

ANATOMY AND PHYSIOLOGY

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ANATOMY AND PHYSIOLOGY DEFINED

- **Anatomy**

- The study of structure and the relationships among structures.

- **Physiology**

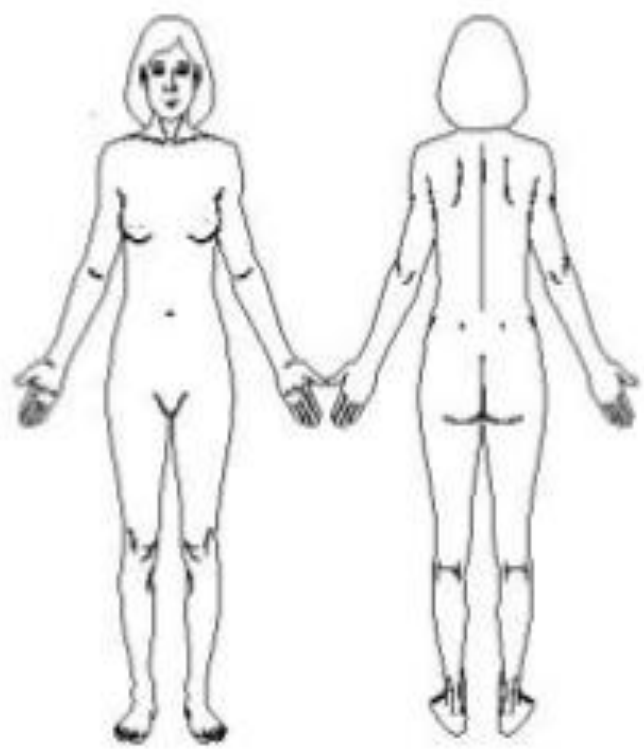
- The study of how body structures function

Anatomical position

- Body is erect with the feet parallel and the arms hanging at the sides with the palms facing forward.



1. Anterior/Posterior



- Anterior—to be situated near or toward the front of the body
- Posterior--to be situated toward the back of the body

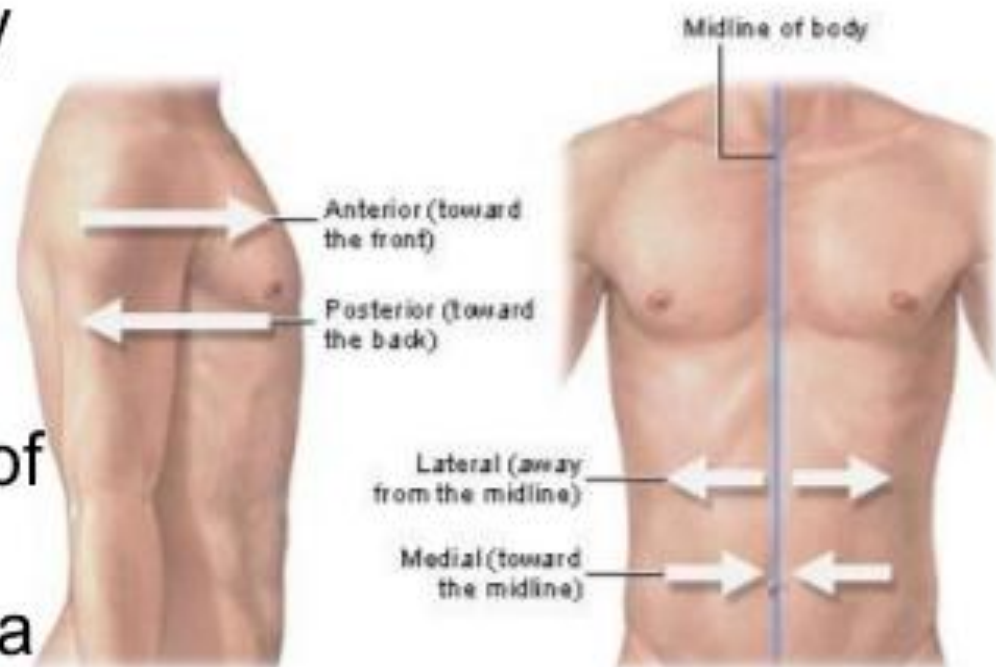
2. Superior/Inferior Cranial/Caudal



- Superior—means to be situated toward the upper part or head of the body, positioned above another organ or structure
- Inferior—to be situated toward the lower part of the body or positioned below another organ or structure
- Cranial—refers to the head end
- Caudal—refers to the tail end

3. Medial/Lateral

- Medial—to be closer to the midline of the body or a structure, being internal as opposed to external
- Lateral—to be farther away, in the direction of either side, from the midline of the body or a structure

