University of Baghdad
College of Medicine
2024-2025

Title: Introduction to Human Anatomy - Part 1

Grade: First

Module: HSF 1 / Anatomy

Speaker: Dr Rana A Altae

Date: / / 2024

Objectives:

At the end of the lecture the *students* will be able to:

1. **Outline the definition of Anatomy.**
2. **Identify the methods Human Anatomy is studied by.**
3. **List the forms of Anatomy.**
4. **Recognize the Human Body Systems.**
5. **Define the Anatomical Position.**
6. **Define the Anatomical Planes.**
7. **State the Language of Anatomy with its Directional Terms**
8. **Review the Terms of Movement.**

Anatomy

is the study of the structure and shape of the body

and body parts and their relationships to one another.

It is studied by **two methods:**

(1) the various structures may be separately considered - **systematic anatomy**; or :

(2) the organs and tissues may be studied in relation to one another- **topographical or regional anatomy.**

Forms of Anatomy

1- GROSS ANATOMY the study of anatomy at the visible or macroscopic level.

2- the study of the minute structure of the body microscopically- **HISTOLOGY**

3- the study of various stages of its intrauterine development from the fertilized ovum up to the period when it assumes a human being - **EMBRYOLOGY**

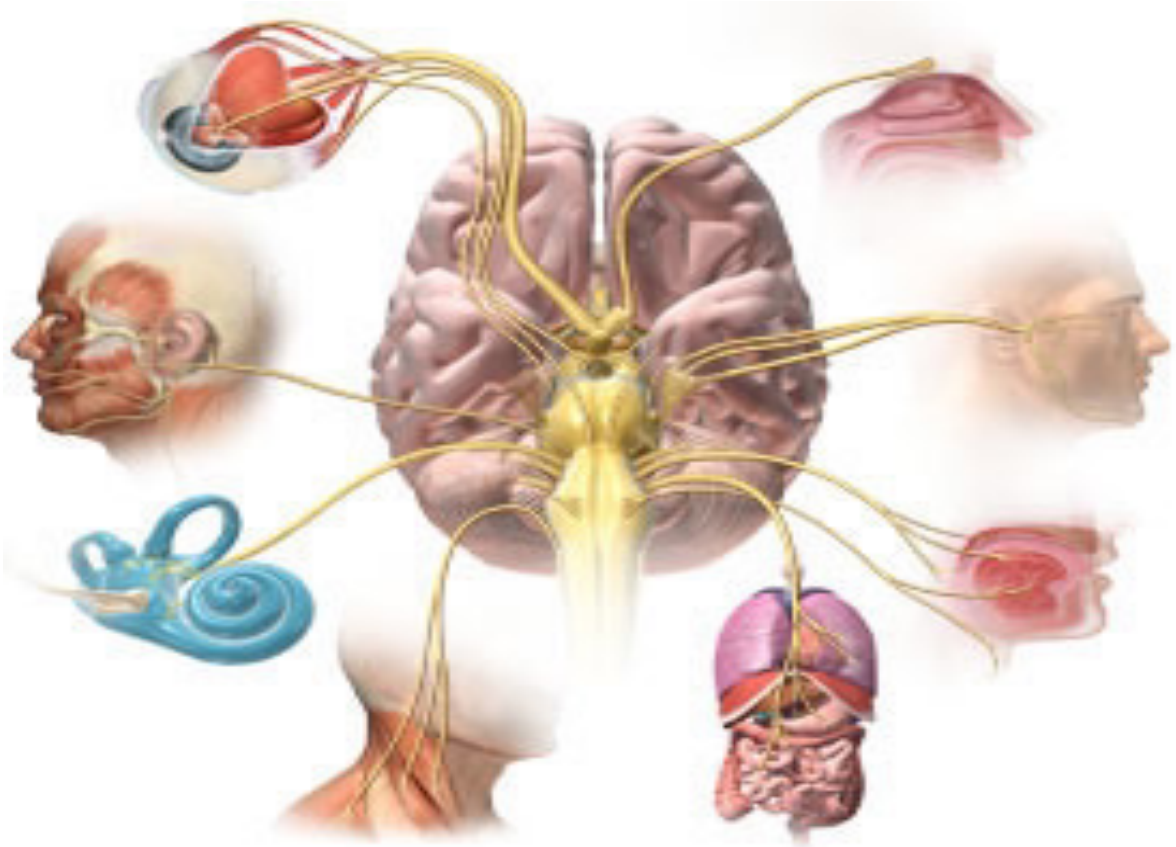
4- COMPARTIVE EMBRYOLOGY, or by a consideration of adult forms-**COMPARATIVE ANATOMY**.

5-The direct application of the facts of human anatomy to the various pathological conditions which may occur constitutes the subject of and the practical application of anatomical knowledge to diagnosis and treatment. -**APPLIED ANATOMY.**

6- Finally, the appreciation structures on or immediately underlying the surface of the body is frequently made the subject of special study- **SURFACE ANATOMY**

Human Body Systems:

- How many Systems are there in the Body?
- Why there are different numbers in the Books?



