



Introduction to Human Anatomy

Anatomical Terminology

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Objectives

By the end of this lecture students should:

- Understand the terms used for describing the structure and function of different regions of gross anatomy.

Why?

- Without these terms, it is impossible to describe, in a meaningful way, the composition of the body.
- The physician needs these terms so that anatomic abnormalities found on clinical examination of a patient can be accurately recorded.

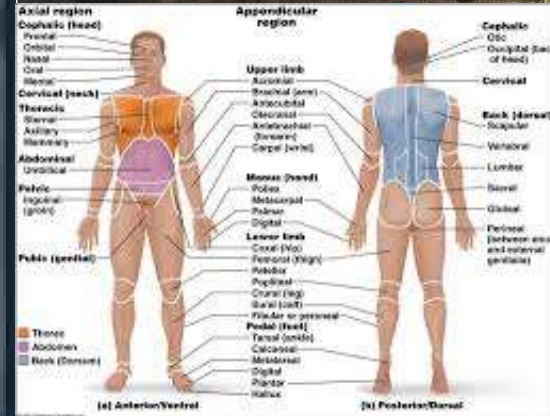
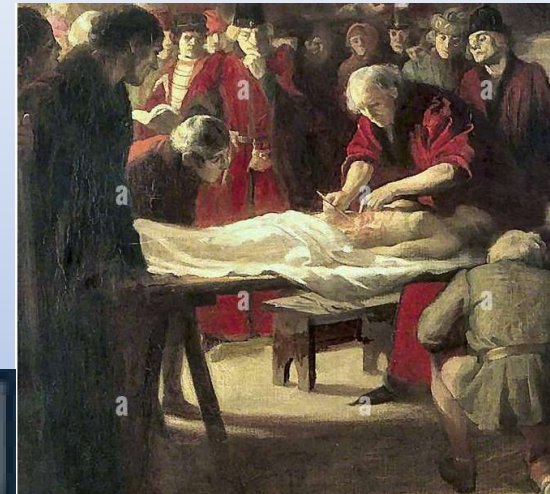
Anatomy

- The word “**anatomy**” comes from the Greek words: “ana,” = “up,” + “tome,” = “a cutting.”
- Anatomy is the science of the structure of the body and its parts & their relations to one another.
- **Clinical anatomy** is the study of the macroscopic structure and function of the body as it relates to the practice of medicine and other health sciences.
- **Regional Anatomy** is the study of the structure of the body by regions (thorax, abdomen, ...)
- **Systemic Anatomy** is the study of the structure of the body by systems (CVS, respiratory S, ...)

