University of Cihan-Sulaimaniya
College of Science
Department of Anesthesia
Second year students

Human Anatomy

First Lecture

14-9-2024

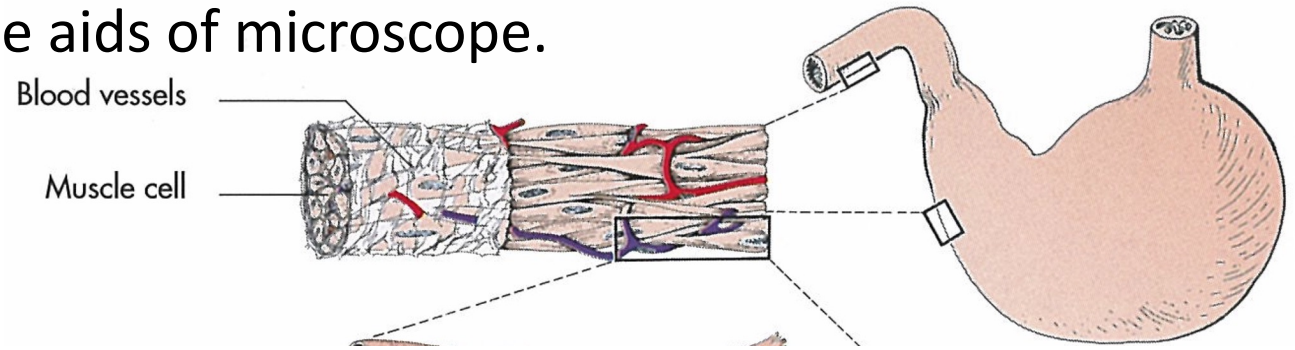
Anatomy

The study of the ***structure*** of the human body

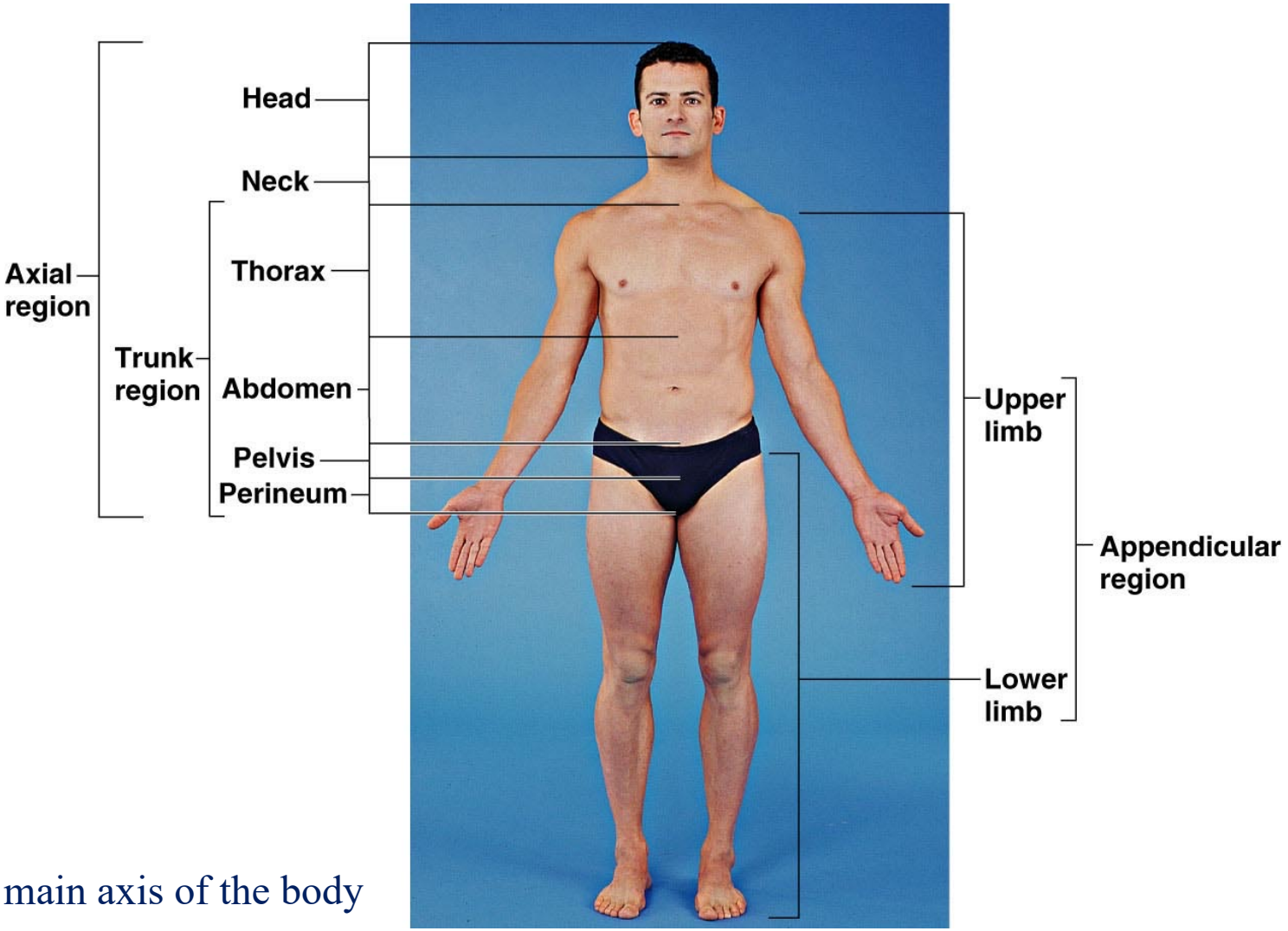
Systemic – study of anatomy by system

Regional – study of anatomy by region

1. **Macroscopic or gross anatomy** is the studying of the structures which are seen by naked eyes.
2. **Microscopic anatomy or Histology** is the studying of structures that can see by the aids of microscope.



