

**Introduction  
to the Human Body  
&  
Structural Organization**

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# Anatomy

- Anatomy : is the study of structures or body parts and relationships among structures
- Ana: up  
Tomy: process of cutting

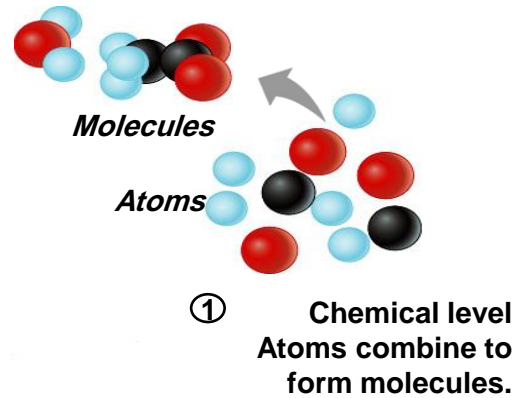
# Anatomy

- Branches of anatomy:
  - Embryology.....def ?
  - Cell biology
  - Gross anatomy
  - Histology

# Approaches to studying Anatomy

- The three main approaches to studying anatomy are *regional*, *systemic* and *clinical*.
  - **Surface Anatomy** - study of superficial markings
  - **Regional Anatomy** - The study of specific areas of the body (e.g. head, trunk)
  - **Systemic Anatomy** - Study of the 11\* specific organ systems
  - **Clinical anatomy** - emphasizes structure and function as they relate to the practice of medicine and other health sciences

# Levels of Body Organization



- Certain atoms are important for life
- Molecules : DNA

# Levels of Body Organization

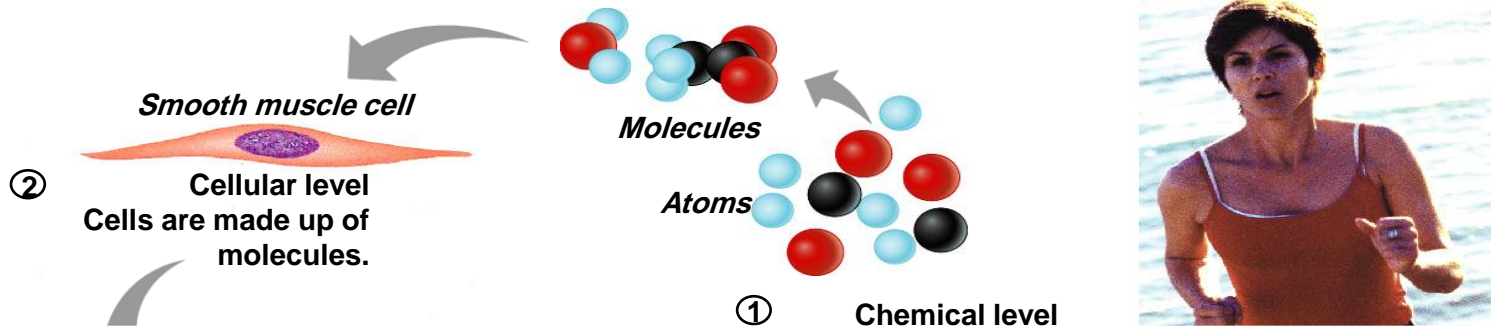
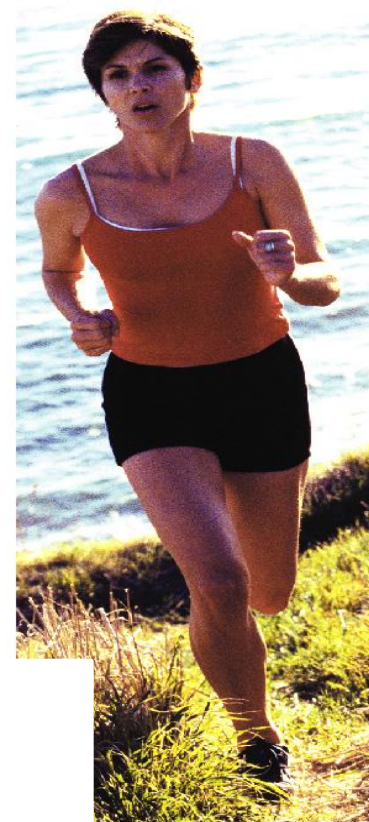
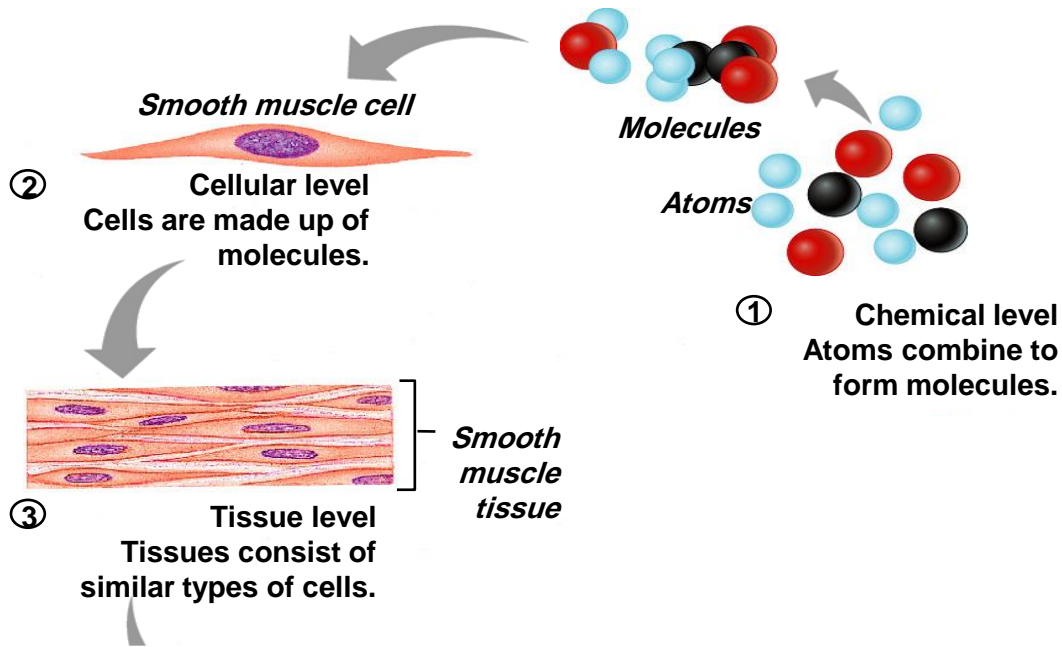