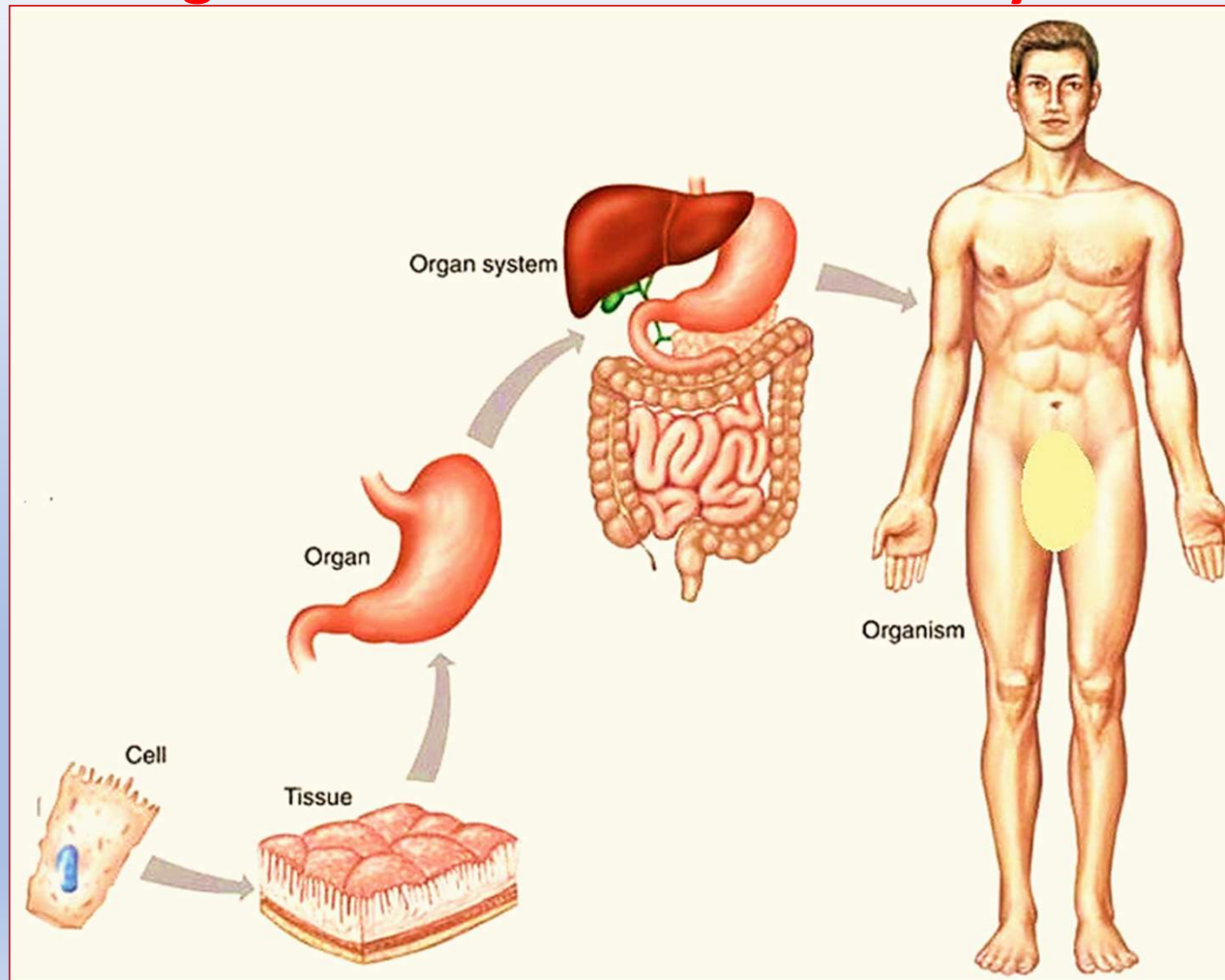


Methods of Studying Anatomy

- Dissection.
- Living (Surface) Anatomy.
- Radiological Anatomy.
- Endoscopy.



Organization of the Human Body



Anatomical Terms

❑ Anatomical position:

- ❖ It is a standardized posture that serves as a universal reference point for anatomy and physiology & allowing for precise communication.
- The person stands upright (erect).
- The feet are together and flat on the ground.
- Arms are straight by the sides of the body.
- Palms are facing forward.
- Eyes and face are directed forward



Anatomical Terms

□ Anatomical planes:

➤ Median Sagittal plane:

- ✓ Single vertical plane that divides the body into right & left **equal halves**.

➤ Parasagittal (Paramedian) plane:

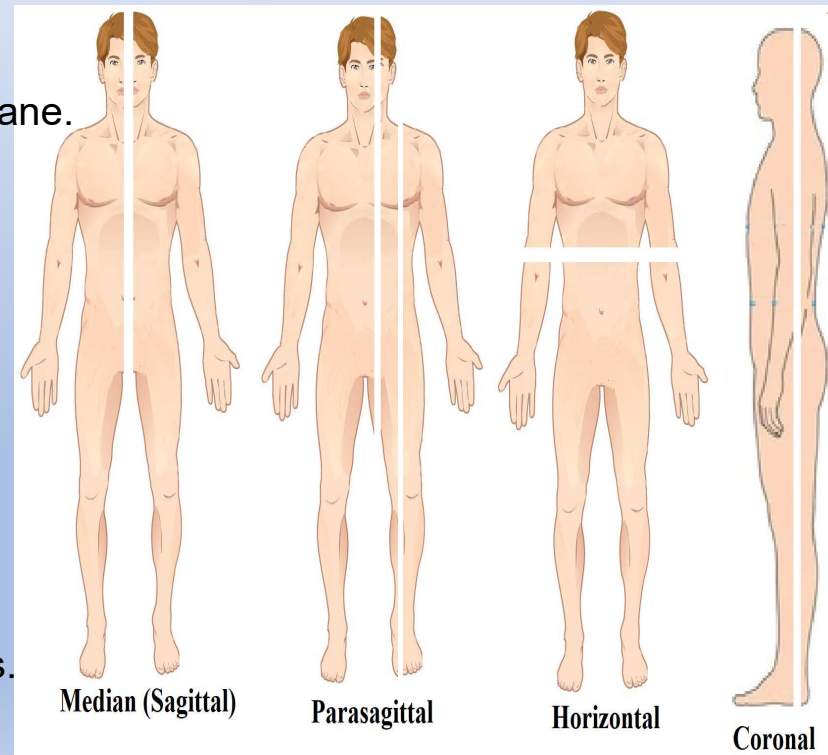
- ✓ Multiple vertical planes which pass parallel to the median plane.
- ✓ Divides body into right & left **unequal parts**.

