

### Levels of Structural Organization

- **Atom:** building blocks of matter
- **Molecules:** group of atoms joined together
- **Cells:** the basic unit of life
- **Tissues:** groups of similar cells working together
  - epithelial tissue, nervous tissue, connective tissue, muscle tissue
- **Organs:** groups of similar tissues working together
- **Organ Systems:** organs working together to perform a specific body function
- **Organism:** living body

### Anatomical Terminology

Why?

- Correct anatomical terminology allows people to communicate effectively and accurately

### Gross Body Regions

- **Head (cephalic) and neck (cervical)**
- **Extremities**
  - arms
  - legs
- **Trunk (body minus the head, neck and extremities)**
  - chest (thoracic)
  - abdomen (celiac)
  - back

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### Anatomical Terminology Cont.

- Directional Terms
  - **anterior** (ventral)--the front side of the body
  - **posterior** (dorsal)--the back side of the body
  - Split by the **coronal (frontal) plane**

### Anatomical Terminology Cont.

- Directional Terms
  - **superior** (cranial)--toward the head
    - Above
  - **inferior** (caudal)--away from the head
    - Below
  - Split by the **Transverse plane**

### Anatomical Terminology Cont.

- Directional Terms
  - **medial**--toward the **midline** of the body
  - **lateral**--**away** from the midline of the body
  - Split by the **Sagittal Plane (median plane)**

### Anatomical Terminology Cont.

- Directional Terms
  - **Proximal**--closer to the point of attachment (**pro** means first)
  - **Distal**--farther from the point of attachment

The diagram shows a human skeleton with arrows pointing towards the head labeled 'Proximal' and away from the head labeled 'Distal'. The photograph shows a hand with a green arrow pointing towards the thumb labeled 'Proximal' and a red arrow pointing away from the thumb labeled 'Distal'.

### Anatomical Terminology Cont.

- Directional Terms
  - **superficial** (external)--located close to or on the body surface
  - **deep** (internal)--located beneath the body surface

The photograph shows a hand with a small red mark on the index finger, representing a superficial injury. The X-ray shows a line passing through the skull, representing a deep injury.

Sixteen-year-old Nasser Lopez is recovering at Jackson Memorial Hospital in Miami after doctors removed a spear that pierced his skull and brain. The injury was the result of a June 8 spear gun mishap at the teen's home. [Read more about Lopez's recovery.](#) (Jackson Memorial Hospital)

### Superior or Inferior?

The photograph shows an elderly man speaking. The X-ray shows a shoulder with a surgical implant. The text 'Superior or Inferior?' is at the top.

The diagram shows a human body with various directional arrows. A vertical line is labeled 'Midline'. Arrows point to 'Right' and 'Left', 'Superior' and 'Inferior', 'Proximal' and 'Distal', 'Medial' and 'Lateral', and 'Anterior (Ventral)' and 'Posterior (Dorsal)'.

### Body Planes

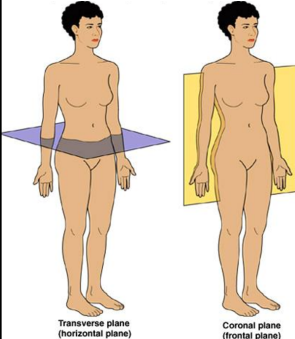
The diagram shows a human body with three intersecting planes: 'Sagittal Plane', 'Coronal Plane', and 'Transverse Plane'. The text 'Body Planes' is at the bottom.

### Body Planes and Sections

- **Sagittal**: longitudinal section that divides the body into **right and left portions**
  - **Median** or **midsagittal**: directly down the **middle** of the body
  - **Parasagittal**: divides anywhere **except for right down the middle**; divides the body into unequal parts

The diagram shows a human body with a 'Sagittal Plane' section.

