

Introduction to Human Anatomy and Physiology

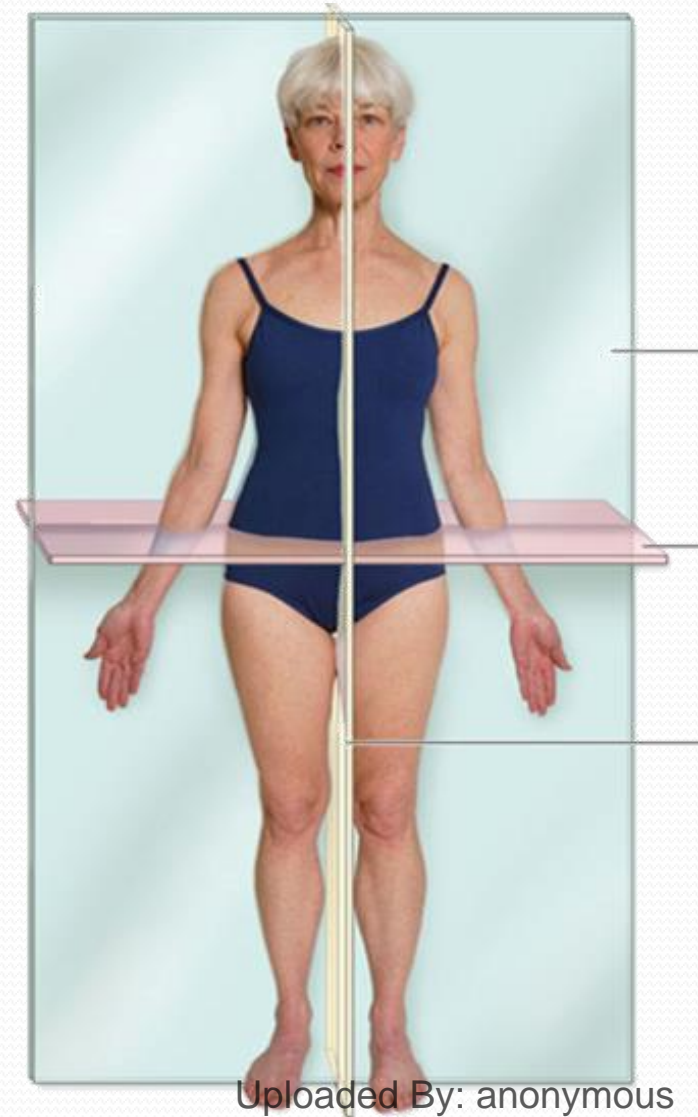


Anatomical Terminology

❖ Anatomical position

The individual stands upright with:

1. Head, gaze (eyes), and toes directed anteriorly
2. Arms adjacent to the sides with the palms facing anteriorly
3. Feet parallel and flat on the floor

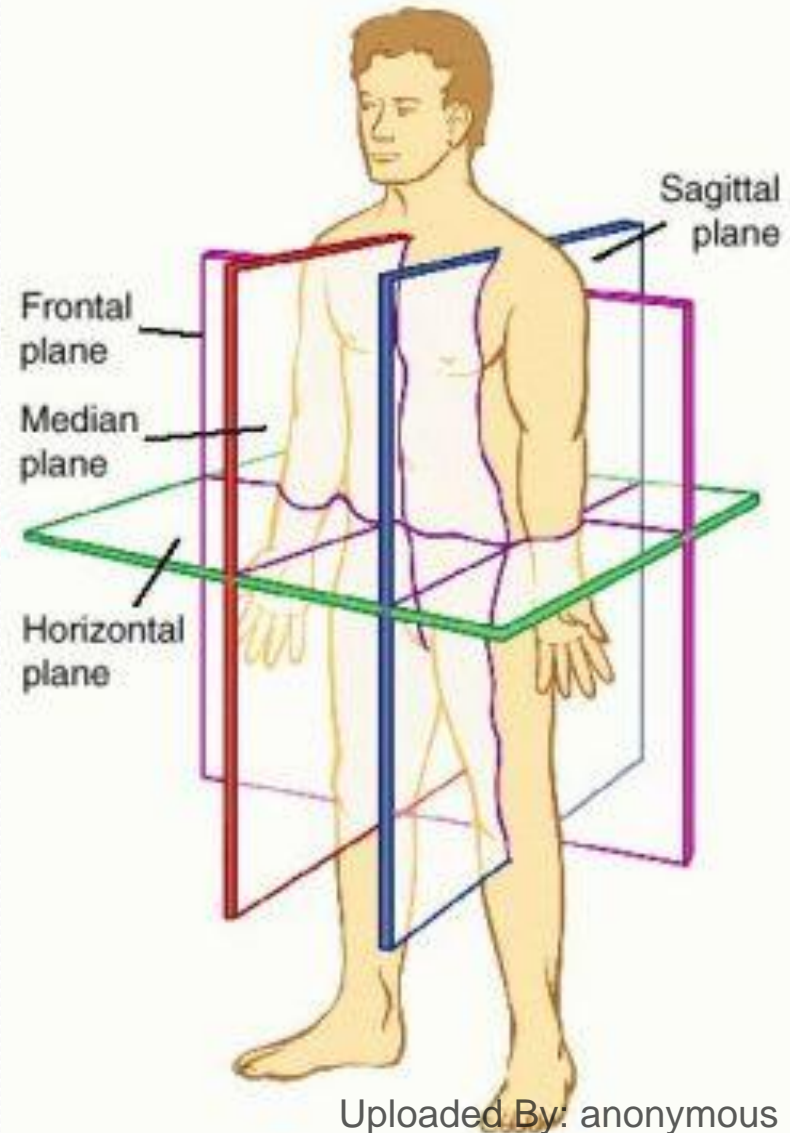


Anatomical Planes

❖ A **plane** is an imaginary surface that slices the body into specific sections.

1. Median (midsagittal)
2. Sagittal
3. Frontal (coronal)
4. Transverse (horizontal)

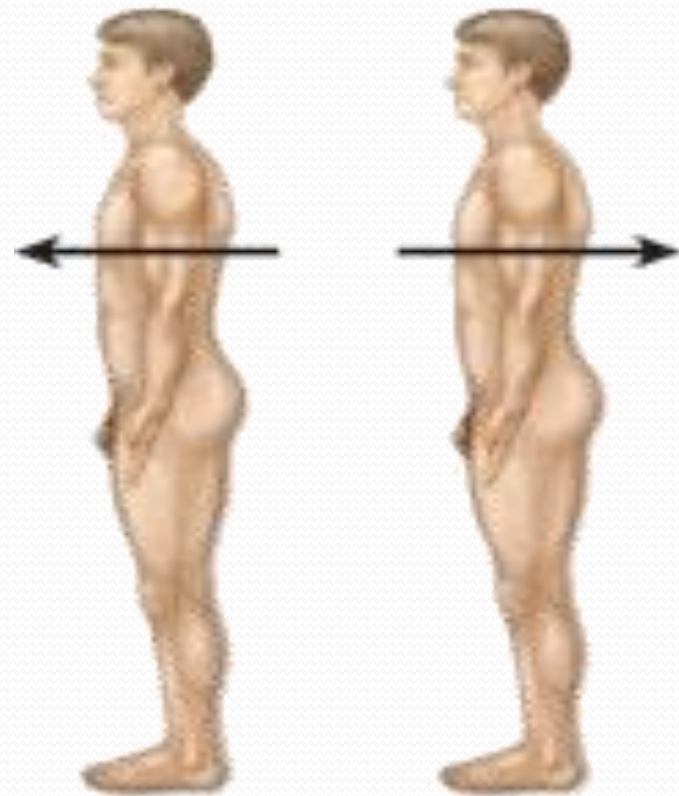
❖ Planes are used to describe sections



Relative and Directional Terms of the Body

❖ Relative to front (belly side) or back (back side) of the body :

