

Al-Mustaqbal University College
Department of Pharmacy
First Stage
Medical Terminology
Lecture: 2



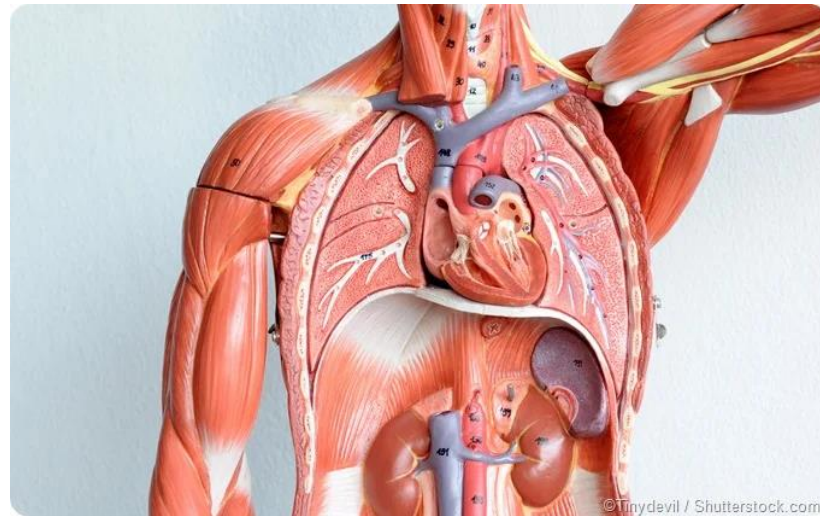
Medical Terminology

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Basic points for correct analysis and understanding the meaning of a medical term:

1. A medical term may have **more** than only **one root**, ex. **Cardiothoracic**.
2. May begin with **two consequent prefixes**, ex. **Antihypertensive**.



Basic points for correct analysis and understanding the meaning of a medical term:

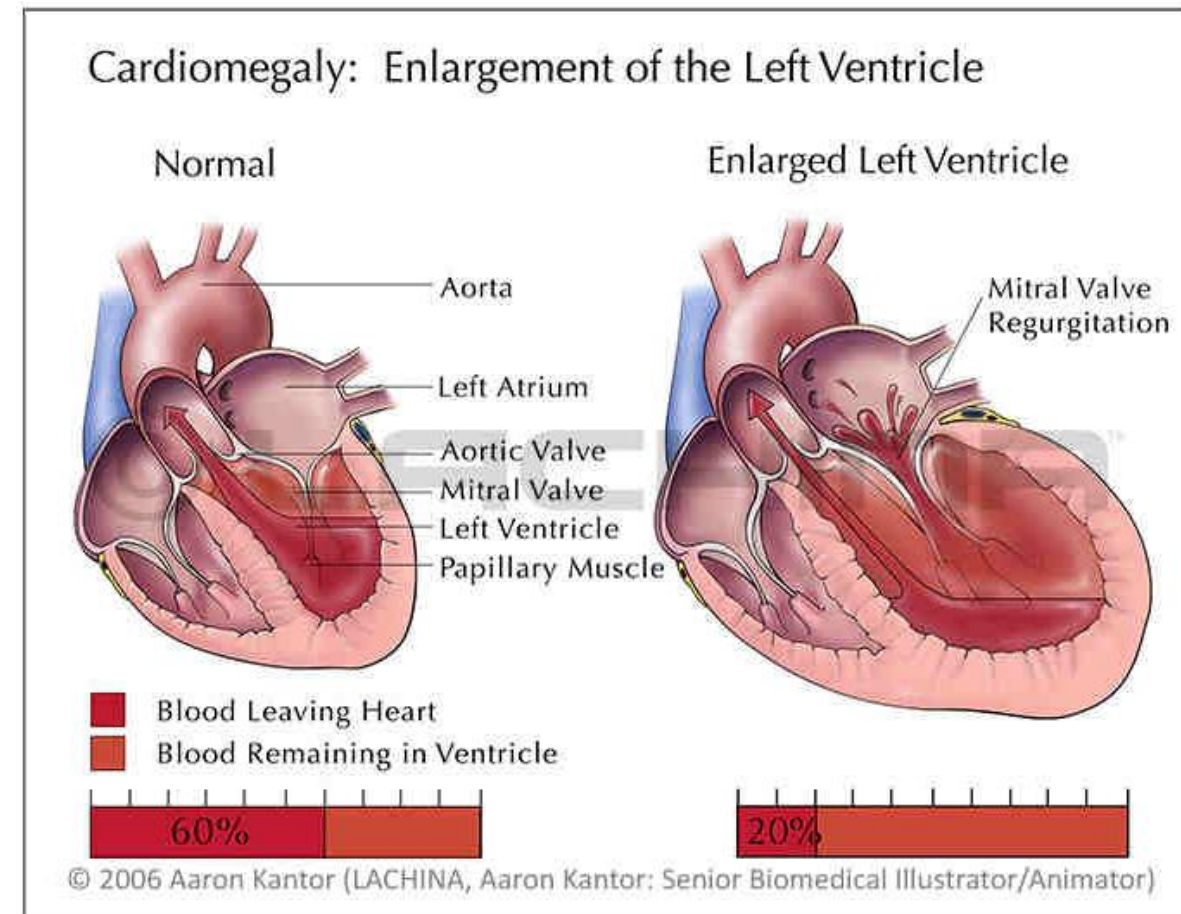
3. A combining vowel is needed when:

- A. Both of the **root end** and the **suffix beginning** are **consonants**, ex. **Neurology** while the term **gastritis** has **no** combining vowel.
 - B. When **two roots** are joined together, ex. **Cardiopulmonary**
 - C. A **prefix** needs **not** to be followed by a combining vowel, ex. **hypothyroidism**.
- Adding a vowel (a, e, i, u, o, y) to a root word can make it **easier** to be pronounced and create the combining form.

Basic points for correct analysis and understanding the meaning of a medical term:

4. Sometimes the same word can function as a **prefix** or a **suffix** but has the **same** meaning in both situations.

Ex, the word (**megalo**) in **cardiomegaly** is a suffix while in the term **megaloblast** it serves as a prefix, in both terms, it expresses an increased size.



How to determine the meaning of a medical term?

1. Identify components of the medical term
 - ✓ Detect the **prefix & Suffix**
 - ✓ Locate the **root** word or words
 - ✓ Detect the **combining vowel**
 - ✓ Then put the **meanings together** to identify the precise description of the **whole** medical term
2. Note: **all** medical terms have **suffixes**, but **not all** of them have **prefixes**
3. Although the **suffix** comes at the **end** of the medical term but it mostly comes **first** in the **meaning** of the whole term, ex. the **inflammation** of the appendix is termed **appendicitis**.

WORD ROOTS

TABLE 2-1 COMMON WORD ROOTS AND MEANINGS

Word Root	Meaning
arter/i/o	artery
arthr/o	joint
card/i/o	heart
derm/at/o	skin
gen/i/o	origin, cause, formation
ger/o/onto	old age
hem/a/t/o	blood

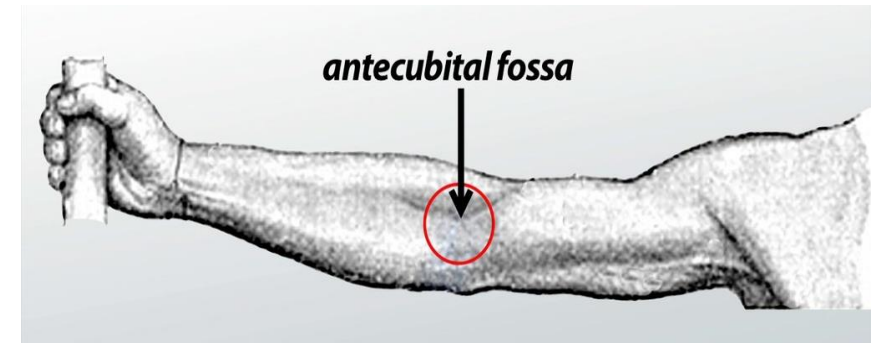
WORD ROOTS

TABLE 2-1 COMMON WORD ROOTS AND MEANINGS

muscul/o	muscle
neur/o	nerve, nerve tissue
oste/o	bone
path/o	disease
ped/i/o	child
phren/o	diaphragm, mind
psych/o	mind
skelet/o	skeleton

CATEGORIES OF PREFIXES

- **Not** all medical terms include a prefix, but when one is present, it is **critical** to the term's meaning.
- For example, **hyperglycemia** (high blood sugar) and **hypoglycemia** (low blood sugar) are conditions that are exact opposites.
- Confusing those two prefixes creates errors.
- Two other similar-sounding prefix pairs prone to creating errors are ante- and anti-. The prefix **ante** means "**before**," and the prefix **anti-** means "**against**."
- For example, **antecubital** (anterior to the elbow), while **anticoagulant** (preventing coagulation).