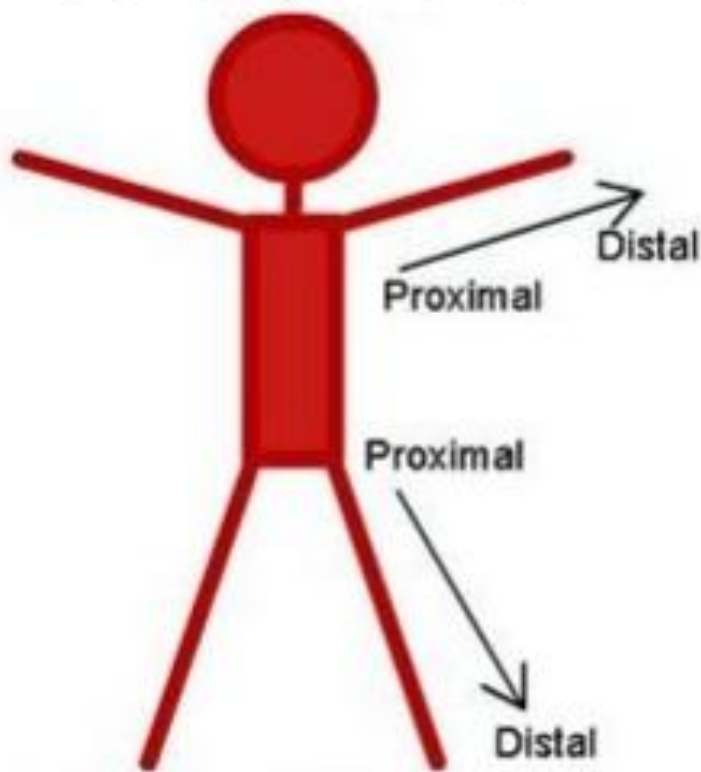


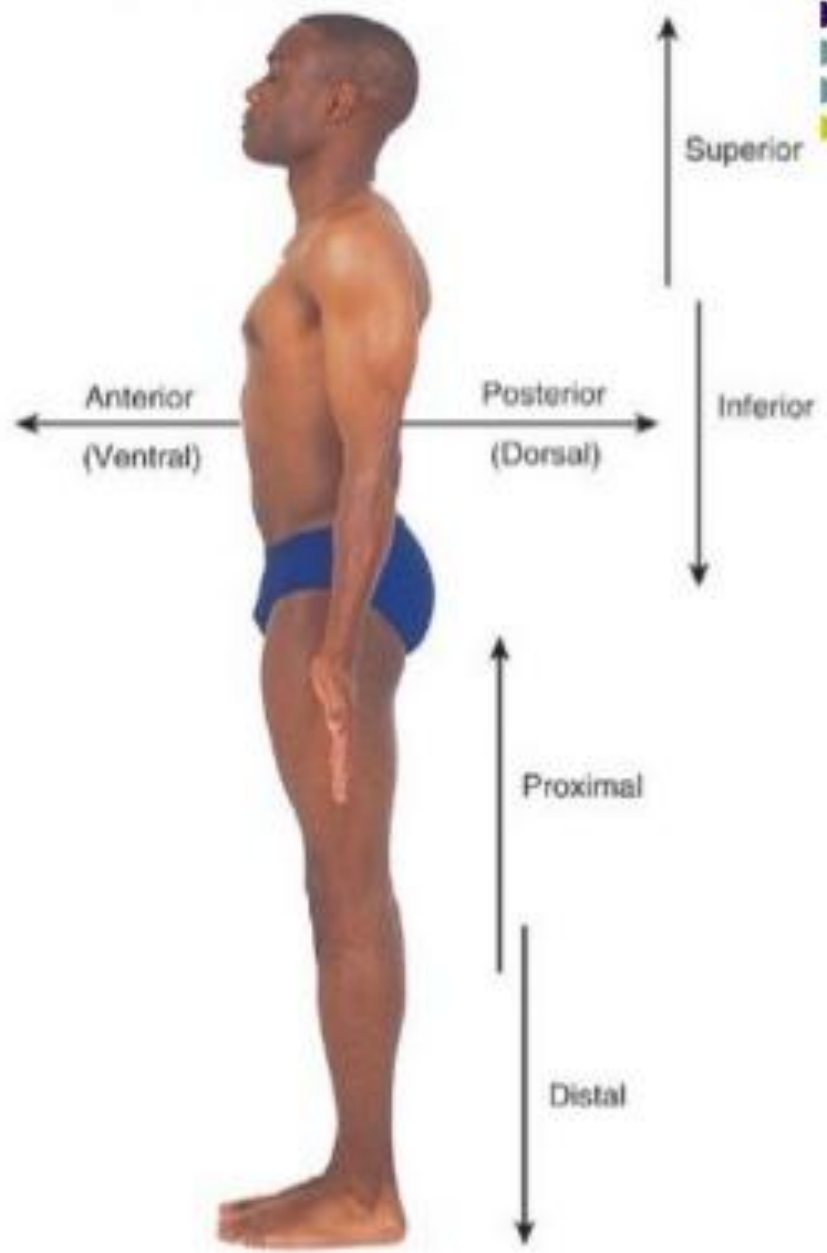
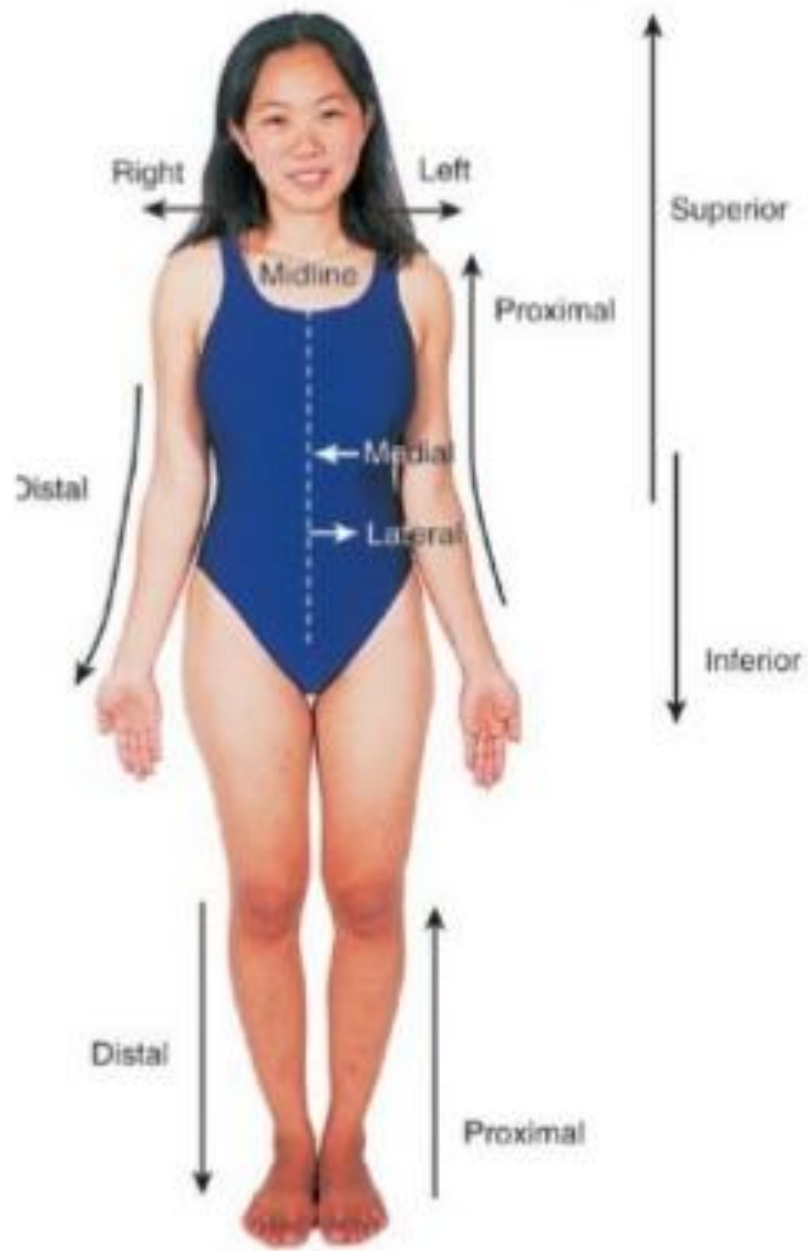
4. Proximal/Distal



