

SNS COLLEGE OF PHYSIOTHERAPY

**Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai
Coimbatore– 641035**

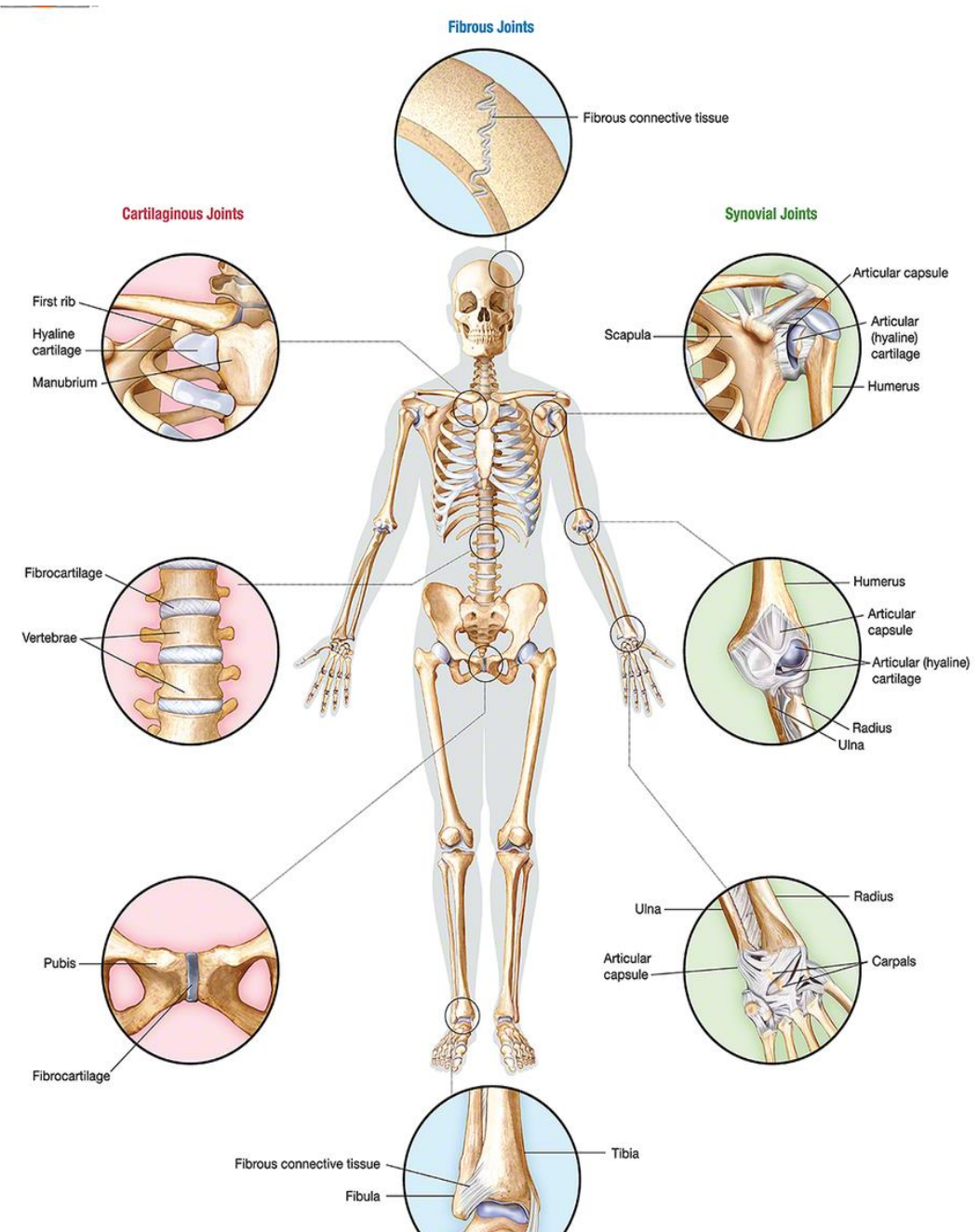
COURSE NAME: ANATOMY II

SUBJECT CODE: 6273

TOPIC: JOINTS AND ITS CLASSIFICATION

Introduction

- Arthrology = study of the joints
- Kinesiology = study of musculoskeletal movement

