

Surface Anatomy & Surface Landmarks

by

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ANATOMY

- The study of structure of the body that can be seen without using a microscope.
- Anatomy forms the basis for the practice of medicine.
- Types of anatomy
 - **Microscopic anatomy** –
 - Cytology - internal structure of cells
 - Histology - study of tissues (groups of cells)
 - **Gross anatomy**
 - **Surface anatomy**
 - Regional anatomy
 - Systemic anatomy

Gross anatomy

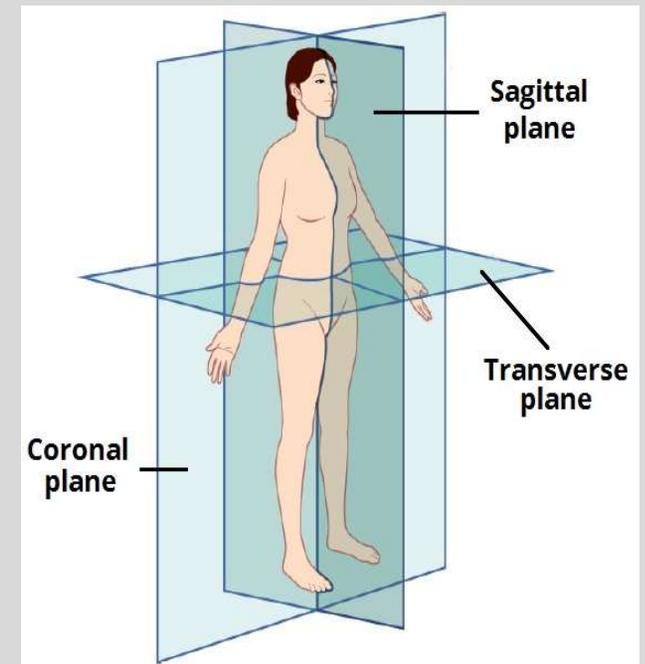
- **Surface anatomy**-anatomy that we can see at the surface of the body (everyday life)
- **Regional anatomy**-complete anatomy (internal) of a specific region of the body (learning every blood vessel, muscle, bones, etc. in the arm)
- **Systemic anatomy**- the body is divided into 11 organ systems.

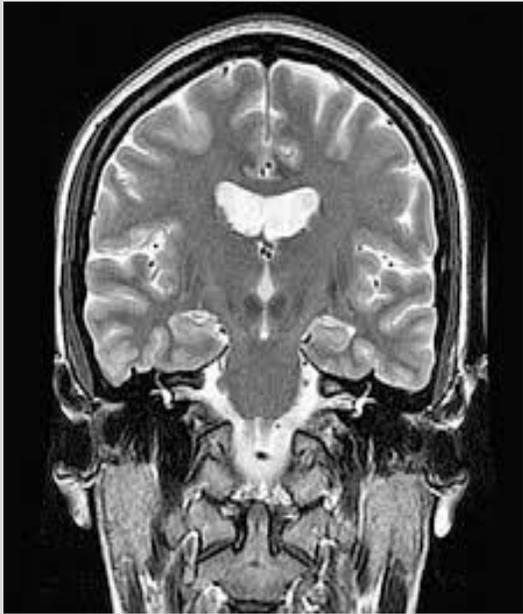
ANATOMICAL PLANES

Sagittal plane – a vertical line which divides the body into a left section and a right section.

Coronal plane – a vertical line which divides the body into a front (anterior) section and back (posterior) section.

Transverse plane – a horizontal line which divides the body into an upper (superior) section and a lower (inferior) section.

