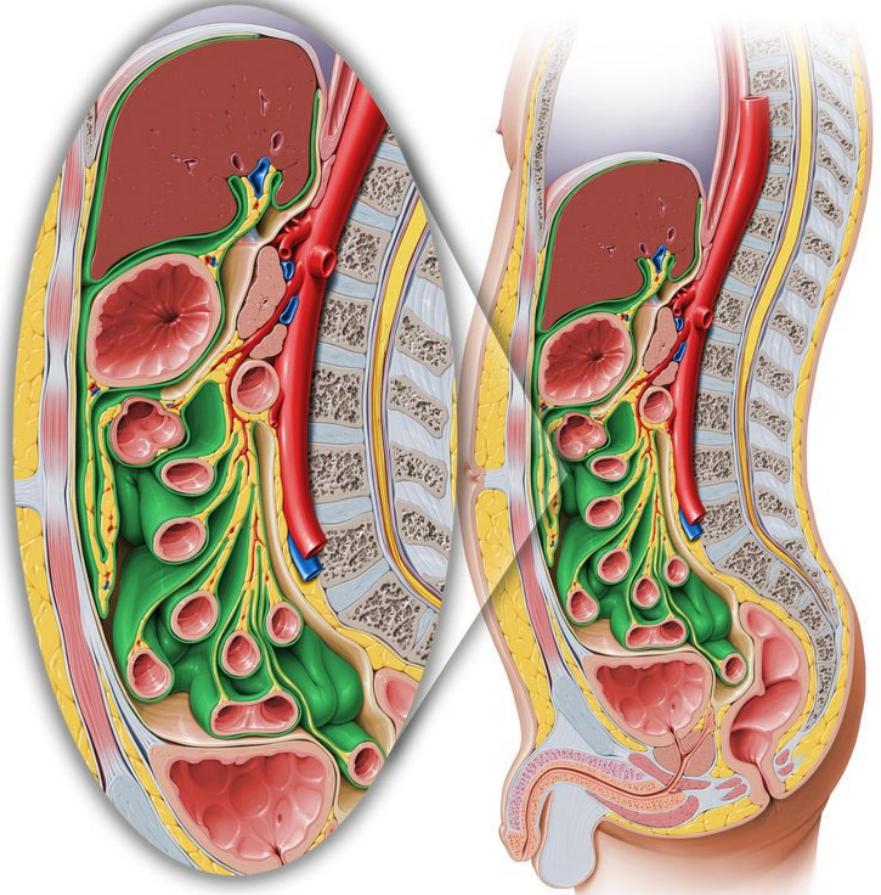
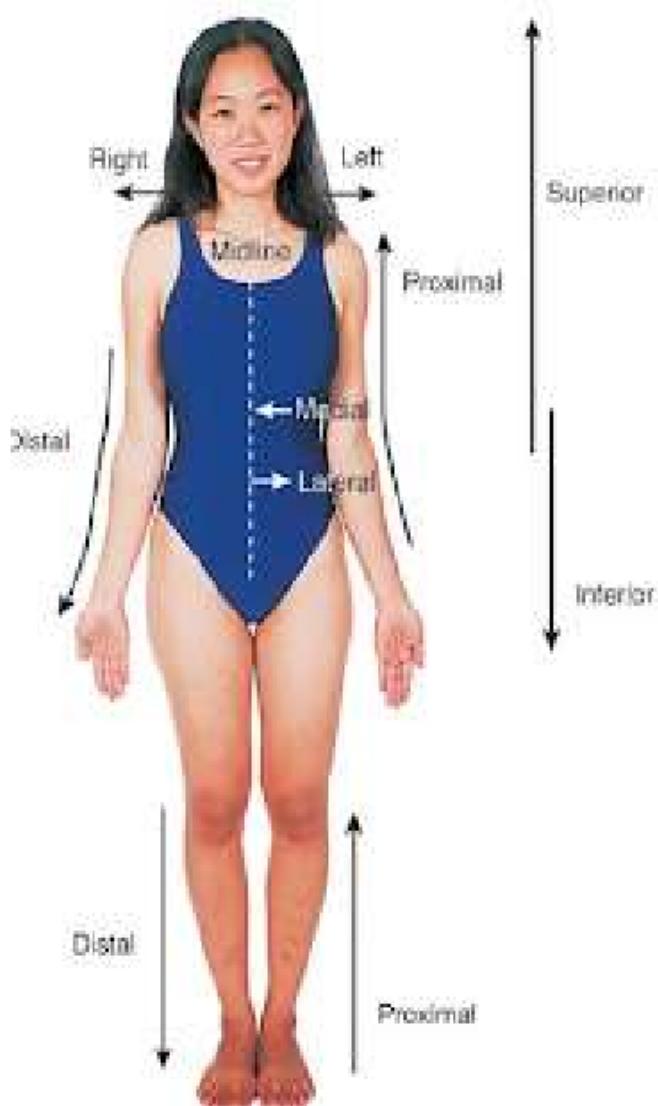


# Introduction to Human Anatomy

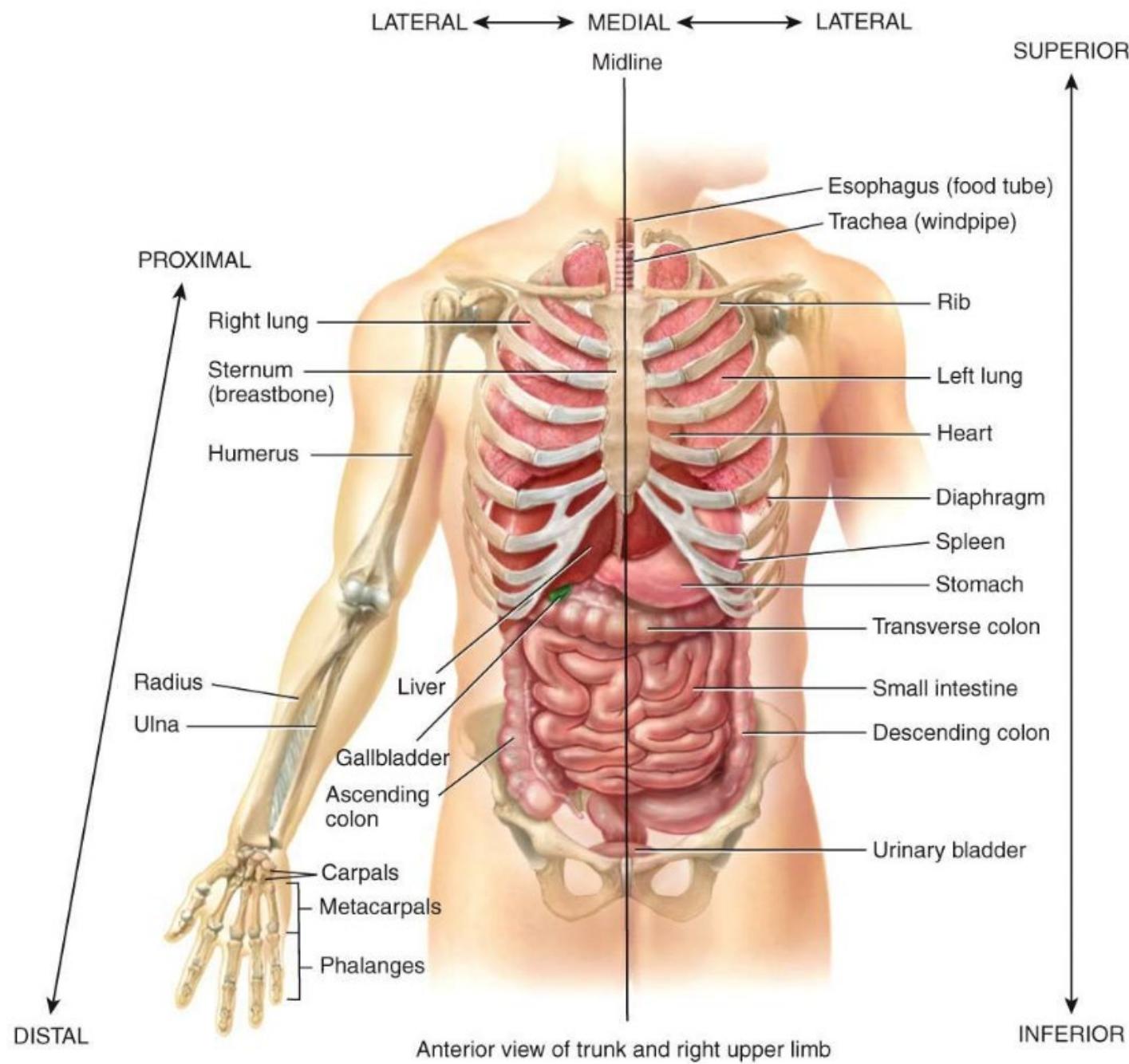


- > Anatomical Position
- > Directional Terms
- > Abdominal Regions and Organs
- > Anatomical Planes and Sections
- > Serous VS Mucous Membranes
- > Body Cavities
- > Retroperitoneal