- **Anterior** = towards the front surface
- **Posterior** = towards the back surface
- **Dorsal** = At the back side of the human body
- **Ventral** = At the belly side of the human body

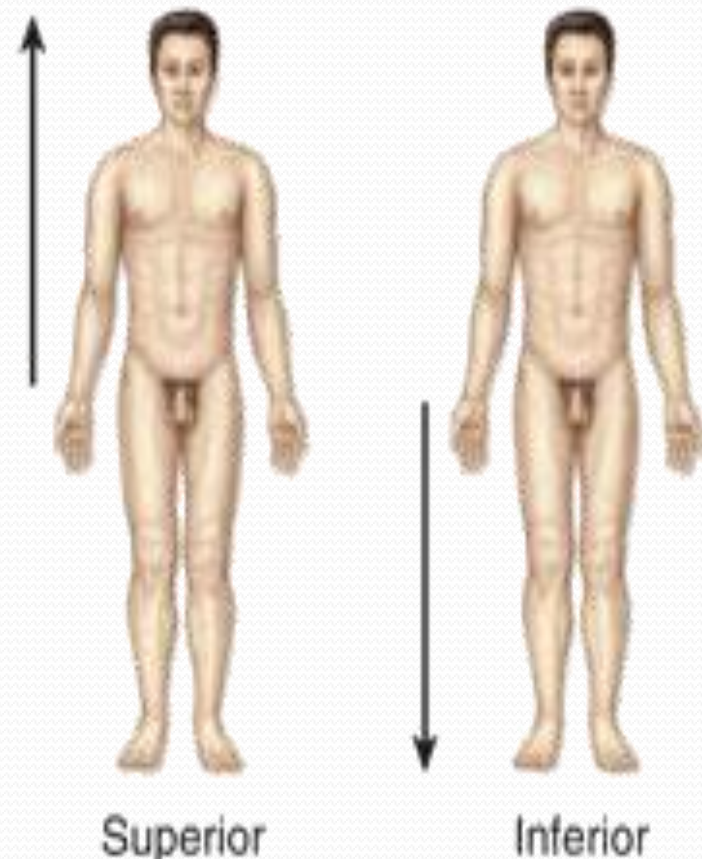


Anterior

Posterior

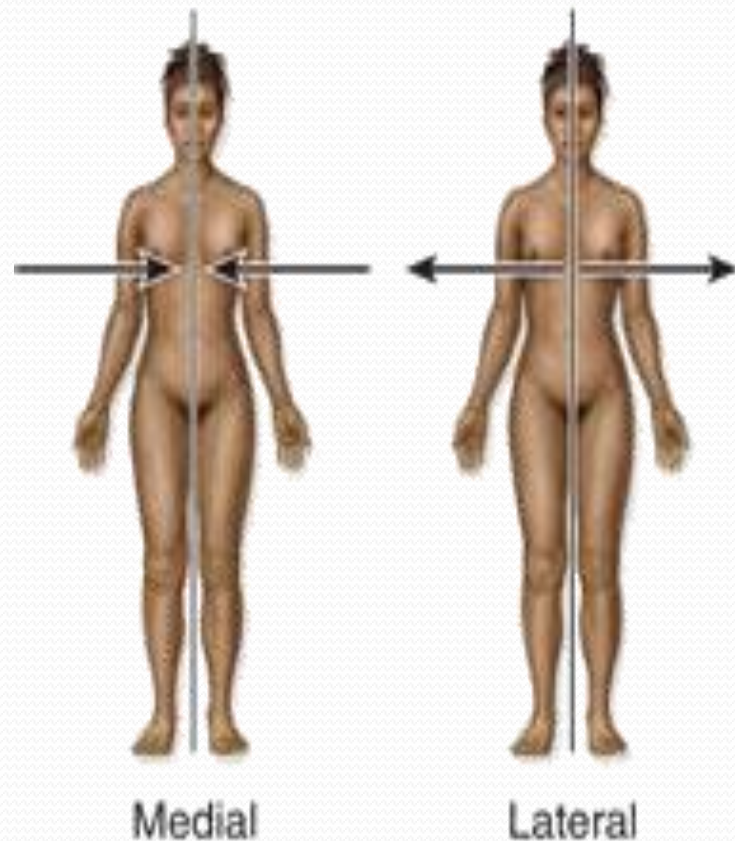
Relative and Directional Terms of the Body

- ❖ Relative to the head or tail of the body:
 - **Superior** = Towards the head or above
 - **Inferior** = Toward the feet
 - **Cranial** = At the head end (skull)
 - **Caudal** = At the rear or tail end



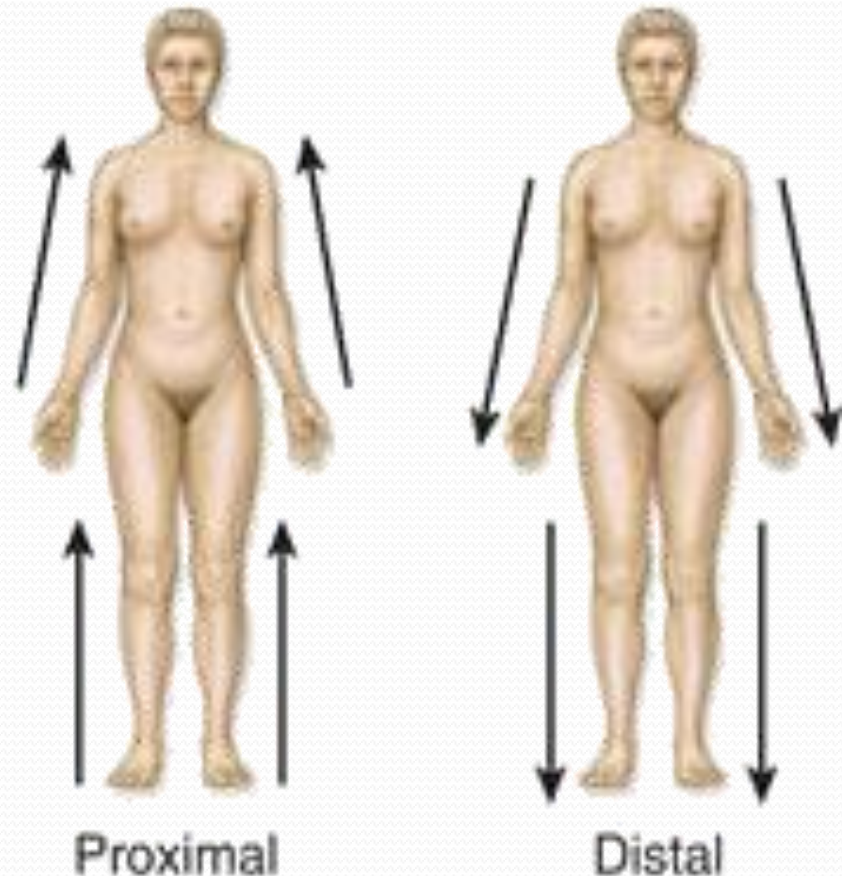
Relative and Directional Terms of the Body

