

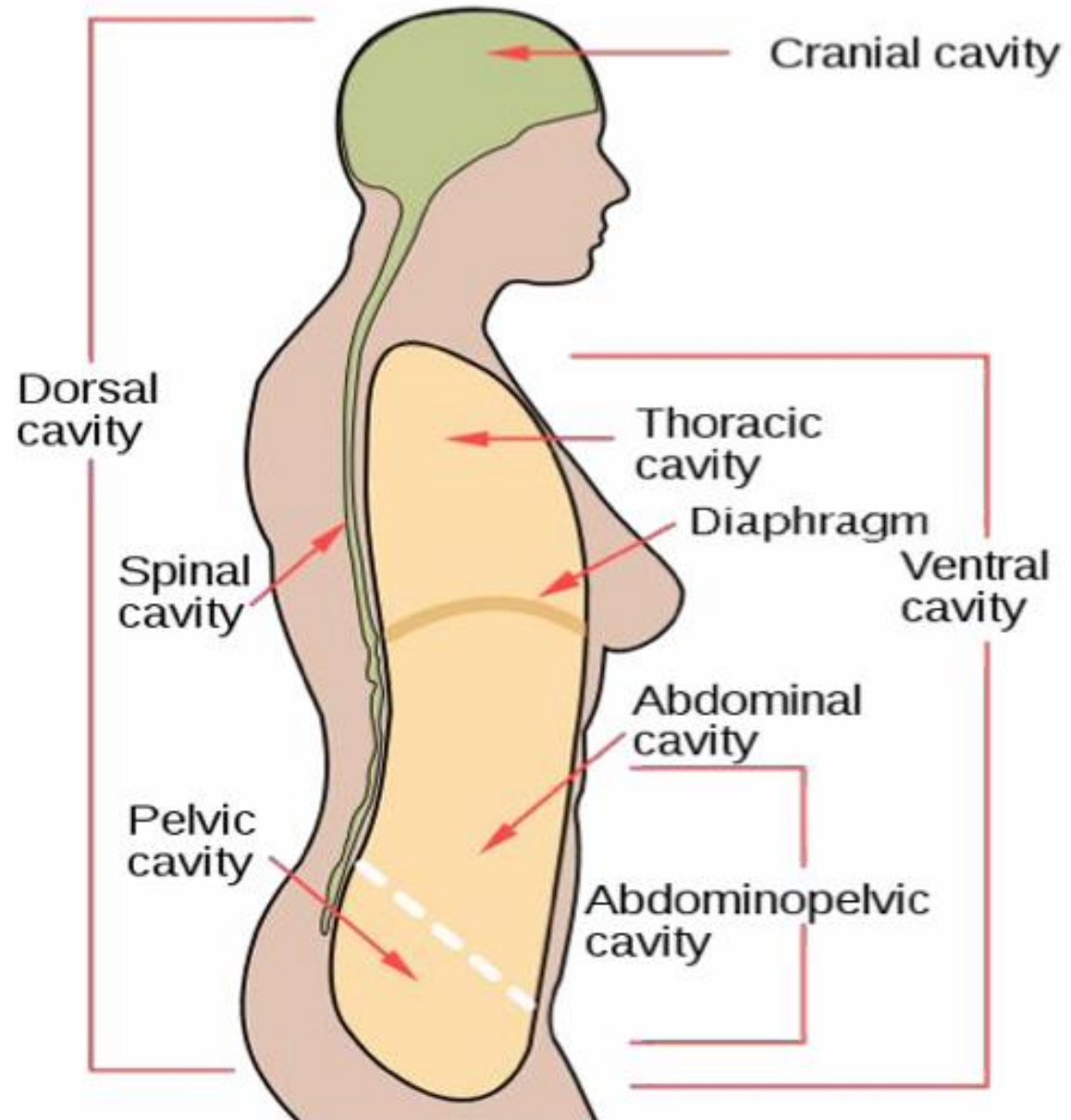
Introduction To Human Anatomy- Part 2



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★ Body Cavities

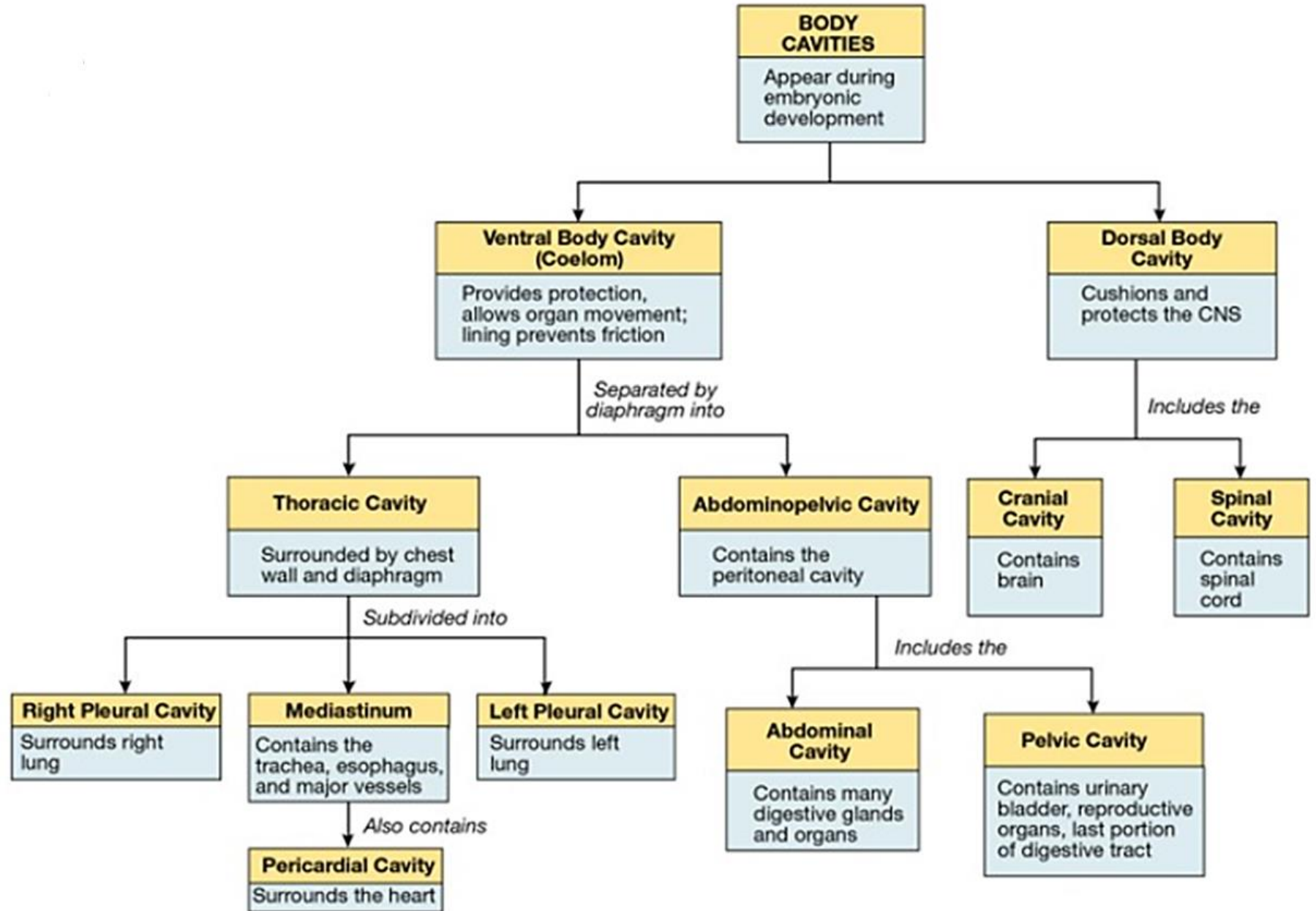
Locate the major body cavities, and list the chief organs in each cavity.



★ Body Cavities

- Body cavities are internal chambers (hollow area) holding vital organs.
 - Cavities protect vital organs.
 - Ex: the brain is protected in the cranial cavity.
 - Cavities allow organs to change in shape and size.
 - Ex: the pleural cavity allows the lungs to expand during inspiration.
- **Two major body cavities:**
 - **Dorsal body cavity** (at the back) includes the cranial cavity and the spinal cavity.
 - **Ventral body cavity** (in front) includes the thoracic cavity and the abdominopelvic cavity.

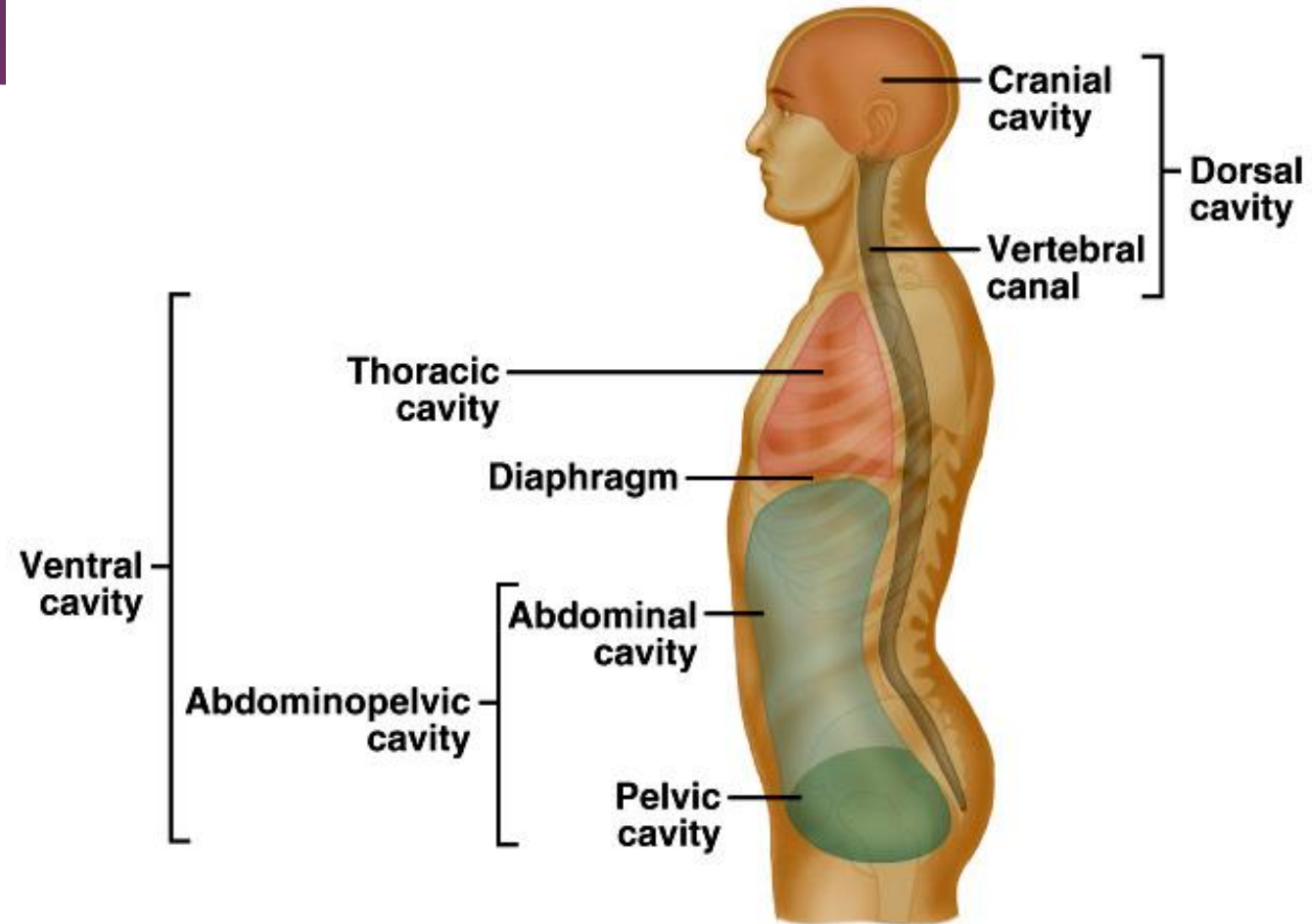
★ Body Cavities



★ Dorsal Body Cavity

- **Cranial Cavity:**
 - Formed by the cranial bones.
 - Contains the brain.
- **Vertebral (Spinal) Canal:**
 - Formed by the bones of the vertebral column.
 - Contains the spinal cord.
- **Protective Tissue:**
 - Three layers of protective tissue, called **meninges**, line the dorsal body cavity.

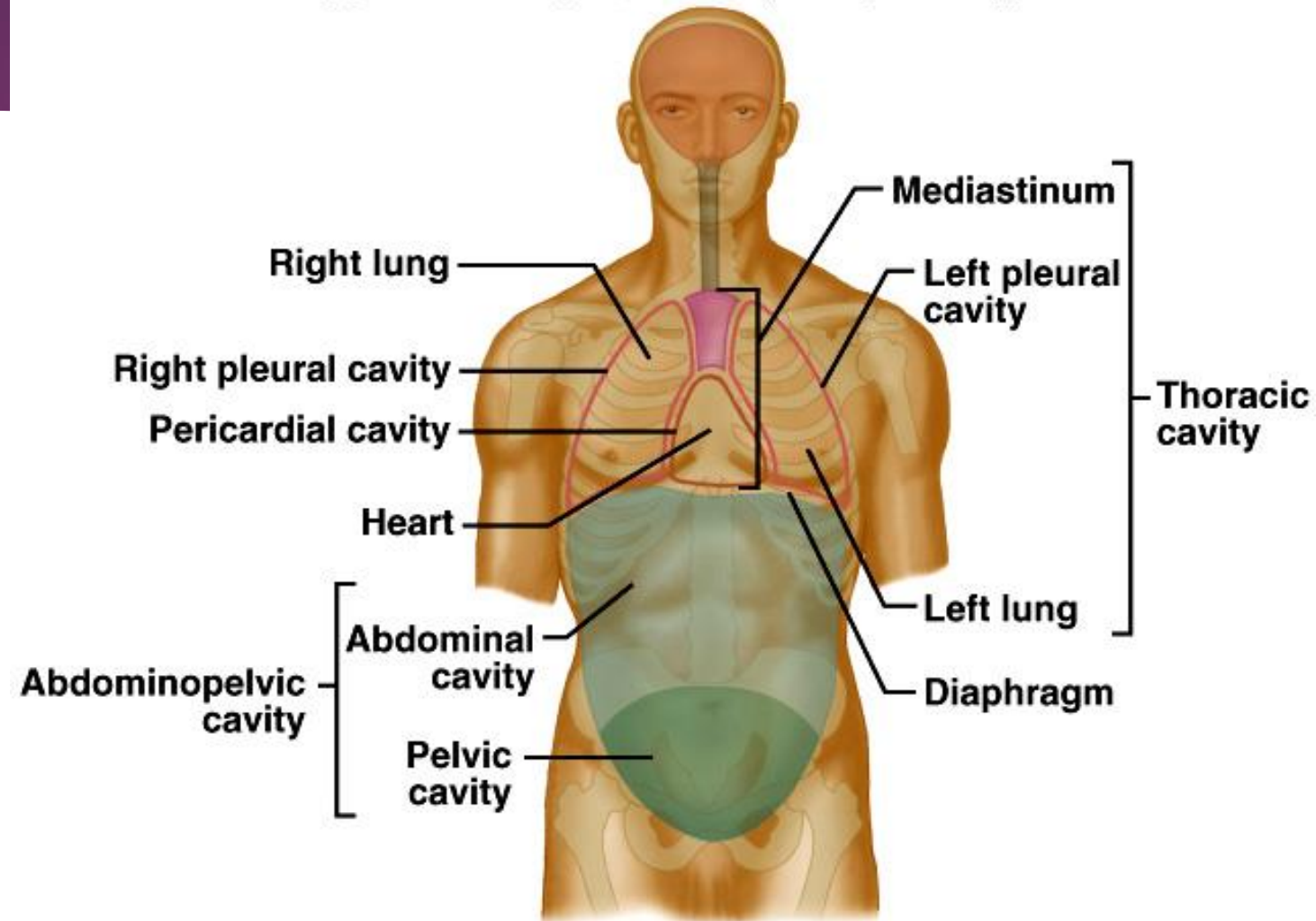
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★ Ventral Body Cavity

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- The ventral body cavity is subdivided by the **diaphragm** into an upper **thoracic cavity** and a lower **abdominopelvic cavity**.



