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# Introduction to Human Anatomy

Language of Medicine & Fundamentals of Body Organization

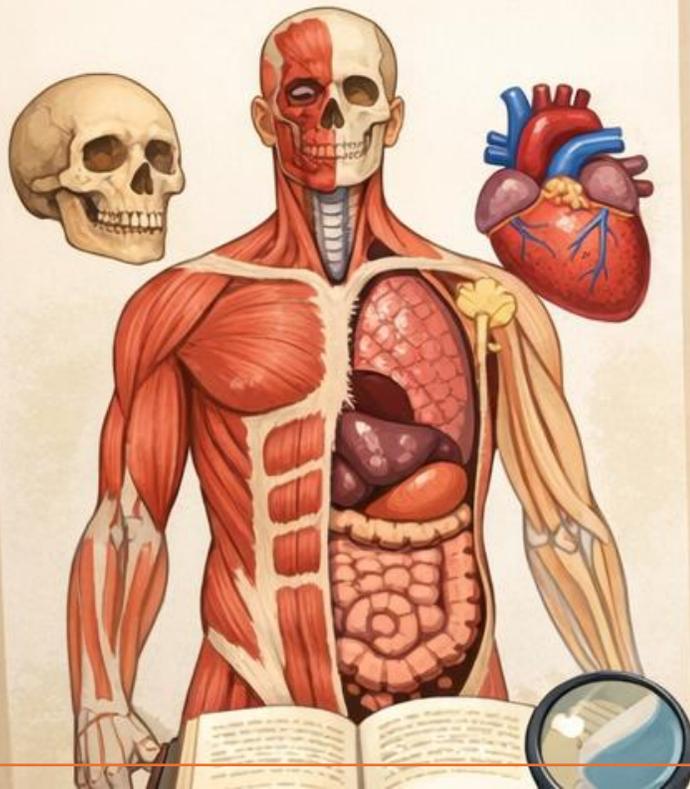
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# What is Anatomy?

## Gross Anatomy

Study of structures visible to the naked eye.



## Microscopic Anatomy (Histology)

Study of tissues and cells.



## Developmental Anatomy (Embryology)

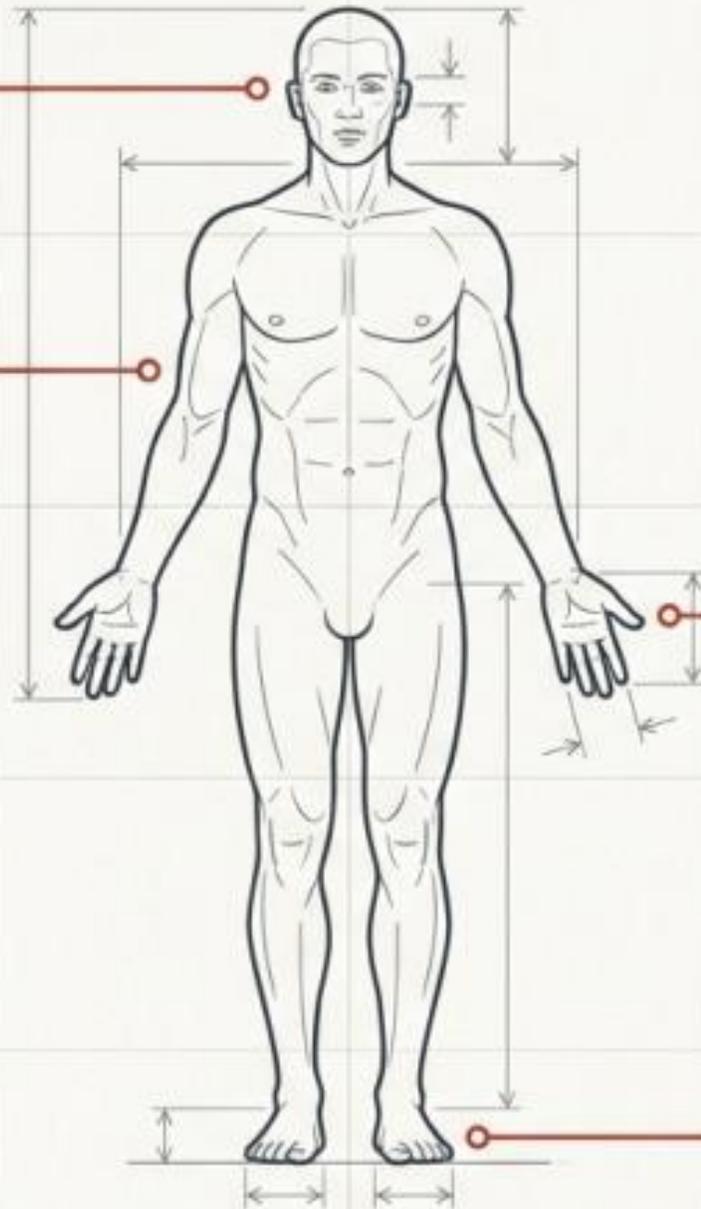
Structural changes from conception to birth.



