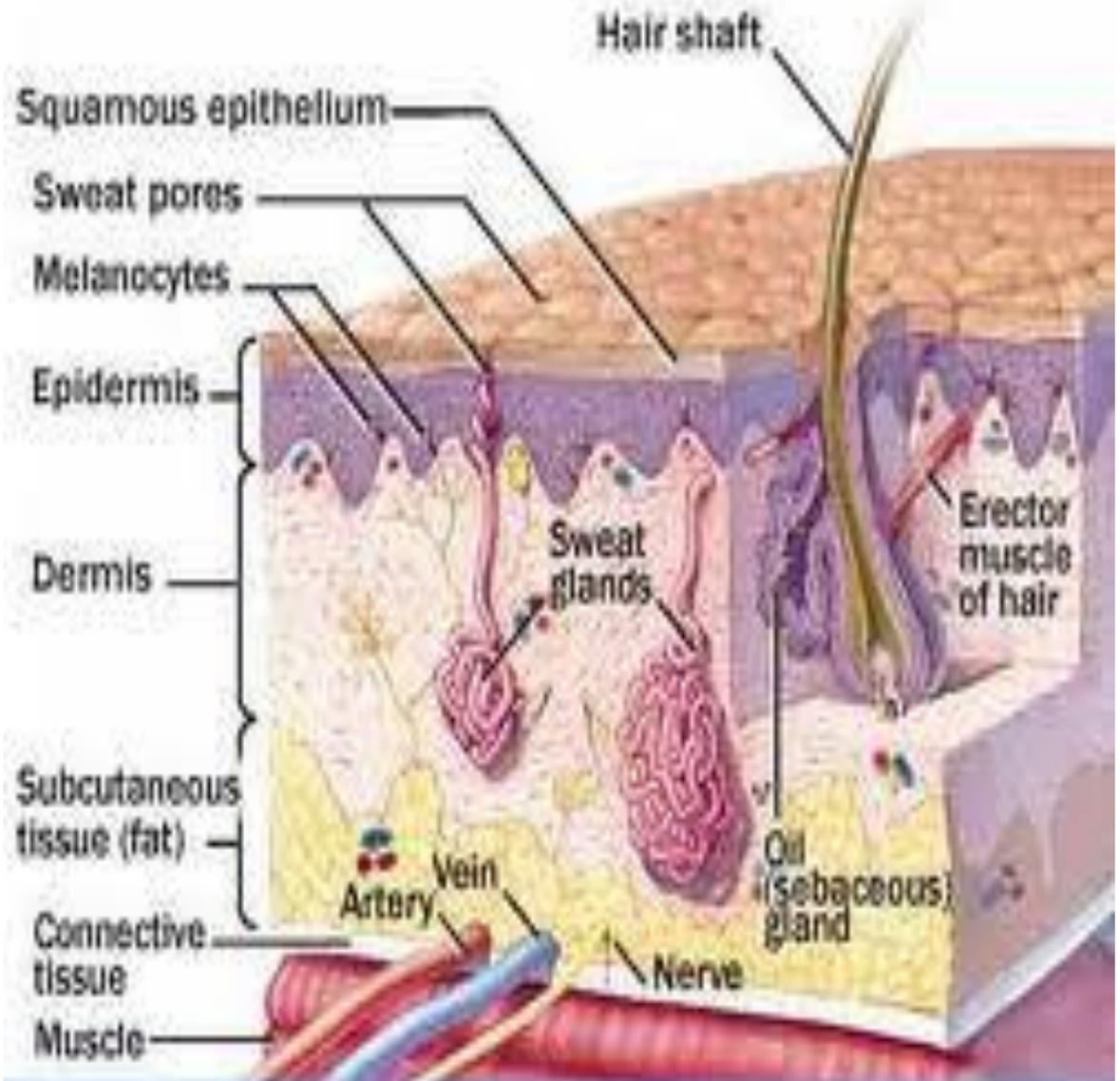
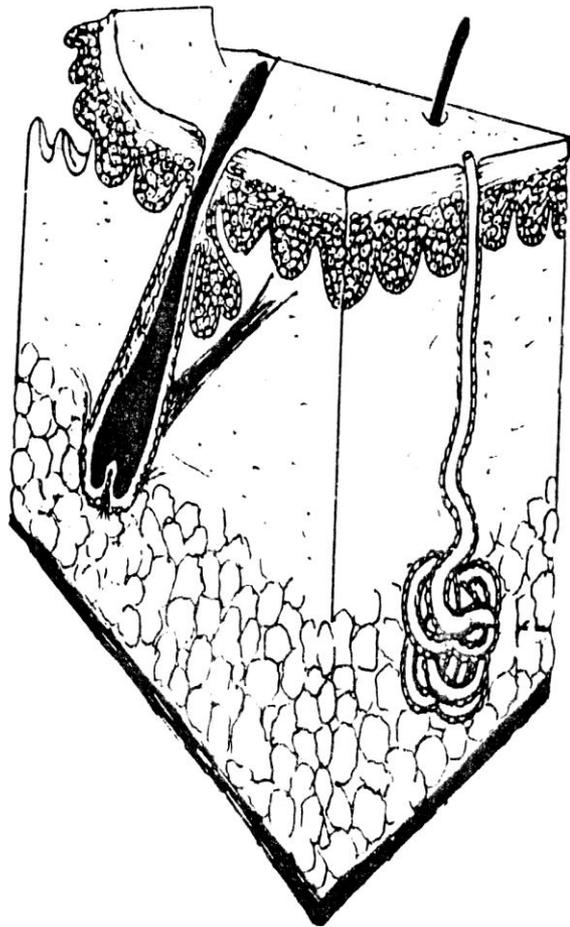
The study of the skin is termed “**dermatology**” as derma means skin.

