

TYPES OF MOVEMENTS AT SYNOVIAL JOINTS:

Be Sure you can do these movements! Practice doing them till you get them! Look at the powerpoint slides I have posted so you can follow along with these movement, also look at your text books! They have these movements diagramed out too. Must see/demonstrate these to understand them.

Movement types are generally paired, with one being the opposite of the other. Body movements are always described in relation to the anatomical position of the body

1. **FLEXION** is a movement that decreases the angle of the joint.
2. **EXTENSION** is a movement that increases the joint angle.

Flexion and extension movements are seen at the hinge, condyloid, saddle, and ball-and-socket joints of the limbs

2a. **HYPEREXTENSION** is the extension of a joint beyond the anatomical position. Ex. Hperextension of neck (looking up), hyperextension of vertebral column (bending backwards)

NOTE: Flexion, extension & hyperextension of the head occurs between the occipital condyles of the skull and the superior articular facets of C1 (the atlas).

Joints that you should practice your flexion and extension movements: neck, shoulder jt., elbow jt., wrist jt., metacarpophalangeal (MCP) jt., interphalangeal jt., vertebral column, hip jt., knee jt., metatarsophalangeal(MTP) jt. and the thumb (carpometacarpal jt. = trapezium and metacarpal #1).

3. **ABDUCTION** is the movement of a body part laterally away from the midline
4. **ADDUCTION** is the movement of a body part back toward the midline of the body.

Abduction and adduction movements are seen at condyloid, saddle, and ball-and-socket joints.

Joints that you should practice your abduction and adduction movements: shoulder jt., wrist jt., metacarpophalangeal (MCP) jt., hip jt., and the thumb (carpometacarpal jt. = trapezium and metacarpal #1).

5. **CIRCUMDUCTION** : is the movement of a body region in a circular manner, in which The proximal end of the limb remains stable, while the distal end moves in a circle..

This type of motion is found at multiaxial ball-and-sockets joints. (hip and shoulder)

6. **ROTATION:** can occur at a pivot joint, within the vertebral column, or at a ball-and-socket joint.

At a pivot joint, one bone rotates in relation to another bone. This is a uniaxial joint, and thus rotation is the only motion allowed at a pivot joint. For example, at the atlantoaxial joint, *the first cervical (C1) vertebra (atlas) rotates around the dens*, the upward projection from the second cervical (C2) vertebra (axis). This allows the head to rotate from side to side as when shaking the head “no.”

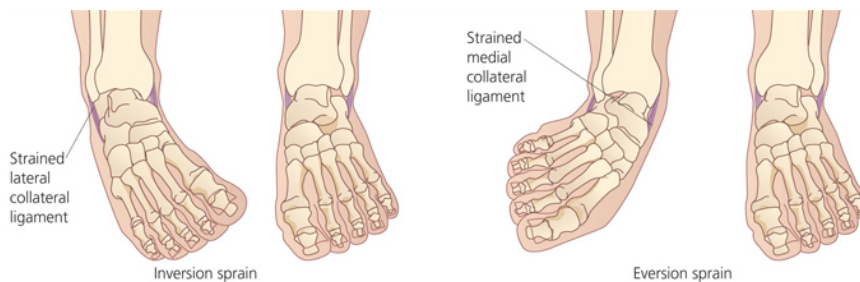
The *proximal radioulnar joint is a pivot joint* formed by the head of the radius and its articulation with the ulna (at the radial notch). This joint allows for the radius to rotate along its length during pronation and supination (see below) movements of the forearm.

Within the vertebral column Rotation is the twisting movement produced by the summation of the small rotational movements available between adjacent vertebrae (at their facets!).

Rotation can also occur at the ball-and-socket joints of the shoulder and hip. Here, the humerus and femur rotate around their long axis, which moves the anterior surface of the arm or thigh either toward the midline- **medial (internal) rotation**, or away from the midline of the body- **lateral (external) rotation** .