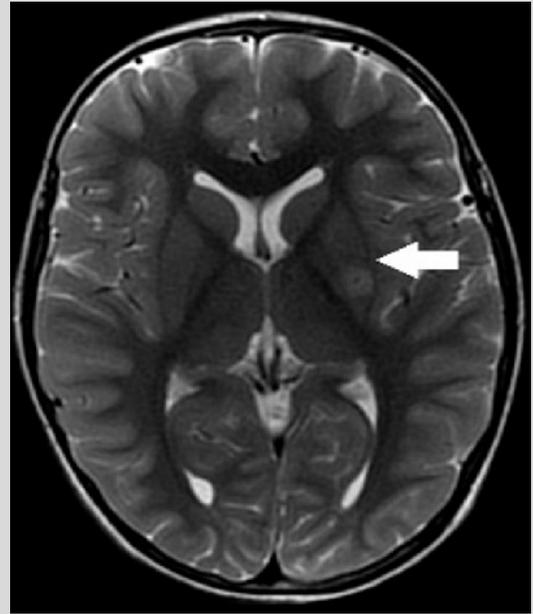




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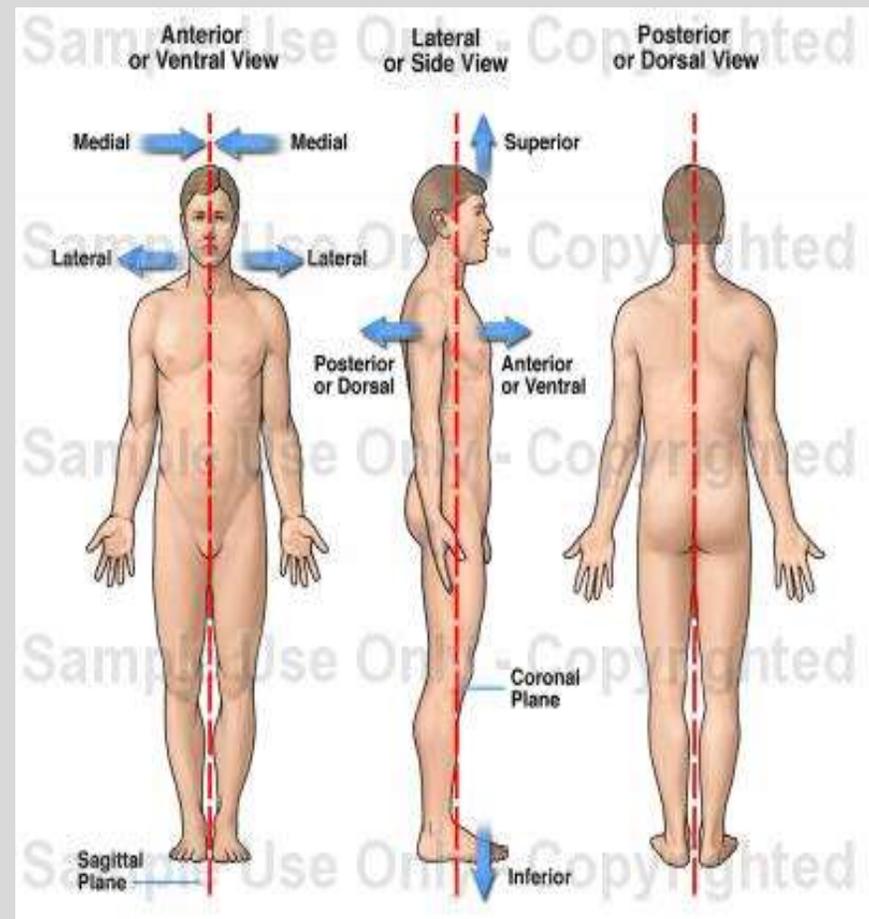
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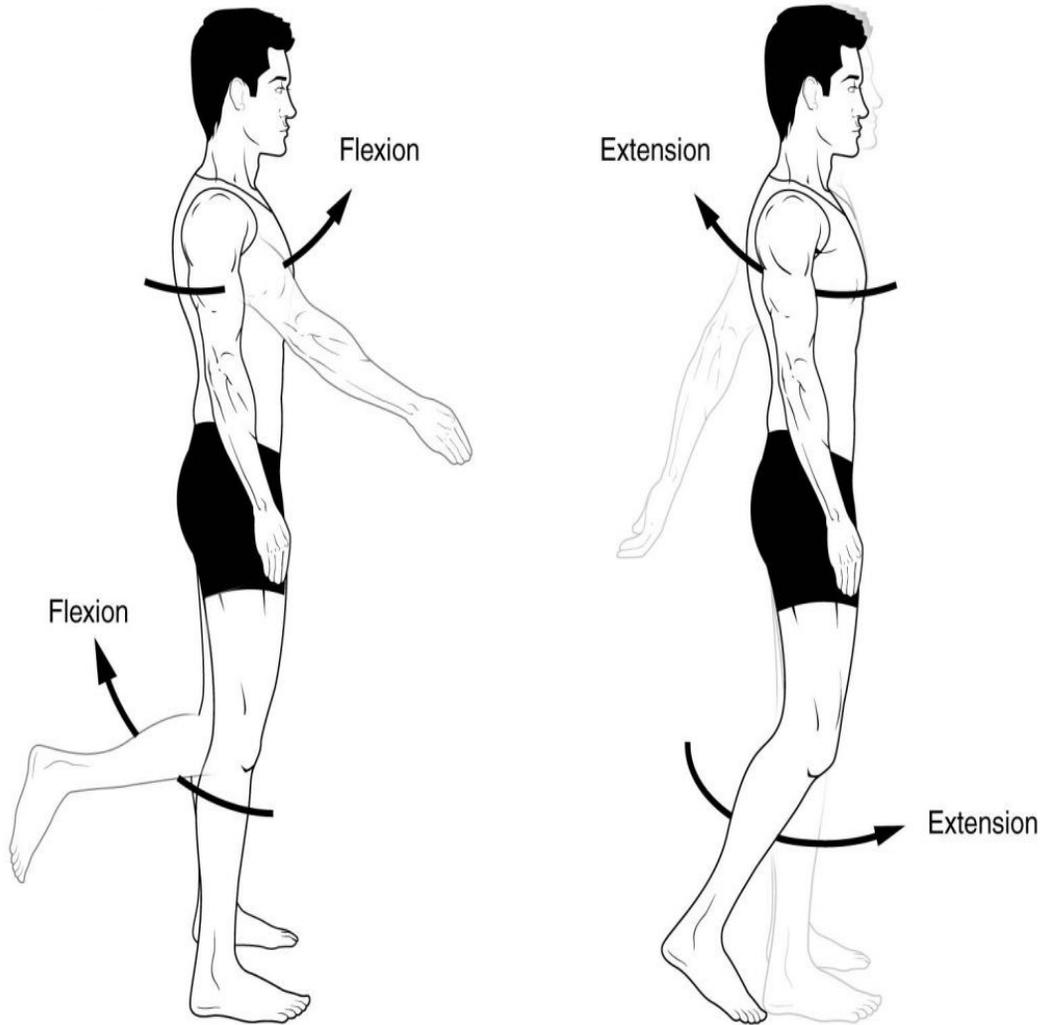