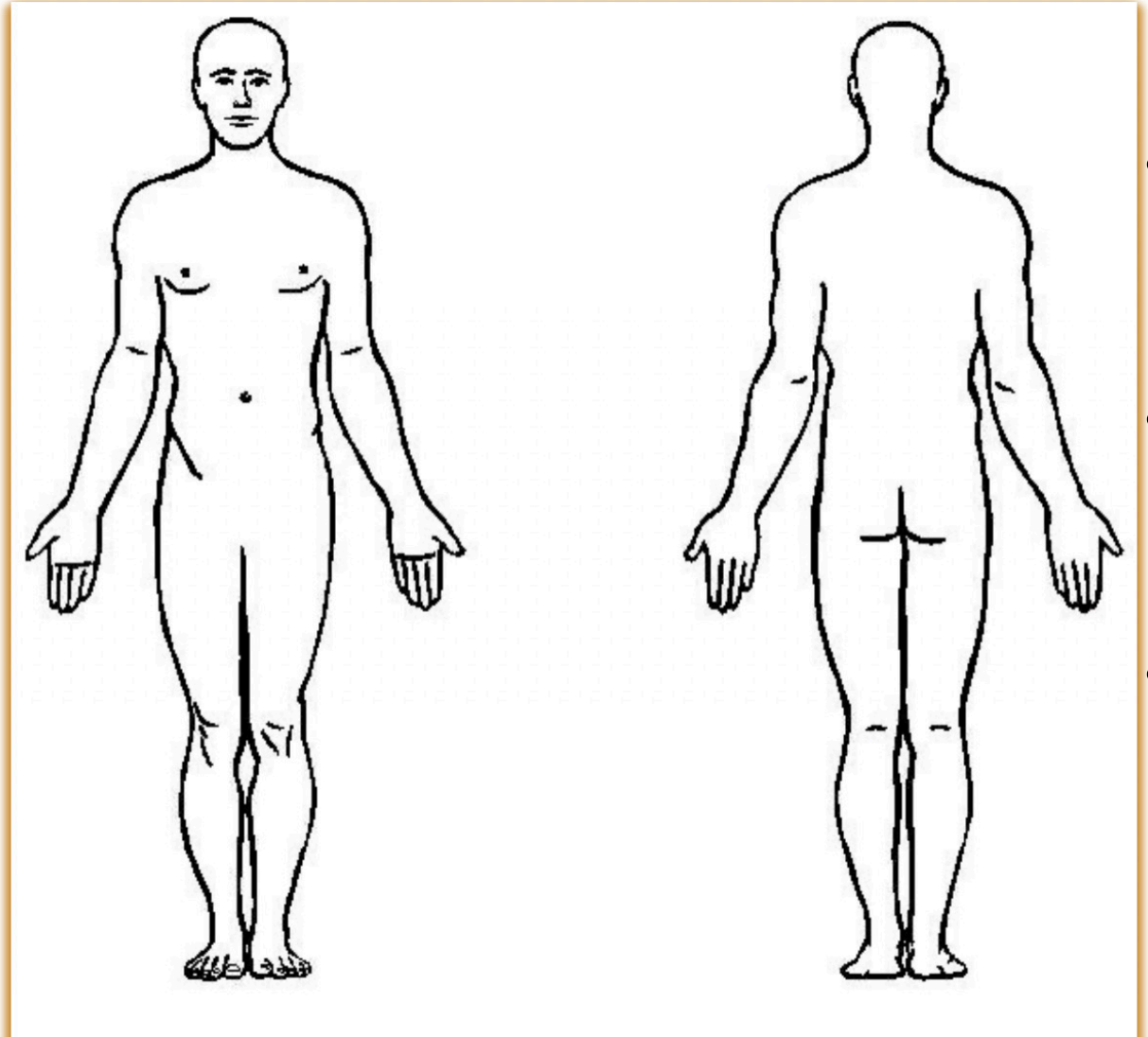
- There are 11 Systems in the body

1. Integumentary System
2. Skeletal System
3. Muscular System
4. Nervous System- CNS central nervous system-Brain and the spinal cord. PNS peripheral nervous system-Distributing nerves (mixed, motor, sensory)
5. Cardiovascular System
6. Respiratory System
7. Lymphatic System
8. Digestive System
9. Urinary System
10. Endocrine System
11. Reproductive System

Let's answer these Questions together:

- What is the largest Organ in the Human?
- How many bones? How many muscles?
- What is the largest/ smallest bone in the Human?
- Which is more numerous in human body motor or sensory neurons?
- What is the percentage of damage that could occur to the heart but the human can still be alive?
- What is the percentage of damage that could occur to the lungs but the human can still be alive?
- What is the Largest Lymphoid Organ?
- What is the percentage of damage that could occur to the Kidneys but the human can still be alive?

Anatomical Position



- Standing erect, with the feet parallel and the arms hanging at the sides with the palms facing forward.
- Is the standard reference point in which all positions, movements, and planes are described
- it provides a precise and uniform way to describe the body structures

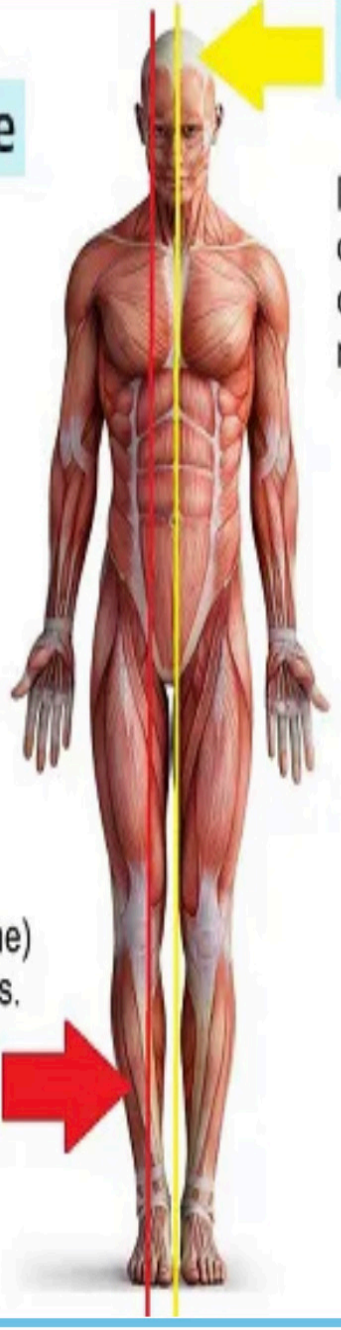
Anatomical Planes

Sagittal Plane

It runs vertically from top to bottom, and it divides the body into a left and right portion.

Midsagittal Plane

If the sagittal plane runs directly down the midline of the body, it is called a "midsagittal plane" or median plane.



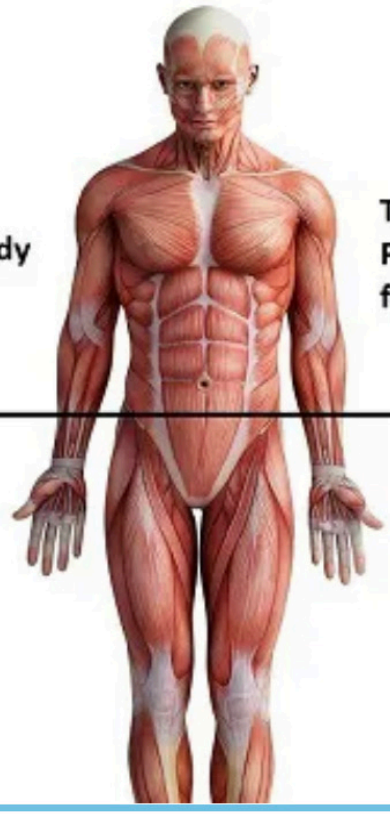
Sagittal planes that are uneven (not down the midline) are called parasagittal planes.

Parasagittal Plane

Frontal (Coronal)Plane

Transverse (or Horizontal) Plane

This is the only horizontal plane, and it divides the body into a top (superior) and bottom (inferior) portion.



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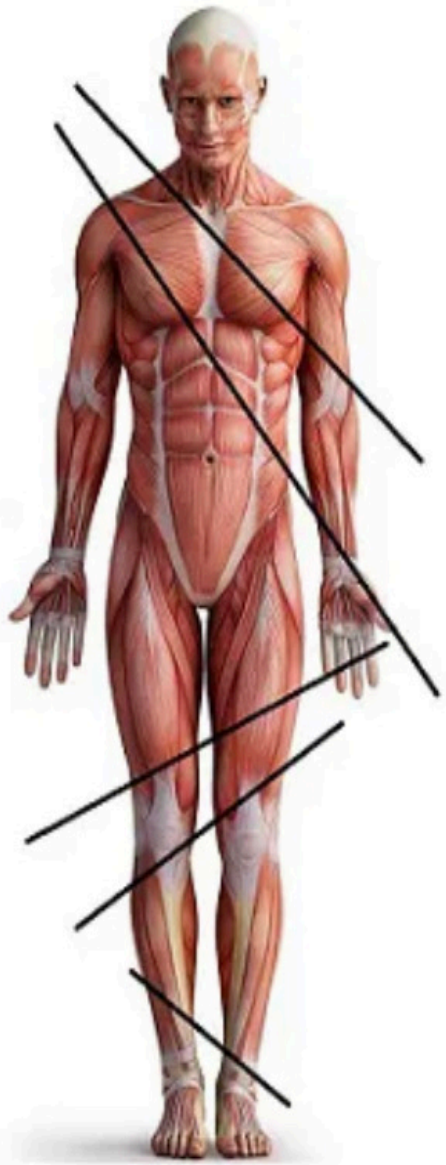
Oblique Planes

a plane that is any type of angle other than horizontal or vertical angle.



