



Anatomy & Embryology

Lecture 1: Introduction to Human Anatomy

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Human Anatomy & Embryology



المادة تدرس وجاهايا في قاعة صيدلة 101 و يوجد مجموعة للطلبة منصة مايكروسوفت تيمز
(Microsoft Teams)

Dr. Jihad Alzyoud

Dr. Heba Ali

Faculty of Dentistry

Department of Basic Dental Science

**Andreas Vesalius
1514-64“**

أندرياس فيزاليوس

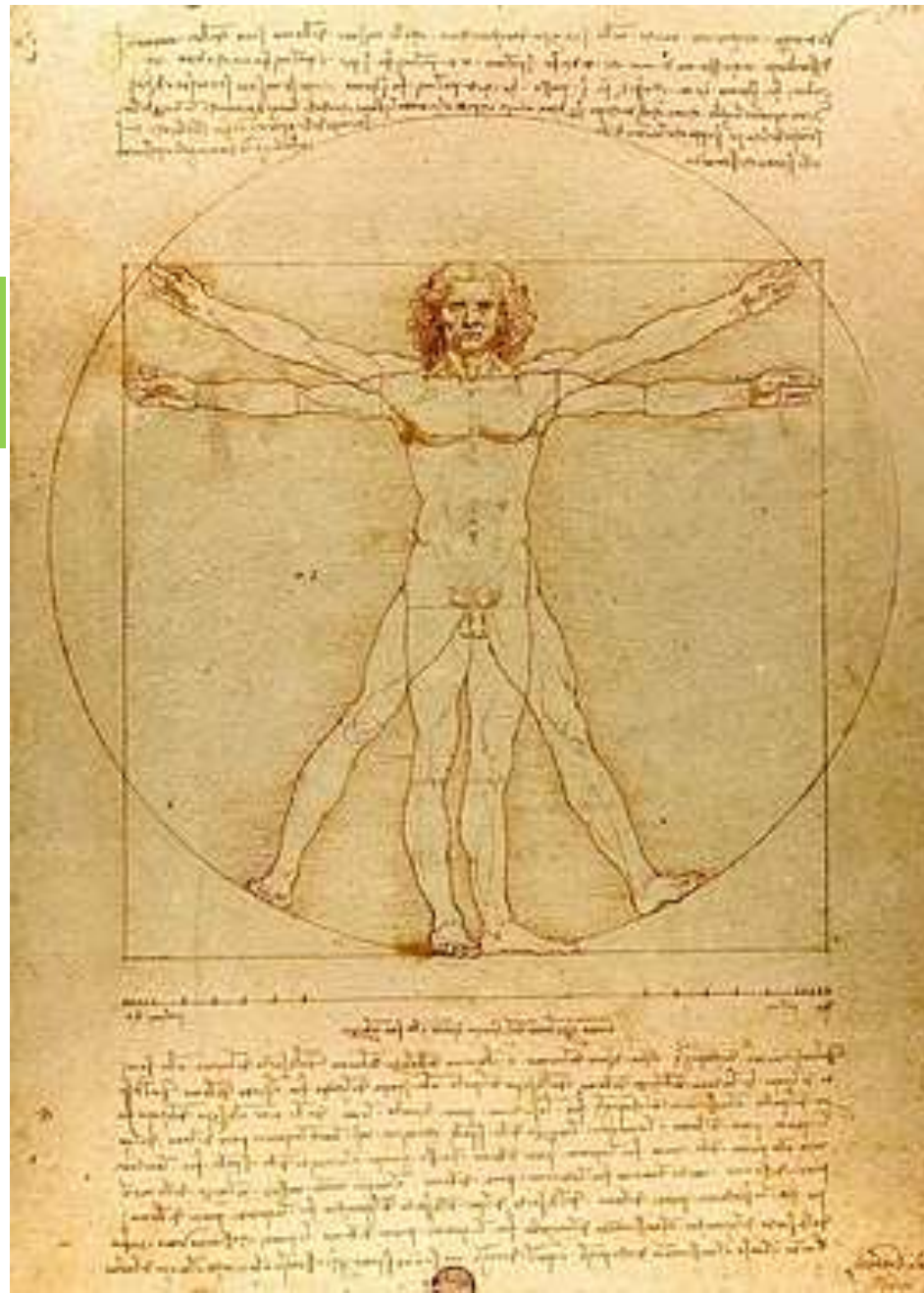
*“On the Fabric of the
Human Body”*



**Leonardo da Vinci 1519 –
1452**

Vitruvian Man

الرجل الفيتروفي

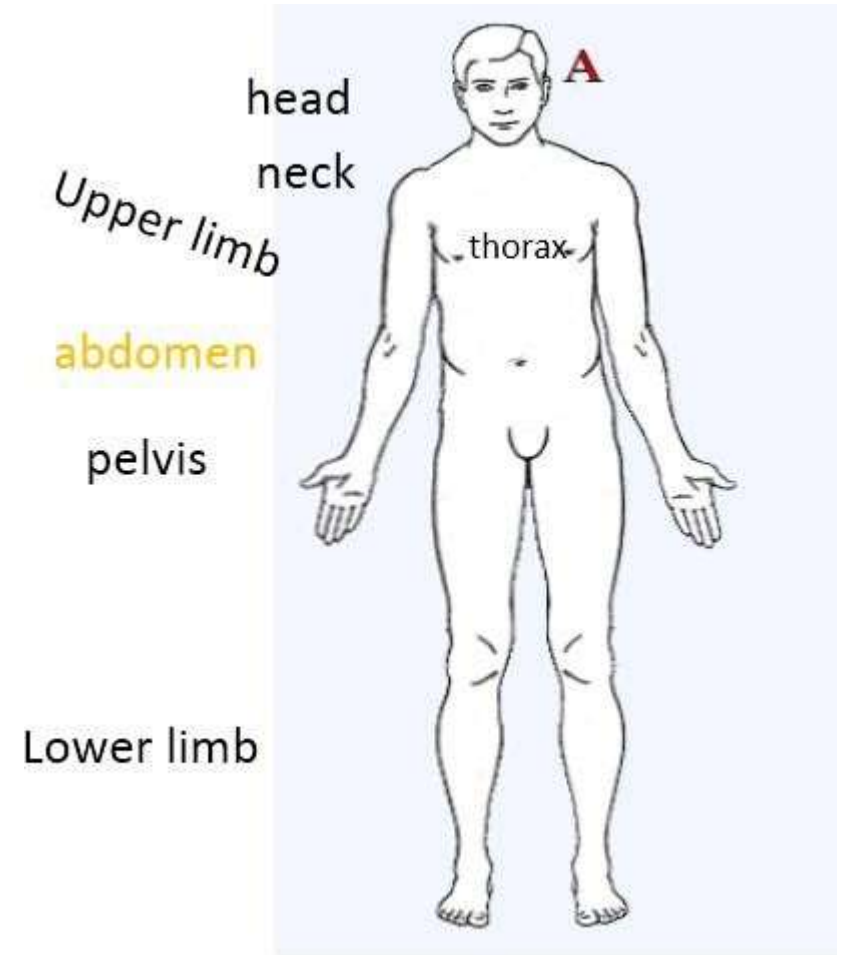


Anatomy

- * **Definition:** anatome = up (ana) + cutting (tome).
- * **Descriptive anatomy:** **Regional or Systemic.**
 - * **Regional Anatomy** : parts of body e.g. head, neck, thorax, abdomen, upper limb & lower limb.
 - * **Systemic Anatomy**: e.g. cardiovascular system, respiratory system, urinary system, etc.
- * **Developmental Anatomy (Embryology).**
- * **Applied Anatomy (clinical).**
- * **Radiological Anatomy.**
- * **Surface Anatomy.**

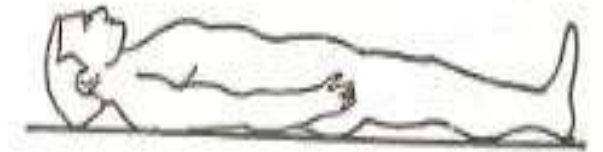
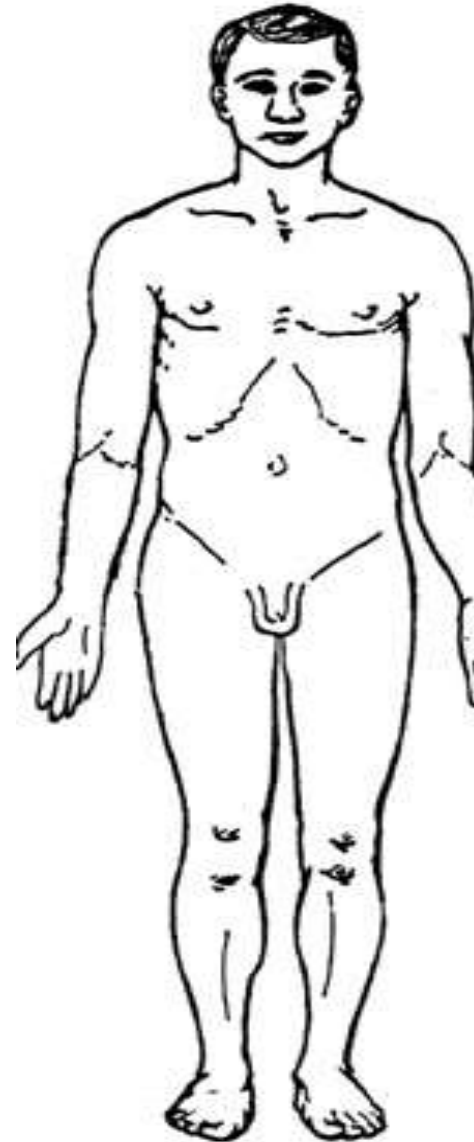
Body Regions