Figure 1.1

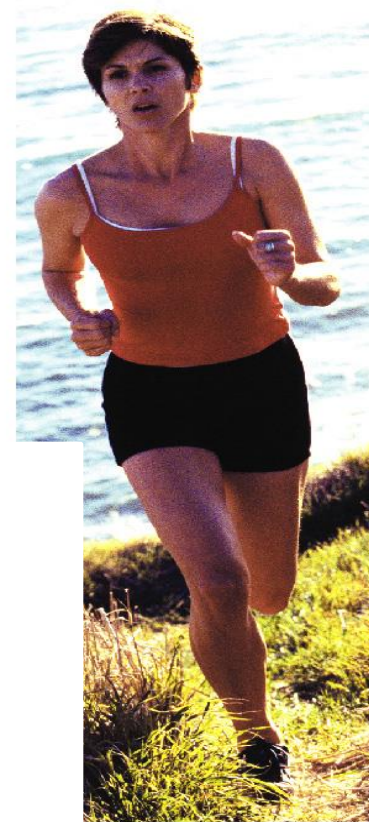
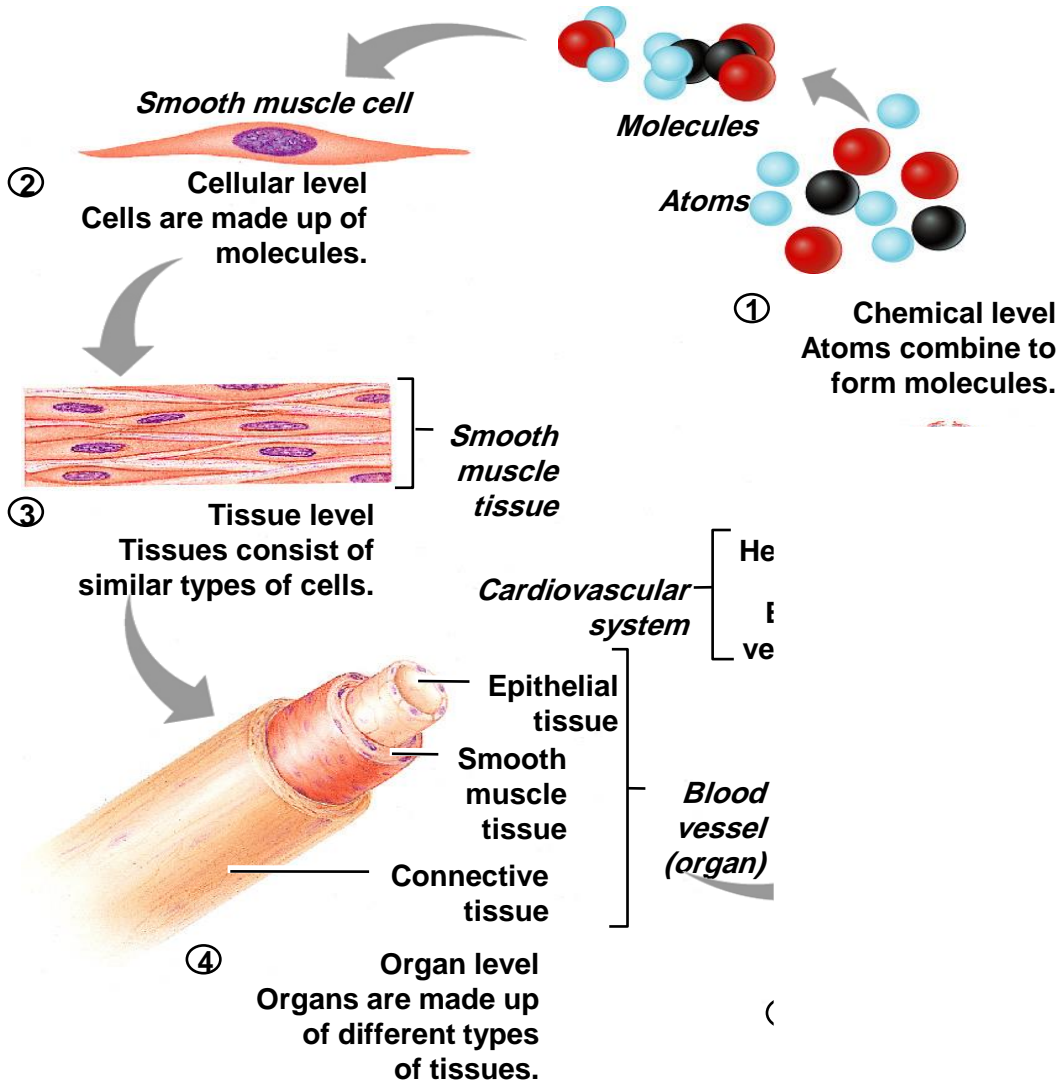
# Levels of Body Organization



**Organismal level**  
The human organism is made up of many organ systems.

Figure 1.1

# Levels of Body Organization



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The human organism is made up of many organ systems.

