

# ARTICULATIONS II: MOVEMENTS

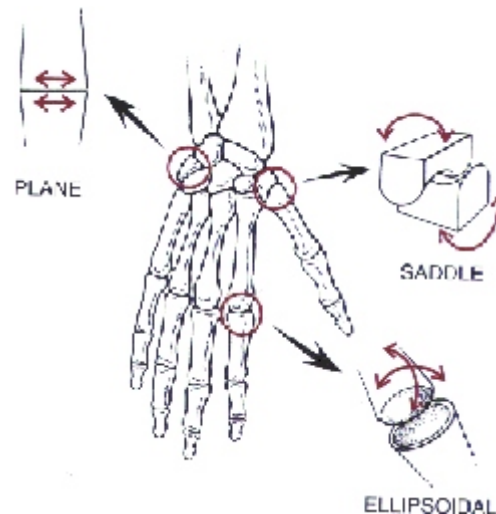
11/10/81, rvsd 11/12/96, 6 Nov 00, 10 Nov 03, 4Nov09, 8Nov10, 7Nov11  
 Martini 6<sup>th</sup>: 268-282, 7<sup>th</sup>: 272-280, 8<sup>th</sup>: 272-288, 9<sup>th</sup> 258-274

- MOVEMENTS:**
- Angular movements:** (p 260)
    - flexion/extension      decrease angle/ increase angle
    - abduction/adduction      away from midline/toward midline
  - Circular movements:** (p 261)
    - circumduction      combination of all four above:
    - hip, shoulder
    - rotation      humerus or femur
    - supination/pronation      forearm turns thumbs

laterally/medially (forearm crosses)

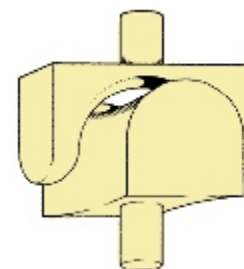
**Special movements:** (p 262)

- Elevation/Depression      mouth, shoulder
- Inversion/Eversion      foot turns medially/laterally
- Protraction/retraction      jaw forward/pulled back



**SYNOVIAL JOINT TYPES:** (p 263)

- nonaxial gliding**      movement in any direction: vertebra, intercarpal and -tarsal
- uniaxial ginglymus**      (Gk:hinge) or hinge
  - ex: elbow
- trochoid:**      (wheel or pivot) rotation around longitudinal axis.
  - ex: first cervical, around odontoid process of second cervical
  - proximal radius and ulna: radial notch, annular ligament
- biaxial: condyloid:**      single surface: movement in two planes, like egg cupped in hand:
  - ex: occipital condyles and 1st cerv vert., radius & carpals.
- saddle:**      two movements: one concave in one direction, other convex
  - ex: only true saddle is in first carpometacarpal joint of thumb
- multiaxial: ball and socket:**      only in hip and shoulder      can:
  - flex/extend
  - adduct/abduct
  - rotate
  - circumduct



plane of movement: perpendicular to axis, horizontal line through joint = fulcrum

**LIGAMENTS IN SELECTED JOINTS:**

- Shoulder:** loosely constructed, protected by coracoid and acromion processes. Support: **labrum**, ext'n of art. cartil. (p 267)
- articular capsule** attached to rim of glenoid fossa, extends to anatomical neck
  - coracohumeral ligament: to greater tubercle
  - glenohumeral ligament:
    - tendon of long head of biceps brachii: Passes thru **intertubercular groove**, holds humerus in place

**Hip:** capsule strengthened

- (P 269) anteriorly      by iliofemoral and pubocapsular ligaments
  - posteriorly      by ischiofemoral ligament
  - acetabular labrum:      fibrocartilaginous rim at top
  - ligamentum teres:      ties femur via fovea capitis
- to lower labrum

**Knee:** (p 271) largest weight bearing surface of body. classified as hinge, but has structure of condyloid...  
 menisci stabilize

**strengthened:**

- anteriorly      patellar ligament
- posteriorly      oblique and arcuate popliteal (ham: posterior knee surface)
- sides:      collateral ligaments:
  - medial and lateral
- inside:      Anterior cruciate ligament
  - limits ant. movement of tibia
- Post cruciate ligaments
  - limits post. movement of tibia