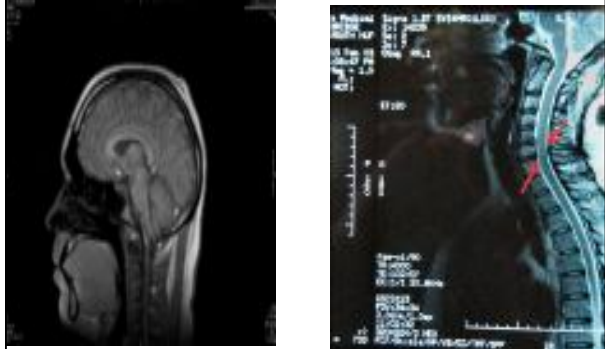
### Body Planes and Sections




- **Frontal (coronal):** divides the body into anterior and posterior portions
- **Transverse:** divides the body into superior (top) and inferior (bottom) portions

Transverse plane (horizontal plane)  
Coronal plane (frontal plane)

### Sagittal MRI Scans

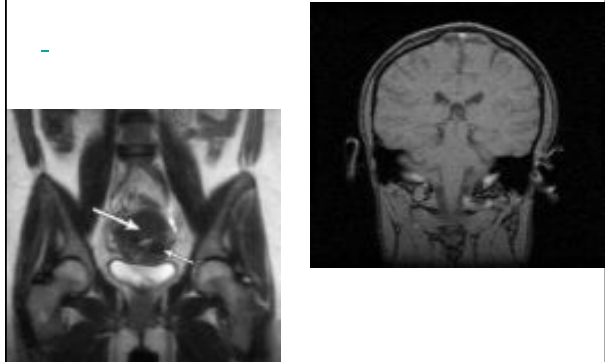


### Transverse MRI Scans Cont.



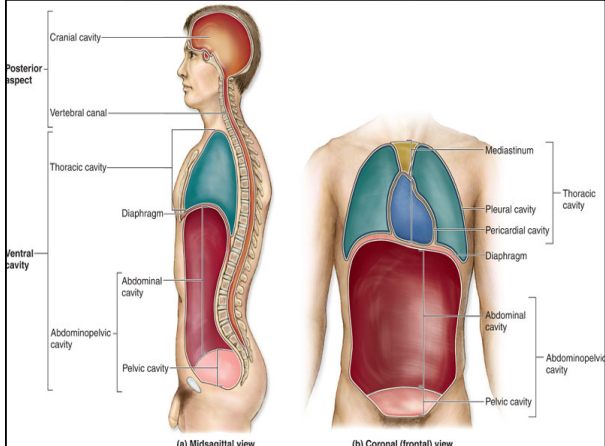
white cortical bone

### Coronal MRI Scans



### Body Cavities

Dorsal (posterior)	Ventral (anterior)
<ul style="list-style-type: none"> <li>•cranial cavity--houses the brain</li> <li>•spinal (vertebral) cavity--contains the spinal cord</li> </ul>	<ul style="list-style-type: none"> <li>•Thoracic cavity                             <ul style="list-style-type: none"> <li>•Pericardial cavity=heart</li> <li>•Pleural cavities=lungs</li> </ul> </li> <li>•Abdominopelvic                             <ul style="list-style-type: none"> <li>•abdominal cavity=stomach, spleen, liver, gall bladder, pancreas, and the small and large intestine</li> <li>•pelvic cavity=lower part of the digestive</li> </ul> </li> </ul>



(a) Midsagittal view (b) Coronal (frontal) view

## PATIENT POSITIONING IN THE OPERATING ROOM



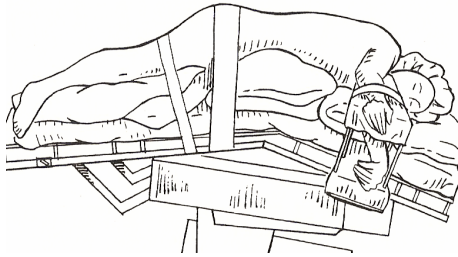
## Goals of Proper Positioning of a Patient in the Operating Room

- To maintain patient's airway and avoid constriction or pressure on the chest cavity
- To maintain circulation
- To prevent nerve damage
- To provide adequate exposure of the operative site
- To provide comfort and safety to the patient



## Lateral

- Why is this surgical position called lateral?



## Lateral Concerns

- Greatest concerns are respiratory, circulatory, and pressure points
- Most Common Nerve Damage:
  - Brachial, radial, median, ulnar, peroneal
- Vulnerable Bony Prominences:
  - Temporal, acromion, olecranon, iliac, greater trochanter
- Vulnerable Vessels:
  - Carotid, axillary, brachial, aorta, vena cava, saphenous