"oblique" means that something is not parallel or a right angle. An easy way to remember this is to remember "obliques are odd angles."

The Language of Anatomy

Superior/cranial/cephalad	Toward the head or upper part of the body or structure; above
Inferior (caudal)	Away from the head end or toward the lower part of a body or structure; below
Anterior (ventral)	Toward the front of the body (belly)
Posterior (dorsal)	Toward the back of the body; behind
Medial	Toward or at the midline of the body; on the inner side of
Lateral	Away from the midline of the body; on the outer side of
Intermediate	Between a medial and lateral structure

Proximal	Close to the origin of the body part or the point of attachment of a limb to the body trunk
Distal	Farther from the origin of a body part or the point of attachment of a lumb to the body truck
Superficial	Toward or at the body surface
Deep	Away from the body surface; more internal

Anterior Body Landmarks

Abdominal	Anterior body trunk inferior to the ribs
Antecubital	Anterior surface of the elbow
Axillary	Armpit
Brachial	Arm
Buccal	Cheek area
Carpal	Wrist
Cervical	Neck region

Anterior Body Landmarks

Digital	Fingers and toes
Femoral	Thigh
Inguinal	Area where thigh meets the trunk
Nasal	Nose area
Oral	Mouth
Orbital	Eye area
Patellar	Anterior knee

Anterior Body Landmarks

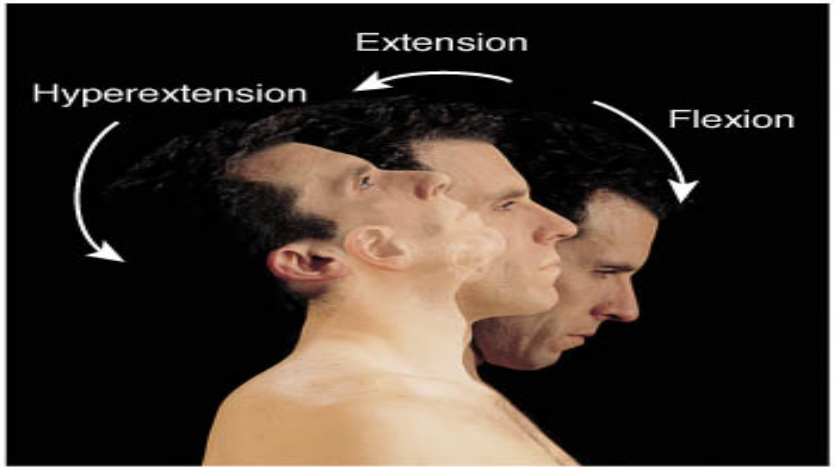
Peroneal	Lateral part of the leg
Pubic	Genital region
Sternal	Breasbone area
Tarsal	Ankle region
Thoracic	Chest
Umbilical	Navel

Posterior Body Landmarks

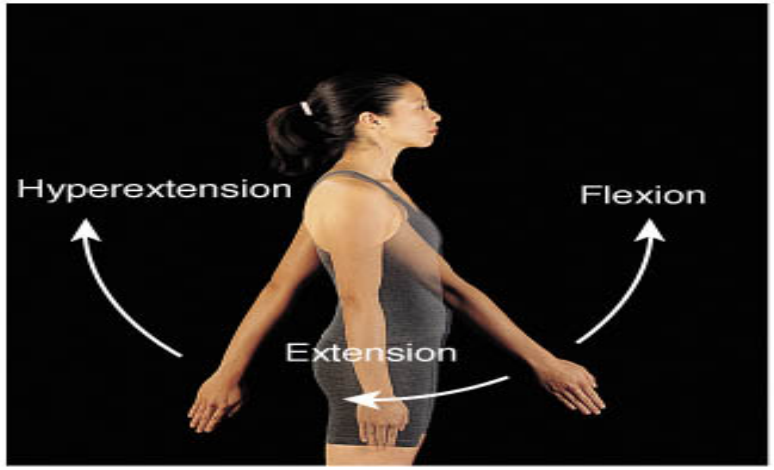
Cephalic	Head
Deltoid	Curve of the shoulder
Gluteal	Butt
Lumbar	Lower back
Occipital	Posterior surface of the head
Popliteal	Posterior knee area
Scapular	Shoulder blade region
Sural	The area of the calf muscle
Vertebral	Area of the spine

Angular movements

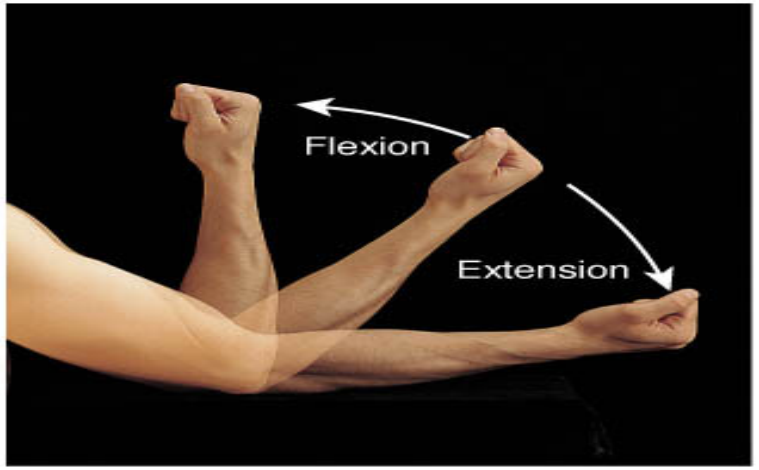
- Flexion and extension



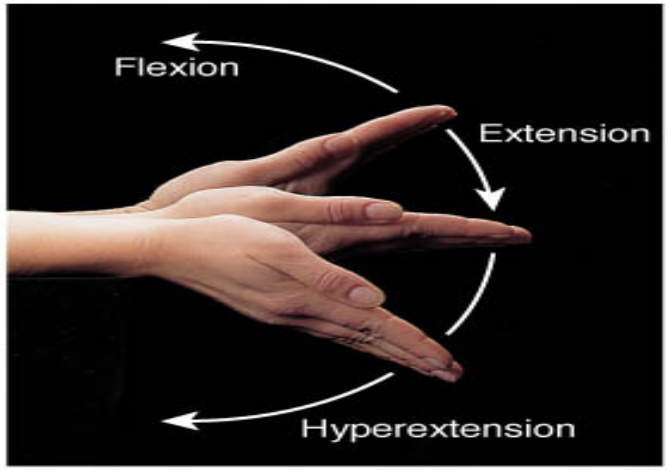
(a) Joints between atlas and occipital bone and between cervical vertebrae



