Learning Objectives

- Objective 1: Identify and utilize anatomical positions, planes, and directional terms.
  - Demonstrate what anatomical position is and how it is used to reference the body.
  - Distinguish between the commonly used anatomical planes and recognize their individual views.
  - Apply directional terms to their location on the human body.

- Objective 2: Demonstrate body movements.
  - Compare and contrast the various movements of the body and their counter movements.
  - Compare and contrast the various movements of the foot/ankle and their counter movements.
  - Compare and contrast the lateral movements of the wrist/hand and their counter movements.

Anatomical Position

- Standing erect, with palms and feet facing forward
- Is the standard reference point in which all positions, movements, and planes are described

Anatomical Planes

- Fixed lines of reference along which the body is often divided or sectioned to facilitate viewing of its structures
- Allow one to obtain a three-dimensional perspective by studying the body from different views

Sagittal plane

- The plane dividing the body into right and left portions
- Mid-sagittal or median are names for the plane dividing the body into equal right and left halves
Anatomical Planes

**Frontal/Coronal plane**
- The plane dividing the body into front and back portions

**Transverse plane**
- The horizontal plane dividing the body into upper and lower portions
- Also called the Horizontal plane.

Positions and Directions

Terms of position and direction describe the position of one body part relative to another, usually along one of the three major body planes

**Anterior**
- Refers to a structure being more in front than another structure in the body

**Posterior**
- Refers to a structure being more in back than another structure in the body

**Superior**
- Refers to a structure being closer to the head or higher than another structure in the body

**Inferior**
- Refers to a structure being closer to the feet or lower than another structure in the body

**Medial**
- Refers to a structure being closer to the midline or median plane of the body than another structure of the body

**Lateral**
- Refers to a structure being farther away from the midline than another structure of the body
Positions and Directions
(Reference to the extremities only)

**Distal**
- Refers to a structure being further away from the root of the limb than another structure in the limb

**Proximal**
- Refers to a structure being closer to the root of the limb than another structure in that limb

Distal / Proximal
- When you divide the skeleton into Axial (Blue) and Appendicular (Yellow) you can better understand the extremities and their roots.

Positions and Directions

- **Cranial/Cephalic**: towards the head
- **Caudal**: towards the tail

Superficial
- Refers to a structure being closer to the surface of the body than another structure

Deep
- Refers to a structure being closer to the core of the body than another structure

Positions and Directions

**Ventral**
- Towards the front or belly

**Dorsal**
- Towards the back

Positions and Directions

**Prone**
- Lying face down

**Supine**
- Lying face up

Unilateral
- Pertaining to one side of the body

Bilateral
- Pertaining to both sides of the body
Body Movements

**Movements**

- **Flexion**
  - Bending a joint or decreasing the angle between two bones

- **Extension**
  - Straightening a joint or increasing the angle between two bones

- **Hyperextension**
  - Excessive extension of the parts at a joint beyond anatomical position.

- **Adduction**
  - Moving a body part towards the midline of the body

- **Abduction**
  - Moving a body part away from the midline of the body

**Definitions**

- **Flexion**: Bending a joint or decreasing the angle between two bones.
- **Extension**: Straightening a joint or increasing the angle between two bones.
- **Hyperextension**: Excessive extension of the parts at a joint beyond anatomical position.
- **Adduction**: Moving a body part towards the midline of the body.
- **Abduction**: Moving a body part away from the midline of the body.
Movements

**Pronation**
- Turning the arm or foot downward; (palm or sole of the foot - down)

**Supination**
- Turning the arm or foot upward; (palm or sole of the foot - up)

Movements

**Retraction**
- Moving a part backward

**Protraction**
- Moving a part forward

**Elevation**
- Raising a part

**Depression**
- Lowering a part

Movements

**Rotation**
- Turning on a single axis

**Circumduction**
- Triplanar, circular motion at the hip or shoulder

**External rotation**
- Rotation of the hip or shoulder away from the midline

**Internal rotation**
- Rotation of the hip or shoulder toward the midline

Movements of the Foot

**Inversion**
- Turning the sole of the foot inward

**Eversion**
- Turning the sole of the foot outward

**Dorsiflexion**
- Ankle movement bringing the foot towards the shin

**Plantarflexion**
- Ankle movement pointing the foot downward

Movements of the Wrist & Thumb

**Radial Deviation**
- Movement of the wrist towards the radius or lateral side.

**Ulnar Deviation**
- Movement of the wrist towards the ulna or medial side.

**Opposition**
- Movement of the thumb across the palm of the hand.
Regional Terms: Anterior View

- Axial – head, neck, and trunk
- Appendicular – appendages or limbs
- Specific regional terminology

Regional Terms: Posterior View