- Proximal: Toward or nearest the trunk or the point of origin of a part

- Distal: Away from or farthest from the trunk or the point of origin of a part





5. Unilateral/Bilateral

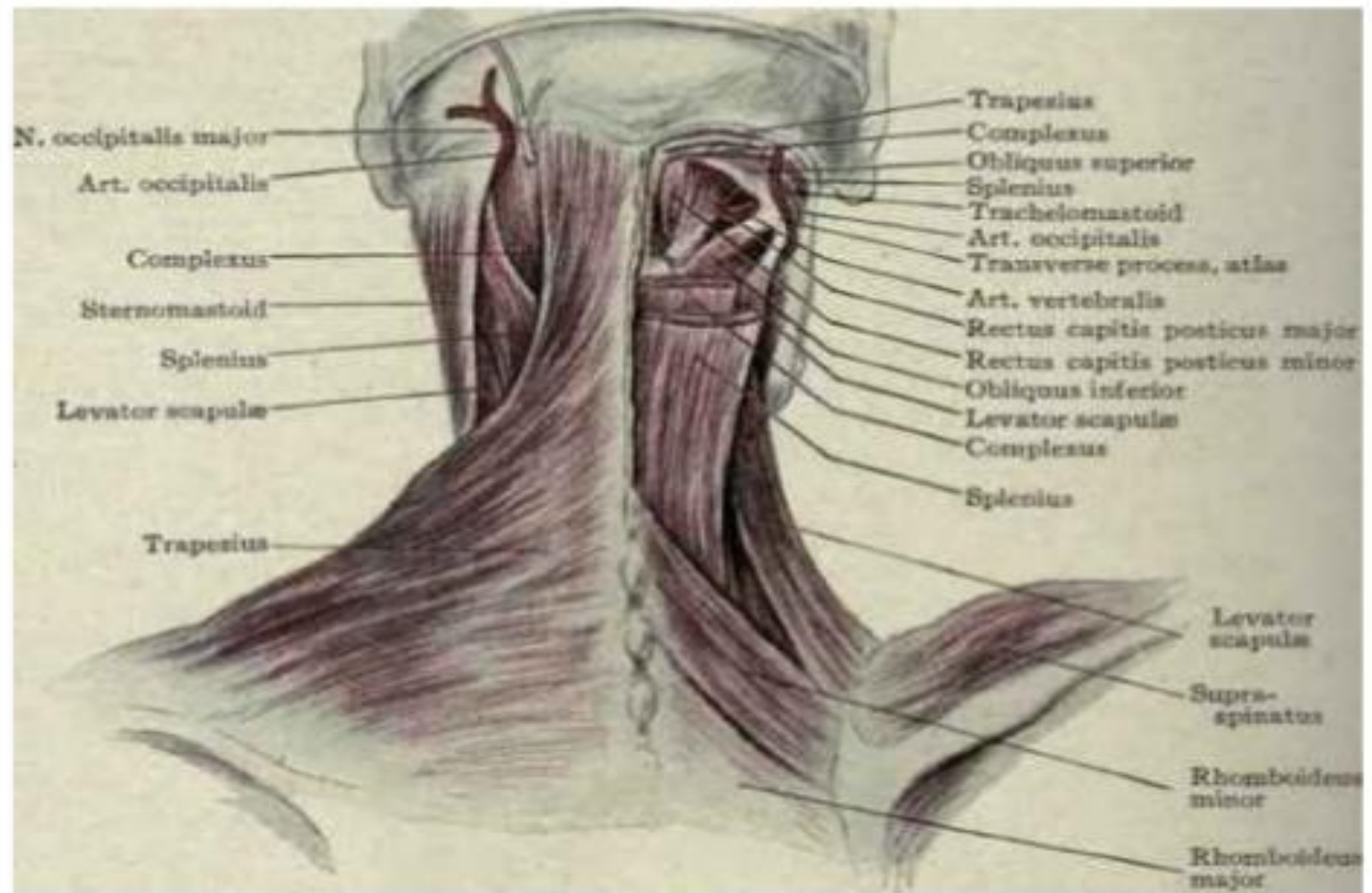
- Unilateral—on one side
- Bilateral—on both sides