# The Standard Anatomical Position

Head and eyes directed straight ahead.

Upper limbs at the sides, positioned slightly away from the trunk.



Palms facing forward with thumbs pointing away from the body.

Feet flat on the ground and facing forward.

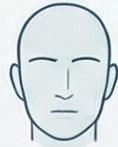
# The Standard Anatomical Position: The Medical Universal Reference

## HEAD AND CORE ALIGNMENT



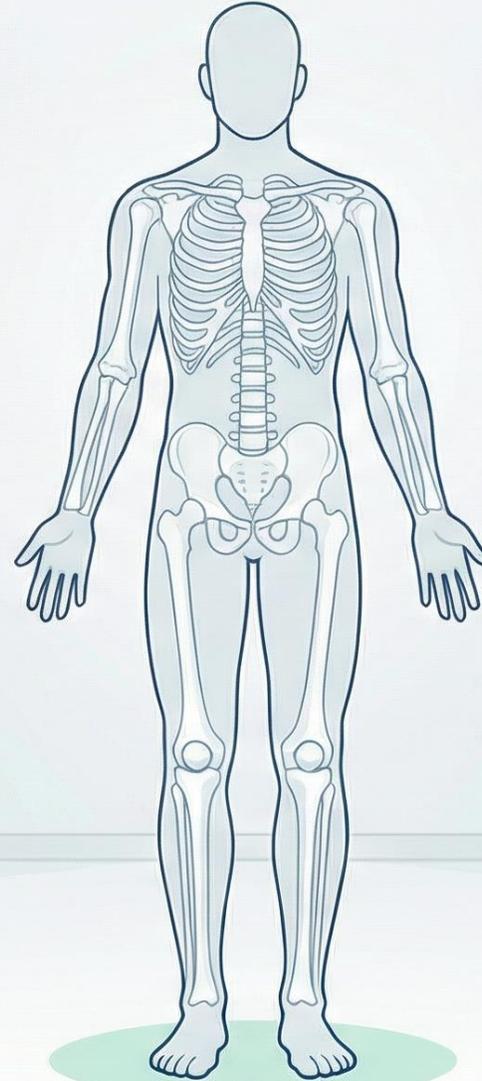
### Standing Upright (Erect)

The body must be in a vertical, standing position.

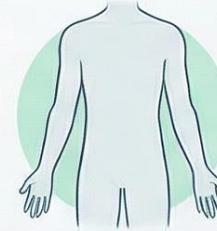


### Forward Gaze

Both the head and eyes must be directed straight ahead.



## LIMBS AND EXTREMITIES



### Upper Limb Placement

Arms are at the sides, slightly away from the trunk.



### Open Palm Orientation

Palms face forward with thumbs pointing away from the body.

### Stable Footing

Feet must be flat on the ground and facing forward.



# Sagittal Plane (The Median)



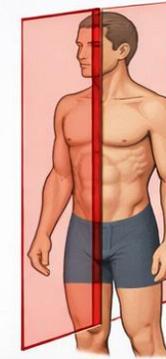
A lengthwise cut that divides the body into **Right** and **Left** portions.

### Cartographer's Note

Note: When occurring exactly in the center, it is referred to as the Median Plane.

## Body Planes I (Sagittal)

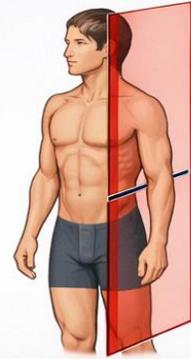
### Median (Midsagittal)



Divides into equal right and left halves.

**Equal Halves**

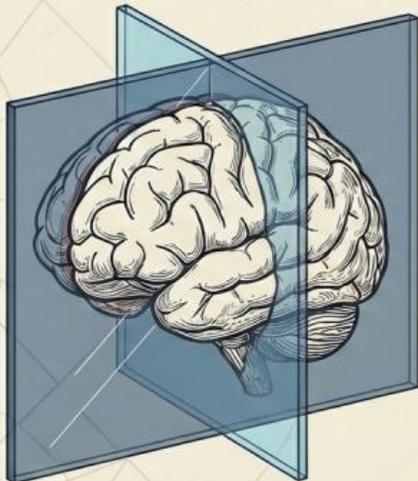
### Parasagittal



Divides into unequal right and left halves.