1. Head and Neck.
2. Abdomen & Pelvis.
3. Lower limb.
4. Upper limb.
5. Thorax.
6. Brain & spinal cord (Neuroanatomy).



Anatomical Position

- **Body erect (person standing).**
- **Face directed forward.**
- **Limbs at sides of body.**
- **Legs & feet close together.**
- **Palms directed forward.**



supine

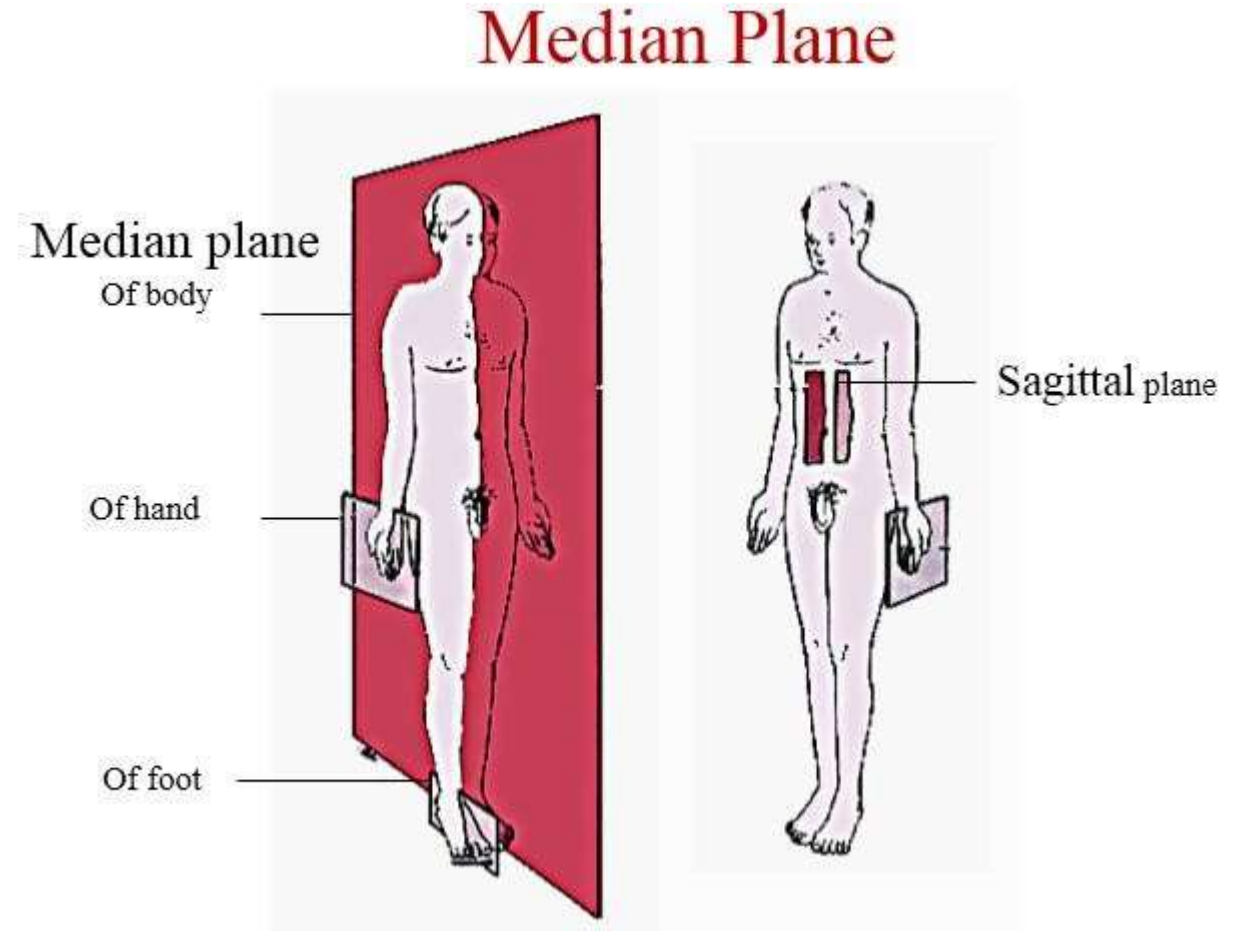


prone

Anatomical Planes

*** Median (midsagittal) plane** = vertical in midline, divides body into right & left equal parts.

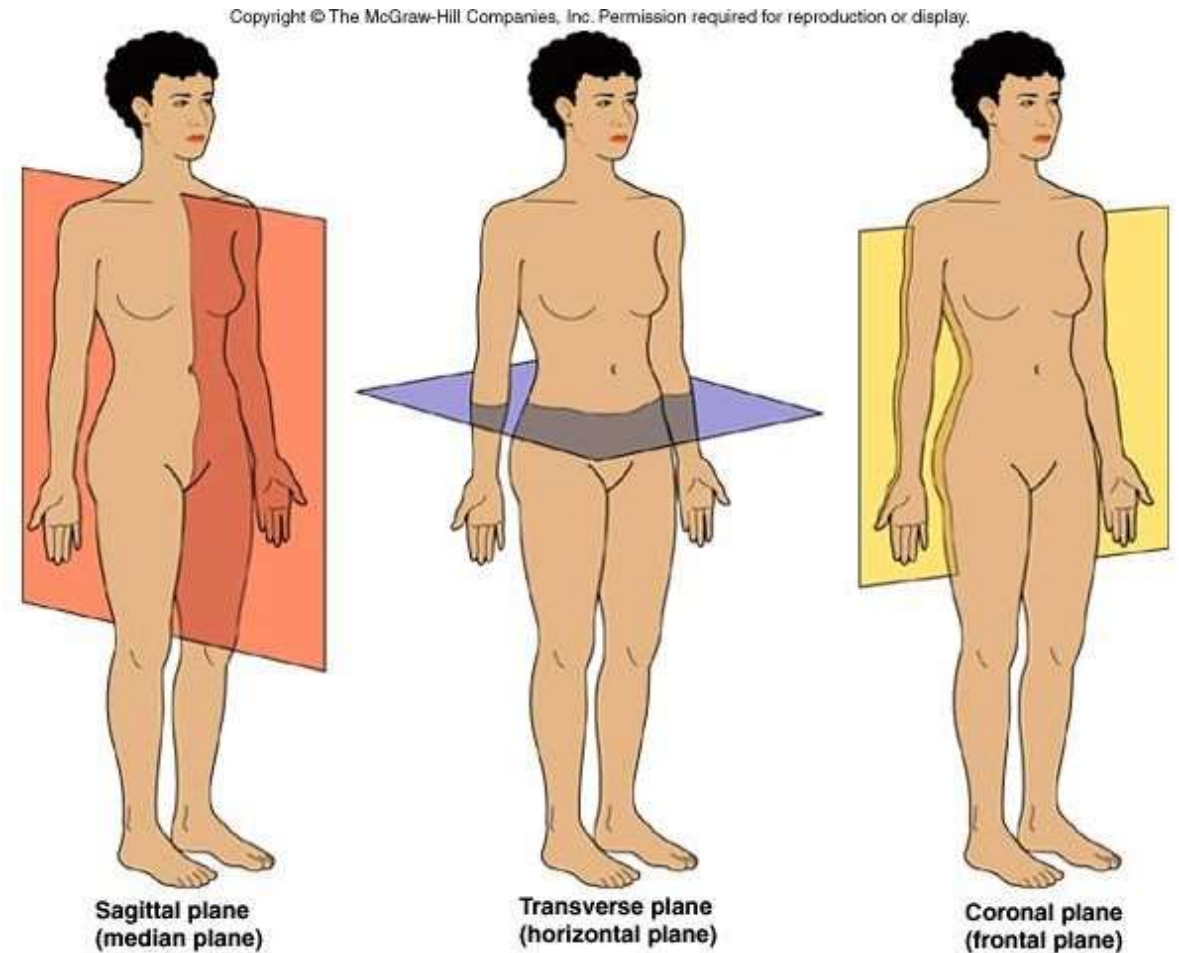
**** Parasagittal** = vertical, parallel to median.