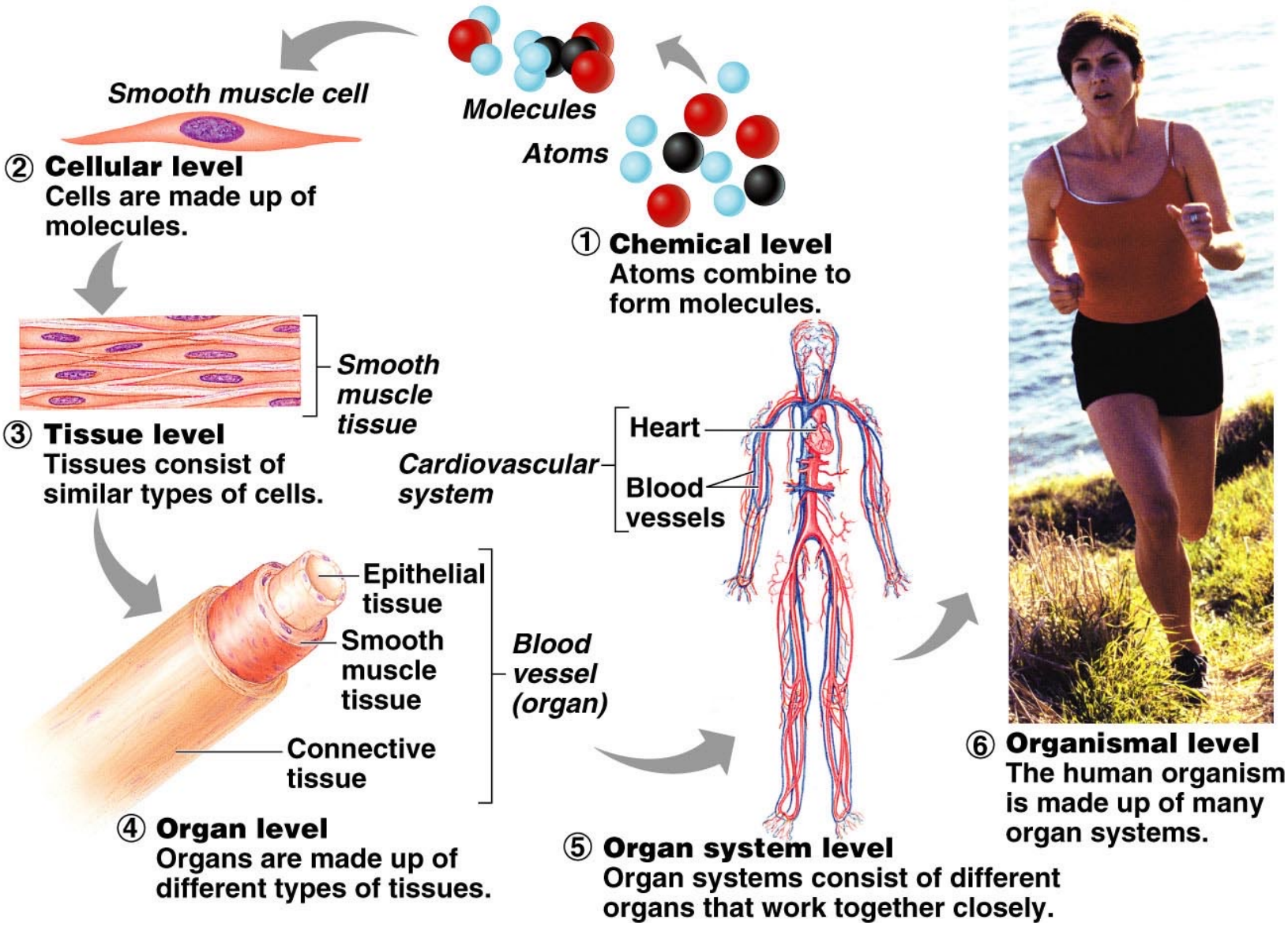
Gross Anatomy or Macroscopic Anatomy



Axial region – the main axis of the body

Appendicular region – the limbs

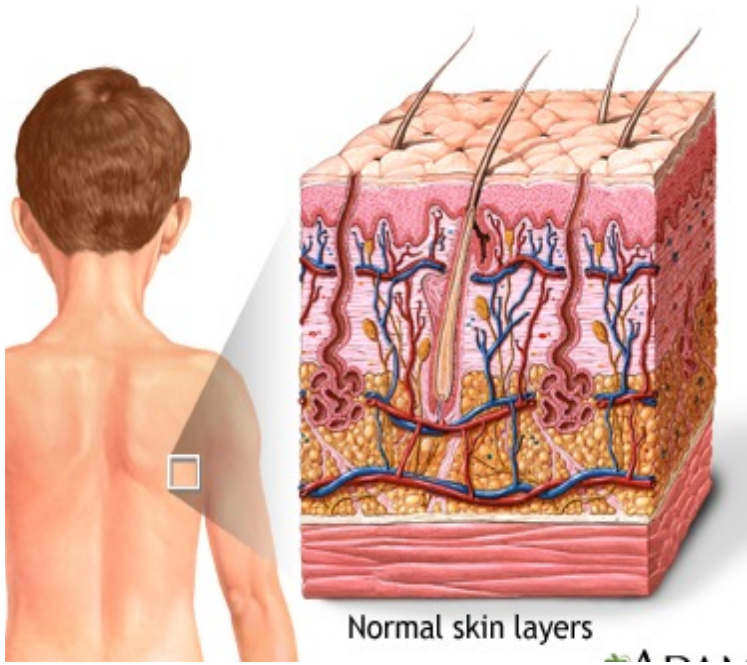
Structural Organization



Sytemic Anatomy

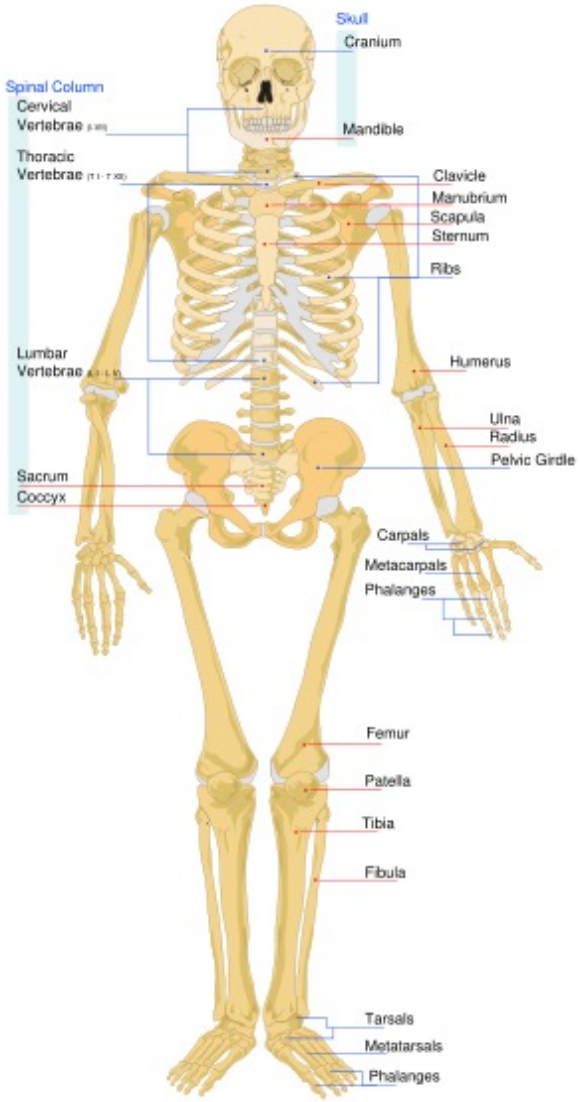
The Integumentary System

- Forms external body covering
- Protects deeper tissues from injury
- Synthesizes vitamin D
- Site of cutaneous receptors (pain, pressure, etc.) and sweat and oil glands



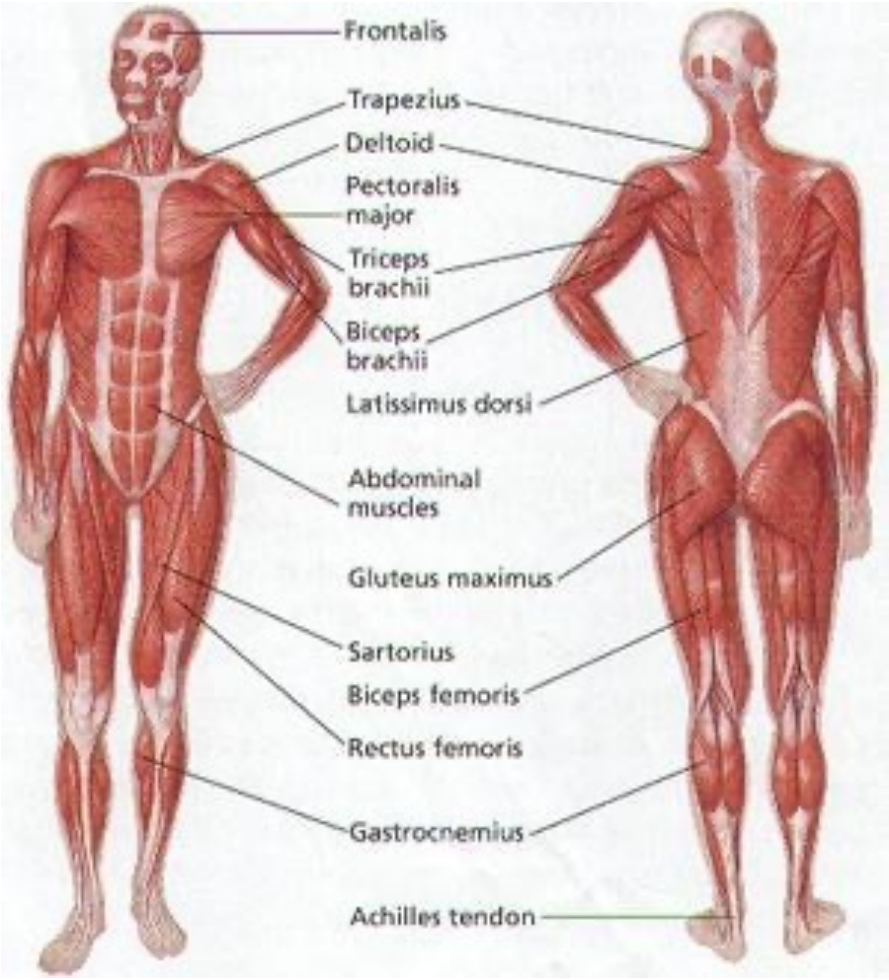
The Skeletal System

- Protects and supports body organs
- Provides a framework for muscles
- Blood cells formed within bones
- Stores minerals