★ Thoracic Cavity

- ▶ The **thoracic cavity** contains the heart and lungs.
- ▶ The thoracic cavity is subdivided into:
 - ▶ **Left and right pleural cavities** (each pleural cavity contains one lung) lined by the **visceral** and **parietal** pleura).
 - ▶ The **mediastinum** contains the pericardium (**pericardial cavity**), another serous membrane that surrounds the heart and great vessels.

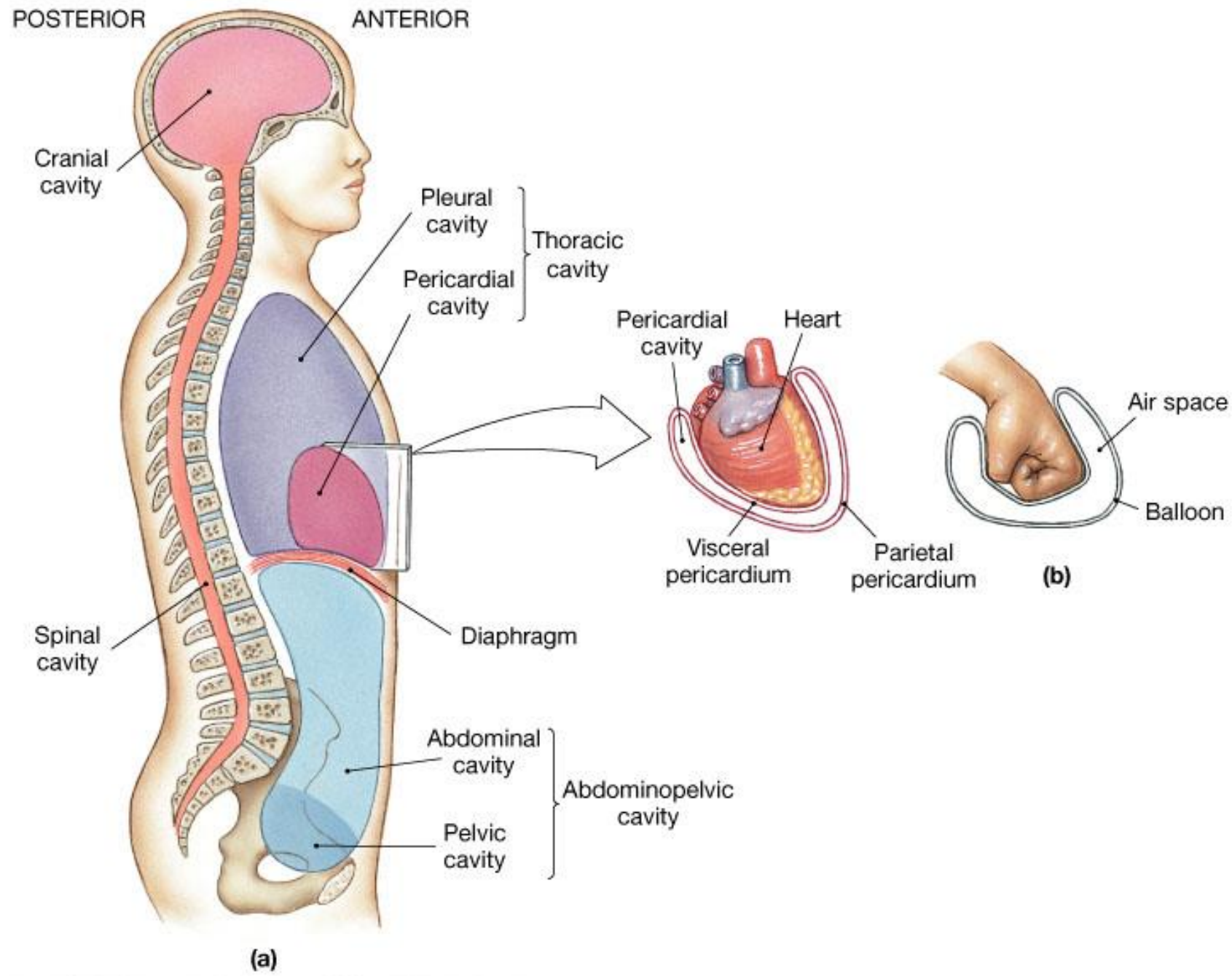
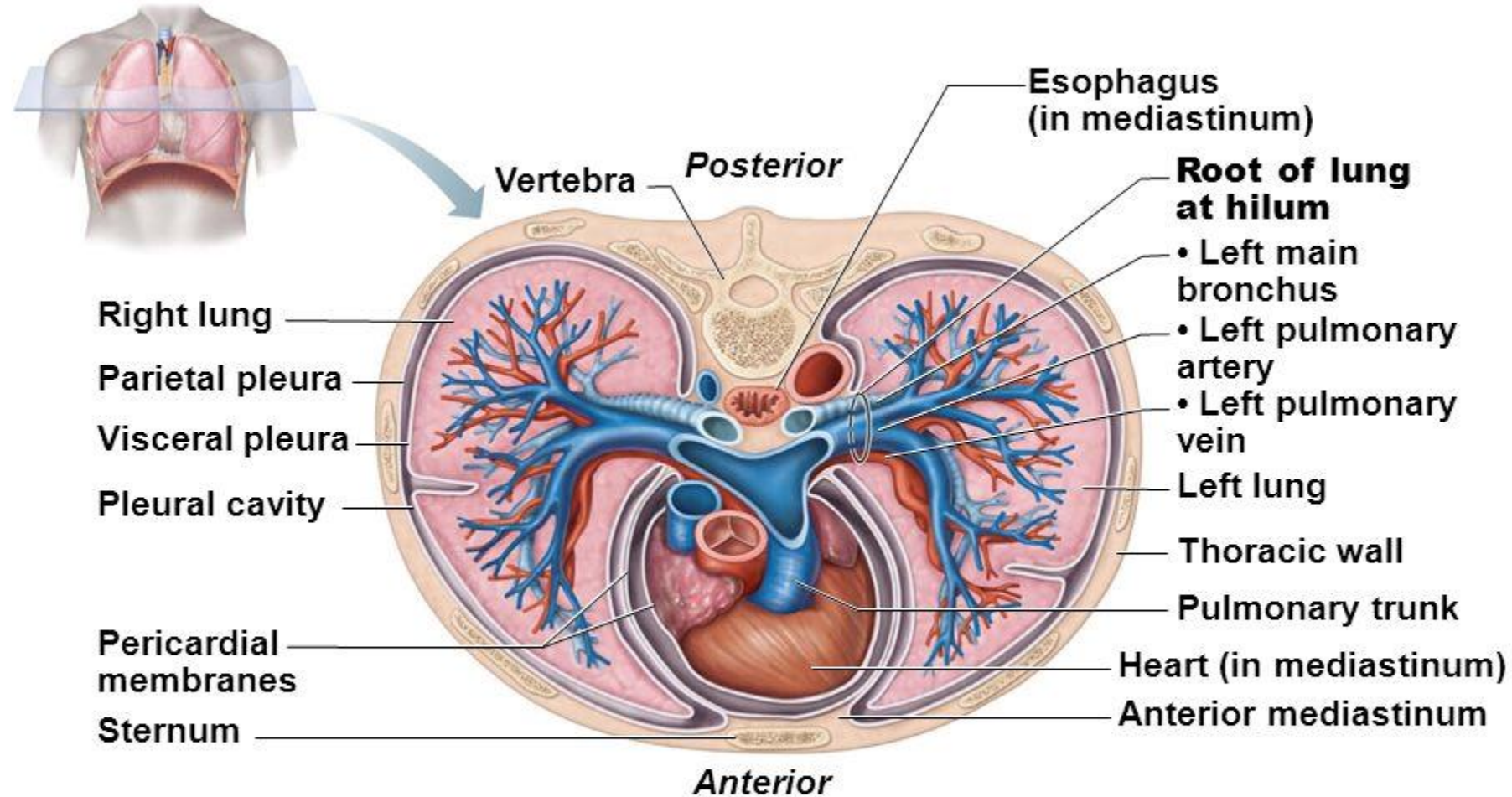


Figure 22.10c Anatomical relationships of organs in the thoracic cavity.



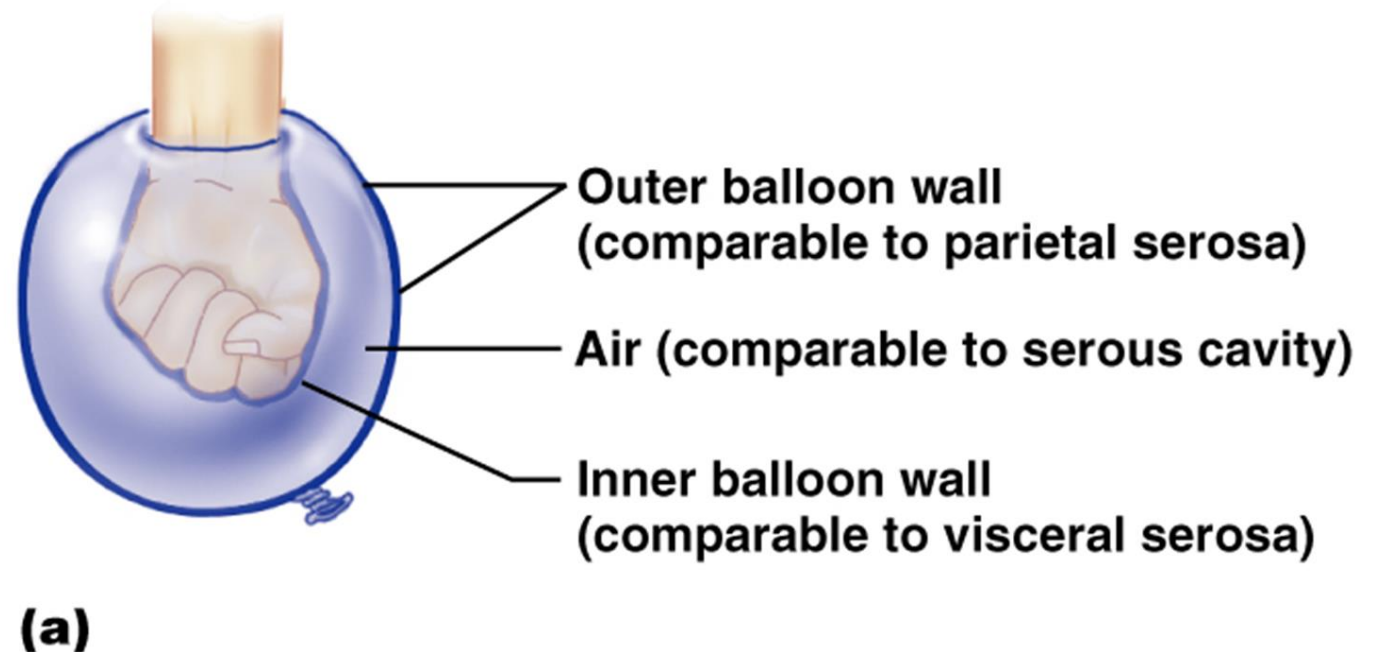
(c) Transverse section through the thorax, viewed from above. Lungs, pleural membranes, and major organs in the mediastinum are shown.

★ Abdominopelvic Cavity

- The abdominopelvic cavity is lined by the peritoneum and is divided into:
 - The superior **abdominal cavity** extends from the diaphragm to the superior margins of the pelvis.
 - Liver, stomach, spleen and most of the large intestine.
 - The inferior **pelvic cavity** is bordered by the pelvis, with a floor of muscle.
 - Urinary bladder, reproductive organs, and the final portion of the large intestine.

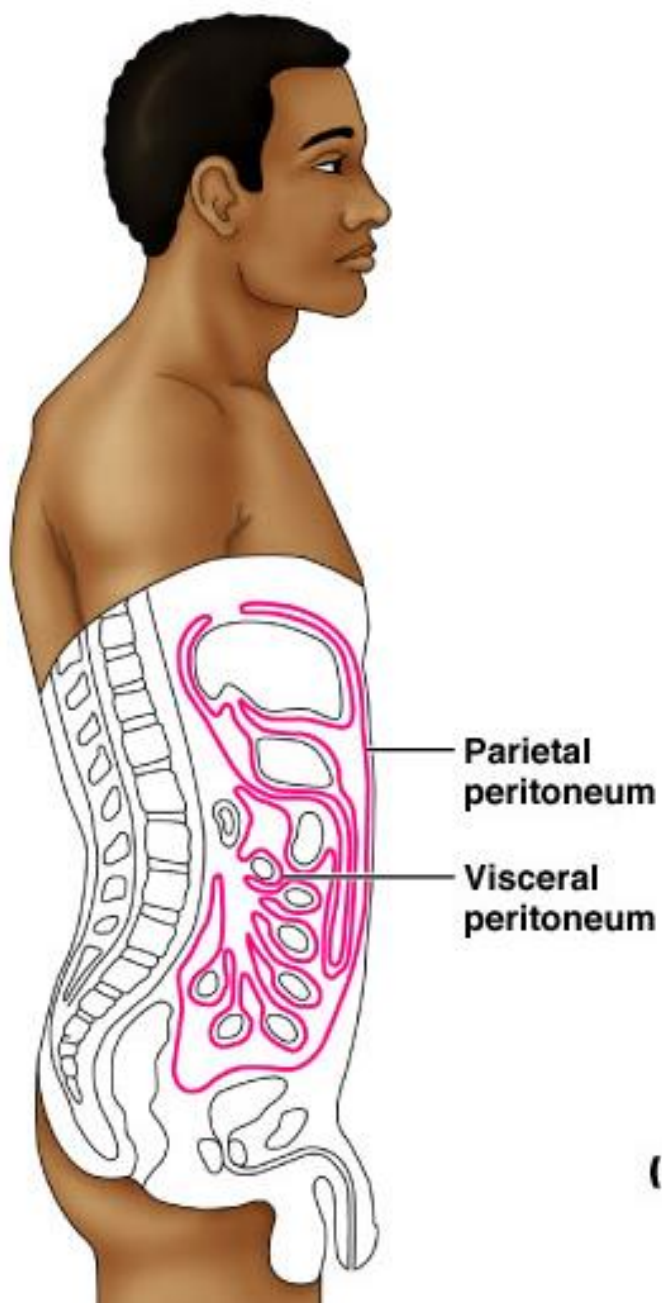
★ Body Cavity Membranes

- ▶ Called serous membranes or serosa.
- ▶ **Parietal serosa** lines internal body walls (example: parietal pleural).
- ▶ **Visceral serosa** covers the internal organs.
- ▶ Serous fluid separates the serosae (serous cavity).

