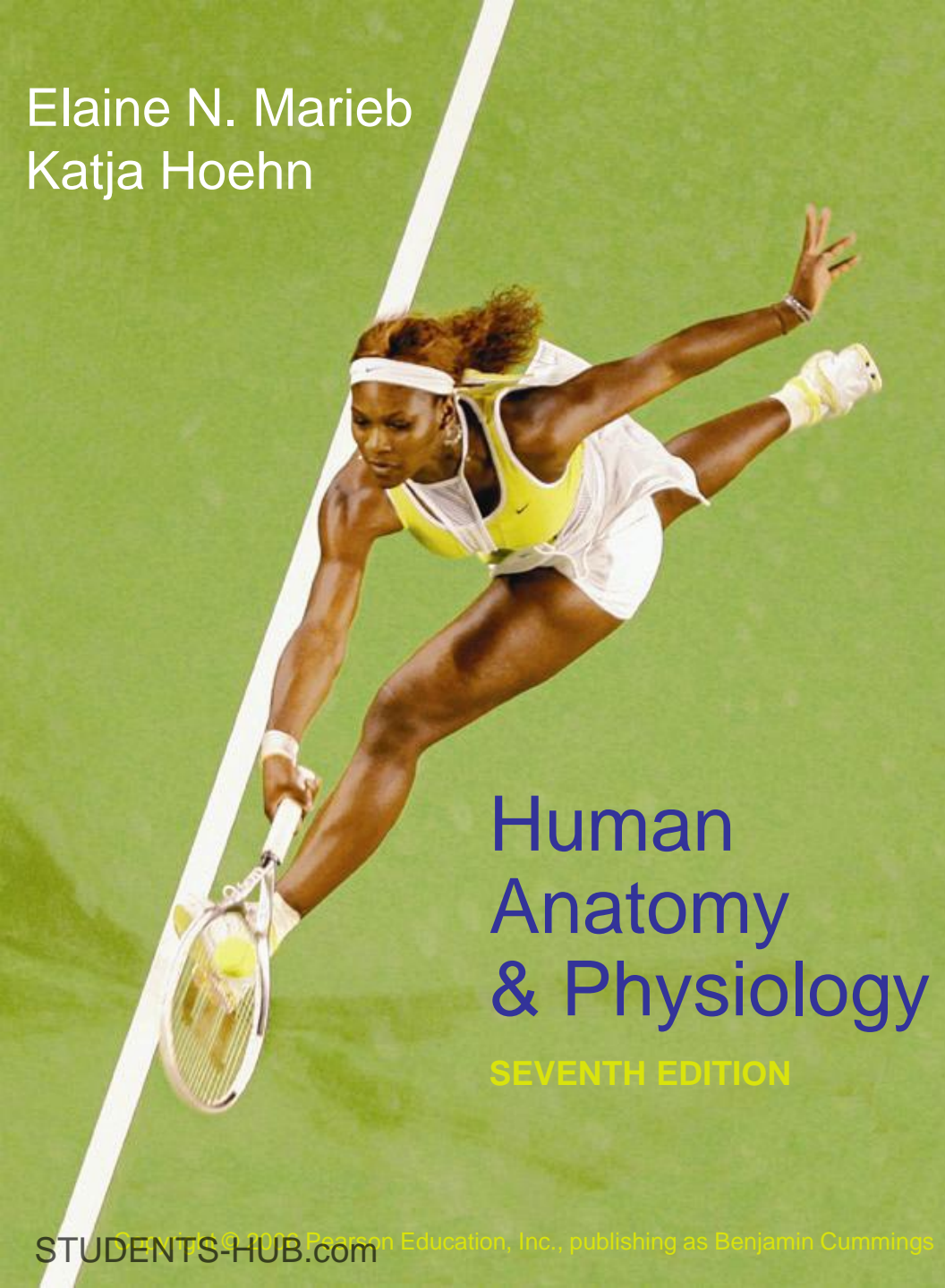


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# Human Anatomy & Physiology

SEVENTH EDITION

PowerPoint® Lecture Slides  
prepared by Vince Austin,  
Bluegrass Technical  
and Community College

CHAPTER

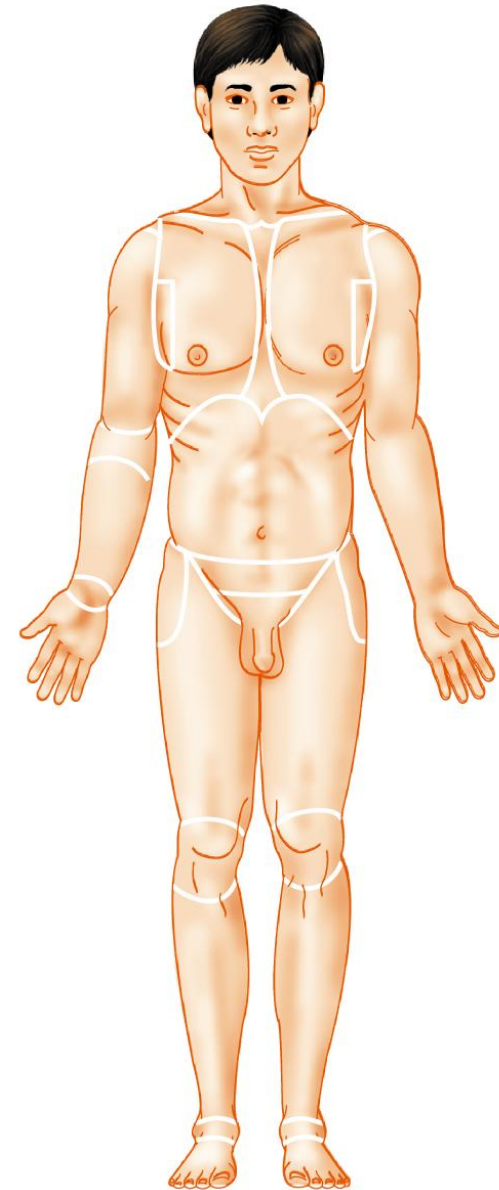
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PART B