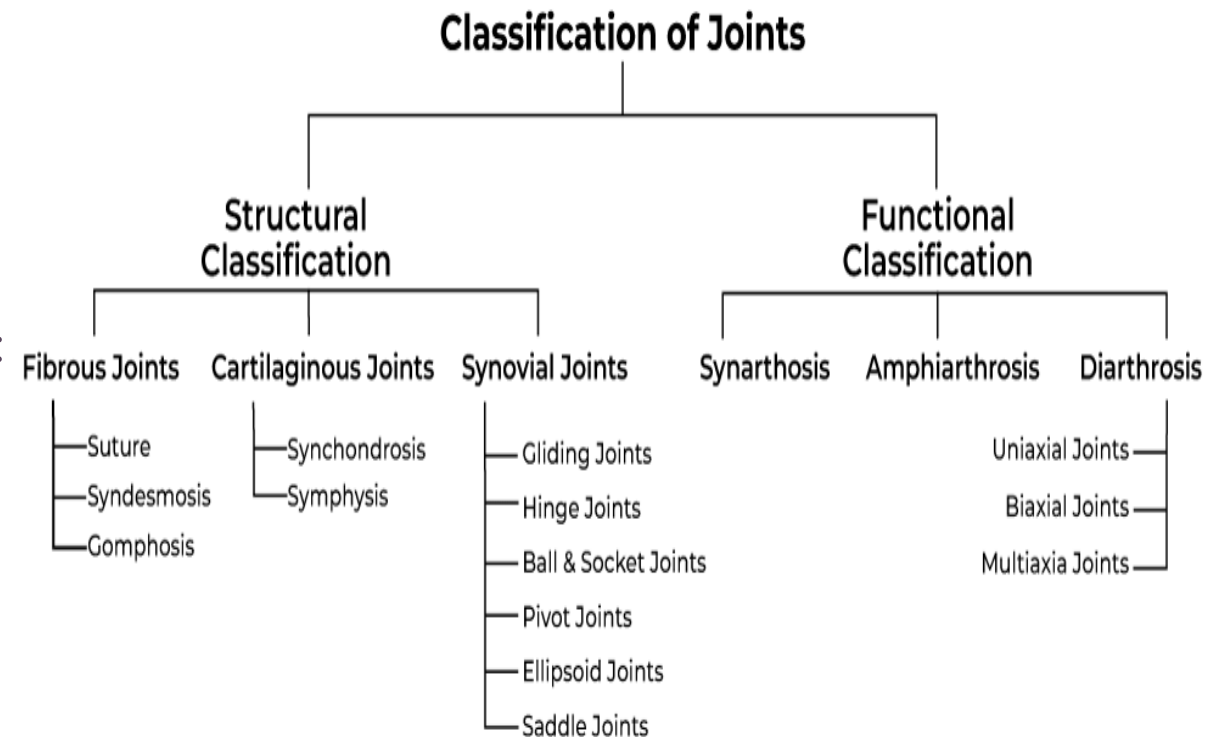


Joints

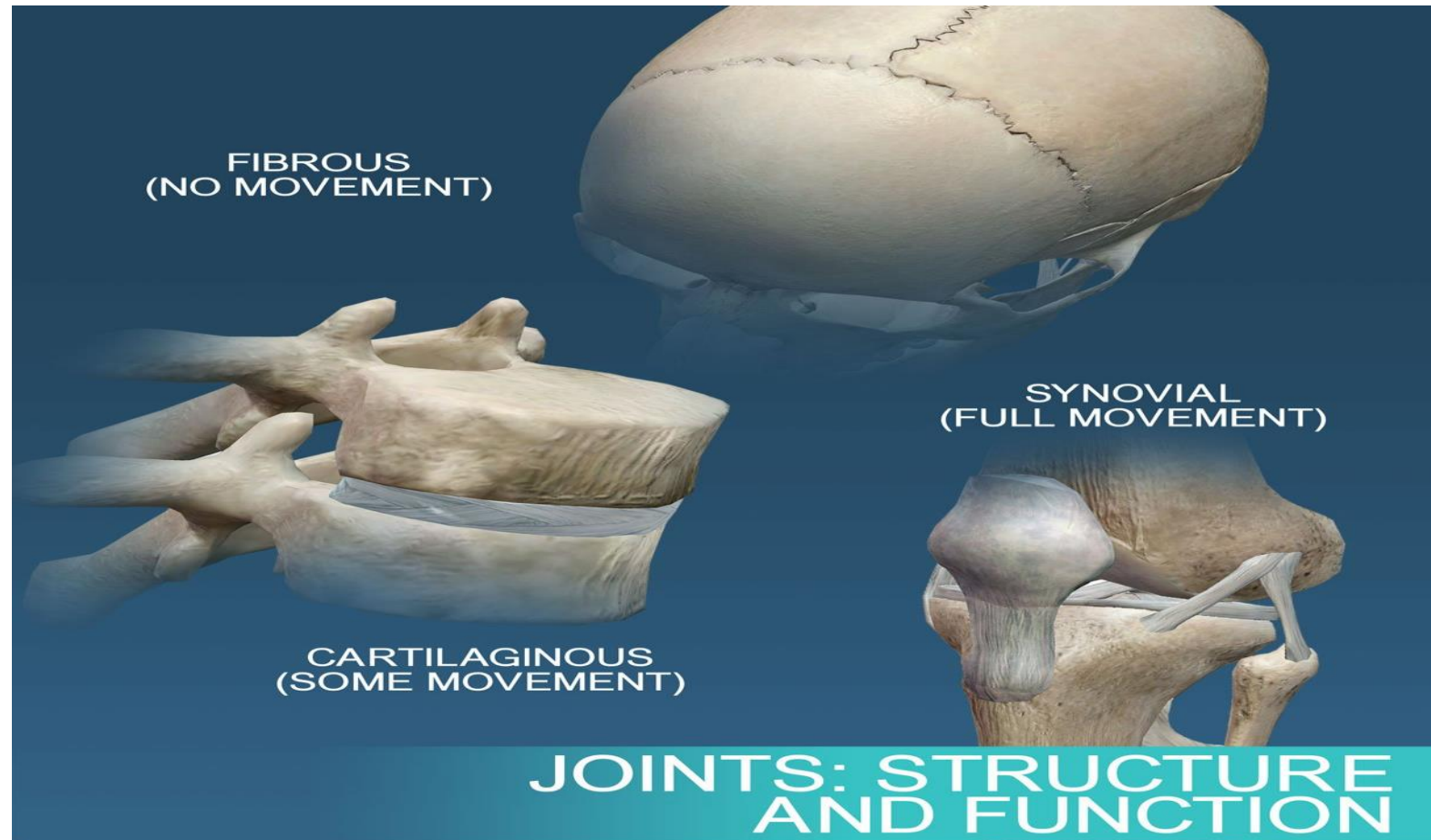
- Regions of the skeleton where two or more bones meet and articulate.
- Supported by a variety of soft tissue structures
- Prime functions : facilitate growth or to transmit forces between bones, thereby enabling movement or weight to be transferred.

Joints and its classification

- Classified by freedom of movement (functional)
- diarthrosis (freely movable)
- amphiarthrosis (slightly movable)
- synarthrosis (little or no movement)
- Classified how adjacent bones are joined (structural):
 - Fibrous
 - Cartilaginous
 - Synovial