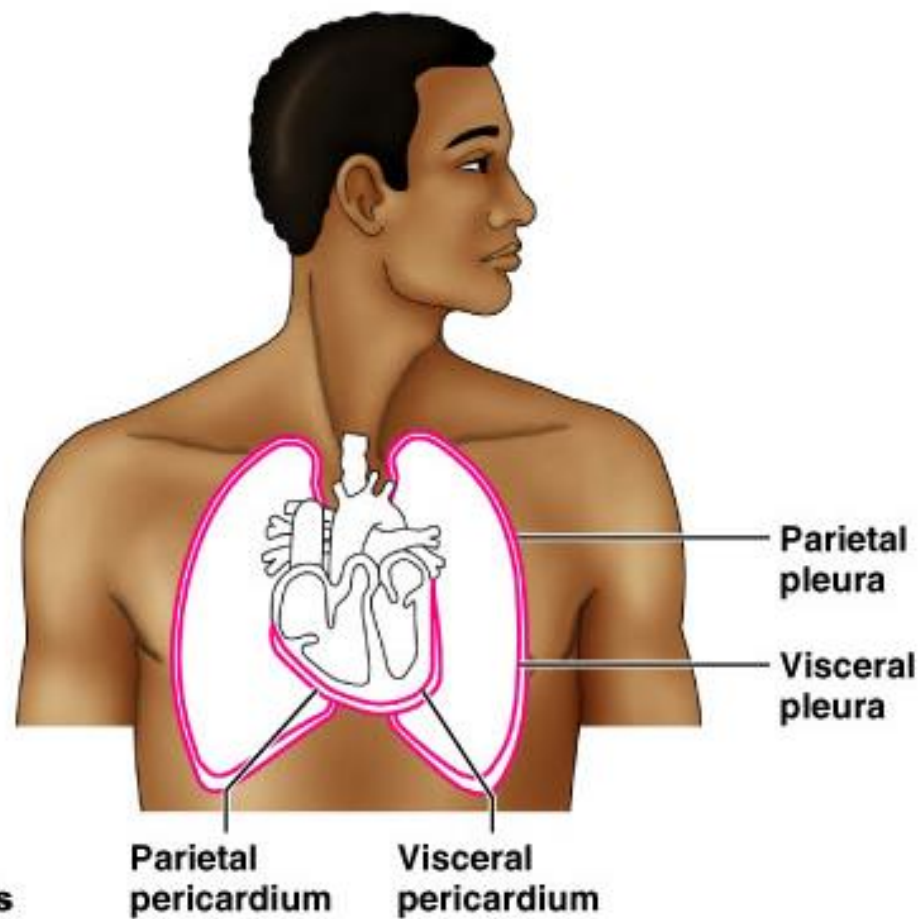


★ Serous Fluid and Membranes

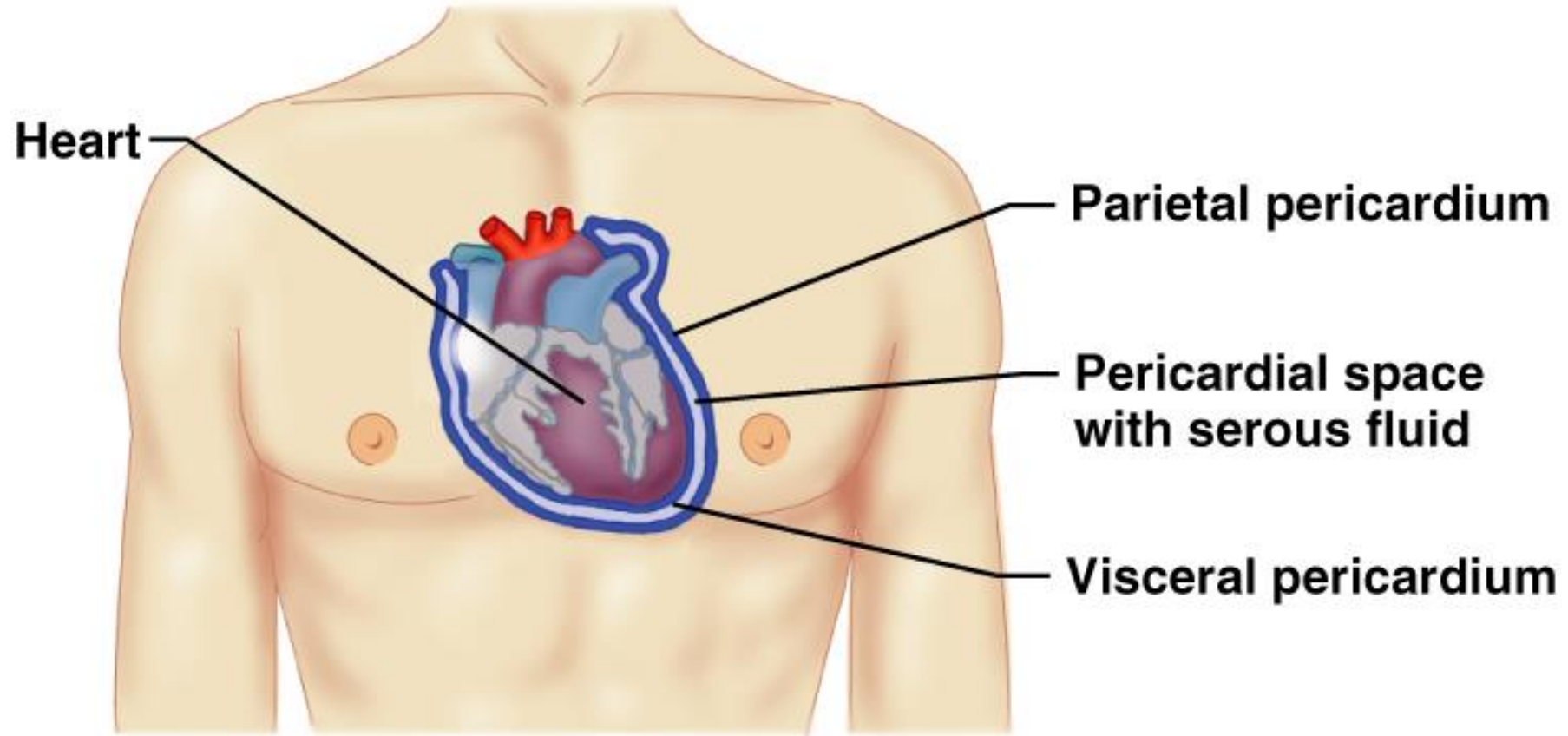
- Serous fluid between the two layers of serous membranes reduces friction and allows the viscera (internal organs) to slide somewhat during movements.
- **Serous Membranes Include:**
 - **Pleura:** Surrounds the lungs.
 - **Pericardium:** Surrounds the heart.
 - **Peritoneum:** Lines the abdominal cavity and covers abdominal organs.



(c) Serous membranes

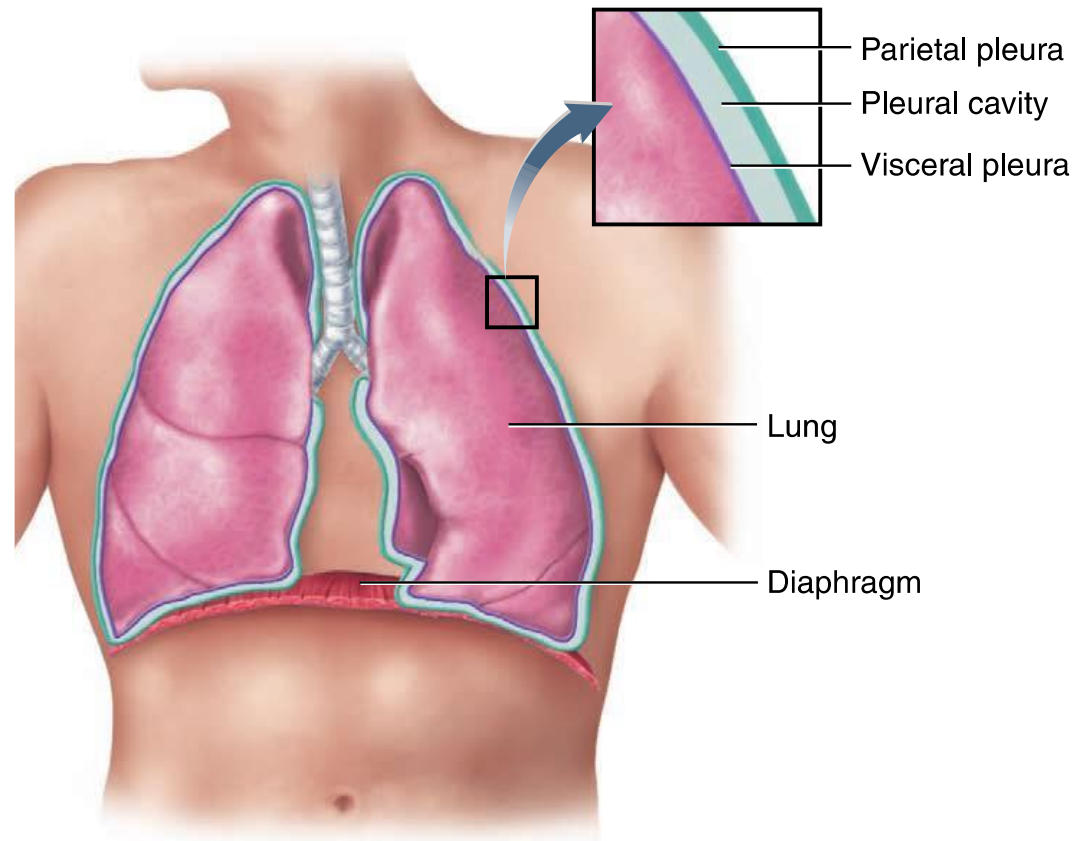


Heart Serosae



(b)