**Unequal Halves**

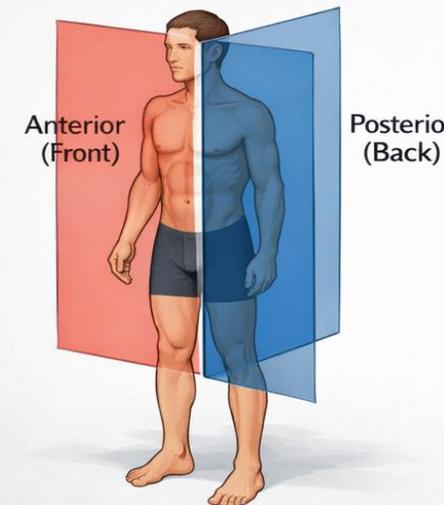
# Coronal Plane (The Frontal)



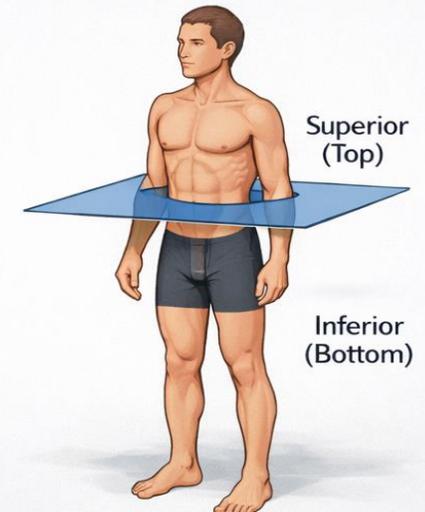
A section that divides the body into **Anterior** (front) and **Posterior** (back) portions.

## Body Planes II (Frontal & Transverse)

### Frontal (Coronal)



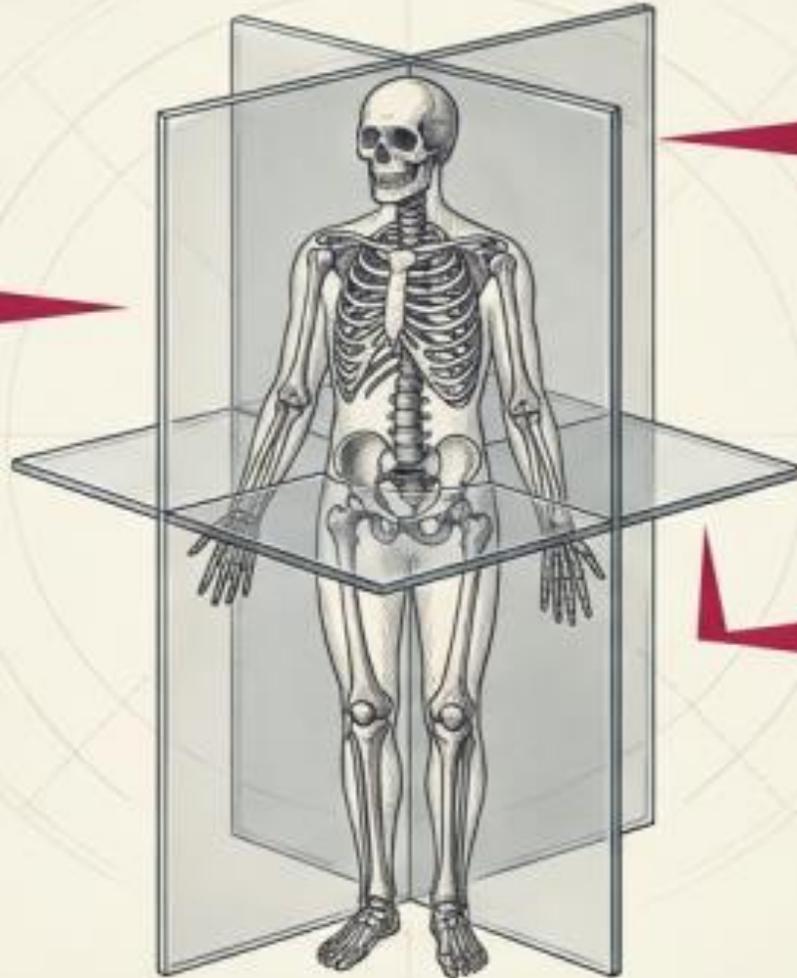
### Transverse (Axial)



# The Grid System: Body Planes and Sections

To analyze internal structures, we apply three types of “cuts” or sections to the body.