CATEGORIES OF PREFIXES

- Dividing prefixes into functional categories makes them **easier** to learn.
- There are five logical divisions:
 1. Prefixes of time or speed
 2. Prefixes of direction
 3. Prefixes of position
 4. Prefixes of size or number
 5. Prefixes of negation

CATEGORIES OF PREFIXES

TABLE 2-2 PREFIXES OF TIME OR SPEED

Prefix	Refers to	Example	Meaning
ante-, pre-	before	ante partum, premature	before birth, before full development
brady-	abnormally slow rate of speed	bradycardia	abnormally slow heartbeat
neo-	new	neonatal	newborn (adjective)
post-	after	postscript	a written thought added after the main message
tachy-	rapid, abnormally high rate of speed	tachycardia	abnormally fast heartbeat

CATEGORIES OF PREFIXES

TABLE 2-3 PREFIXES OF DIRECTION

Prefix	Refers to	Example	Meaning
ab-	away from, outside of, beyond	abnormal	not normal
ad-	toward, near to	adjective	toward a noun
con-, sym- , syn-	with, within	congenital, sympathetic, synthetic	with (or at) birth, with feeling toward, with the same idea or purpose
contra-	against	contraband	substance against the law
dia-	across, through	diameter	a line through the middle

CATEGORIES OF PREFIXES

Prefix	Refers to	Example	Meaning
ec-, ecto-, ex-, exo-	outside	extraction	removal to the outside
en-	inside	encephalopathy	disease inside the head, brain disease
endo-	within	endoscopy	visual examination of the inside of some part of the body
epi-	upon, subsequent to	epigastric	adjective referring to something above the stomach
extra-	beyond	extracellular	adjective referring to something outside a cell or cells

CATEGORIES OF PREFIXES

TABLE 2-5 PREFIXES OF SIZE AND NUMBER

Prefix	Refers to	Example	Meaning
bi-	two	biannual	twice per year
di-, dipl-	two, twice	diplopia	double vision
hemi-	half	hemiplegia	paralysis of one body side
macro-	big	macrocyte	big cell
micro-	small	microscope	instrument to view small objects

CATEGORIES OF PREFIXES

TABLE 2-5 PREFIXES OF SIZE AND NUMBER

mono-	one	monocyte	cell with one nucleus
olig-, oligo-	a few, a little	oliguria	scant urine production
pan-	all or everywhere	pancarditis	whole heart inflammation
poly-	many	polydactyly	more than five hand or foot digits
quadri-	four	quadriplegia	paralysis of all four limbs
semi-	half, partial	semiannual	occurring every half year

CATEGORIES OF PREFIXES

TABLE 2-6 PREFIXES OF NEGATION

Prefix	Refers to	Example	Meaning
a-, an-	not	anuria	not able to urinate
anti-	against, opposed	antibiotic	drug that inhibits microbes
de-	without	dehumidifier	device that removes water
dis-	remove	disable	put out of action

CATEGORIES OF PREFIXES



Quick Check

Define each prefix and state whether it refers to time, speed, position, direction, number, or negation.

1. anti- _____
2. hyper- _____
3. tachy- _____

CATEGORIES OF SUFFIXES

- Dividing suffixes into functional categories makes them easier to learn than they would be otherwise.
- A suffix adds to or changes a root in one of four different ways:
 1. Suffixes signify a medical condition.
 2. Suffixes signify a diagnostic term, test information, or surgical procedure.
 3. Name a medical practice or practitioner.
 4. Convert a noun to an adjective.

CATEGORIES OF SUFFIXES

TABLE 2-7 SUFFIXES THAT SIGNIFY MEDICAL CONDITIONS

Suffix	Meaning of the Suffix	Example	Meaning of the Example
-algia, -dynia	pain	arthralgia, arthrodynia	pain in a joint
-cele	protrusion, hernia	rectocele	hernia of the rectum
-cyte	cell	leukocyte	white blood cell
-ectasis, -ectasia	expansion or dilation	angiectasis	dilation of a vessel
-edema (also a standalone word)	excessive fluid	angioedema	fluid buildup that causes swelling under the skin

CATEGORIES OF SUFFIXES

TABLE 2-7 SUFFIXES THAT SIGNIFY MEDICAL CONDITIONS

-itis	Inflammation	appendicitis	inflammation of the appendix
-lith	stone, calculus, calcification	pneumolith	a stone in the lung
-lysis	disintegration, breaking down	hemolysis	rupture of red blood cells
-malacia	softening	osteomalacia	softening of the bones
-megaly	enlargement	gastromegaly	enlargement of the stomach
-oid	resembling or like	opioid	substance that resembles opium
-oma	tumor	gastroma	tumor of the stomach

CATEGORIES OF SUFFIXES

TABLE 2-8 SUFFIXES THAT SIGNIFY DIAGNOSTIC TERMS, TEST INFORMATION, OR SURGICAL PROCEDURES

Suffix	Refers to	Example
-centesis	surgical puncture	thoracentesis
-desis	surgical binding	arthrodesis
-ectomy	surgical removal	appendectomy
-gen, -genic, -genesis	origin, producing	osteogenic
-gram	a recording, usually by an instrument	electrocardiogram
-graph	instrument for making a recording	electrocardiograph
-graphy	act of graphic or pictorial recording	electrocardiography