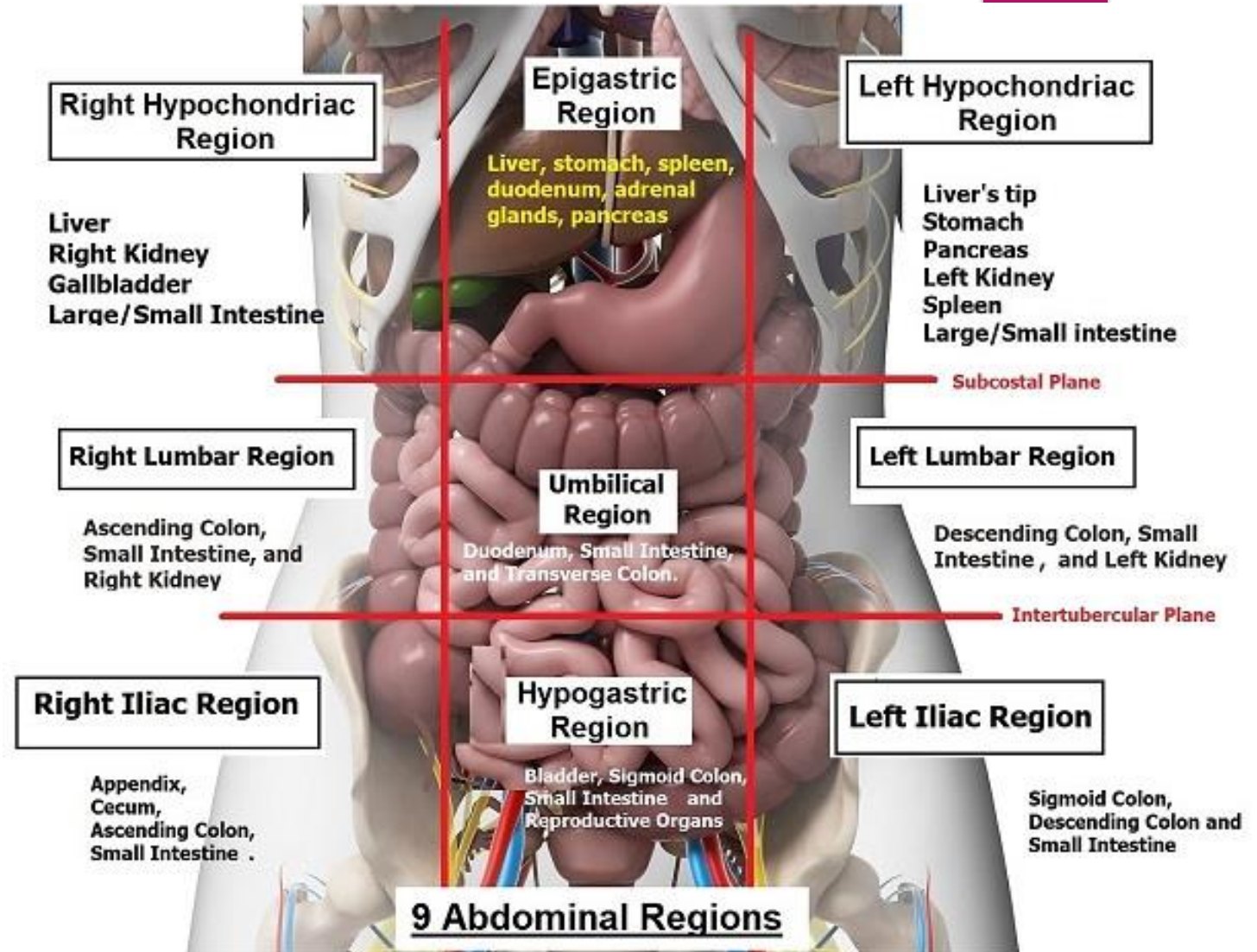
Pleural Serosae



(b) Pleurae

★ Abdominal Quadrant & Abdominal Region

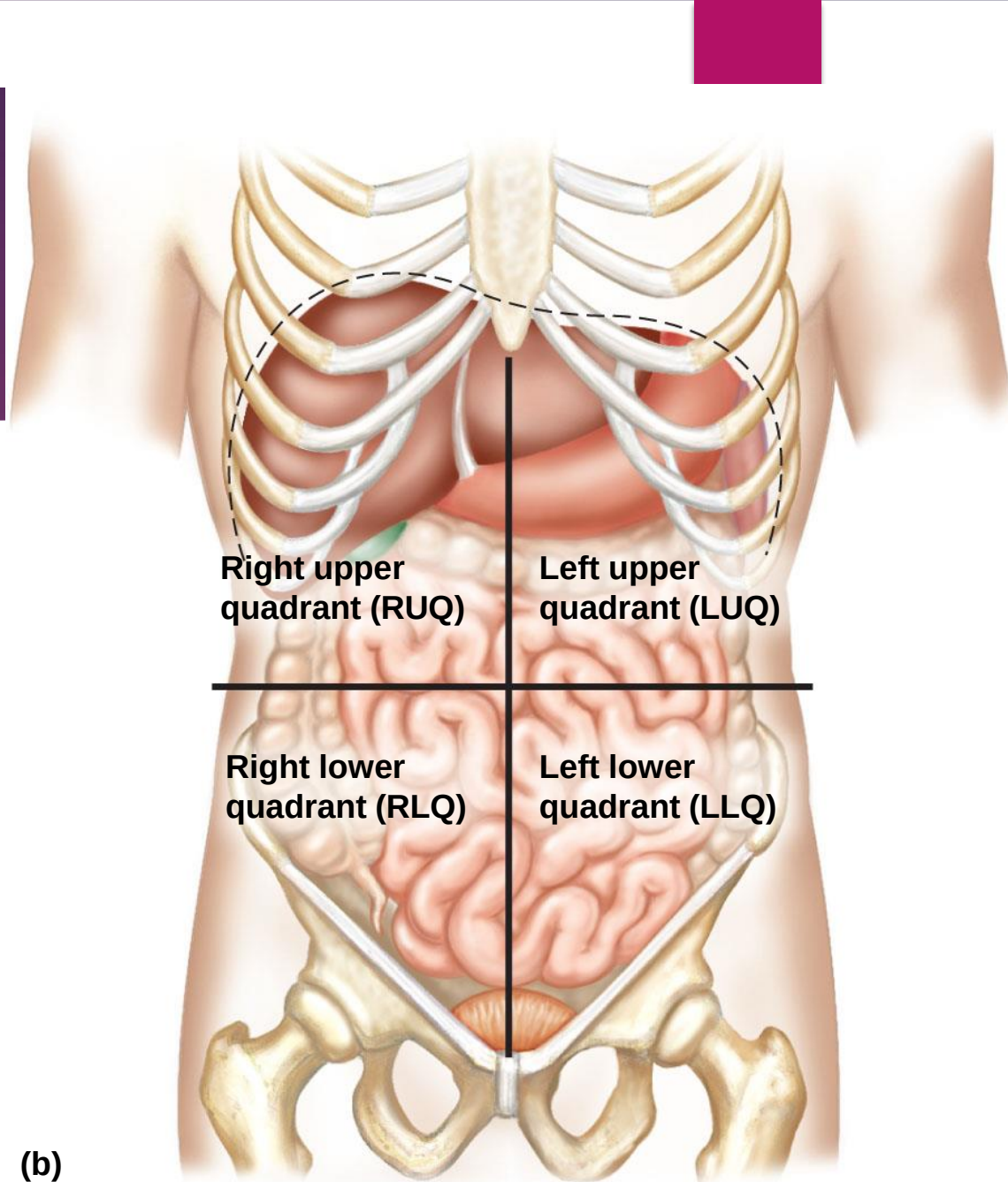
- Understand the division of the abdominal cavity.
- Identify key structures in each quadrant and region.

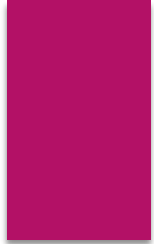


★ Abdominal Quadrant

- ▶ Purpose of Abdominal Quadrants:
 - ▶ Used to locate abdominal structures, pain, or abnormalities.
 - ▶ Commonly referenced by medical professionals.
- ▶ Division method:
 - ▶ Two perpendicular lines intersect at the umbilicus (navel).
 - ▶ Divides the abdomen into four quadrants:
 - ▶ Right Upper Quadrant (RUQ)
 - ▶ Left Upper Quadrant (LUQ)
 - ▶ Right Lower Quadrant (RLQ)
 - ▶ Left Lower Quadrant (LLQ)

(b)



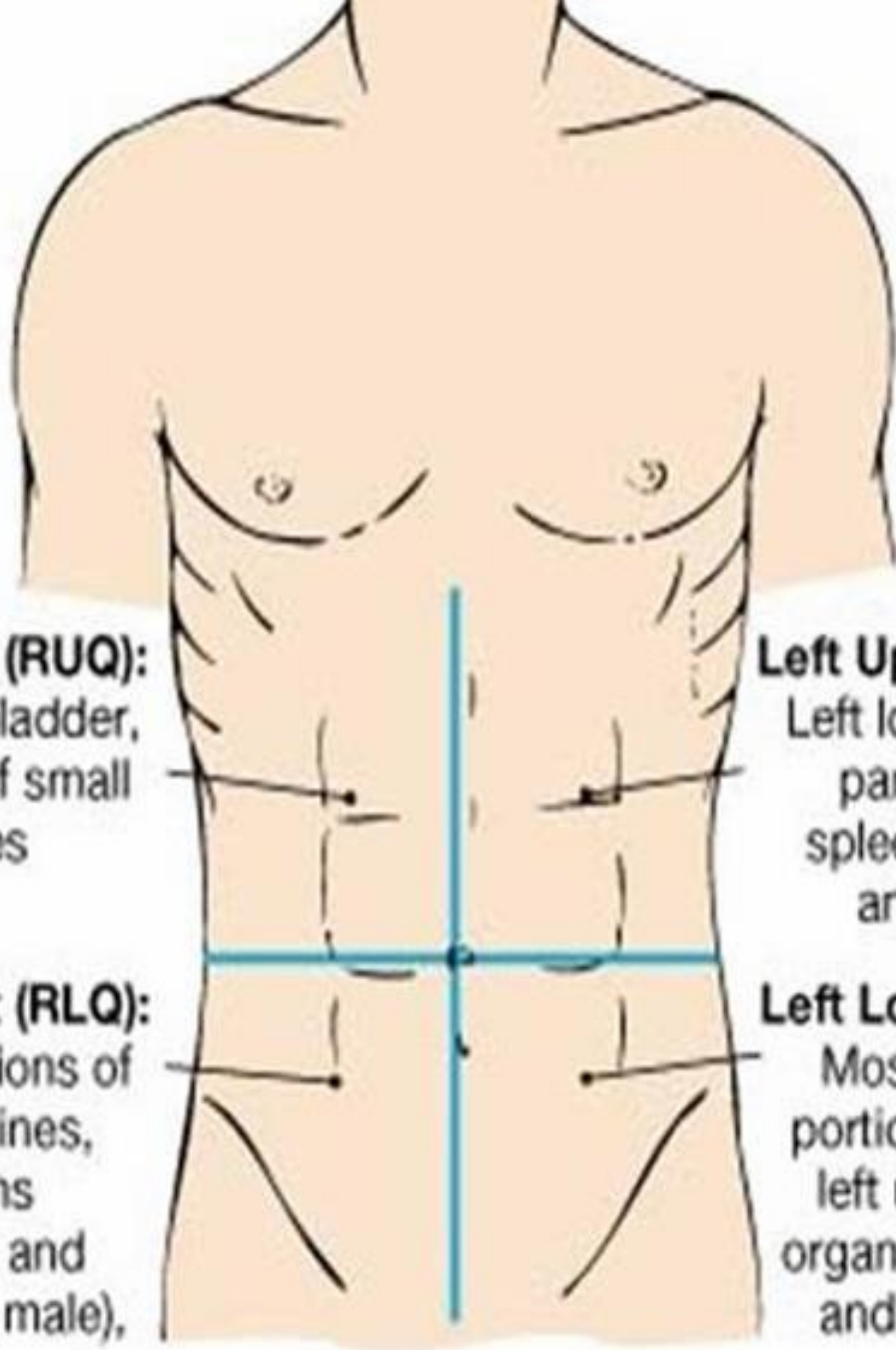


Right Upper Quadrant (RUQ):

Right lobe of liver, gallbladder, right kidney, portions of small and large intestines

Right Lower Quadrant (RLQ):

Cecum, appendix, portions of small and large intestines, reproductive organs (right ovary in female and right spermatic cord in male), right ureter



Left Upper Quadrant (LUQ):

Left lobe of liver, stomach, pancreas, left kidney, spleen, portions of small and large intestines

Left Lower Quadrant (LLQ):

Most of small intestine, portions of large intestine, left ureter, reproductive organs (left ovary in female and left spermatic cord in male)

Causes of Abdominal Pain by Quadrants and Regions

Right Upper Quadrant Pain

Gallbladder and biliary tract, hepatitis, liver abscess, congestive hepatomegaly (heart failure), retrocecal appendicitis, kidney pain, shingles (herpes zoster), lower lobe pneumonia, empyema

Epigastric Pain

Stomach-duodenal ulcers, gastroesophageal reflux, pancreatitis, gallbladder and biliary tract, epigastric hernia

Left Upper Quadrant Pain

Spleen (splenomegaly, rupture, infarction), kidney pain, shingles (herpes zoster), lower lobe pneumonia, empyema

Umbilikal - Yaygın Karın ağrısı

Peritonitis, pancreatitis, early appendicitis, mesenteric lymphadenitis, mesenteric ischemia, gastroenteritis, abdominal aortic aneurysm, colitis, intestinal obstruction

Right Lower Quadrant Pain

Appendicitis, Crohn's disease, perforated ulcer, rectus sheath hematoma, ectopic pregnancy, ovarian cyst-torsion, salpingitis, mittelschmerz, ureteral stones, psoas abscess, inguinal hernia

Suprapubic-Hipogastric Pain

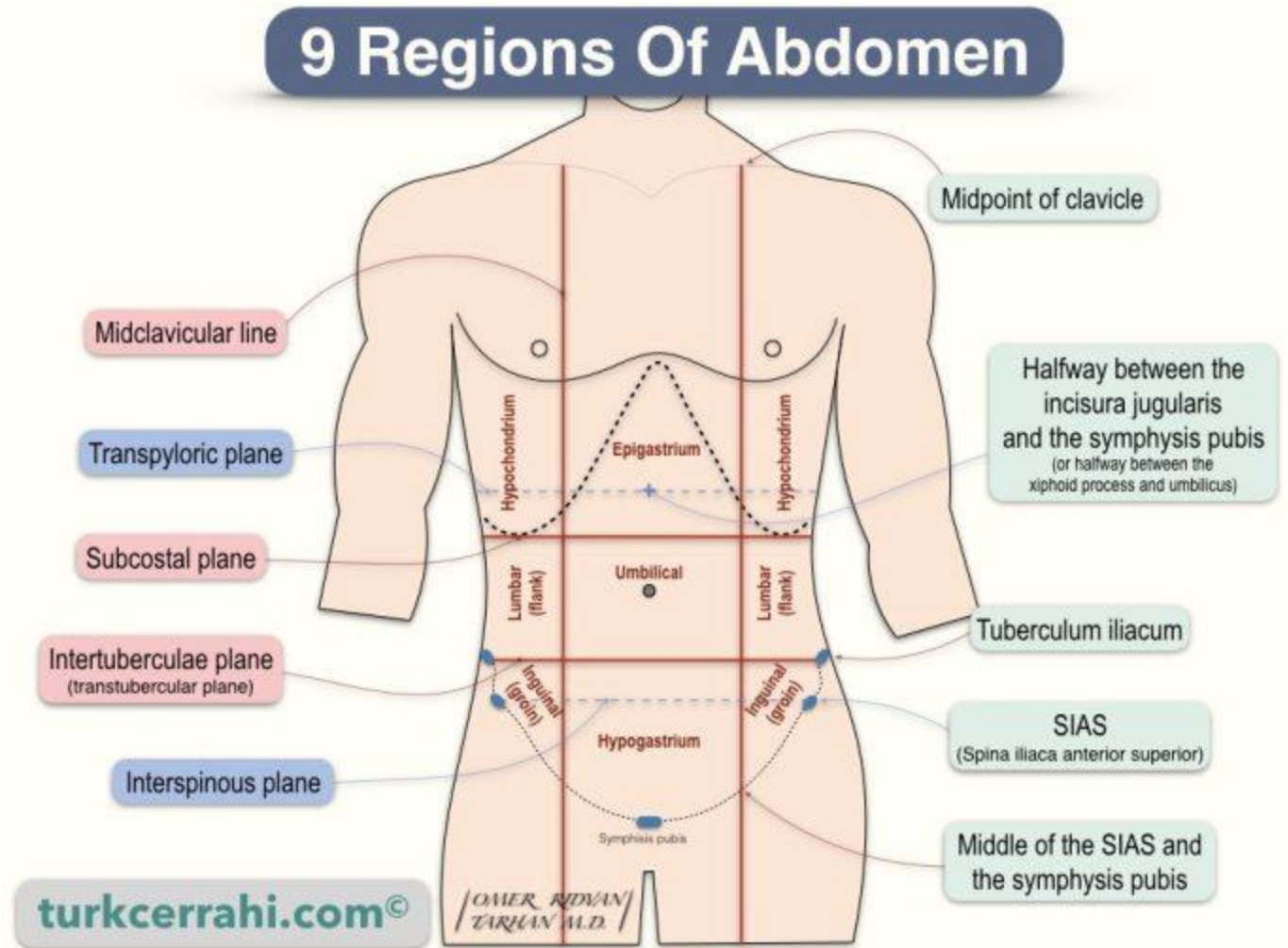
Urinary tract infection, appendicitis, diverticulitis, inflammatory bowel diseases, gynecological (pelvic) diseases

Left Lower Quadrant Pain

Diverticulitis, rectus sheath hematoma, ectopic pregnancy, ovarian cyst-torsion, salpingitis, mittelschmerz, endometriosis, ureteral stones, kidney pain, seminal vesiculitis, psoas abscess, inguinal hernia