Figure 1.1



# Levels of Body Organization

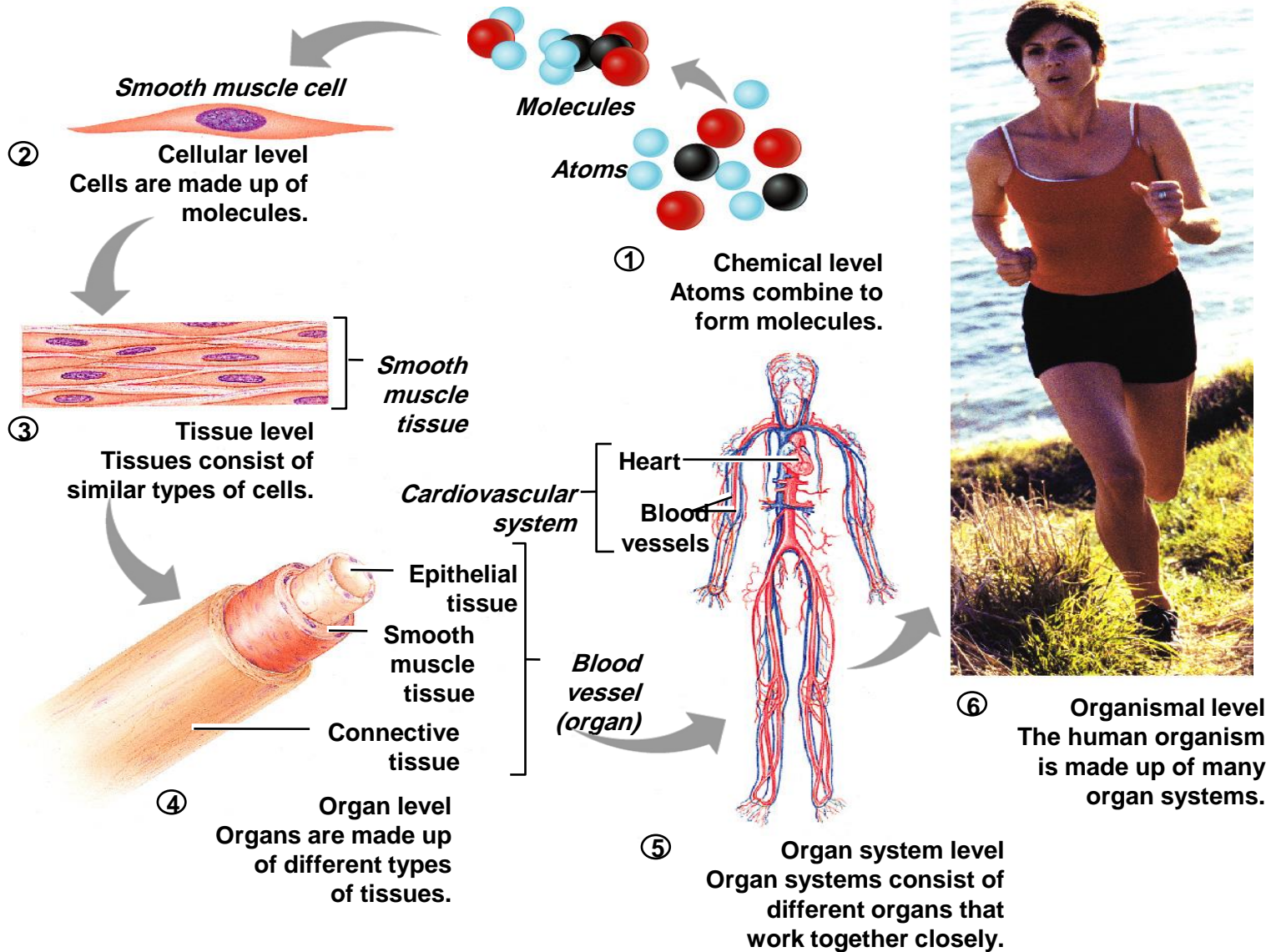


Figure 1.1

# Types of Tissues

There are 4 basic tissue types:

- Epithelial tissue
- Connective tissue
- Muscle tissue
- Nervous tissue

# Organ systems

- Integumentary
- Skeletal
- Muscular
- Nervous
- Endocrine
- Cardiovascular
- Lymphatic/immune
- Respiratory
- Digestive
- Urinary
- Reproductive

- **Gross Anatomy:**  
the examination of body structures that can be seen without a microscope.

- The anatomical position (why?):  
body is erect, feet together, palms face forward and the thumbs point away from the body .

**Prone** position....?

**Supine** position...?

- Directional and regional terms
  - Body planes and sections
  - Anatomical variability



# Directional Terms

- Superior : means the part is above another or closer to head (cranial ).

**Vs.**

- Inferior: means the part is below another or towards the feet (caudal).
- Anterior: means towards the front (the eyes are anterior to the brain) - [ventral].

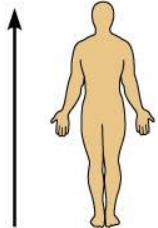
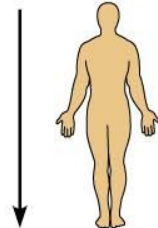
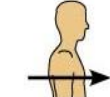
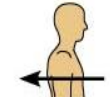
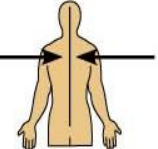
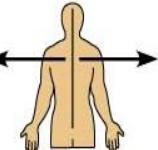
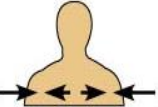
**Vs.**

- Posterior: means toward the back (the pharynx is posterior to the oral cavity) - [dorsal].
- Medial : relates to the imaginary midline dividing the body into equal right and left halves (the nose is medial to the eyes).