It is **thick** in some places (palm of the hand) and **thin** in other places (eye-lids).

It is **hairy** in some places (scalp) and **non-hairy** in other places (lips, palm of hand and sole of feet).

The skin has 4 appendages .

These are: **nails, hair, sebaceous glands and sweat glands**. It also contains muscle (erector pili), vessels, nerves, and lymphatics..



Layers of the skin

Skin is formed of two layers; an outer thin "**Epidermis**" and an inner thick "**Dermis**"

The epidermis is epithelial in nature and ectodermal in origin. **The dermis** is connective tissue in nature and mesodermal in origin

APPLIED ANATOMY:

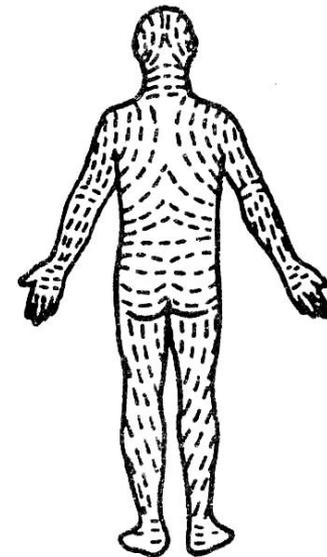
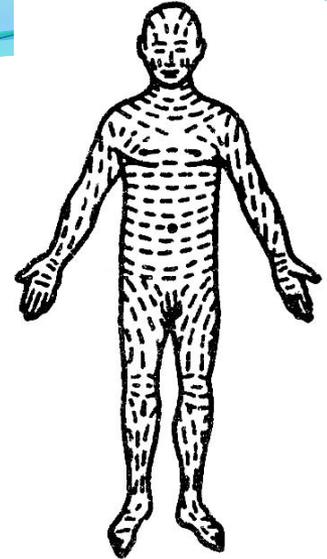
The collagen fibers are groups of fibers running parallel to each other "

It is important for surgeons , when they make an incision not to injure too much collagen fibers. Incisions made across "Langer's Lines" result in gapping of the wound and prominent scar tissue.

- **Skin Incisions:**

The incisions are mostly transverse according to Langer's Lines in order to leave narrow scars.

- **Burns:** During burns the skin is removed from the area burnt. Burns are classified into degrees according to the depth of the burn and its size.
- **Albinism:** Is the absence of the melanin pigment from the skin. The skin looks white in color with a pinkish ting of the underlying vessels.



FASCIA

Fascia is defined as a collection of connective tissue that lies either under the skin (**superficial fascia**) which contains fat or deeply situated where it invests the muscles and ensheathes blood vessels (**deep fascia**) that is composed of fibrous membrane.