## The Human Body: An Orientation

# Anatomical Position

- Body erect, feet slightly apart, palms facing forward, thumbs point away from body



(a)

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# Directional Terms

- Superior and inferior – toward and away from the head, respectively
- Anterior and posterior – toward the front and back of the body
- Medial, lateral, and intermediate – toward the midline, away from the midline, and between a more medial and lateral structure

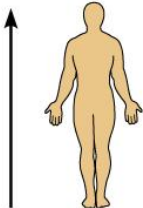
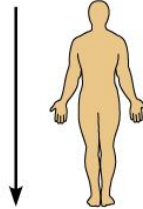


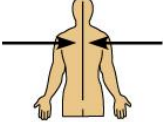
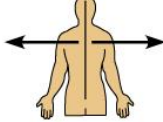

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# Directional Terms

- Proximal and distal – closer to and farther from the origin of the body part
- Superficial and deep – toward and away from the body surface

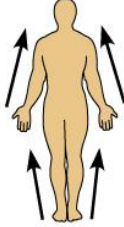
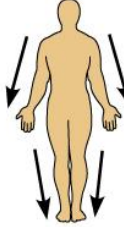
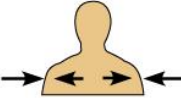
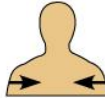
# Directional Terms

**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>

# Directional Terms

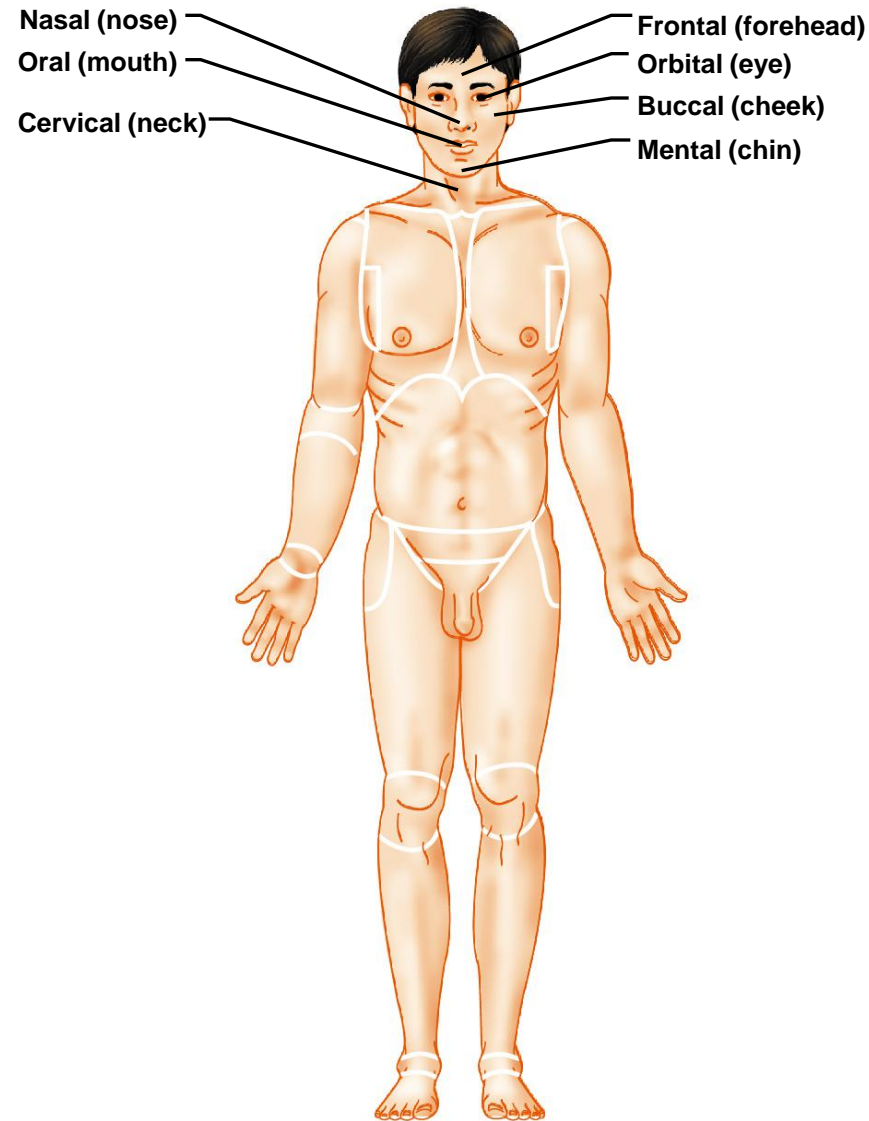
**TABLE 1.1** Orientation and Directional Terms

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.