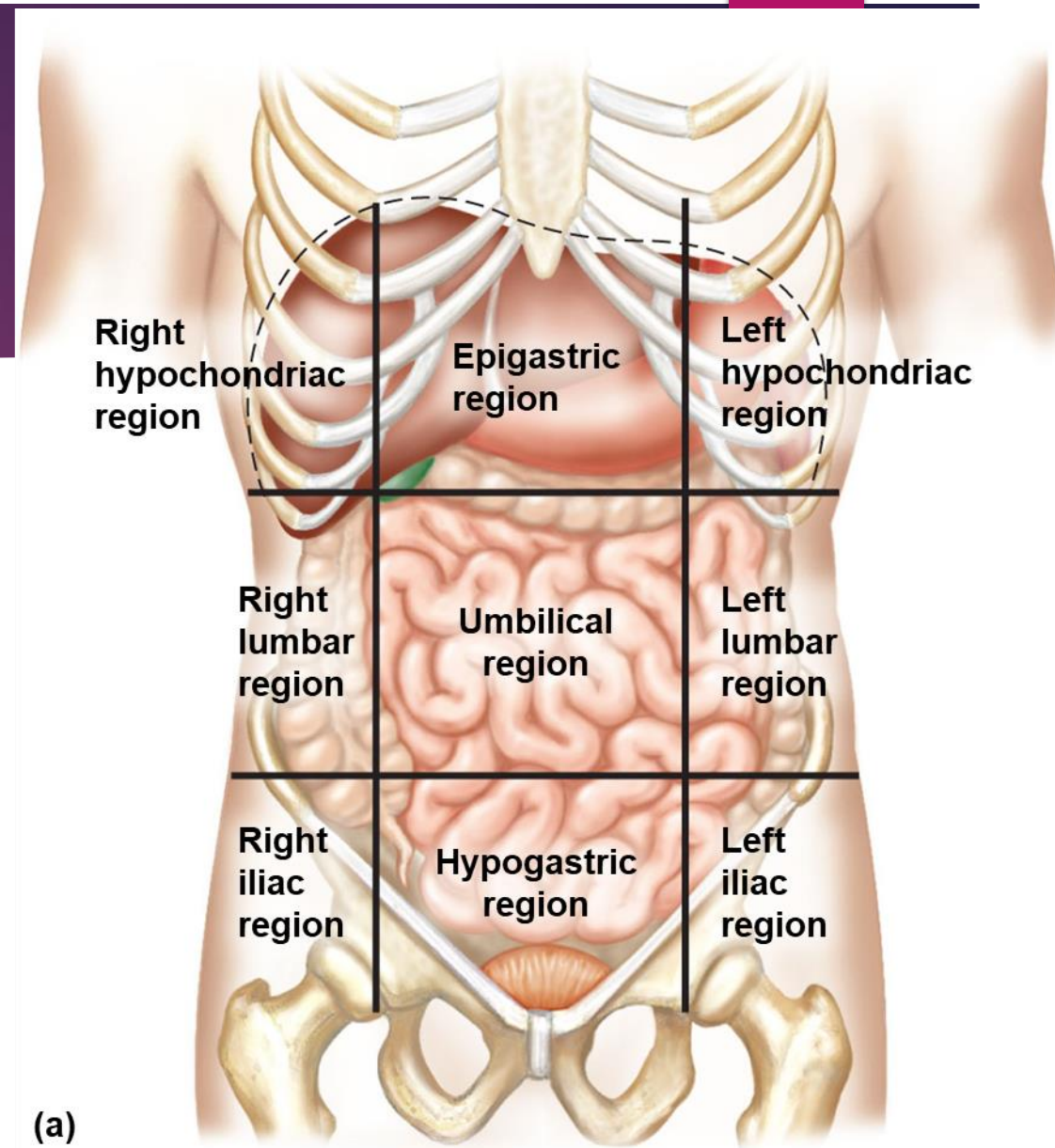
Abdominal Regions

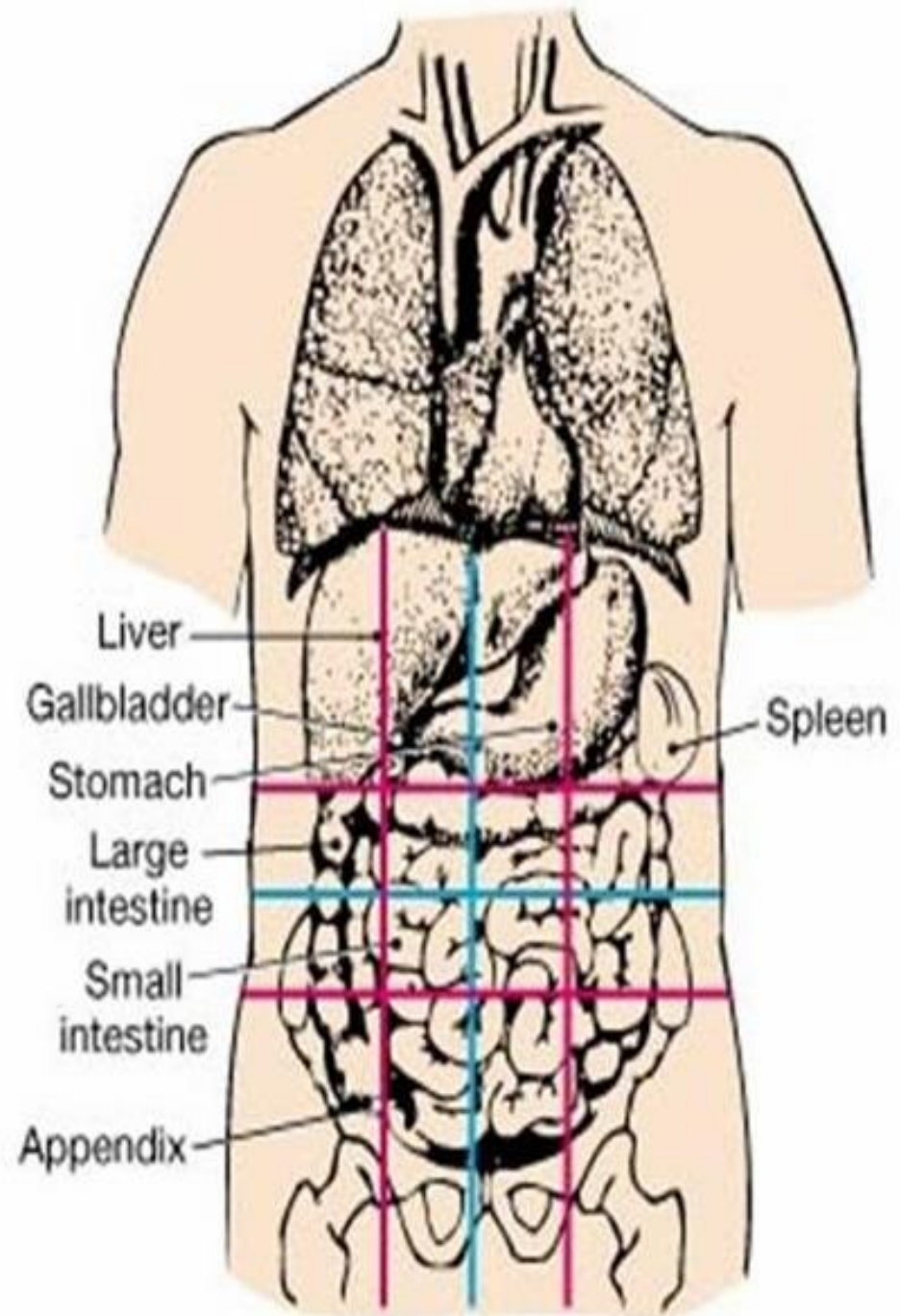
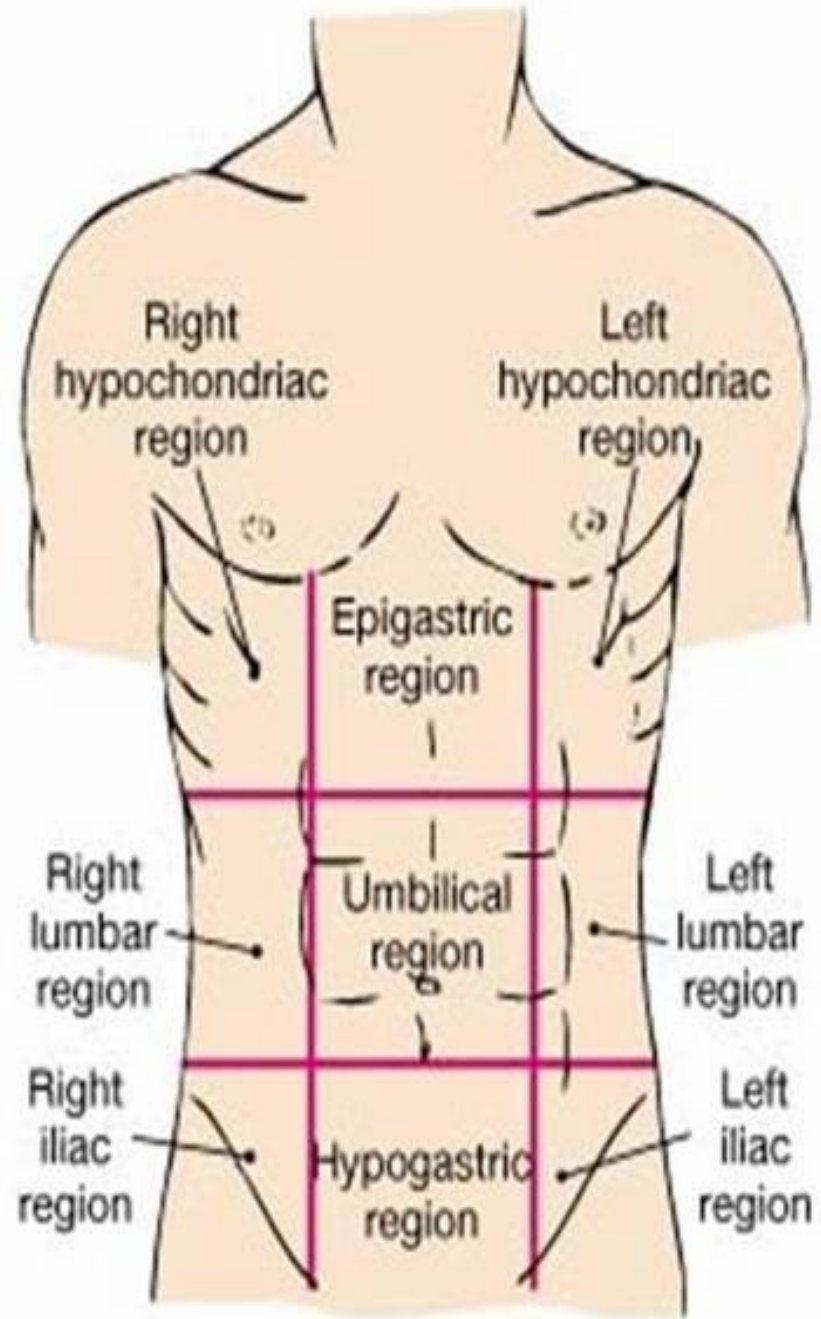
- ▶ The abdominopelvic cavity can be divided into **nine distinct regions** using four imaginary lines, making it easier to describe the precise location of organs within this area.
- ▶ Each vertical line is called the midclavicular line (midclavicular lines) because it passes the midpoint of the clavicle.
- ▶ The upper horizontal line is called **subcostal line** because it sits just below the last rib.
- ▶ The lower horizontal line is called the **intertubercular line** because it passes from left to right between the tubercles of the pelvis.



★ Abdominal Regions

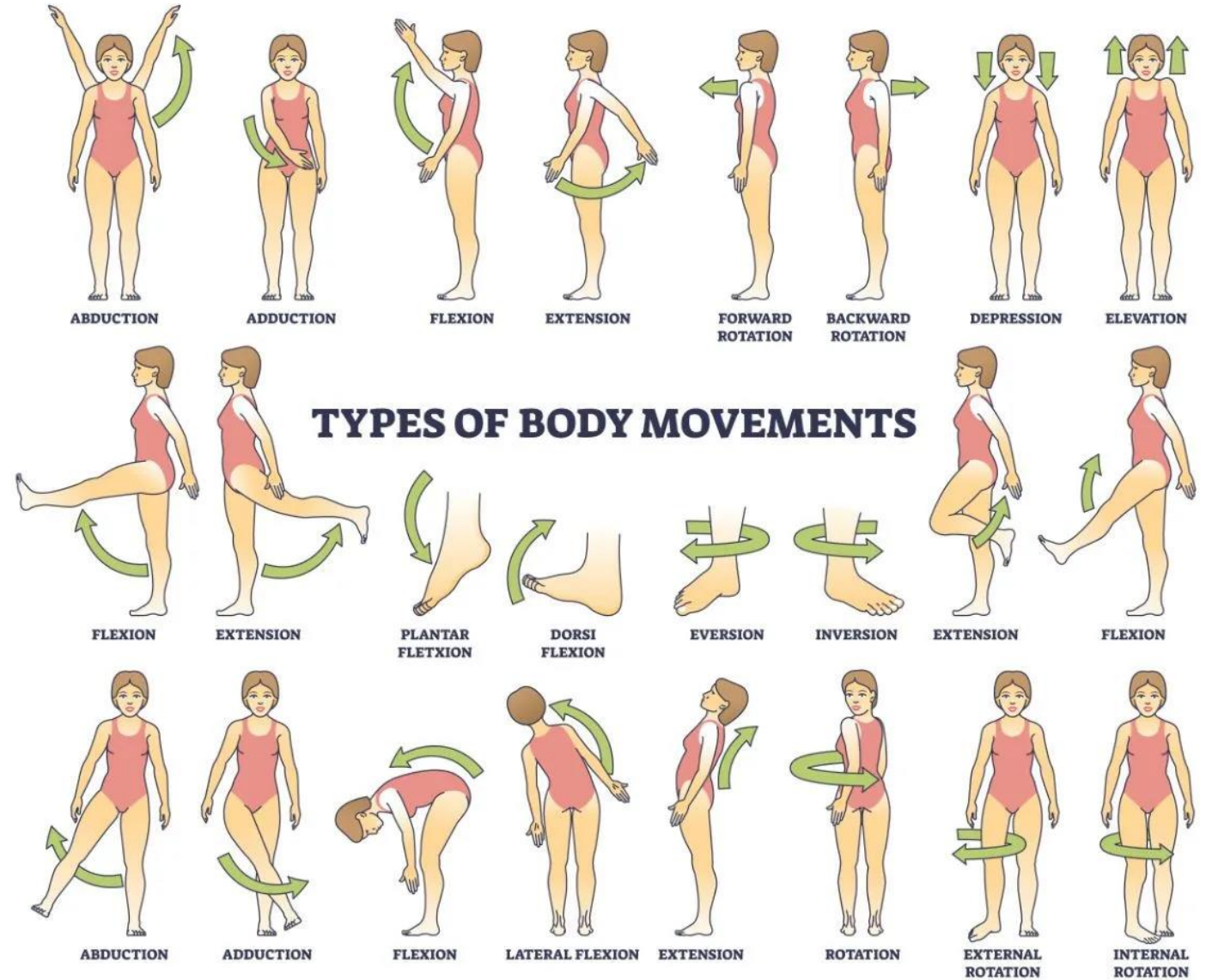
- ▶ The lateral of the grid are:
 - ▶ Left and right hypochondriac regions
 - ▶ Left and right lumbar regions
 - ▶ Left and right inguinal (iliac) regions
- ▶ The medial regions are:
 - ▶ Epigastric region
 - ▶ Umbilical region
 - ▶ Hypogastric region





★ Anatomical Terms of Movement

Define and identify the different body movements.



