

Ch. 1 Continued

A. Joint Motion

- a. Goniometer
 - i. 3 different areas
 1. Axis/ Fulcrum
 - a. On the joint itself
 2. Movable Arm
 - a. Normally on distal portion
 3. Stationary Arm
 - a. Normally on proximal part
- b. Angles between bones change
- c. Movement occurs between articular surfaces of the joint
 - i. "flexing the knee" results in leg moving closer to thigh
 - ii. "flexion of the leg" means flexing of the knee
- d. Movement terms describe movement occurring throughout the full range of motion or through a very small range
 - i. Ex: begin with knee in 90 degrees of flexion & then flex it 30 degrees which results in a knee flexion angle of 120 degrees, even though it began at 30 degrees
 - ii. Ex: begin at 90 degrees of flexion, but then extend 40 degrees, which would result in 50 degrees of flexion
- e. Some terms are relatively specific to a joint or group of joints
 - i. Additionally, prefixes may be combined with these terms to emphasize excessive or reduced motion
 1. Hyper- hypo-
 - ii. Hyperextension is the most commonly used. (will be in negative degrees when hyperextending)

B. Movement Terminology

- a. Abduction
 - i. Lateral movement away from the midline of the body
- b. Adduction
 - i. Movement medially toward the midline of the body
- c. Flexion
 - i. Decreasing an angle in a joint
 - ii. Bringing 2 bones together
 - iii. Usually in sagittal plane
- d. Extension
 - i. Increasing an angle in a joint
 - ii. Moving 2 bones apart
 - iii. Usually in sagittal plane
- e. Circumduction
 - i. Circular movement of a limb that delineates an arc or describes a cone
 - ii. Combination of flexion, extension, abduction, and adduction

- iii. When should joint & hip joint move in a circular fashion around a fixed point
 - iv. Not the same as rotation
 - v. Also referred to as circumflexion
 - f. Diagonal abduction
 - i. Movement by a limb through a diagonal plane away from midline of body
 - g. Diagonal adduction
 - i. Movement by a limb through a diagonal plane toward the midline of body
 - h. External rotation
 - i. Rotary movement around longitudinal axis of a bone away from midline of body
 - ii. Occurs in transverse plane
 - iii. AKA: rotation laterally, outward rotation
 - i. Internal rotation
 - i. Rotary movement around longitudinal axis of a bone towards the midline
 - ii. Transverse plane
 - j. Ankle & foot movements
 - i. Eversion
 - 1. Turning sole of foot outward or laterally
 - 2. Standing with weight on the inner edge of the foot
 - ii. Inversion
 - 1. Turning sole of foot inward or medially
 - iii. Dorsal flexion
 - 1. Results in top of foot moving towards tibia (flexion movement)
 - iv. Plantar flexion
 - 1. Extension movement of ankle that results in foot moving away from body
 - v. Pronation
 - 1. A combination of ankle dorsiflexion, subtalar eversion, & forefoot abduction (toe out)
 - vi. Supination
 - 1. Combination of ankle plantar flexion, subtalar inversion, & forefoot adduction (toe in)
 - k. Radioulnar joint
 - i. Pronation
 - 1. Internally rotating radius where it lies diagonally across ulna, resulting in palm-down position of forearm
 - ii. Supination
 - 1. Externally rotating radius where it lies parallel to ulna, resulting in palm-up position of forearm
 - l. Shoulder (Scapulothoracic) Girdle
 - i. Depression

- ii. Elevation
 - 1. "Shoulder shrug"
- iii. Protraction
 - 1. Abduction of scapula
 - 2. Forward movement of shoulder girdle away from spine
- iv. Retraction
 - 1. Adduction of scapula
 - 2. Backward movement of shoulder girdle toward spine
- v. Rotation downward
 - 1. Inferior angle of scapula moving medially & downward
- vi. Rotation upward
 - 1. Inferior angle of scapular moving laterally & upward
- m. Shoulder (Glenohumeral) Joint
 - i. Horizontal abduction
 - 1. Movement away from midline of body
 - ii. Horizontal adduction
 - 1. Movement of humerus toward the midline of the body
 - iii. Scaption
 - 1. Unique to shoulder
 - 2. Movement of the humerus away from the body in the scapular plane. Glenohumeral [diagonal] abduction in a plane 30-45 degrees between the sagittal and frontal planes
- n. Spine
 - i. Lateral flexion (side bending)
 - 1. Movement of head/trunk laterally away from midline
 - 2. Abduction of spine
 - ii. Reduction
 - 1. Return of spinal column to anatomic position from lateral flexion
 - 2. Adduction of spine
- o. Wrist & Hand
 - i. Palmar Flexion
 - 1. Flexion movement of wrist with volar or anterior side of hand moving toward anterior side of forearm
 - ii. Dorsiflexion
 - 1. Extension movement of wrist in the sagittal plane with dorsal or posterior side of hand moving toward posterior side of forearm
 - iii. Radial Flexion (radial deviation)
 - 1. Abduction movement at wrist of thumb side of hand toward forearm
 - iv. Ulnar Flexion (ulnar deviation)
 - 1. Adduction movement at wrist of little finger side of hand toward forearm
 - v. Opposition of the thumb