- ❖ Relative to the midline or center of the body:
- **Medial** = towards the midline of the body
- **Lateral** = away from the midline of the body
- **Deep** = on the inside, underneath another structure
- **Superficial** = On the outside



Relative and Directional Terms of the Body

- ❖ Relative to the point of attachment:
 - **Proximal** = Closest to point of attachment to trunk
 - **Distal** = Furthest from point of attachment to trunk



Terms of Laterality

- Bilateral vs. Unilateral
- Ipsilateral vs. Contralateral

TABLE 1.1 Orientation and Directional Terms

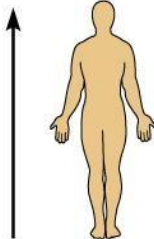
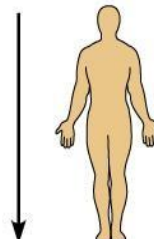
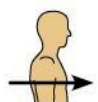
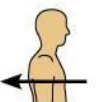
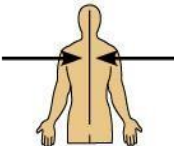
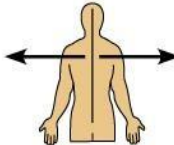

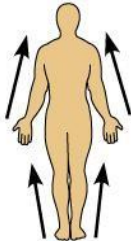
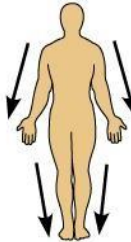
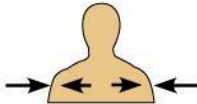
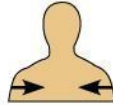
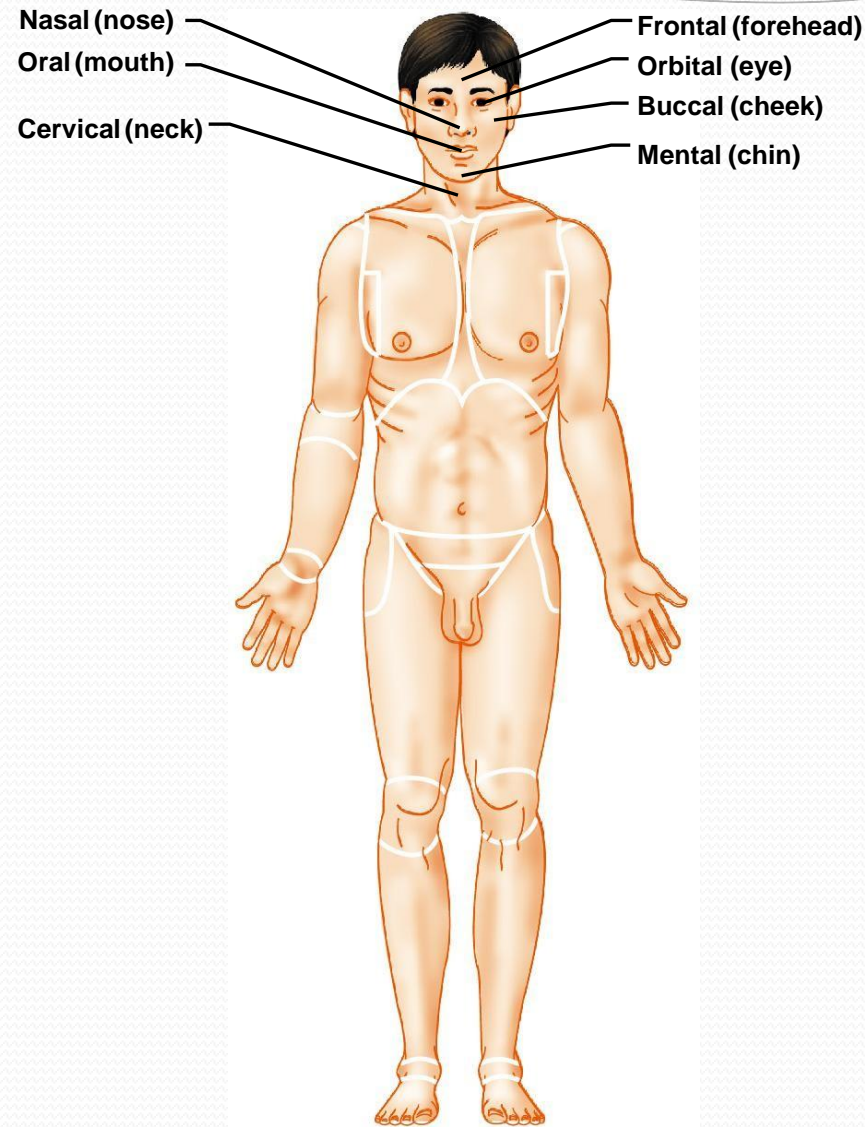
TERM	DEFINITION	EXAMPLE
Superior (cranial)	Toward the head end or upper part of a structure or the body; above	 <p>The head is superior to the abdomen</p>
Inferior (caudal)	Away from the head end or toward the lower part of a structure or the body; below	 <p>The navel is inferior to the chin</p>
Ventral (anterior)*	Toward or at the front of the body; in front of	 <p>The breastbone is anterior to the spine</p>
Dorsal (posterior)*	Toward or at the back of the body; behind	 <p>The heart is posterior to the breastbone</p>
Medial	Toward or at the midline of the body; on the inner side of	 <p>The heart is medial to the arm</p>
Lateral	Away from the midline of the body; on the outer side of	 <p>The arms are lateral to the chest</p>
Intermediate	Between a more medial and a more lateral structure	 <p>The collarbone is intermediate between the breastbone and shoulder</p>

TABLE 1.1 Orientation and Directional Terms

TERM	DEFINITION	EXAMPLE
Proximal	Closer to the origin of the body part or the point of attachment of a limb to the body trunk	 <p>The elbow is proximal to the wrist</p>
Distal	Farther from the origin of a body part or the point of attachment of a limb to the body trunk	 <p>The knee is distal to the thigh</p>
Superficial (external)	Toward or at the body surface	 <p>The skin is superficial to the skeletal muscles</p>
Deep (internal)	Away from the body surface; more internal	 <p>The lungs are deep to the skin</p>