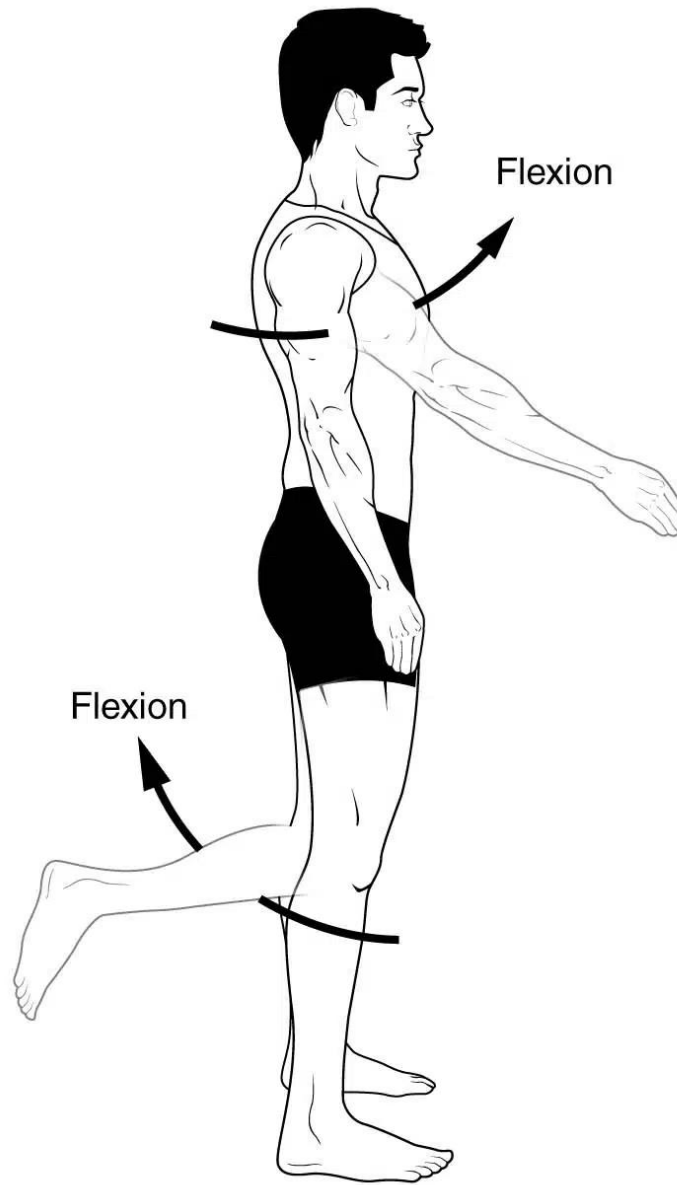
Movement-Related Terms

- These terms describe how muscles act on the skeleton to create movement at joints.
- A joint is where two or more bones meet.
- **Joints vary in mobility.**
- Functional classification of joints is based on the amount of movement allowed by the joint:
 - Synarthrosis: **no movement**
 - Skull sutures
 - Amphiarthrosis: **slight movement**
 - Superior tibiofibular joint
 - Diarthrosis: **freely movable**
 - Shoulder joints



Anatomical Terms of Movement

- **Flexion:**
 - Bending or decreasing the angle between bones or body parts.
 - Typically involves forward bending in the sagittal plane.
- **Extension:**
 - Straightening or increasing the angle between bones or body parts.
 - Includes **hyperextension** (beyond the normal range).



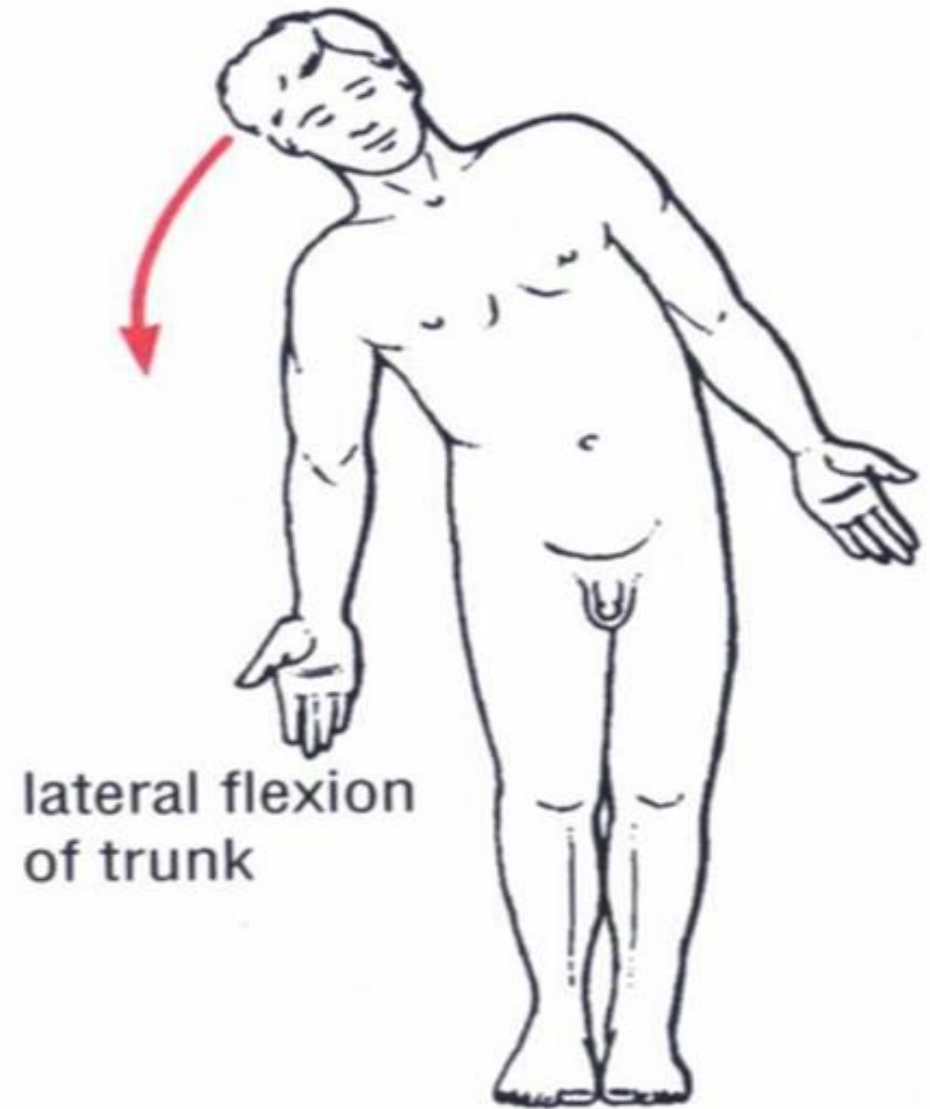
Anatomical Terms of Movement

- **Dorsiflexion & Plantarflexion**
 - Describe movements at the ankle.
- **Dorsiflexion:**
 - Flexion at the ankle, pointing the foot **upward**.
- **Plantarflexion:**
 - Extension at the ankle, pointing the foot **downward**.



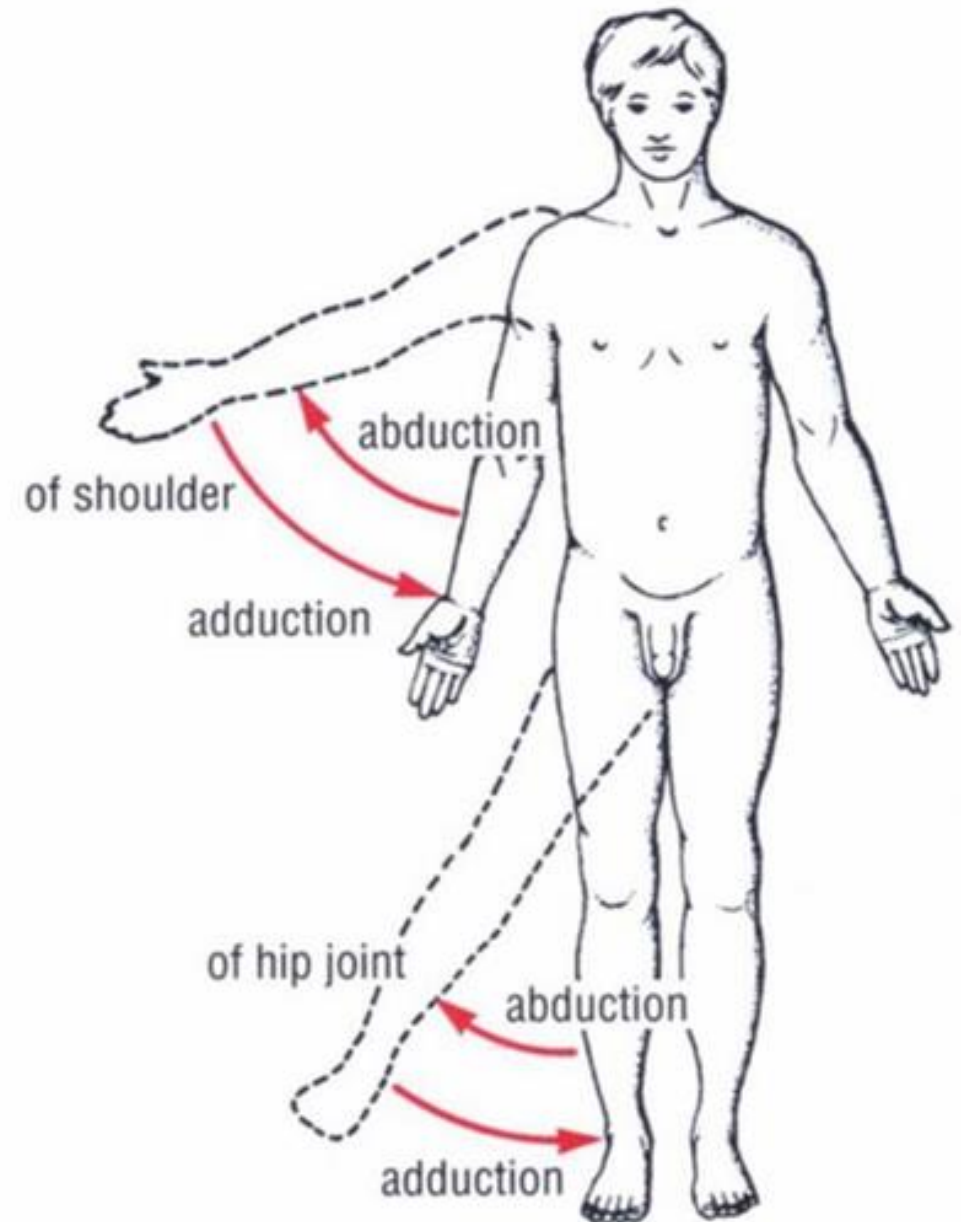
Anatomical Terms of Movement

- **Lateral Bending:**
 - Sideways movement of the trunk in the coronal plane.



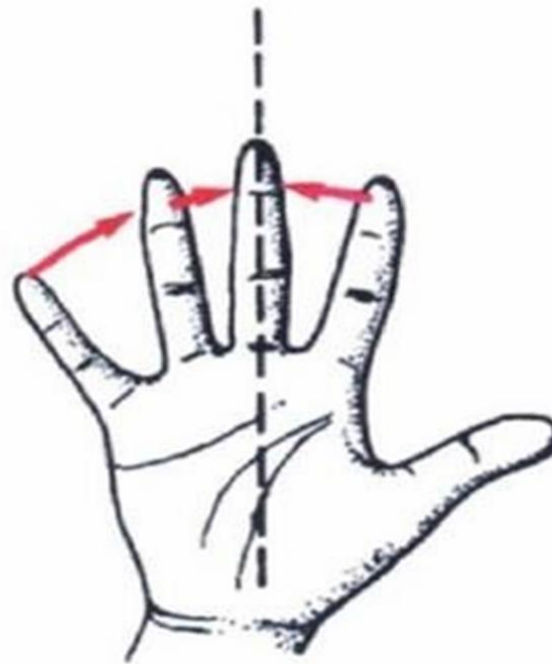
Anatomical Terms of Movement

- **Abduction:**
 - Moving a limb **away** from the body's midline in the coronal plane.
- **Adduction:**
 - Moving a limb **toward** the body's midline in the coronal plane.

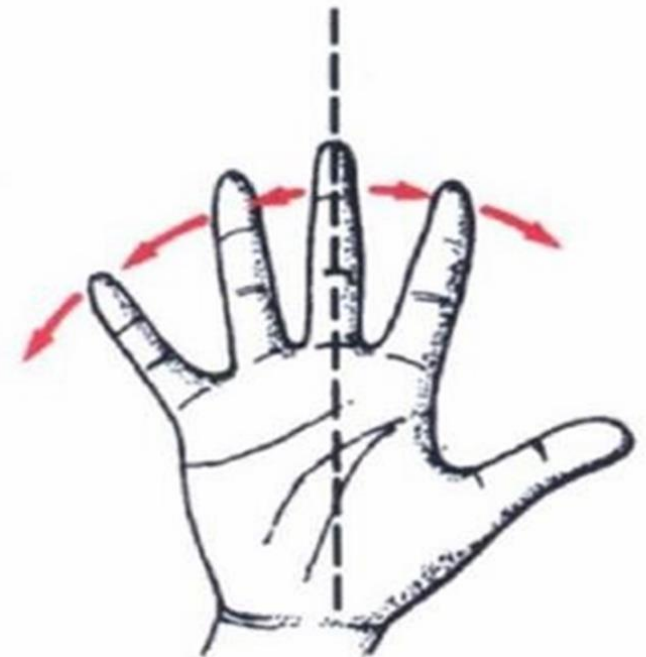


Anatomical Terms of Movement

- Abduction & Adduction: describe movements toward or away from the body's midline.
- **For fingers and toes:**
 - The midline refers to the hand or foot, not the body.
 - Ex: Spreading the fingers apart is abduction.