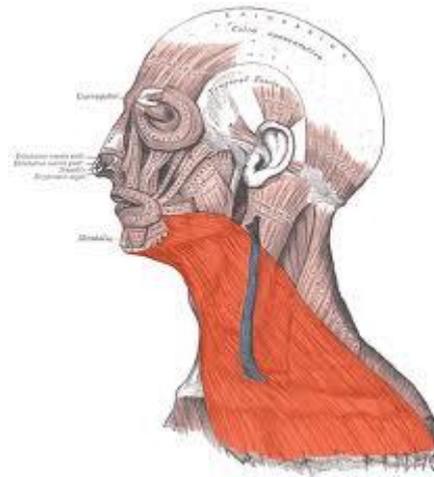
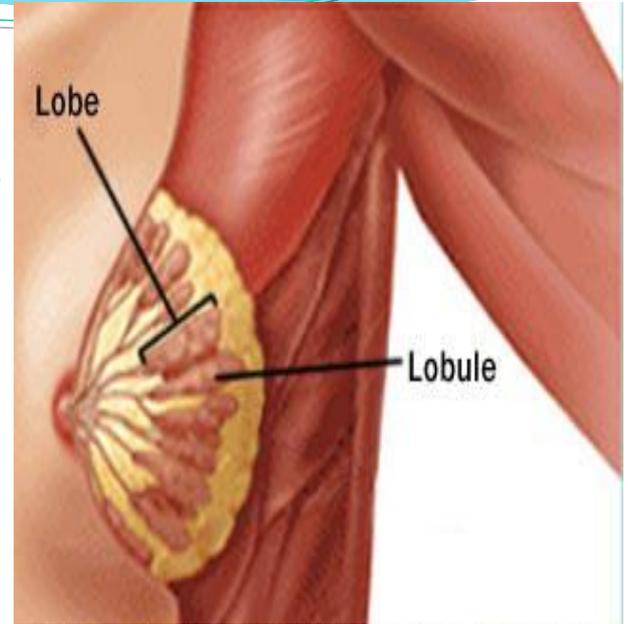


SUPERFICIAL FASCIA:

In some places **it contains muscles** as:

- face** the fascial muscles.
- neck** platysma muscle.
- palm** palmaris brevis muscle.
- scrotum** the dartos muscle

In some places **it contains glands** as:
The **mammary gland** in the pectoral region



Functions of superficial fascia

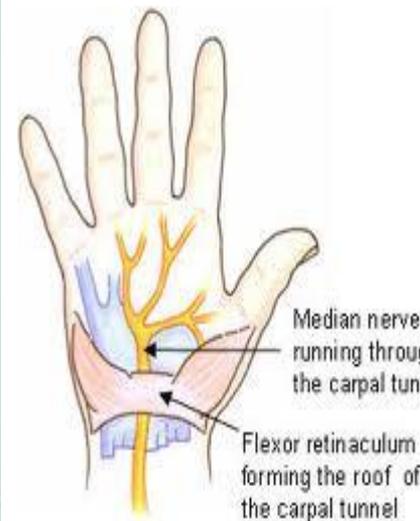
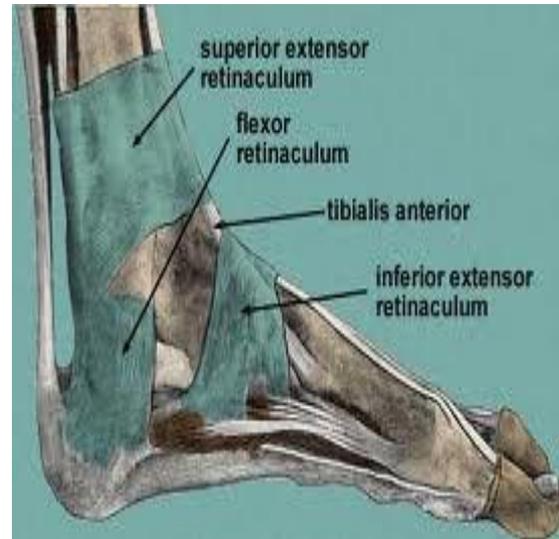
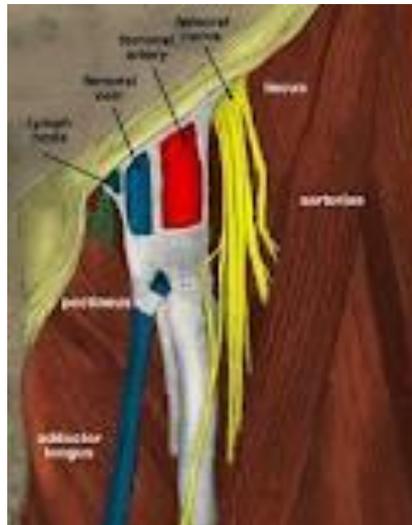
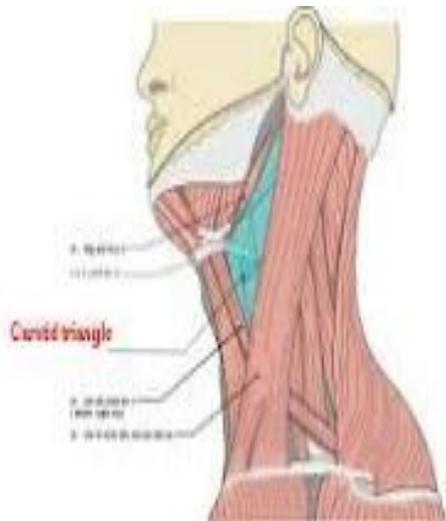
- - ***I. The Superficial Fascia Contains Fat That:***
 1. Acts as a food reservoir.
 2. Insulates the body heat from the environment.
 3. Gives the rounded contour of female body.
 - ***II. The Superficial Fascia Contains Vessels and Nerves:***
 1. The vessels help in regulating body temperature.
 2. The nerves carry the sensations from the skin.
 - ***III. The Superficial Fascia in few places, Contains:***
 1. Muscles as the fascial muscles, platysma muscle,
 - palmaris brevis muscle and the dartos muscle.
 1. Glands as the mammary gland in the pectoral region.