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DIRECTIONAL TERMS

- ❑ **Anterior** -In front of or front
- ❑ **Posterior**-In behind of or behind
- ❑ **Ventral** -Towards the front of the body
- ❑ **Dorsal** -Towards the back of the body
- ❑ **Distal** -Away or farthest away from the trunk or the point of origin of the body part
- ❑ **Proximal**- Closer or towards the trunk or the point of origin of the body part
- ❑ **Median**- Midline of the body
- ❑ **Medial**-Towards the median
- ❑ **Lateral**-Away from median
- ❑ **Superior**-Towards the top of the head
- ❑ **Inferior**-Towards the feet





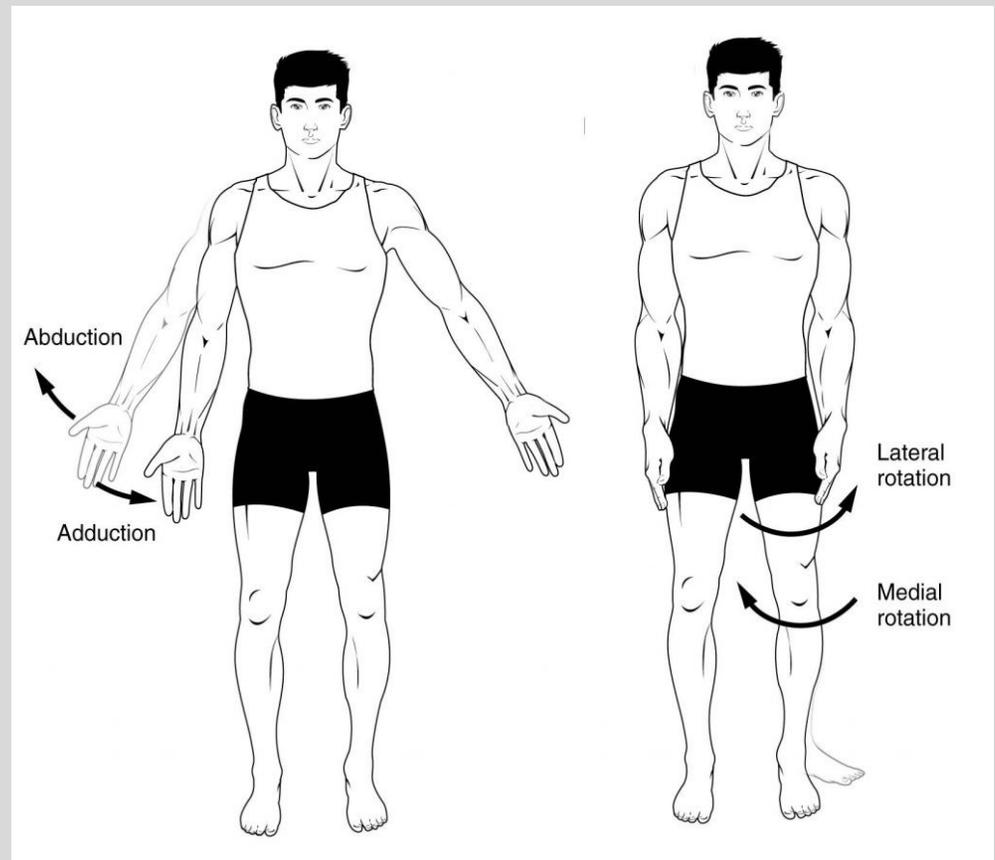
Anatomical Terms of Movement

Flexion and Extension

- Flexion and extension are movements that occur in the sagittal plane.
- **Flexion** refers to a movement that decreases the angle between two body parts.
- **Extension** refers to a movement that increases the angle between two body parts.