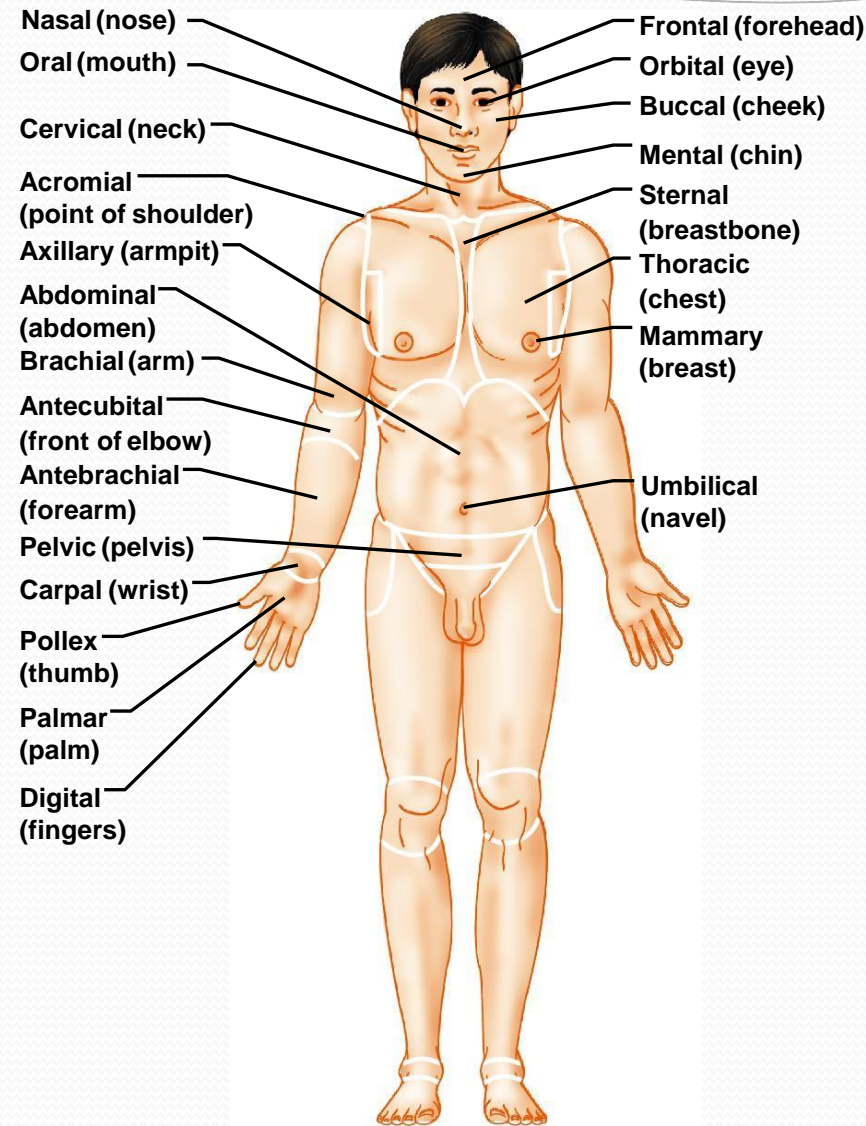
*The terms *ventral* and *anterior* are synonymous in humans, but this is not the case in four-legged animals. Whereas *anterior* refers to the leading portion of the body (abdominal surface in humans, head in a cat), *ventral* specifically refers to the “belly” of a vertebrate animal and thus is the inferior surface of four-legged animals. Likewise, although the dorsal and posterior surfaces are the same in humans, the term *dorsal* specifically refers to an animal’s back. Thus, the dorsal surface of four-legged animals is their superior surface.