6. Superficial/Intermediate/ Deep



- Superficial—near the outer surface of the body
 - i.e. skin is **superficial to** the muscle layer
- Intermediate—between two other structures
 - i.e. the naval is **intermediate to** (or **intermediate between**) the left arm and the contralateral (right) leg.
- Deep—further away from the surface of the body
 - i.e. the muscular layer is **deep to** the skin, but superficial to the intestines.

Superficial/Intermediate/Deep



Body planes

These are based on four imaginary planes that pass through the body in the anatomical position. They are

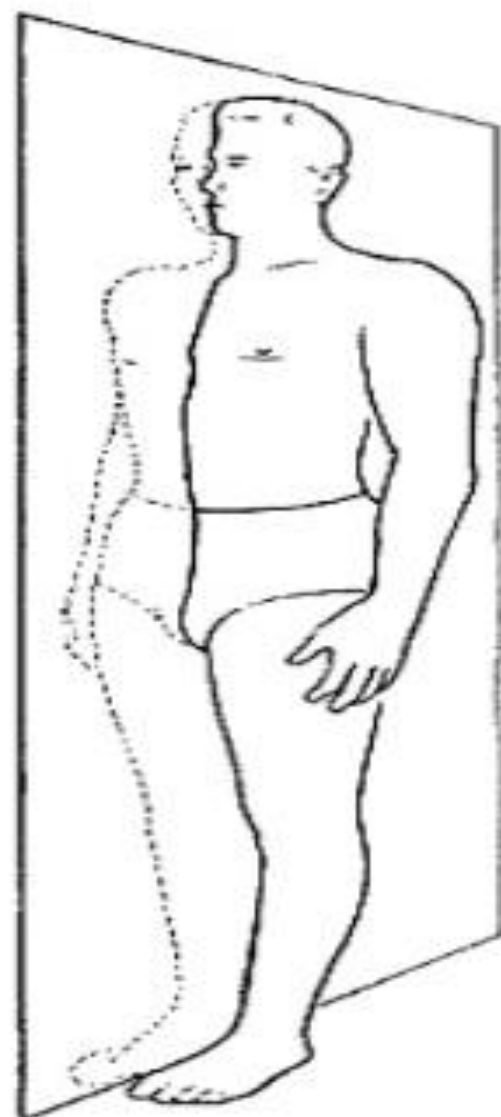
1. Sagittal
2. Midsagittal (median) plane
3. Frontal (coronal) plane
4. Transverse plane (cross section)

Body planes

1. **Sagittal Plane** – divides body into right and left parts.

2. **Midsagittal/median**

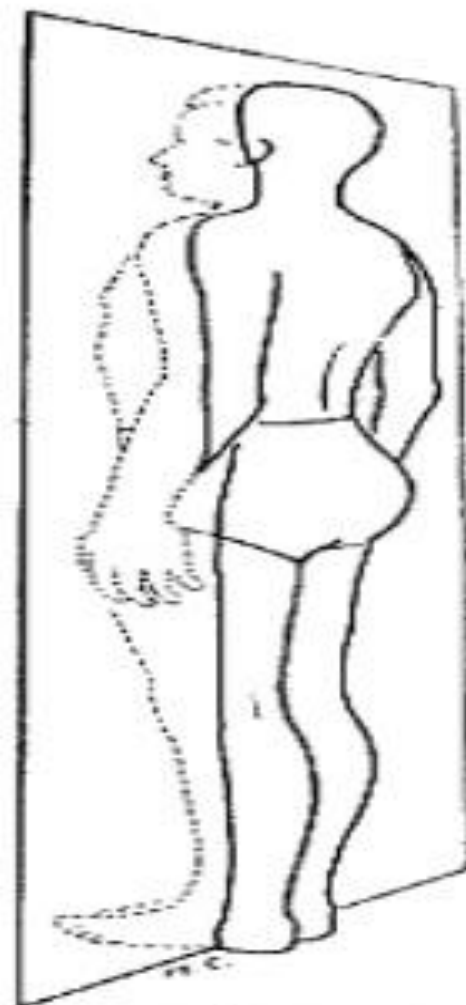
plane –divides body into two equal halves