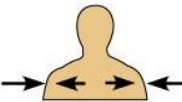

**Vs.**

- Lateral: means to words the side with respect to the imaginary midline (the ears are lateral to the eyes).

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

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

\*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.

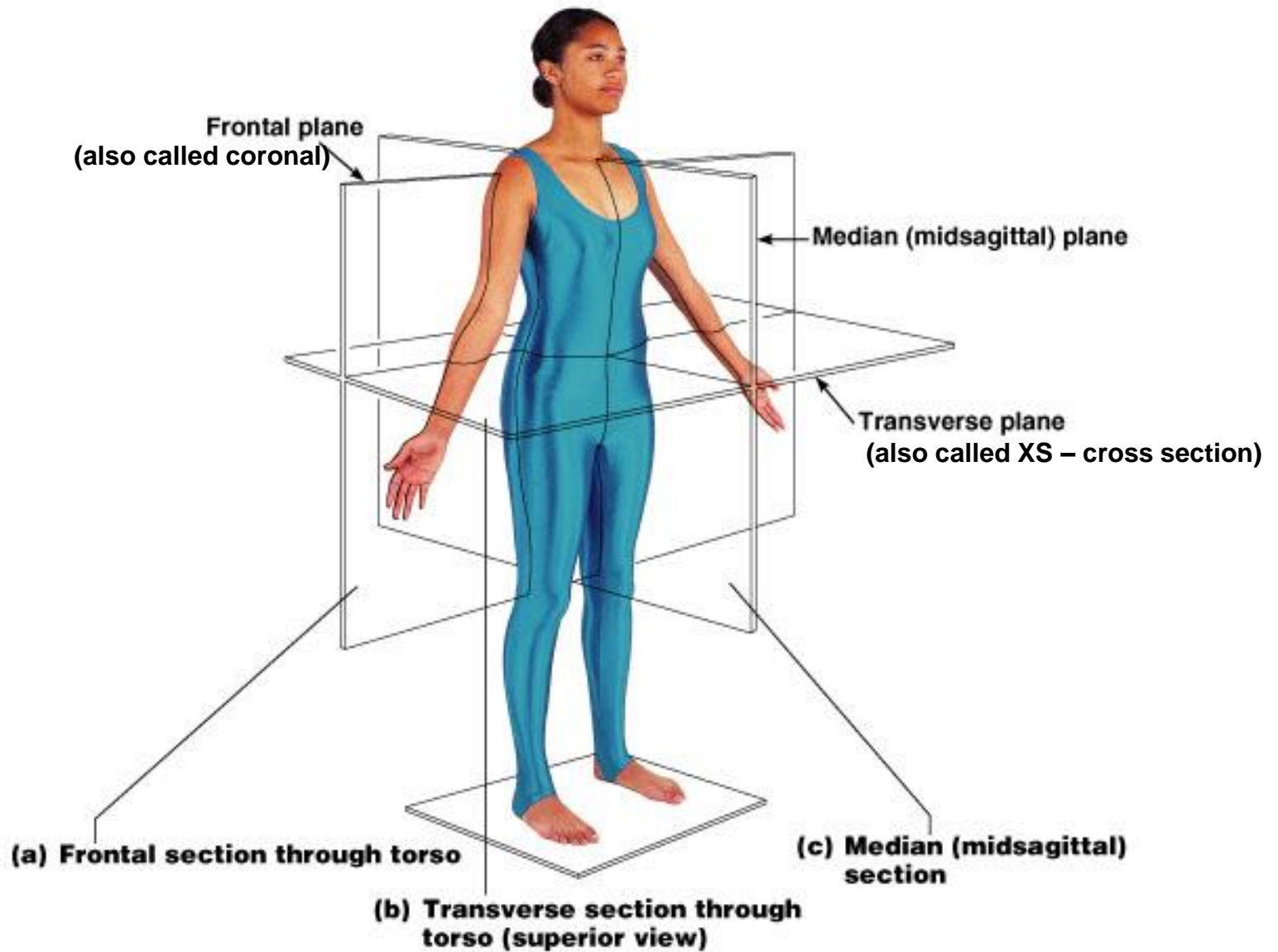
# Regional Terms

- **Axial part** : includes the head, neck, and trunk.
- **Appendicular part** : Includes the limbs which are attached to the body's axis.