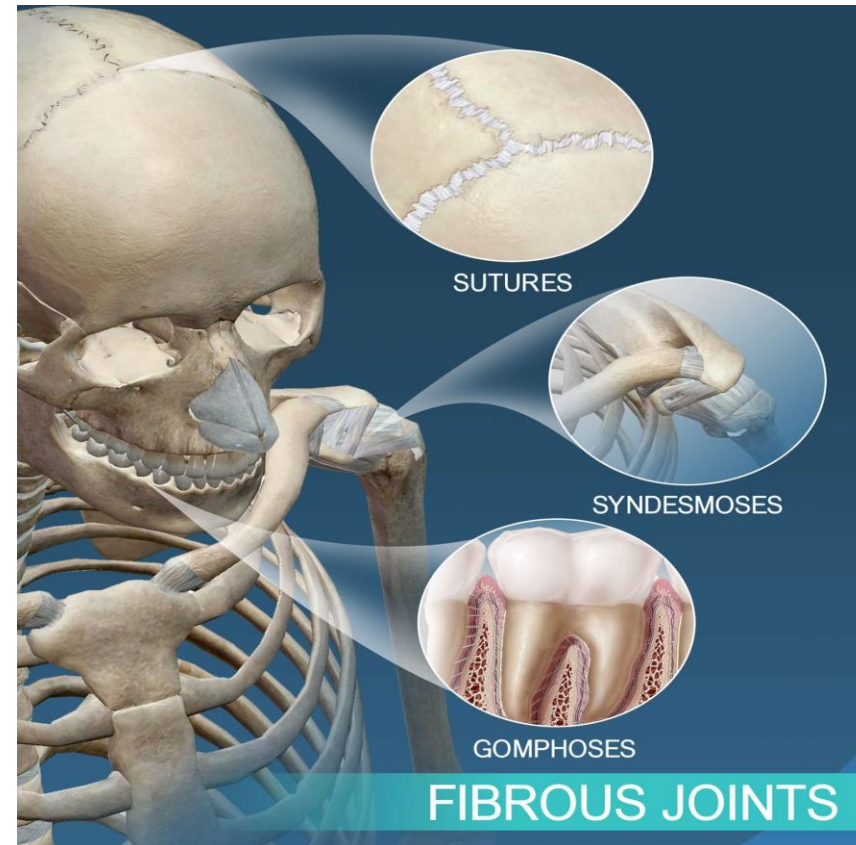
Joints and its classifications



Fibrous Joints (Synarthrosis)

The bones forming the joint are united by fibrous connective tissue. These are either immovable or permit only slight degree of movement.

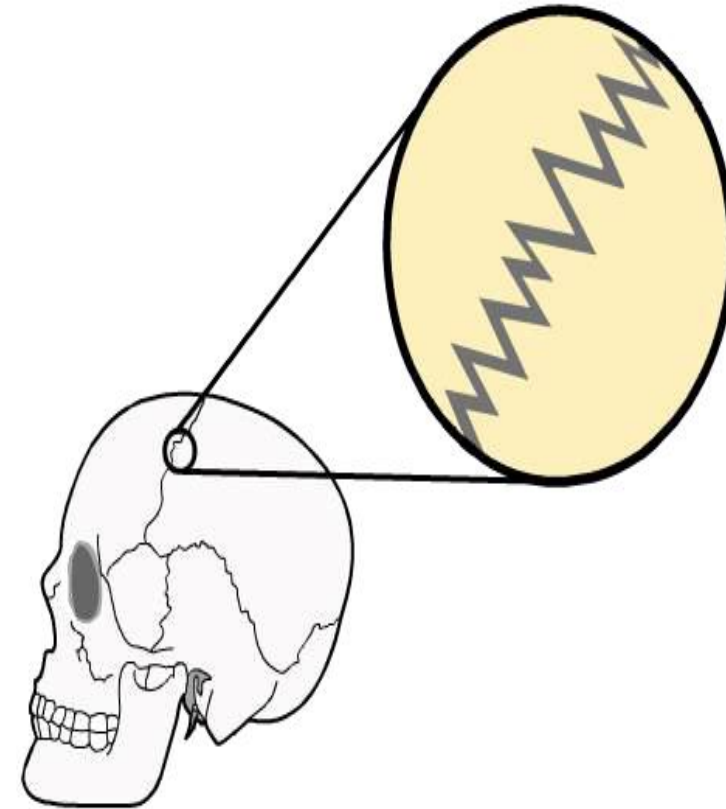
- Sutures
- Gomphoses and
- Syndesmoses



Fibrous Joints - Sutures

In a suture, the two bones are separated by a layer of membrane-derived connective tissue.