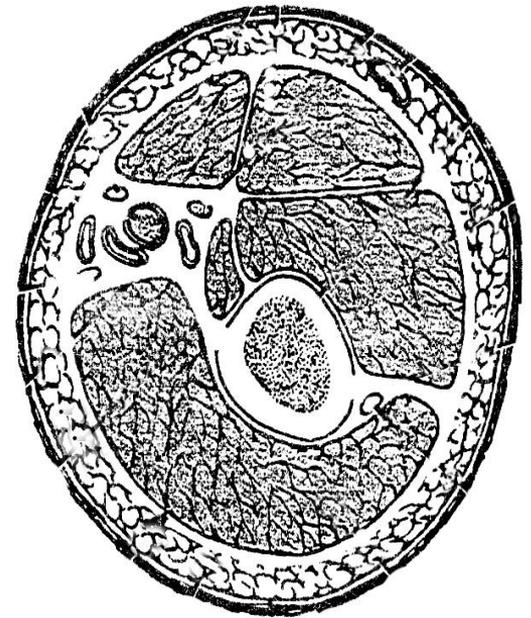
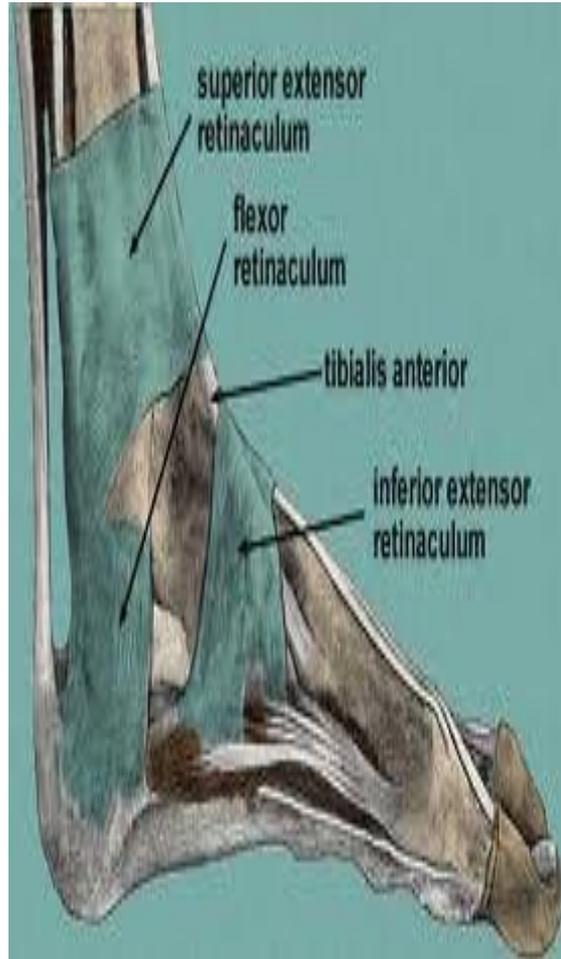
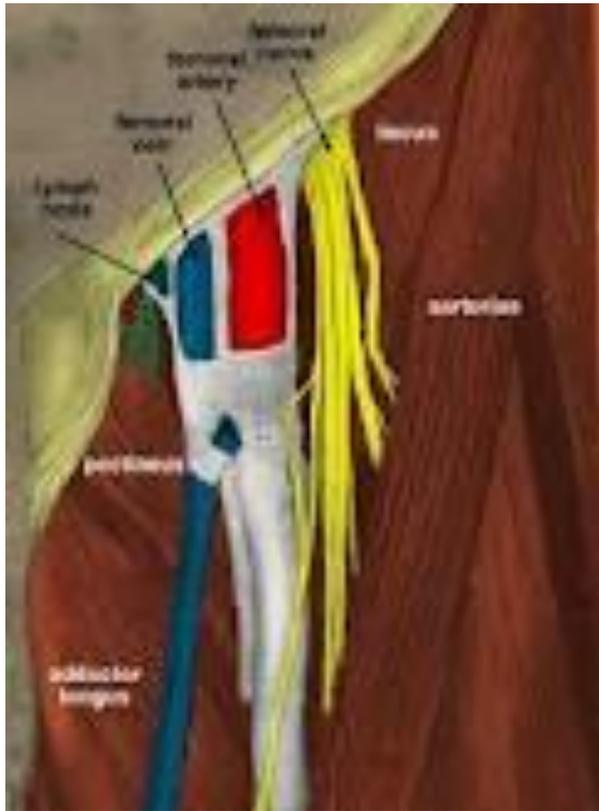
DEEP FASCIA