# What is The Anatomical Position?



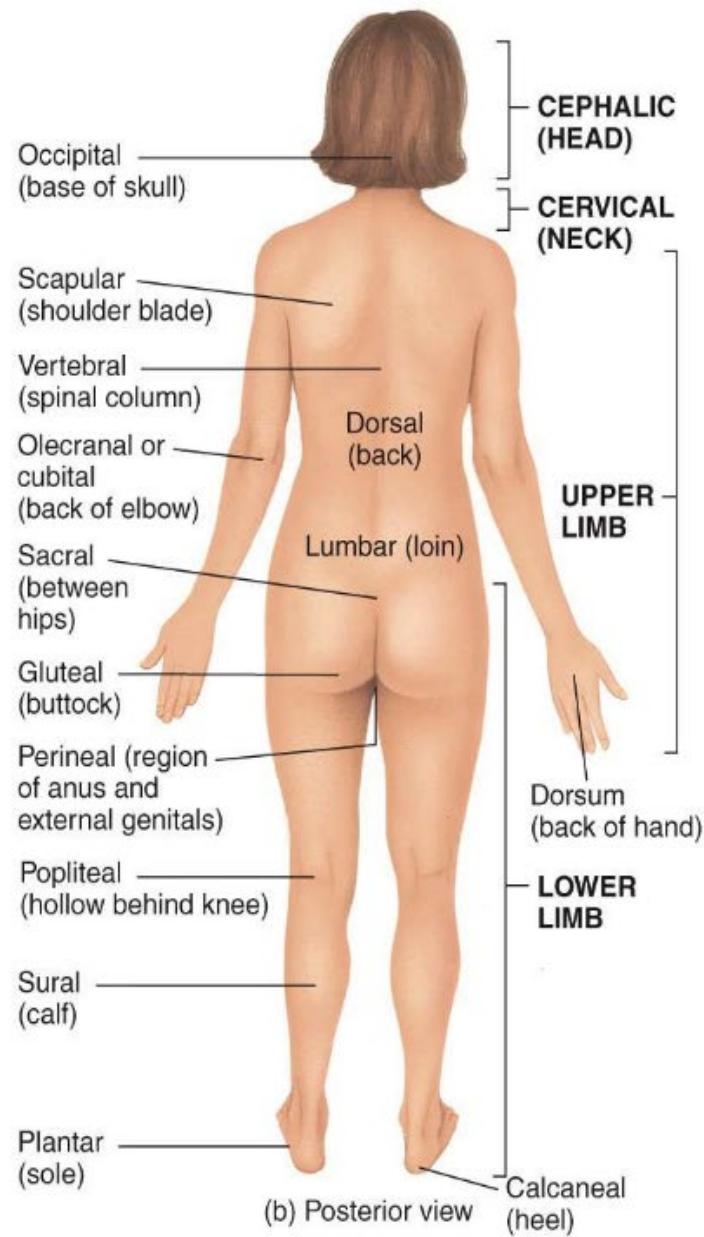
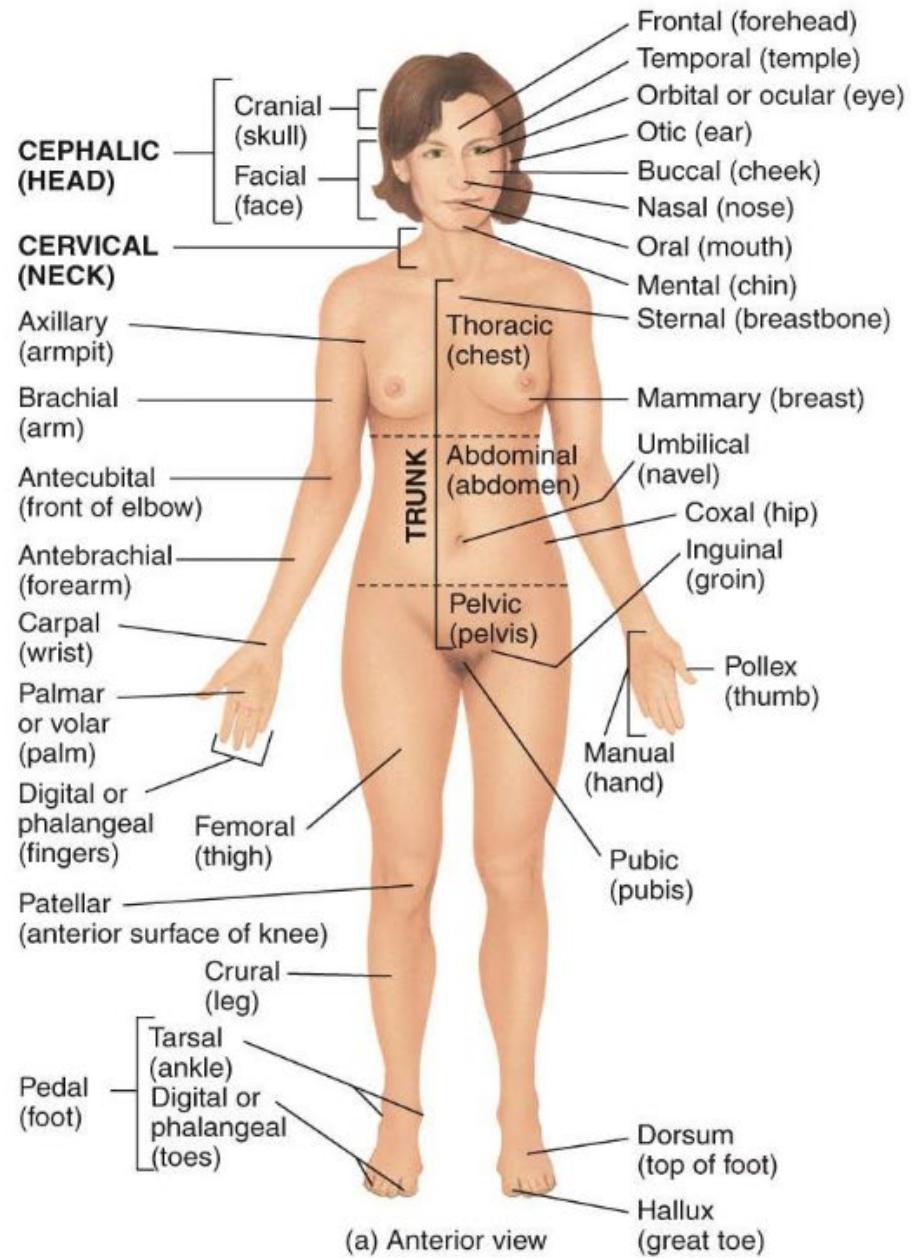
- Person stands erect
- Feet flat on floor
- Arms at sides
- Palms, face & eyes facing forward
- This is the standard frame of reference that is used when describing anatomical objects & procedures in dissection



# Forearm Positions



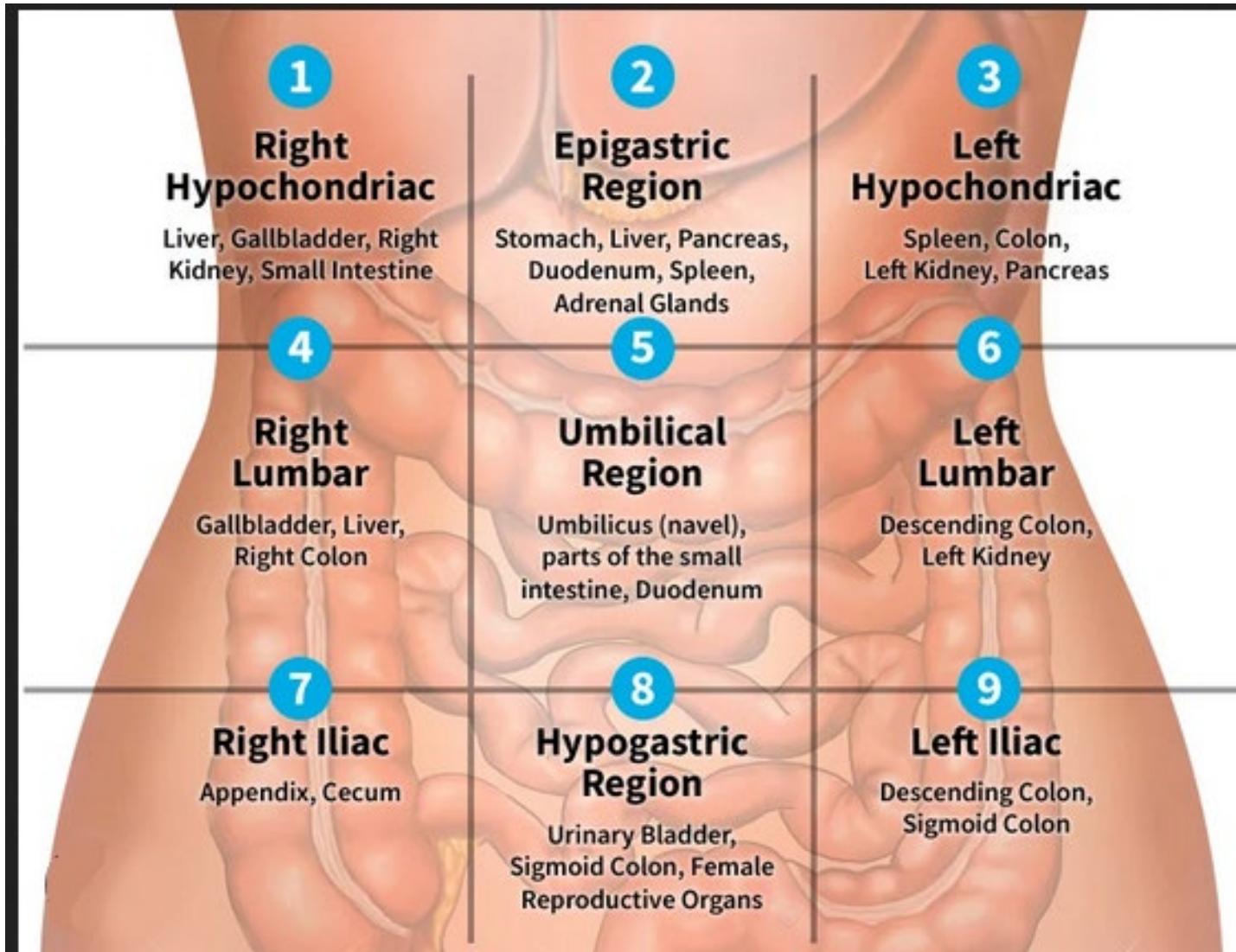
- When **supinated**
  - palms face forward or upward
  - radius & ulna are parallel
- When **pronated**
  - palms face rearward or downward
  - radius & ulna are crossed