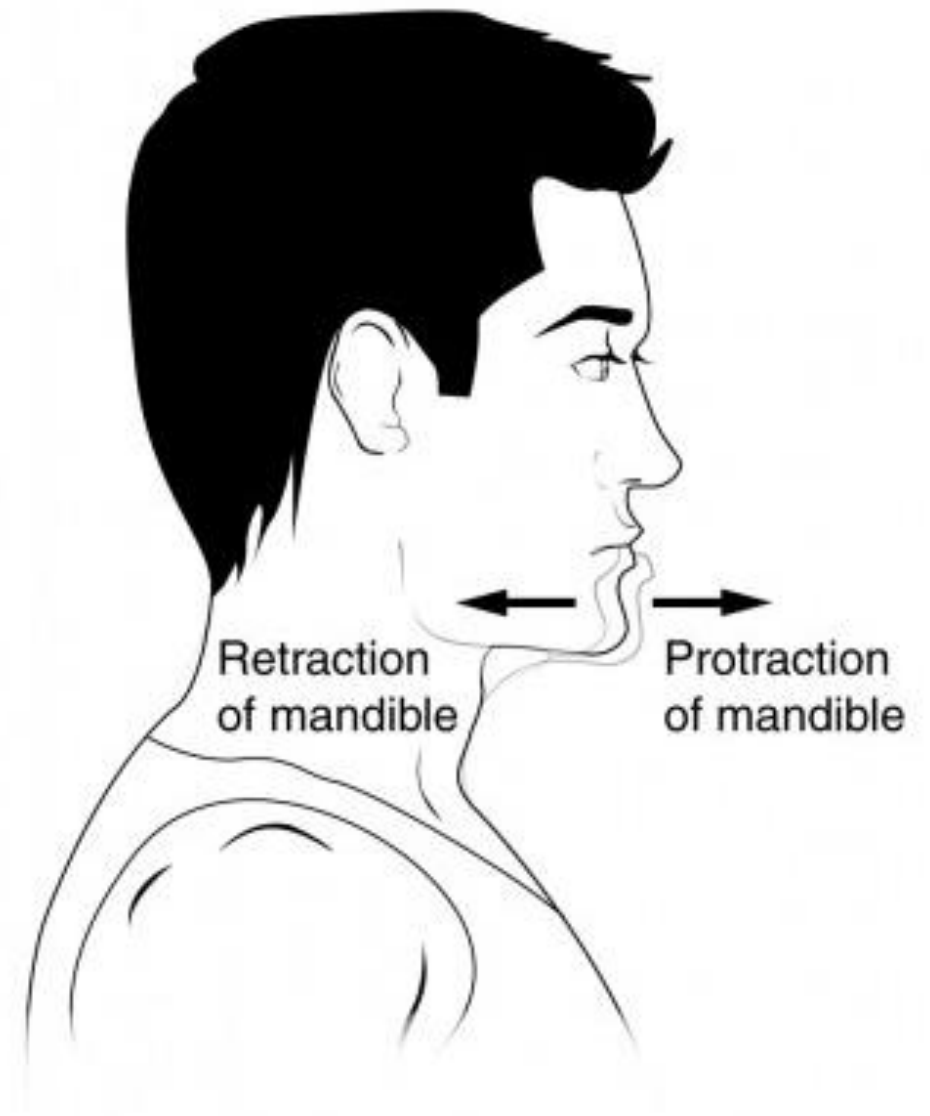
adduction of fingers



abduction of fingers

Anatomical Terms of Movement

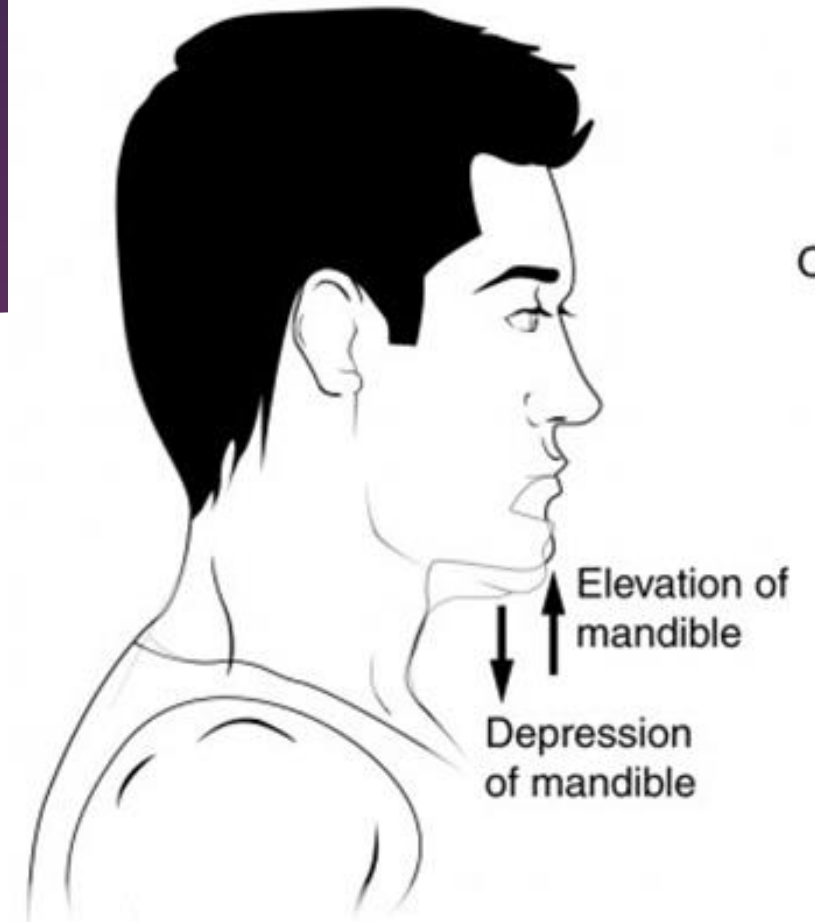
- **Protraction:**
 - Anterior (forward) movement of a body part.
 - Ex: Scapula (reaching forward).
- **Retraction:**
 - Posterior (backward) movement of a body part.
 - Ex: Scapula (pulling the shoulders back).



(j) Protraction and retraction

Anatomical Terms of Movement

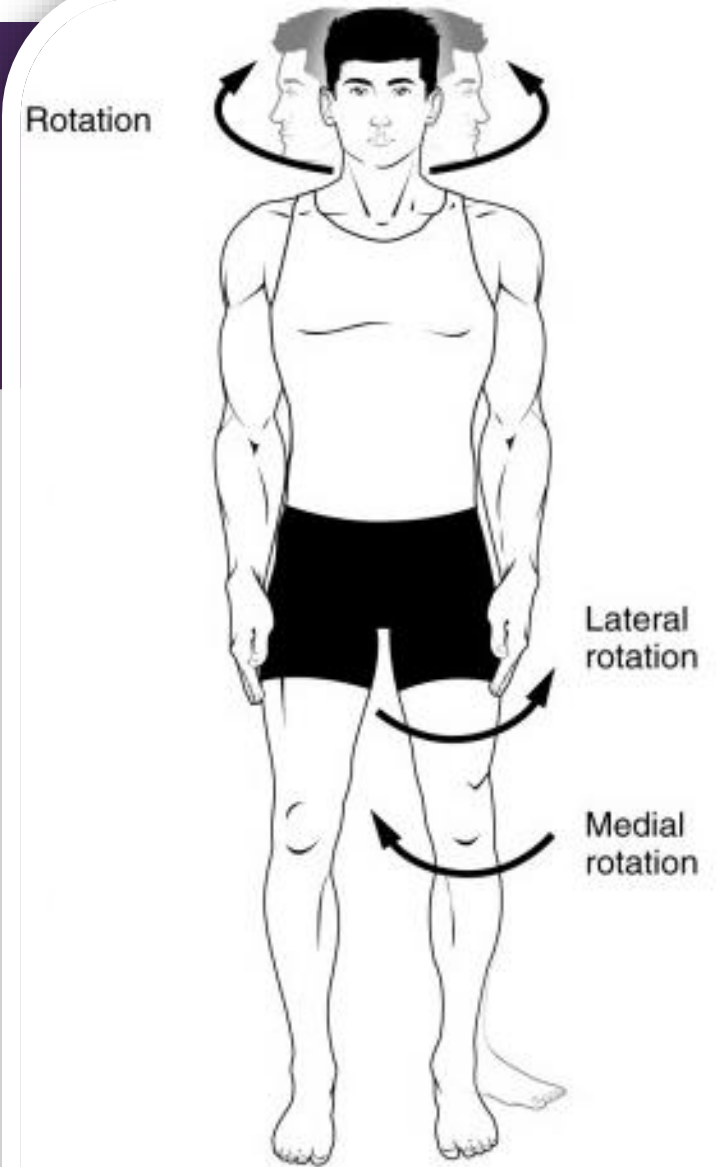
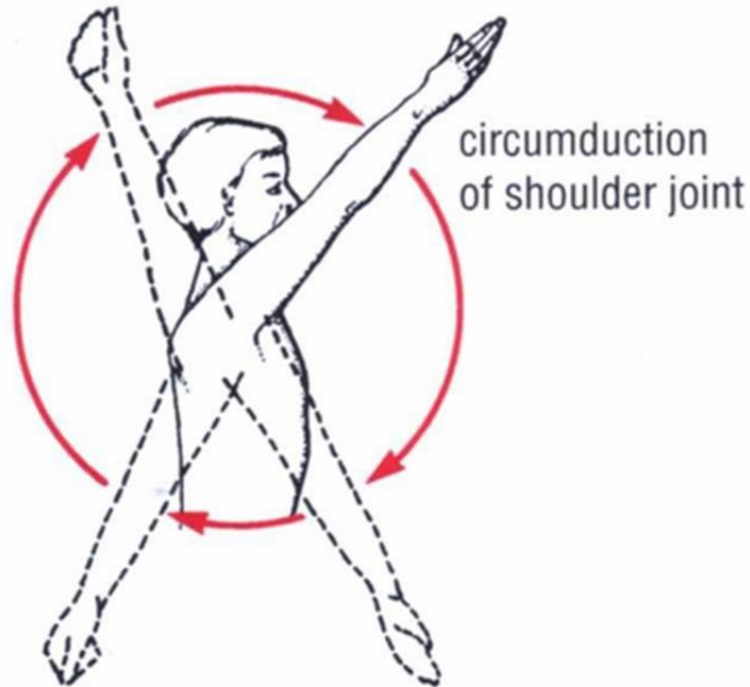
- **Elevation:**
 - Lifting or raising a body part superiorly (upward).
- **Depression:**
 - Lowering or moving a body part inferiorly (downward).



(k) Elevation and depression

Anatomical Terms of Movement

- **Circumduction:**
 - Circular movement of a limb, forming a cone shape.
 - Ex: Drawing a circle with the arm or leg.
- **Rotation:**
 - Turning or revolving a body part around its long axis.



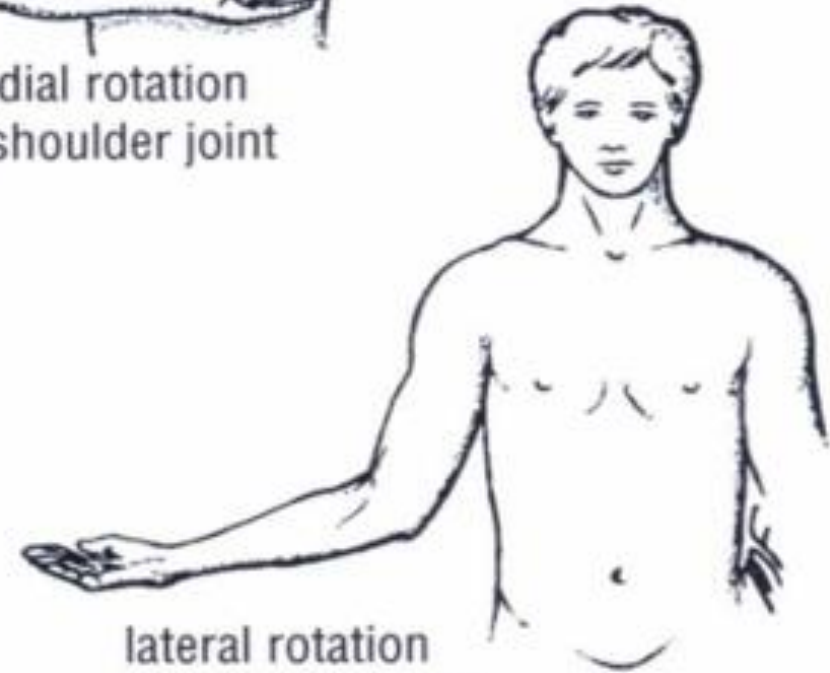
) Rotation of the head, neck, and lower limb

Anatomical Terms of Movement

- **Medial Rotation (Internal Rotation):**
 - Rotation **toward** the midline.
 - Ex: Rotating the shoulder to bring the hand toward the opposite hip.
- **Lateral Rotation (External Rotation):**
 - Rotation **away** from the midline.
 - Ex: Rotating the shoulder to move the hand away from the body.



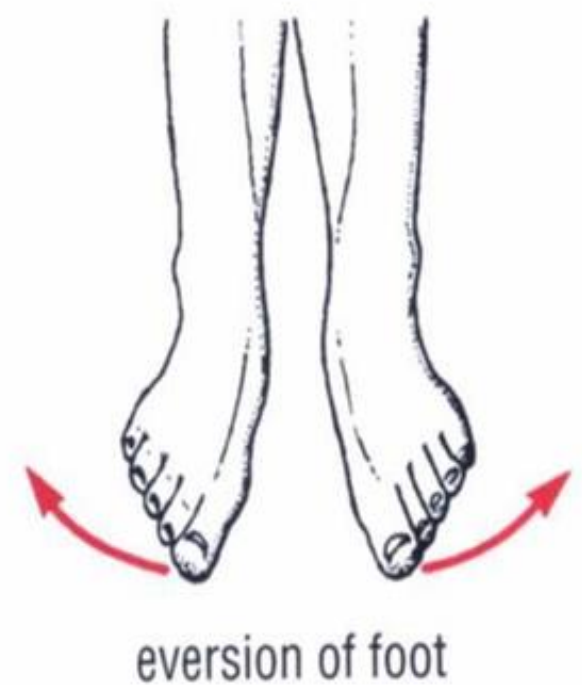
medial rotation
of shoulder joint



lateral rotation
of shoulder joint

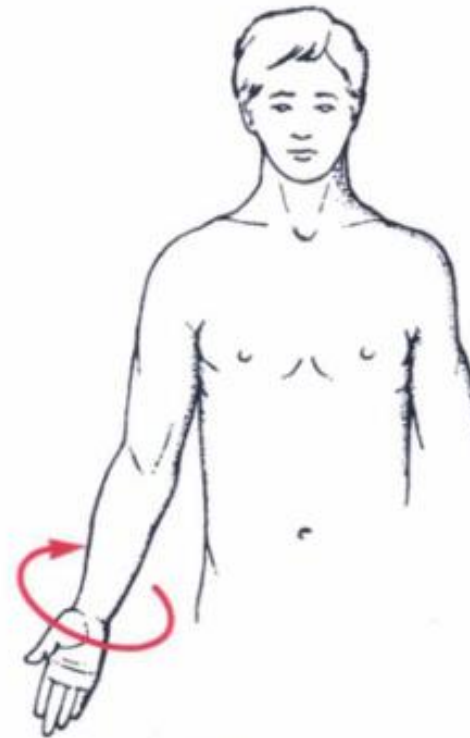
Anatomical Terms of Movement

- **Inversion & Eversion**
 - Describe rotational movements of the foot.
- **Inversion:**
 - Turning the sole of the foot medially (inward).
- **Eversion:**
 - Turning the sole of the foot laterally (outward).

