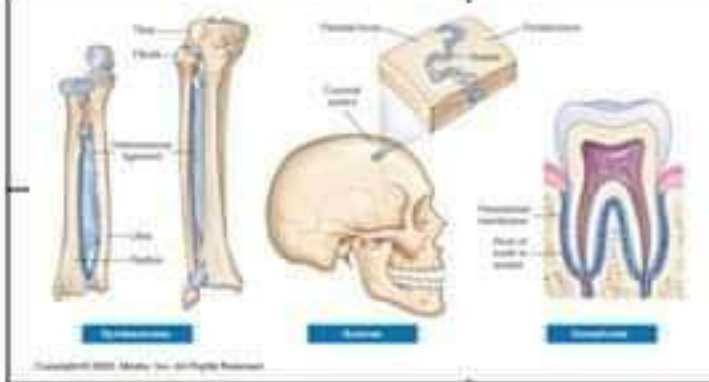
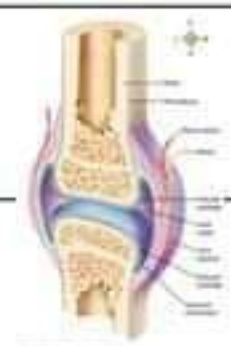
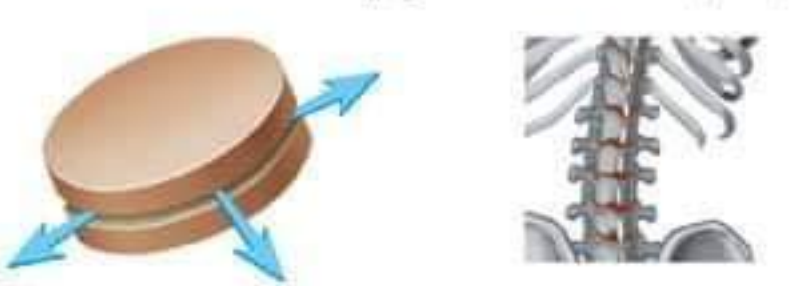
Joint Classification

Functional Name	Structural Name	Movement	Example	Description
Synarthroses	Fibrous	Immovable	Syndesmoses	ligaments
			Sutures	skull
			Gomphoses	Teeth to jaw
Amphiarthroses	Cartilaginous (hyaline, fibrocartilage)	Slightly movable	Synchrondosis	Ribs, epiphyseal plate
			Symphyses	Pubis, vertebral discs
Diarthroses	Synovial	Freely movable	Uniaxial	Hinge, pivot
			Biaxial	Saddle, ellipsoidal
			Multiaxial	Ball and socket, gliding