Regional Terms: Anterior View



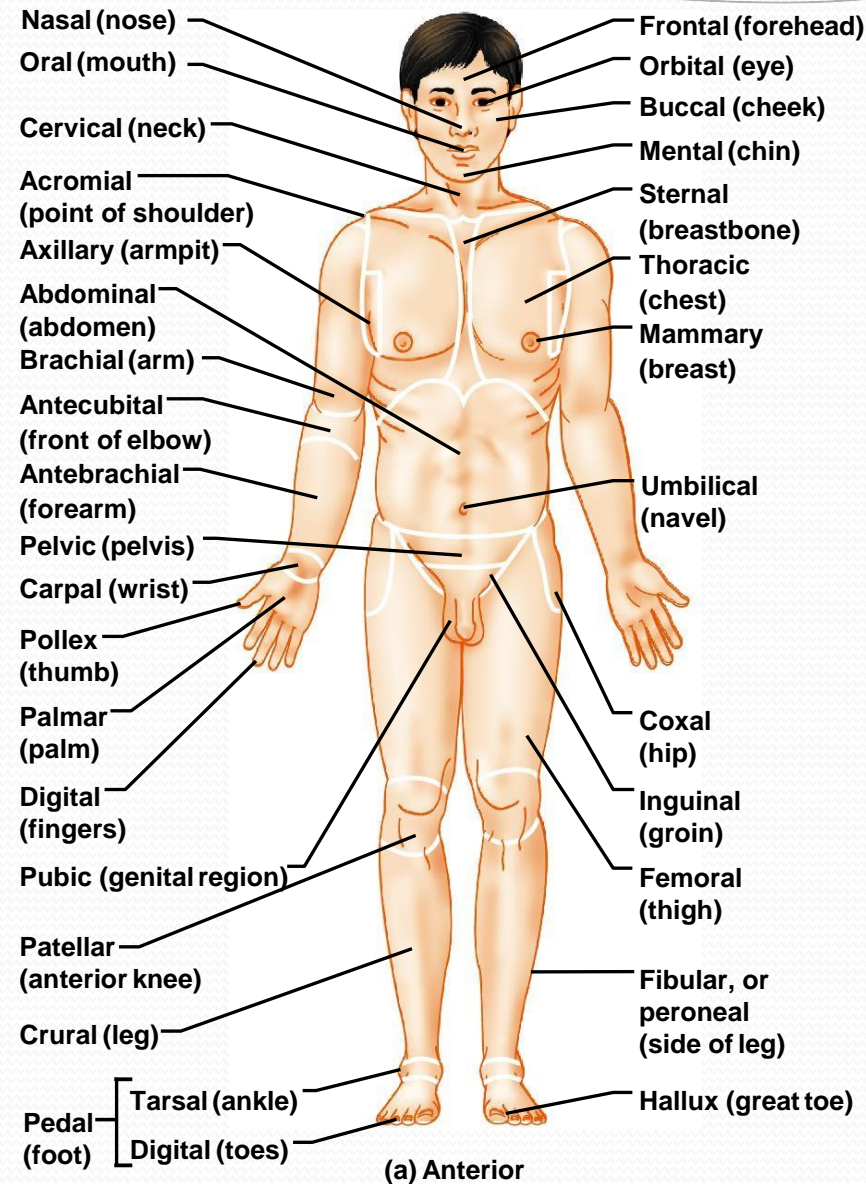
(a) Anterior

Regional Terms: Anterior View

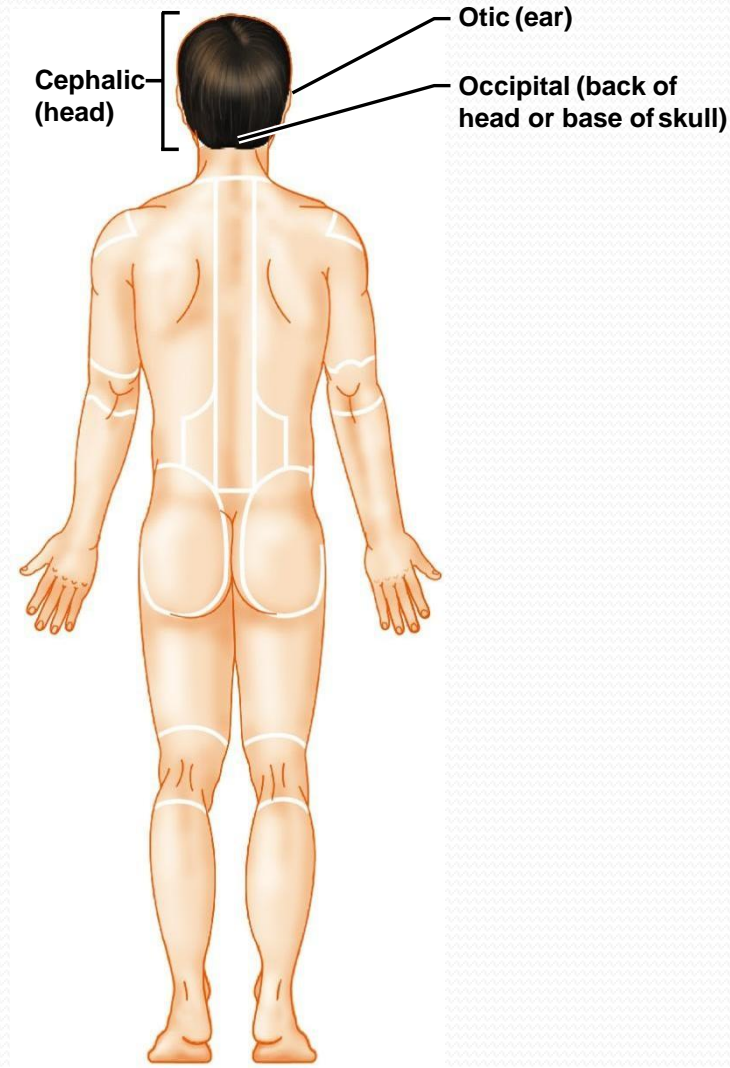


(a) Anterior

Regional Terms: Anterior View

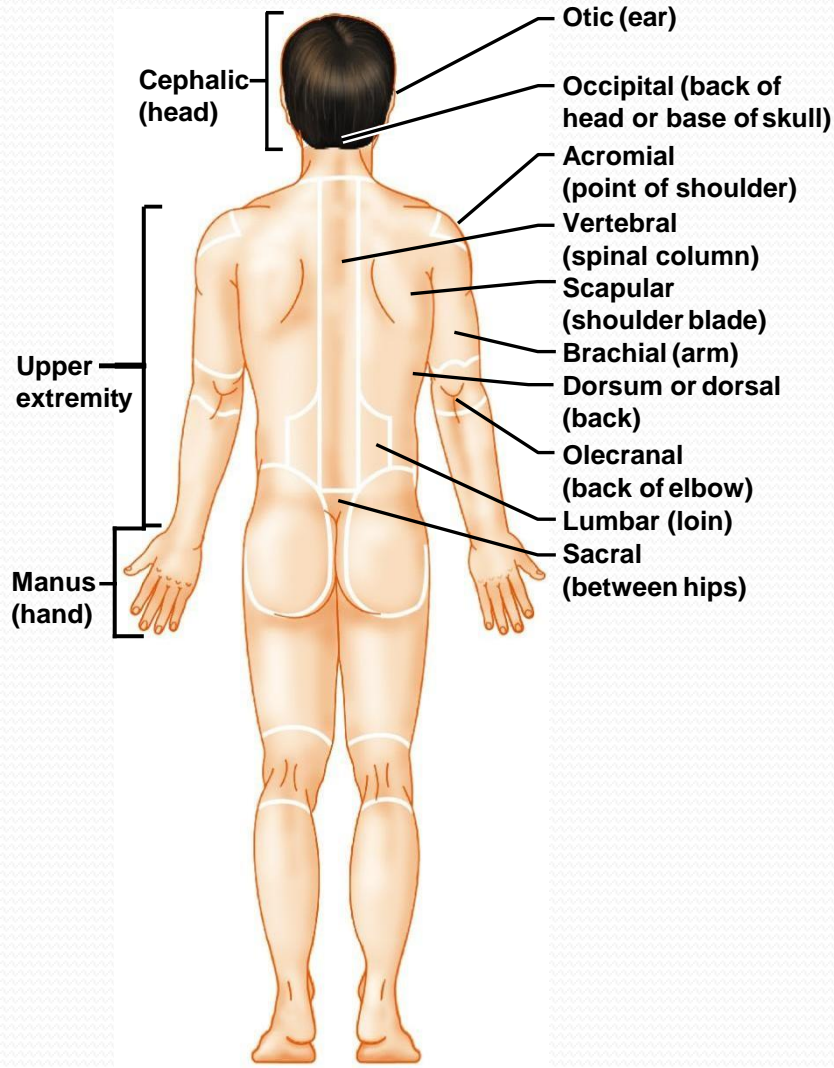


Regional Terms: Posterior View



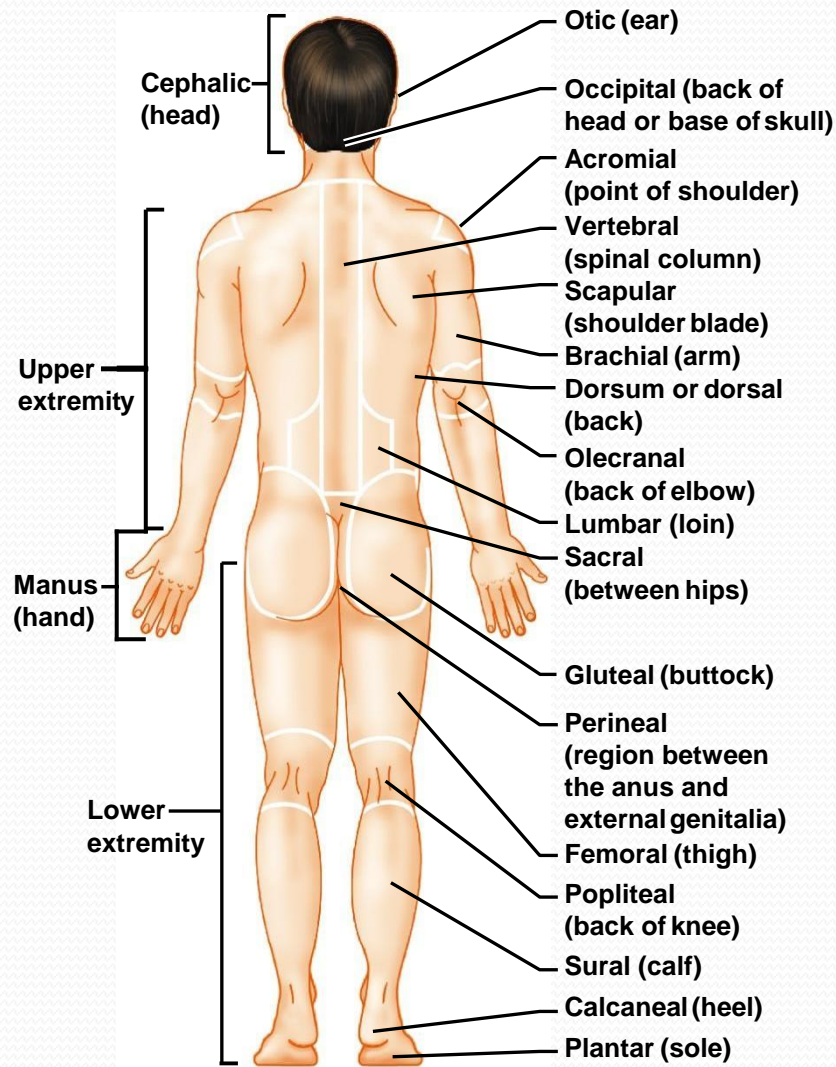
(b) Posterior

Regional Terms: Posterior View



(b) Posterior

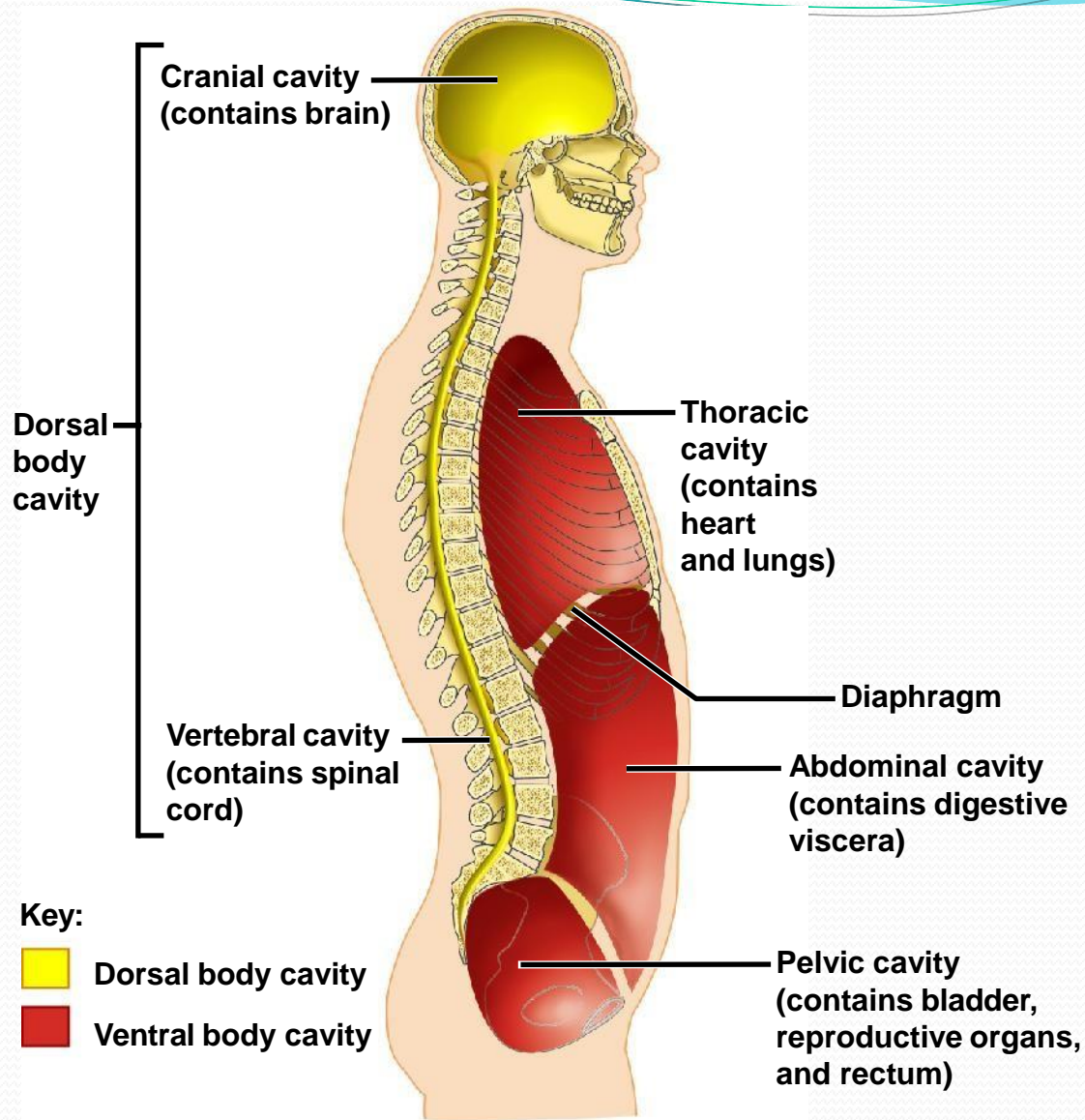
Regional Terms: Posterior View



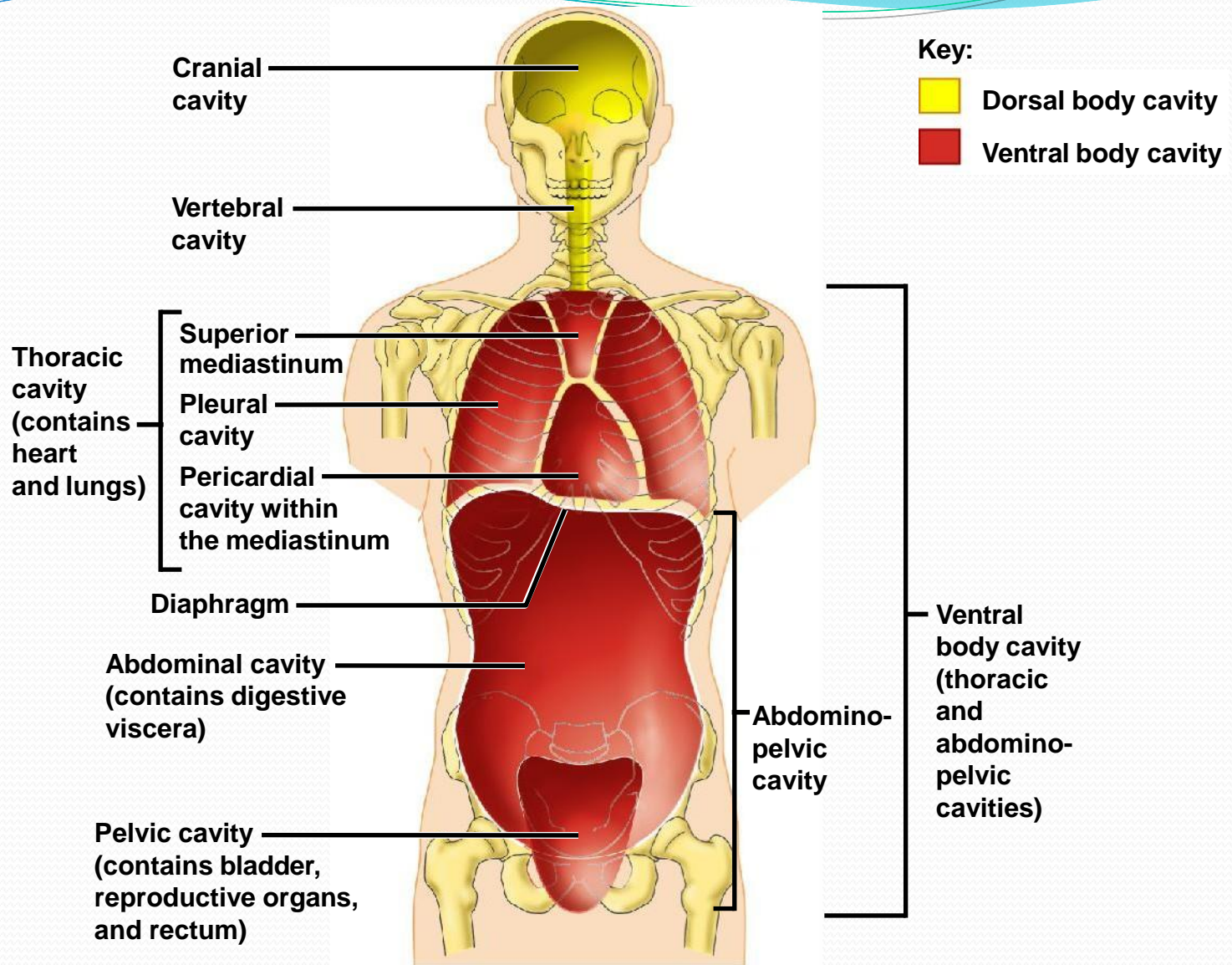
