

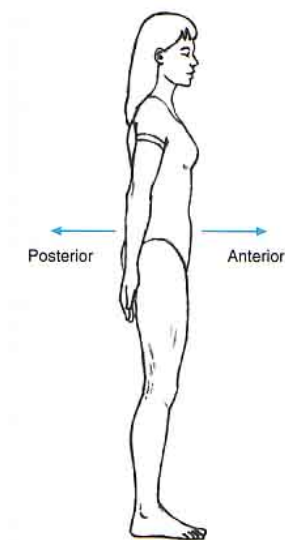
# Anatomical Terms

Fall 2006

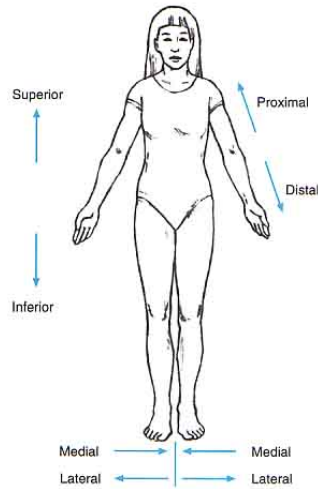
Prepared by YK

## Spatial and Directional Terminology

- Anatomical Position?
- Anterior (Ventral)
  - Toward the front of the body
- Posterior (Dorsal)
  - Toward the rear of the body



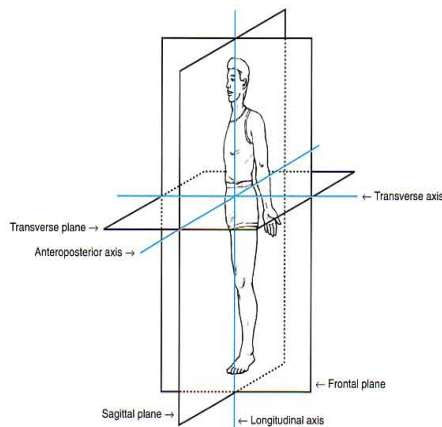
## Spatial and Directional Terminology



- **Superior (Cranial):** toward or closer to the head.
- **Inferior (Caudal):** toward or closer to the feet.
- **Medial:** direction or positions relative to the midline of the body
- **Lateral:** away from or farther from the midline of the body
- **Proximal:** a location or direction toward or closer to the trunk.
- **Distal:** away or farther from the trunk
- **Superficial:** closer to the skin
- **Deep:** farther from the skin

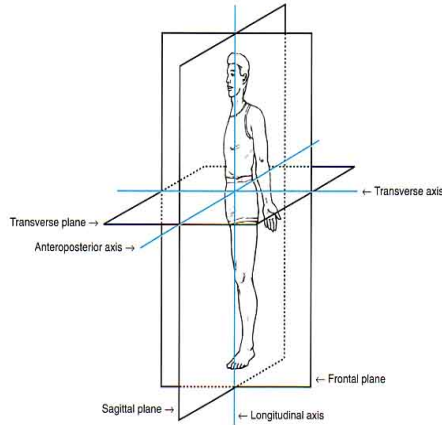
## Planes and Axes of Motion

- Plane : 2D surface
- Motion occurs *in a plane*.
- Anatomical Plane
  - **Sagittal:** an imaginary plane dividing the body into right and left parts
  - **Frontal:** an imaginary plane dividing the body into anterior and posterior parts
  - **Transverse (horizontal):** an imaginary plane dividing the body into superior and inferior parts
- **Cardinal plane:** a plane that passes through the midpoint or center of gravity of the body.



## Planes and Axes of Motion

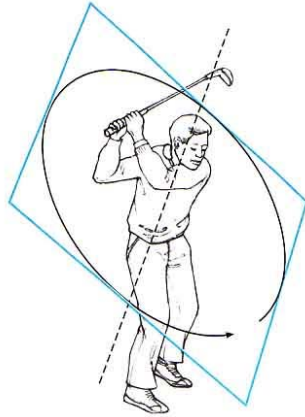
- Axis : a line perpendicular to surface
- Motion occurs about an axis.
- Anatomical Axes
  - **A-P (anteroposterior)**: an imaginary line running from anterior to posterior and perpendicular to the frontal planes.
  - **M-L (medical-lateral) or transverse**: an imaginary line running from left to right and perpendicular to sagittal planes.
  - **Longitudinal**: an imaginary line running from top to bottom and perpendicular to transverse planes.