Plane Joint

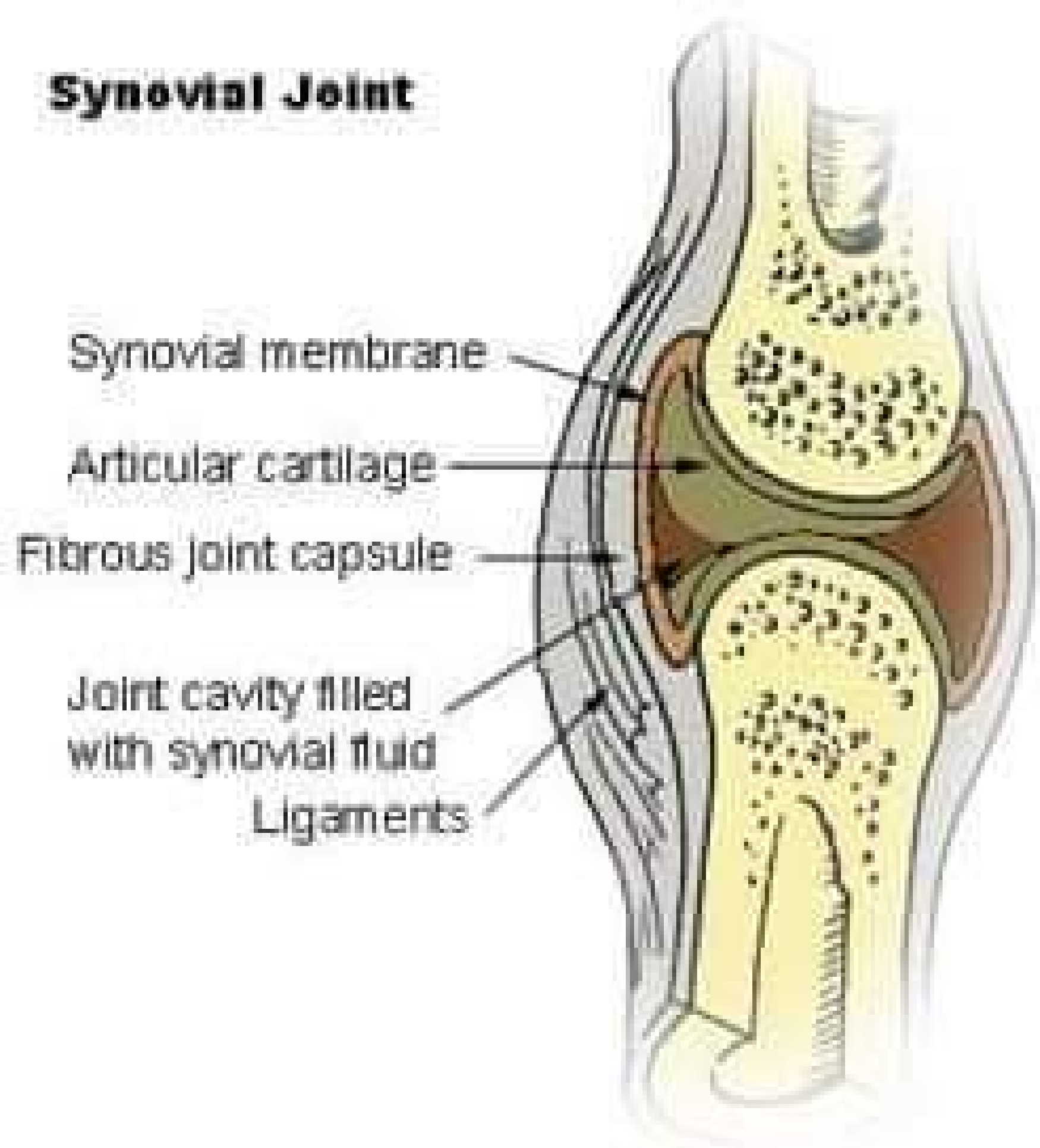
Saddle Joint

Hinge Joint

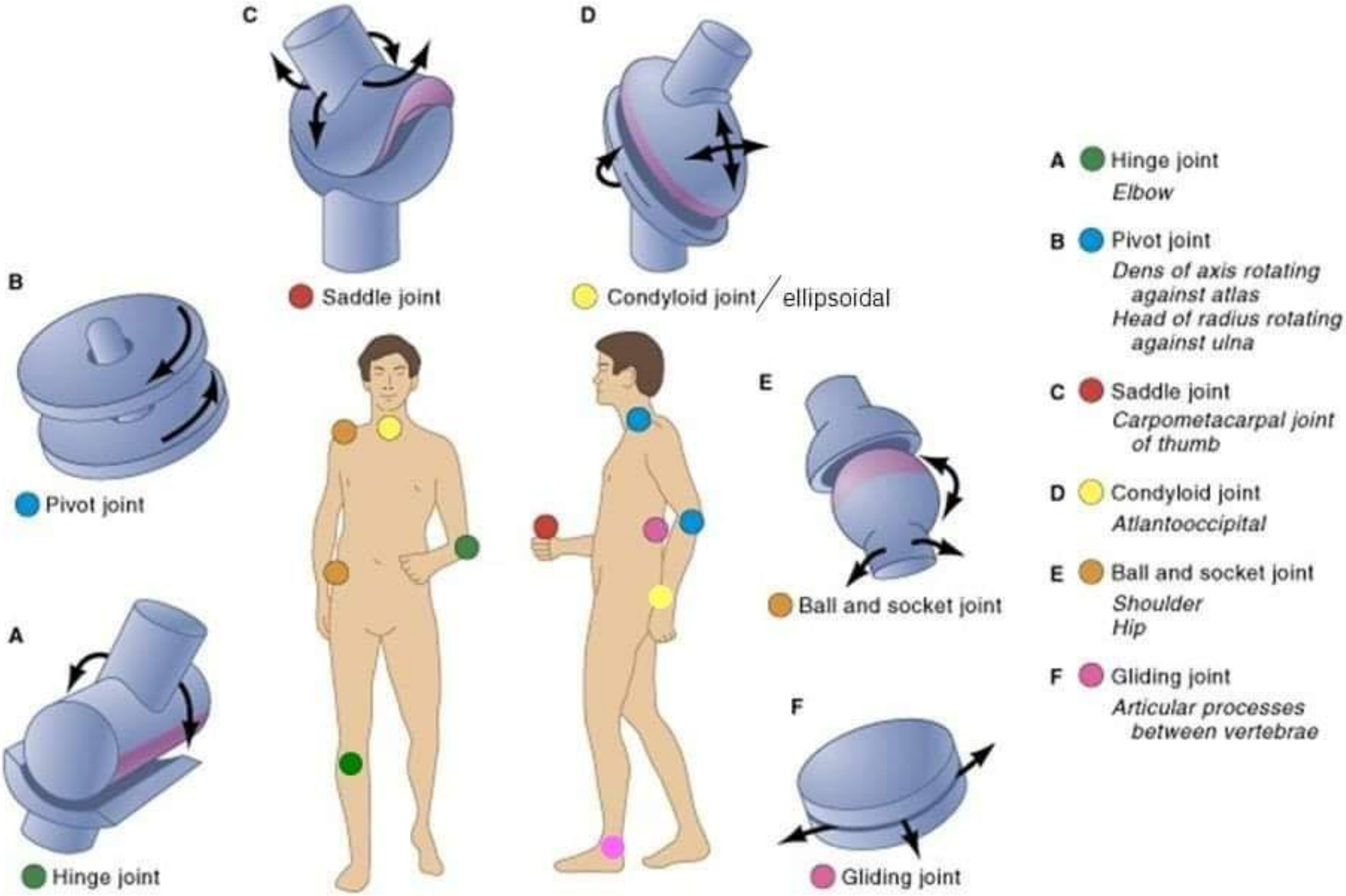
Pivot Joint

Ball-and-Socket Joint

Ellipsoid Joint

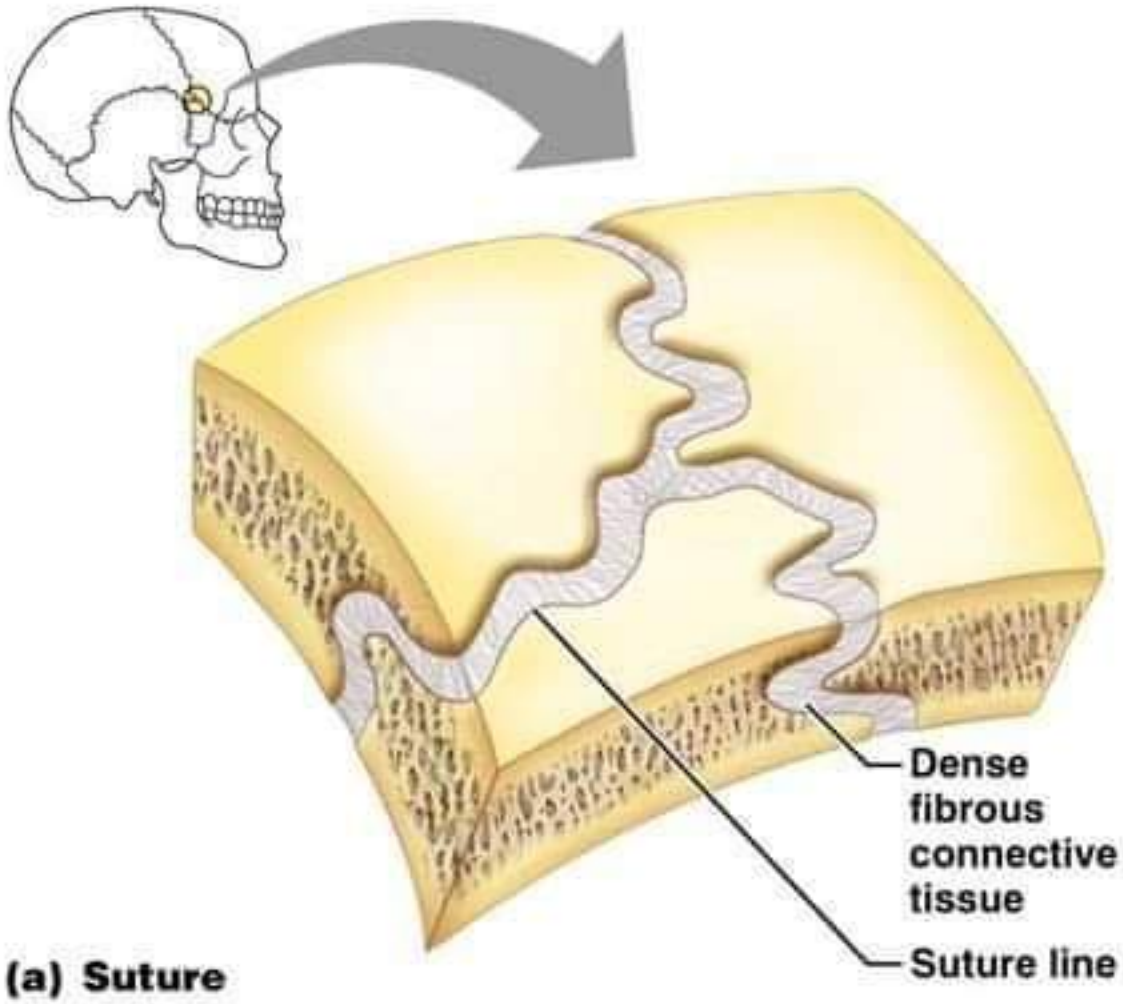

Synovial Joint
Synovial membrane
Articular cartilage
Fibrous joint capsule
Joint cavity filled
with synovial fluid
Ligaments