**Sagittal Plane:** The vertical, lengthwise cut.



**Coronal (Frontal) Plane:**  
The vertical, side-to-side cut.



**Transverse (Horizontal) Plane:** The cross-section cut.



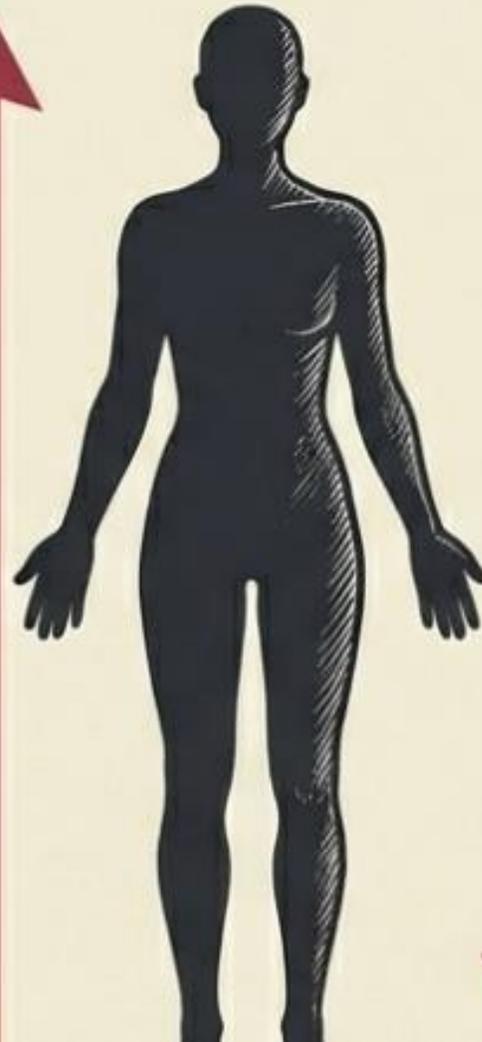
# Vertical Navigation

## Superior vs. Inferior

### Superior

**Definition:** A part is above another part or closer to the head.

**Example:** The thoracic cavity is superior to the abdominopelvic cavity.



### Inferior

**Definition:** A part is below another part or toward the feet.

**Example:** The neck is inferior to the head.

### Inferior

# Depth Navigation

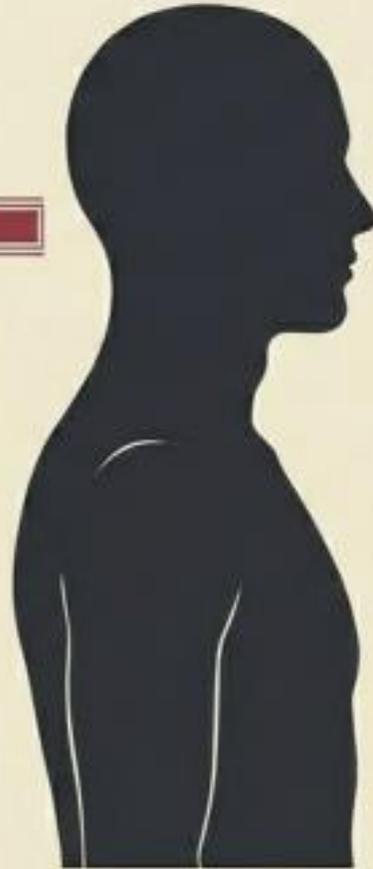