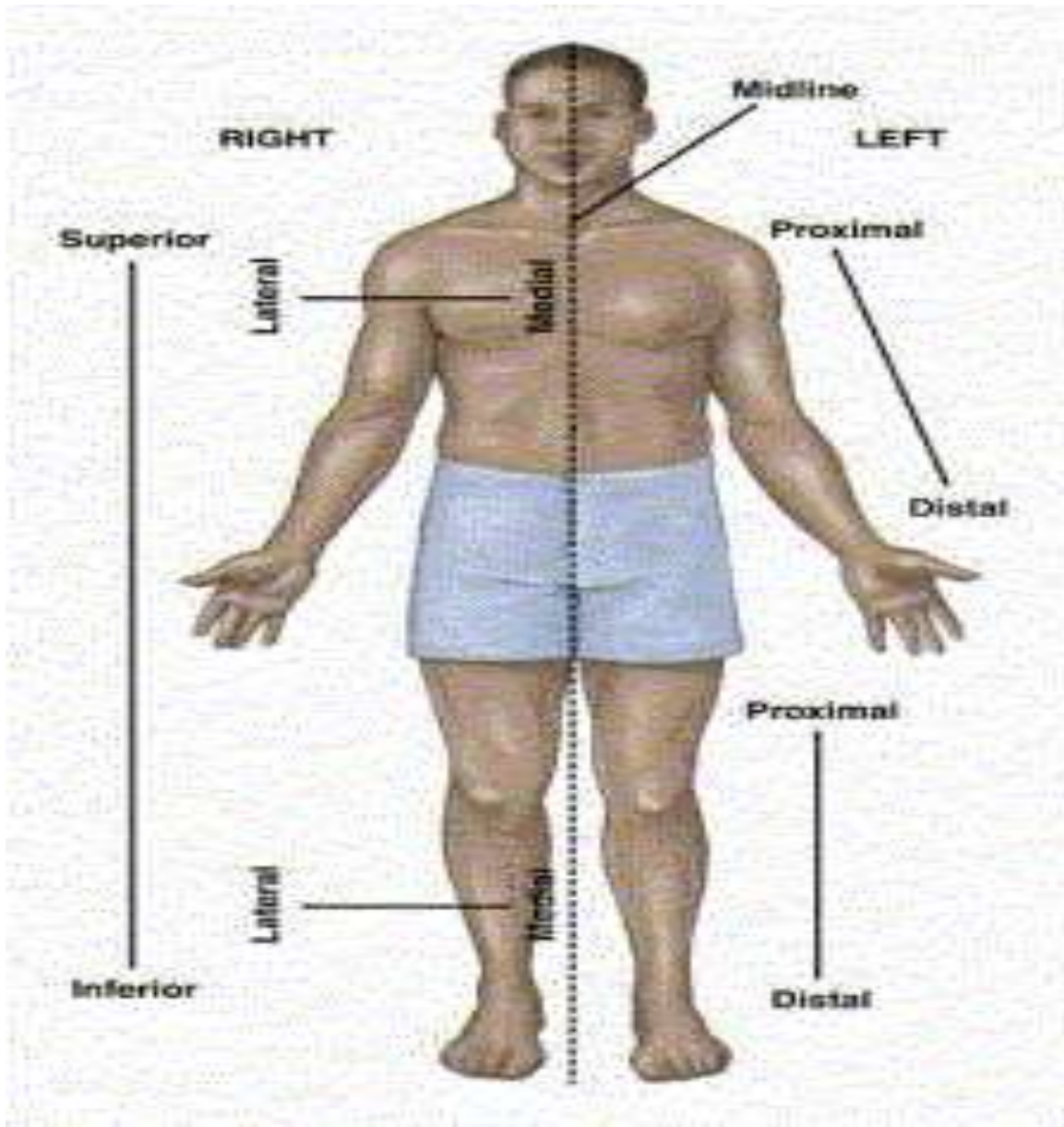
Anatomical Planes

* **Coronal plane** = vertical, perpendicular to median, divides body into anterior & posterior parts.

* **Horizontal (transverse)** = perpendicular to median & coronal planes divides body into upper & lower parts.

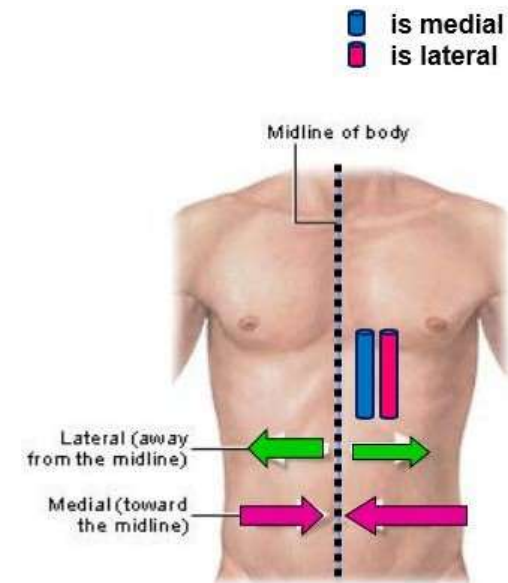


Anatomical Terms



1. Medial & Lateral:

- * Medial = closer to median plane.
- * Lateral = away from median plane.



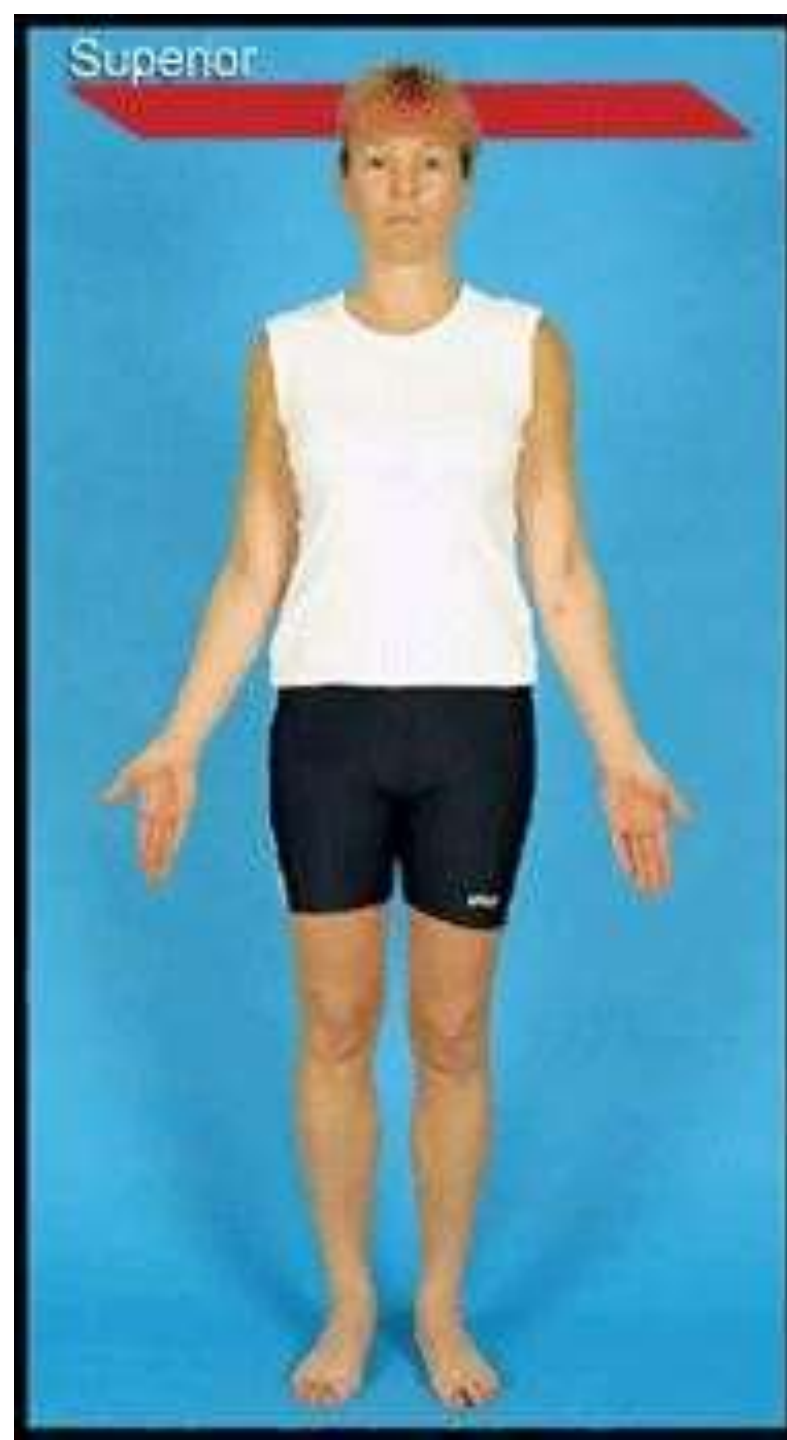
2. Anterior & posterior:

- **Anterior or Ventral** → towards the front of the body
- **Posterior or dorsal** → towards the back of the body
- **Anterior surface of hand** → palmar surface
- **Posterior surface of hand** → dorsal surface
- **Upper surface of foot** → dorsal surface
- **Lower surface of foot** → plantar surface



3. Superior & inferior:

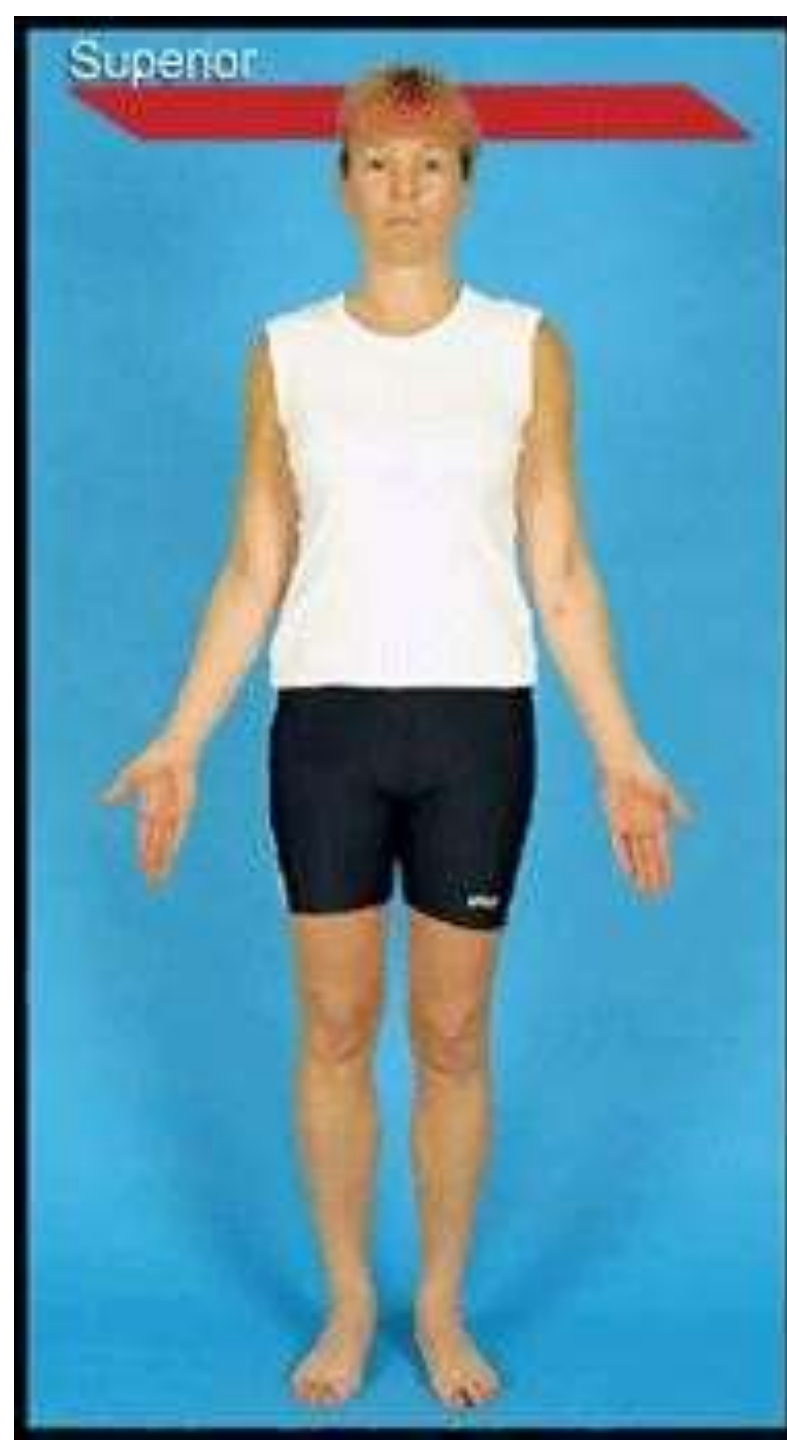
- * **Superior (cephalic or cranial) = towards head.**
- * **Inferior (caudal) = towards feet.**