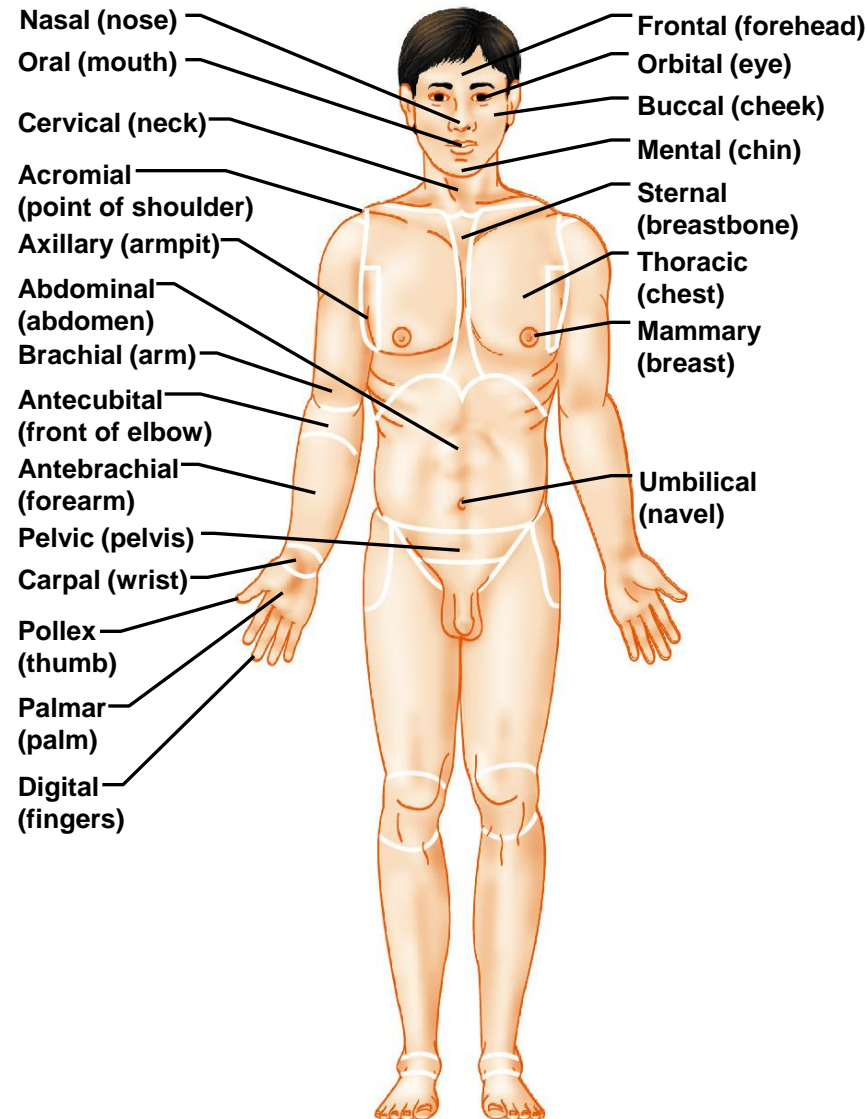


# Regional Terms: Anterior View



(a) Anterior

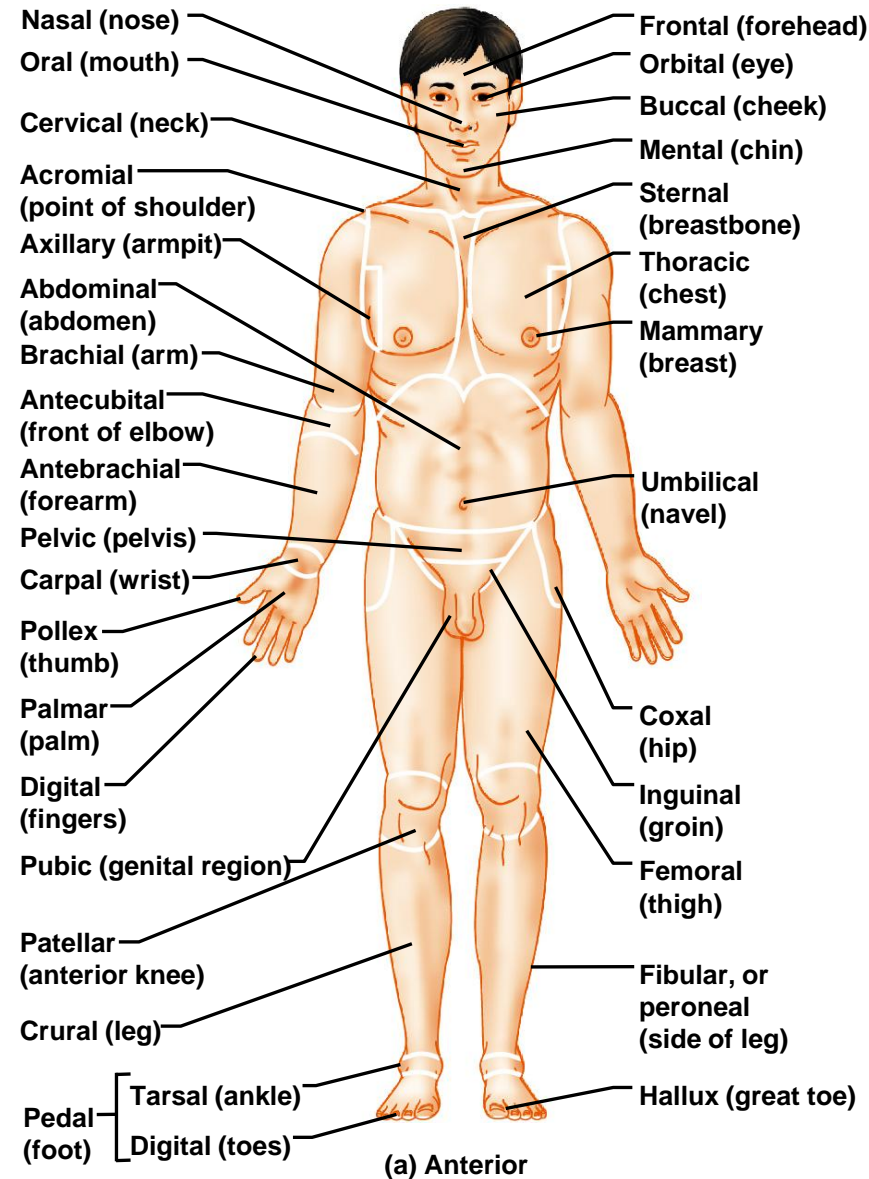
# Regional Terms: Anterior View



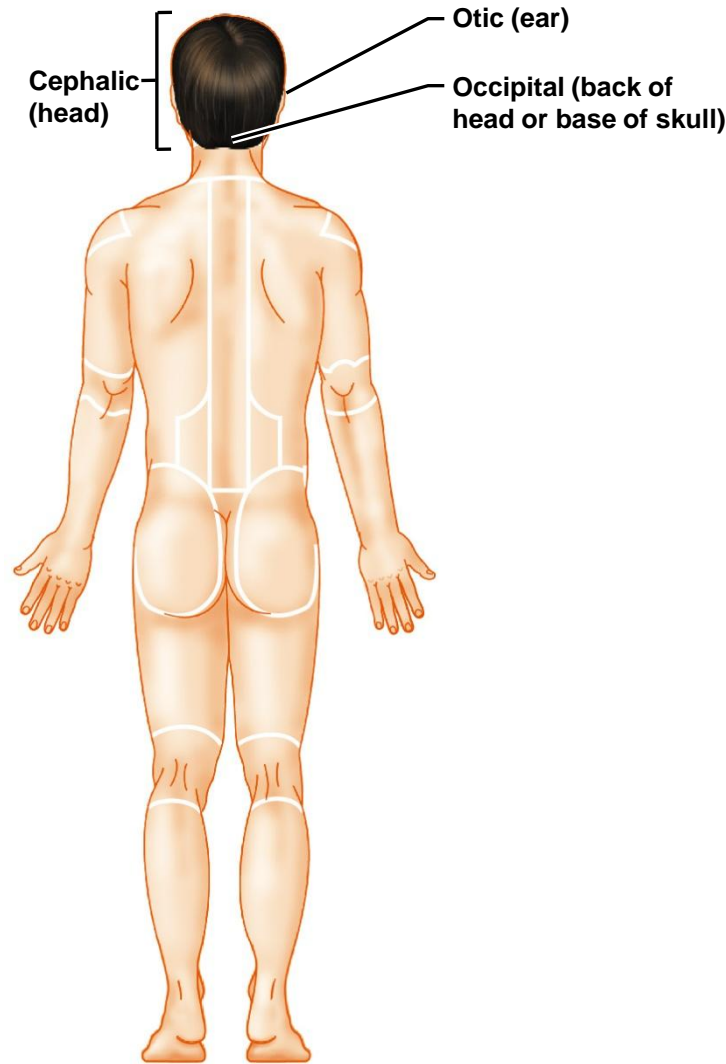
(a) Anterior



# Regional Terms: Anterior View

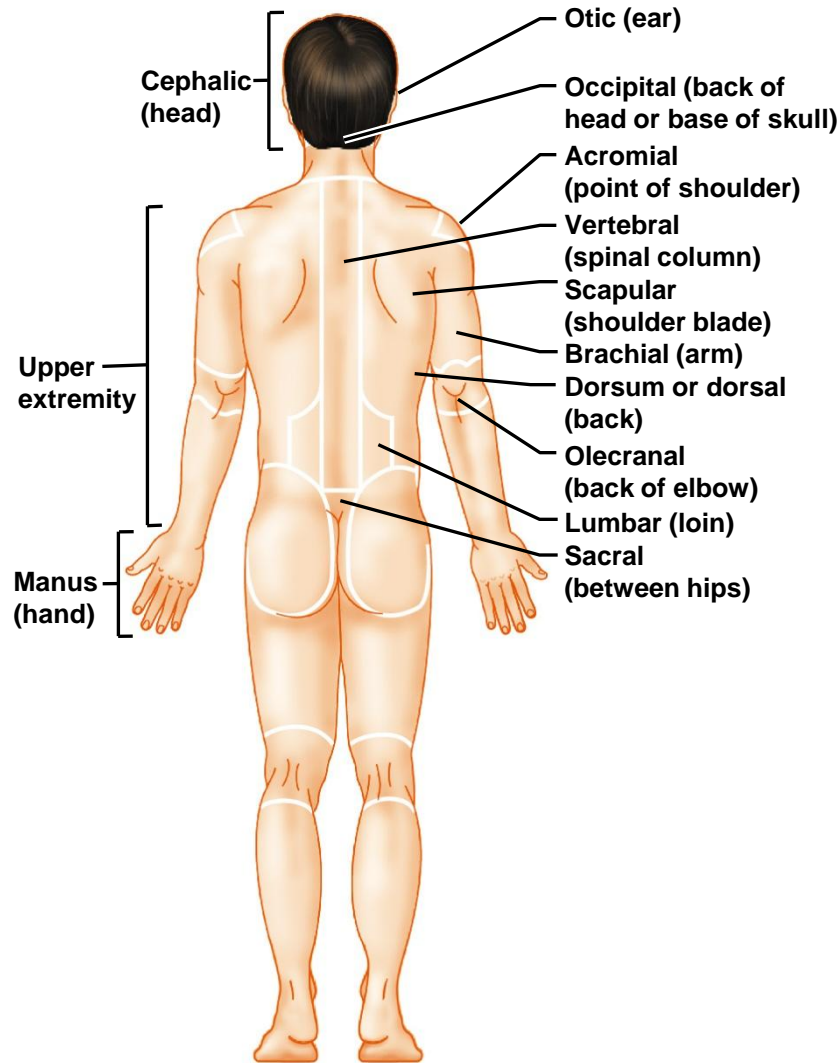