The Muscular System

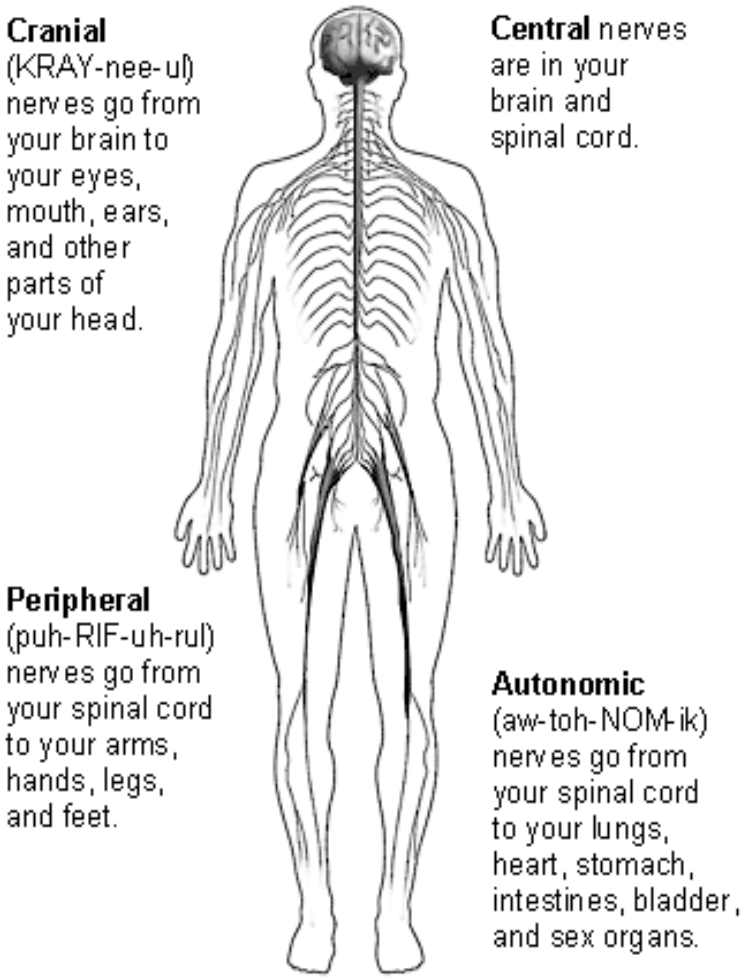
- Allows manipulation of environment
- Locomotion
- Facial expression
- Maintains posture
- Produces heat



The Nervous System

- Fast-acting control system

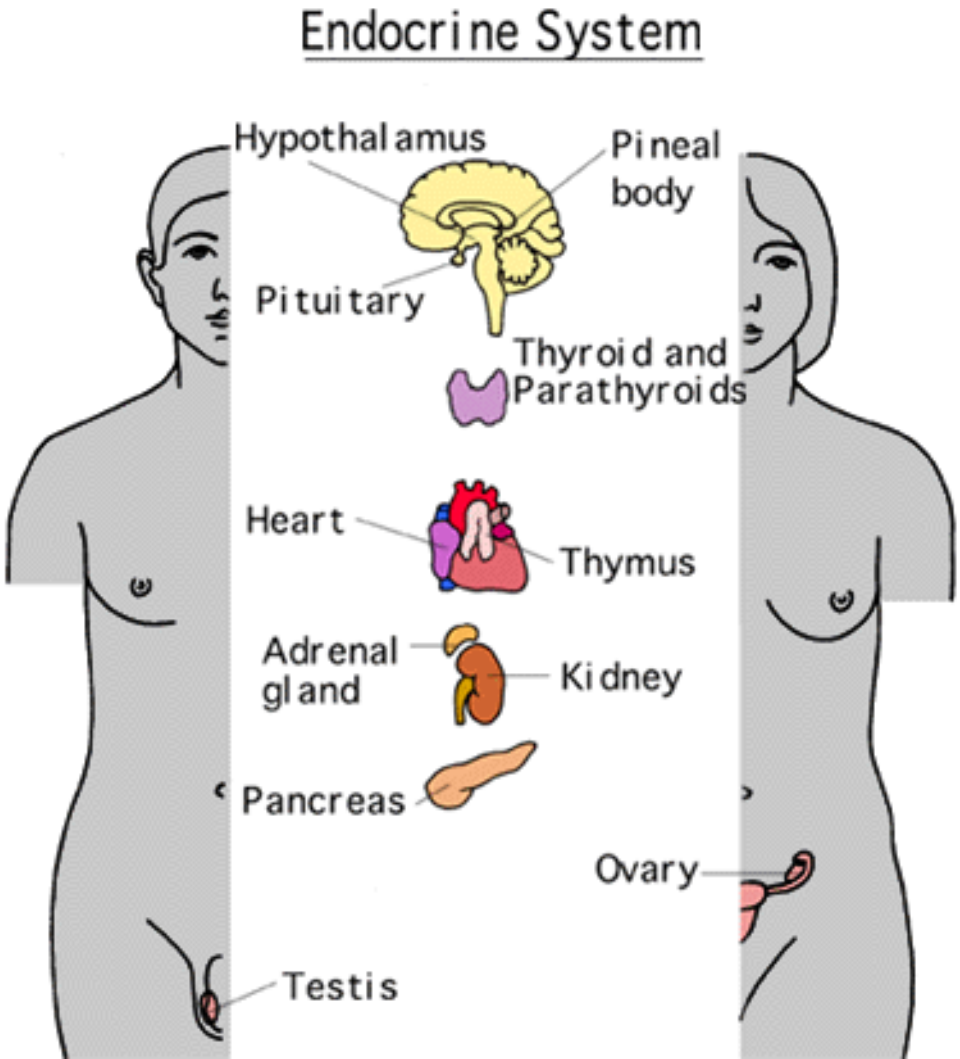
- Responds to internal and external changes



The Endocrine System

Glands secrete hormones that regulate:

- Growth
- Reproduction
- Nutrient use



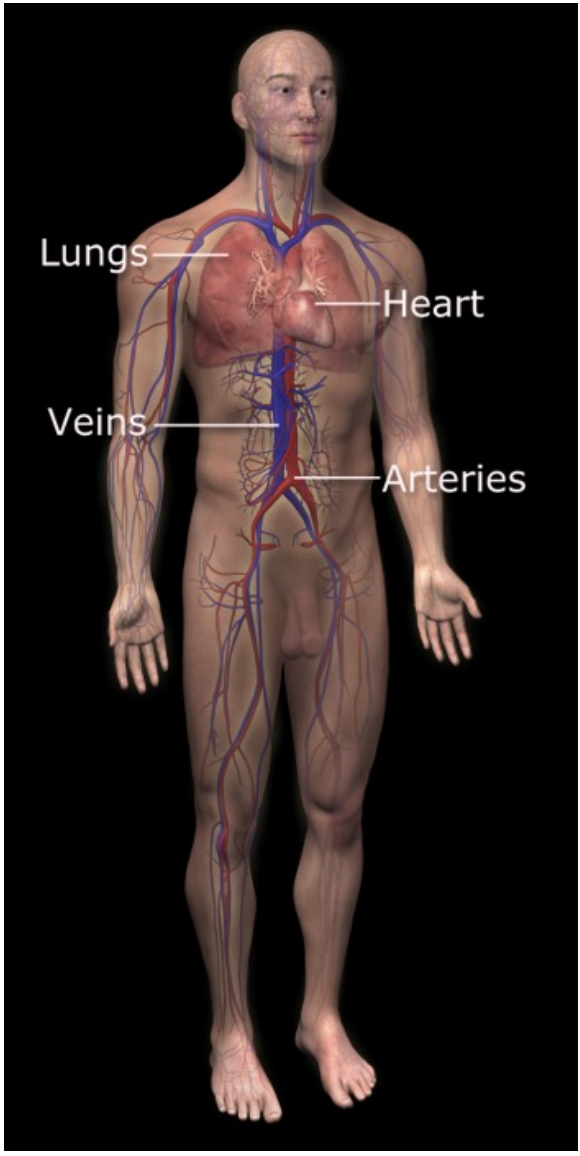
The Cardiovascular System

- Blood vessels transport blood

- Carries oxygen and carbon dioxide

-Also carries nutrients and wastes

- Heart pumps blood through blood vessels



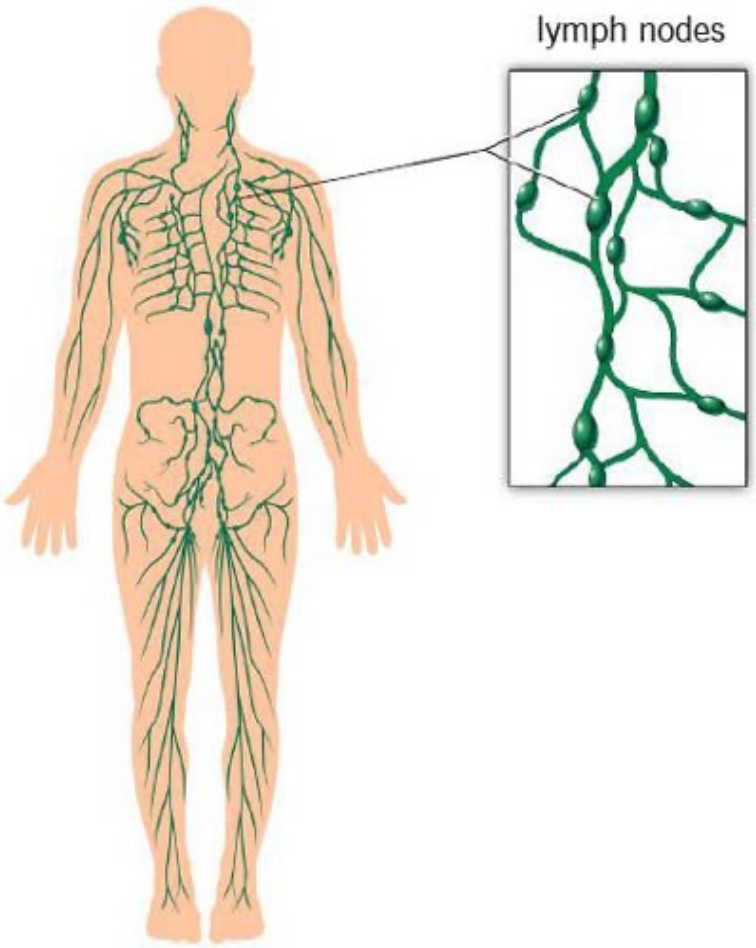
The Lymphatic System

- Picks up fluid leaked from blood vessels

- Disposes of debris in the lymphatic system

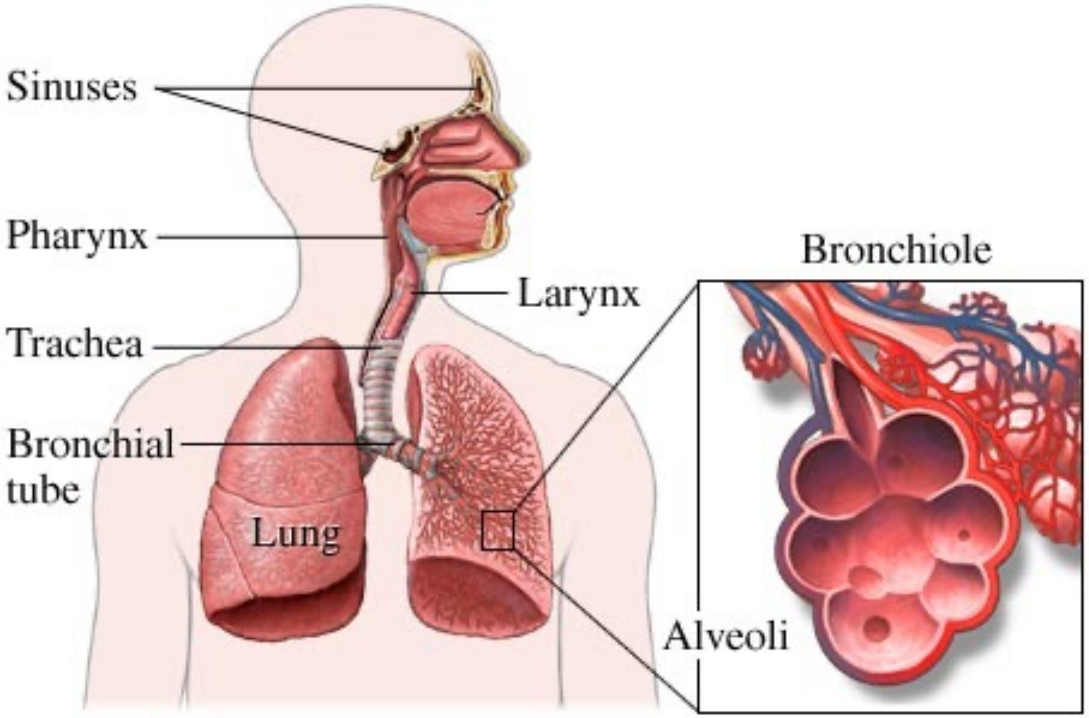
- Houses white blood cells (lymphocytes)

- Mounts attack against foreign substances in the body



The Respiratory System

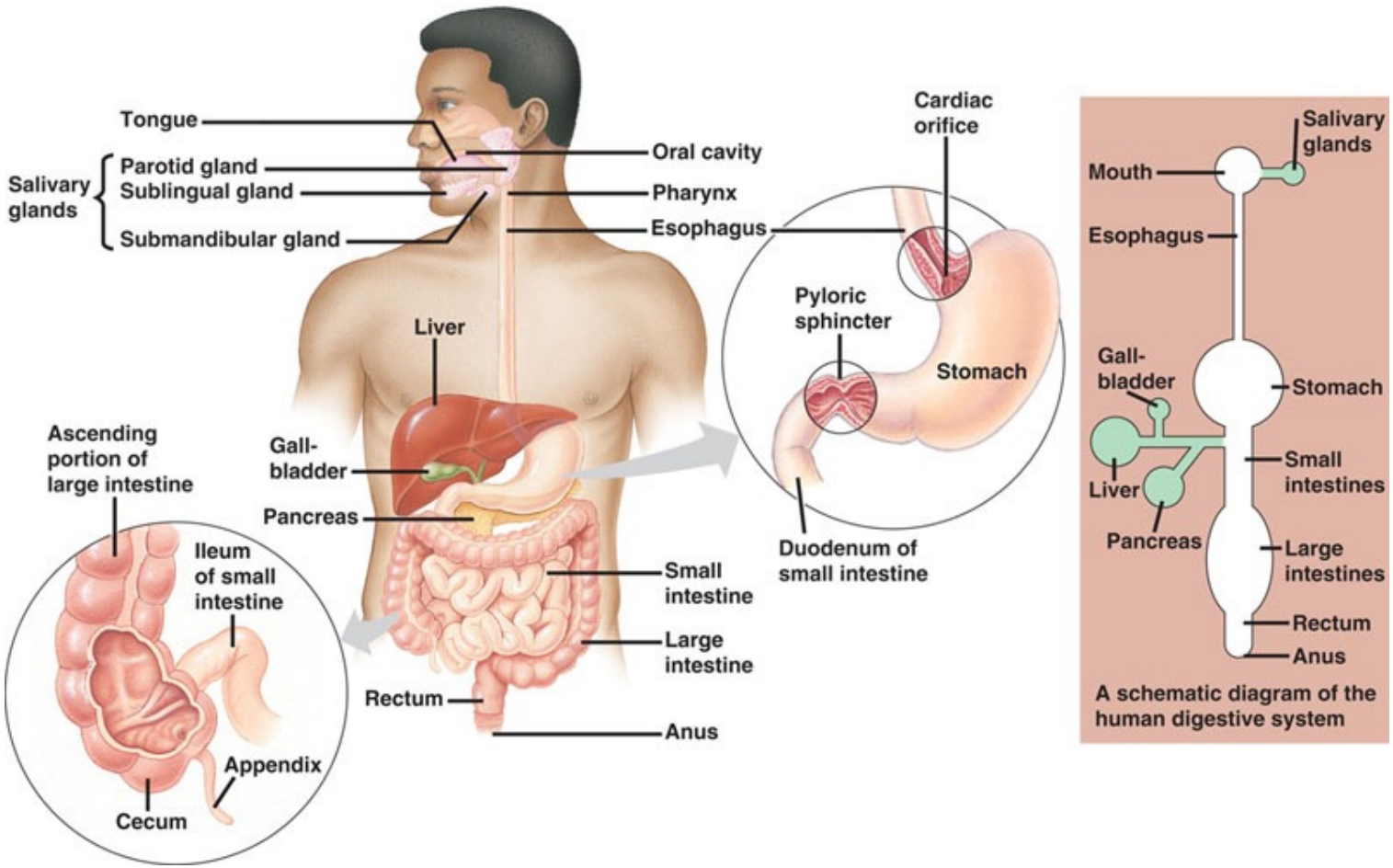
- Keeps blood supplied with oxygen
- Removes carbon dioxide
- Gas exchange occurs through walls of air sacs in the lungs