➤ Coronal plane:

- ✓ Multiple vertical planes that pass from side to side.
- ✓ Divides the body into anterior & posterior parts.
- ✓ Perpendicular to the median plane.

➤ Transverse plane:

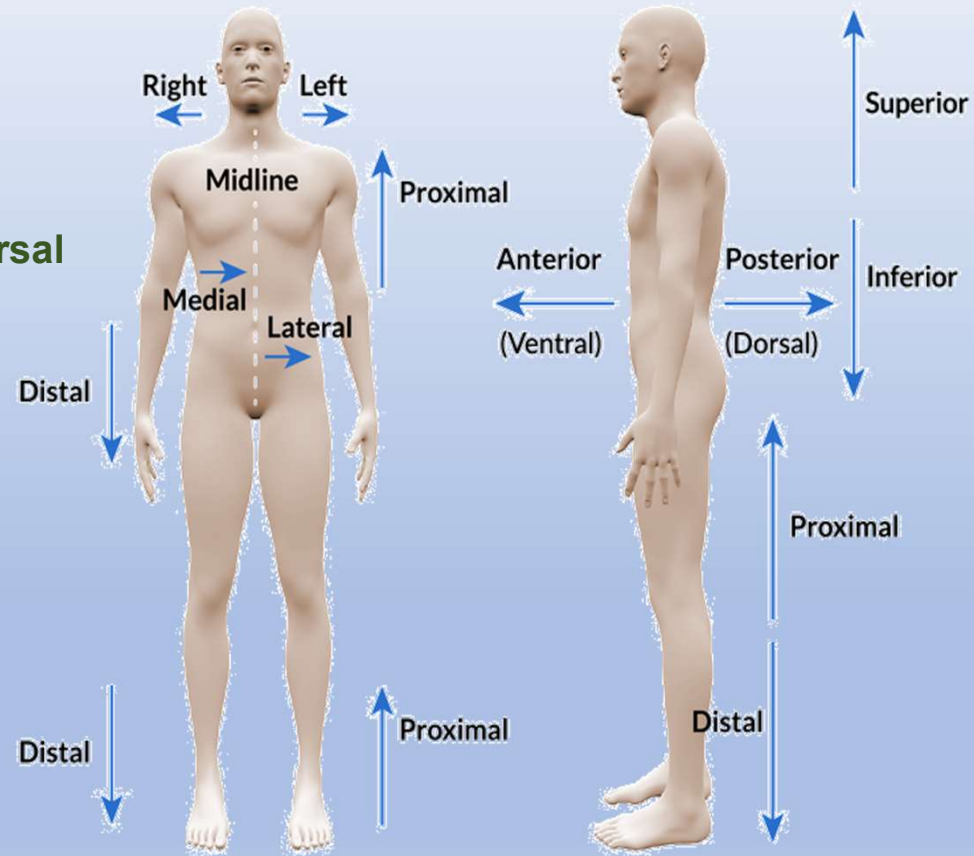
- ✓ Multiple planes that divide the body into upper & lower parts.
- ✓ Perpendicular to both median & coronal planes.



Anatomical Terms

□ Terms related to position:

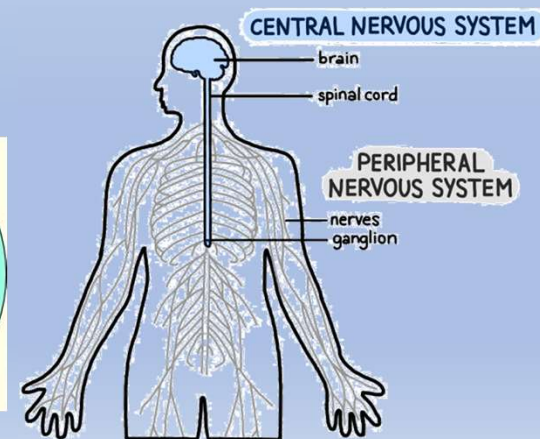
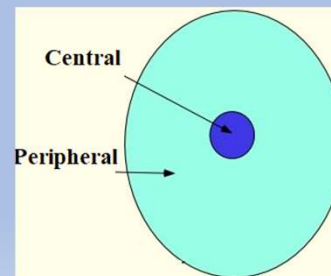
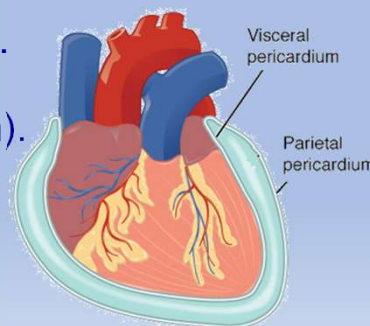
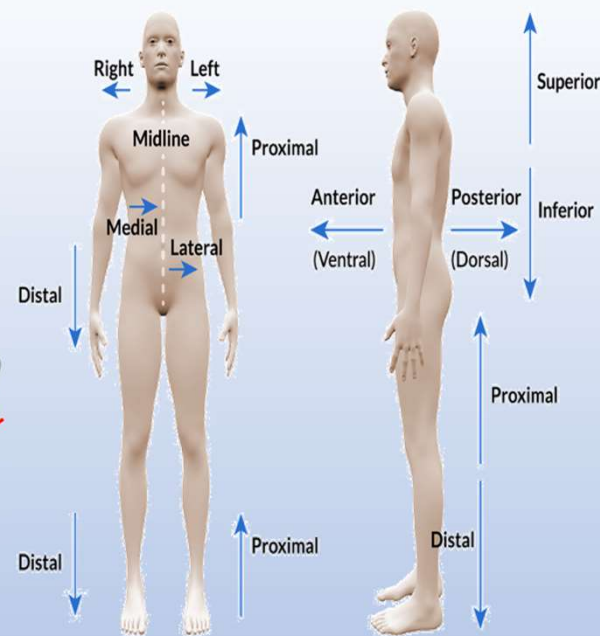
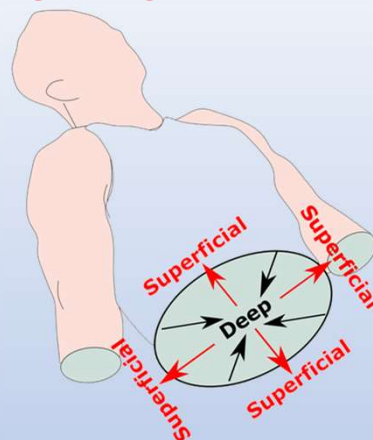
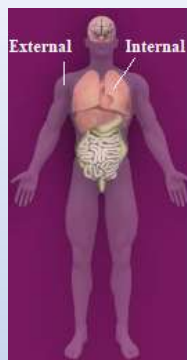
- **Anterior (ventral):** nearer to the front of the body.
- **Posterior (dorsal):** nearer to the back of the body.
 - In the hand, **palmar** is used instead of **anterior** & **dorsal** is used instead of **posterior**.
- **Superior (cranial, rostral):** nearer to the head.
- **Inferior (caudal):** nearer to the feet.
 - In the foot, **Dorsal** is used instead of **Superior** & **Plantar** is used instead of **Inferior**.
- **Medial:** nearer to the midline of the body.
- **Lateral:** away from the midline of the body.



Anatomical Terms

□ Terms related to position:

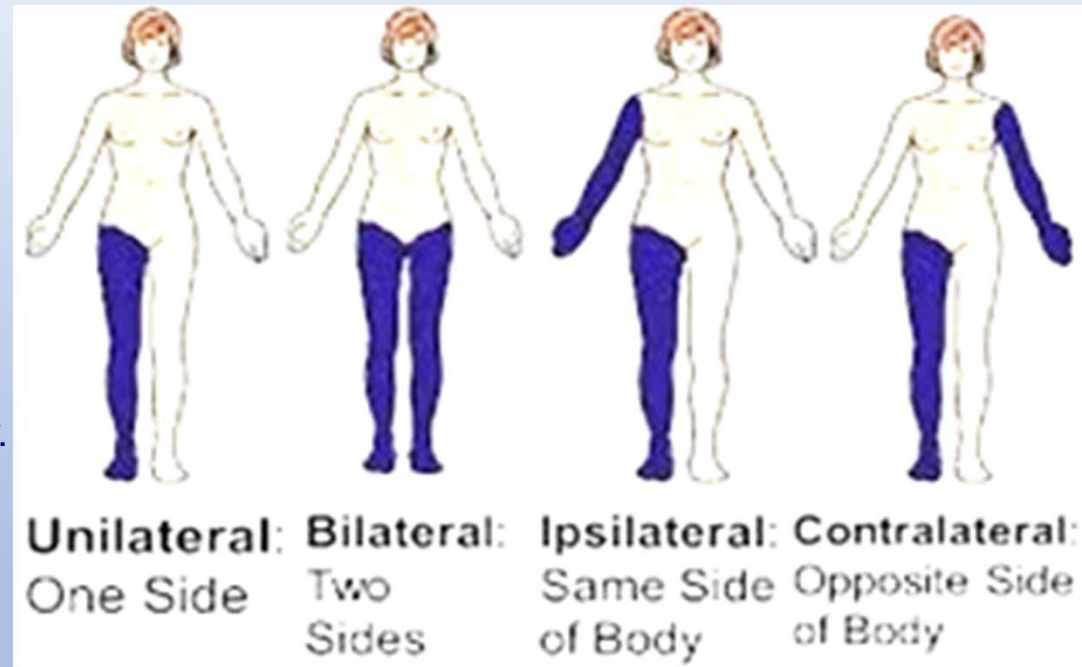
- **Proximal:** near to the root of the limb.
- **Distal:** away from the root of limb.
- **Superficial:** nearer to the surface of the body.
- **Deep:** away from the surface of the body.
- **Internal (Central):** nearer to the center of the body/organ.
- **External (Peripheral):** away from the center of the body/organ.
- **Visceral:** inner (nearer to the organ).
- **Parietal:** outer (away from the organ).



Anatomical Terms

❑ Terms related to position:

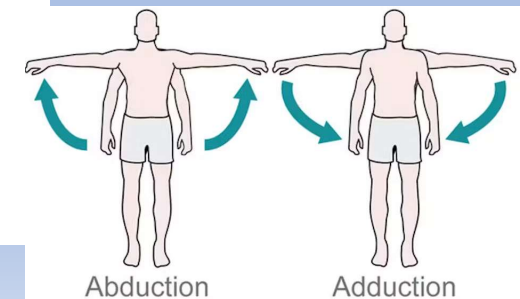
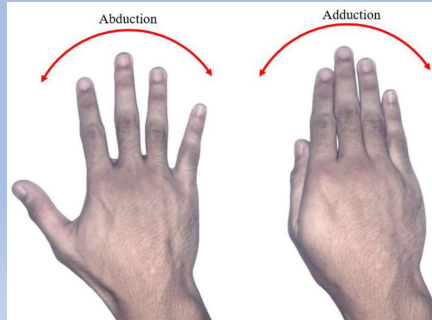
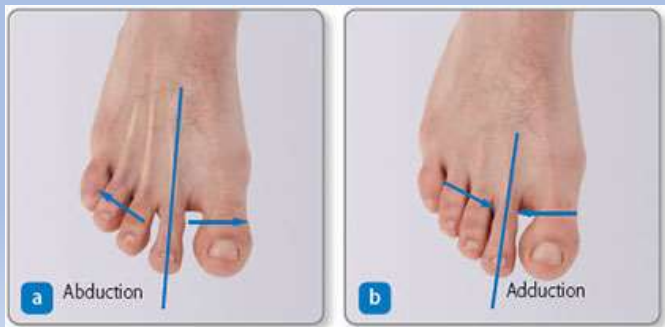
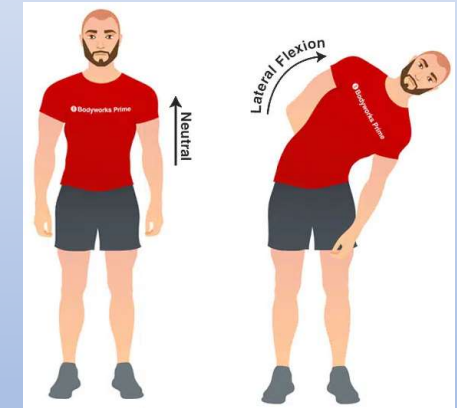
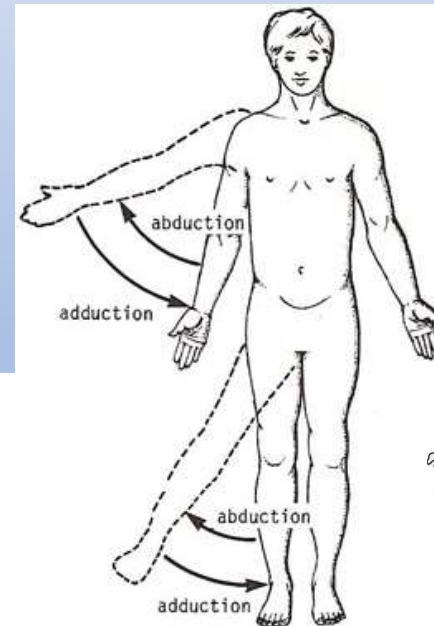
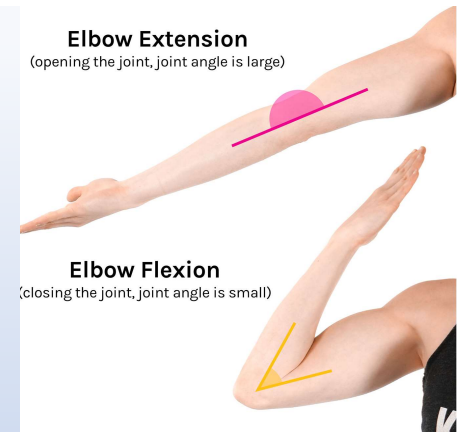
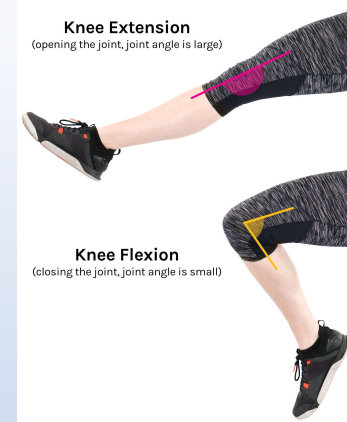
- **Unilateral:** at one side of the body.
- **Bilateral:** at both sides of the body.
- **Ipsilateral:** at the same side of the body.
- **Contralateral:** at the opposite side of the body.



Anatomical Terms

□ Terms related to movements:

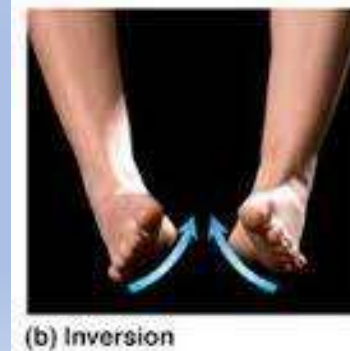
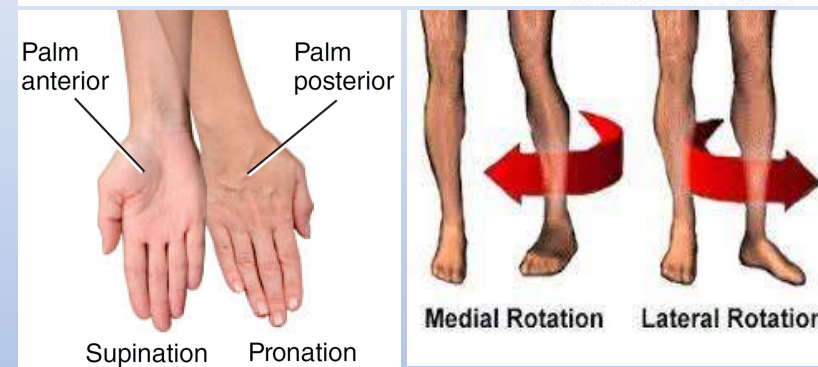
- **Flexion:** bending / approximation / decreasing the angle.
- **Extension:** straightening / increasing the angle.
- **Lateral flexion:** movement of the trunk in coronal plane.
- **Abduction:** movement away the median plane.
- **Adduction:** movement towards the median plane.
- **Abduction in fingers & toes:** spreading or fanning.
- **Adduction in fingers & toes:** drawing together.