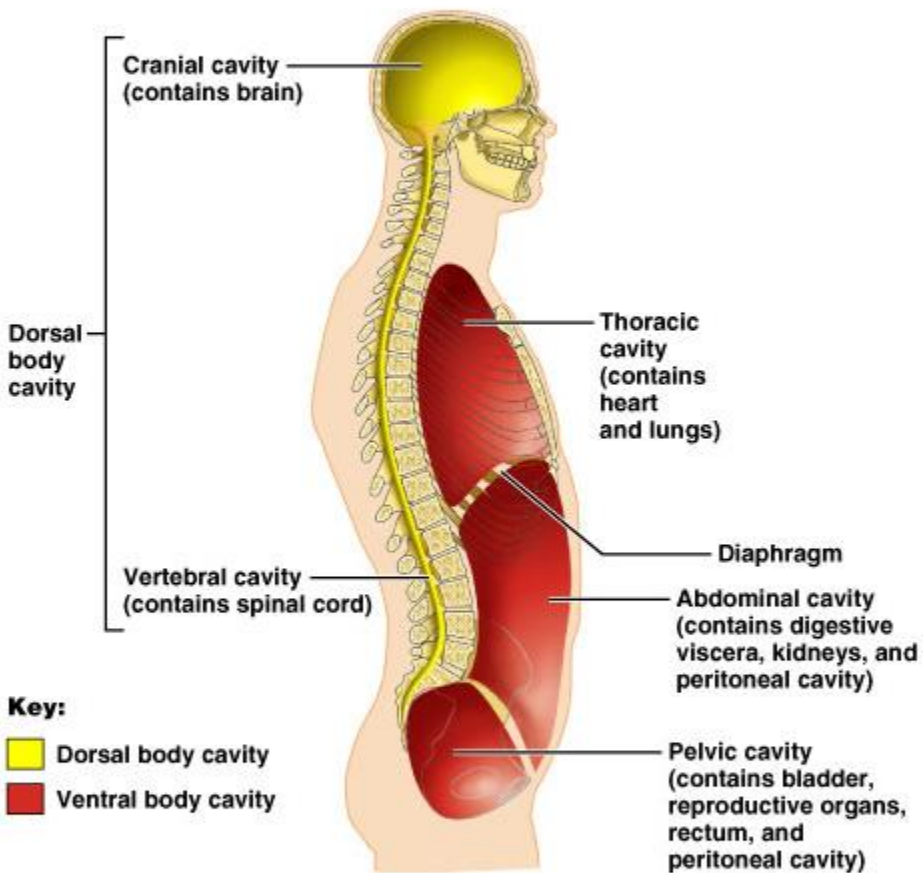
# Body planes and sections

cut into sections along a flat surface called a plane

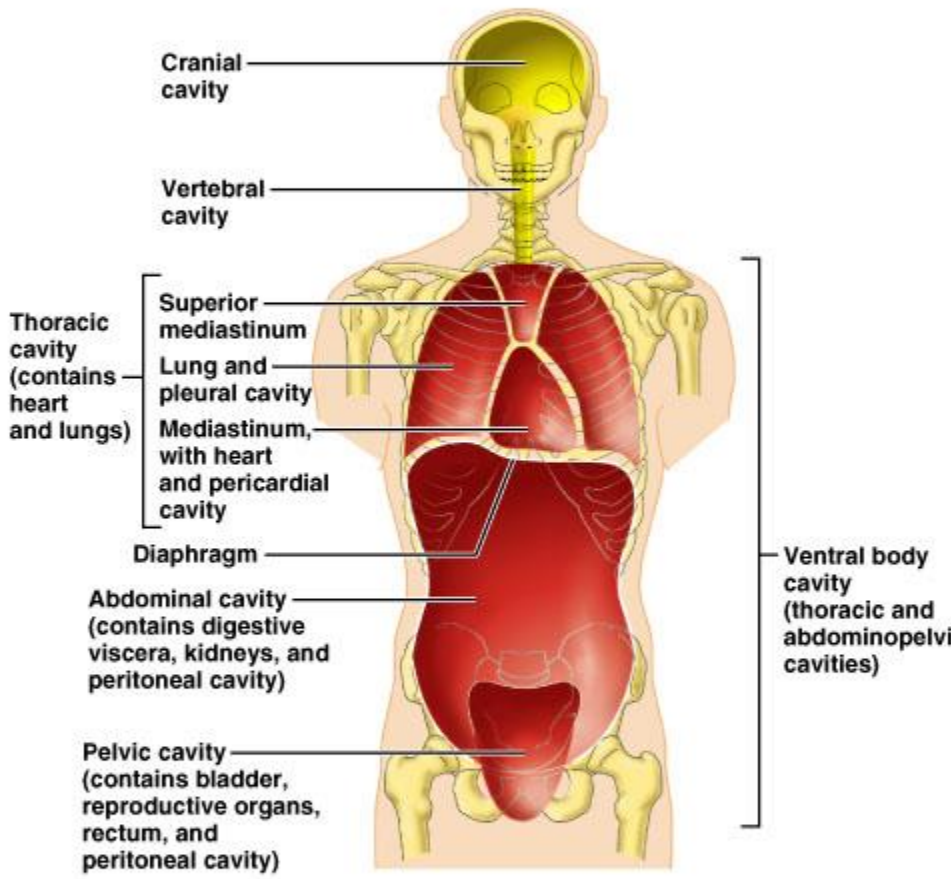


# Body Sections

- Sagittal plane – divides the body into left and right sections.
- Midsagittal (median) plane – divides the body into equal halves at midline.
- Frontal (coronal) plane –divides the body into anterior and posterior sections.
- Transverse (horizontal) plane – divides the body into superior and inferior sections.



**(a) Lateral view**



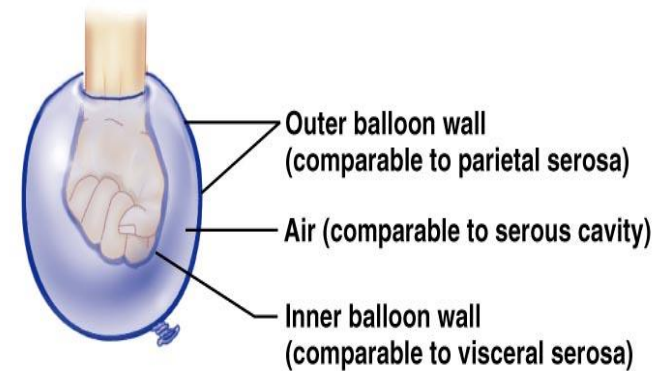
**(b) Anterior view**

# Body membranes

- Body membranes:  
tissue linings of body cavities and coverings of internal organs