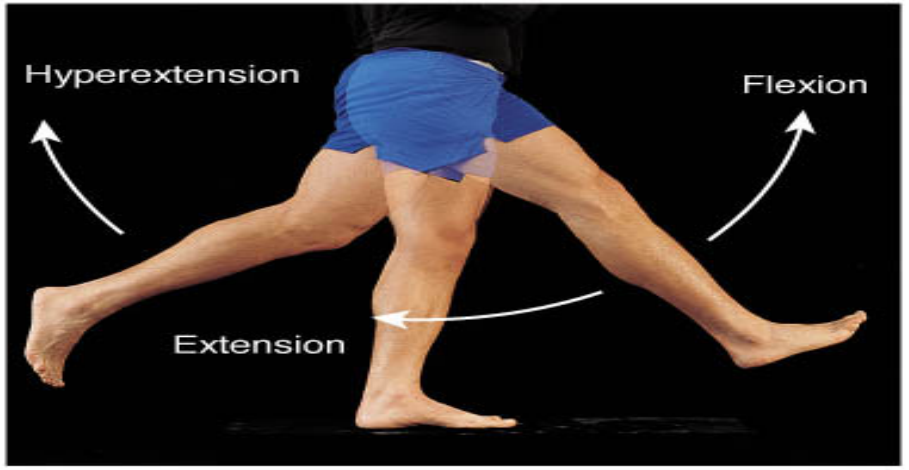
(b) Shoulder joint



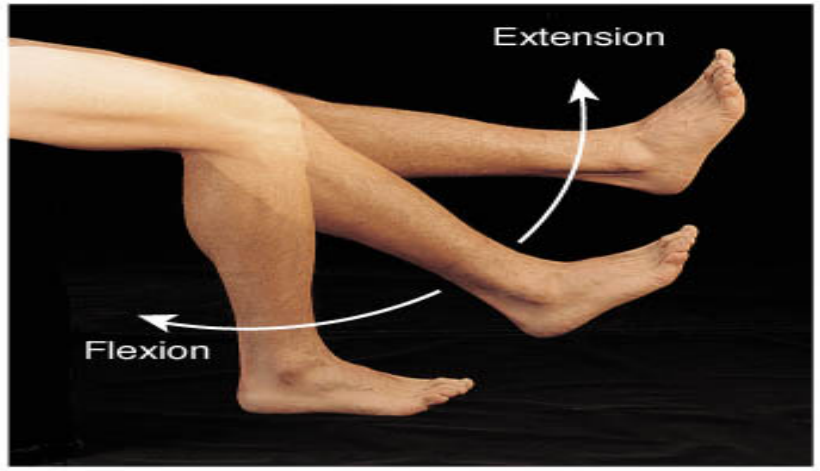
(c) Elbow joint



(d) Wrist joint

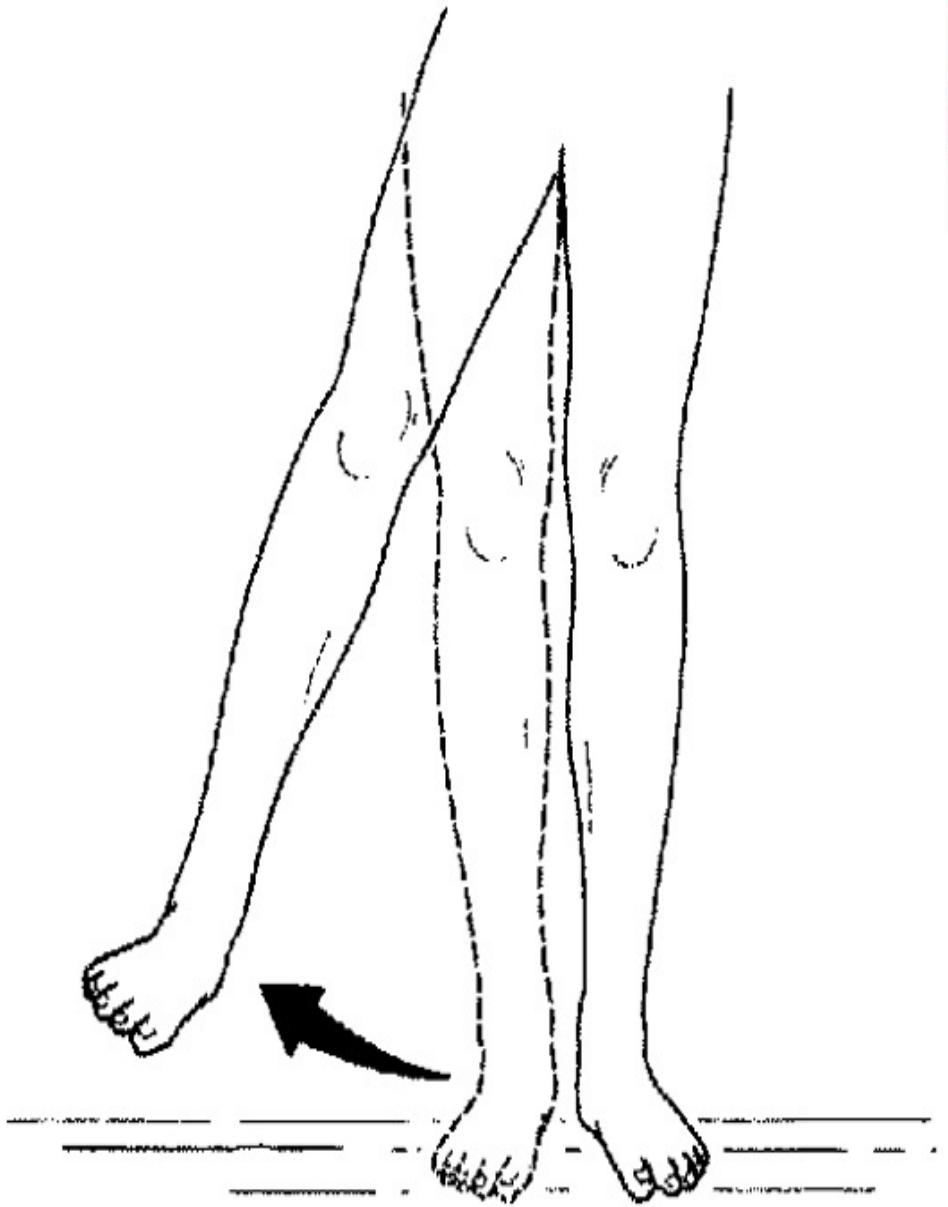


(e) Hip joint

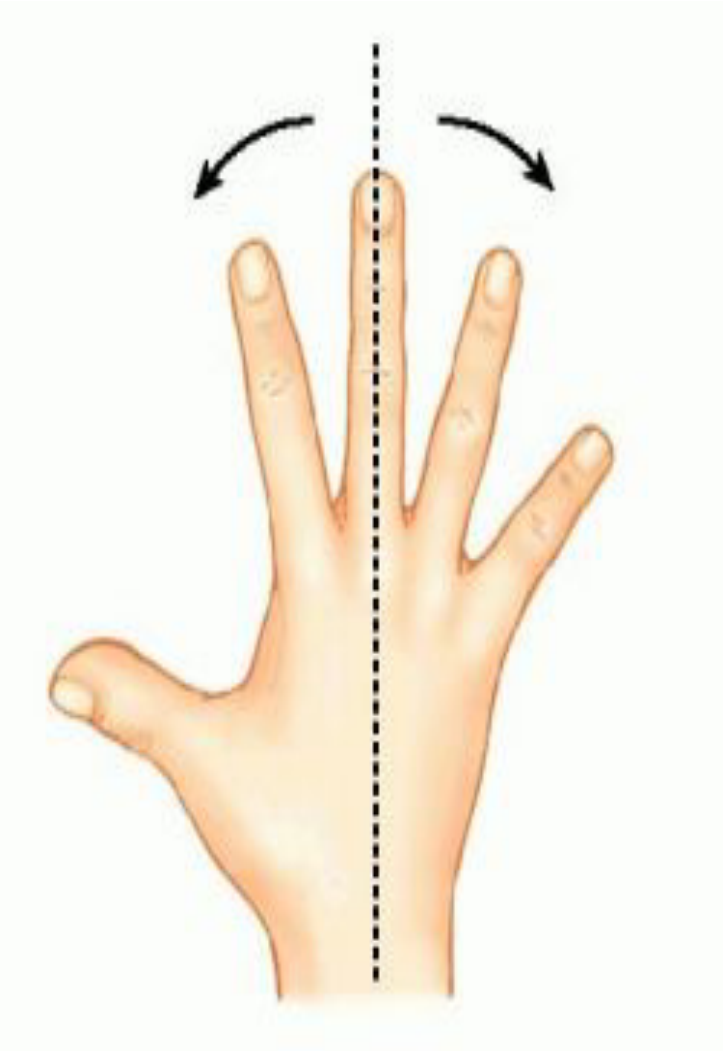


(f) Knee joint

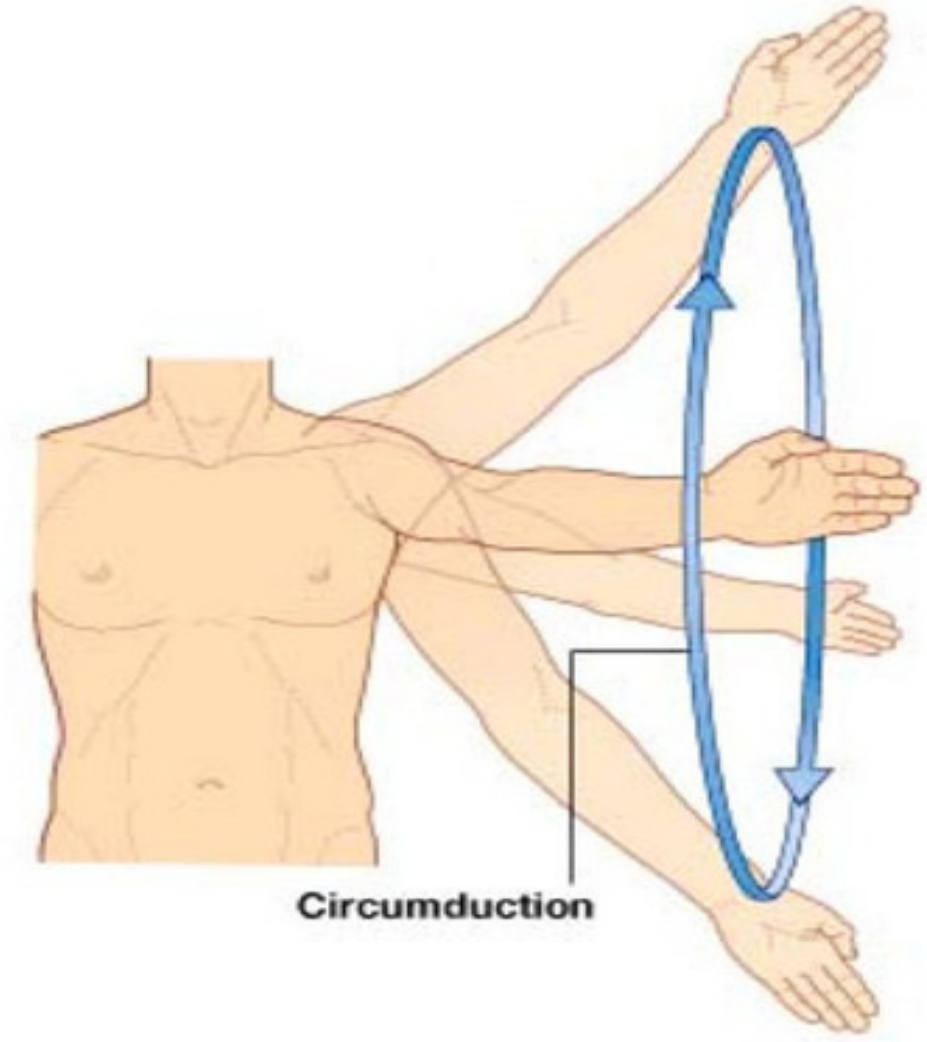
- **Abduction** is the movement away from the midline whereas **adduction** is the movement toward the midline



- **Note** that abduction and adduction of the fingers and toes are movements away and towards an imaginary line drawn through the longest middle finger in the hand and the second toe in the foot. So spreading out the fingers is abduction while returning them back to their normal anatomical position is adduction.