Types of Joints

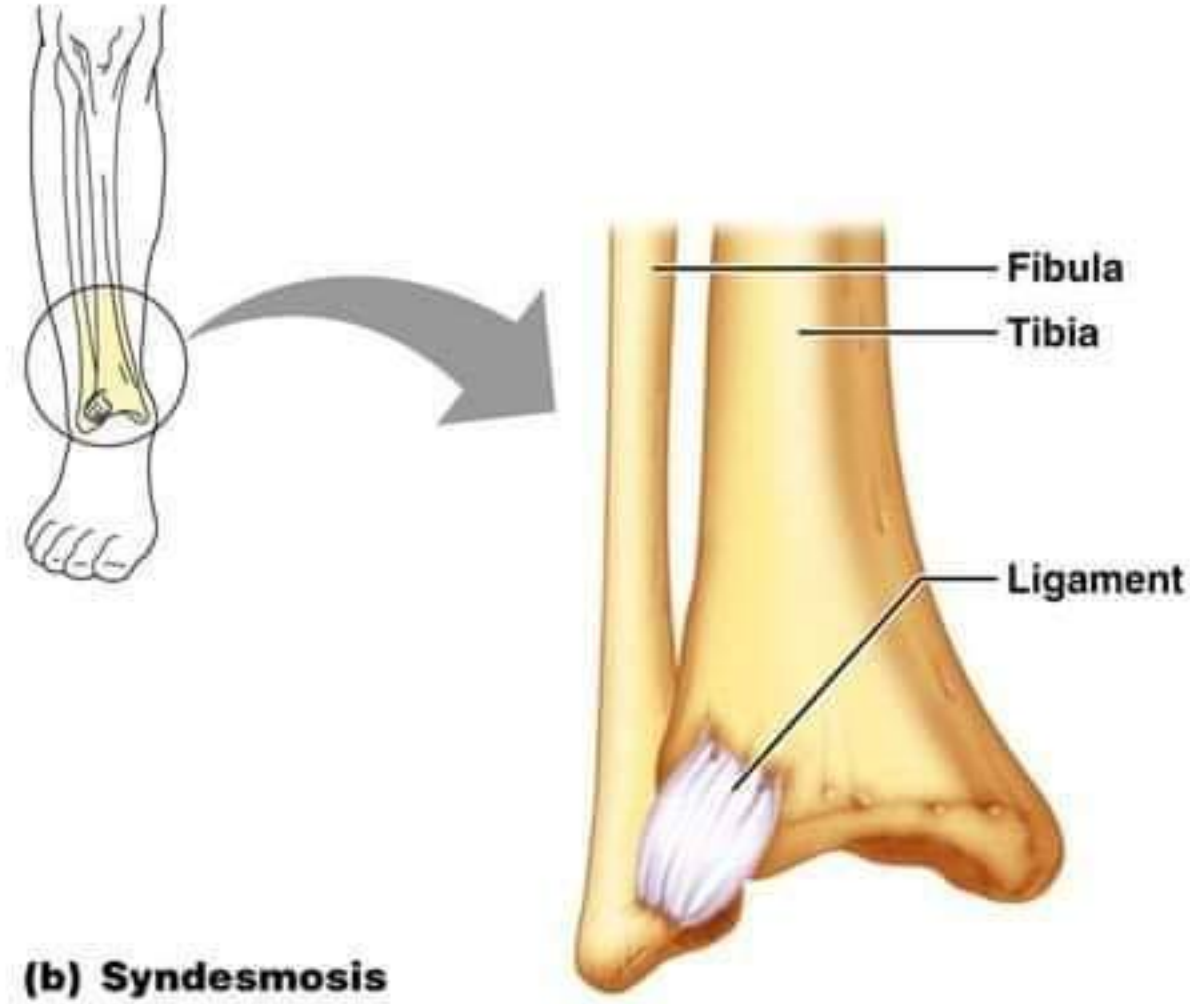


1. Fibrous Joints - immovable

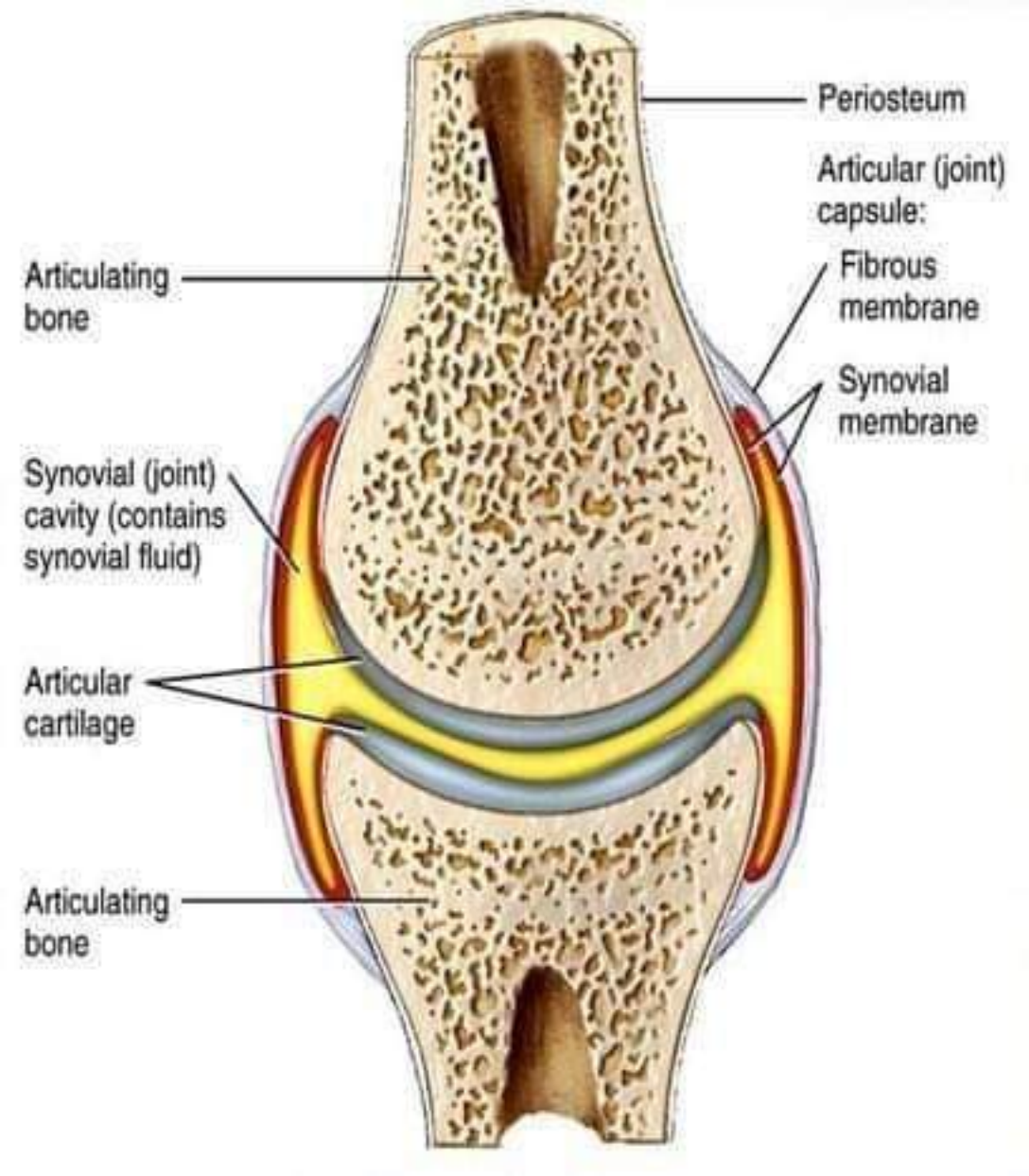
- No joint cavity
- Two major types
    - Suture joints – very short connective tissue fibers
    - Syndesmoses – short ligament of dense fibers
    - Gomphosis – short periodontal ligament