Sagittal/Anteroposterior
Plane

Body Planes

3. Frontal /coronal plane – divides body into anterior and posterior parts



Frontal/Lateral Plane

Body Planes

4. Transverse
plane/cross

Section/horizontal
section divides into
upper and lower parts



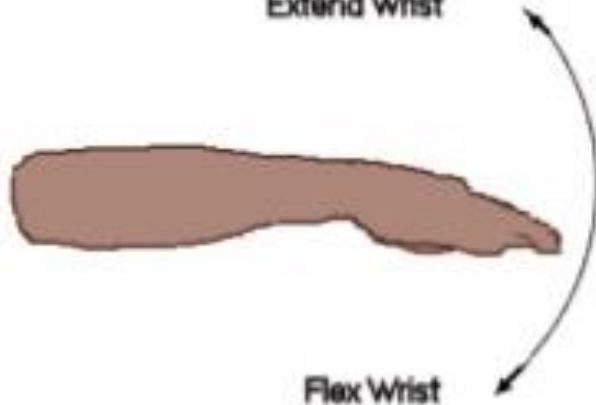
Horizontal/Transverse
Plane

Terms of Movement

1. Flexion/Extension



Extend Wrist



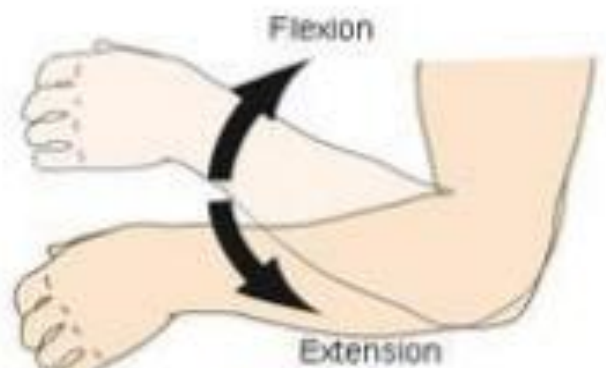
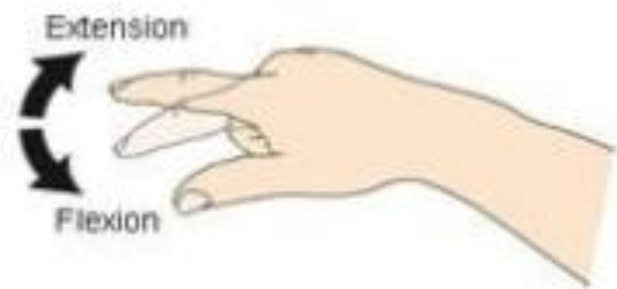
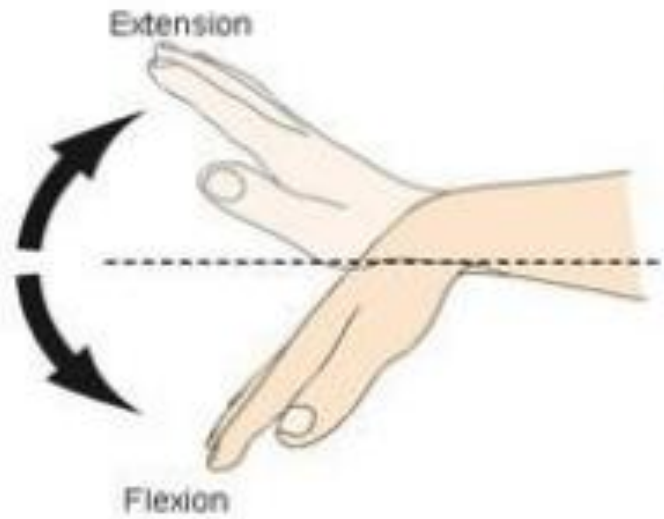
Flex Wrist