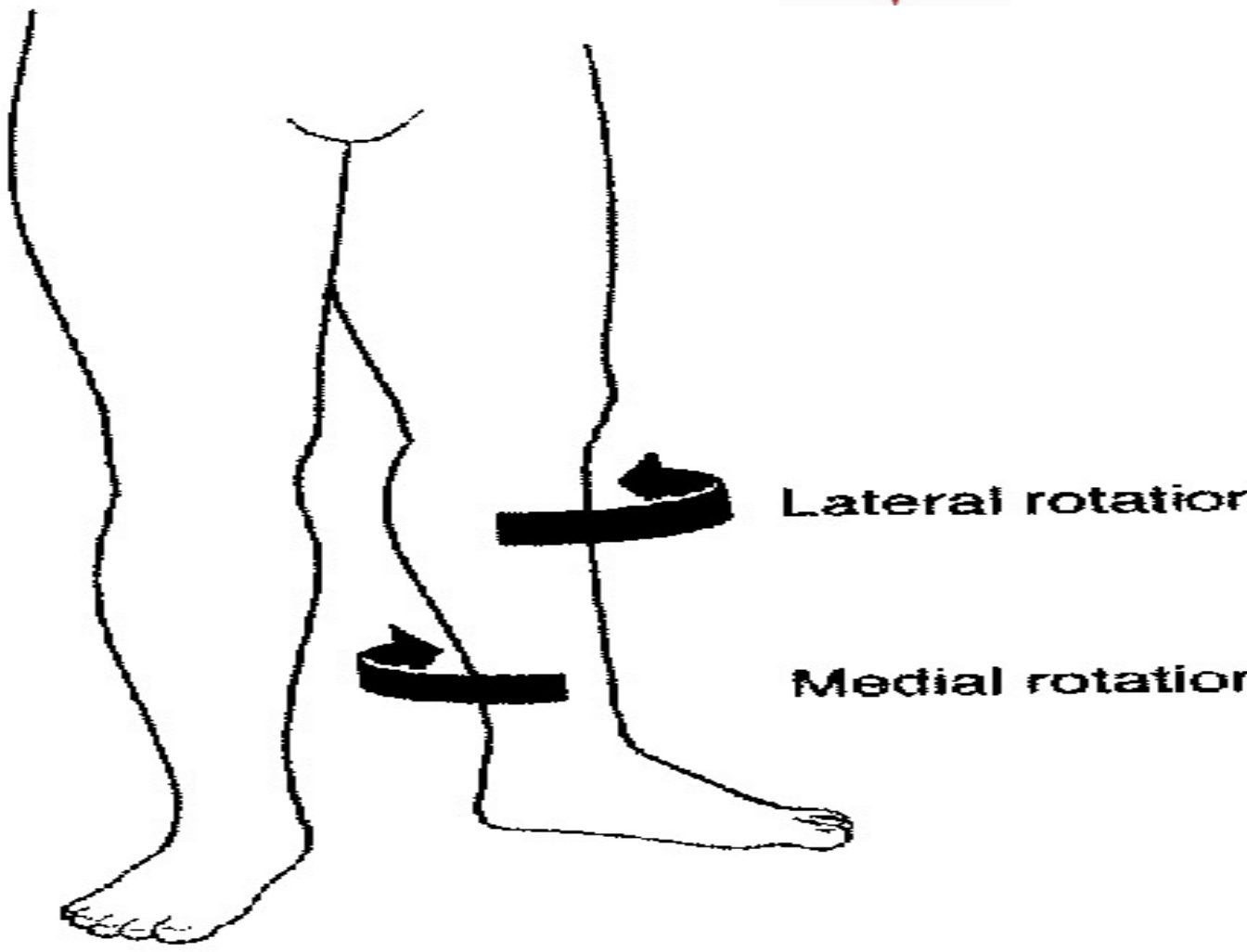
- Circumduction is moving the arm in a circle at the shoulder joint.



- Rotation

medial (internal) rotation.

lateral (external) rotation.



- Special movements occurs only at specific joints.

They include

1.elevation, depression,

2.protraction, retraction,

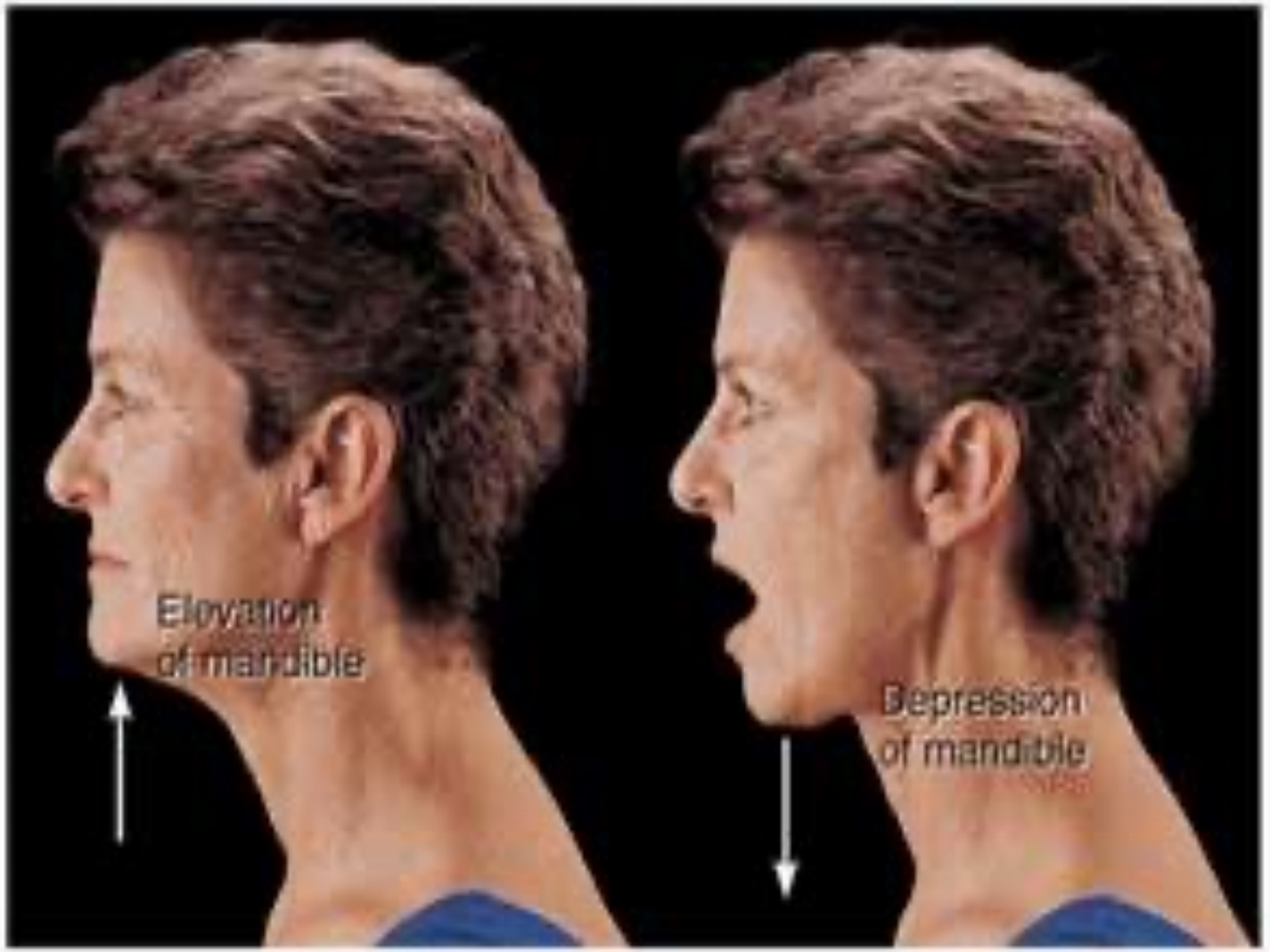
3.inversion, eversion,

4.dorsiflexion, planter flexion,

5. supination, pronation,

6.opposition.