## Anterior vs. Posterior

**Posterior (aka Dorsal)**



**Definition:** Toward the back.

**Example:** The pharynx is posterior to the oral cavity.  
the oral cavity.



**Anterior (aka Ventral)**



**Definition:** Toward the front.

**Example:** The eyes are anterior to the brain.

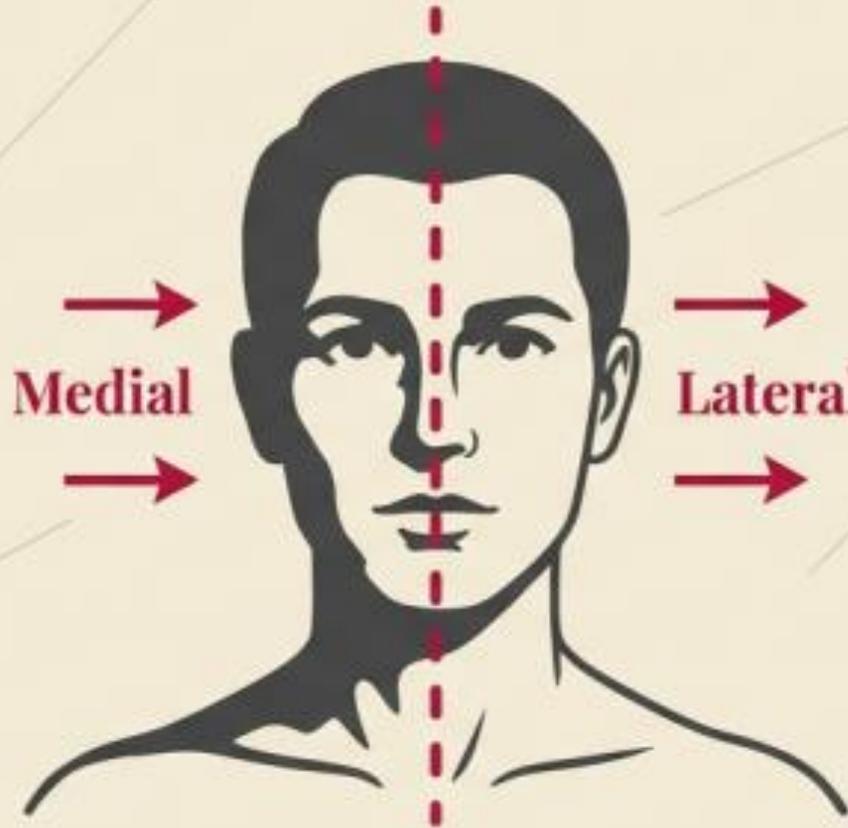
# Center Alignment

## Medial vs. Lateral

### Medial

**Definition:** Relates to an imaginary midline dividing the body into equal right and left halves.

**Example:** The nose is medial to the eyes.



Imaginary  
Midline

### Lateral

**Definition:** Toward the side with respect to the imaginary midline.

**Example:** The ears are lateral to the eyes.

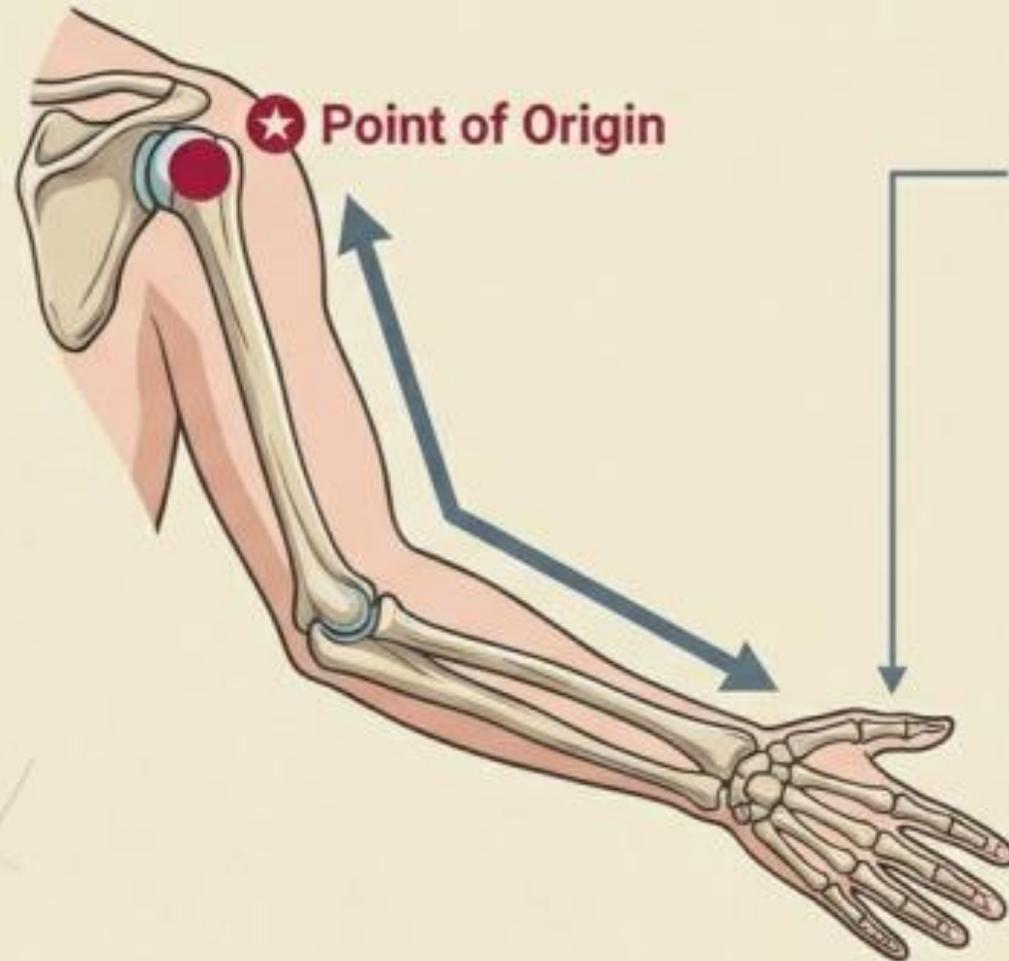
# Limb Logic (Distance from Origin)