4. Proximal & Distal:

***Proximal →
closer to trunk.**

***Distal → away
from trunk.**

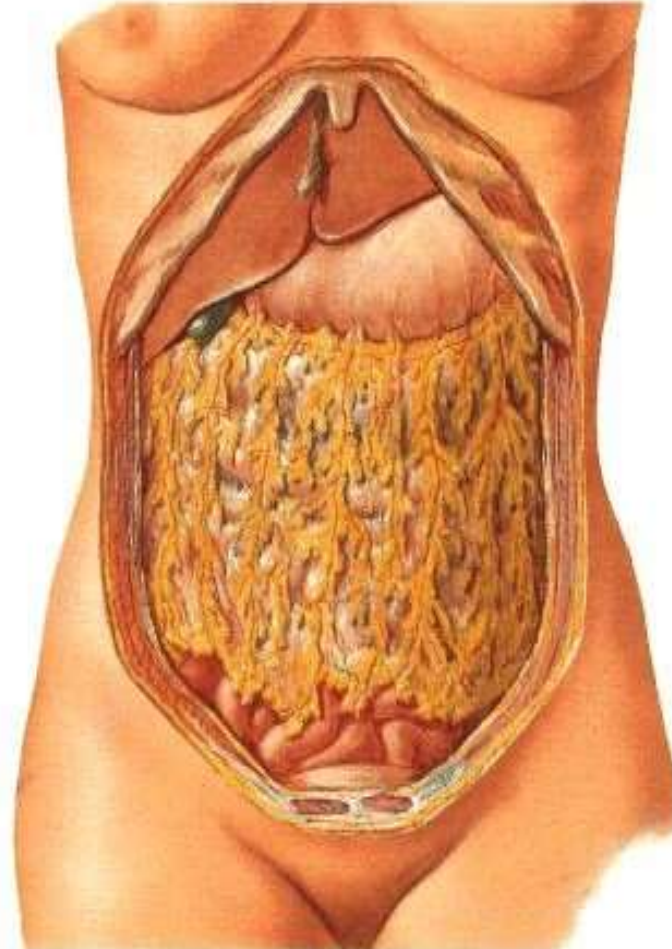


5. Superficial &

Deep:

***Superficial →
towards surface of
body.**

***Deep → away from
surface of body.**



Anatomical Terms

- * **Medial** = closer to median plane.
- * **Lateral** = away from median plane.
- * **Anterior (ventral)** = towards front of body.
- * **Posterior (dorsal)** = towards back of body.
- * **Superior (cephalic or cranial)** = towards head
- * **Inferior (caudal)** = towards feet.
- * **Superficial** = towards surface of body.
- * **Deep** = towards center of body.
- * **Proximal** = nearer origin.
- * **Distal** = further from origin.

***External (outer):** means towards the surface and applies to the hollow-out structure.

***Internal (inner):** means towards the cavity of a hollow-out structure.

*** Central:** means towards the center of the body.

***Peripheral:** means away from the center of the body.

*** Ipsilateral:** means of the same side of the body.

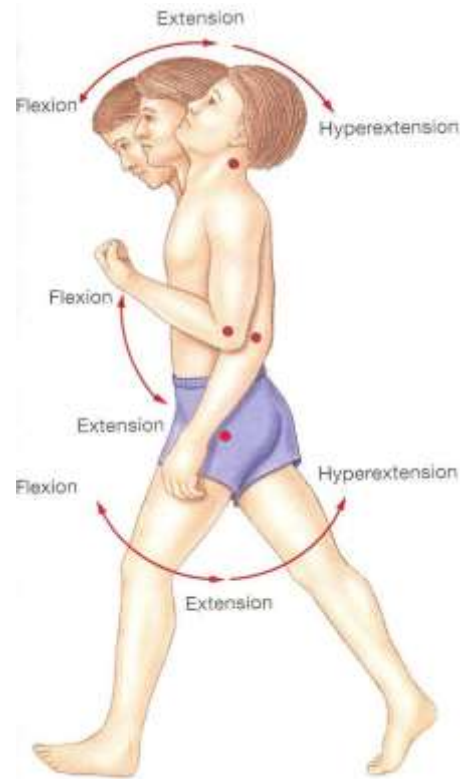
***Contralateral :** means of the opposite side of the body.

Specific terms for the limbs :

- **In the forearm :** radial = lateral & ulnar = medial.
- **In the hand :** palmar = anterior & dorsal = posterior.
- **In the leg:** fibular = lateral & tibial = medial.
- **In the foot:** plantar = inferior & dorsal = superior.

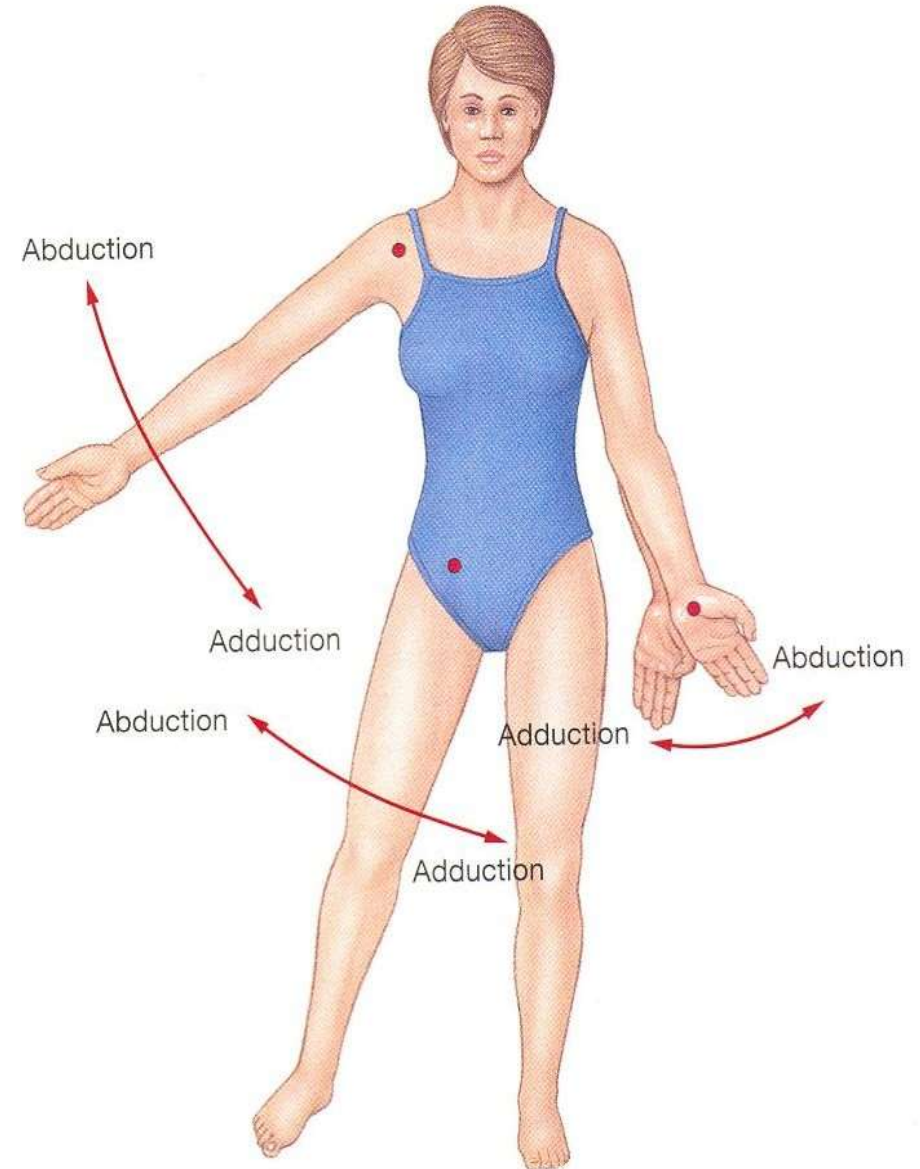
Anatomical Terms of Movements

- **Flexion** → to bend = angle = approximation of 2 ventral surfaces
- **Extension** → to stretch = straighten = approximation of 2 dorsal surfaces.