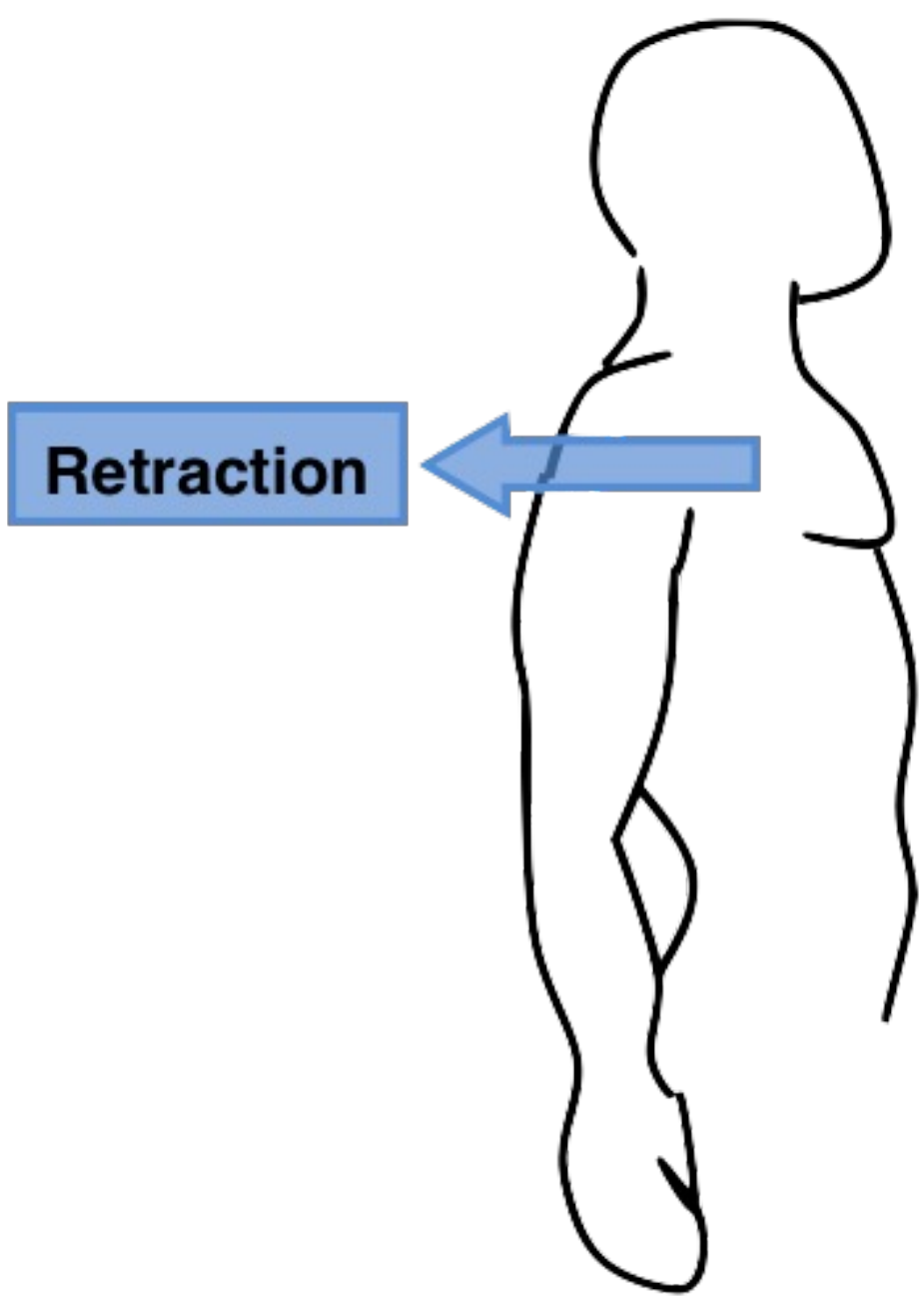
- Elevation
- Depression

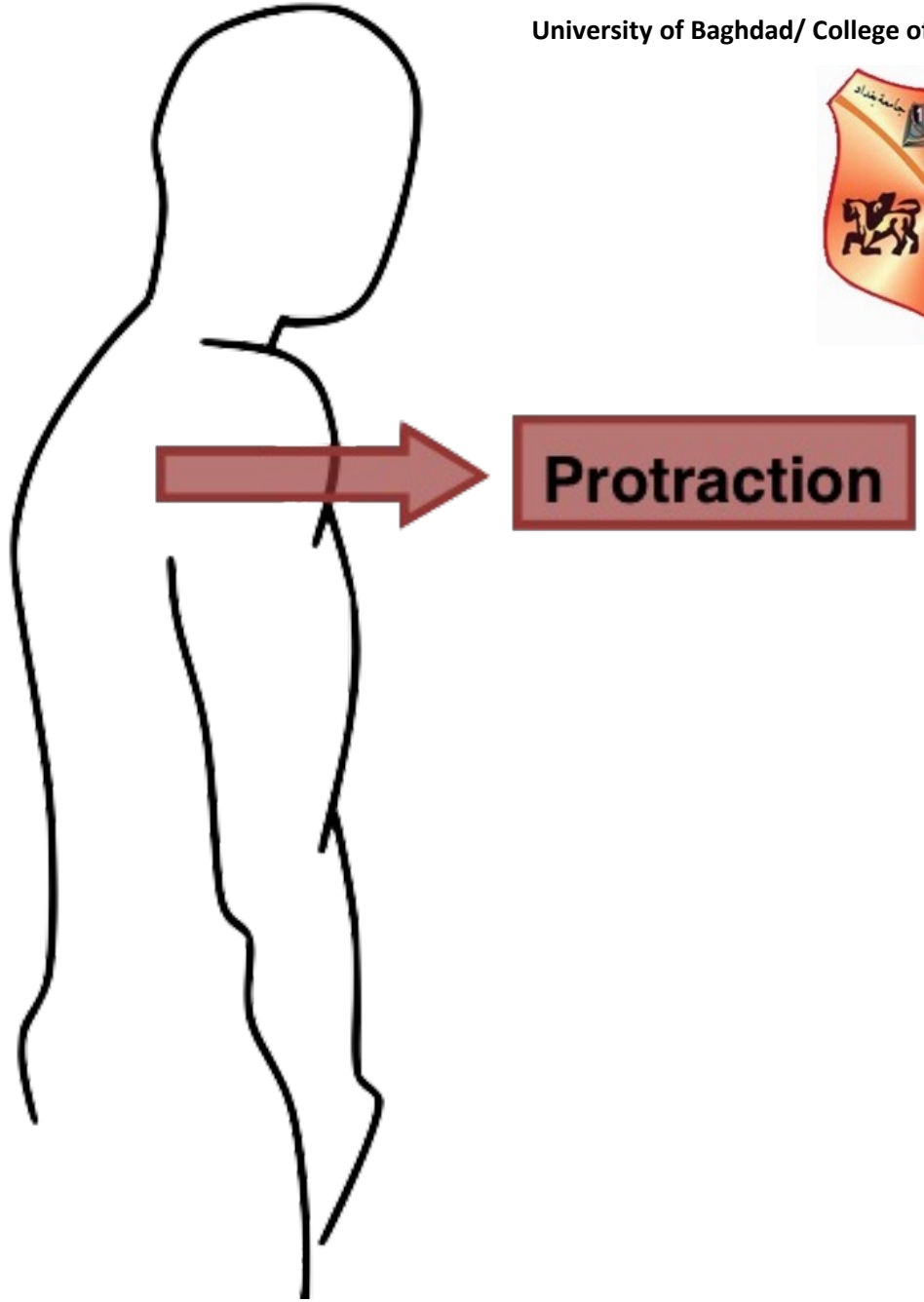


(d) Elevation and depression

- Protraction
- Retraction

(c) Protraction and retraction

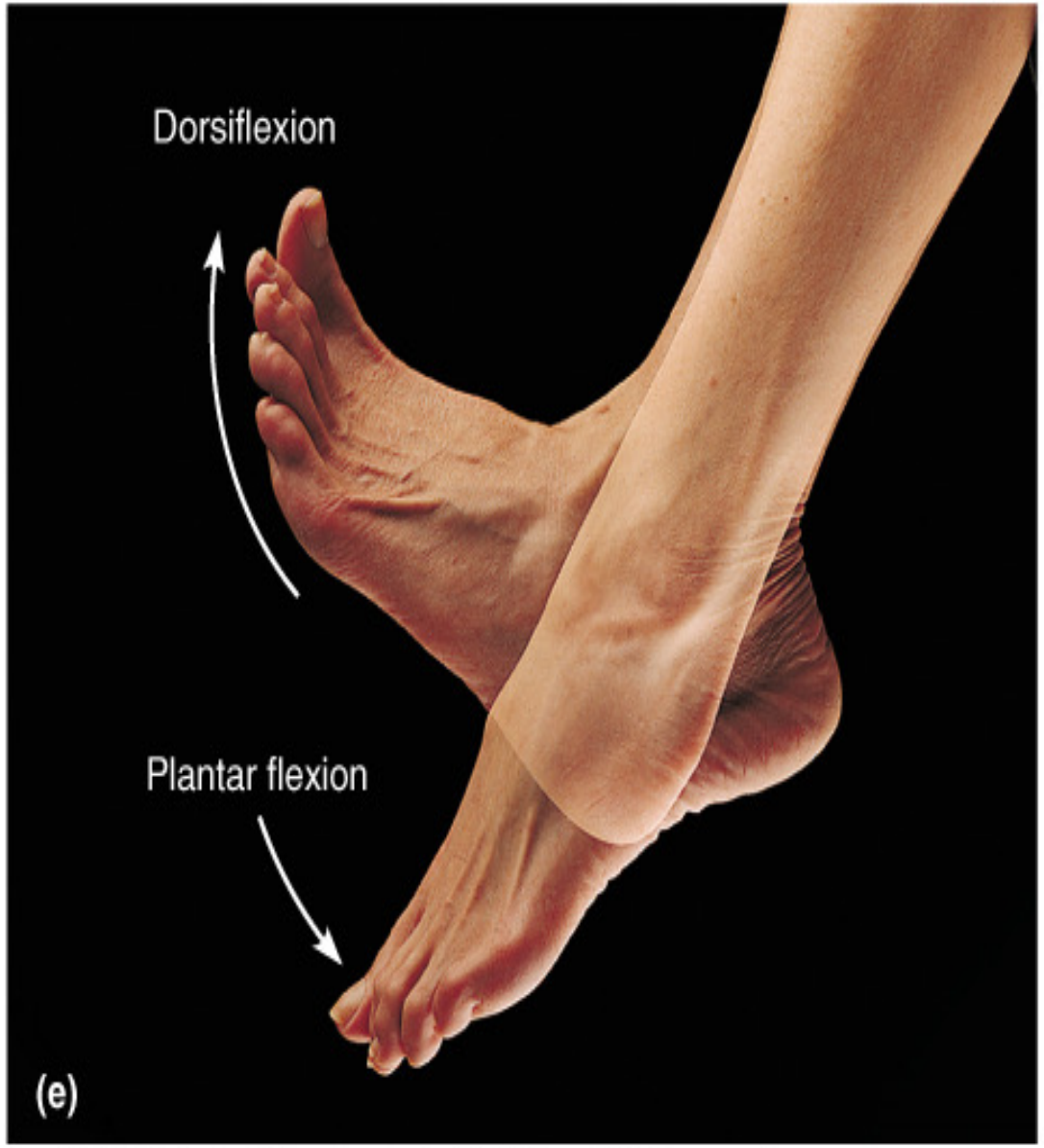

Retraction


Protraction

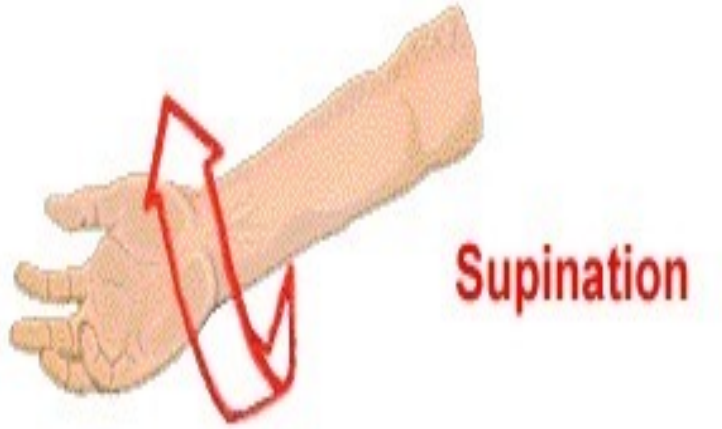
(b) Inversion and eversion

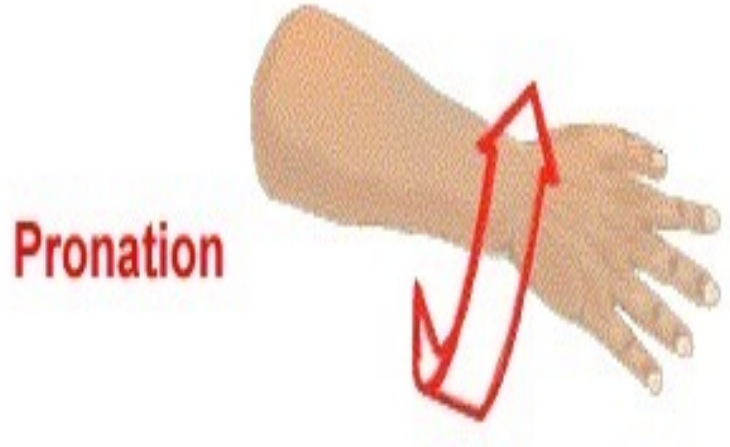
- Inversion
  (to turn inward)
- Eversion
  (to turn outward)

- Dorsiflexion when you stand on your heels.
- Planter flexion when standing on your toes.



- Supination is a movement of forearm at the proximal and distal radioulnar joints in which the palm is turned anteriorly or superiorly. This position is one of the defining features of the anatomical position.
- Pronation is the movement of the forearm at the proximal and distal radioulnar joints in which the palm is turned posteriorly or inferiorly.





"The Kings Pronate The beggers Supinate"

- Opposition is the movement of the thumb at the joint in which the thumb moves across the palm to touch the tips of the fingers on the same hand. This gives the ability to grasp and manipulate objects very precisely.