## Proximal vs. Distal

### Proximal

**Definition:** Closer to the trunk or point of reference.

**Example:** The elbow is the trunk of the past proximal to the wrist.



### Distal

**Definition:** Farther from the trunk or point of reference.

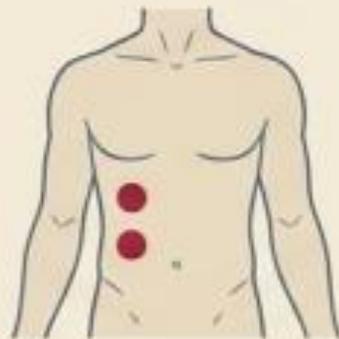
**Example:** The fingers are distal to the wrist.

# Advanced Coordinates

## Side Relationships

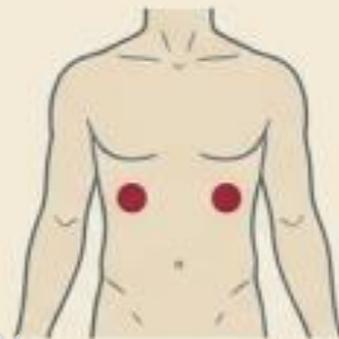
### Ipsilateral

Pertains to the same side.  
(Example: The spleen and descending colon).



### Contralateral

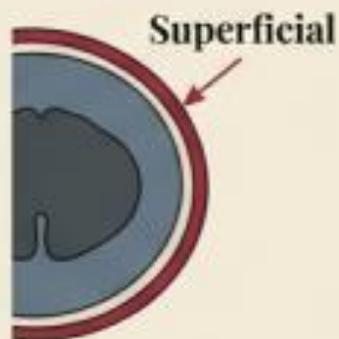
Refers to the opposite sides.  
(Example: The spleen and gallbladder).



## Surface Relationships

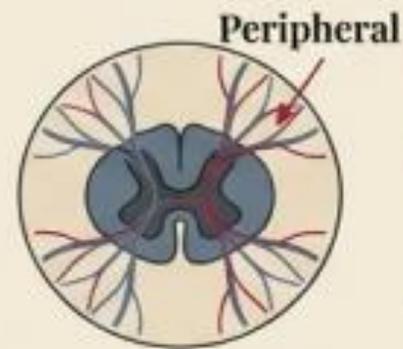
### Superficial

Situated near the surface.  
(Example: The epidermis).



### Peripheral

Outward or near the surface.  
(Example: Peripheral nerves branching from the spinal cord).