(a) Suture



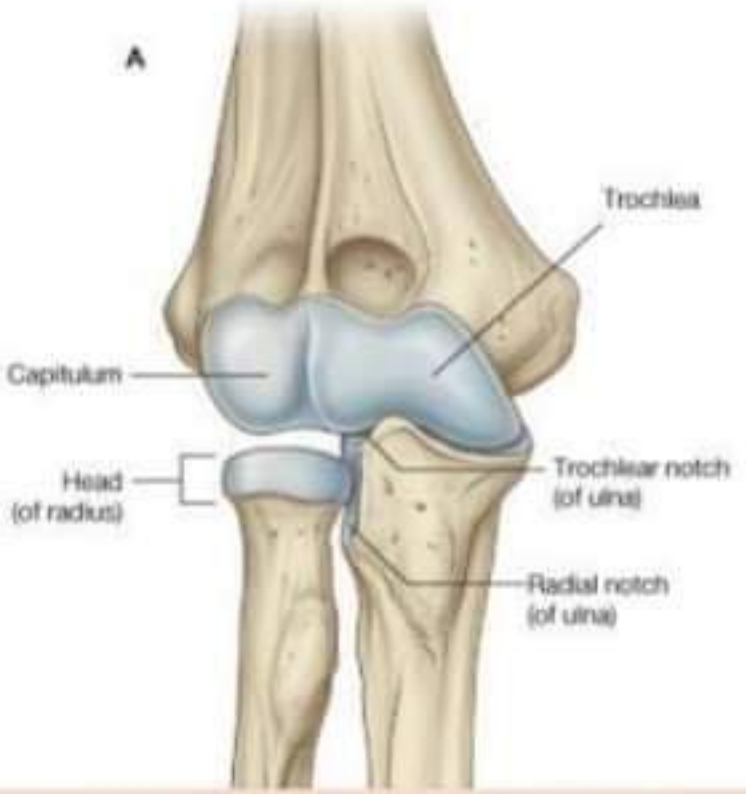
(b) Syndesmosis


Periosteum
Articular (joint) capsule:
Fibrous membrane
Synovial membrane
Articulating bone
Synovial (joint) cavity (contains synovial fluid)
Articular cartilage
Articulating bone

The Elbow Joint

- The human elbow is the summation of 3 articulations:

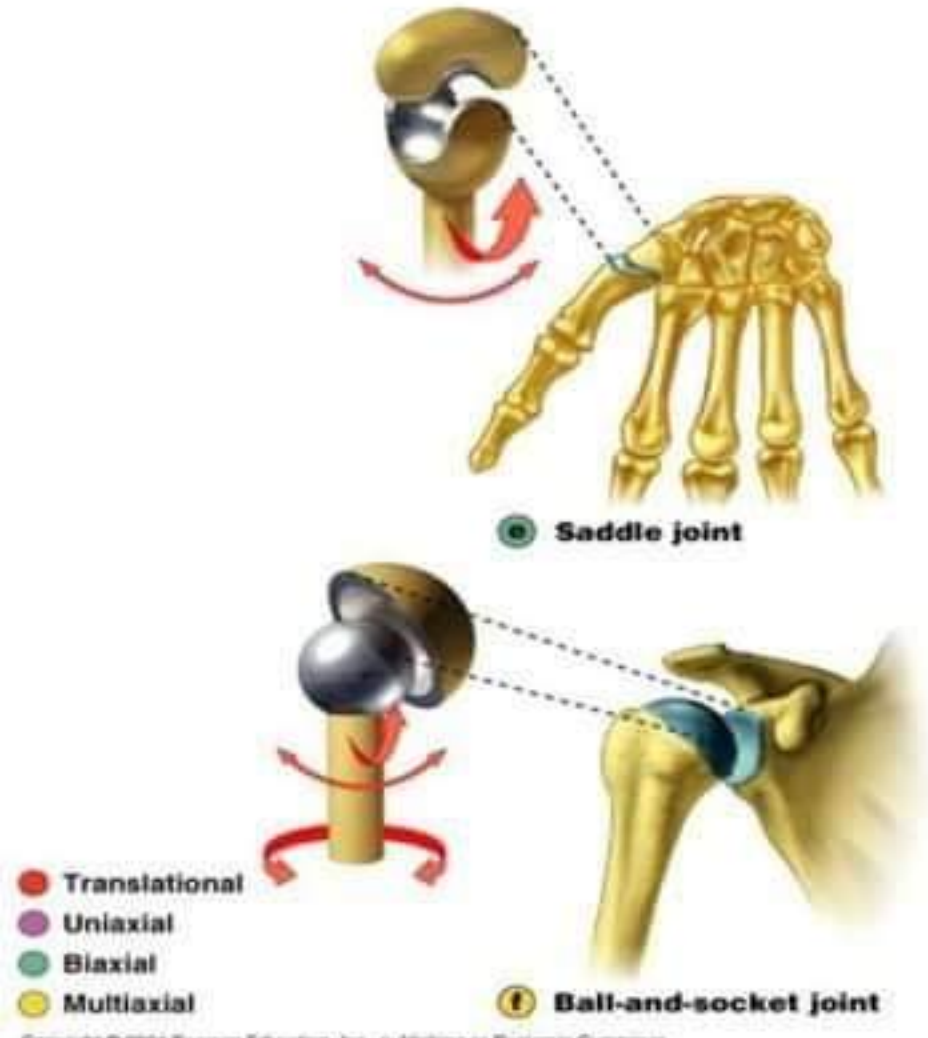
1) **Humeroulnar joint**: the synovial hinge joint with articulation between the trochlea of the humeral condyle and the trochlear notch of the ulna.
2) **Humeroradial joint:** the articulation between the capitulum of the humeral condyle and the concavity on the superior aspect of the head of the radius
3) **Radioulnar joint:** it is a pivot-type synovial joint with articulation between the head of the radius and the radial notch of



These 3 articulations, forming 2 different aspects, allow flexion and extension of the elbow, as well as supination and pronation of the forearm and wrist at the elbow.