# Regional Terms: Posterior View



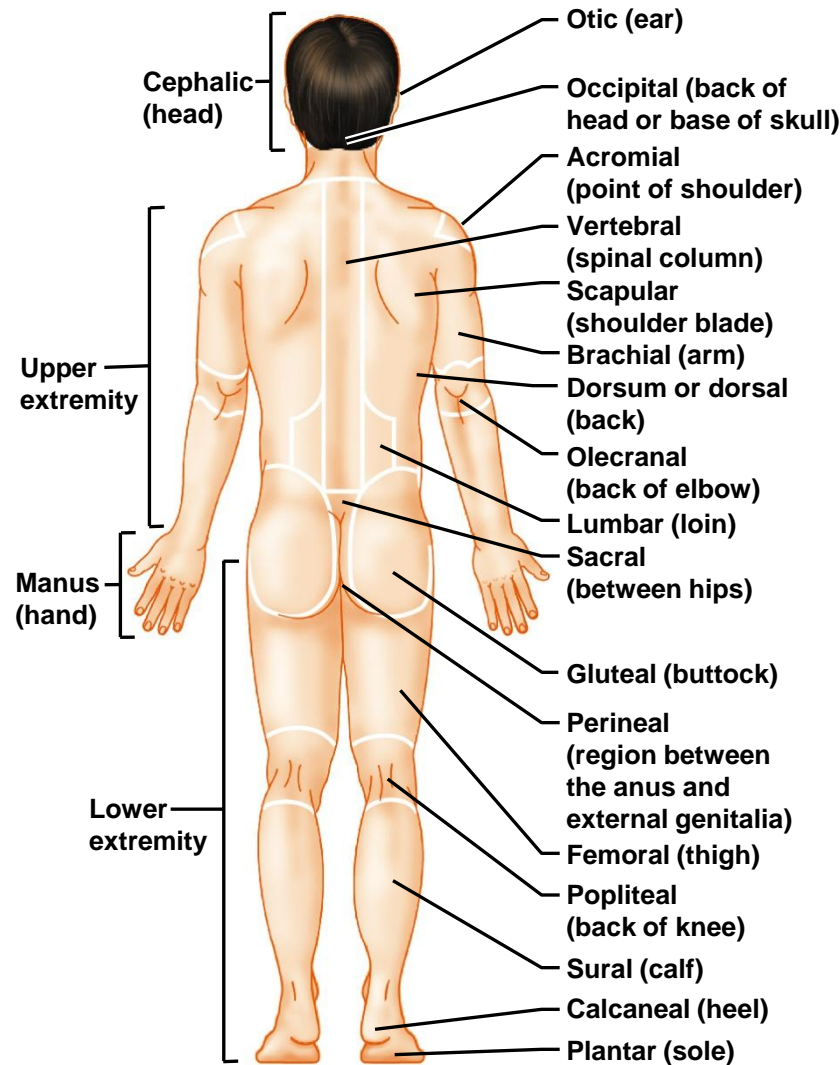
**(b) Posterior**

# Regional Terms: Posterior View



(b) Posterior

# Regional Terms: Posterior View



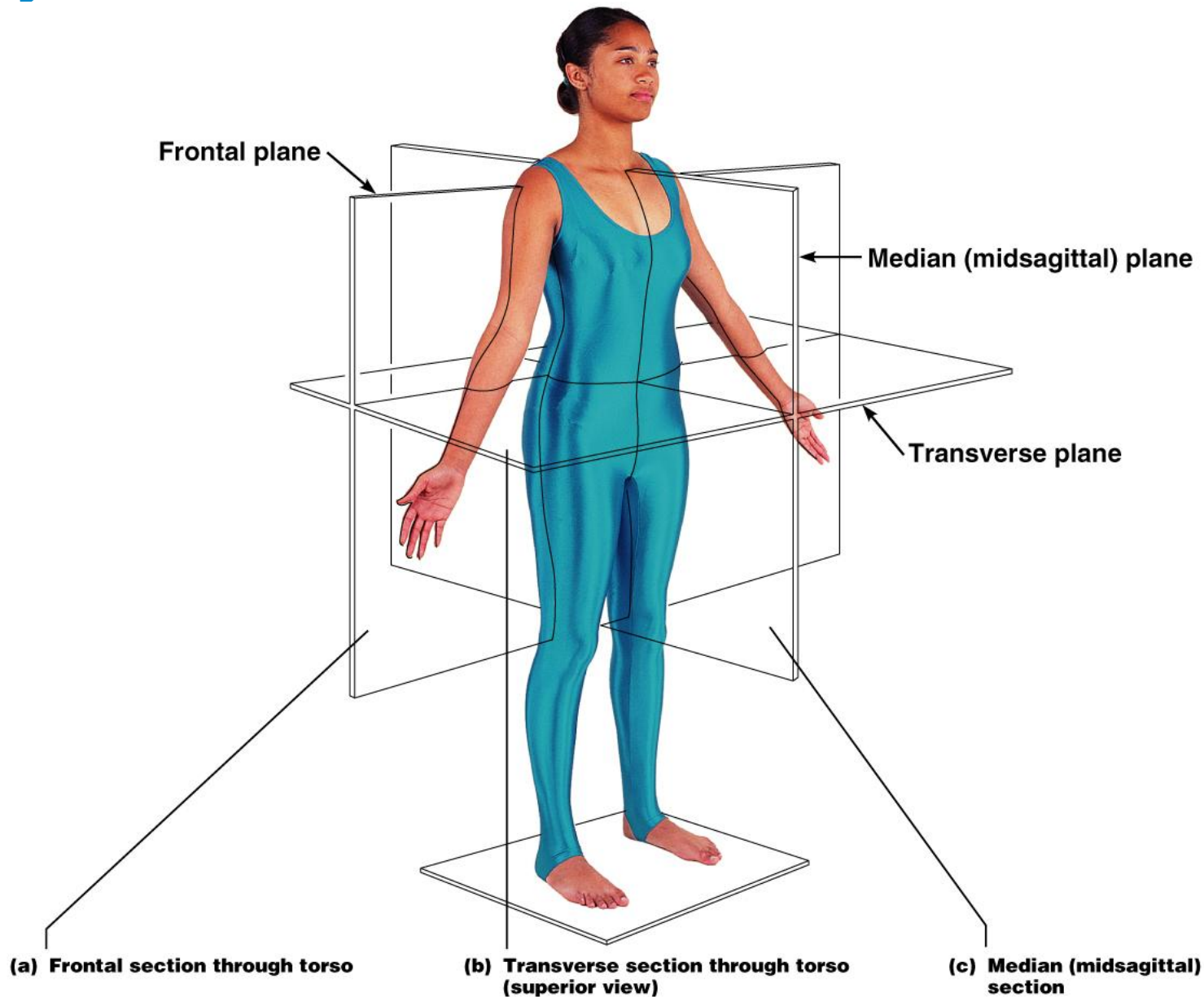
(b) Posterior

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# Body Planes

- Sagittal – divides the body into right and left parts