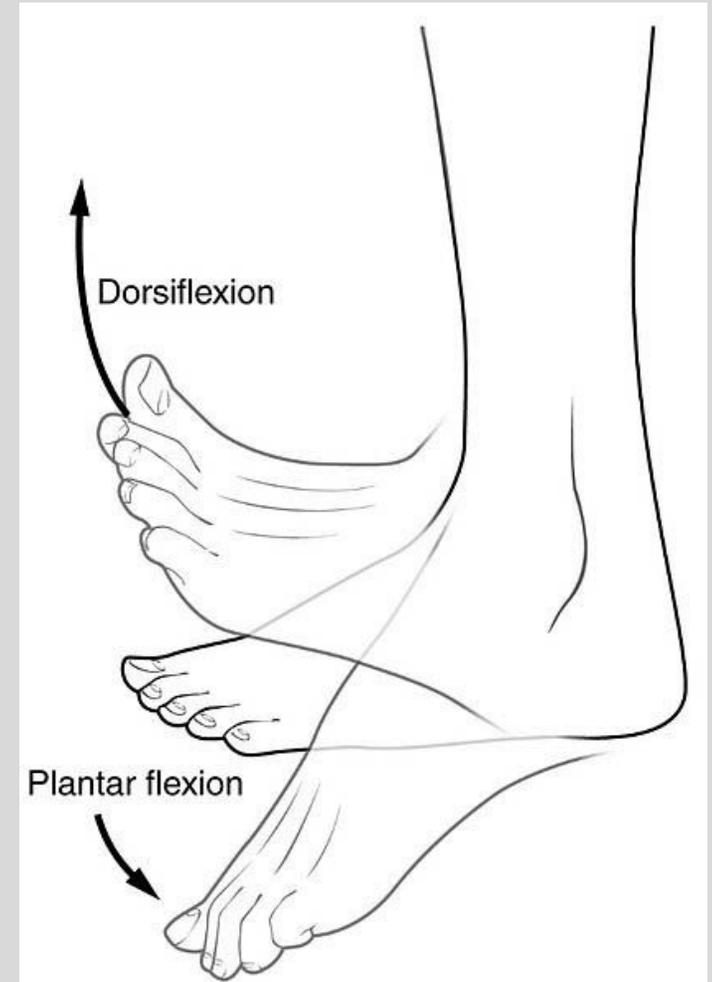
Abduction and Adduction

- Abduction and adduction are two terms that are used to describe movements towards or away from the midline of the body.
- **Abduction** is a movement away from the midline.
- **Adduction** is a movement towards the midline.



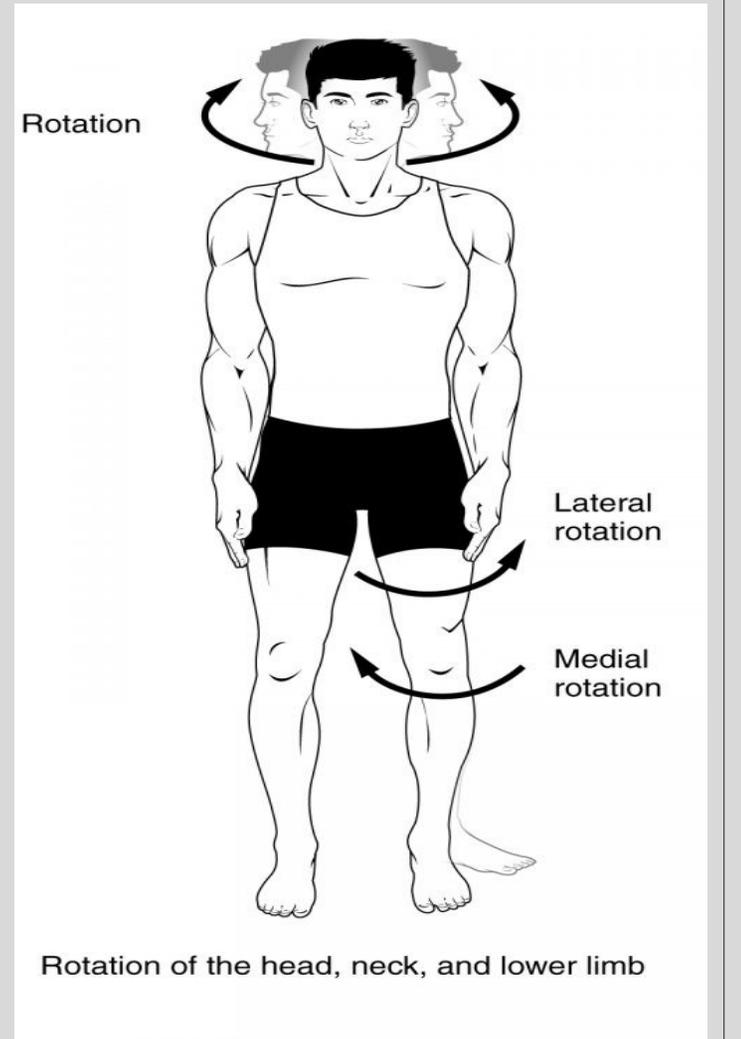
Dorsiflexion and Plantarflexion

- Dorsiflexion and plantarflexion are terms used to describe movements at the ankle.
- **Dorsiflexion** refers to flexion at the ankle, so that the foot points more superiorly.
- **Plantarflexion** refers extension at the ankle, so that the foot points inferiorly.