- **Definition:** It is a strong dense white **fibrous membrane** that covers the muscles .It sends fibrous tissue septa separating the muscles which are attached to the bone. These are called "**intermuscular septa**". These fascial septa between the muscles facilitates the movements of the groups of muscles and also act as spaces between the muscles for the passage of nerves and vessels (neurovascular bundles;)

In some places the deep fascia is thickened to form “**retinacula**” around the wrist and ankle to keep the long tendons in place close to bones.

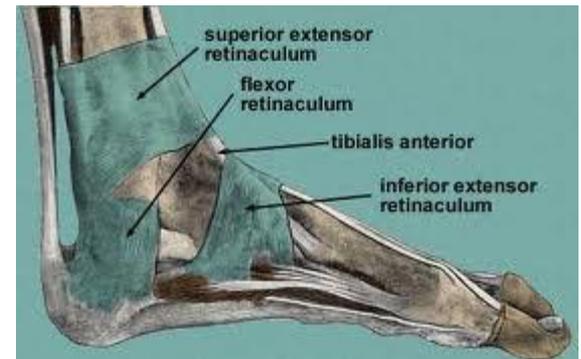
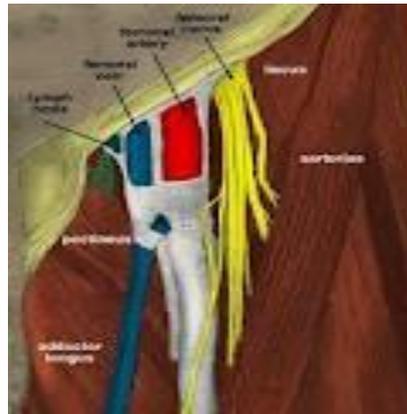
- Around the big vessels the deep fascia thickens in a form of a sheath surrounding vessels and nerves to protect them as the “**Femoral Sheath**” and the “**Carotid Sheath**”.





FUNCTIONS OF THE DEEP FASCIA:

- 1-The **intermuscular septa** separate the different groups of muscles, and so facilitate their action.
- 2-The **retinacula** at the wrist and ankle, keep the tendons close to the bones, and also act as pulleys around which the tendons move.
- 3-The **neurovascular sheaths** protect the enclosed big vessels and nerves.
- 4-In some places, they **give attachments** to muscles.





Thank you