- Midsagittal or medial – sagittal plane that lies on the midline
- Frontal or coronal – divides the body into anterior and posterior parts
- Transverse or horizontal (cross section) – divides the body into superior and inferior parts
- Oblique section – cuts made diagonally

# Body Planes





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# Anatomical Variability

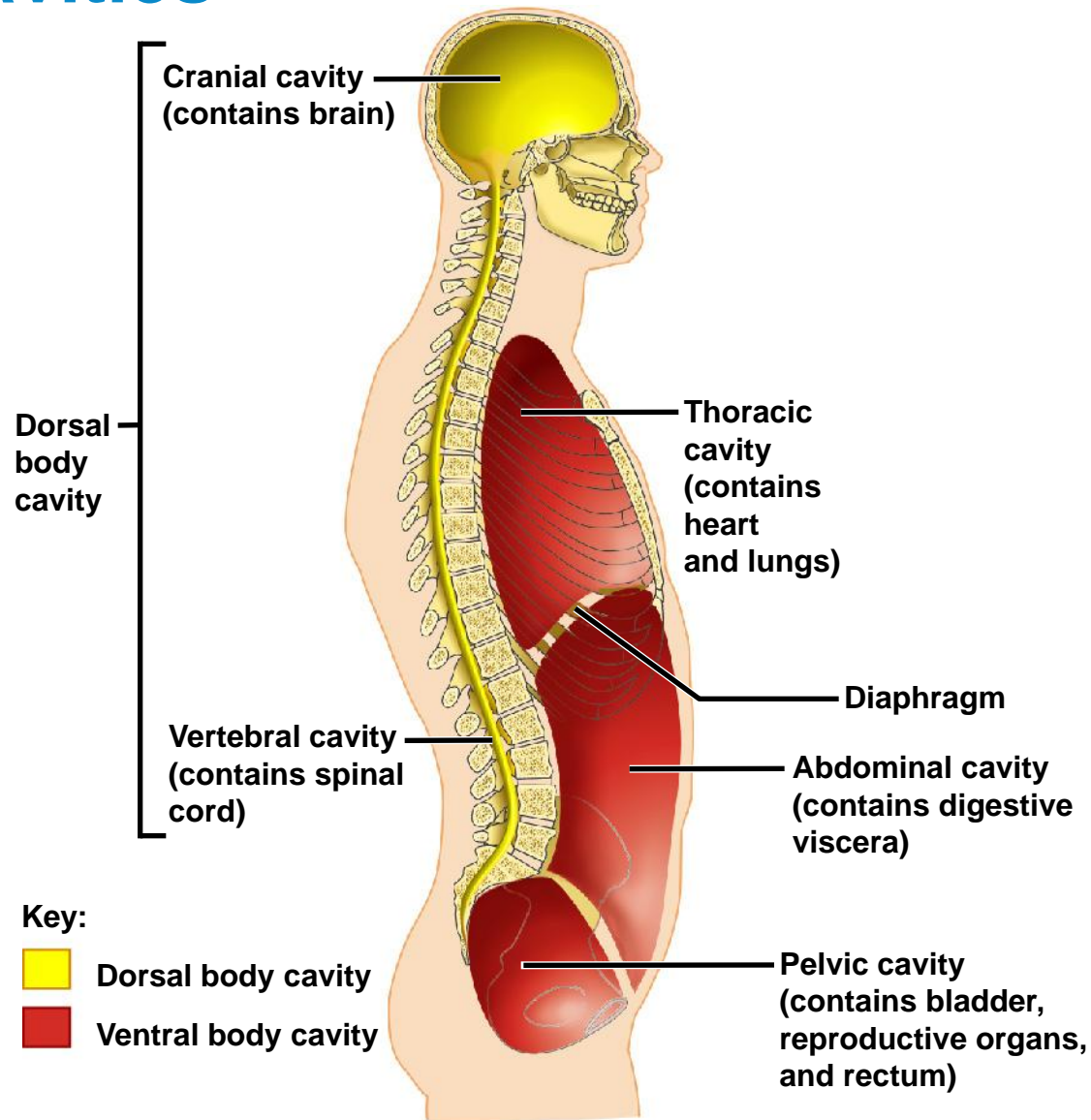
- Humans vary slightly in both external and internal anatomy
- Over 90% of all anatomical structures match textbook descriptions, but:
  - Nerves or blood vessels may be somewhat out of place
  - Small muscles may be missing
- Extreme anatomical variations are seldom seen