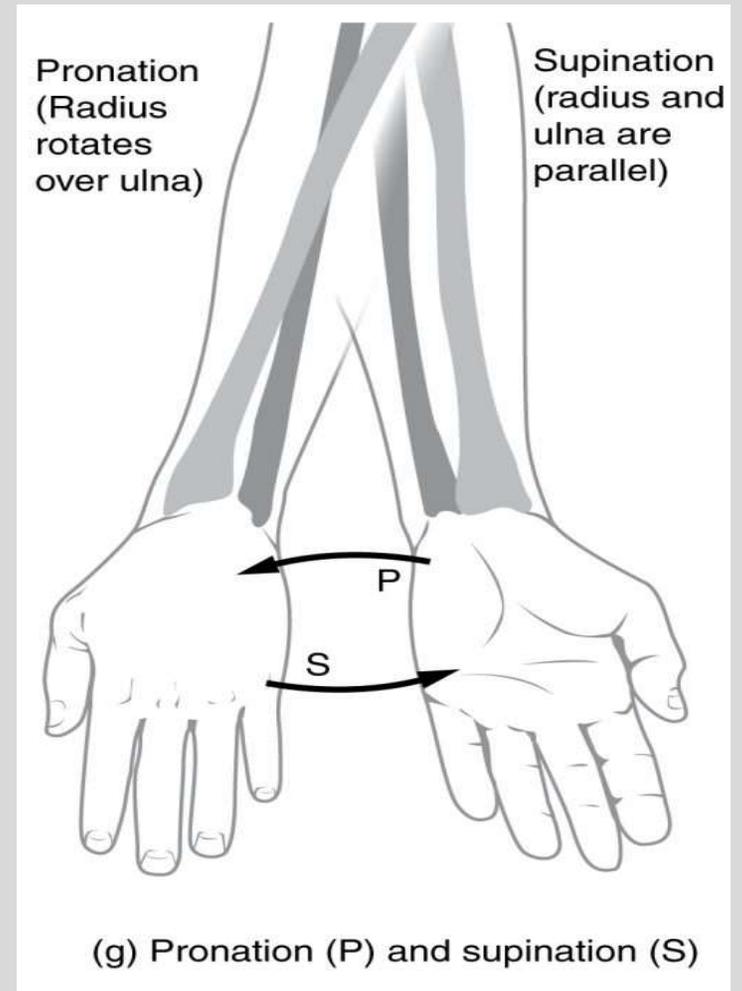
Internal and external rotation (medial and lateral rotation)

- Rotation refers to movements made about the longitudinal axis and in the transverse plane.
- Internal rotation is rotating a joint towards the midline.
- external rotation is rotating a joint away from the midline.



Pronation and supination

- **Pronation** and **supination** occur at pivot joints.
- The most important example of this is the radiohumeral joint and the union of the radius and ulna through the interosseous membrane.
- To remember pronation, think of lying prone (on your belly). Thus, pronation of the radiohumeral joint refers to the palm of the hand facing the ground.
- To remember supination, think of holding a bowl of soup. You hold a bowl of soup with your palms facing up – this is the position of supination.



RADIOGRAPHIC LANDMARKS.

1. **Nasion** : a point between both eyes , where root of the nose starts.
2. **Glabella** : A point in sagittal plane in midline, the point superior to the nasal bones, between the supraorbital ridges..
3. **External canthus** : the outer most point of lateral aspect of eyes.
4. **External auditory meatus** : the bony ring of external ear in temporal bone.
5. **vertex** : the highest point on cranial vault.
6. **Submental** : the region below the mandible.

7. Angle of mandible : the part of body of mandible, which turns upwards to join the temporal bone.

8. Median sagittal plane (MSP) : The plane of skull cutting through its center, in its longitudinal plane.

9. Inter- pupillary line (IPL) : the line joining pupils of both eyes . This is also known as **inter orbital line**.

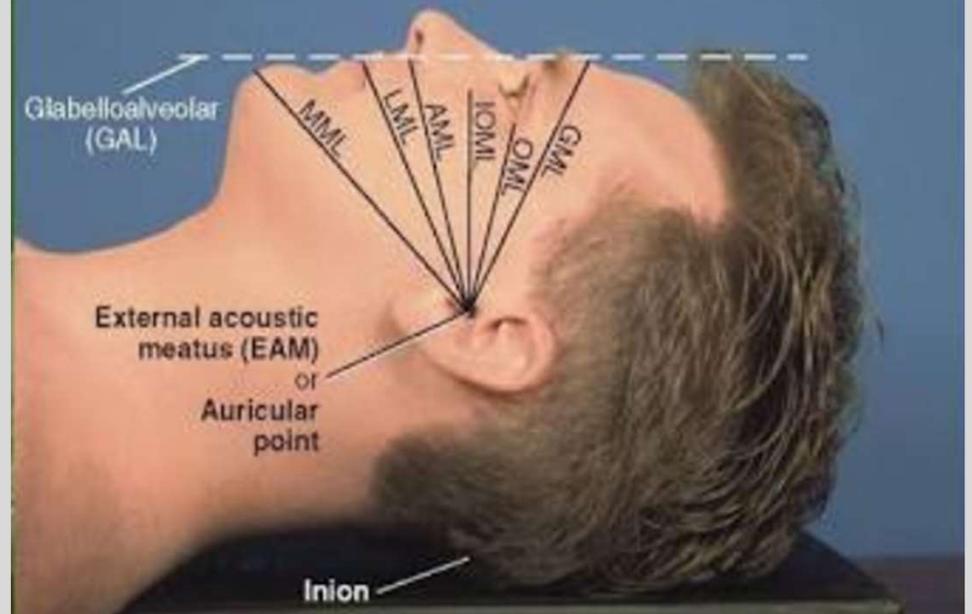
10 Radiographic base line(RBL) : the line joining External canthus of each eye to respective external auditory meatus . This is also known as **orbito meatal line**.