DIRECTIONAL TERM	DEFINITION	EXAMPLE OF USE
<b>Superior</b> (soo'-PĒR-ē-or) (cephalic or cranial)	Toward the head, or the upper part of a structure.	The heart is superior to the liver.
<b>Inferior</b> (in-FĒ-rē-or) (caudal)	Away from the head, or the lower part of a structure.	The stomach is inferior to the lungs.
<b>Anterior</b> (an-TĒR-ē-or) (ventral)*	Nearer to or at the front of the body.	The sternum (breastbone) is anterior to the heart.
<b>Posterior</b> (pos-TĒR-ē-or) (dorsal)	Nearer to or at the back of the body.	The esophagus (food tube) is posterior to the trachea (windpipe).
<b>Medial</b> (MĒ-dē-al)	Nearer to the midline (an imaginary vertical line that divides the body into equal right and left sides).	The ulna is medial to the radius.
<b>Lateral</b> (LAT-er-al)	Farther from the midline.	The lungs are lateral to the heart.
<b>Intermediate</b> (in'-ter-MĒ-dē-at)	Between two structures.	The transverse colon is intermediate to the ascending and descending colons.
<b>Ipsilateral</b> (ip-si-LAT-er-al)	On the same side of the body as another structure.	The gallbladder and ascending colon are ipsilateral.
<b>Contralateral</b> (KON-tra-lat-er-al)	On the opposite side of the body from another structure.	The ascending and descending colons are contralateral.
<b>Proximal</b> (PROK-si-mal)	Nearer to the attachment of a limb to the trunk; nearer to the origination of a structure.	The humerus (arm bone) is proximal to the radius.
<b>Distal</b> (DIS-tal)	Farther from the attachment of a limb to the trunk; farther from the origination of a structure.	The phalanges (finger bones) are distal to the carpal (wrist bones).
<b>Superficial</b> (soo'-per-FISH-al) (external)	Toward or on the surface of the body.	The ribs are superficial to the lungs.
<b>Deep (Internal)</b>	Away from the surface of the body.	The ribs are deep to the skin of the chest and back.

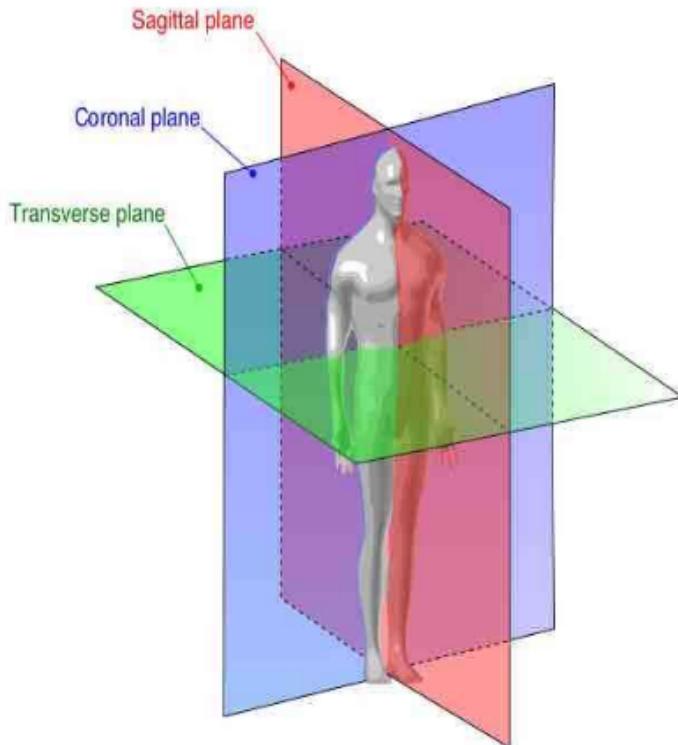
\*Note that the terms *anterior* and *ventral* mean the same thing in humans. However, in four-legged animals *ventral* refers to the belly side and is therefore *inferior*. Similarly, the terms *posterior* and *dorsal* mean the same thing in humans, but in four-legged animals *dorsal* refers to the back side and is therefore *superior*.

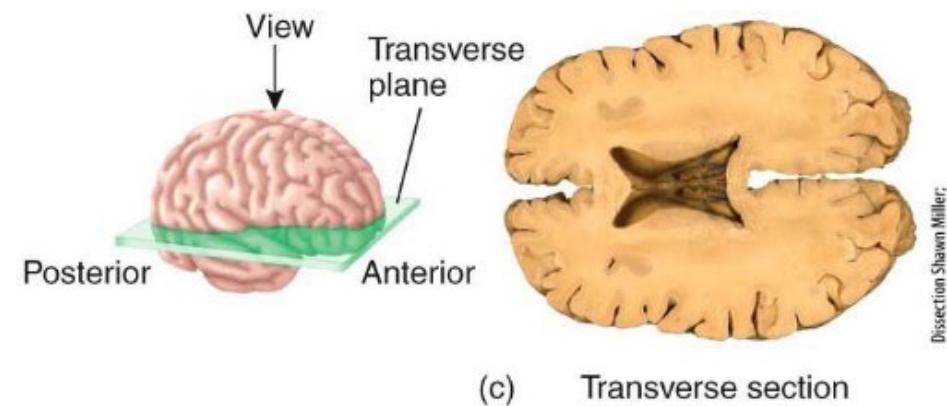
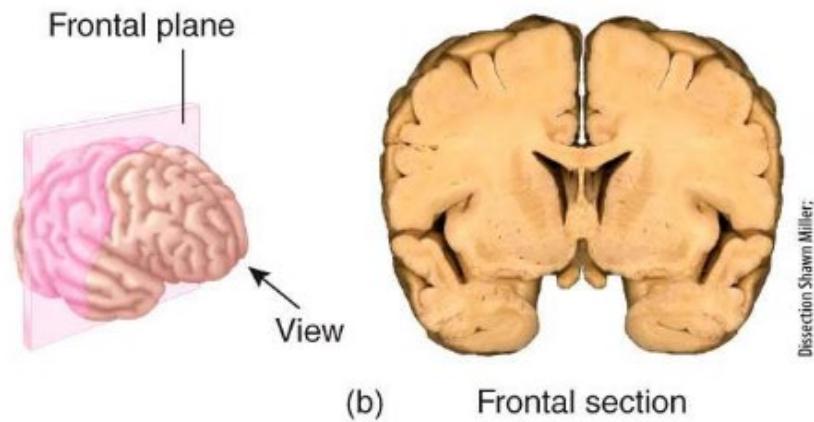
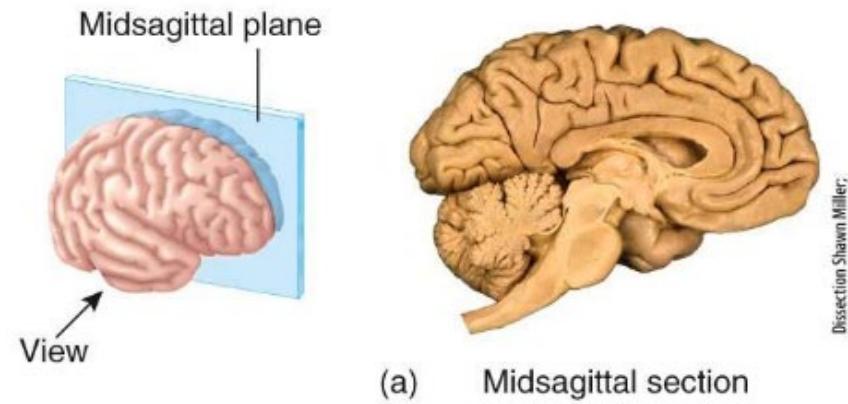
# The Nine Regions and Associated Organs