CATEGORIES OF SUFFIXES

TABLE 2-8 SUFFIXES THAT SIGNIFY DIAGNOSTIC TERMS, TEST INFORMATION, OR SURGICAL PROCEDURES

-meter	instrument for measuring	audiometer
-metry	act of measuring	audiometry
-opsy	examination	autopsy
-pexy	surgical fixation	hysteropexy
-plasty	surgical repair	rhinoplasty
-rrhaphy	suture	herniorrhaphy
-scope	instrument for viewing	arthroscope
-scopy	act of viewing	arthroscopy

CATEGORIES OF SUFFIXES

TABLE 2-9 SUFFIXES THAT SIGNIFY MEDICAL PRACTICE AND PRACTITIONERS

Suffix	Refers to	Example
-ian	specialist	pediatrician
-iatrics	medical specialty	pediatrics
-iatry	medical specialty	psychiatry
-ics	medical specialty	orthopedics
-ist	specialist in a field of study	orthopedist
-logy	study of	gynecology

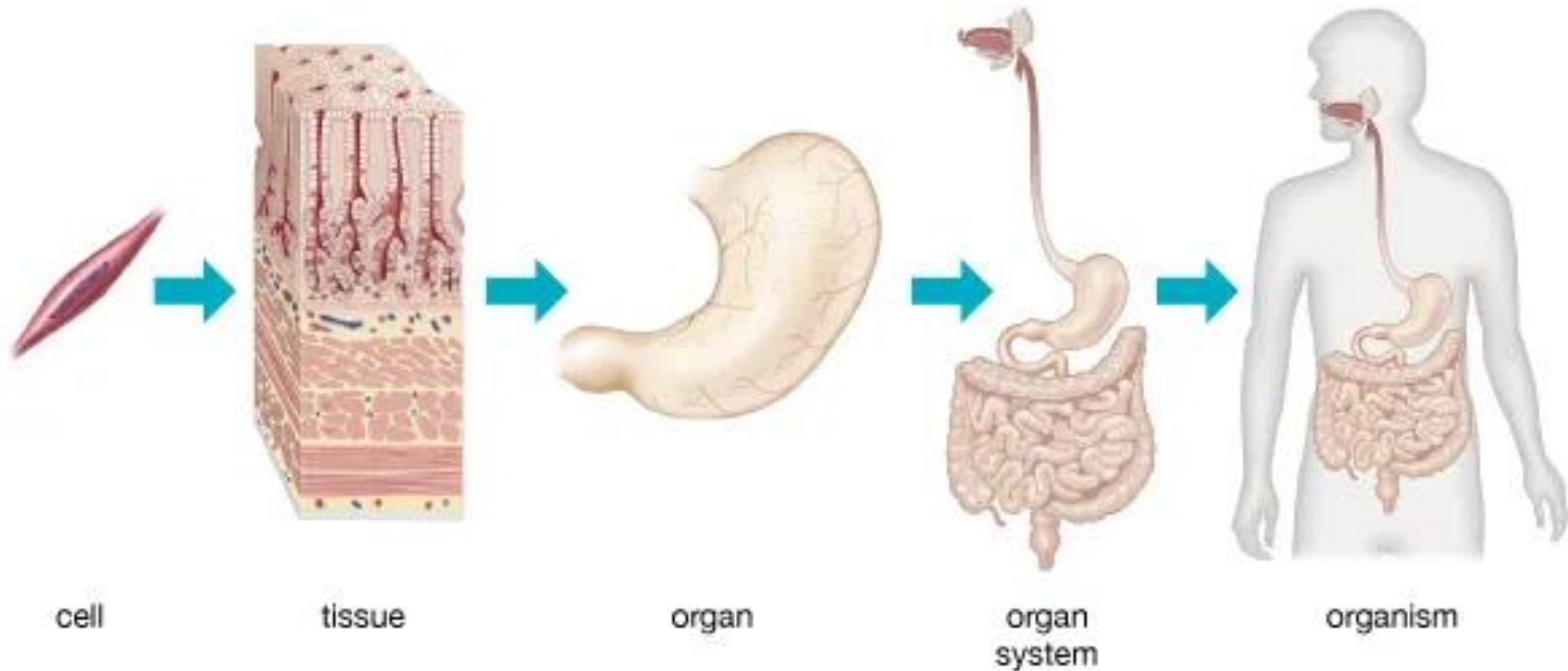
CATEGORIES OF SUFFIXES

TABLE 2-10 SUFFIXES THAT DENOTE ADJECTIVES

Suffix	Refers to	Example
-ac, -al, -an, -aneous, -ar, -ary, -eal, -eous, -iac, -iatic, -ic, -ical, -oid, -otic, -ous, -tic, -ular	converts a root or noun to an adjective	geriatric, orthopedic, ocular

ORGANS AND SYSTEMS

Levels of organization



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ORGANS AND SYSTEMS

- The **immune system** protects the body from disease and invading organisms.
- The **nervous system** and **sensory system** process incoming information and allow the body to respond.
- Reproduction and urine excretion are managed by the **genitourinary system**.
- The **gastrointestinal** system digests and absorbs food and excretes waste products.
- Blood is transported by the **cardiovascular system**.
- The **respiratory system** maintains the exchange of oxygen and carbon dioxide in the lungs and tissues.

