Organization of the Body

Study Sheet · Learn It with Prof. Melanie



1 Levels of Organization

1. **Chemical** atoms, molecules
2. **Cell** basic unit of life
3. **Tissue** similar cells
4. **Organ** 2+ tissue types
5. **Organ system**
6. **Organism**

2 The Four Tissue Types

Tissue	Job	Examples
Epithelial	Covers, lines, protects	Skin surface, gut lining, glands
Connective	Supports, connects	Bone, cartilage, blood, fat, tendons
Muscle	Movement	Skeletal, cardiac, smooth
Nervous	Electrical signals	Brain, spinal cord, nerves

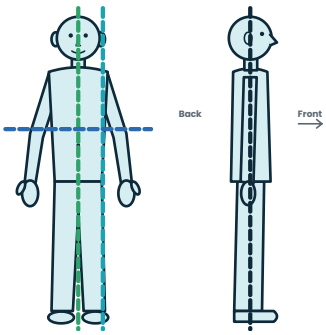
Hoots' tip: Bone and blood are both **connective** tissue.

3 Directional Terms (patient in anatomical position: upright, facing forward, palms forward)

Term	Meaning	Opposite	Example
Superior (cranial)	Above, toward the head	**Inferior** (caudal): below	Head is superior to the chest
Anterior (ventral)	Toward the front	**Posterior** (dorsal): toward the back	Sternum is anterior to the spine
Medial	Toward the midline	**Lateral**: away from the midline	Nose is medial to the eyes
Proximal	Closer to the limb's attachment	**Distal**: farther from it	Elbow is proximal to the wrist
Superficial	Toward the surface	**Deep**: away from the surface	Skin is superficial to muscle
Ipsilateral	Same side	**Contralateral**: opposite side	Right arm and right leg: ipsilateral

Hoots' tip: Proximal = "proximity" (close). **Distal** = "distant" (far). Use them for arms and legs. Right and left always mean the **patient's** right and left.

4 Body Planes



Plane	Divides the body into
Midsagittal (median)	Equal right and left halves
Parasagittal	Unequal right and left parts
Frontal (coronal)	Anterior (front) and posterior (back)
Transverse (horizontal)	Superior (upper) and inferior (lower)

5 Homeostasis

The body's ability to keep a stable internal environment: temperature, fluid balance, blood glucose, and blood pressure. Most control is **negative feedback**: a change triggers a response that reverses it, like sweating when you're hot.

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6 Body Cavities

Dorsal (posterior)

Cranial
Brain

Spinal (vertebral)
Spinal cord

Ventral (anterior)

Thoracic
Pleural cavities: lungs · Pericardial cavity: heart · Mediastinum: heart, esophagus, trachea, thymus

Diaphragm

Abdominopelvic

Abdominal
Stomach, liver, gallbladder, spleen, pancreas, intestines

Pelvic
Urinary bladder, reproductive organs, rectum

Hoots' tip: Dorsal = back, like a dolphin's dorsal fin.

7 Four Quadrants

Patient's RIGHT	Patient's LEFT
RUQ Most of the liver, gallbladder, part of the pancreas, right kidney	**LUQ** Most of the stomach, spleen, body and tail of the pancreas, left kidney
RLQ Appendix, cecum, right ovary and fallopian tube	**LLQ** Sigmoid colon, left ovary and fallopian tube

8 Nine Regions

Patient's RIGHT		Patient's LEFT
Right hypochondriac	**Epigastric**	**Left hypochondriac**
Right lumbar	**Umbilical**	**Left lumbar**
Right iliac (inguinal)	**Hypogastric (pubic)**	**Left iliac (inguinal)**

9 Patient Positions

Position	Placement	Common use
Supine	On the back, face up	Chest, abdomen, legs
Prone	Face down	Back and spine
Fowler's	Sitting up, 45–60°	Breathing difficulty
Sims'	Left side, right knee bent	Rectal exams
Lithotomy	On the back, feet in stirrups	Pelvic exams
Knee-chest	Kneeling, chest on table	Rectal exams

10 Surface Regions

Term	Area	MA use
Antecubital	Front of elbow	Venipuncture
Brachial	Upper arm	Pulse, BP
Carpal	Wrist	Radial pulse
Deltoid	Shoulder	IM injection
Femoral	Thigh	Vastus lateralis IM
Popliteal	Back of knee	Popliteal pulse

11 Word Parts

Part	Meaning	Part	Meaning	Part	Meaning	Part	Meaning
cyt/o, -cyte	Cell	**anter/o**	Front	**medi/o**	Middle	**cephal/o**	Head
hist/o	Tissue	**poster/o**	Back	**later/o**	Side	**caud/o**	Tail
epi-	Above, upon	**hypo-**	Below	**ventr/o**	Belly side	**dors/o**	Back

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