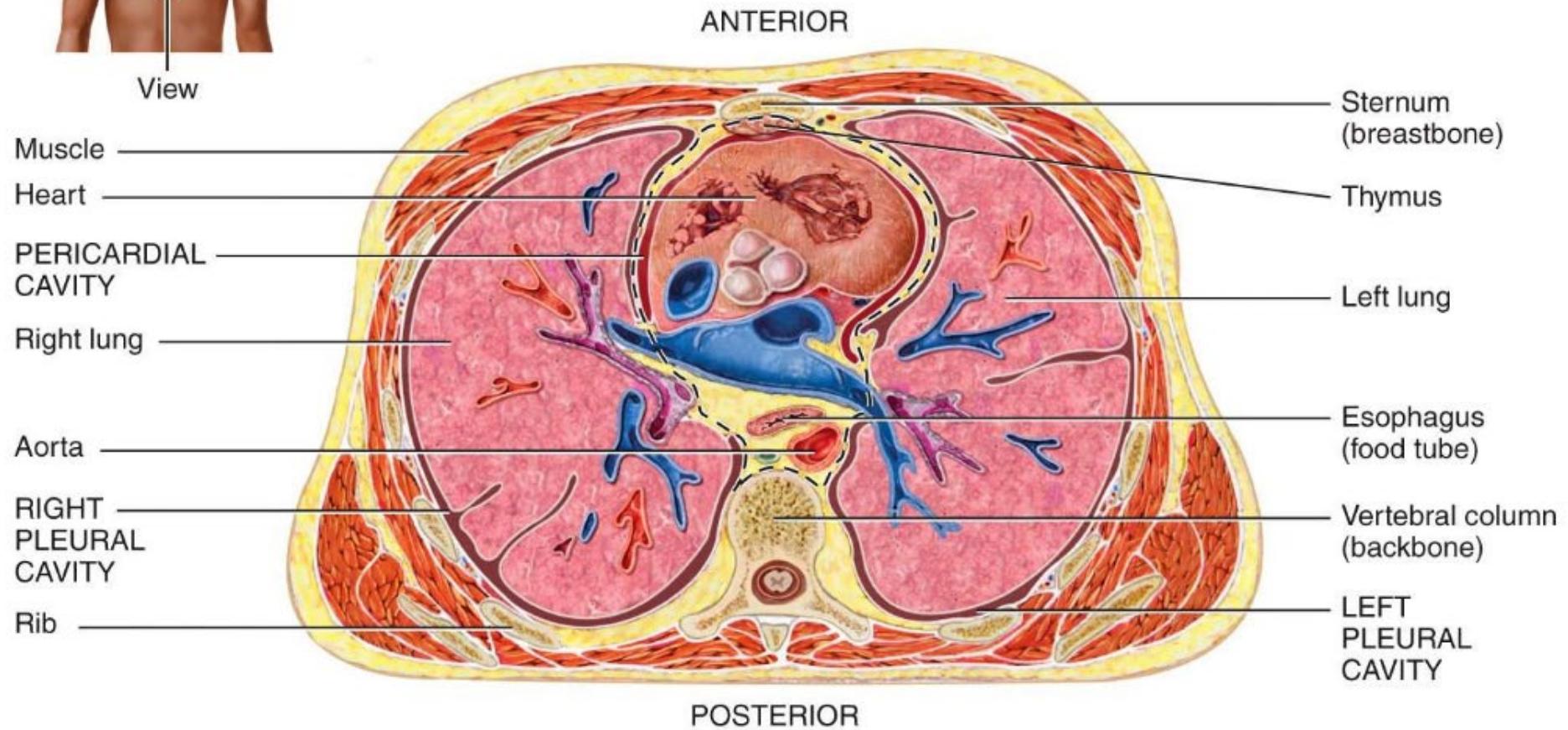


# Anatomical Planes and Sections

- **Sections** implies actual cut or slice to reveal internal anatomy
- **Plane** implies an imaginary flat surface passing through the body
  - **Sagittal plane** divides body into right and left regions // **median (midsagittal) plane** divides body or organ into equal halves
  - **Frontal (coronal) plane** divides body into anterior (front) & posterior (back) portions
  - **Transverse (horizontal) plane** divides the body into superior (upper) & inferior (lower) portions







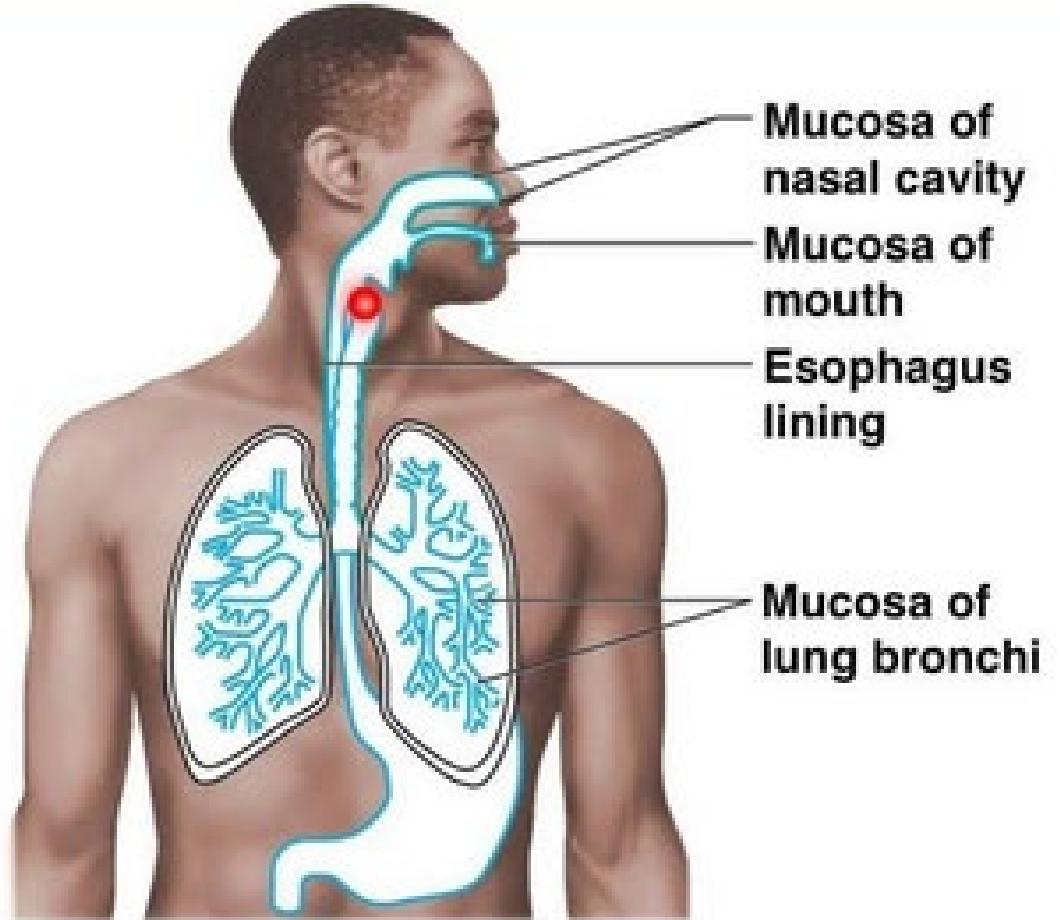
(b) Inferior view of transverse section of thoracic cavity

# Serous VS Mucous Membranes

Mucous membranes line the passageways open to the external environment.

Serous membranes line the closed cavities of your body (next slide).

## Mucous Membranes



**(b) Mucous membranes line body cavities open to the exterior.**

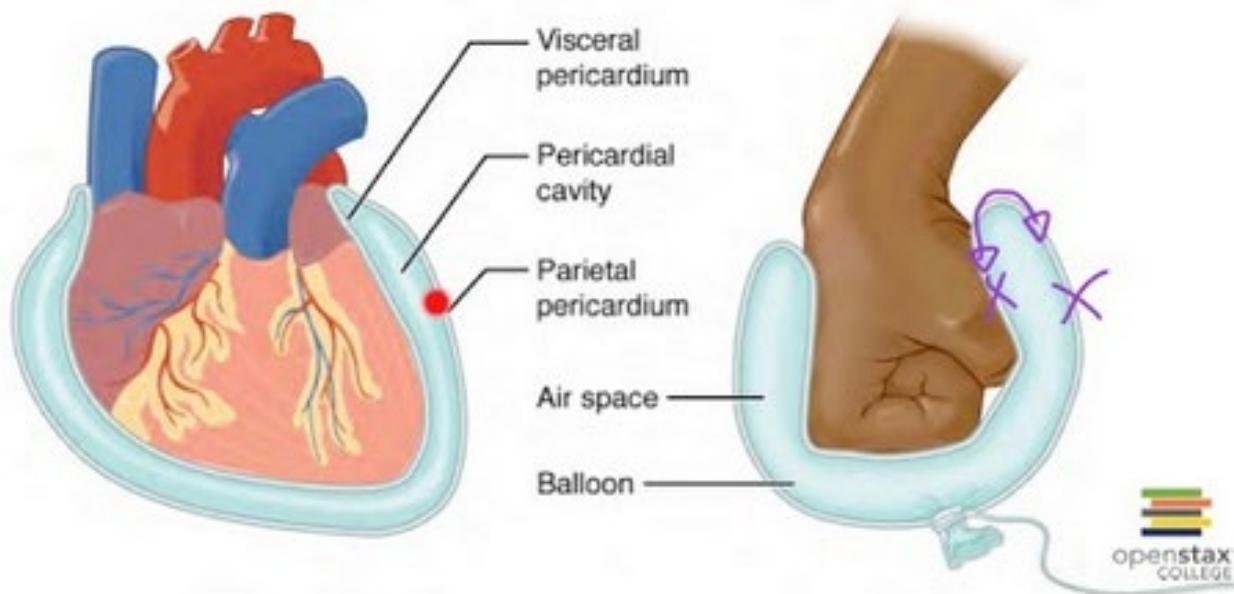
# Serous Membranes

● = Serosae

- Parietal serous membrane
- Visceral serous membrane
- Not really separate membranes.