Anatomical Terms

□ Terms related to movements:

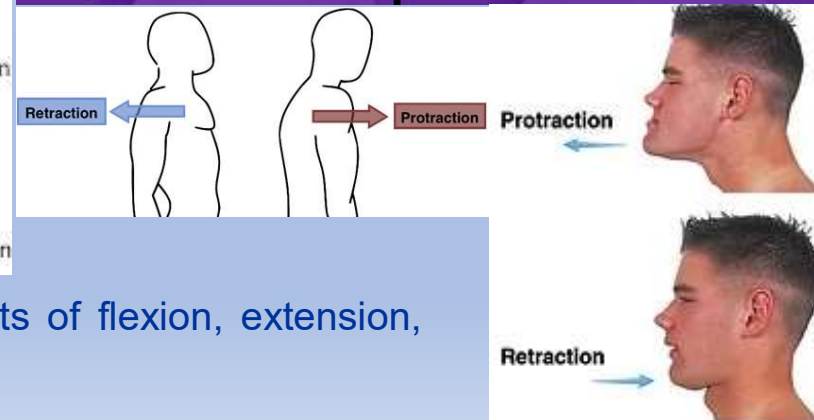
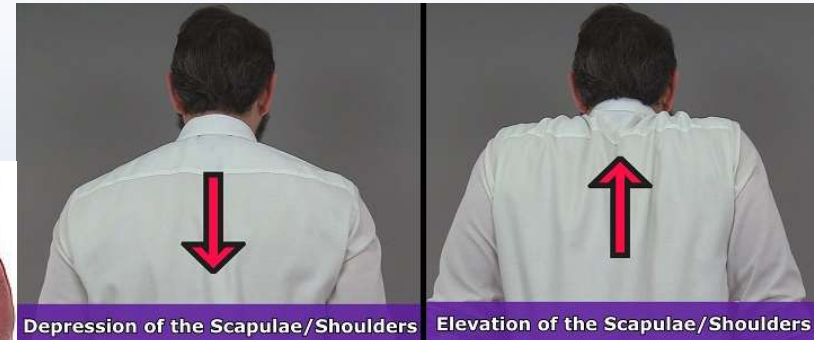
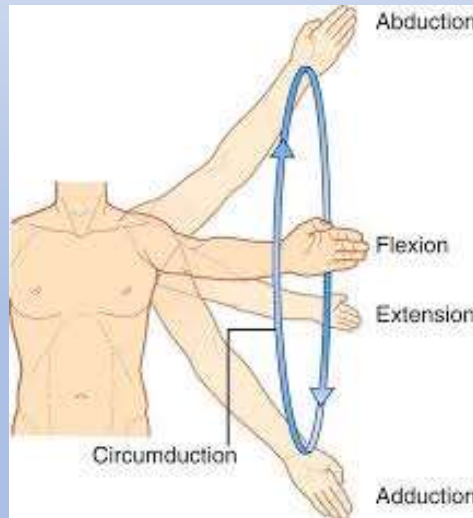
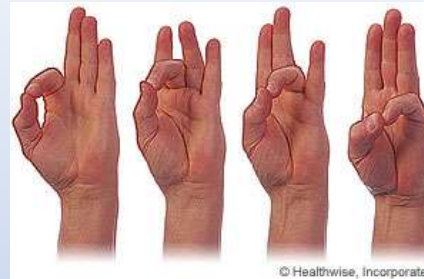
- **Medial Rotation:** movement of the anterior surface towards the midline.
- **Lateral Rotation:** movement of the anterior surface away from the midline.
- **Supination (Lateral rotation of forearm):** rotation of the forearm so, the palm faces forwards.
- **Pronation (Medial rotation of forearm):** rotation of the forearm so, the palm faces backwards.
- **Inversion:** rotation of the foot so, the sole is directed inwards.
- **Eversion:** rotation of the foot so, the sole is directed outwards.



Anatomical Terms

□ Terms related to movements:

- **Elevation:** moving up.
- **Depression:** moving down.
- **Opposition:** movement that brings the tip of the thumb opposite the other fingers.
- **Protraction:** moving forwards.
- **Retraction:** moving backwards.



- **Circumduction:** combination in sequence of the movements of flexion, extension, abduction, and adduction.

References

- Richard S. Snell, Clinical Anatomy by Regions, 9th ed., 2012. Lippincott Williams & Wilkins, Pages 28-32.

Study Hard



Thank

You!

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