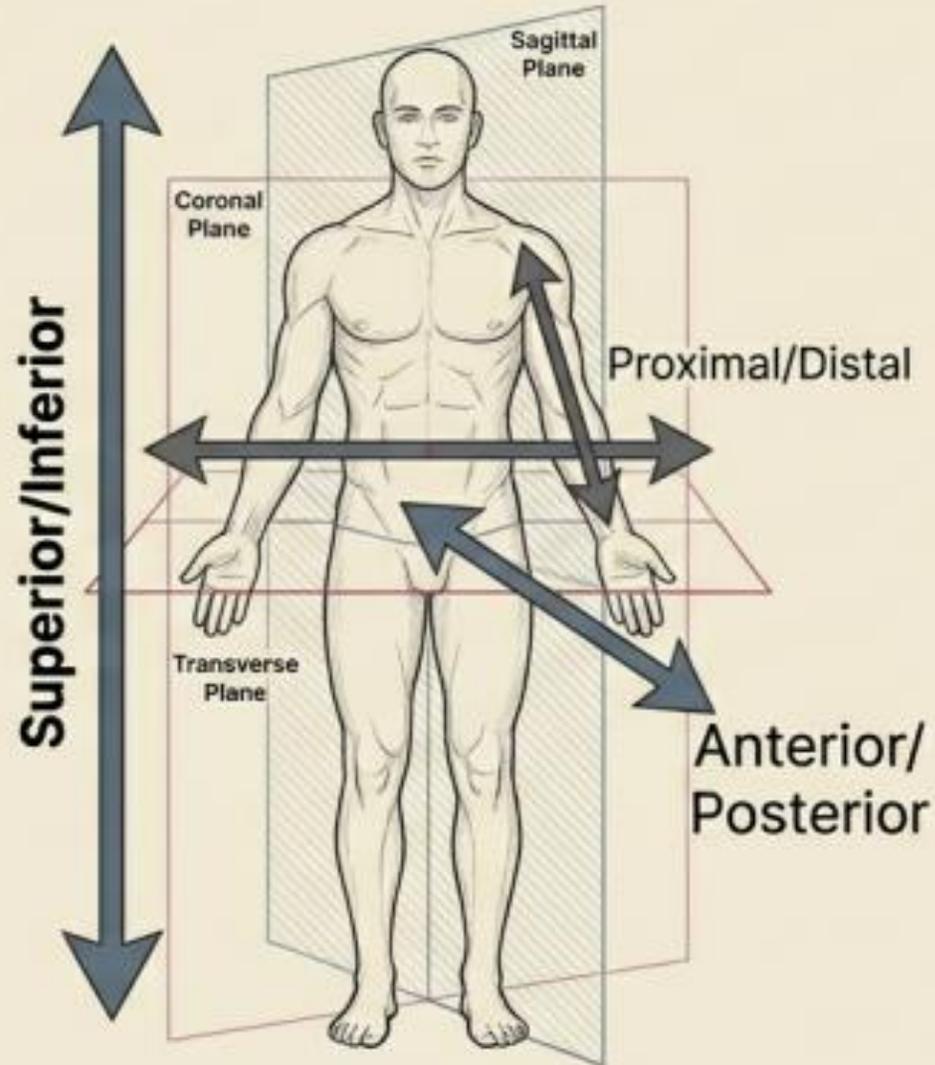
# The Navigator's Cheatsheet

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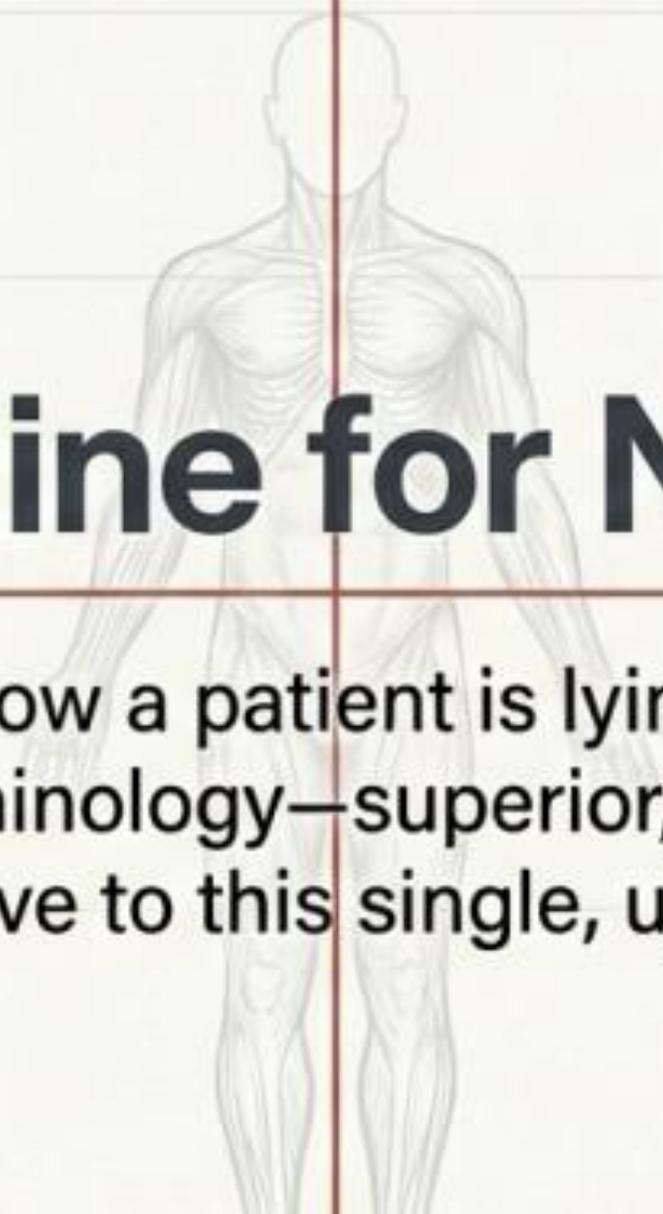
**Standard:**  
Anatomical Position  
(Palms forward)

**Planes:**  
Sagittal (Side/Side)  
Transverse (Up/Down)  
Coronal (Front/Back)



**Directions:**  
Anterior/Posterior  
Superior/Inferior  
Medial/Lateral  
Proximal/Distal

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# The Baseline for Navigation

Regardless of how a patient is lying or moving, all directional terminology—superior, inferior, lateral, medial—is relative to this single, upright standard.