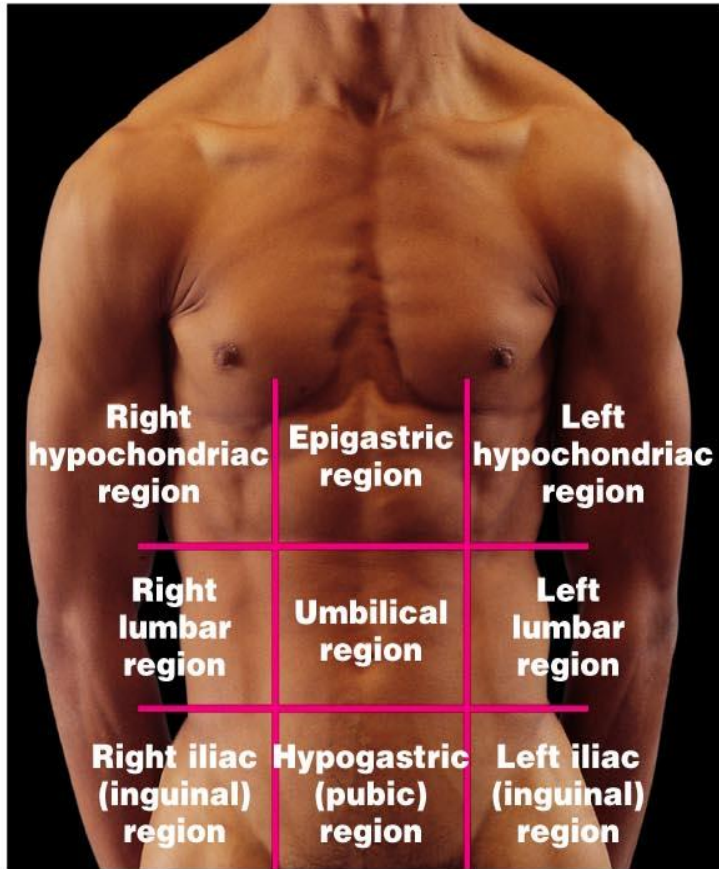
# Body membranes

- **parietal membrane** – lining of body cavity
- **visceral membrane** – covering of internal organ

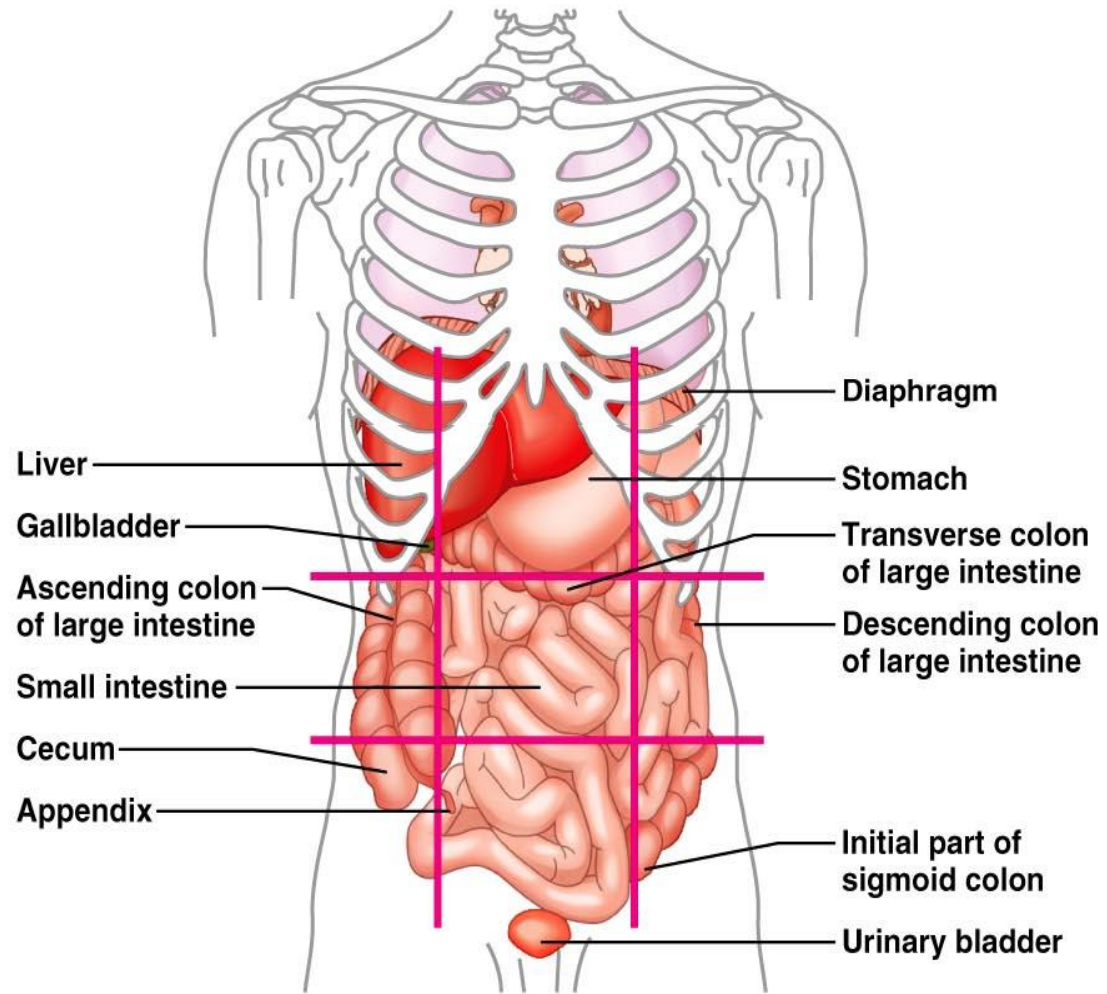


(a)