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# Body Cavities

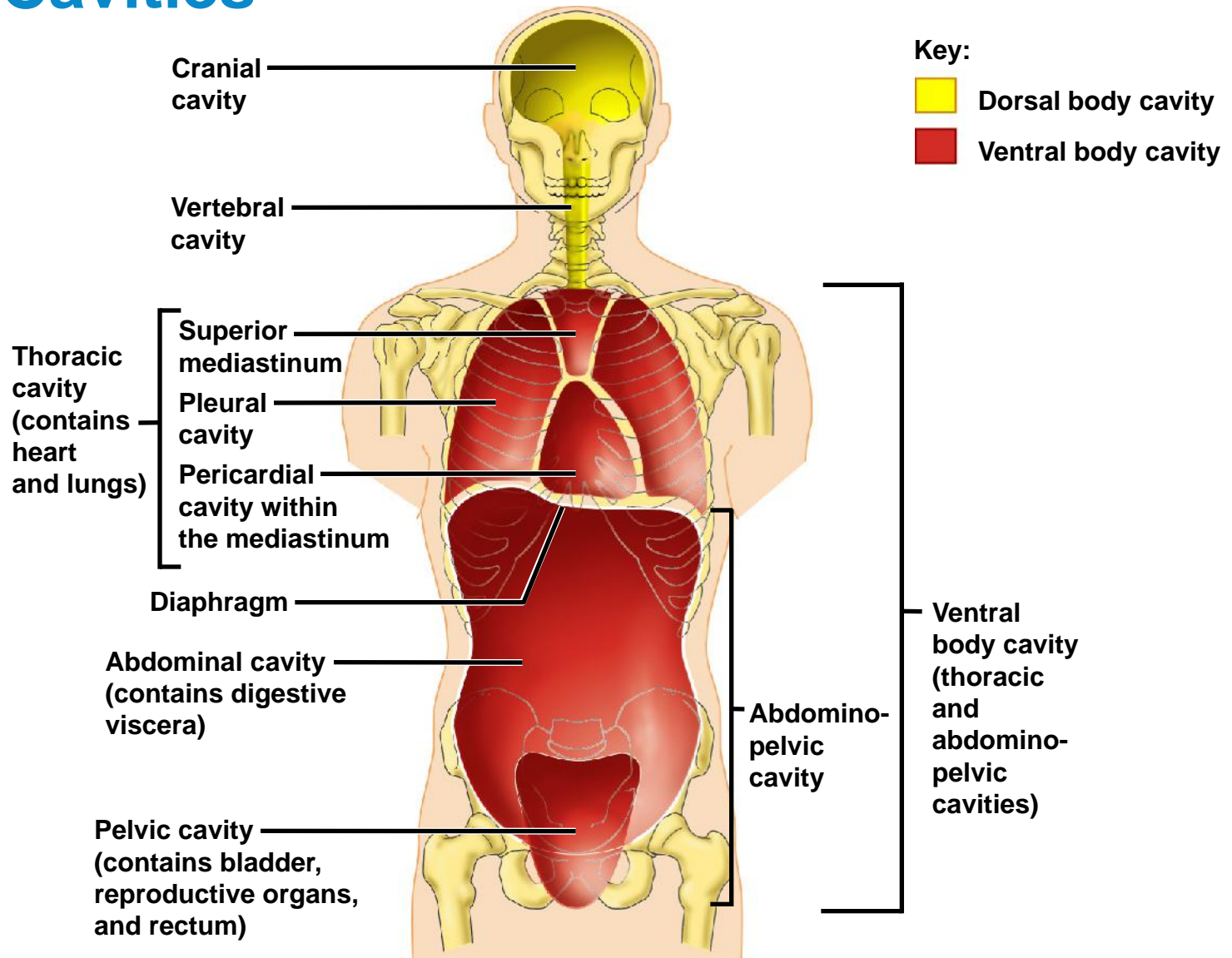
- Dorsal cavity protects the nervous system, and is divided into two subdivisions
  - Cranial cavity – within the skull; encases the brain
  - Vertebral cavity – runs within the vertebral column; encases the spinal cord
- Ventral cavity houses the internal organs (viscera), and is divided into two subdivisions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

# Body Cavities



(a) Lateral view

# Body Cavities



(b) Anterior view

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# Body Cavities

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

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# Body Cavities

- The abdominopelvic cavity is separated from the superior 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