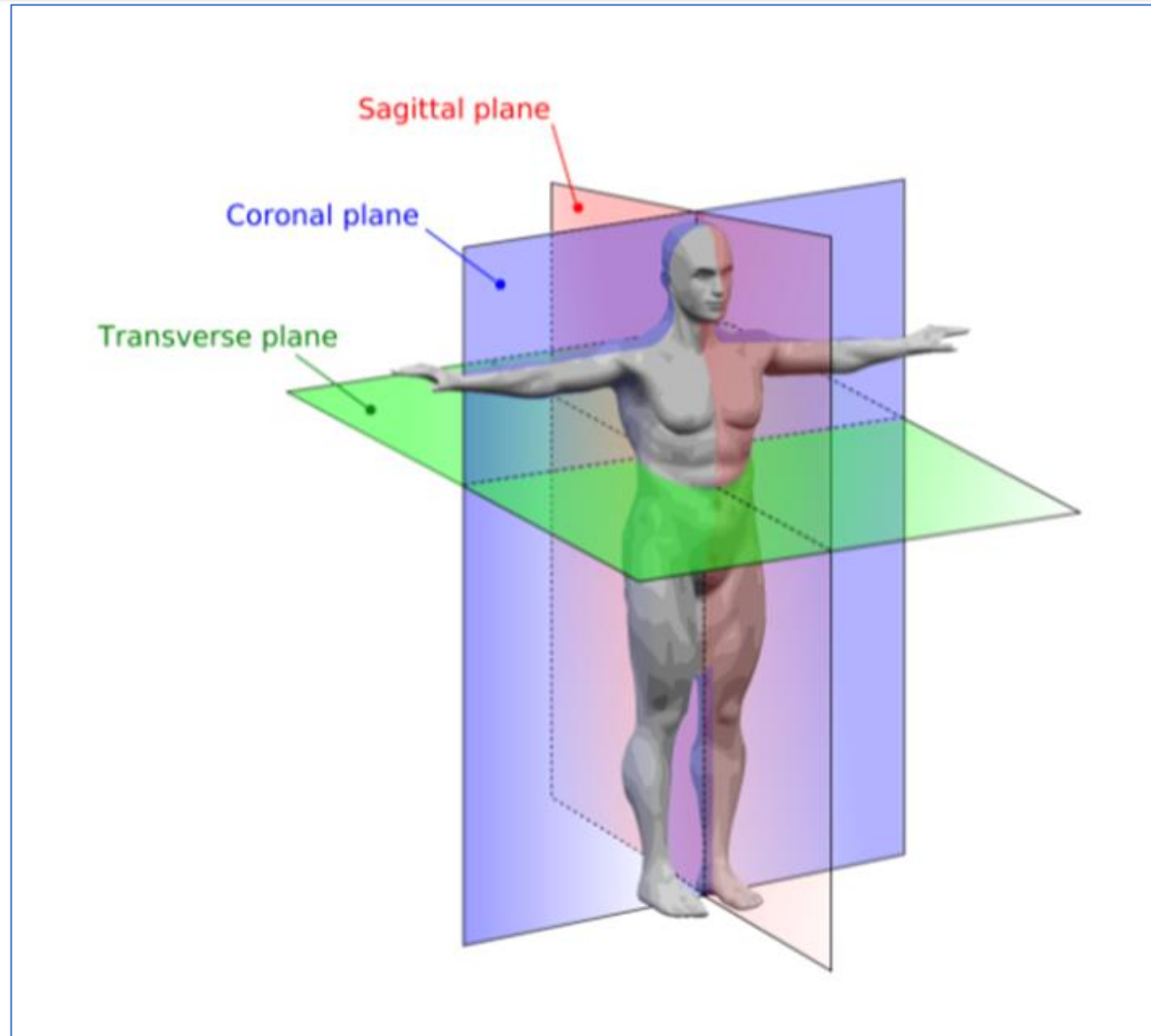
ORGANS AND SYSTEMS

- The **integumentary system**—which includes skin, hair, nails, and sweat glands—protects the body and helps regulate body temperature.
- The **muscular system** allows the body to move.
- The **skeletal system** supports the body and gives muscles a place to attach.
- The **endocrine system** consists of glands that secrete regulating chemicals called hormones.
- The **circulatory system** consists of the heart and blood vessels. Oxygen and other nutrients are transported throughout the body via this system
- The **reproductive system** includes the organs of reproduction

BODY PLANES AND SECTIONS

- Body reference **planes** are used to indicate the **locations** of body structures.
- The body is theoretically divided into three areas called the **sagittal**, the **frontal** (coronal), and the **transverse** planes.
- **Sagittal** plane runs lengthwise from front to back and divides the body into **right** and **left** sides.
- **Coronal** plane runs lengthwise from side to side, dividing the body into **ventral** and **dorsal** (front and back) sections.
- **Transverse** plane, also called the horizontal plane, cuts the body into **upper** and **lower** parts. The upper part is also known as the **cranial** (head) and the lower part is also called the **caudal** (tail) portions.