Flexion

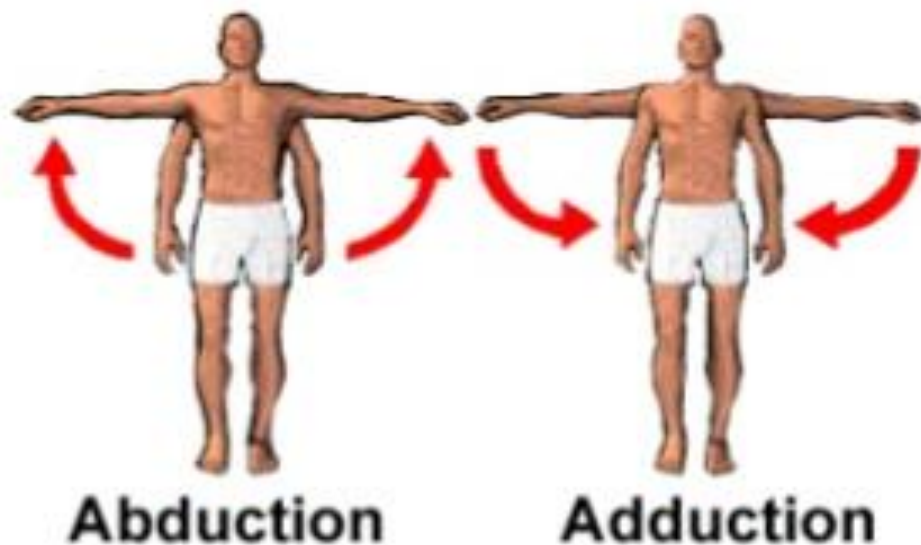


Extension



2. Abduction/Adduction

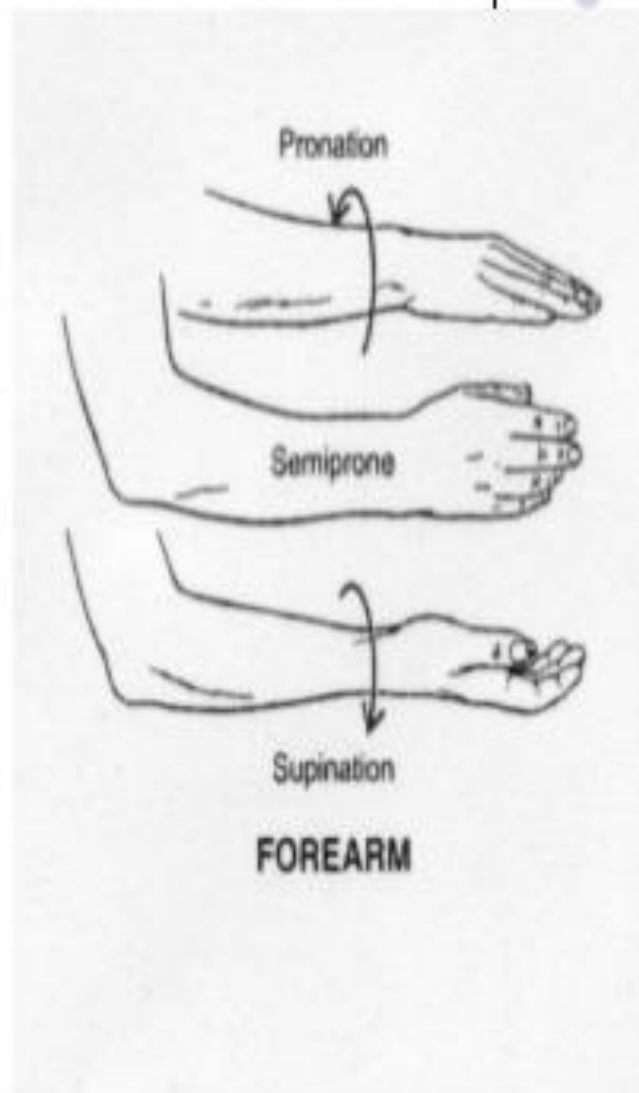
- Abduction—moving a body part away from midline
- Adduction—moving a body part toward the midline



3. Supination/Pronation

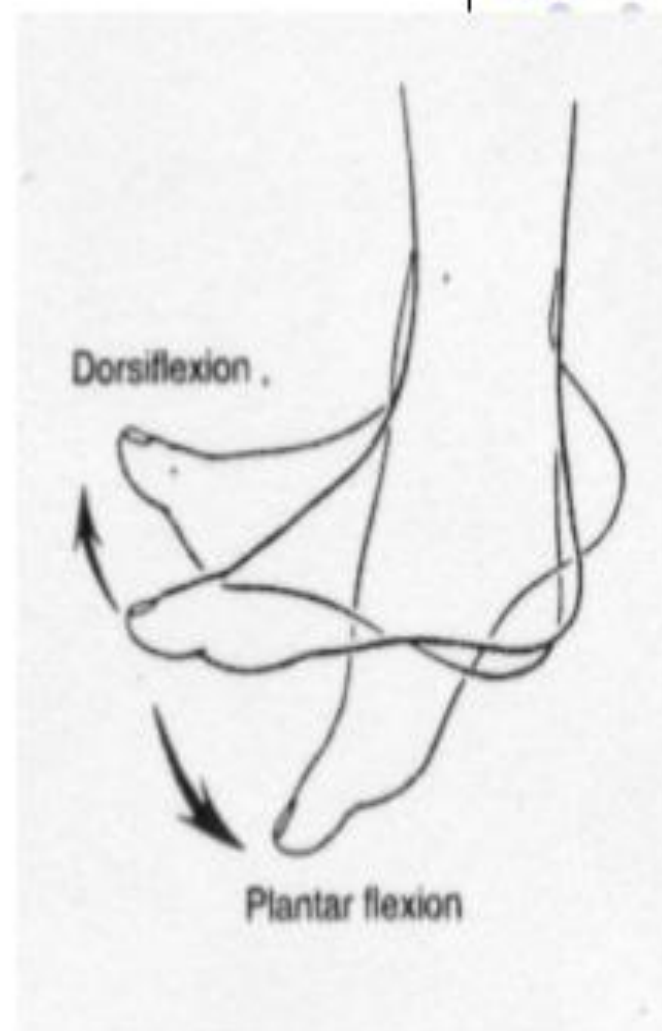
❖ Supination- Rotating hand/forearm laterally
“hold the soup”

❖ Pronation- Rotating hand/forearm medially
“pour the soup”



4. Plantarflexion/Dorsiflexion

- Plantarflexion- Point toes/foot downward
“stand on tip toes”
- Dorsiflexion- Point toes/foot upward
“foot off the gas pedal”