The Digestive System

- Breaks down food into absorbable units

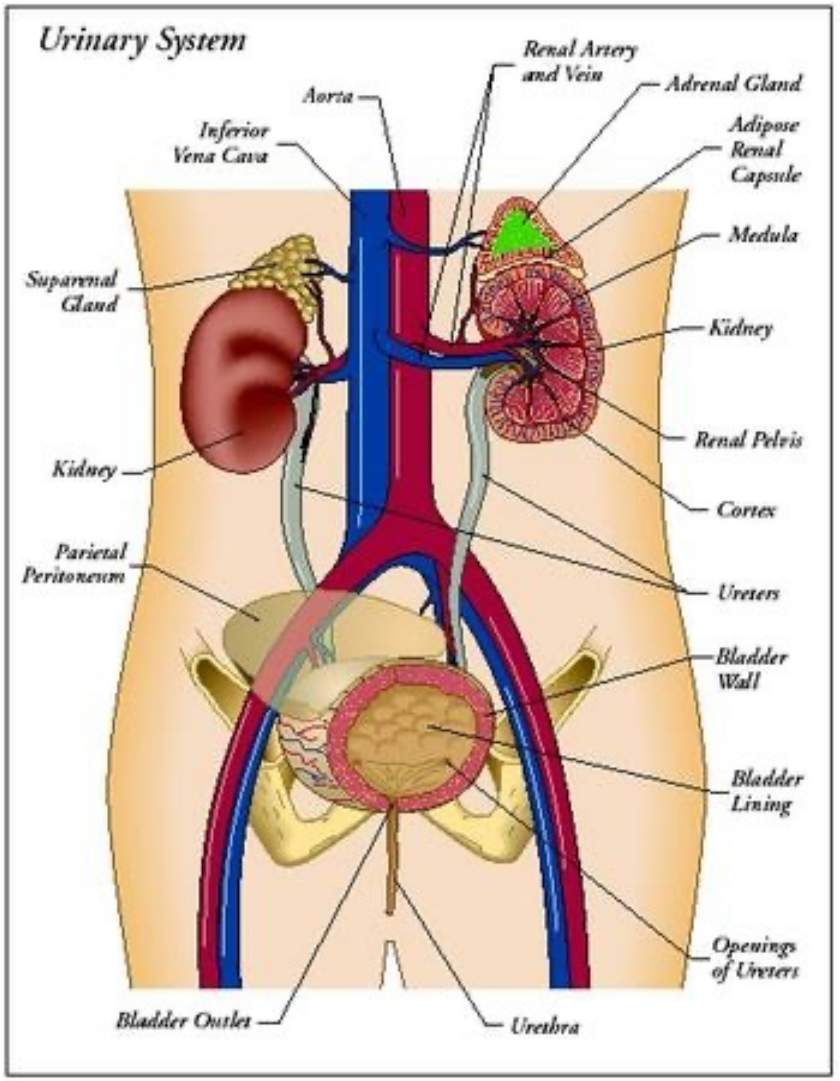
- Indigestible foodstuffs eliminated as feces



The Urinary System

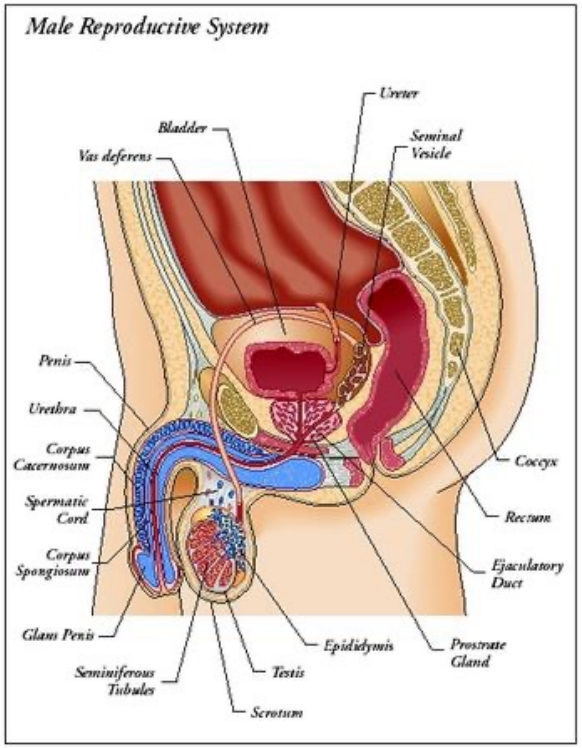
- Eliminates nitrogenous wastes

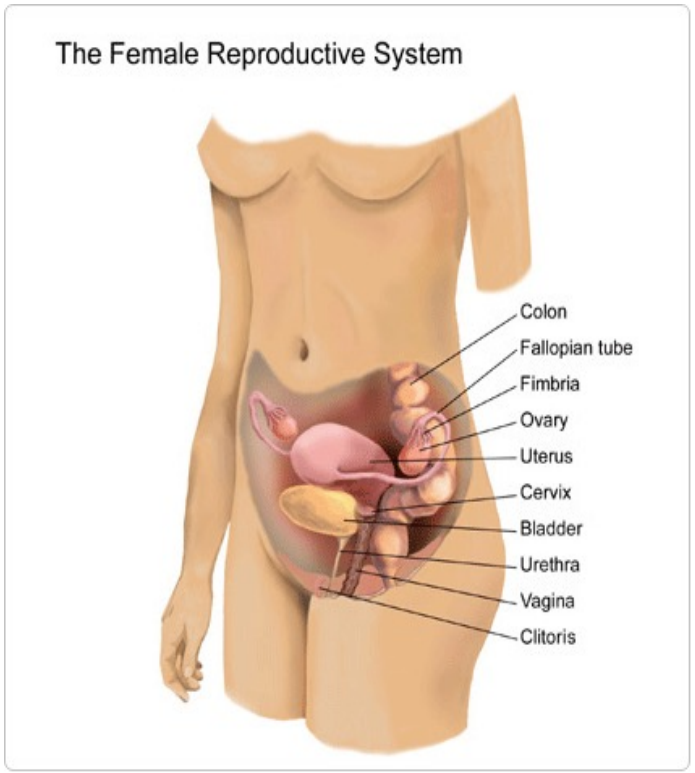
- Regulates water, electrolyte, and acid-base balance



Reproductive System

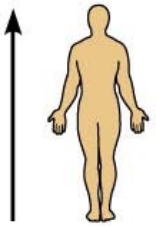
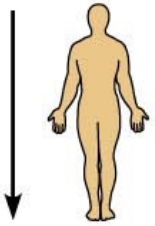
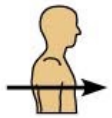
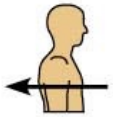
- Overall function is to produce offspring
- Testes produce sperm and male sex hormones
- Ovaries produce eggs and female sex hormones
- Mammary glands produce milk





Anatomical 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		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.
Anterior (ventral)*	Toward or at the front of the body; in front of		The breastbone is anterior to the spine.
Posterior (dorsal)*	Toward or at the back of the body; behind		The heart is posterior to the breastbone.

*Whereas the terms *ventral* and *anterior* are synonymous in humans, this is not the case in four-legged animals. *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.

TABLE

1.1 Orientation and Directional Terms

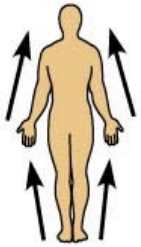
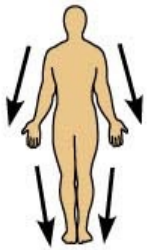
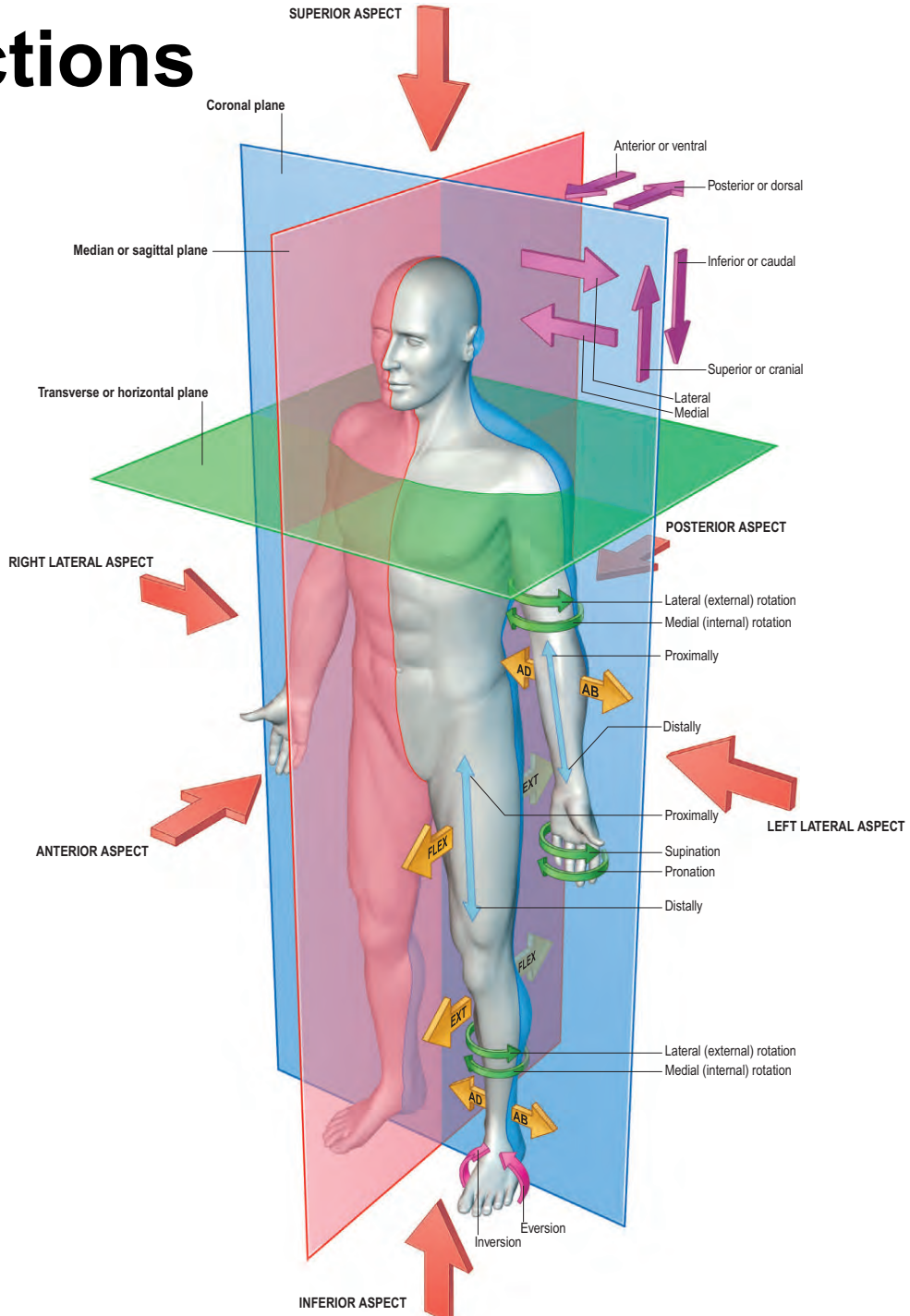
Term	Definition		Example
Medial	Toward or at the midline of the body; on the inner side of		The heart is medial to the arm.
Lateral	Away from the midline of the body; on the outer side of		The arms are lateral to the chest.
Proximal	Closer to the origin of the body part or the point of attachment of 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.