## Planes and Axes of Motion

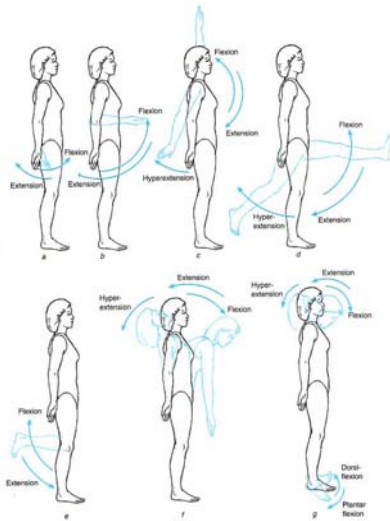
- Identifying Planes and Axes of Motion
  - Sagittal plane rotations occur about a medial-lateral (ML) axis
  - Frontal Plane rotations occur about an anterior-posterior (AP) axis
  - Transverse plane rotations occur about a longitudinal axis

# Joint Actions



- Describe the relative movements of two limbs at joints.
- **Major joints** : Neck, Trunk, Shoulder, Elbow, Wrist, Hip, Knee, Ankle, and Scapular
- General Motions : **Diagonal plane – Oblique axis**
- Movement around specific planes and axes (**From Anatomical position basis**)

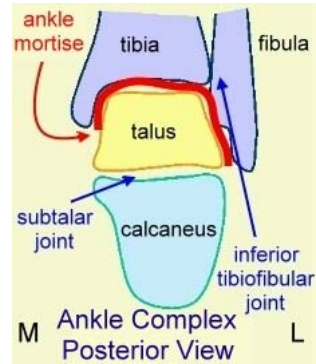
# Movement in Sagittal Plane



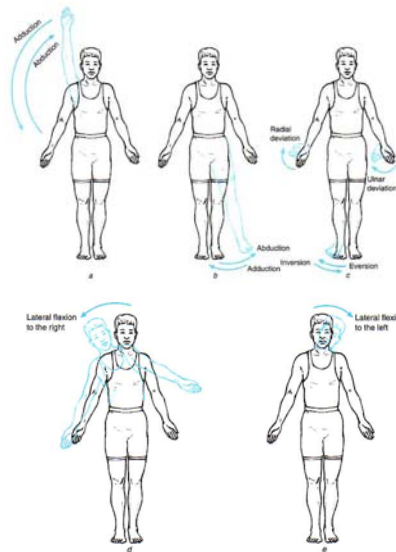
- **Flexion** : Decreasing angles between two segments
- **Extension**: Increasing angles between two segments
- **Hyperextension**: Increasing angles more than 180°
- Major Joints involved : **Wrist, Elbow, Shoulder, Hip, Knee, Trunk, Neck, & Ankle**

## Ankle Joints

- Talocrural Joint (Ankle Joint)
  - Plantar/Dorsi flexion (Sagittal Plane)
- Subtalar Joint
  - Inversion/Eversion (Frontal Plane)



## Movement in Frontal Plane



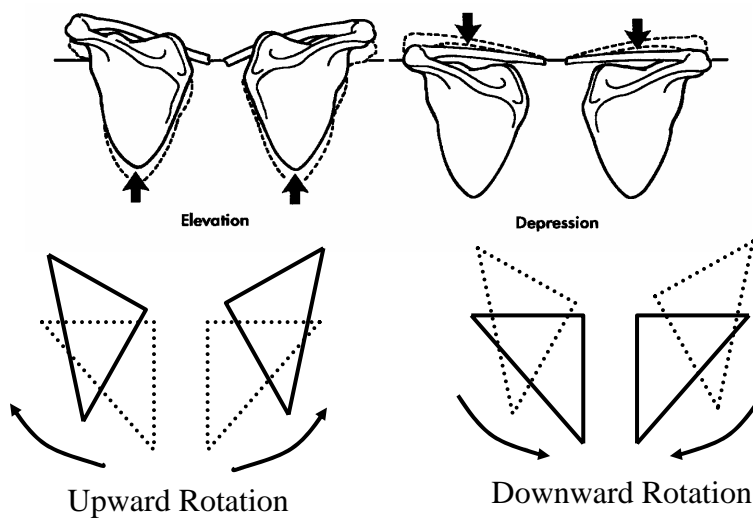
- **Abduction** : Away from midline
- **Adduction**: Closer to midline
- **Radial/Ulnar deviation**
- **Inversion/Eversion**
- **Lateral flexion to R/L**
- **Elevation/Depression**
- **Upward/Downward rotation**
- Major Joints involved : **Shoulder, Hip, Wrist, Ankle, Trunk, Neck, & Scapula**

# Dolphin VS. Shark

- Swimming Patterns?



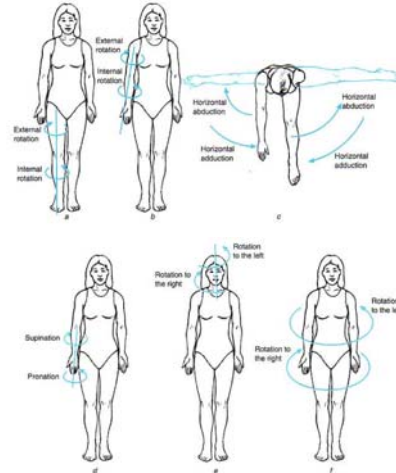
## Movement in Frontal Plane



*Watch Out! Those motions are closely related to Ab-/Adduction of Shoulder*

# Movements in Transverse Plane

- **External/Internal rotation**
- **Horizontal abduction/adduction**
- **Pronation**: Palm down
- **Supination**: Palm up
- **Rotation to R/L**
- **Protraction/Retraction\*\***
- Major joints involved:  
**Hip, Shoulder, Radioulnar, Neck, Trunk, & Scapula\*\***



# Radioulnar Joint