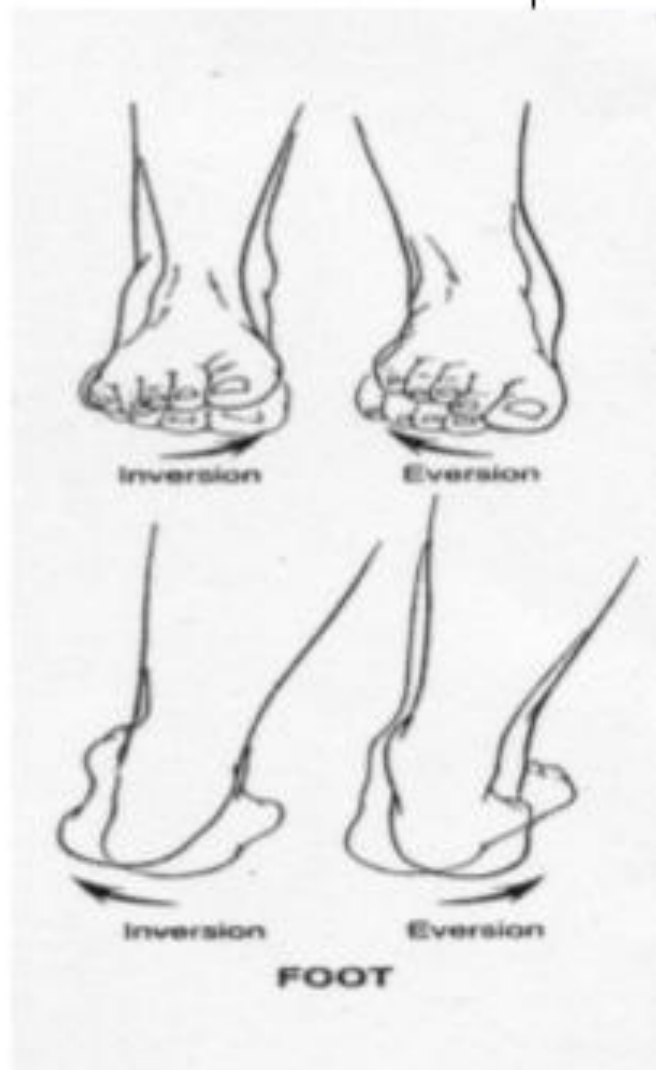
5. Inversion/ Eversion

❖ Inversion

Movement of sole of foot inward

❖ Eversion-

Movement of sole of foot outward



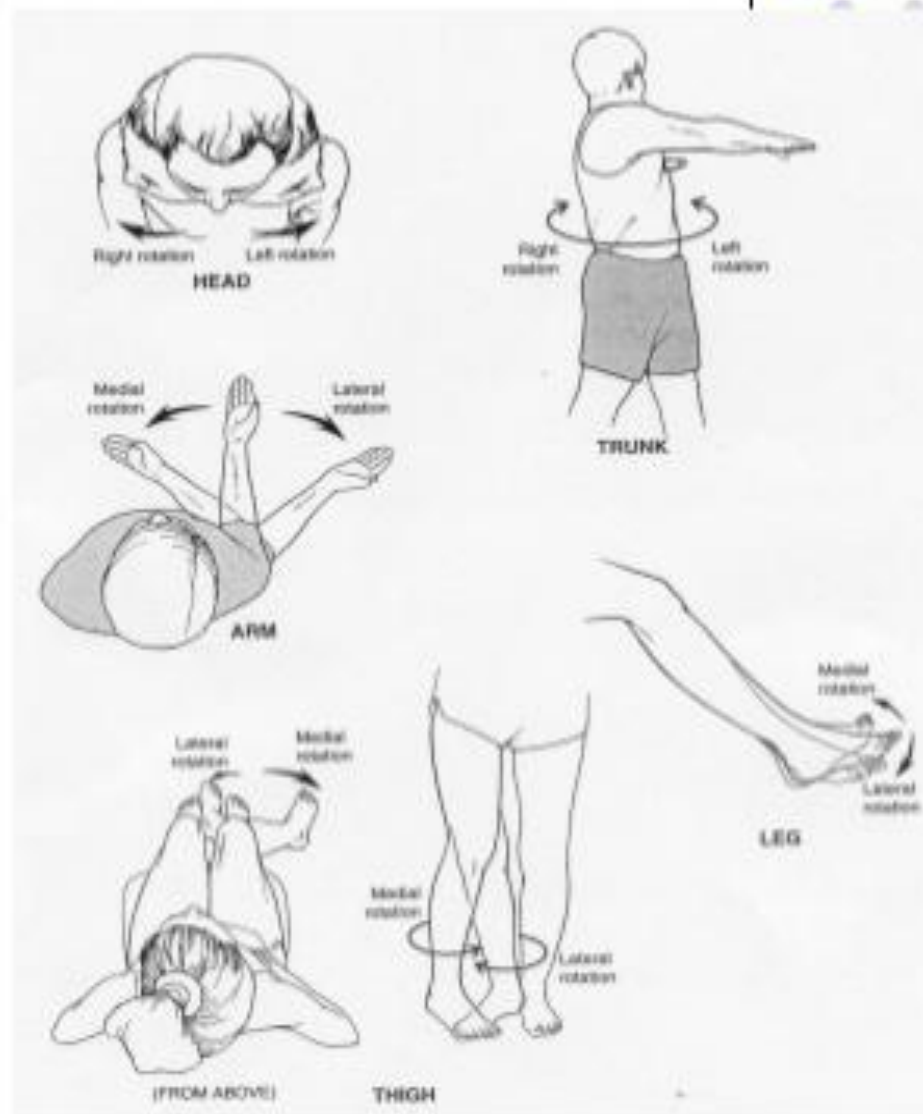
6. Medial/ Lateral

❖ Medial (Internal) Rotation

Anterior surface moves toward midline

❖ Lateral (External) Rotation

Anterior surface moves away from midline