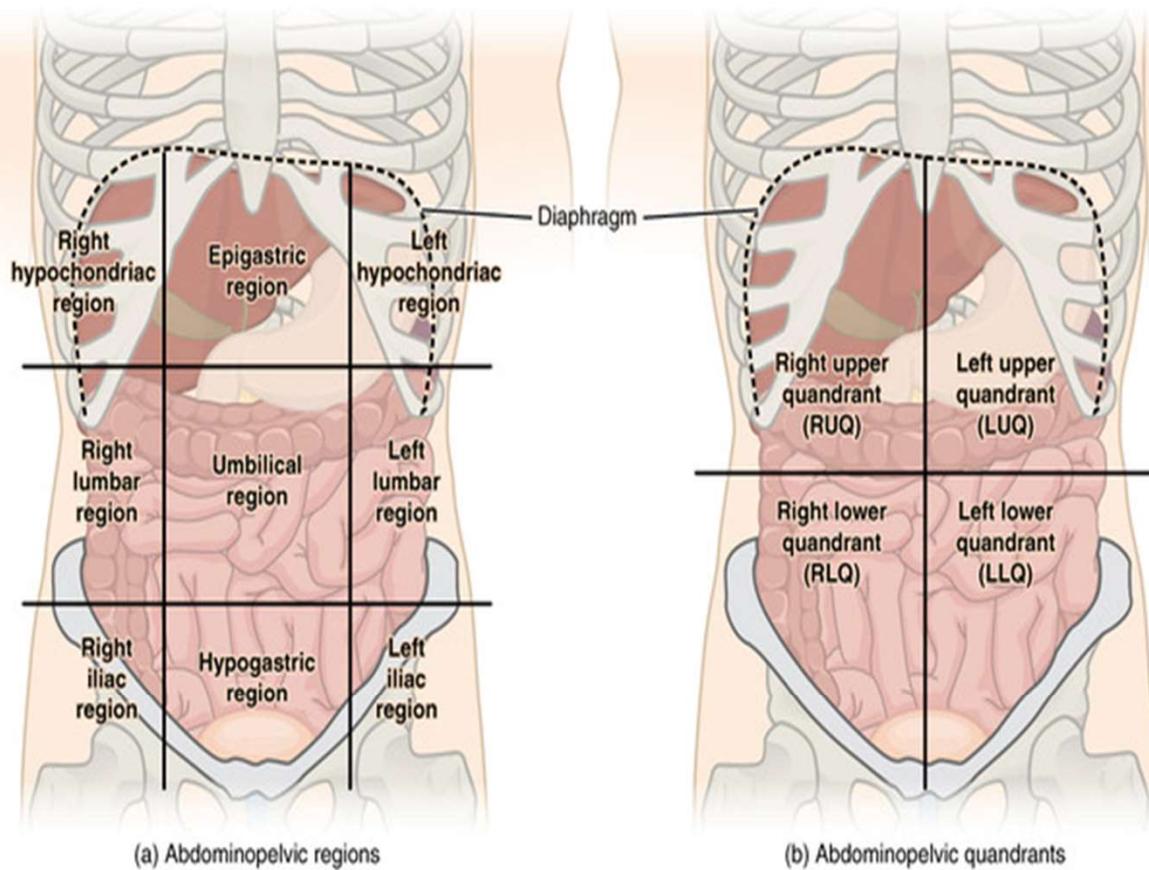
Midsagittal plane



- Acanthiomeatal line (AML)
- Lips-meatal line (LML)
- Mentomeatal line (MML)
- Glabellomeatal line (GML)
- Orbitomeatal line (OML)
- Infraorbitomeatal line (IOML) (Reid's base line)



- The abdominopelvic cavity can be subdivided into four quadrants and nine areas.
- The quadrants are labeled by location: the **right upper, right lower, left upper, and left lower** quadrants.
- The nine regions are smaller than the four abdominopelvic quadrants and include the **right hypochondriac, right lumbar, right iliac, epigastric, umbilical, hypogastric, left hypochondriac, left lumbar, and left iliac** divisions.
- The **perineum** is sometimes considered to be the tenth division.
- The purpose of the abdominal divisions is to describe regional anatomy in the abdomen, and to help clinicians determine which organ and tissues are involved in a disease based on which regions experience pain.
- The nine divisions of the abdominopelvic region are smaller than the four quadrants, allowing for a more detailed discussion