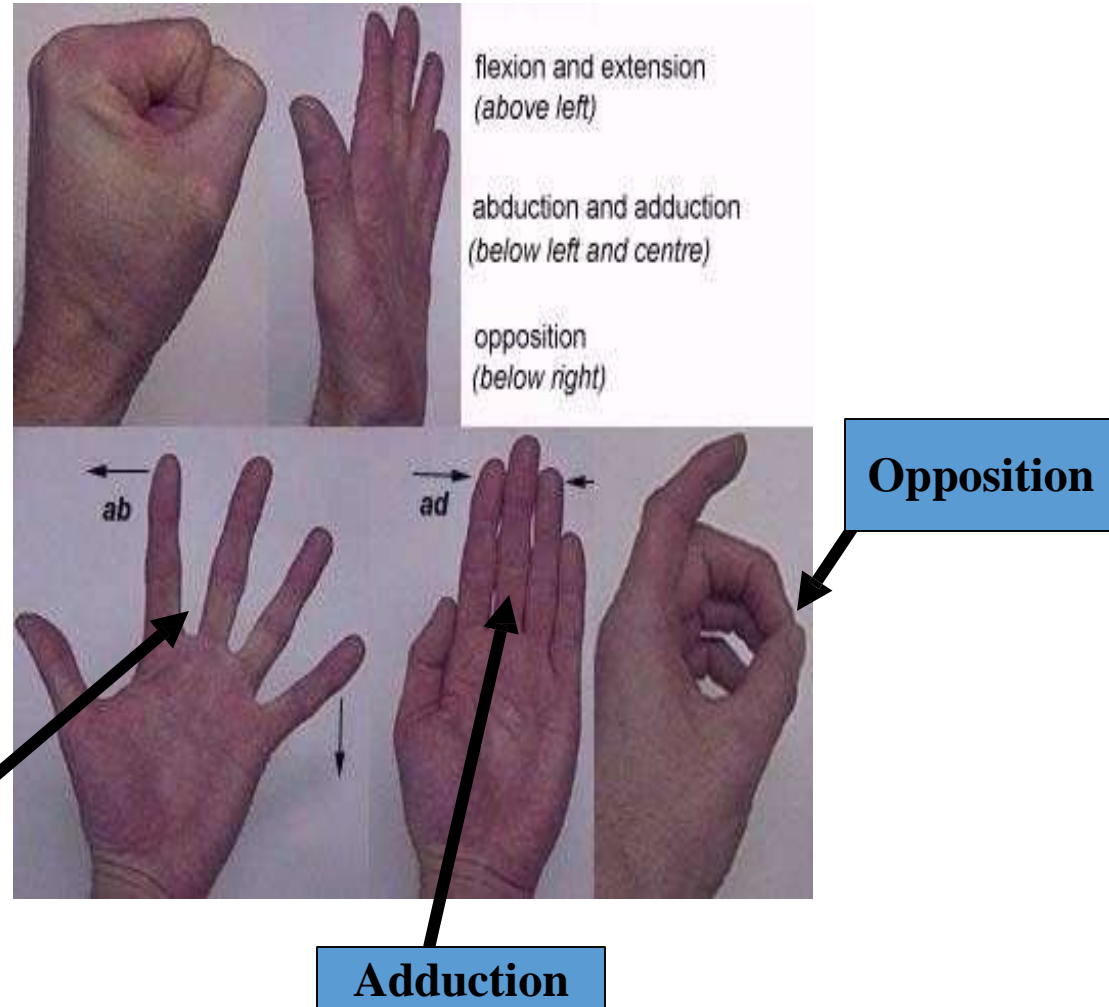


• **Abduction** →
moving a part
away from
midline.

• **Adduction** →
moving a part
towards the
midline.



- **Abduction of fingers & toes** → spreading of fingers or toes apart.
- **Adduction of fingers & toes** → drawing or approximating fingers or toes together.

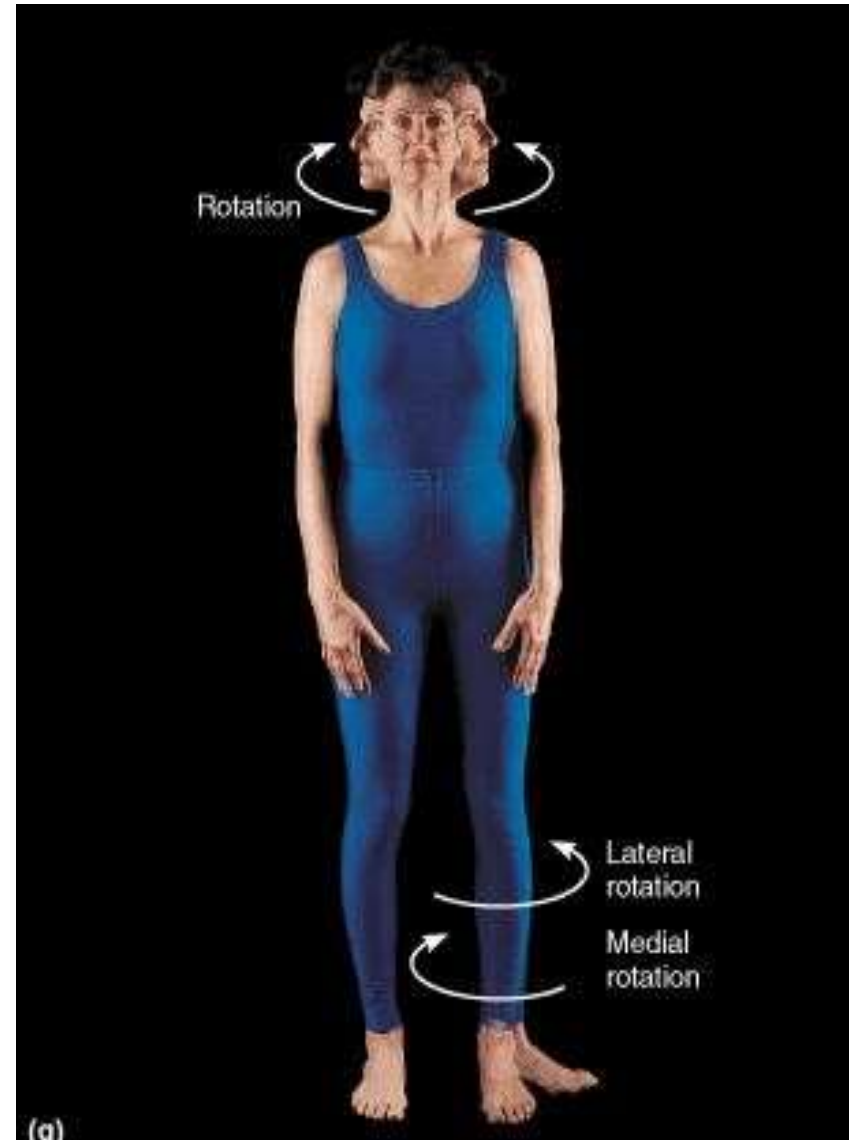


- **Opposition:**
- **Circumduction** →
the combination
in sequence of
movements of
flexion, abduction,
extension &
adduction.