7. Protraction/Retraction

❖ Protraction

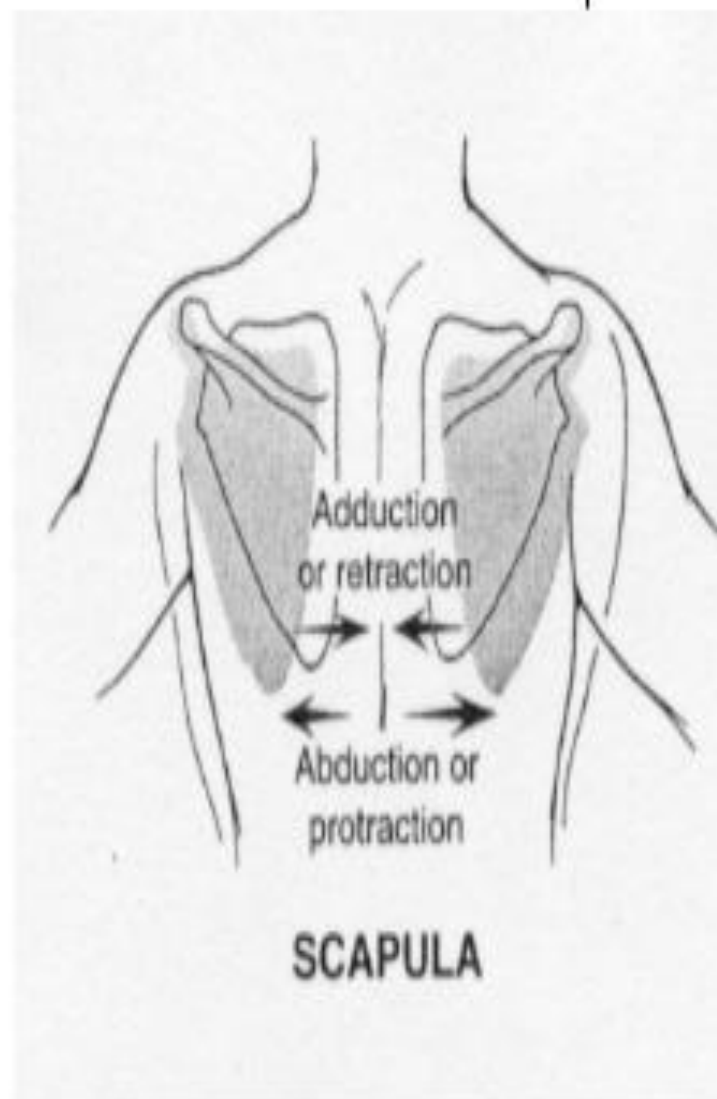
Moving forward on plane parallel to ground

“punch”

❖ Retraction

Moving backward on plane parallel to ground

“start lawn mower”

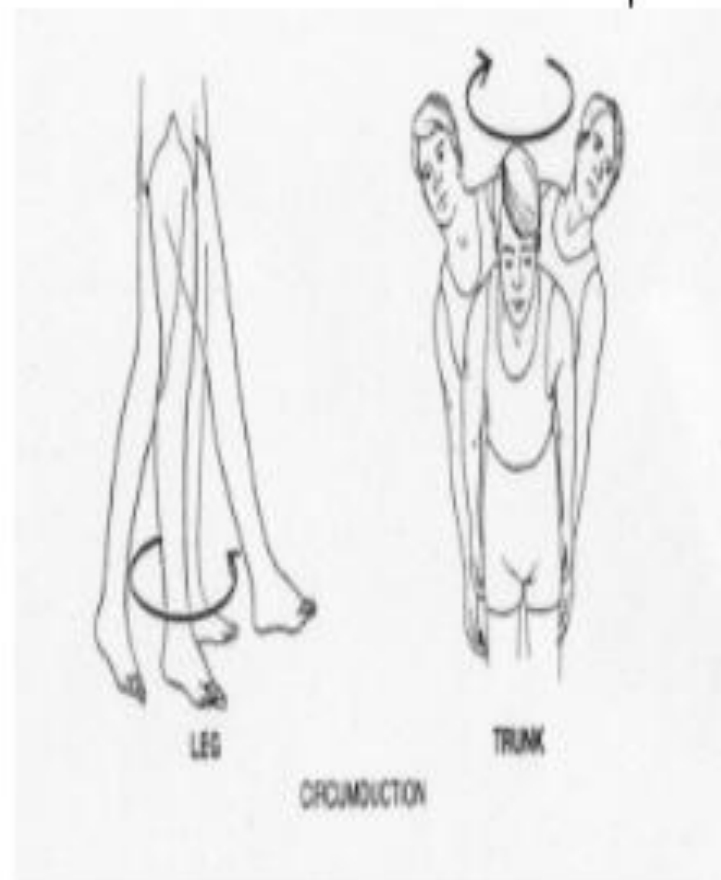


8. Circumduction

Circumduction

Latin meaning
“around”

Combination of
flexion/extension and
abduction/adduction





Thank You