● Get different names depending on location:

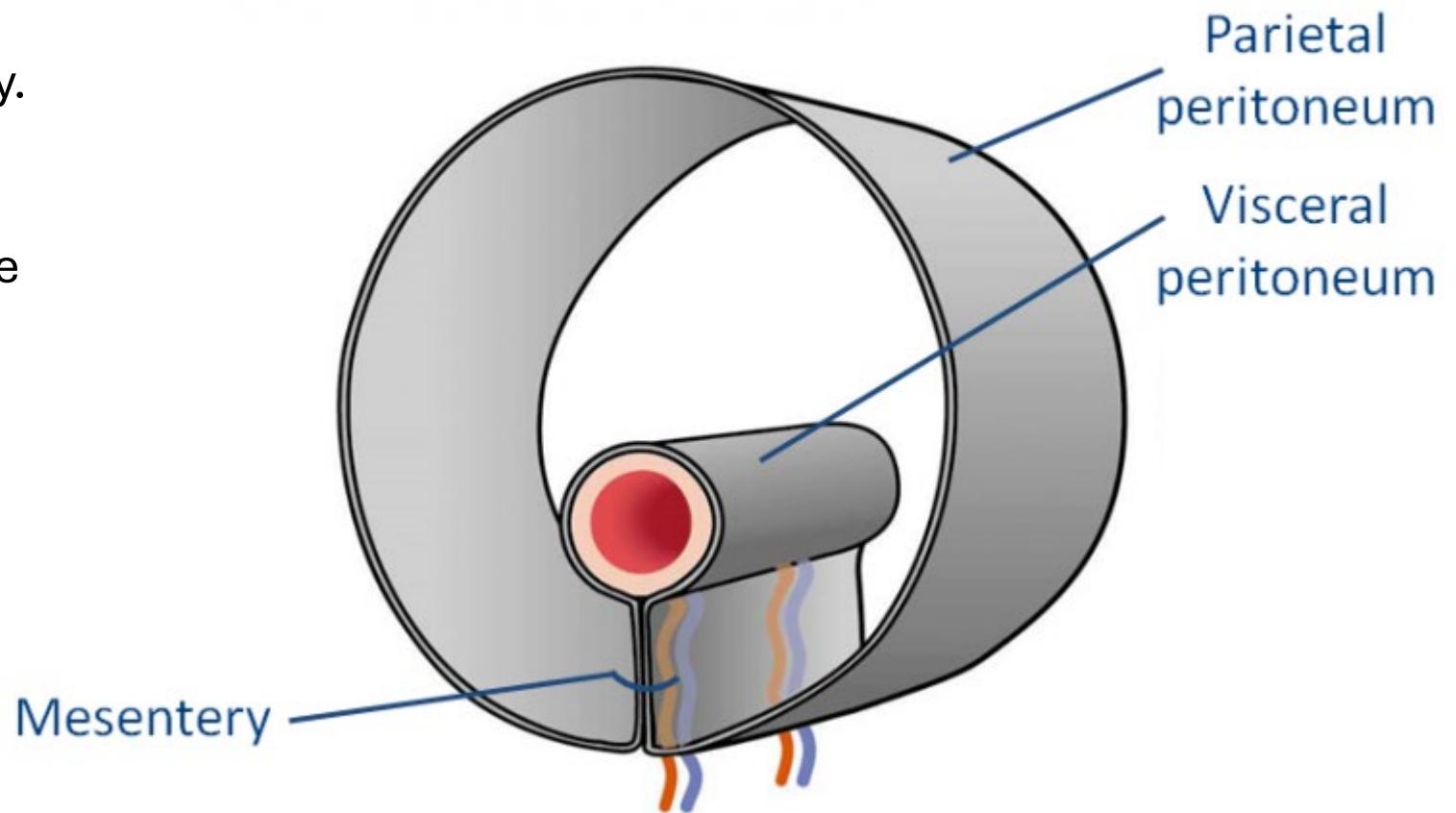
- Parietal and visceral pericardium
- Parietal and visceral pleura
- Parietal and visceral peritoneum



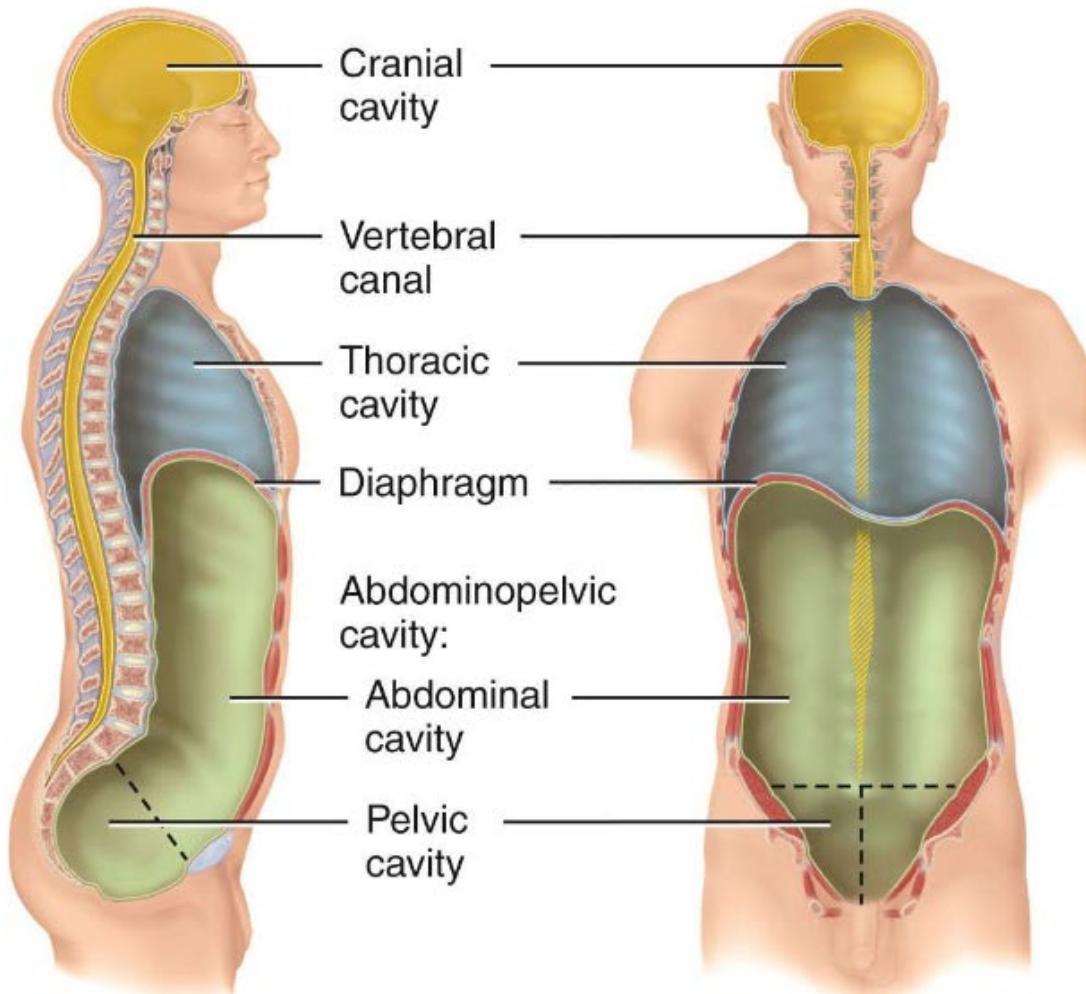
# Parietal VS Visceral Serous Membranes

The parietal aspect of the serous membrane line the outer walls of the closed cavity.

The visceral aspect of the serous cover the objects inside the closed cavity.

