

**OptiHealth Institute**  
**Med-Fit Tech Assistant Course**  
**Learning Module #1**  
**Body Mechanics**

**Part B: Major Body Movements**

**Learning Objectives:**

- Identify the joints that allow for the body's major movements
- Define and identify the major body movements
- Demonstrate the different types of body movements

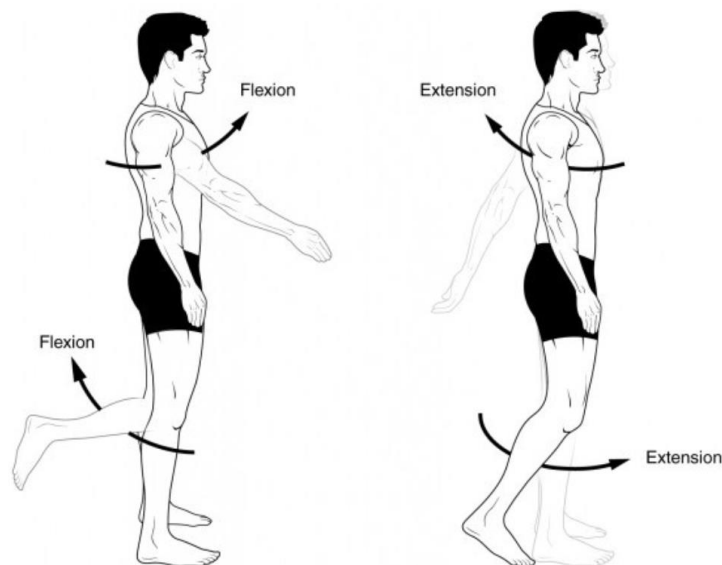
**Joints:** Certain body parts are designed to move much more than other body parts. These parts are characterized by having one or more synovial joints. These include:

- Neck
- Shoulder
- Elbow
- Wrist
- Fingers
- Trunk
- Hip
- Knee
- Ankle
- Toes

**Body Movements**

**Flexion and Extension**

From the anatomical position, flexion and extension are movements that take place within the sagittal plane and involve anterior or posterior movements of the head, trunk, arms, and legs.

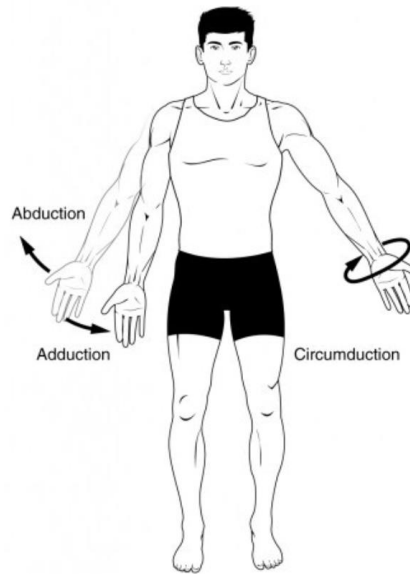


Flexion and Extension of the Arm and Leg.

## **Abduction** (aB-duction) and **Adduction** (aD-duction) and **Circumduction**

From the anatomical position, aBduction and aDduction are movements that take place within the frontal plane and involve lateral or medial movements of the arms, hands, and thighs.

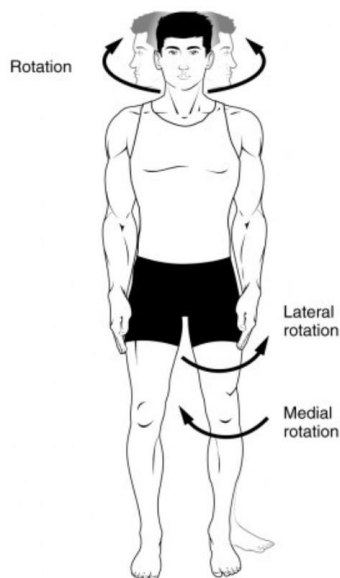
Circumduction is a three-dimensional movement (does not stay within a plane) and involves a circular movement of the head, trunk, arms, hands, thighs, and foot.



Abduction and Adduction of the Right Arm,  
and Circumduction of the Left Arm.

## **Rotation**

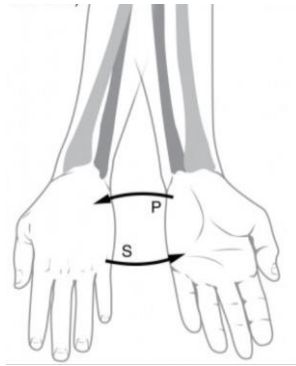
From the anatomical position, rotation is a movement that takes place within the transverse plane and involves twisting of the neck, trunk, arm, or thigh.