TABLE 1.1 Orientation and Directional Terms

Term	Definition		Example
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.
Ipsilateral	On the same side		The right hand and right foot are ipsilateral.
Contralateral	On opposite sides		The right hand and left foot are contralateral.

Body Planes and Sections

- Median plane
- Sagital plane
- Transeverse plane
- Frontal plane
- Oblique plane



Body Planes and Sections

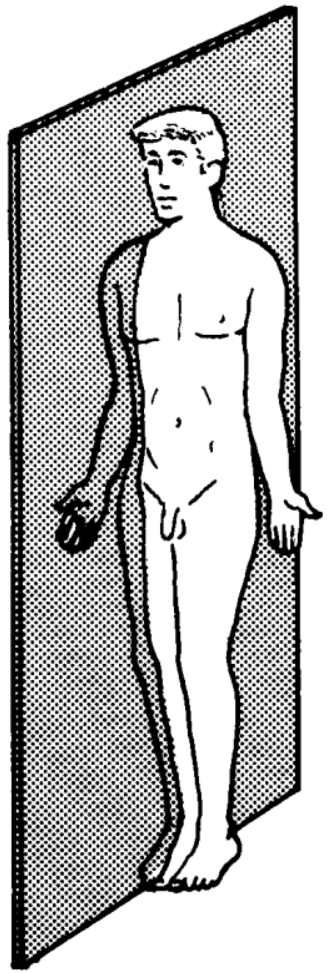


Figure 1-3, A. The sagittal plane.

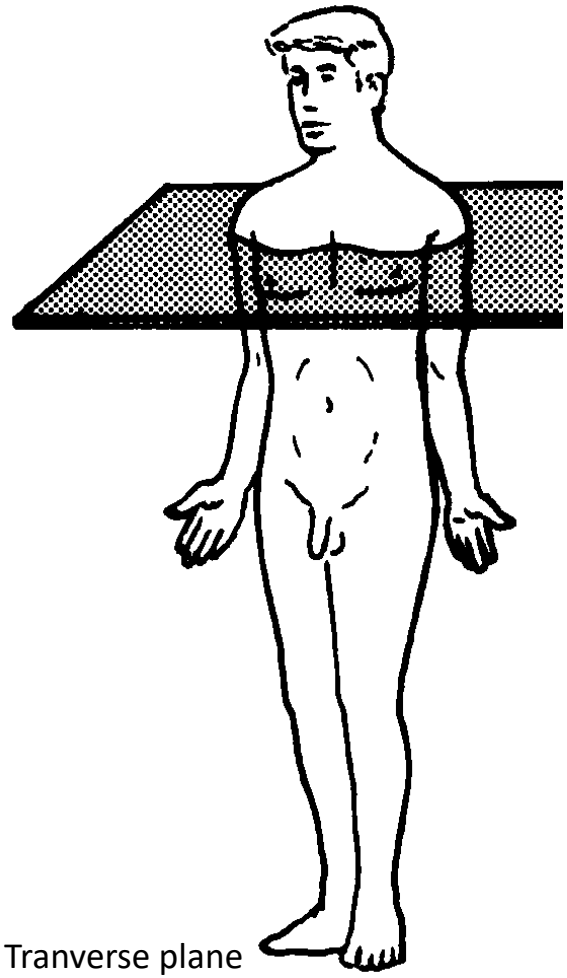


Figure 1-3, B. The horizontal plane.

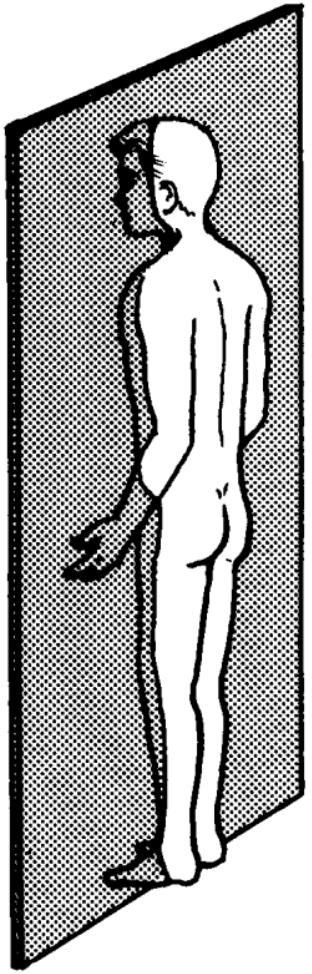
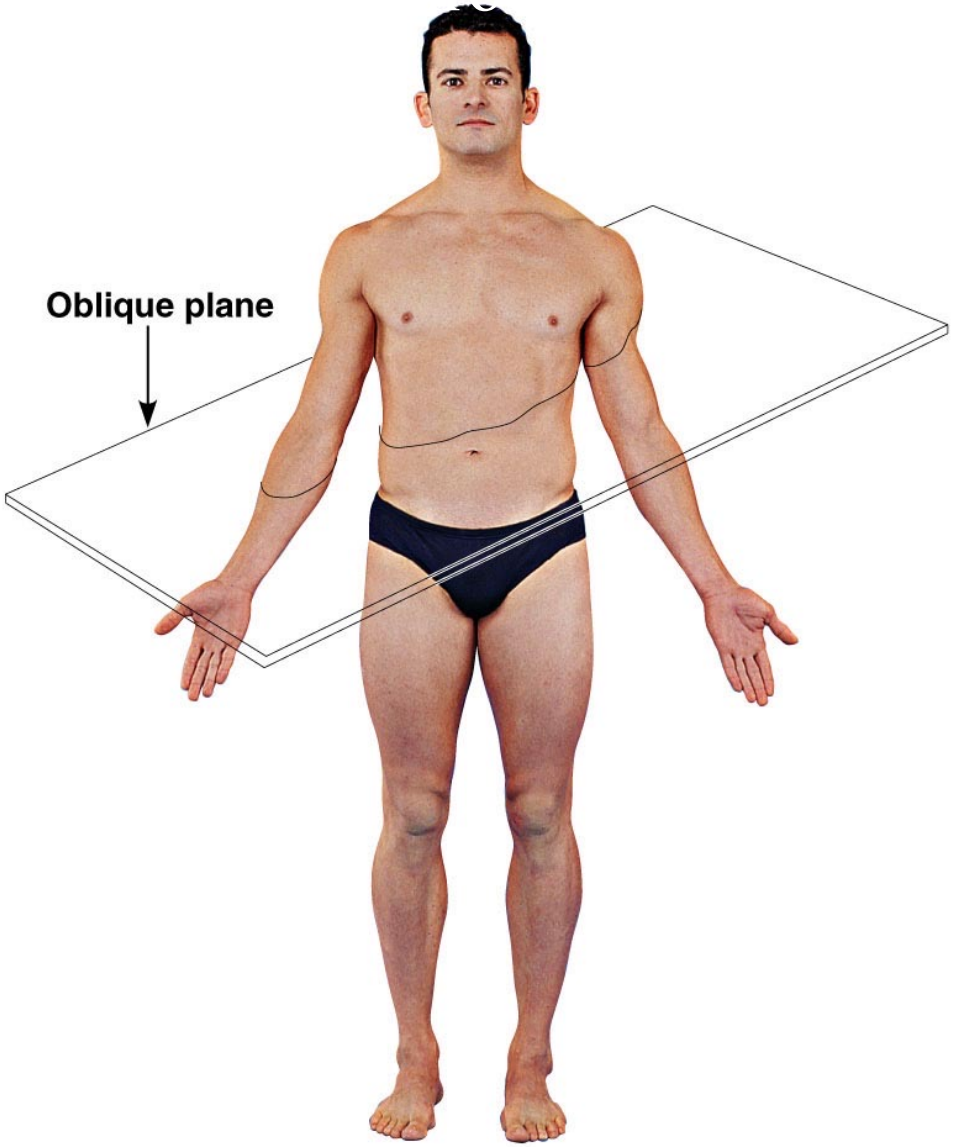


Figure 1-3 C. The frontal plane.