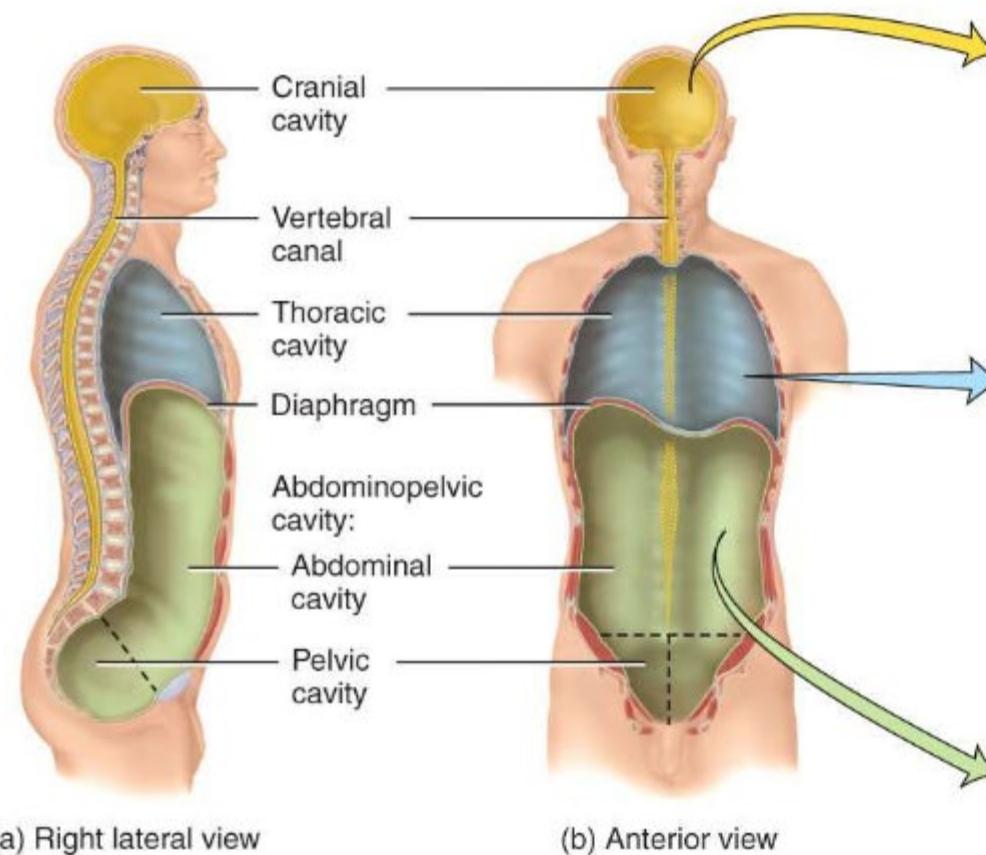


# Dorsal vs Ventral Cavities



Dorsal = cranial and vertebral cavities

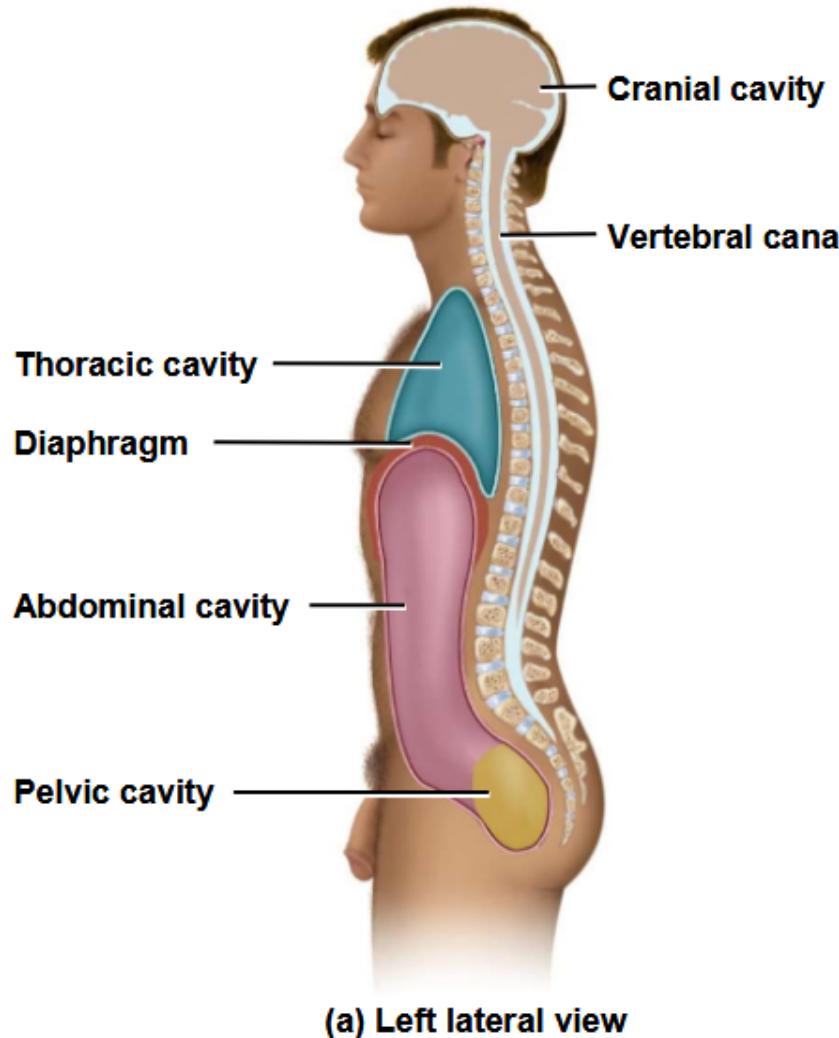
Ventral = thoracic and abdominopelvic



CAVITY	COMMENTS
<b>Cranial cavity</b>	Formed by cranial bones and contains brain.
<b>Vertebral canal</b>	Formed by vertebral column and contains spinal cord and the beginnings of spinal nerves.
<b>Thoracic cavity*</b>	Chest cavity; contains pleural and pericardial cavities and the mediastinum.
<i>Pleural cavity</i>	A potential space between the layers of the pleura that surrounds a lung.
<i>Pericardial cavity</i>	A potential space between the layers of the pericardium that surrounds the heart.
<i>Mediastinum</i>	Central portion of thoracic cavity between the lungs; extends from sternum to vertebral column and from first rib to diaphragm; contains heart, thymus, esophagus, trachea, and several large blood vessels.
<b>Abdominopelvic cavity</b>	Subdivided into abdominal and pelvic cavities.
<i>Abdominal cavity</i>	Contains stomach, spleen, liver, gallbladder, small intestine, and most of large intestine; the serous membrane of the abdominal cavity is the peritoneum.
<i>Pelvic cavity</i>	Contains urinary bladder, portions of large intestine, and internal organs of reproduction.

\* See Figure 1.10 for details of the thoracic cavity.

# Cranial Cavity & Vertebral Canal



- **Cranial cavity**

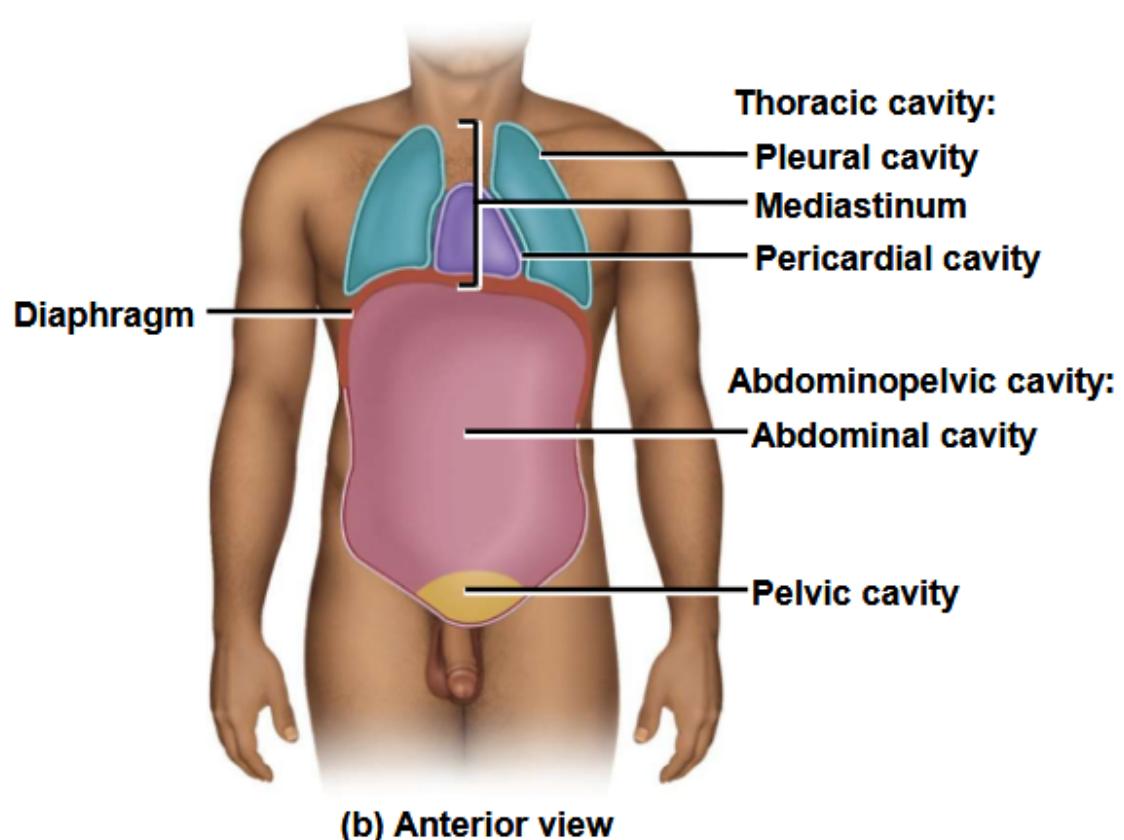
- contains brain
- meninges membranes

- **Vertebral canal**

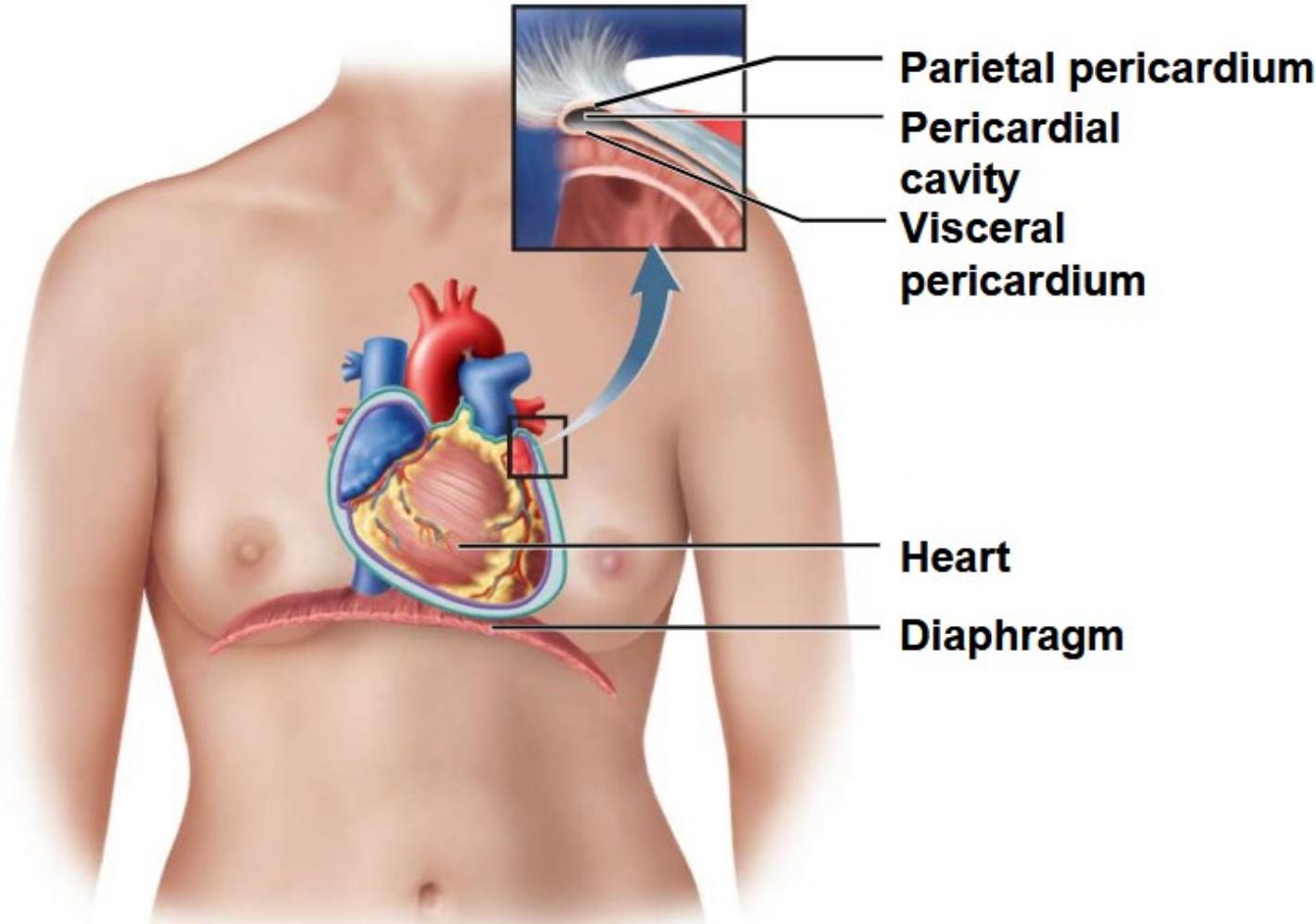
- contains the spinal cord
- meninges membranes