Types of Synovial Joints

Saddle (e)

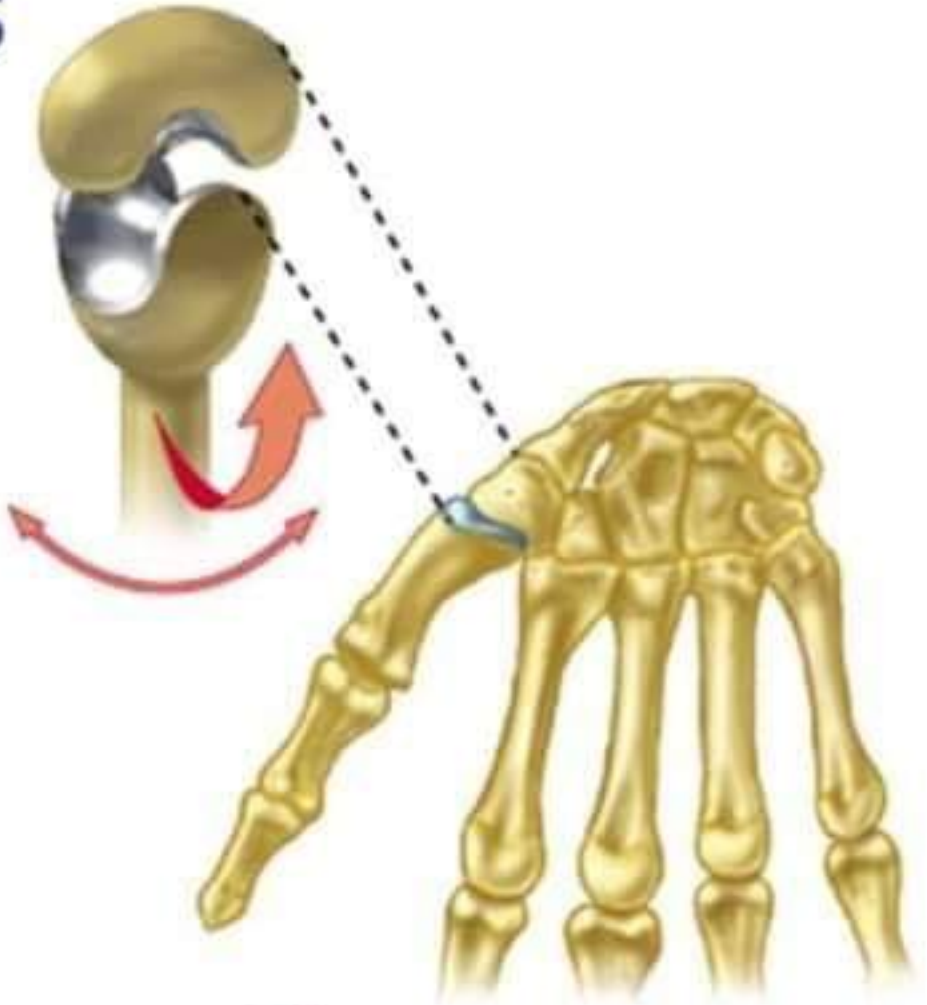


- **<u>Resemble condyloid joints, but they allow greater freedom of movement</u>**
- Saddle joints consist of each articular surface bearing **complementary concave and convex areas (shaped like a saddle)**
- **Allow more freedom of movement than condyloid joints**
- **Examples:**
  - Carpometacarpal joints of the **thumbs**
    - Movements allowed by these joints are clearly demonstrated by **twiddling your thumbs**

Saddle Joints

At the base of the thumb (between the trapezium and metacarpal I) and sternoclavicular joint between the clavicle and sternum.

Saddle joints are biaxial joints; in primate anatomy, allows for the opposable thumb