Body Planes and Sections



Body Cavities

A body cavity is a space created in an organism which houses organs.

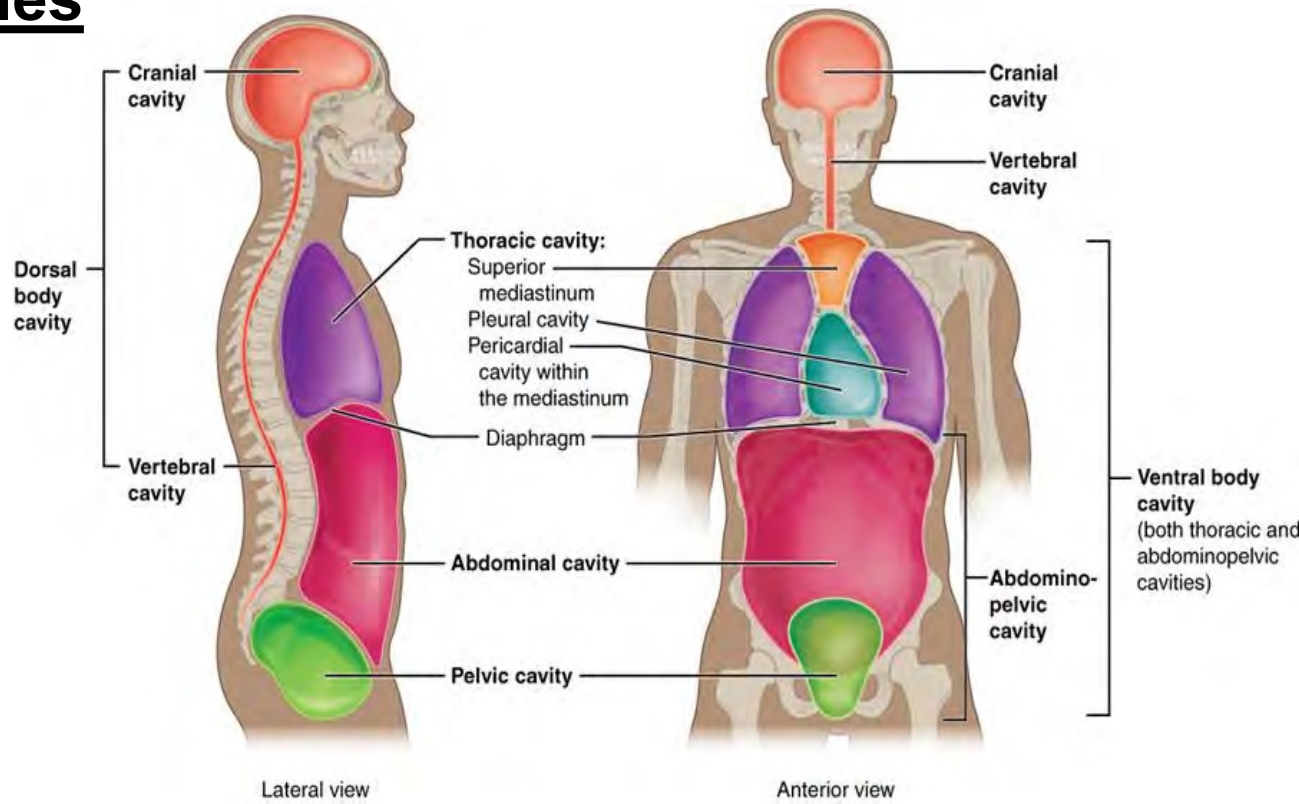
- Dorsal body cavities

1- **Cranial cavity** houses the brain.

2- **Vertebral cavity** runs through the vertebral column and encloses the spinal cord

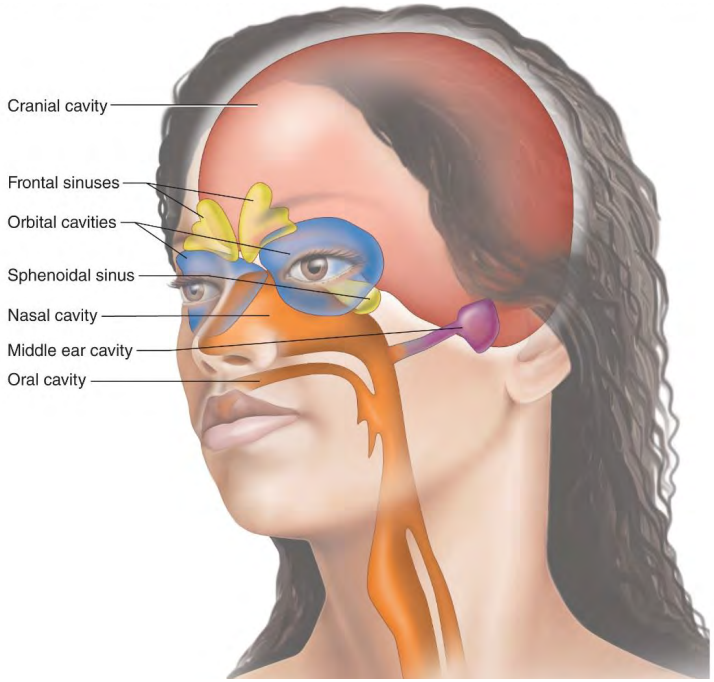
- Ventral body cavities

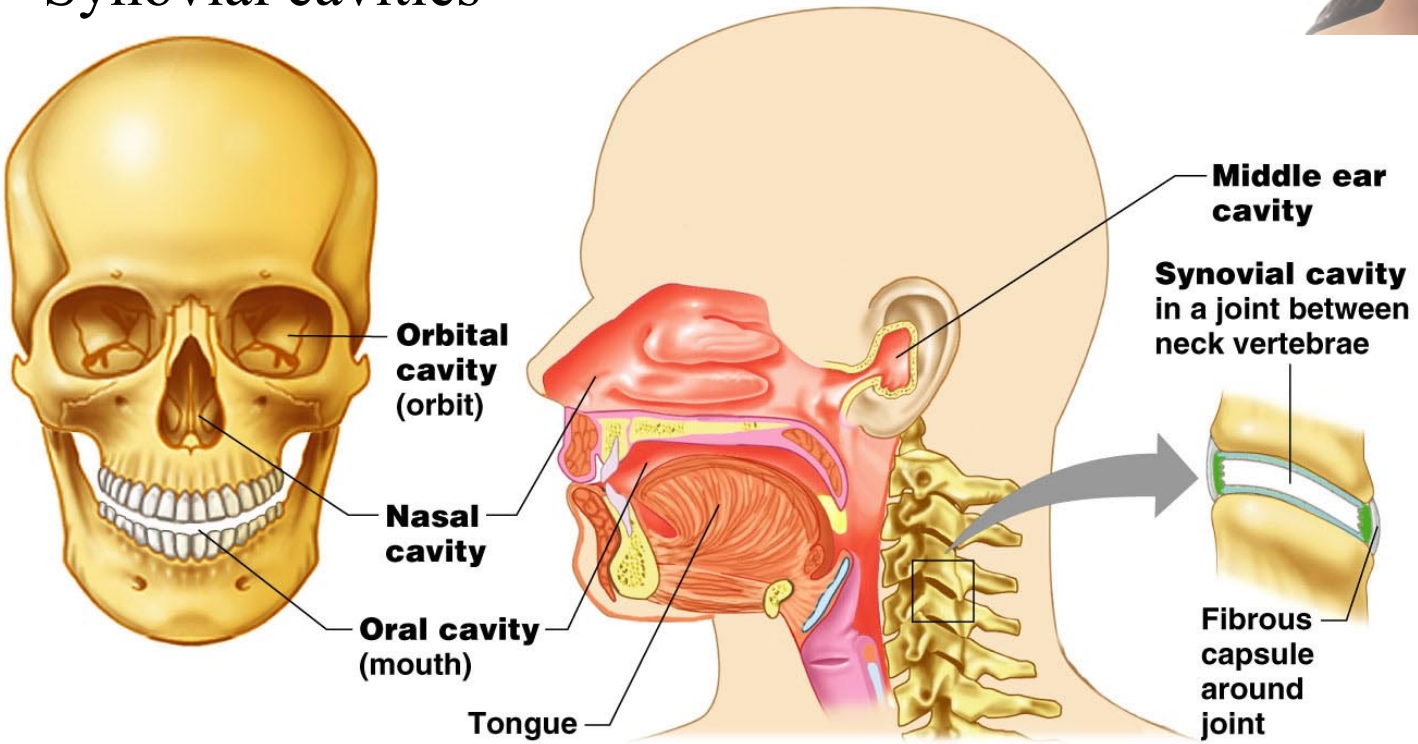
1- Thoracic cavity
2- Abdominal cavity
3- Pelvic cavity