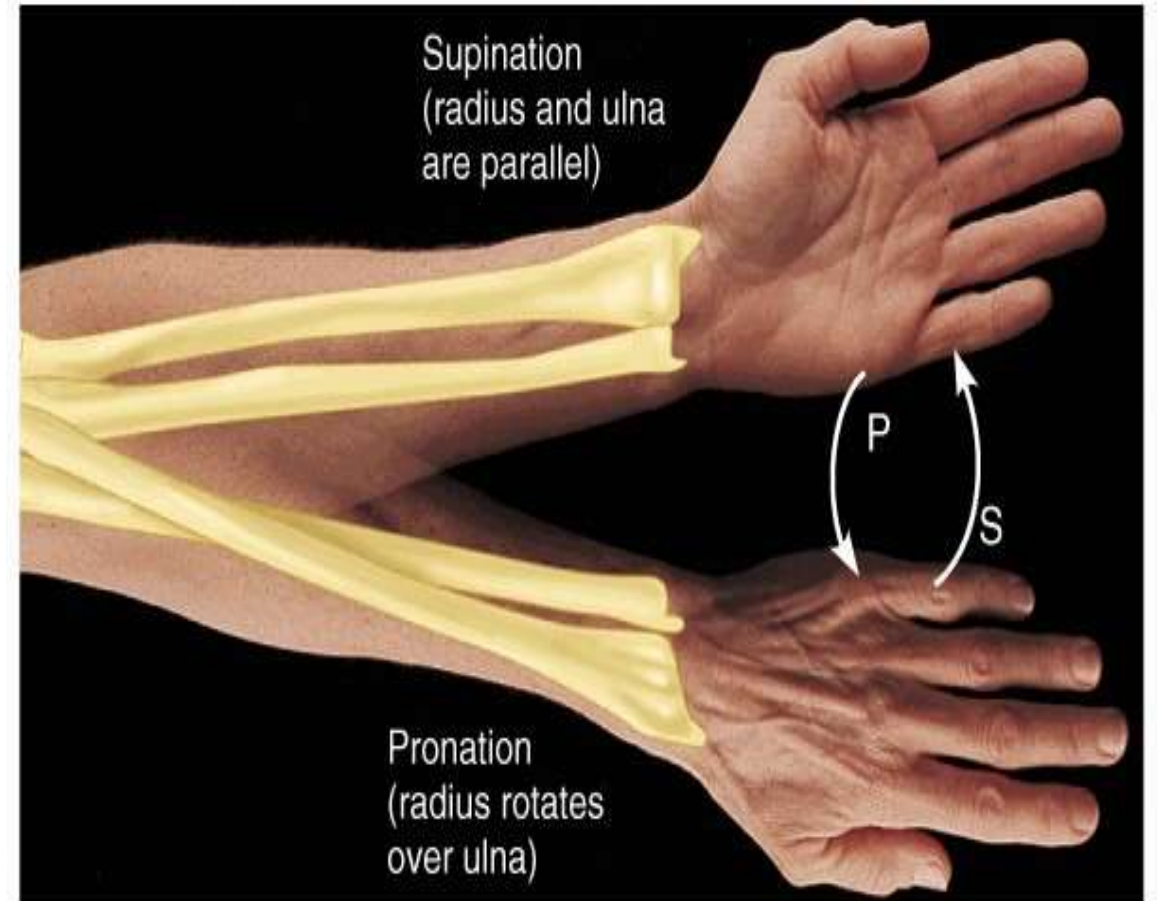


- **Medial rotation** →
brings anterior surface
to face medially

- **Lateral rotation** →
brings anterior surface
to face laterally

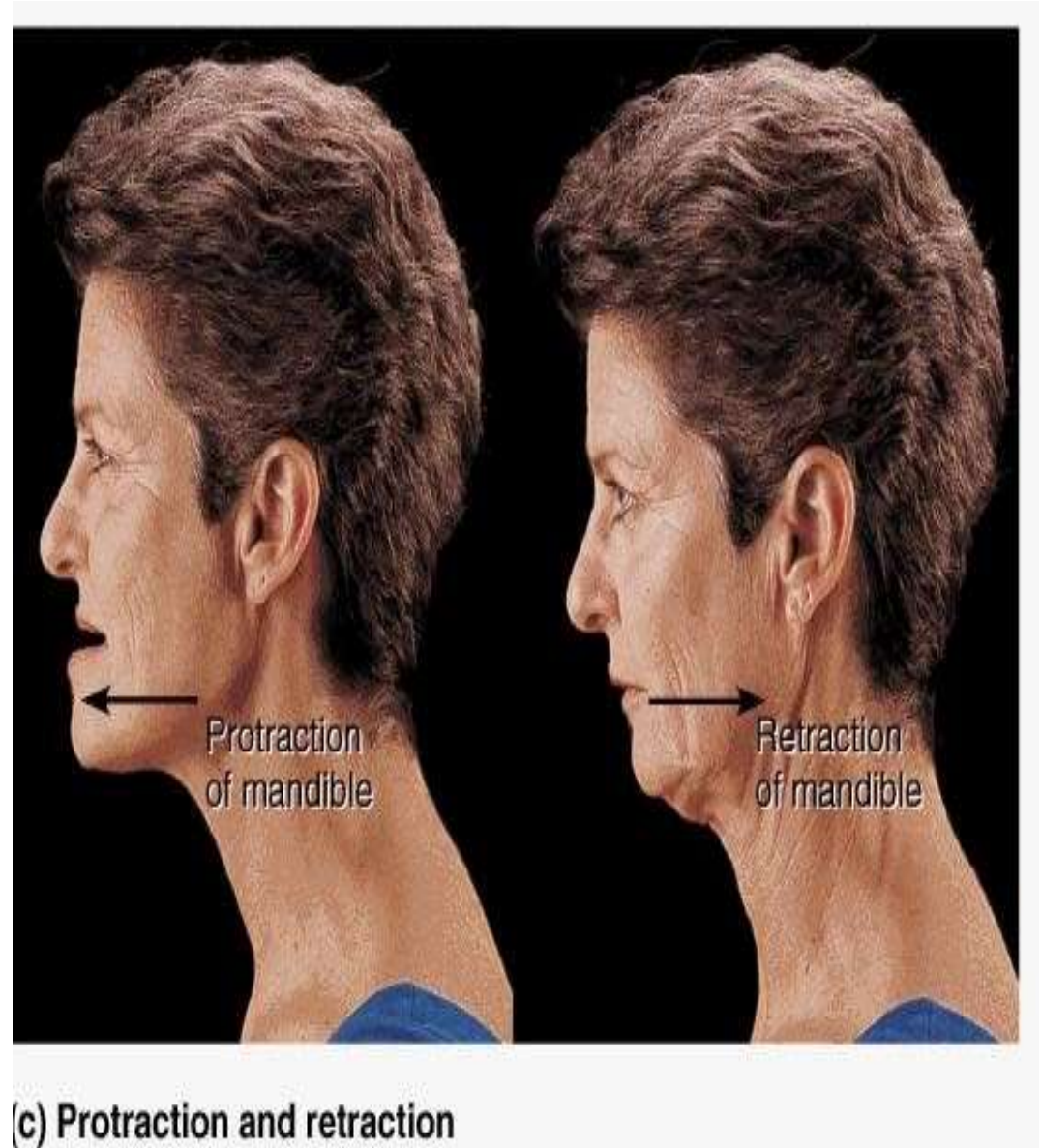


- **Pronation** → medial rotation of forearm which brings palm of hand to face posteriorly
- **Supination** → lateral rotation of forearm which brings palm of hand to face anteriorly



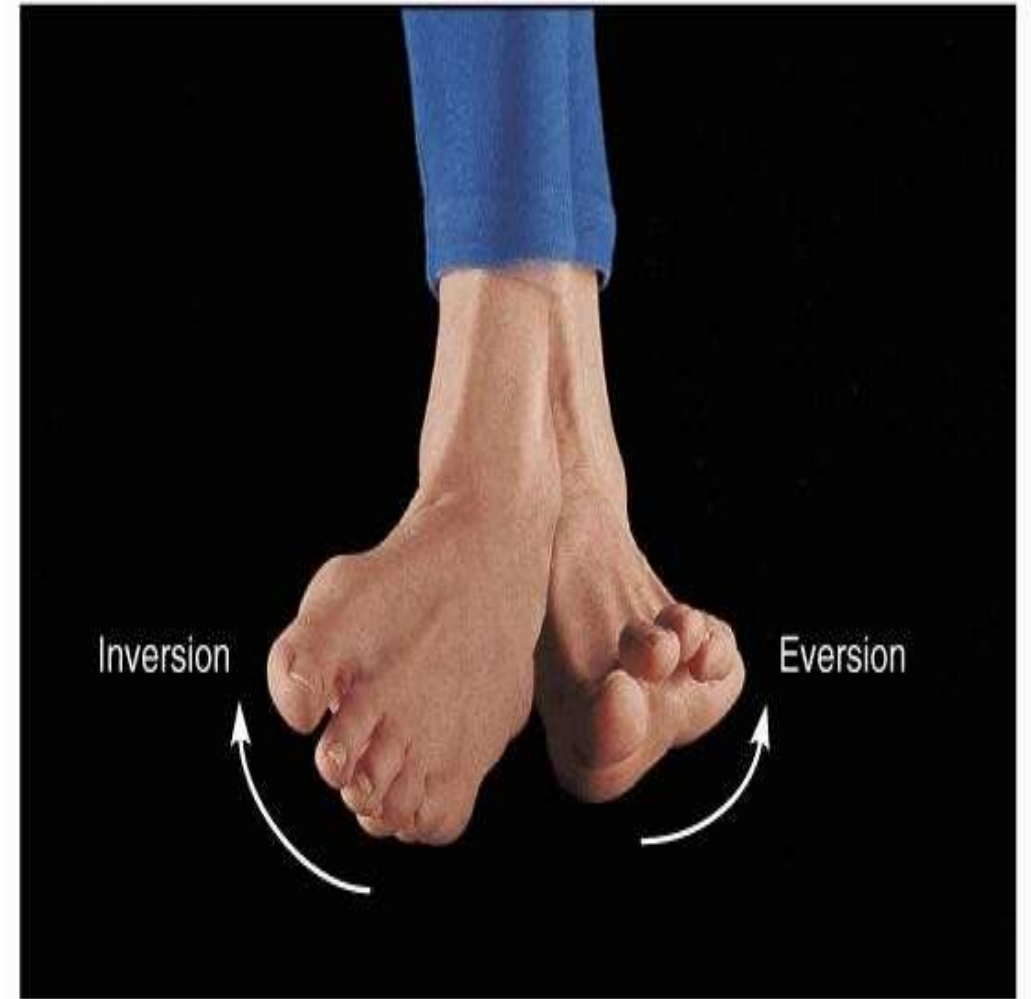
(a) Supination (S) and pronation (P)

- **Protraction** → moving the jaw forwards.
- **Retraction** → moving the jaw backwards.
- **Protraction & retraction can also occur at the shoulders.**



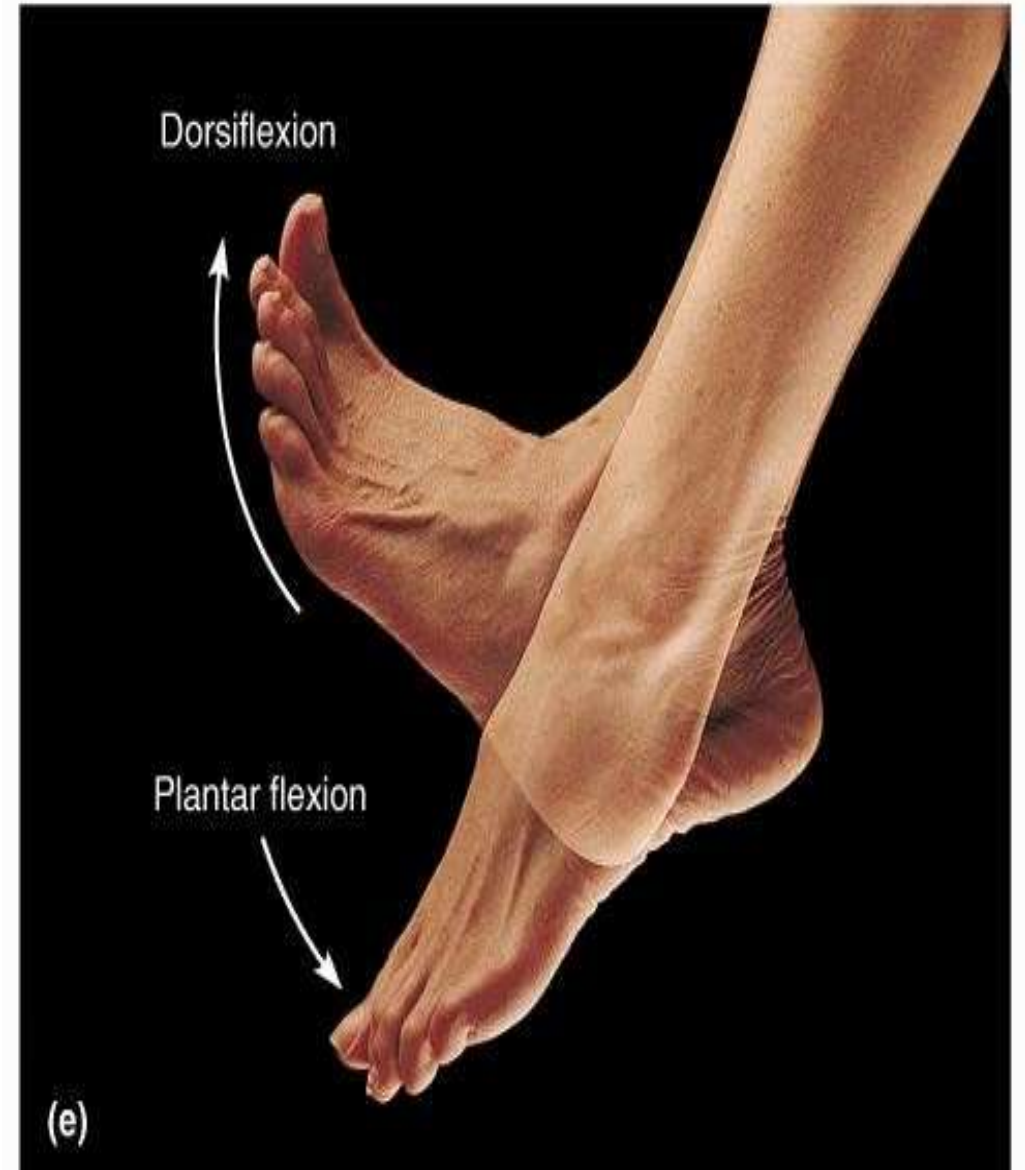
• **Inversion** → moving foot so that sole faces medially.