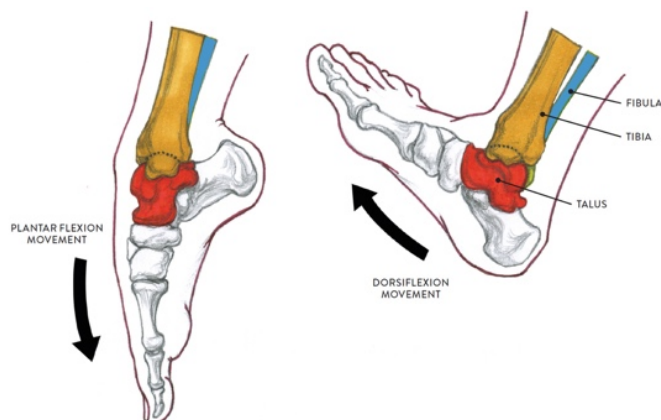
7. **INVERSION** is the movement of the sole of the foot inward or medially.

8. **EVERSION** is the movement of the sole outward or laterally.



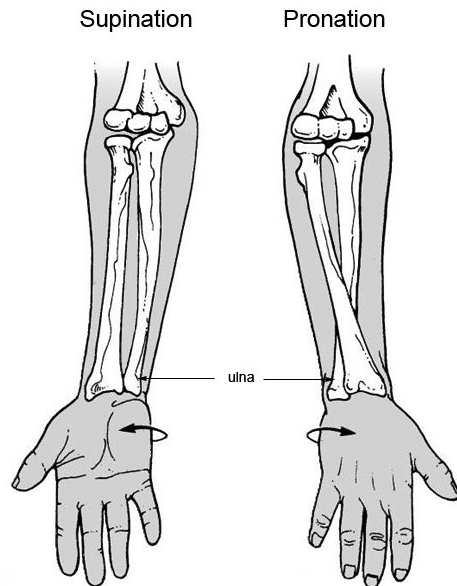
9. **DORSIFLEXION** is the movement of the ankle so that the superior part of the foot (dorsum) moves toward the shin.

10. **PLANTAR FLEXION** is lifting the heel of the foot from the ground (ie standing on your toes), or pointing your toes downward.



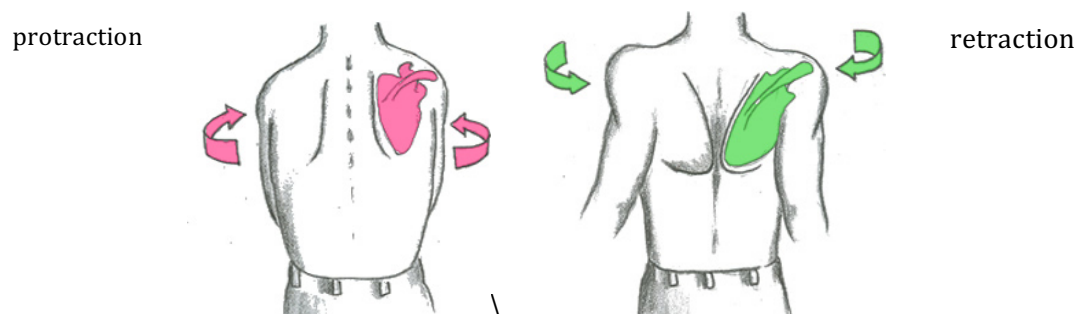
11. **SUPINATION** is the movement of the flexed forearm so that the palm is turned anterior or superior. NOTE: The ulna and radius are parallel during supination.

12. **PRONATION** is the movement of the flexed forearm so that the palm is turned posterior or inferior. NOTE: during pronation, the radius crosses over the ulna.



13. **PROTRACTION** is the movement of a body part anteriorly (the mandible and the scapula)

14. **RETRACTION** is the movement of a body part posteriorly (mandible and the scapula).



15. **ELEVATION** is the upward movement of a body part (shoulder girdle –shrugging shoulders; closing mouth-mandible elevated).

16. **DEPRESSION** is the downward movement of a body part (shoulder girdle- unshrugging shoulders; opening mouth-mandible opening).