# **Anatomy**

# Divisions of Anatomy:

- o Gross Anatomy (visible structures: muscle, bones, organs)
- o Microscopic Anatomy (can't see with a naked eye)
- Cytology (study of cells)
- Histology (study of tissues)

## Ways to Study Anatomy:

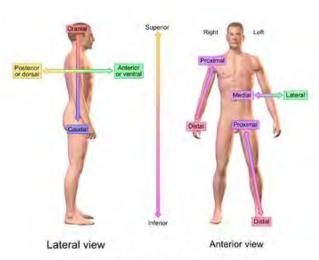
- o Regional Anatomy→ study one region of the body at a time and learn everything about the region.
- o Systemic Anatomy→ study one body system at a time.

### Organ Systems

Skeletal
Circulatory
Endocrine
Urinary
Respiratory
Reproductive
Digestive
Muscular
Integumentary (skin)

# Planes and Sections:

- × Sagittal Section: divides the body into right and left sides.
- × Mid-Sagittal Section: straight down the center of the body.
- × Frontal section: divides the body into front and back sides.
- × Transverse (Cross) Section: cut straight across the body.

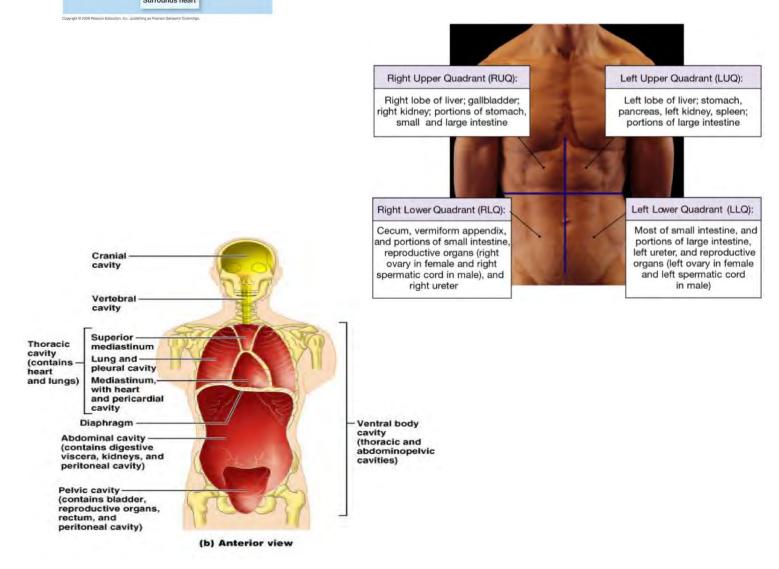


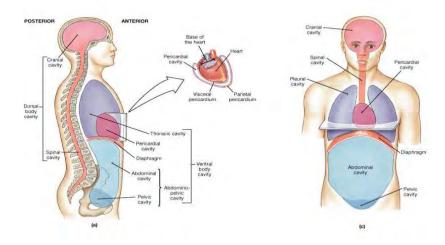
**Directional References** 

#### **Body Cavities** VENTRAL BODY CAVITY (COELOM) Provides protection; allows organ movement; lining prevents friction separated by diaphragm into THORACIC CAVITY ABDOMINOPELVIC CAVITY Surrounded by chest wall and diaphragm Contains the peritoneal cavity subdivided into includes the RIGHT PLEURAL CAVITY LEFT PLEURAL CAVITY ABDOMINAL CAVITY PELVIC CAVITY MEDIASTINUM Contains many digestive glands and organs Contains urinary bladder, reproductive organs, last portion of digestive tract Surrounds right lung Contains the traches Surrounds left lung esophagus, and major vessels also contains PERICARDIAL CAVITY Surrounds heart

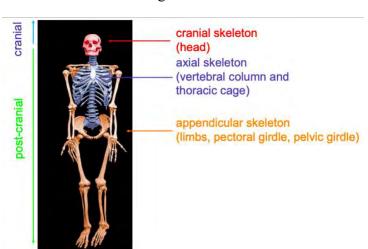
### **Quadrants:**

- · Right Upper Quadrant
- · Left Upper Quadrant
- Right Lower Quadrant
- Left Lower Quadrant





# Anatomical Regions of the Skeleton:



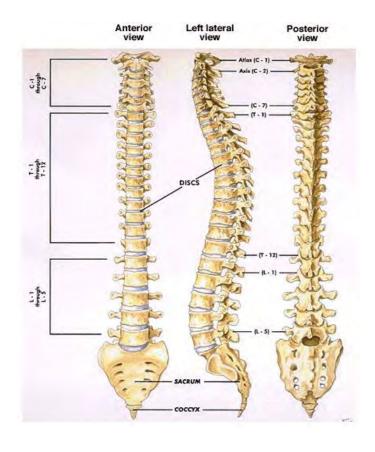
- · Cervical Vertebrae  $(C_1-C_7) \rightarrow$  concave
- Thoracic Vertebrae  $(T_1-T_{12}) \rightarrow$  convex
- · Lumbar Vertebrae ( $L_1$ - $L_5$ )  $\rightarrow$  concave
- · Sacrum (five fused vertebrae)→ convex
- · Coccyx (four fused vertebrae

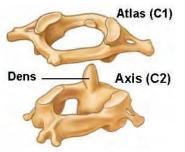
# a. Cervical Vertebrae

· C<sub>1</sub> (Atlas) → lacks body and spinous processes. Superior articular facets house the occipital condyles of skull. Allows nodding, movement of the head.

# The Axial Skeleton:

- 1) Vertebral Column:
- × Protects the spinal cord.
- × Transmits weight from the skull to the pelvis.
- × Provides attachment point for ribs and muscles of back and neck.





· C<sub>2</sub> (Axis)→Odontoid process (dens) is the missing body of the atlas; fuses with axis during development. Allows head to rotate laterally.

- × C<sub>3</sub>-C<sub>7</sub> are typical cervical vertebrae. Oval body.
- $\times$  Spinous process is short (except  $C_7$ ) and bifid.
- × Each transverse process has a transverse foramen to allow passage of vertebral arteries to brain.
- × The non-bifid spinous process of  $C_7$  is also known as the vertebra prominens.

### b. Thoracic Vertebrae

- × Gradual transition from C<sub>7</sub> to L<sub>1</sub>.
- × Heart-shaped body with two demi facets on each side (superior and inferior costal facets); these articulate with heads of ribs.
- × Circular vertebral foramen is the long, downward pointing spinous process.
- $\times$  Transverse costal facets on transverse process to articulate with tubercles of ribs (except  $T_{11}$  and  $T_{12}$ )

# Thoracic Vertebrae Axial (Overhead) View Lateral (Side) View

# c. <u>Lumbar Vertebrae</u>

- × Bear greatest load; reflected in more robust size/shape.
- × Large, kidney-shaped bodies.
- × Short, flat spinous processes.
- × Triangular vertebral foramen.



# d. Sacrum

- $\times$  Formed by fusion of S<sub>1</sub>-S<sub>5</sub>.
- × Articulates with L<sub>5</sub>, coccyx and iliac bones of pelvis.
- × Median sacral crest marks site of fusion of spinous processes.
- × Body's center of gravity lies about 1cm posterior to sacral promontory.