• **Eversion** → moving foot so that sole faces laterally.



(b) Inversion and eversion

- **Dorsiflexion** → bending foot or ankle upwards.
- **Plantar flexion** → bending foot or ankle downwards.

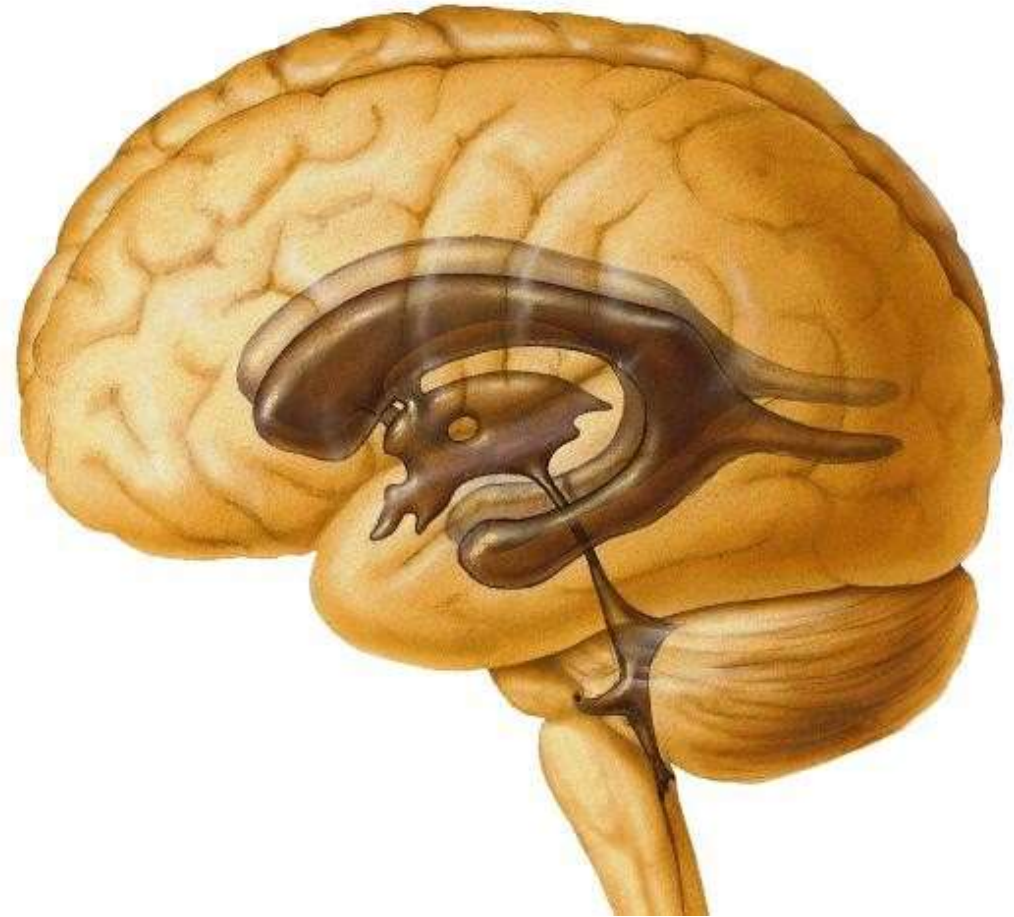


Body Cavities

1. Cranial Cavity

***The cavity
inside the skull.**

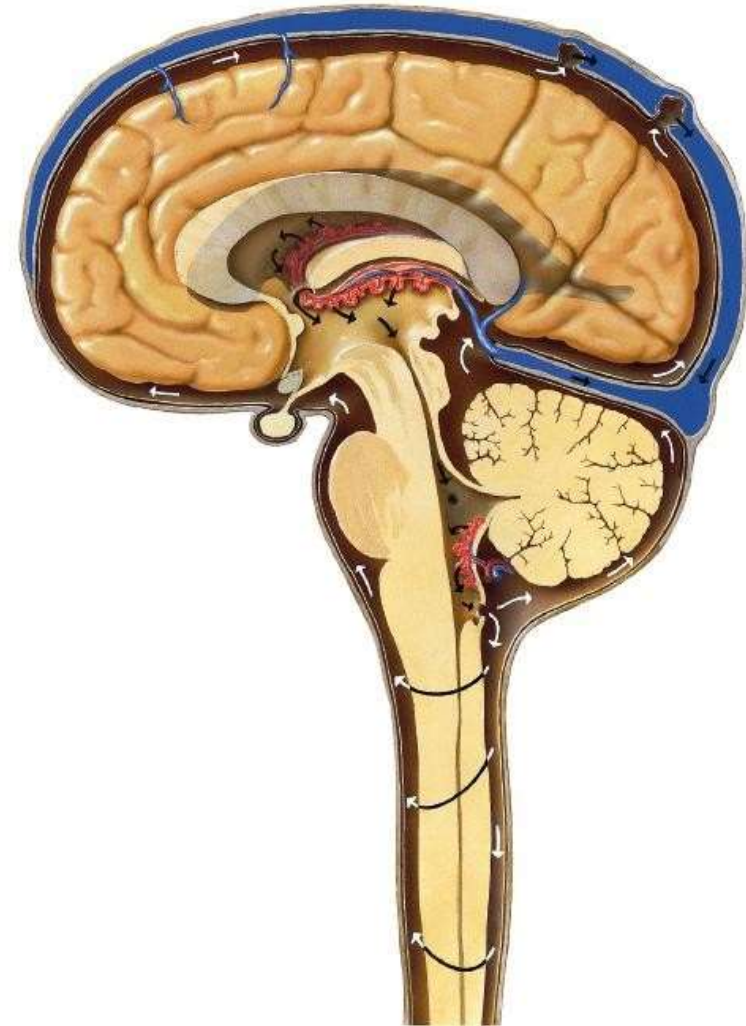
***Contains the
brain.**



2. Vertebral Cavity

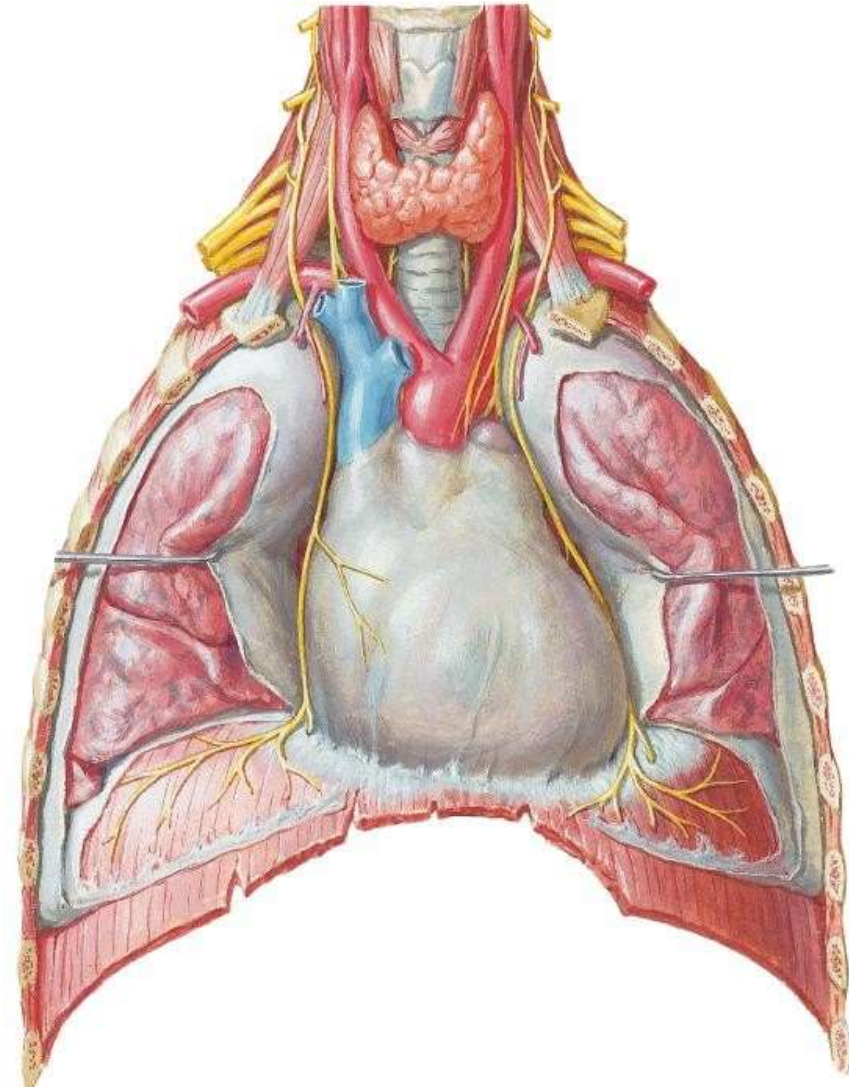
***The cavity of the vertebral column.**