# The abdominopelvic regions and quadrants

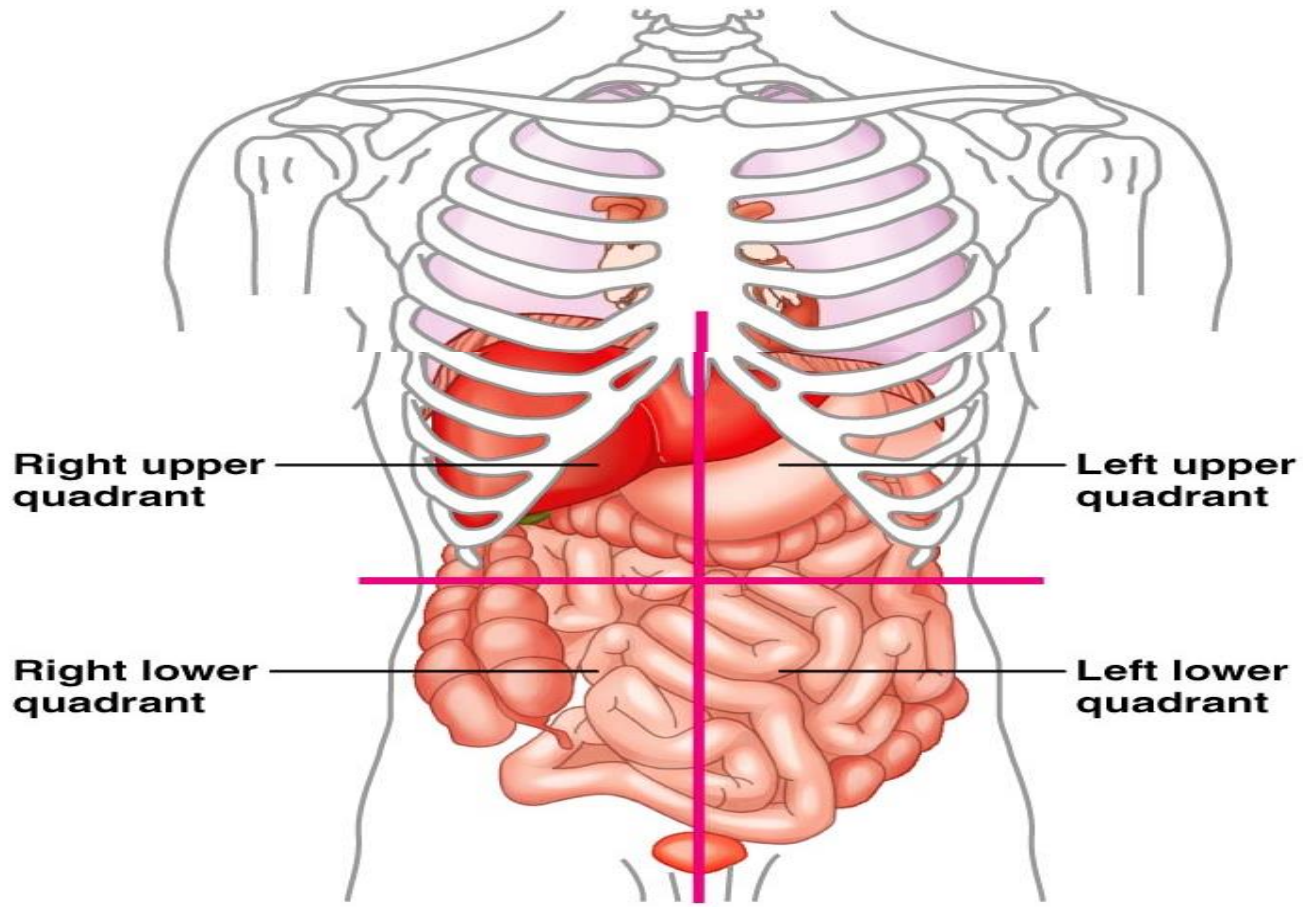


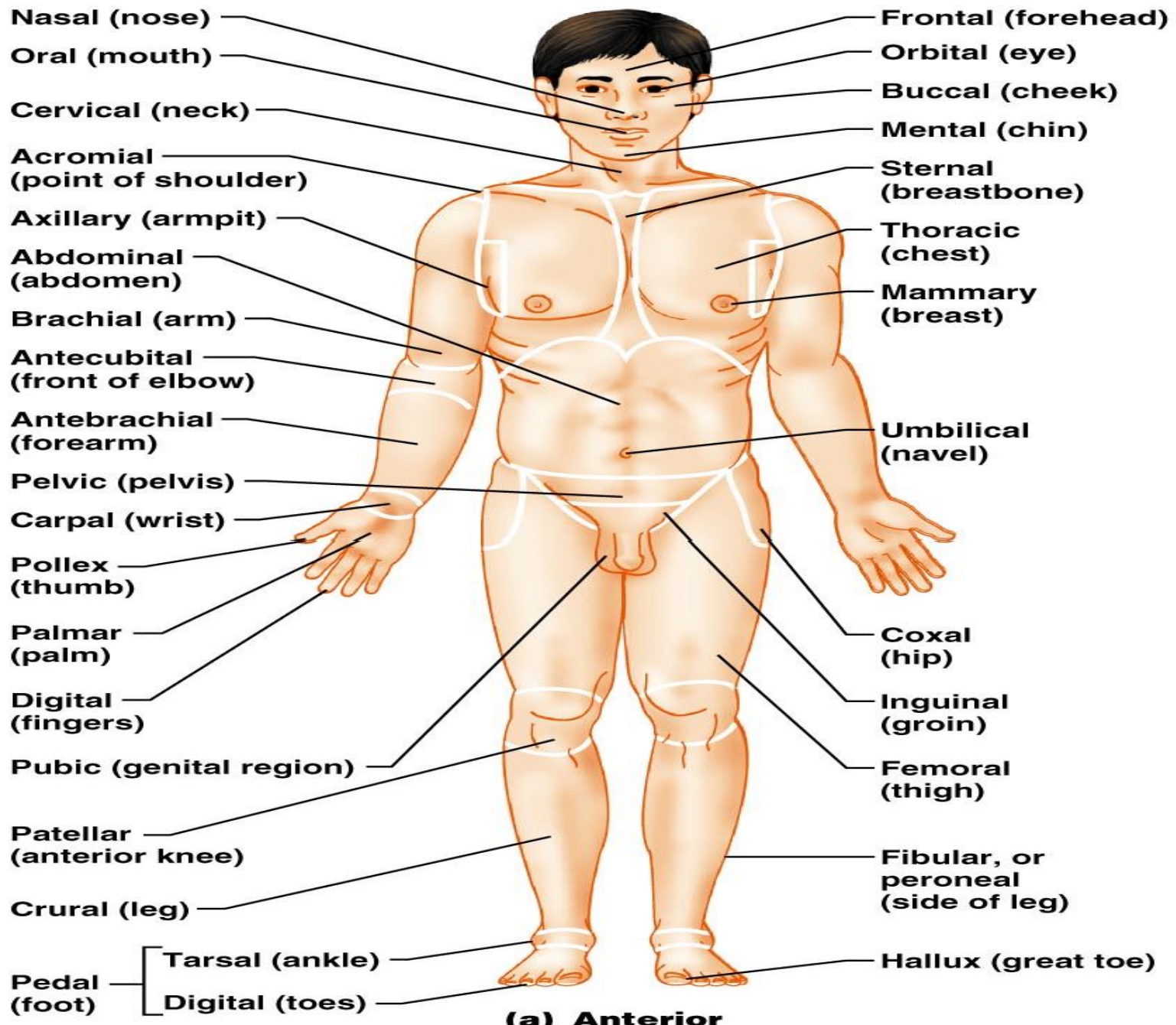
(a)



