Joints of the Appendicular Skeleton

Upper Limb

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Upper Limb – Selected Joints  (Marieb / Hoehn – Chapter 8; Pgs. 262 – 269)

A. Shoulder Joint:

The shoulder joint is a ball-and-socket type synovial joint (Figure 1). The very shallow glenoid cavity of the scapula and the large humeral head endow the shoulder joint with the greatest degree of mobility of any joint in the body. However, this increase in freedom of movement comes at the expense of stability; should dislocations are a fairly common injury, especially in the forward and downward direction.

![Figure 1: Right shoulder joint, anterior and lateral views](note: acromioclavicular and coracoclavicular ligaments not shown)]

**Fibrocartilage:**

- **Glenoid labrum:** Rim of fibrocartilage on margin of glenoid cavity; slightly deepens articulation point of scapula with humerus.

**Ligaments:**

- **Coracohumeral ligament:** Attaches the base of the coracoid process of the scapula to the greater tubercle of the humerus; helps support weight of the upper limb.
- **Glenohumeral ligaments:** Three layered ligaments (superior, middle, inferior) located on the anterior aspect of the joint; offer weak support to the joint and may be partially absent in some individuals.
- **Coracoacromial ligament:** Attaches the coracoid process of the scapula to the acromion of the scapula; reinforces scapular structure.
- **Acromioclavicular ligament:** Attaches clavicle end to acromion of scapula; helps support integrity of pectoral girdle.
- **Coracoclavicular ligaments:** Two ligaments that attach scapula to the clavicle; help support integrity of pectoral girdle.
In addition to the ligaments listed above, the shoulder joint is strengthened by the tendons of four muscles that cross the joint. One muscle, the supraspinatus, passes the joint superiorly. Another muscle, the subscapularis, passes the joint anteriorly. Two more muscles, the infraspinatus and teres minor, pass the joint posteriorly. These four form an incomplete cuff around the shoulder joint. They are known as the **rotate cuff** muscles and play an important role in preventing shoulder joint dislocation.

B. **Elbow Joint**:

The elbow joint is a hinge type synovial joint (Figure 2). This joint provides a stable and smoothly operating joint that allows flexion and extension only (‘bending of the elbow’).

*Figure 2: Right elbow joint, lateral and medial views*

**Ligaments:**

- **Anular ligament**: Attaches head of radius to ulna and humerus; fuses with articular capsule of the elbow.
- **Ulnar collateral ligament**: Medially anchors ulna to medially epicondyle of humerus; provides medial support preventing side-to-side motion.
- **Radial collateral ligament**: Laterally anchors ulna to lateral epicondyle of humerus and radius via anular ligament; provides lateral support preventing side-to-side motion.
CHECKLIST: SELECT UPPER LIMB JOINTS

SHOULDER JOINT:

Fibrocartilage
  ➢ Glenoid labrum

Ligaments
  ➢ Coracohumeral ligament
  ➢ Glenohumeral ligaments
  ➢ Coracoacromial ligament
  ➢ Acromioclavicular ligament
  ➢ Coracoclavicular ligaments

ELBOW JOINT:

Ligaments
  ➢ Anular ligament
  ➢ Ulnar collateral ligament
  ➢ Radial collateral ligament