***Contains the spinal cord.**



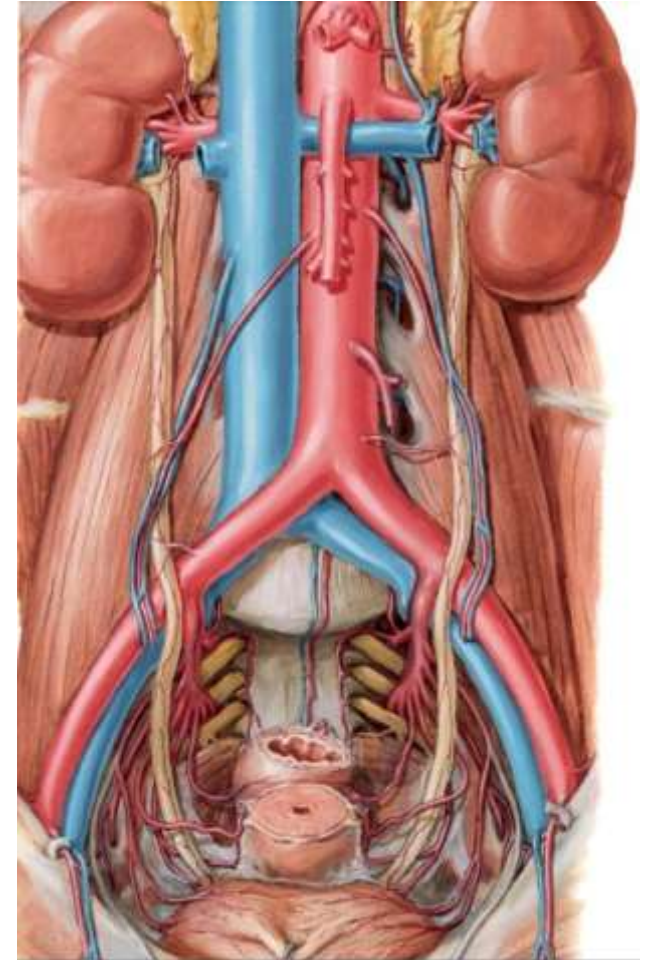
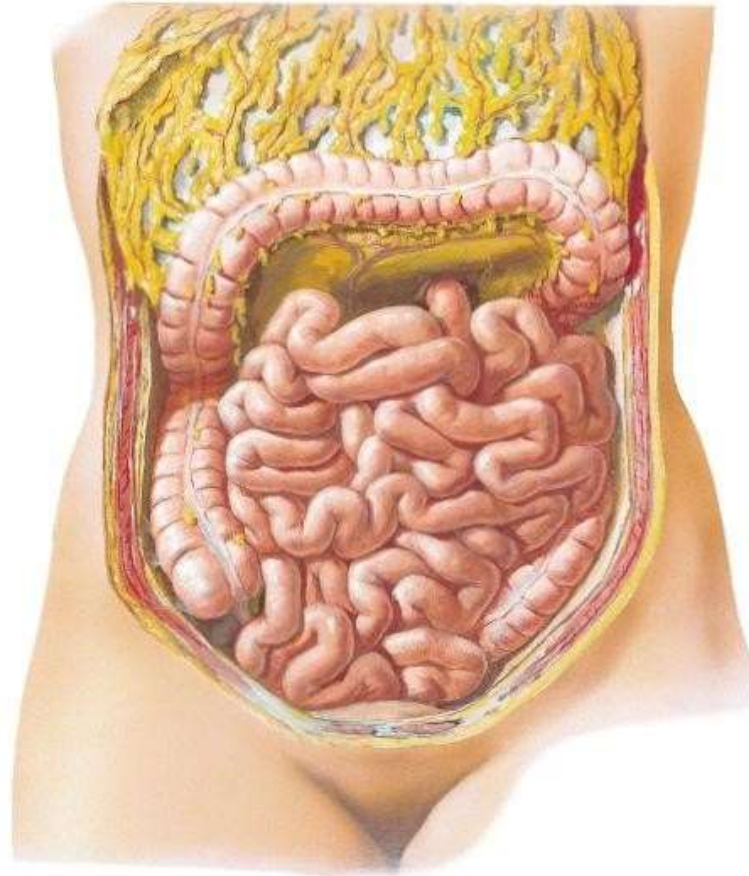
3. Thoracic Cavity

- *Contains the heart inside the pericardial cavity.**
- *Contains the lungs inside the pleural cavities.**



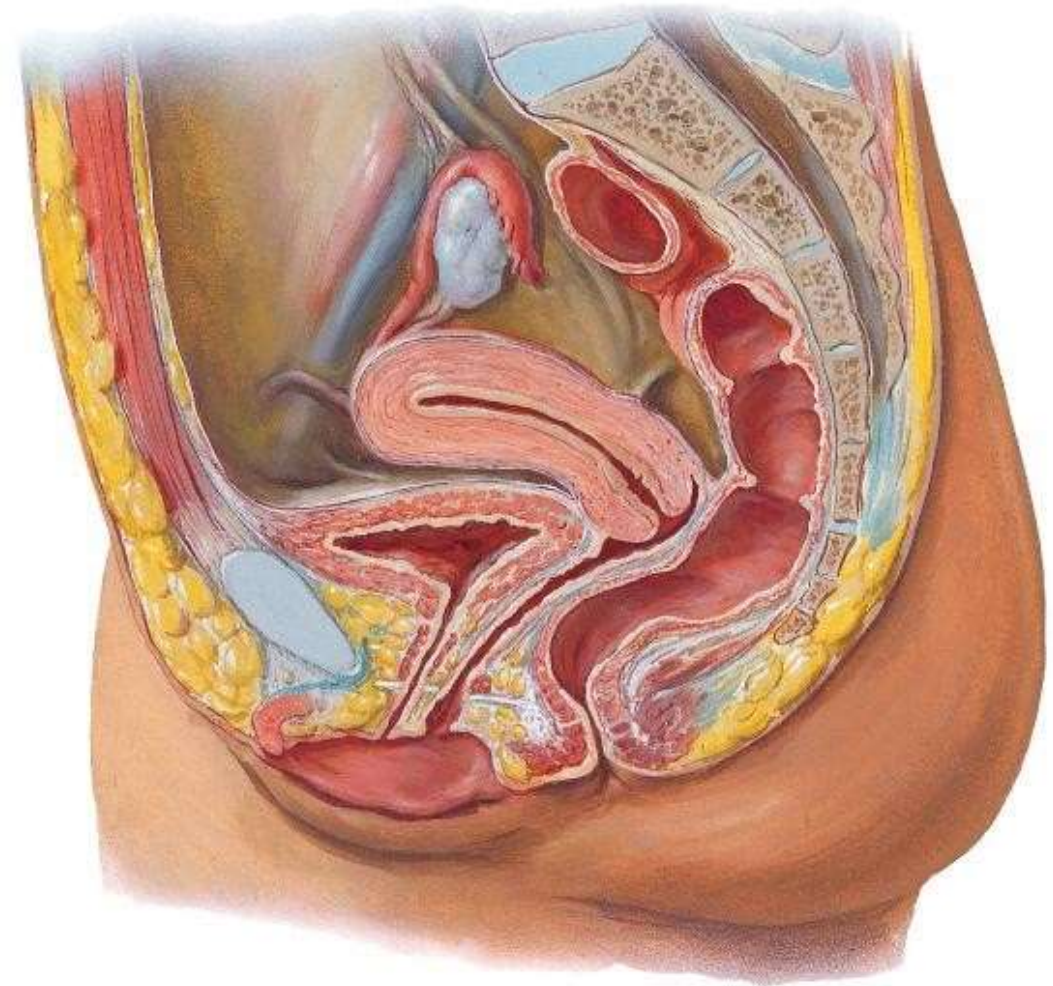
4. Abdominal Cavity

*** Contains abdominal organs such as organs of gastro-intestinal tract & kidneys.**



5. Pelvic Cavity

*** Contains pelvic organs such as urinary bladder, rectum & uterus & ovaries (in females).**





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Lecture 2: Skeletal System

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THE SKELETON

- * It comprises cartilages, bones, ligaments & joints.**
- * The bones are rigid and heavier than cartilages.**
- * Cartilages are more flexible and lighter.**
- * The younger the age, the greater is the contribution of cartilage to the skeleton.**

*** Divisions of the skeleton:**

- 1. Exoskeleton: rudimentary in man.
It is represented by: nails &
enamel of teeth .**
- 2. Endoskeleton: about 206 bones &
is formed of:**
 - a. The axial skeleton.**
 - b. The appendicular skeleton.**

Regional classification of bones

* The human skeleton is divided into:

1. **Axial skeleton**: which includes skull, vertebral column, ribs & sternum.

2. **Appendicular skeleton**: which includes the bones of the appendages (upper & lower limbs) & their girdles (shoulder & pelvic).



Thank You
Thank You
Thank You!!!!