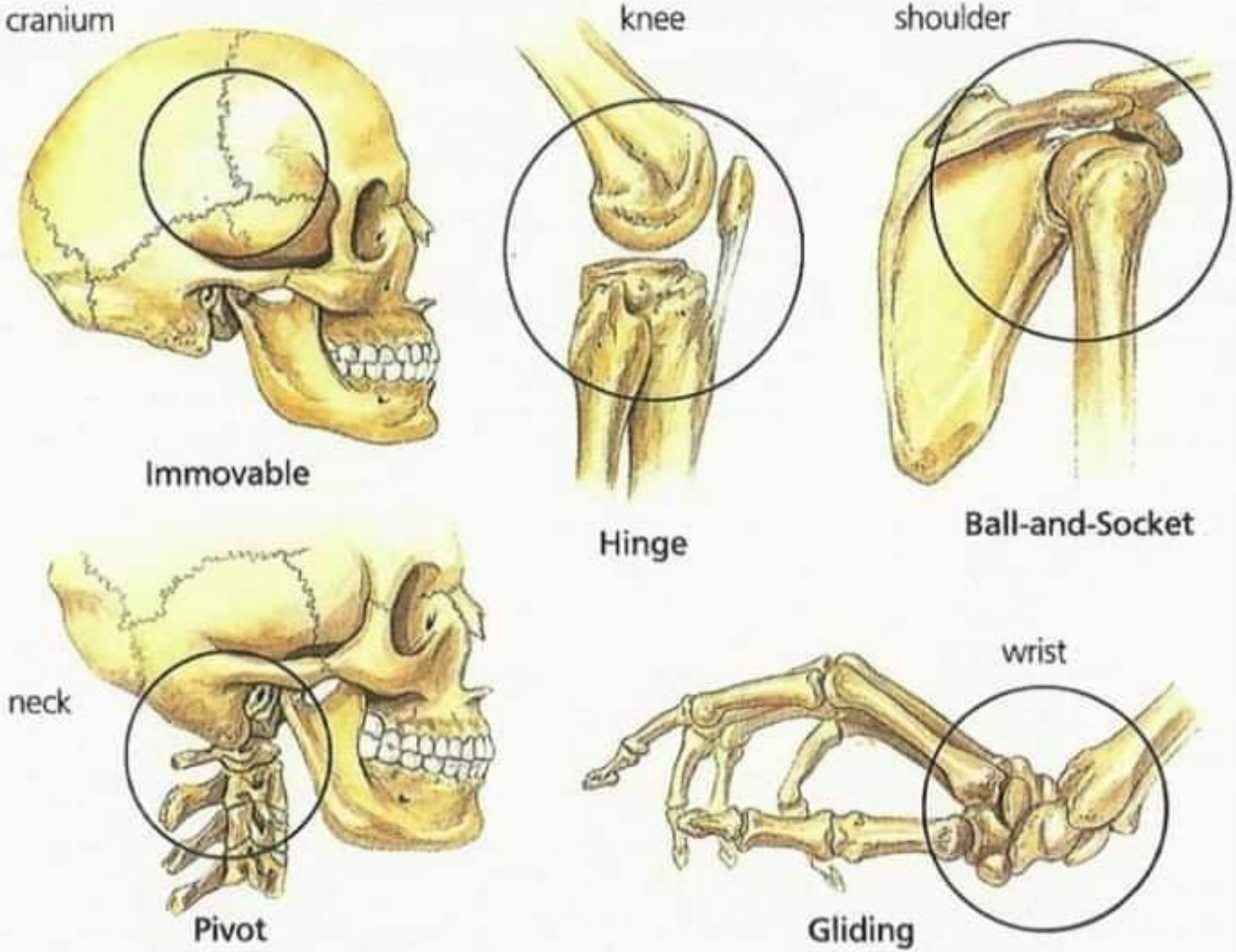


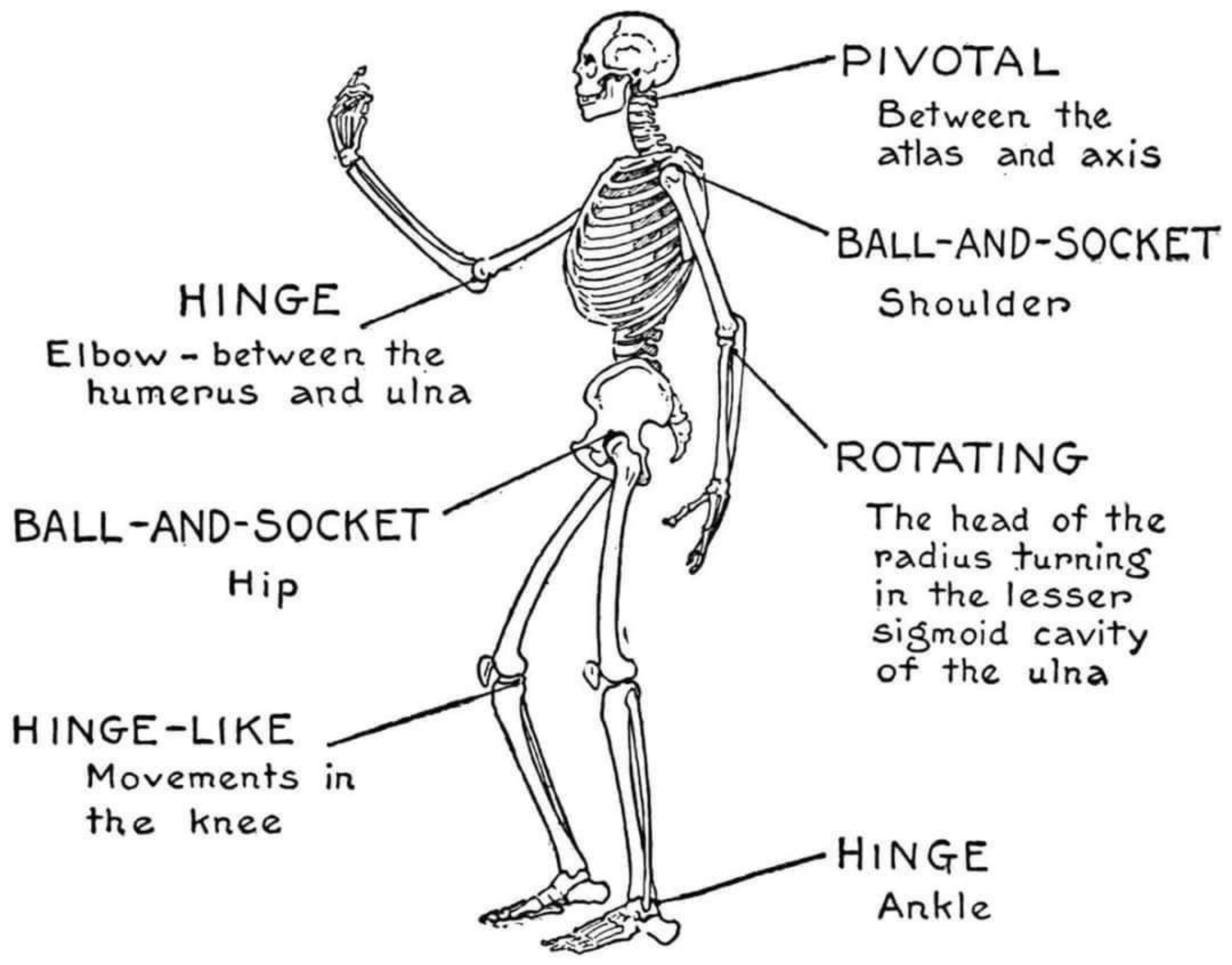
e Saddle joint

Joints

- **Joints or Articulations:** Locations were bones join together that allow for some degree of movement.
- **Arthrology:** The scientific study of Joints!
- Most important joints for this test: Knee and Shoulder
- **Classification:** Either by structure or range of movement allowed.