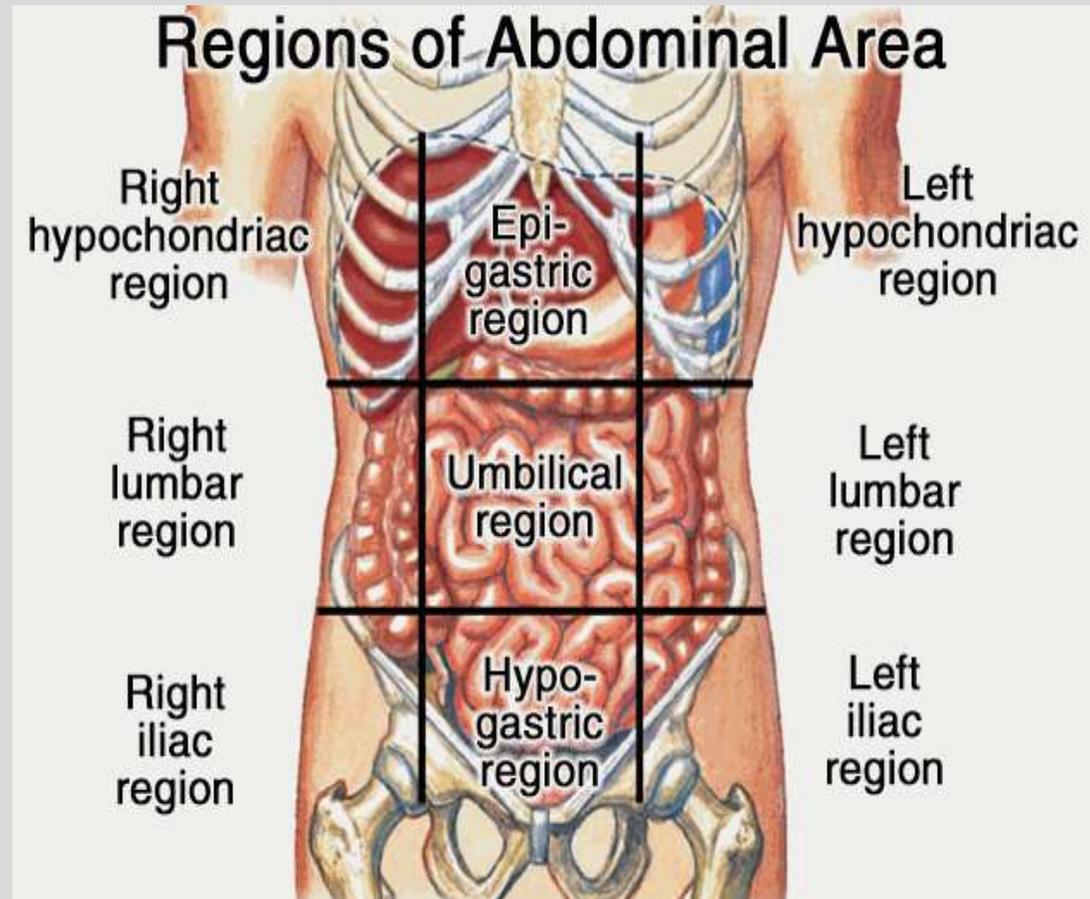
Abdominal nine divisions (a) and quadrant regions (b): The abdomen is subdivided into four quadrants and nine areas.

➤ **The left hypochondriac region contains:**

- the stomach
- the top of the left lobe of the liver
- the left kidney
- the spleen
- the tail of the pancreas
- parts of the small intestine
- the transverse colon
- the descending colon.

➤ **The right hypochondriac region contains:**

- the liver
- the gallbladder
- the small intestine
- the ascending colon
- the transverse colon
- the right kidney



The epigastric region contains:

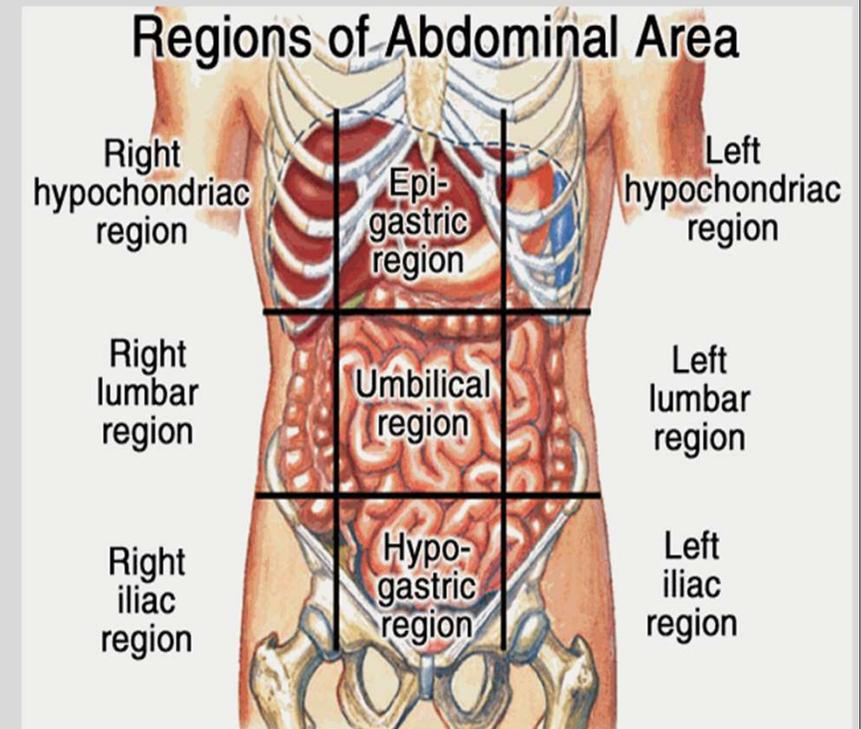
- the esophagus
- the stomach
- the liver
- the spleen
- the pancreas
- the right and left kidneys
- the right and left ureters
- the right and left suprarenal glands
- the small intestine
- the transverse colon

The hypogastric region contains:

- the small intestine
- the sigmoid colon
- the rectum
- the urinary bladder
- the right and left ureters
- the uterus, the right and left ovaries and the fallopian tubes can be found in females
- the vas deferens, the seminal vesicle and the prostate can be found in males