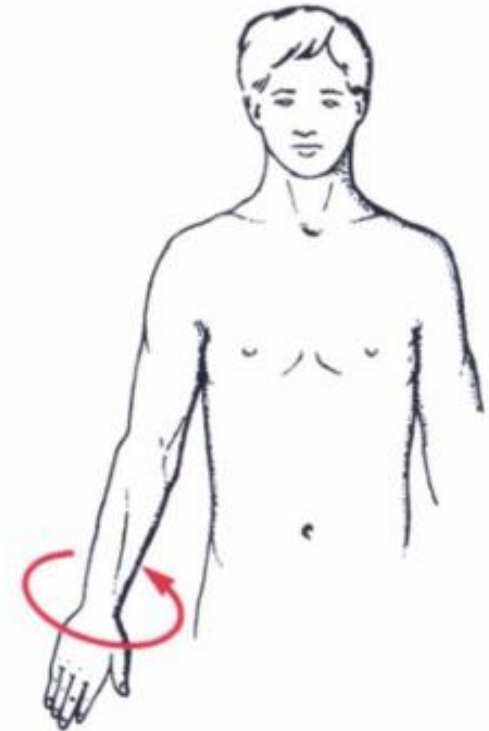


Anatomical Terms of Movement

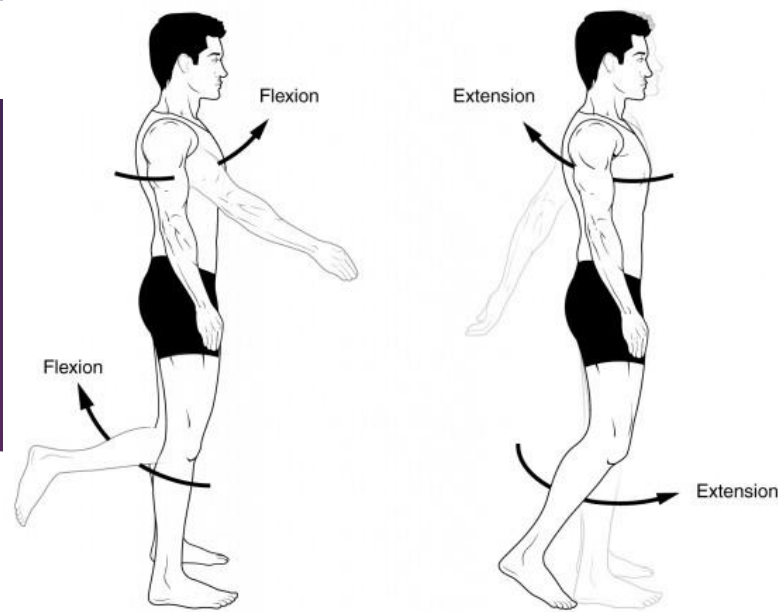
- **Pronation:**
 - Medial rotation of the forearm, causing the palm to face posteriorly (backward)---- downward (prone position).
- **Supination:**
 - Lateral rotation of the forearm, causing the palm to face anteriorly (forward)---- upward (supine position).



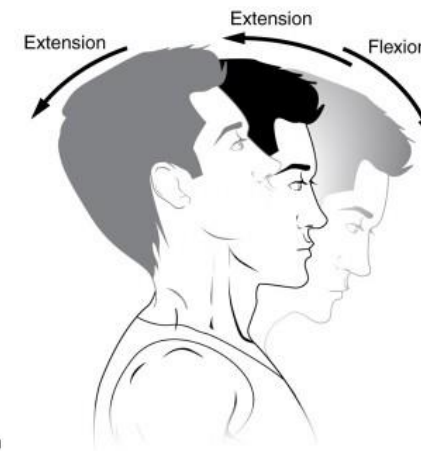
supination of forearm



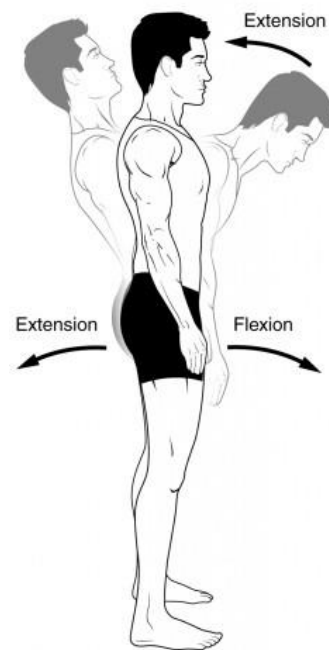
pronation of forearm



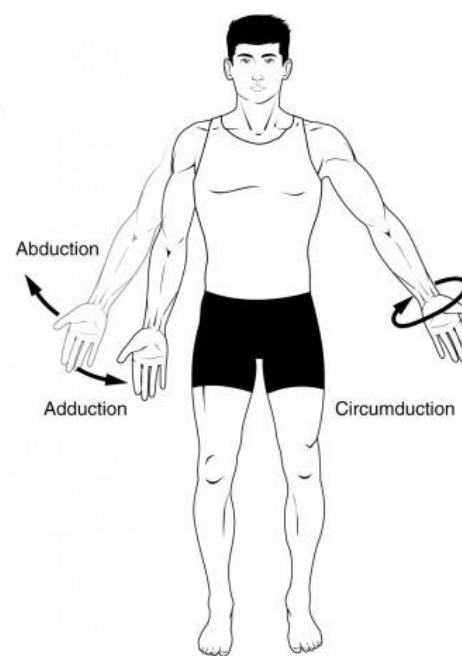
(a) and (b) Angular movements: flexion and extension at the shoulder and knees



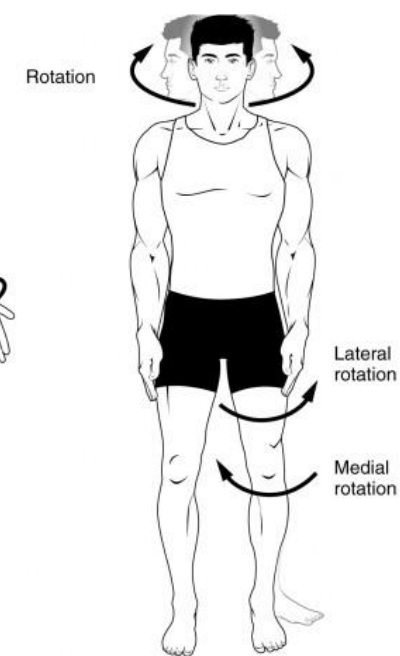
(c) Angular movements: flexion and extension of the neck



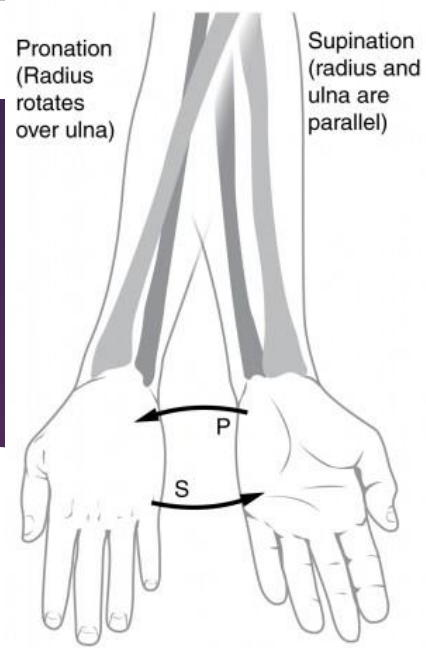
(d) Angular movements: flexion and extension of the vertebral column



(e) Angular movements: abduction, adduction, and circumduction of the upper limb at the shoulder



(f) Rotation of the head, neck, and lower limb



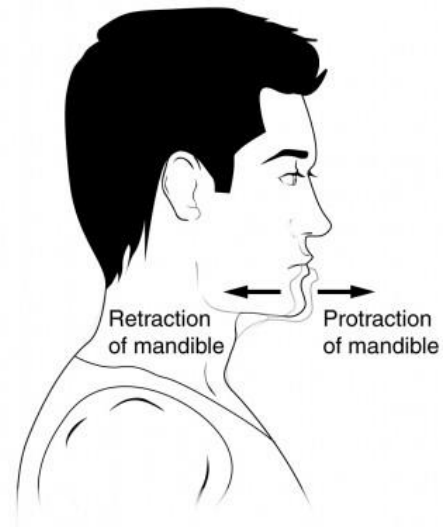
(g) Pronation (P) and supination (S)



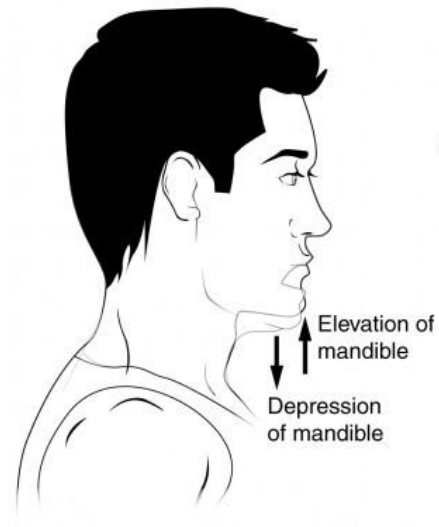
(h) Dorsiflexion and plantar flexion



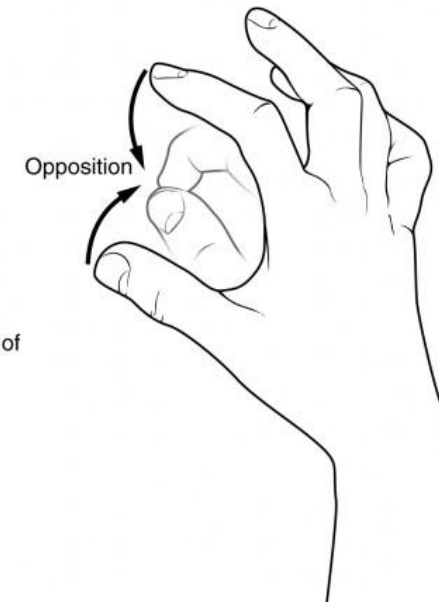
(i) Inversion and eversion



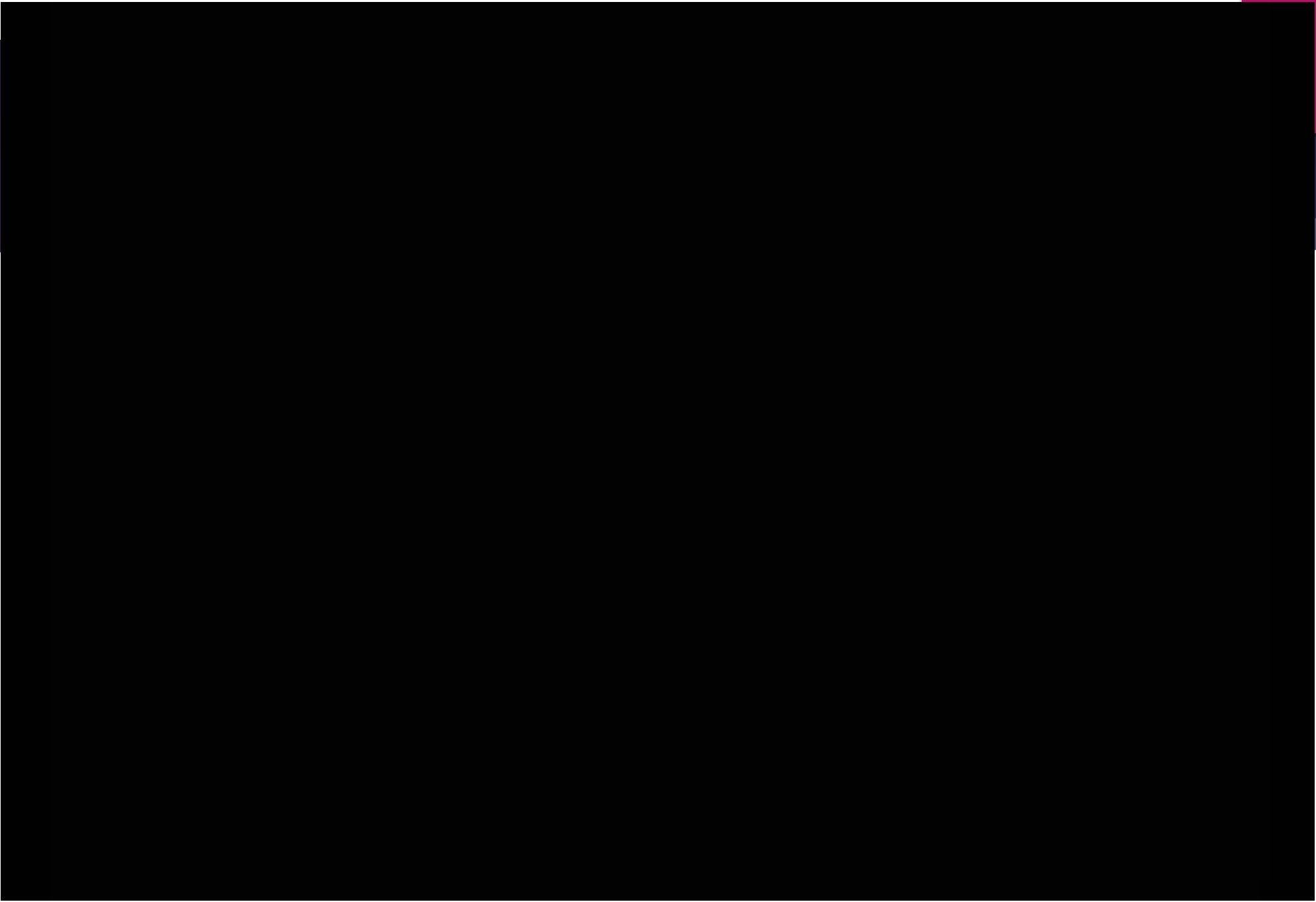
(j) Protraction and retraction

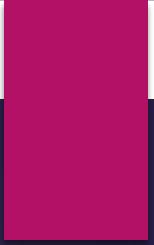


(k) Elevation and depression



(l) Opposition





Thank You