# Anatomical Position

Prevents Clinical Errors



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# Decoding Anatomical Roots: The Lexicon of Life

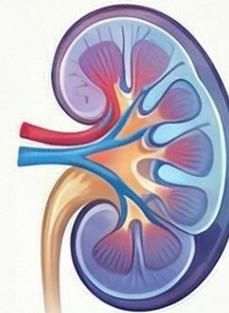
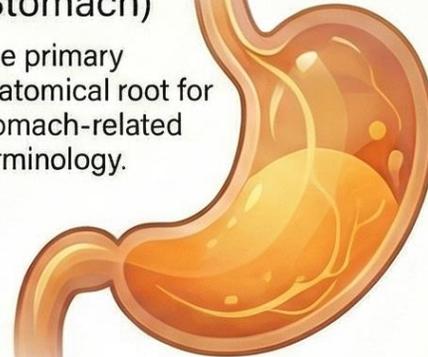


## **Cardi-** (Heart)

The foundational root used for terms relating to the heart.

## **Gastr-** (Stomach)

The primary anatomical root for stomach-related terminology.



## **Nephr-** (Kidney)

The Greek-derived root used for conditions or functions of the kidney.

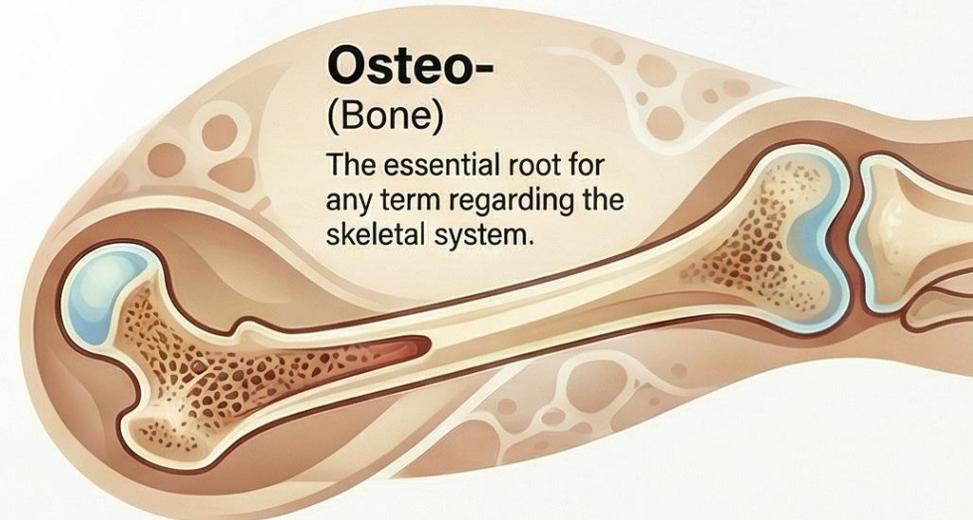


## **Hepat-** (Liver)

The specific root used to identify the liver in medical contexts.

## **Osteo-** (Bone)

The essential root for any term regarding the skeletal system.

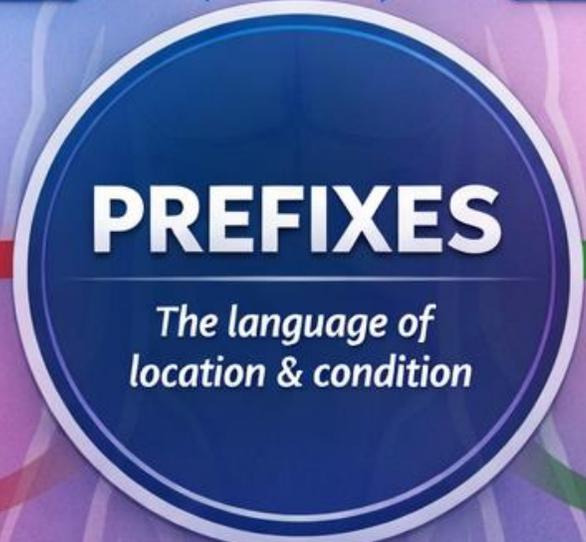


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# ANATOMY PREFIXES ROADMAP

Understanding "Where" & "How" in Medical Terms



**↑ EPI-**  
Upon / On top of  
Epidermis = outer skin layer

**👤 EPI-**  
Upon / On top of  
Epidermis = outer skin layer

**↑ HYPER-**  
Above / Excess  
Hypertension = high blood pressure

**↓ HYPO-**  
Below / Deficient  
Hypoglycemia = low blood sugar

**↔ INTER-**  
Between  
Intercostal = between ribs

**→ INTRA-**  
Within  
Intravenous = within vein

# Mastering Terminology

*is like learning a new language*



MASTERING TERMINOLOGY  
IS LIKE LEARNING  
A NEW LANGUAGE