The left lumbar region contains:

- a portion of the small intestine
- a part of the descending colon
- the tip of the left kidney



The right lumbar region contains:

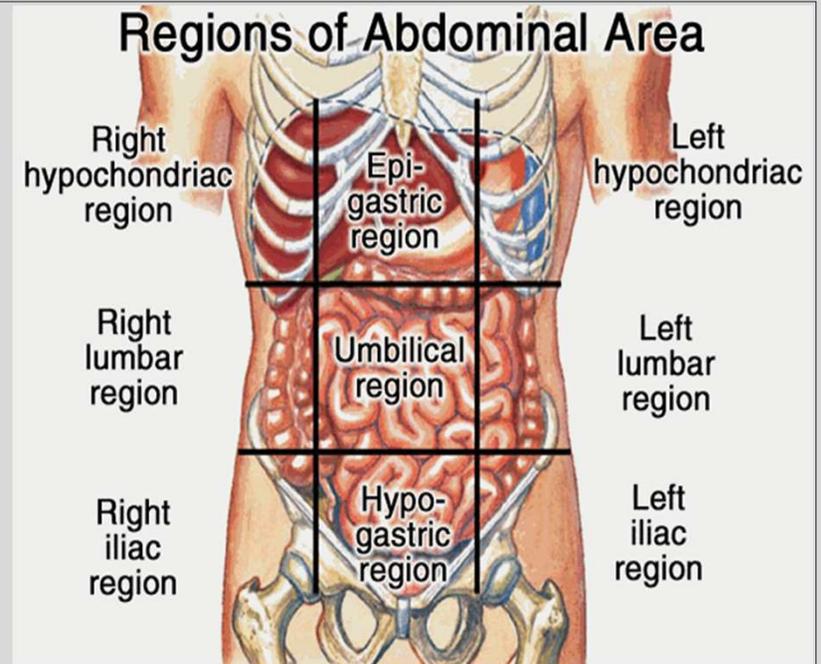
- the tip of the liver
- the gallbladder
- the small intestine
- the ascending colon
- the right kidney

The umbilical region contains:

- the stomach
- the pancreas
- the small intestine
- the transverse colon
- the right and left kidneys
- the right and left ureters
- the cisterna chyli

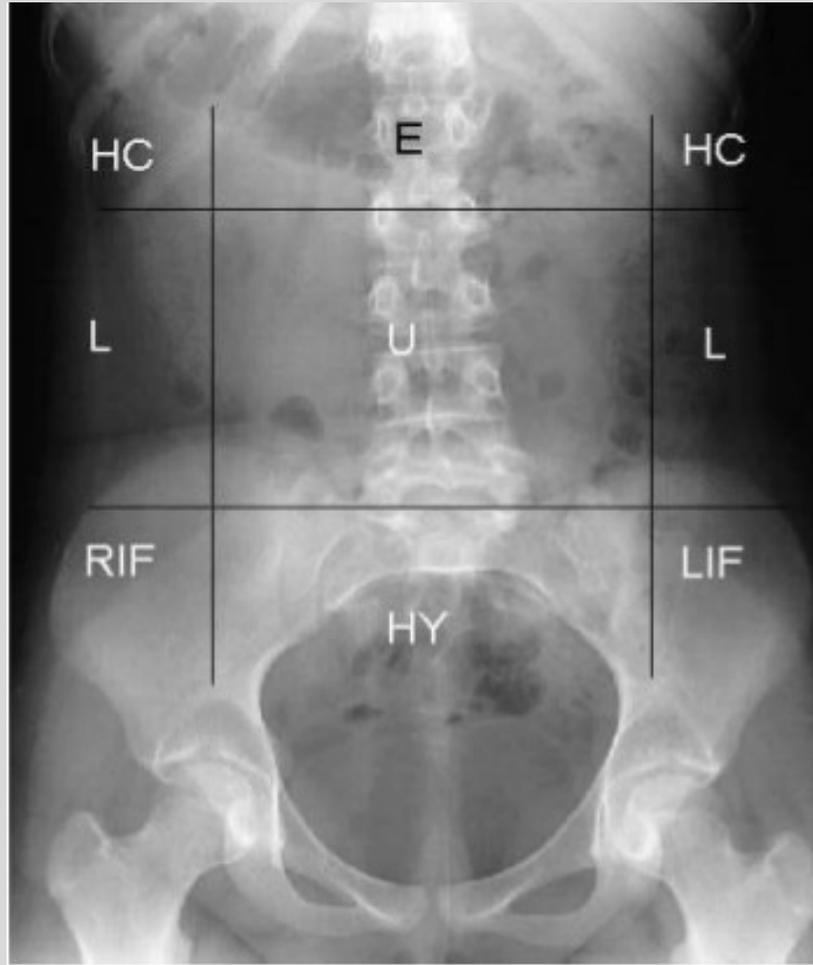
The right inguinal region contains:

- the small intestine
- the appendix
- the cecum
- the ascending colon
- the right ovary and right fallopian tube in females



The left inguinal region contains:

- part of the small intestine
- the descending colon
- the sigmoid colon
- the left ovary and the left fallopian tube in females.



◦ THANK YOU