- This connective tissue decreases with age so that the osteogenic surfaces become apposed.
- On completion of growth, many sutures synostose and are obliterated.



Fibrous Joints - Syndesmosis

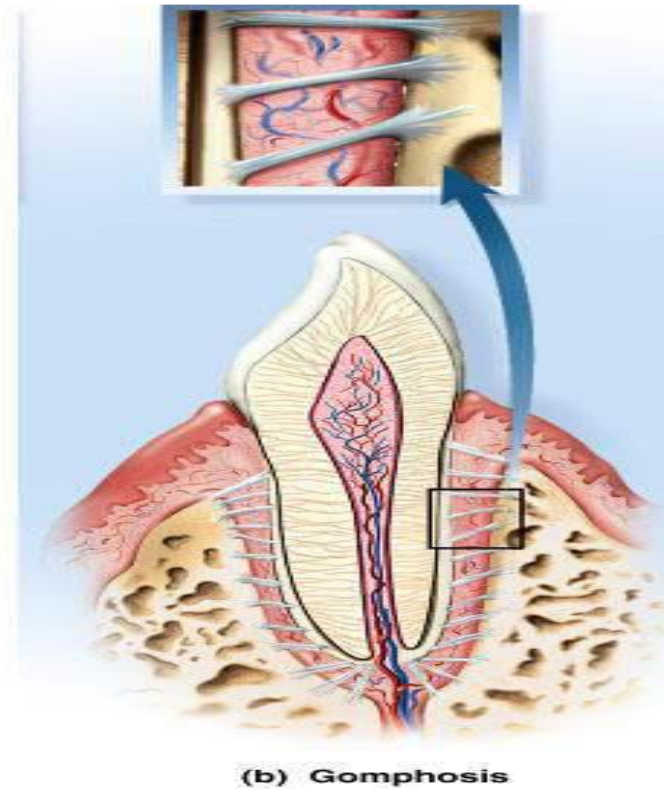
Two bones bound by
CT called the interosseus
membrane.

- Most movable of fibrous joints
- Interosseus membranes unite radius to ulna and tibia to fibula



Fibrous Joints - Gomphoses

- Attachment of a tooth to its socket
- Held in place by fibrous periodontal ligament
- Collagen fibers attach tooth to jawbone
- Some movement while chewing