61. Five Types of Human Skeletal Joints



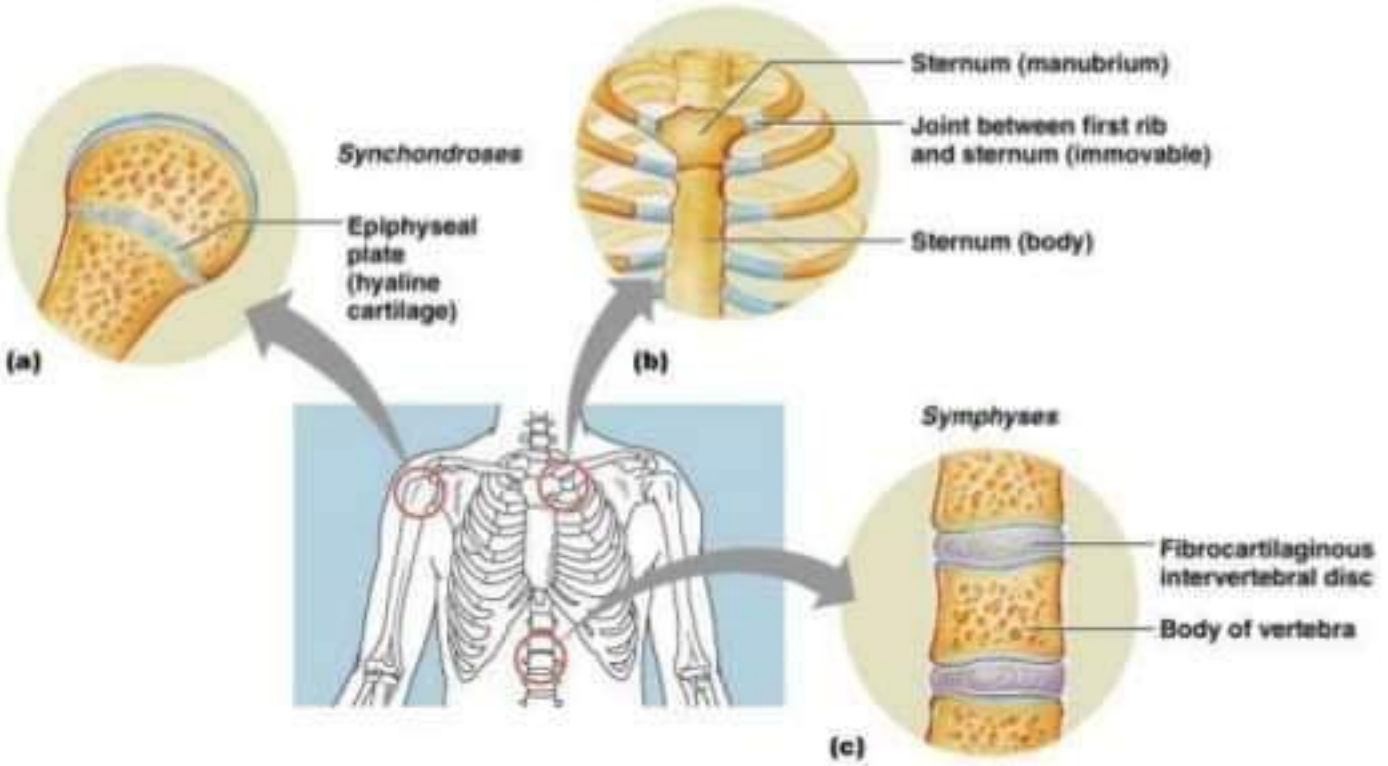


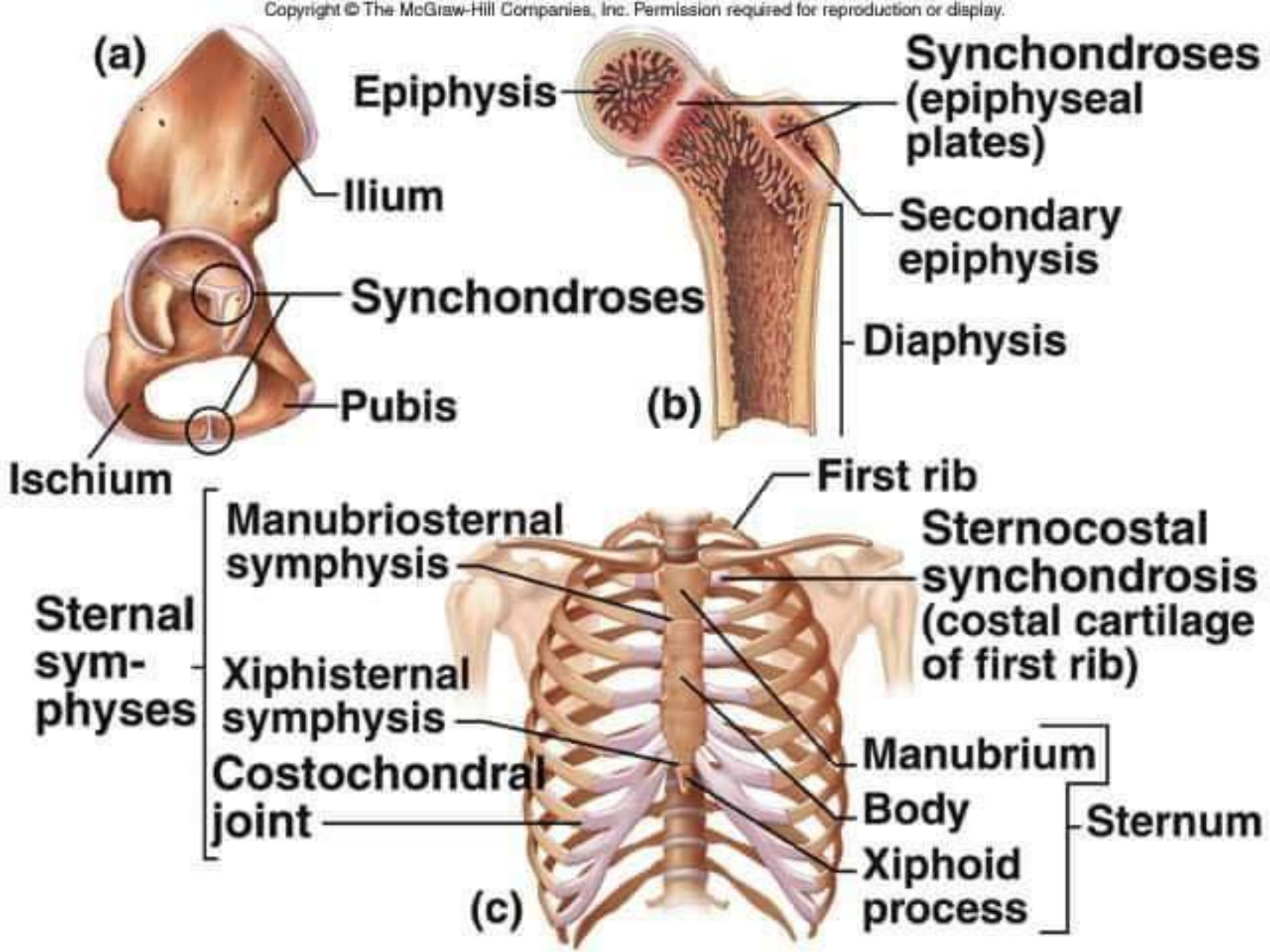
ARTICULATIONS OF THE SKELETON ILLUSTRATING VARIOUS KINDS OF MECHANICAL JOINTS AND MOVEMENTS.

Joints And Their Classification

- A joint, or articulation, is any point at which two bones meet, regardless of whether they are movable at that point
- The science of joint structure, function, and dysfunction is called arthrology
- The study of musculoskeletal movement is kinesiology