# Thoracic Cavity

- **Mediastinum** - region between lungs // location for heart, major blood vessels, esophagus, trachea, & thymus
- **Pericardium** – around heart
  - **visceral pericardium**
  - **parietal pericardium**
  - **pericardial cavity**
  - **pericardial fluid**
- **Pleura** – around lungs
  - **visceral pleura**
  - **parietal pleura**
  - **peripleural cavity**
  - **peripleural fluid**

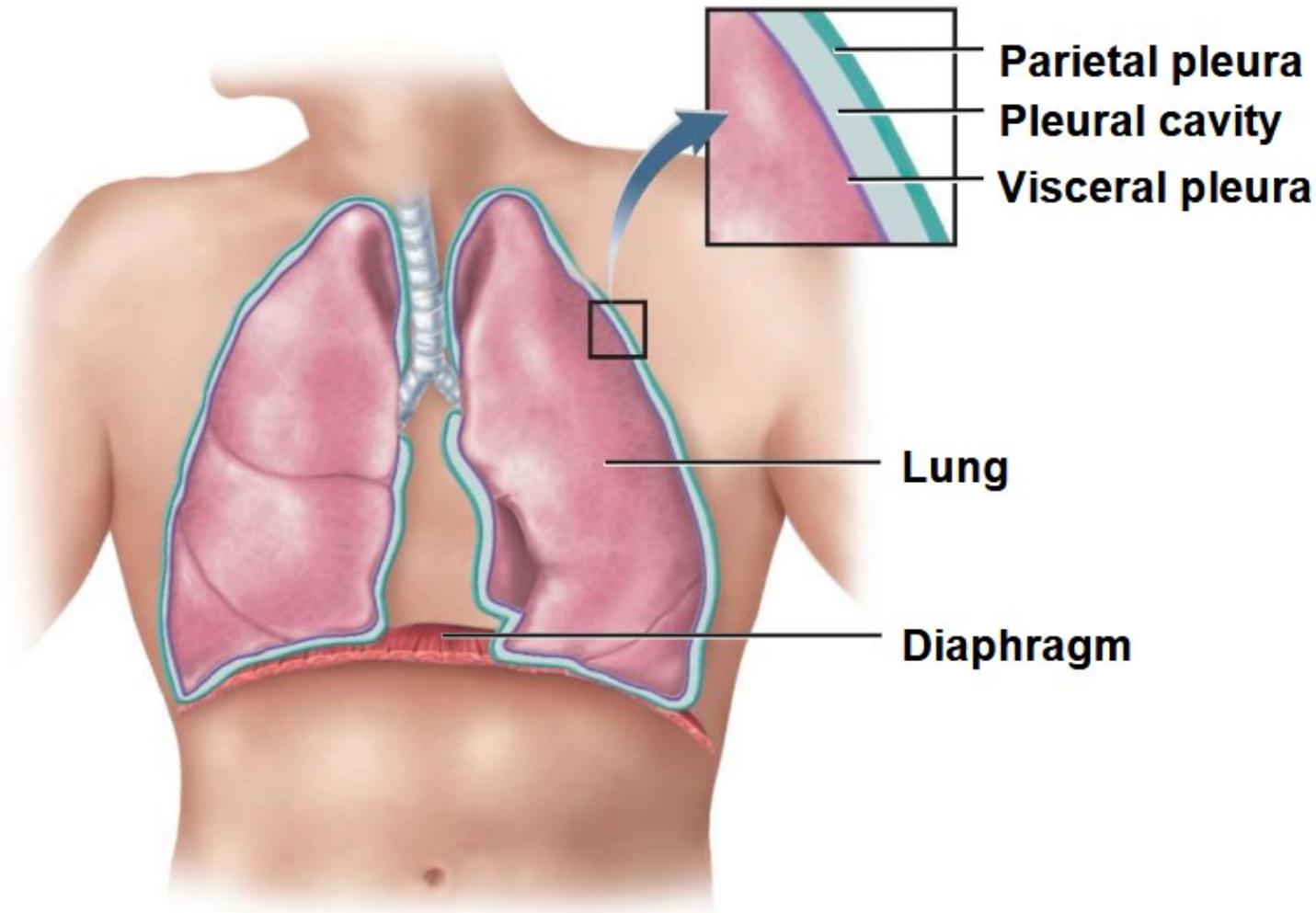


# Pericardial Membranes

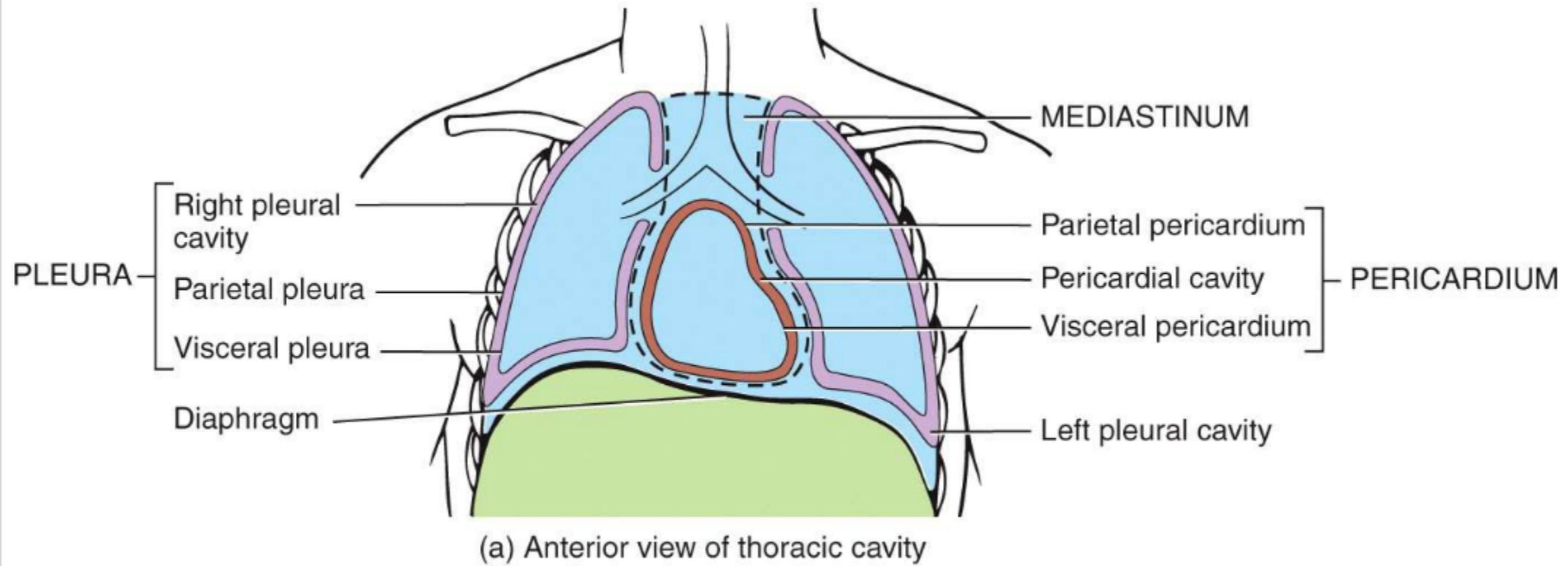


**(a) Pericardium**

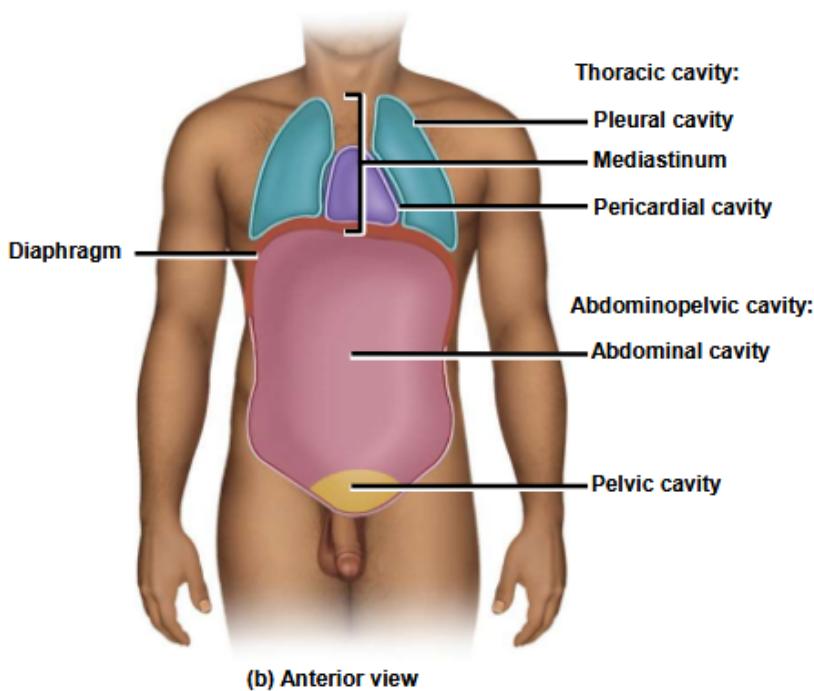
# Pleural Membranes



**(b) Pleurae**



# Abdominopelvic Cavity

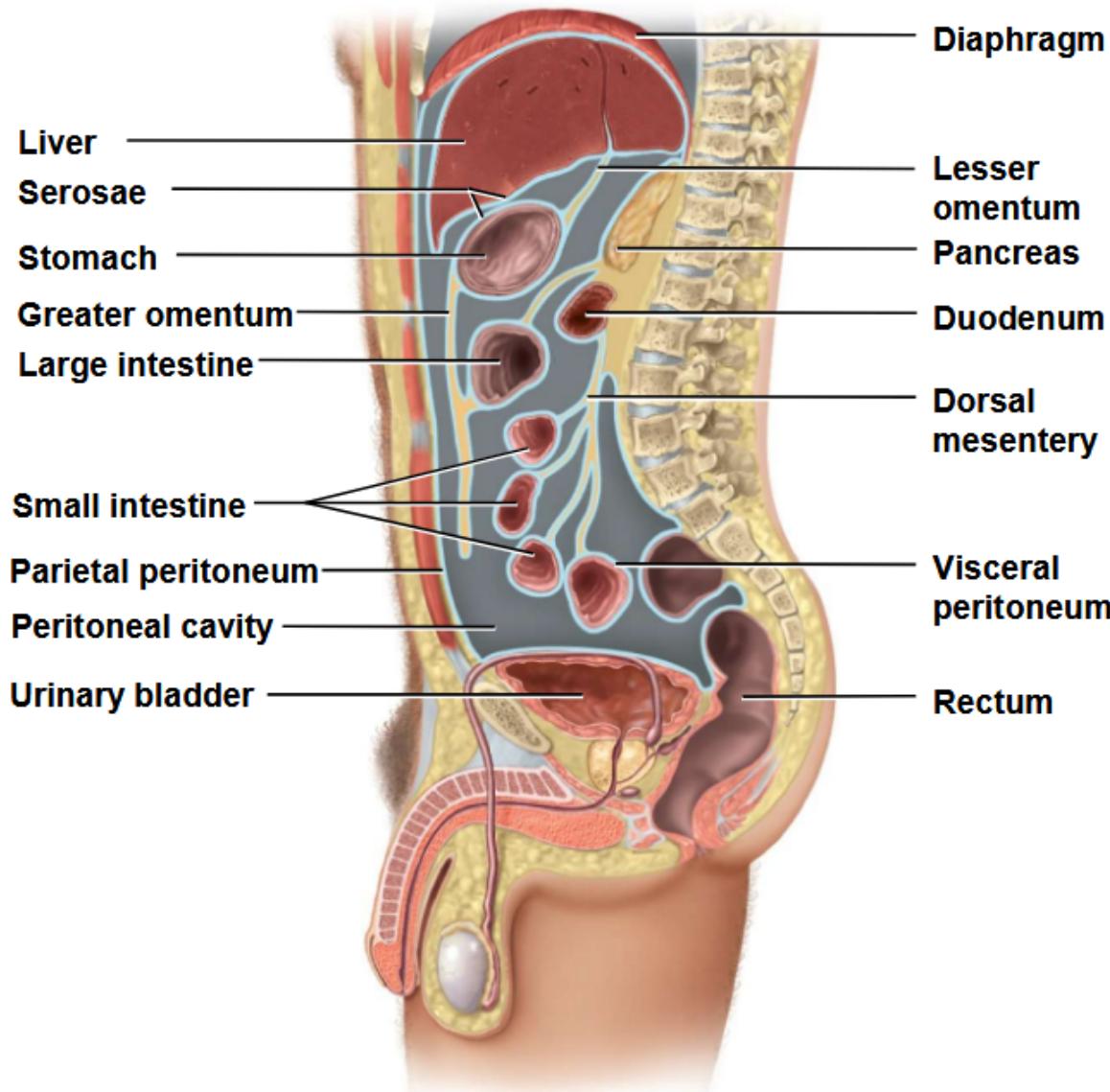


- **Pelvic brim** separates abdominal & pelvic cavities
  - **abdominal cavity** contains most digestive organs, kidneys & ureters
  - **pelvic cavity** contains rectum, urinary bladder, urethra & reproductive organs

**Peritoneum** = Serous Membranes of Abdominopelvic cavity

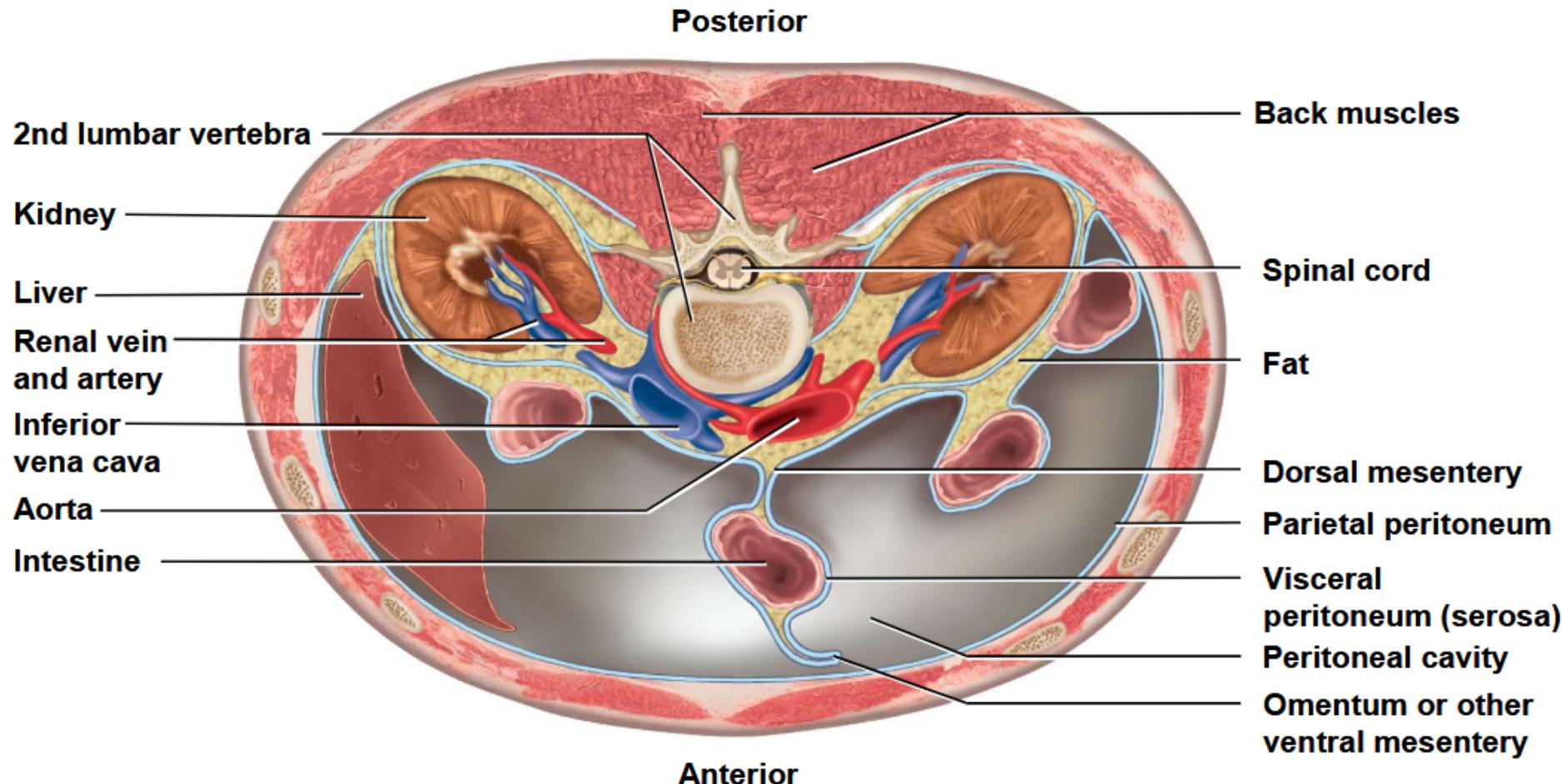
**visceral peritoneum**  
**parietal peritoneum**  
**peritoneal cavity**  
**peritoneal fluid**

# Membranes of Abdominal Cavity



# Retroperitoneal Organs

Describes position between muscles and parietal membranes.



**Kidneys, Ureters, Adrenal Glands, most of Pancreas, Abdominal portions of Aorta and Inferior Vena Cava**

# Potential Spaces

- Found between two membranes normally pressed firmly together
  - not physically attached, may separate, and fill with fluid in unusual situations
- Examples
  - pleural cavity // air or fluid can accumulate between parietal and visceral pleura forming a space
  - uterus // in a non-pregnant uterus, mucous membranes of walls are in contact

# Intra-peritoneal Organs

**Organs of the abdominal cavity are encircled by peritoneum and connected to posterior body wall by membranes**

- **dorsal mesentery** – suspends intestines from posterior abdominal wall
- **mesocolon** – dorsal mesentery of large intestine
- **ventral mesentery** – suspends viscera from anterior abdominal wall // **greater omentum** – inferolateral border of stomach – overlies intestines - ‘fatty apron’ // **lesser omentum** – superomedial border of stomach to liver
- **serosa** – outer layer of an organ formed when the visceral peritoneum divides and wraps around the organ