Language of Anatomy

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

- Right, left, front, back, top, bottom are the subject’s (cadaver’s) P.O.V. NOT the observer’s.
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
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

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

Table 1.1a
# Directional Terms

## Table 1.1b

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

*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

- The two fundamental divisions of our bodies are its axial and appendicular parts.
  - Axial parts: head, neck, trunk
  - Appendicular parts: appendages (limbs) attached to the axis (see Figure 1.7)
Body Planes

- A body plane is named for the plane along which it is cut
- 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
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 cavity
  - Abdominopelvic cavity
Body Cavities

Figure 1.9a

- Cranial cavity (contains brain)
- Thoracic cavity (contains heart and lungs)
- Abdominal cavity (contains digestive viscera)
- Pelvic cavity (contains bladder, reproductive organs, and rectum)

Key:
- Yellow: Dorsal body cavity
- Red: Ventral body cavity

(a) Lateral view
Body Cavities

Figure 1.9b

Ventral body cavity (thoracic and abdomino-pelvic cavities)

**Key:**
- **Yellow**: Dorsal body cavity
- **Red**: Ventral body cavity

- Cranial cavity
- Vertebral cavity
- Thoracic cavity (contains heart and lungs)
  - Superior mediastinum
  - Pleural cavity
  - Pericardial cavity within the mediastinum
- Diaphragm
- Abdominal cavity (contains digestive viscera)
- Pelvic cavity (contains bladder, reproductive organs, and rectum)
- Abdomino-pelvic cavity
- Ventral body cavity (thoracic and abdomino-pelvic cavities)

(b) Anterior view
Body Cavities

- Thoracic cavity is enclosed by the ribs & muscles of the chest

- Thoracic cavity is subdivided into two pleural cavities, the medial 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
Body Cavities

- The abdominopelvic cavity (inferior to the thoracic cavity) is separated from the superior thoracic cavity by the diaphragm.

- It is composed of two subdivisions:
  - Abdominal cavity (superior portion) – contains the stomach, intestines, spleen, liver, and other organs.
  - Pelvic cavity (inferior portion) – lies within the pelvis and contains the bladder, reproductive organs, and rectum.
Ventral Body Cavity Membranes

- Serosa (serous membrane) is a thin double-layered membrane that covers the walls of the ventral body cavity and the outer surfaces of the organs.
- Parietal serosa lines cavity walls. It folds in on itself to form the visceral serosa.
- Visceral serosa covers the internal organs.
- Serous fluid separates the serosae and functions as lubrication so organs can rub easily on each other and inner side of cavity.
Fist (comparable to Heart)

Outer balloon wall
(comparable to parietal serosa)

Air (comparable to serous cavity)

Inner balloon wall
(comparable to visceral serosa)
Heart Serosae

- Heart
- Parietal pericardium
- Pericardial space with serous fluid
- Visceral pericardium
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

- Orbital cavity (orbit)
- Nasal cavity
- Oral cavity (mouth)
- Tongue
- Middle ear cavity
- Synovial cavity in a joint between neck vertebrae
- Fibrous capsule around joint
Abdominopelvic Regions

from Greek, literally, the parts under the cartilage (of the breastbone),
From hypo- + chondros cartilage

Epi – lying upon or over
Hypo – inferior
Hyper - superior
Organs of the Abdominopelvic Regions

- Liver
- Gallbladder
- Ascending colon of large intestine
- Small intestine
- Cecum
- Appendix
- Diaphragm
- Stomach
- Transverse colon of large intestine
- Descending colon of large intestine
- Initial part of sigmoid colon
- Urinary bladder

Figure 1.11b
Abdominopelvic Quadrants

- Right upper
- Left upper
- Right lower
- Left lower