- Other cavities

- Oral cavity
- Nasal cavity
- Orbital cavities
- Middle ear cavities
- Synovial cavities

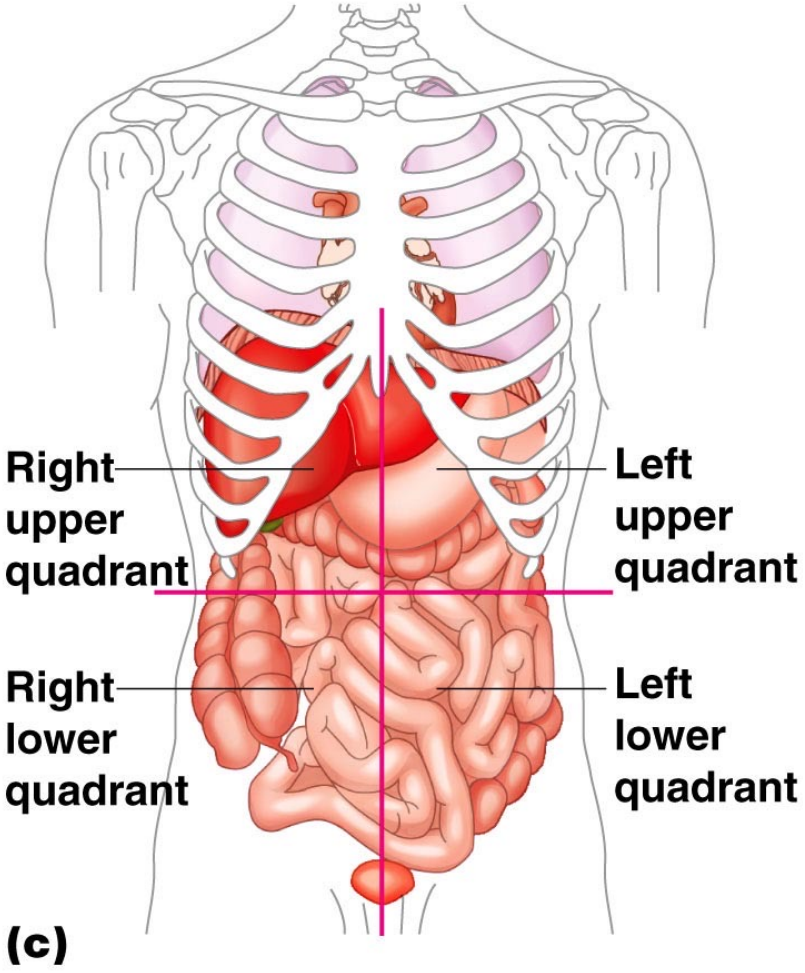




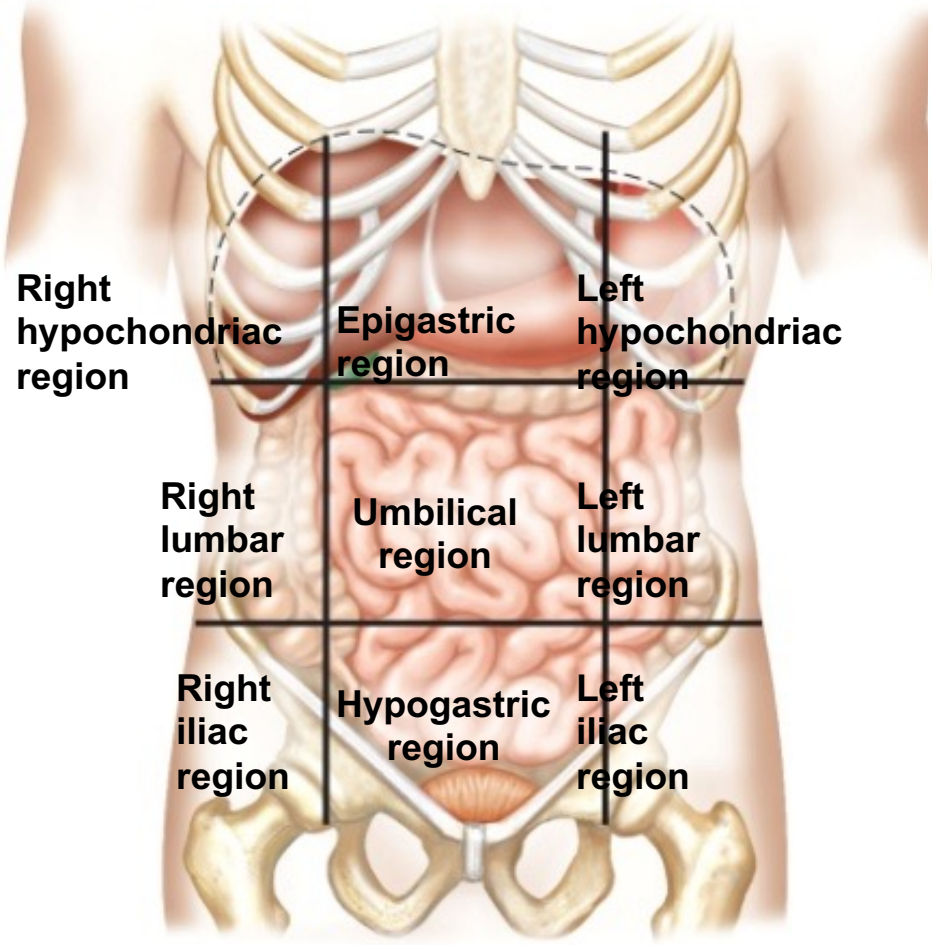
Abdominal Quadrants

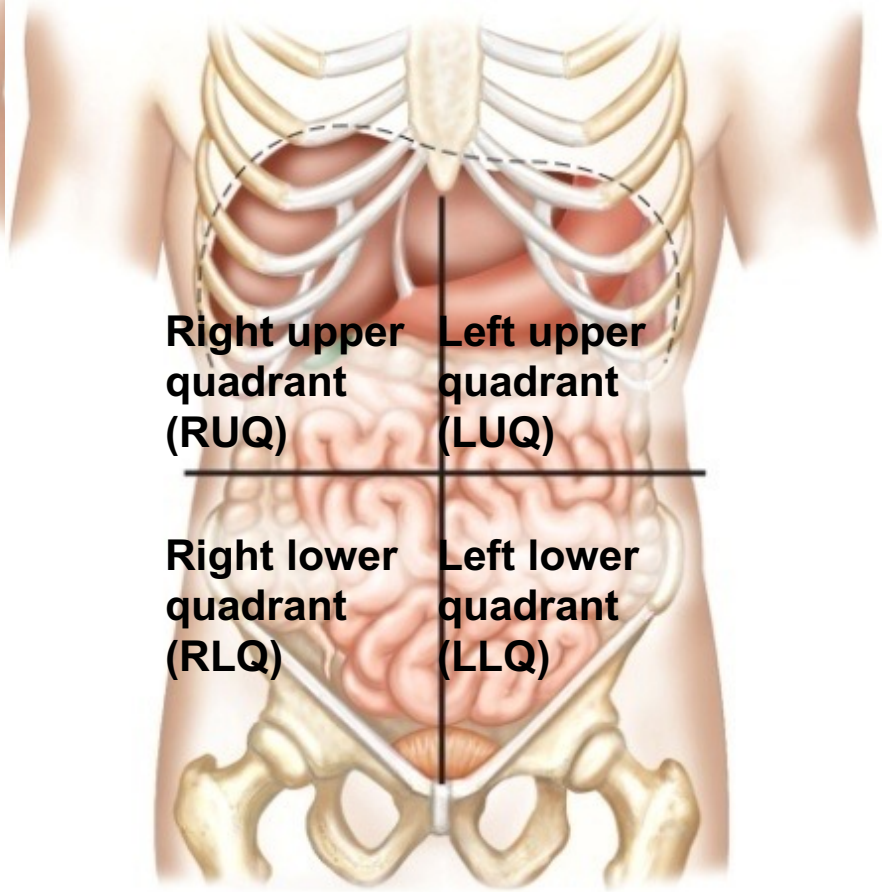
Abdominal quadrants divide the abdomen into four quadrants

- Right upper and left upper quadrants
- Right lower and left lower quadrants



Abdominal subdivision





Abdominal Regions and Quadrants

Abdominal regions divide the abdomen into **nine regions**