(b) Posterior

Body Cavities

- **Dorsal cavity** protects the nervous system, and is divided into two subdivisions
 - Cranial cavity – within the skull; encases the brain
 - Vertebral cavity – runs within the vertebral column; encases the spinal cord
- **Ventral cavity** houses the internal organs (viscera), and is divided into two subdivisions
 - Thoracic
 - Abdominopelvic



(a) Lateral view



(b) Anterior view

Body Cavities

- Thoracic cavity is subdivided into:
 - Pleural cavities – each houses a lung
 - Mediastinum – contains the pericardial cavity; surrounds the remaining thoracic organs
 - Pericardial cavity – encloses the heart

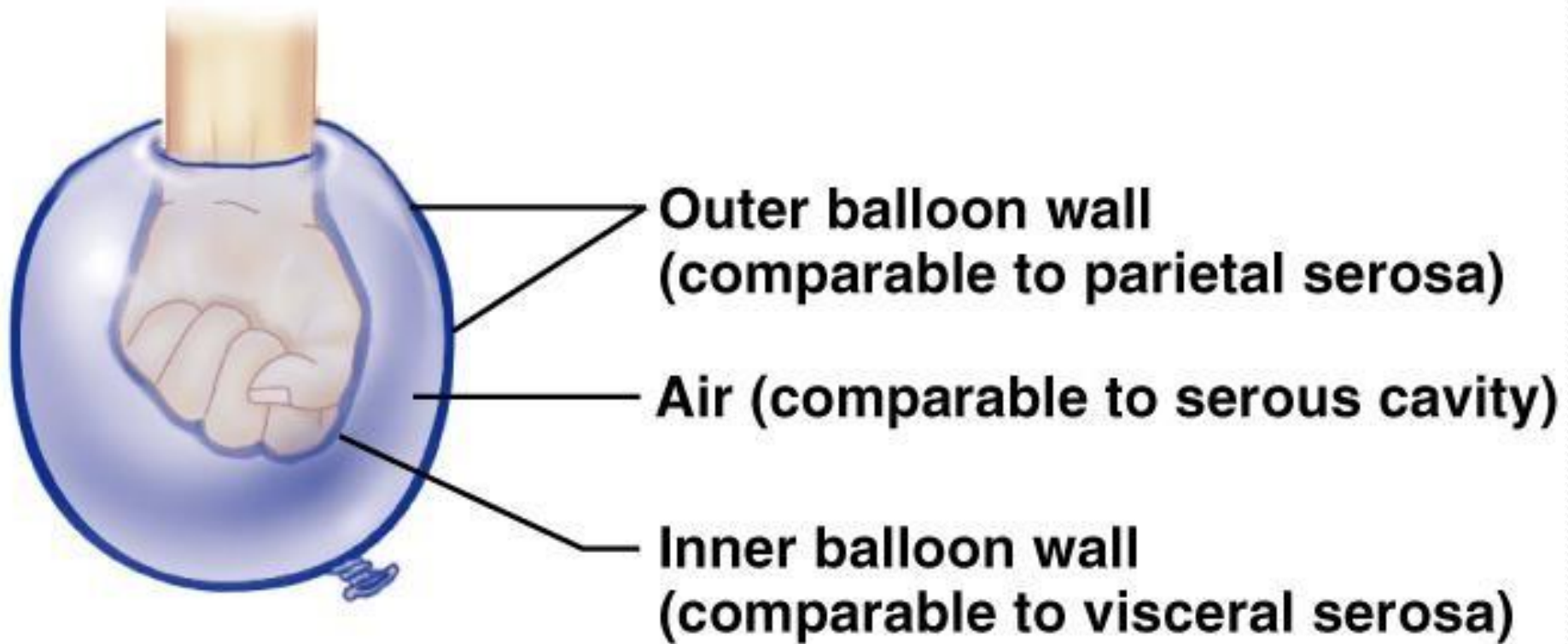
Body Cavities

- The abdominopelvic cavity is separated from the thoracic cavity by the dome-shaped diaphragm
- It is composed of two subdivisions
 - Abdominal cavity – contains the stomach, intestines, spleen, liver, and other organs
 - Pelvic cavity – lies within the pelvis and contains the bladder, reproductive organs, and rectum