(b)

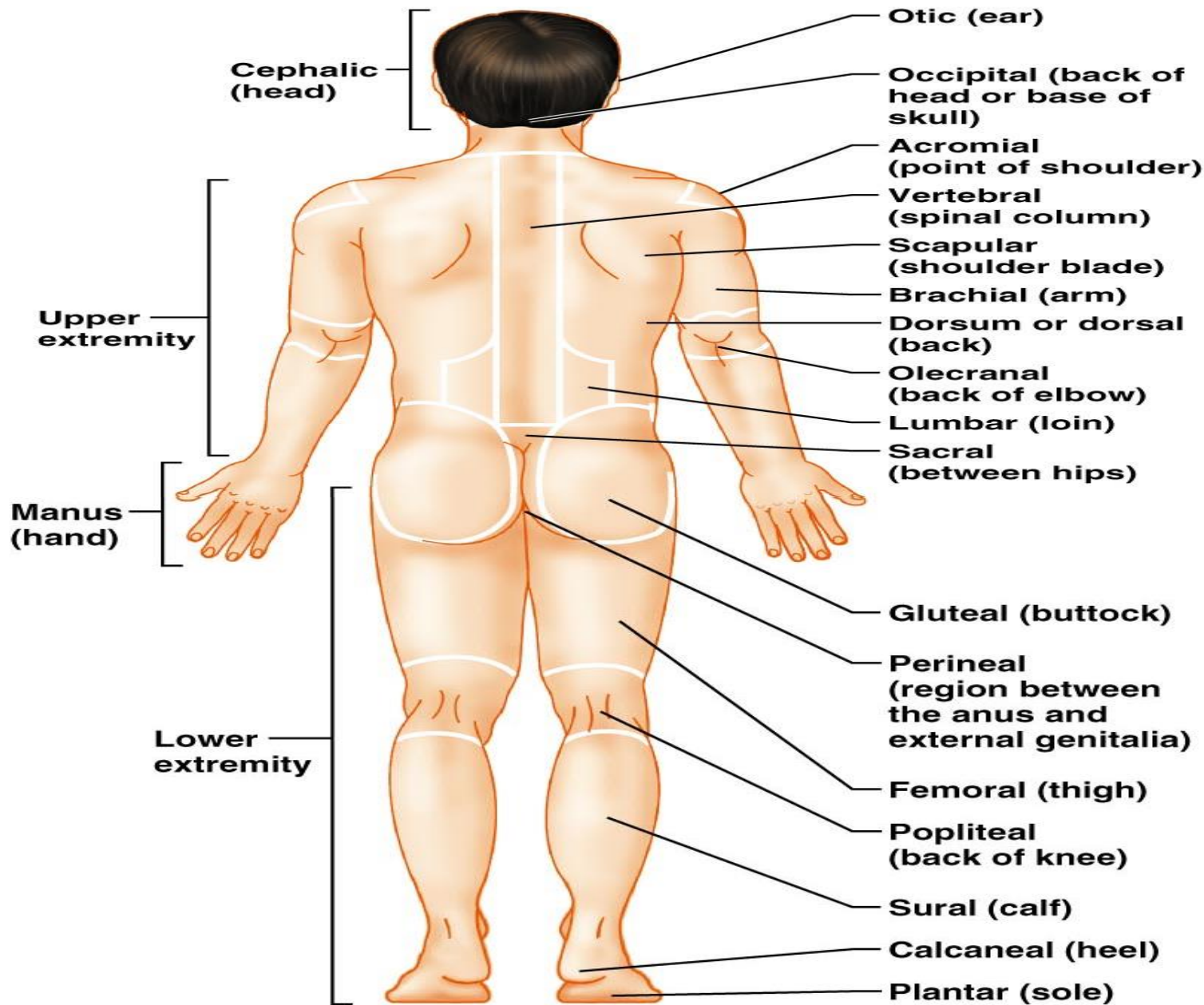
# 9 abdominal regions; 4 quadrants





**(a) Anterior**





**(b) Posterior**

Thank You