BODY PLANES AND SECTIONS

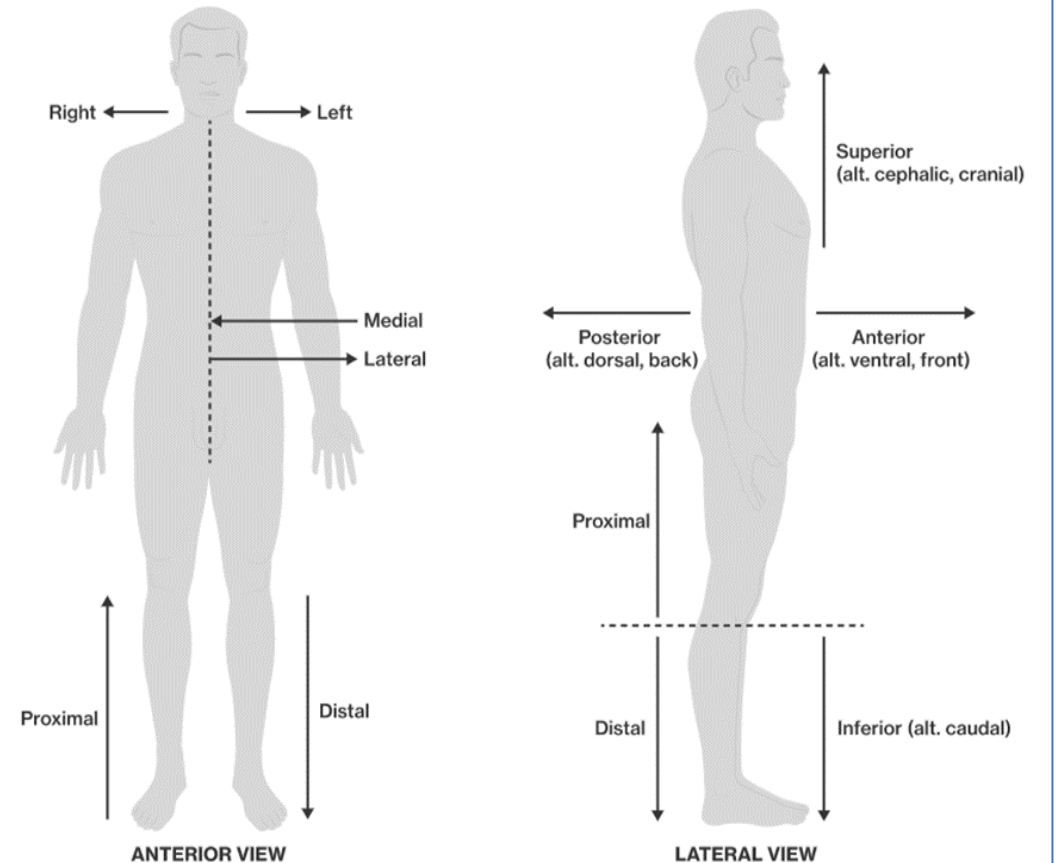


THE ANATOMICAL POSITION AND DIRECTIONS TERMS

- Specific terms are used to define the relationship between body areas and the locations of structures.
- These terms describe the body in anatomic position—standing erect with arms hanging to the side, and palms facing forward:

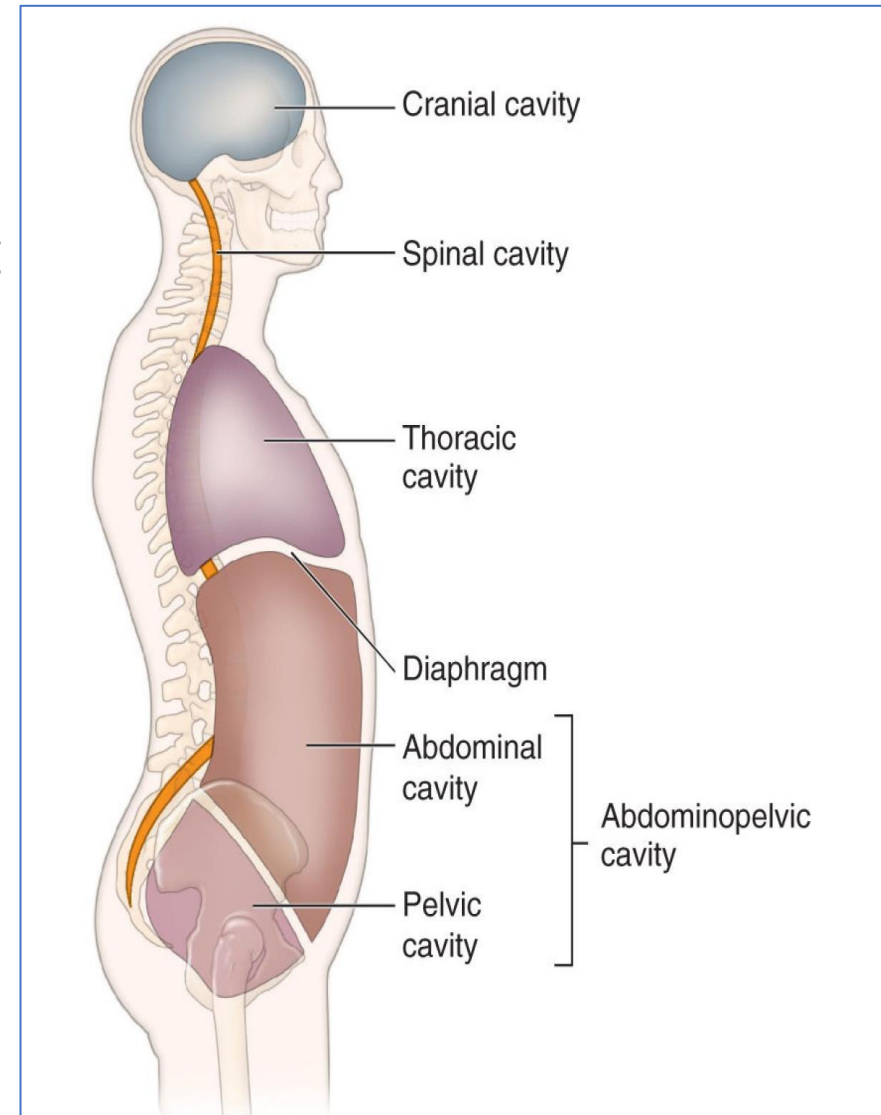
The anatomical position and directions terms

Directional Term	Meaning
<i>superior</i>	above (or toward the head)
<i>inferior</i>	below (or toward the feet)
<i>distal</i>	farther from the trunk or origin
<i>proximal</i>	closer to the trunk or origin
<i>superficial</i>	toward or on the surface
<i>deep</i> (internal)	away from the surface
<i>anterior (ventral)</i>	toward the front (or toward the belly)
<i>posterior (dorsal)</i>	toward the rear (or toward the back)
<i>medial</i>	toward the midline
<i>lateral</i>	toward the side