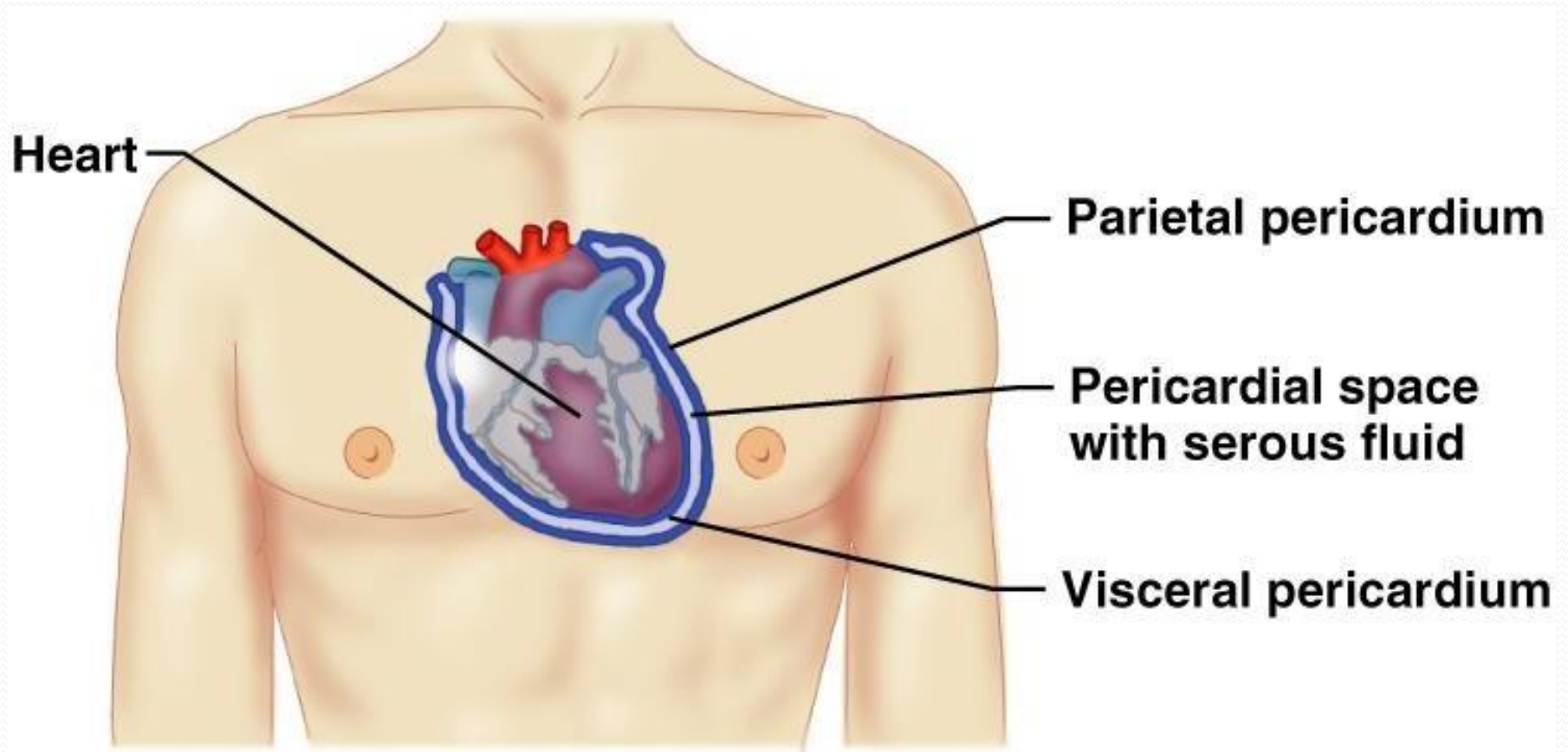
Cavity Membranes

- Parietal layer: lines the outside
- Visceral layer: lines the inside
- Serous fluid

Membrane Relationship



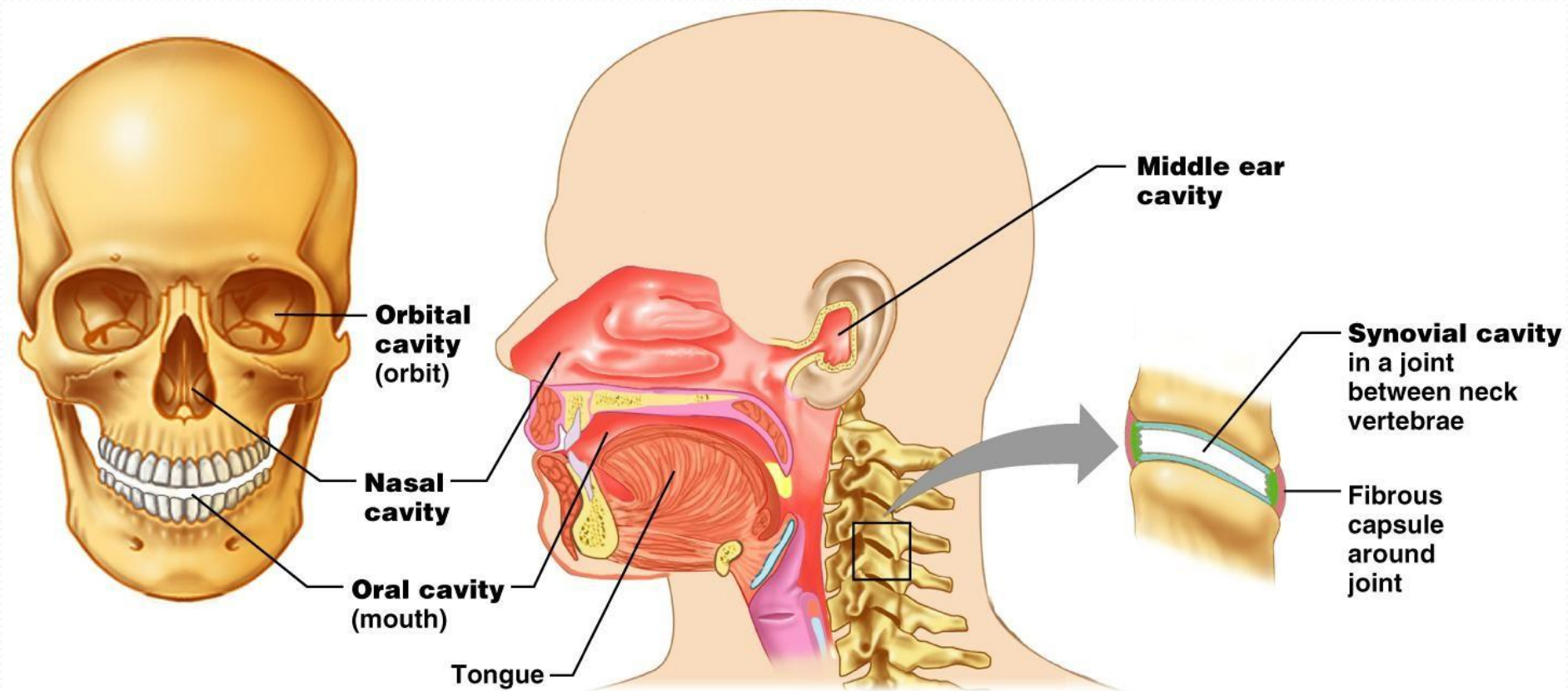
(a)



(b)

Other Body Cavities

- Oral and digestive – mouth and cavities of the digestive organs
- Nasal –located within and posterior to the nose
- Orbital – house the eyes
- Middle ear – contains bones (ossicles) that transmit sound vibrations
- Synovial – joint cavities



Thank you brain for all you remember!