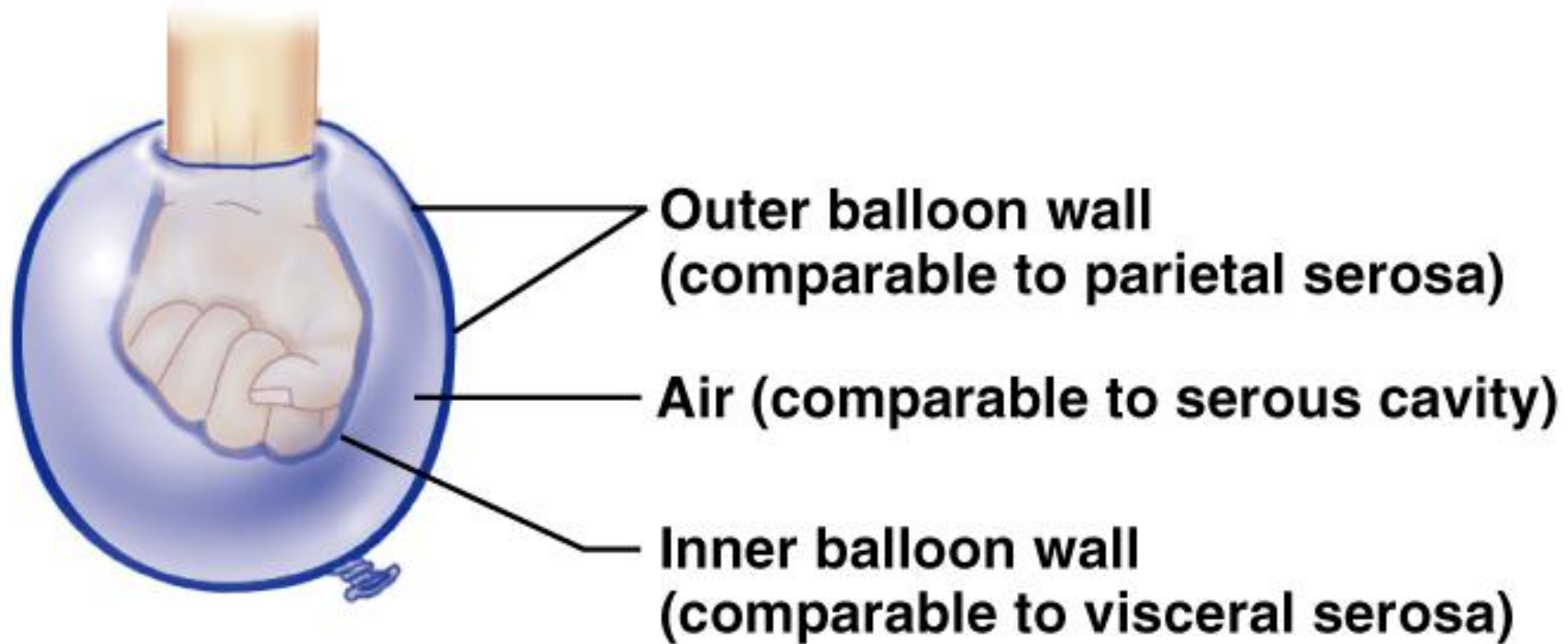


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# Ventral Body Cavity Membranes

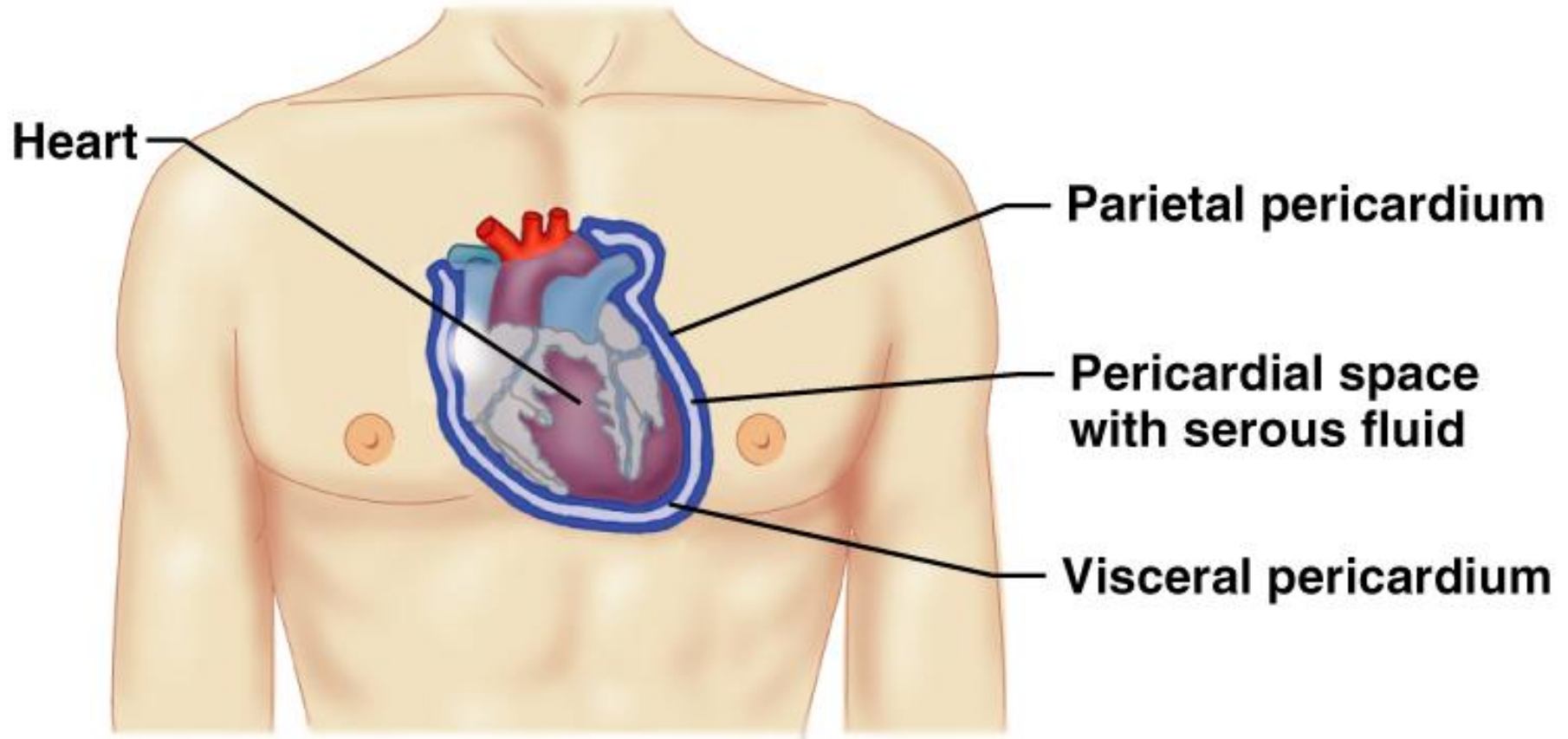
- Parietal serosa lines internal body walls
- Visceral serosa covers the internal organs
- Serous fluid separates the serosae

# Serous Membrane Relationship



**(a)**

# Heart Serosae



**(b)**

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# 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

# Other Body Cavities

