

<u>Lecture Date</u>	<u>Topic</u>	<u>Reading in Marieb, Mallatt, and Wilhelm</u>
L7	Tues 2/3	Joints I
		Ch. 9, pp. 205-234

*joint (articulation)*

### **Functional classifications of joints**

*synarthroses*  
*amphiarthroses*  
*diarthroses*

### **Structural classifications of joints**

*fibrous (dense regular connective tissue)*  
*suture (short fibers)*  
*syndesmosis (longer fibers)*  
*gomphosis (periodontal ligament)*  
*cartilaginous*  
*synchondroses*  
*symphyses*  
*synovial*

#### **General structure**

*articular cartilage (hyaline cartilage)*  
*joint cavity (synovial cavity)*  
*articular capsule (joint capsule)*  
*fibrous capsule (dense irregular connective tissue)*  
*synovial membrane (loose connective tissue)*  
*synovial fluid*  
*reinforcing ligaments*  
*capsular*  
*extracapsular*  
*intracapsular*  
*nerves and vessels*  
*articular disc (meniscus)*  
*bursae*  
*tendon sheath*

#### **Factors influencing the stability of synovial joints**

*shapes of the articular surfaces*  
*number and position of stabilizing ligaments*  
*muscle tone*

#### **Movements allowed by synovial joints**

*gliding*  
*angular movements*  
*flexion*  
*lateral flexion*  
*extension (at the shoulder and hip, extension moves the limb posteriorly)*

*hyperextension*  
*abduction*  
*adduction*  
*circumduction (includes flexion, abduction, extension, adduction)*  
*rotation*  
*medial rotation*  
*lateral rotation*  
*special movements*  
*supination*  
*pronation*  
*dorsiflexion*  
*plantar flexion*  
*inversion*  
*eversion*  
*protraction*  
*retraction*  
*elevation*  
*depression*  
*opposition*

***Synovial joints classified by shape***

*plane joints*  
*hinge joints (uniaxial, movement around one axis of rotation only)*  
*pivot joints (uniaxial)*  
*condyloid joints (condyle = rounded prominence; biaxial, movement around two axes of rotation)*  
*metacarpophalangeal joint*  
*saddle joints (biaxial)*  
*first carpometacarpal joint*  
*ball-and-socket joints (multiaxial, movement in all axes of rotation)*

**Selected synovial joints**

**Shoulder (glenohumeral) joint**

*ball-and-socket joint*  
*low stability, high mobility (multiaxial)*  
*head of humerus*  
*glenoid cavity of the scapula*  
*glenoid labrum (fibrocartilage)*  
*coracohumeral ligament*  
*glenohumeral ligaments*  
*tendon of long head of the biceps brachii muscle*  
*attaches to superior margin of the glenoid labrum*  
*rotator cuff*  
*four tendons and associated muscles (see p. 300)*  
*subscapularis*  
*supraspinatus*  
*infraspinatus*  
*teres minor*

**Elbow joint**

*hinge joint*  
*stability, uniaxial*  
*radius*  
*ulna*  
*humerus*  
*trochlear notch*  
*articular capsule (humerus, ulna, anular ligament)*  
*anular ligament*  
*radial collateral ligament*  
*ulnar collateral ligament*  
*biceps brachii*  
*triceps brachii*

**Hip (coxal) joint**

*ball-and-socket joint*  
*high mobility, good stability*  
*spherical head of femur*  
*acetabulum (deeply cupped joint surface of the hip bone)*  
*acetabular labrum (fibrocartilage)*  
*articular capsule (from rim of acetabulum to neck of the femur)*  
*iliofemoral ligament (extracapsular)*  
*pubofemoral ligament (extracapsular)*  
*ischiofemoral ligament (extracapsular)*  
*ligament of the head of the femur (ligamentum teres; intracapsular)*

**Knee joint**

*primarily a hinge joint, with some medial and lateral rotation*  
*compound, bicondyloid structure*  
*good mobility, low stability*  
*patella/inferior end of femur articulation (femoropatellar joint; plane joint)*  
*subcutaneous prepatellar bursa*  
*lateral menisci (fibrocartilage)*  
*medial menisci (fibrocartilage)*  
*patellar ligament*  
*medial and lateral patellar retinacula*  
*tendon of quadriceps femoris muscle*  
*fibular collateral ligament (extracapsular)*  
*tibial collateral ligament (extracapsular)*  
*oblique popliteal ligament (extracapsular)*  
*tendon of the semimembranosus muscle*  
*arcuate popliteal ligament (extracapsular)*  
*cruciate ligaments*  
*anterior (attaches to anterior tibia)*  
*posterior (attaches to the posterior tibia)*  
*tendon of quadriceps femoris muscle*  
*tendon of semimembranosus muscle*  
*popliteus muscle*

## **Disorders of joints**

### **Joint injuries**

*sprain*

*dislocation (luxation; subluxation; reduction)*

*torn cartilage*

*arthroscopic surgery*

### **Inflammatory and degenerative conditions**

*bursitis*

*tendinitis*

*arthritis*

*osteoarthritis (OA; degenerative joint disease)*

*rheumatoid arthritis (RA; autoimmune disease)*

*ankylosis*

*gouty arthritis (gout)*

*uric acid crystals*

*Lyme disease*

*joint pain and arthritis*

*spirochetes (bacteria transmitted by tick bites)*