

Introduction to Anatomy and Physiology

Introduction to Anatomy & Physiology

Key concepts, terminology, and organizational levels that form the foundation for studying the human body.

1. What Is Anatomy & Physiology?

Discipline	Focus	Typical Questions
Anatomy	Structure – the shape, location, and relationships of body parts.	Where is the heart? What are the layers of skin?
Physiology	Function – how those structures work and interact.	How does the heart pump blood? What triggers muscle contraction?

Together they answer “**what**” and “**how**” the body operates as an integrated system.

2. Levels of Organization

Level	Description	Example
Chemical	Atoms ? molecules (e.g., water, proteins).	ATP, DNA
Cellular	Basic unit of life; specialized for tasks.	Neuron, erythrocyte
Tissue	Groups of similar cells + extracellular matrix.	Muscle tissue, epithelial tissue
Organ	Two or more tissue types performing a specific function.	Stomach, kidney
Organ System	Organs working together toward a common goal.	Digestive system
Organism	The complete human body, a functional whole.	<i>Homo sapiens</i>

Mnemonic: Cells Teams Organize Systems Organisms ? **CTOSO**.

3. Anatomical Terminology (The “Language” of the Body)

Term	Meaning	Example
------	---------	---------

Introduction to Anatomy and Physiology

Anterior / Ventral	Toward the front (belly side).	Chest is anterior to the spine.
Posterior / Dorsal	Toward the back.	Scapula is posterior to the ribs.
Superior / Cranial	Toward the head or upper part.	The nose is superior to the mouth.
Inferior / Caudal	Toward the feet or lower part.	The pelvis is inferior to the abdomen.
Medial	Toward the midline.	The big toe is medial to the little toe.
Lateral	Away from the midline.	The ears are lateral to the nose.
Proximal	Near the point of attachment (limbs).	The elbow is proximal to the wrist.
Distal	Far from the point of attachment.	The fingers are distal to the elbow.
Superficial	Near the surface.	Skin is superficial to muscle.
Deep	Farther from the surface.	Bones are deep to skin.
Planes	Imaginary cuts used to describe sections.	Sagittal, frontal (coronal), transverse.
Directions	Movements relative to joints.	Flexion, extension, abduction, adduction, rotation.

4. Body Cavities & Membranes

Cavity	Major Organs Inside	Protective Membrane
Dorsal (Posterior) Body Cavity	- Cranial cavity (brain) - Spinal (vertebral) cavity (spinal cord)	Meninges (dura, arachnoid, pia)
Ventral (Anterior) Body Cavity	- Thoracic cavity (heart, lungs) - Abdominal cavity (stomach)	