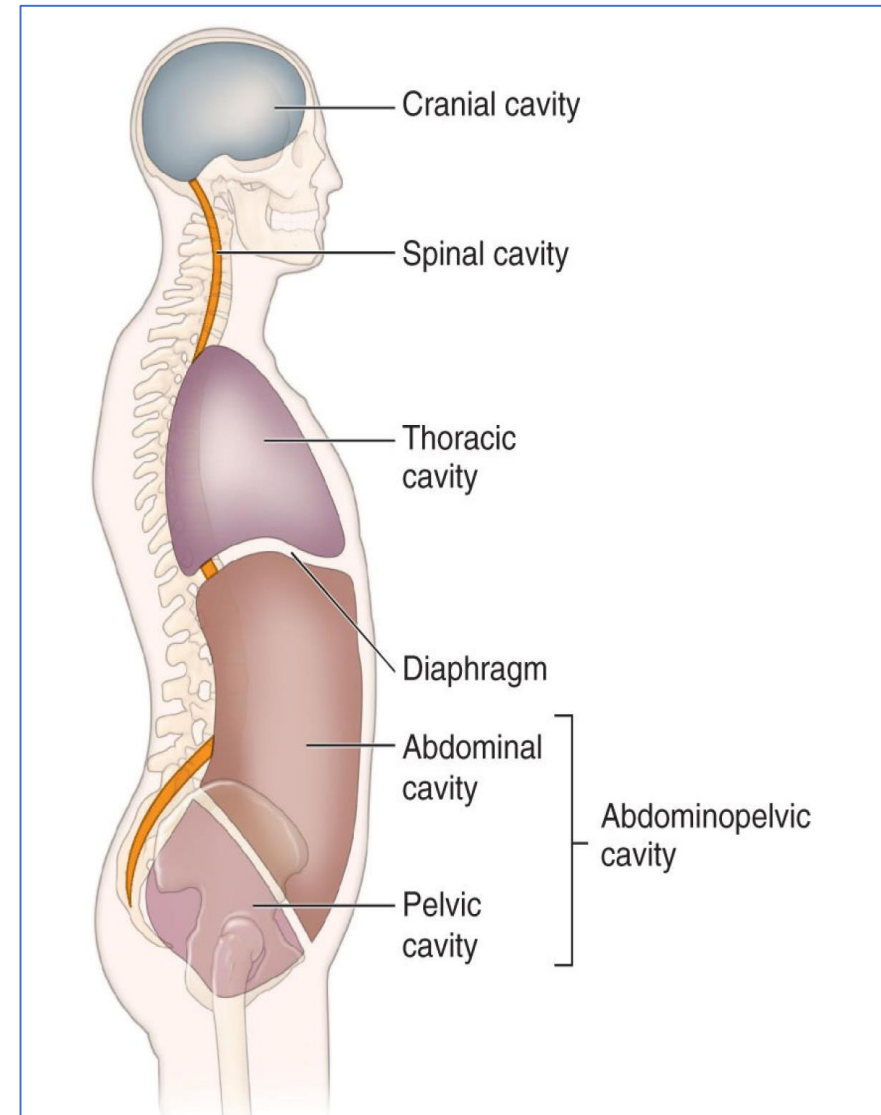
BODY CAVITIES AND DIVISIONS

- A **body cavity** is defined as a hollow space that contains body organs.
- The body has several major cavities, including the **cranial, spinal, thoracic, and abdominopelvic**.
- The **cranial cavity** houses the brain, and the **spinal cavity** houses the spinal cord.



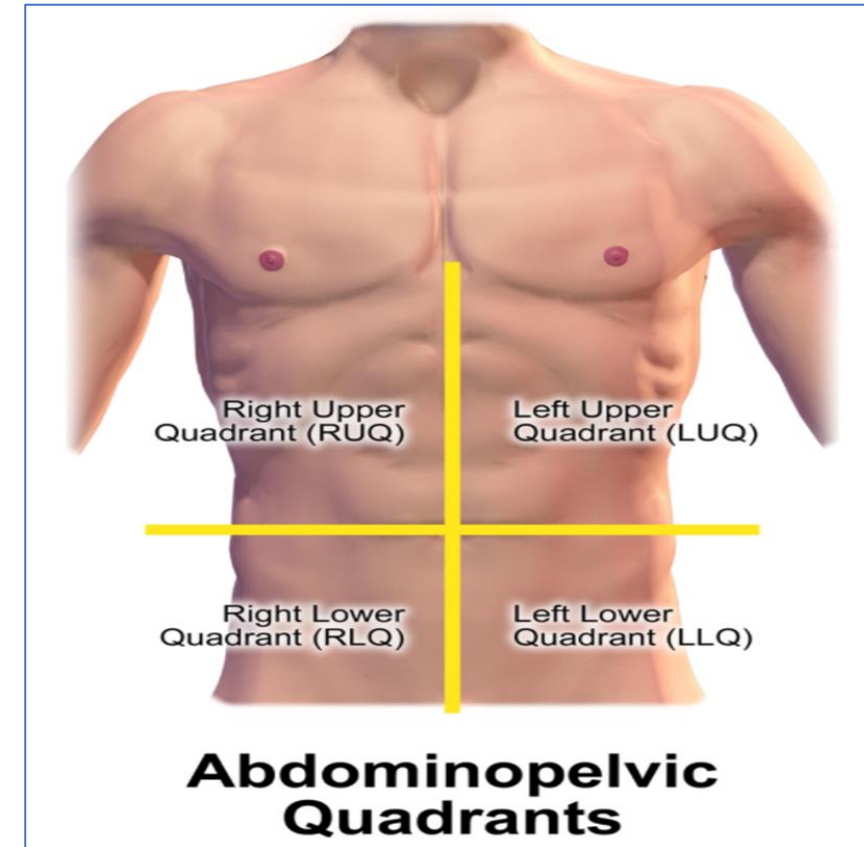
BODY CAVITIES AND DIVISIONS

- The **thoracic cavity** contains the lungs, whereas the **abdominopelvic** cavity contains digestive and reproductive organs.
- The **abdominopelvic** cavity is divided into a **superior** abdominal cavity and an **inferior** pelvic cavity.
- The **diaphragm** is the muscle of breathing known and it physically divides the **thoracic** and **abdominopelvic** cavities



ABDOMINAL SURFACE ANATOMY

- When viewed from the front, the **abdomen** can be divided into **4 quadrants** by single vertical and horizontal imaginary planes.
- Those quadrants are named as follows:
 1. right upper quadrant fossa (RUQ)
 2. right lower quadrant fossa (RLQ)
 3. left lower quadrant fossa (LLQ)
 4. left upper quadrant fossa (LUQ)





**THANK YOU FOR
YOUR ATTENTION**