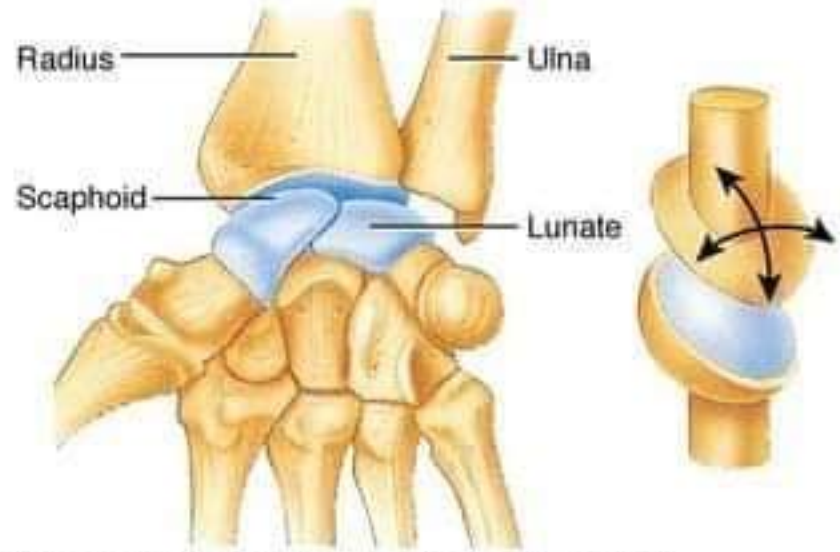
Cartilaginous joints



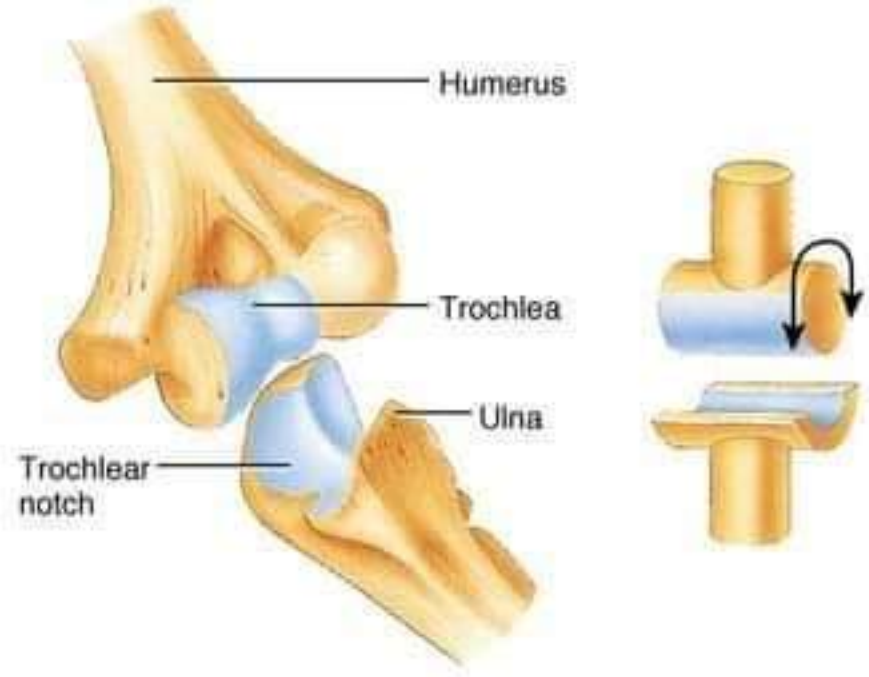


- Classification of Joints (Articulations):
  - Three **structural** classes of joints
    - *Fibrous*
      - No space between articulating bones; held together by dense connective tissue – e.g., sutures, distal radius/ulna
      - May be functionally synarthroses or amphiarthroses
    - *Cartilagenous*
      - No space between articulating bones; held together by cartilage – e.g., pubic symphysis
      - May be funtionally synarthroses or amphiarthroses
    - *Synovial*
      - Space (*synovial/joint cavity*) between articulating bones – e.g., shoulder, elbow etc.
      - Functionally are diarthroses

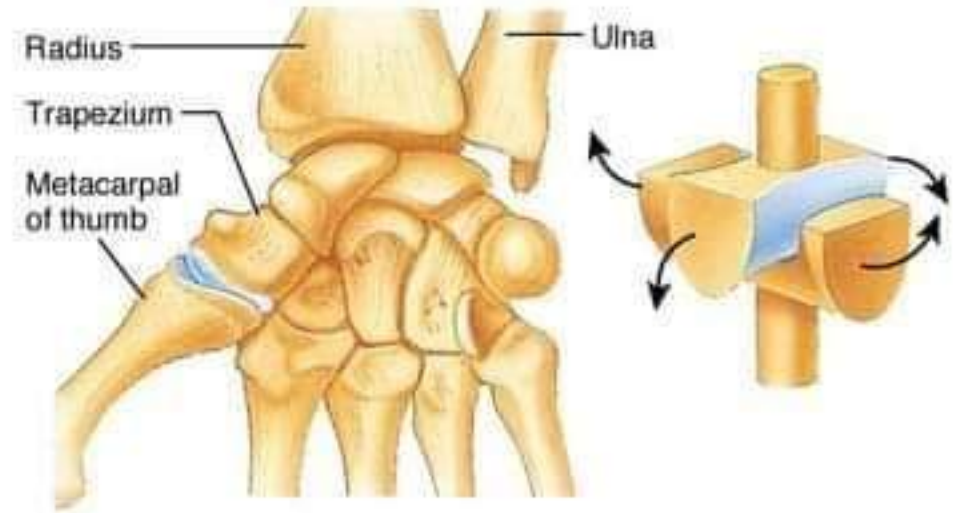
(a) Planar joint between the navicular and second and third cuneiforms of the tarsus in the foot



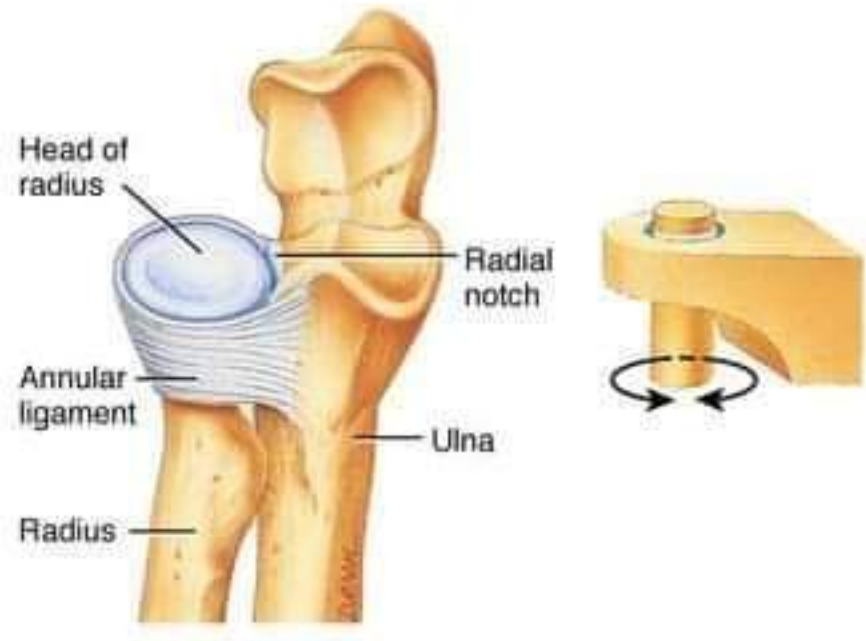
(d) Condyloid joint between radius and scaphoid and lunate bones of the carpus (wrist)



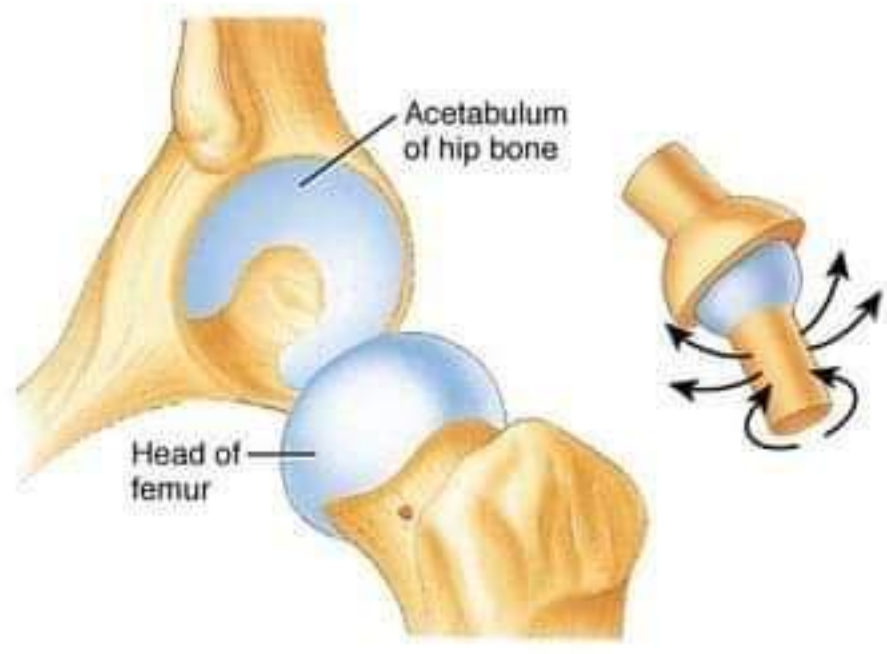
(b) Hinge joint between trochlea of humerus and trochlear notch of ulna at the elbow



(e) Saddle joint between trapezium of carpus (wrist) and metacarpal of thumb



(c) Pivot joint between head of radius and radial notch of ulna



(f) Ball-and-socket joint between head of the femur and acetabulum of the hip bone