Rotation of the Head and Left Thigh

**Pronation and Supination** – Special names for Rotation of the Forearm.

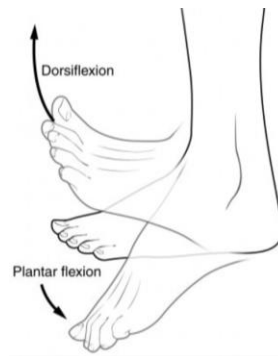
From the anatomical position, pronation is the rotational movement of the forearm that changes the orientation of the palm from forward to backward. Supination is the reverse of pronation.



Pronation and Supination of the Left Forearm.

**Dorsiflexion and Plantar Flexion** - Special names for Extension and Flexion of the Foot

Dorsiflexion lifts the front of the foot, so that the top of the foot moves toward the anterior part of the leg. Plantar flexion lifts the heel of the foot off the ground or points the toes downward.

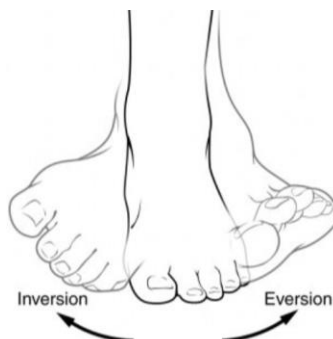


Dorsiflexion and Plantar Flexion of the Foot

**Inversion and Eversion** - Special names for Medial and Lateral Flexion of the Foot

Inversion is medial (inward) flexion of the foot (the bottom of the foot moves toward the midline). Eversion is lateral (outward) flexion of the foot (the bottom of the foot moves away from the midline).

Note: The foot has a greater range of inversion than eversion motion. These are important motions that help stabilize the foot when walking or running on an uneven surface and aid in the quick side-to-side changes in direction used during active sports such as basketball, tennis, or soccer



Inversion and Eversion of the Left Foot

## Glossary of Body Movements

**Abduction** - movement in the coronal plane that moves the arms or legs laterally, away from the midline of the body.

**Adduction** - movement in the coronal plane that moves the arms or legs medially, toward or across the midline of the body.

**Circumduction** - circular motion of the head, trunk, arm, thigh, hand, or foot that is produced by the sequential combination of flexion, abduction, extension, and adduction.

**Dorsiflexion** - movement at the ankle that brings the top of the foot toward the anterior leg.

**Eversion** - movement in which the bottom of the foot is turned laterally, away from the midline.

**Extension** - backward movement in the sagittal plane of the head, trunk, arm, hand, or thigh; thigh, or forward movement of the leg at the knee when returning it to the anatomical position from a flexed position.

**Flexion** - forward movement in the sagittal plane of the head, trunk, arm, forearm, hand, or thigh, or backward movement of the leg at the knee.

**Inversion** - movement in which the bottom of the foot is turned medially, toward the midline.

**Lateral flexion** - bending of the head or trunk toward the right or left side.

**Lateral rotation** - movement of the arm at the shoulder or the thigh at the hip that moves the anterior surface of the arm or thigh away from the midline of the body.

**Medial rotation** - movement of the arm at the shoulder or the thigh at the hip that brings the anterior surface of the arm or thigh toward the midline of the body.

**Plantar flexion** - foot movement at the ankle in which the heel is lifted off the ground or pointing the toes downward.

**Pronation** - forearm motion that moves the palm of the hand from forward to the backward.

**Rotation** - twisting of the neck or trunk. (Not to be confused with circumduction.)

**Supination** - forearm motion that moves the palm of the hand from backward to forward.

### Module #1: LAB

From the anatomical position, practice the following **body movements** in front of a full-length mirror, **name** the body region or structure (“joint”) that allows the body to perform the movement, and note the different **ranges of motion** of the body part in the different directions when performing the body movements.

1. Flexion of the head, trunk, arms, forearms, hands, thighs, and legs.
2. Extension of the head, trunk, arms, hands, and thighs.
3. Abduction of the arms and thighs.
4. Adduction of the arms and thighs across the midline.
5. Circumduction of the head, trunk, arms, hands, thighs, and feet.
6. Rotation (left and right) of the head and trunk.
7. Rotation (medial and lateral) of the arms and thighs.
8. Pronation and Supination of the forearms.
9. Dorsiflexion and Plantar Flexion of the feet.
10. Inversion and Eversion of the feet.

Q: Which body part has the greatest range of motion? (head, trunk, arm, hand, leg, or foot?)