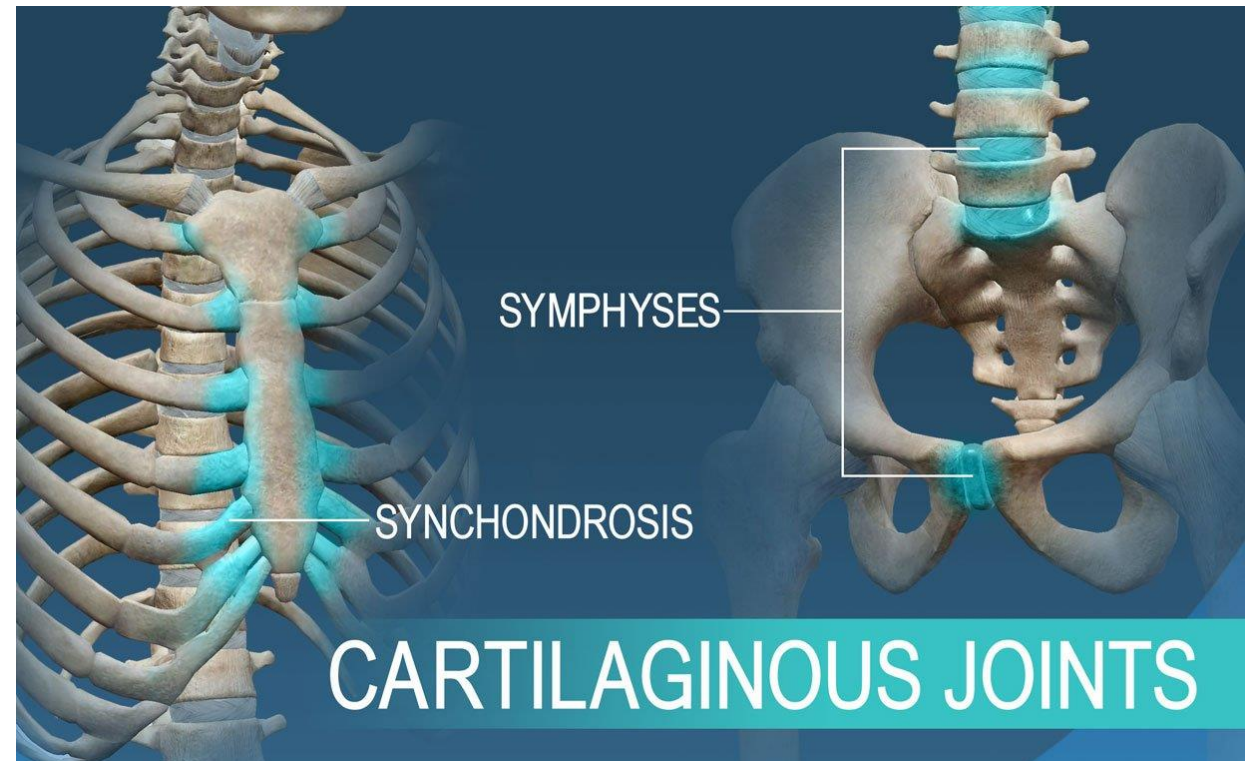


Cartilaginous joint

- Bones are held together by cartilage
- Absence of synovial cavity

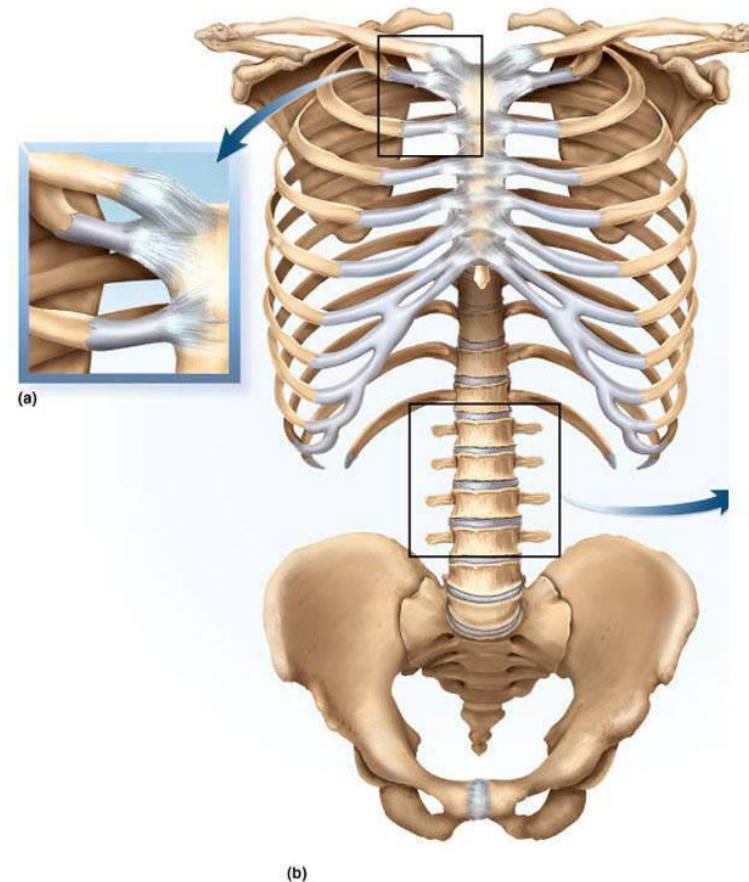
Types:

- ✓ Synchondrosis
- ✓ Symphysis



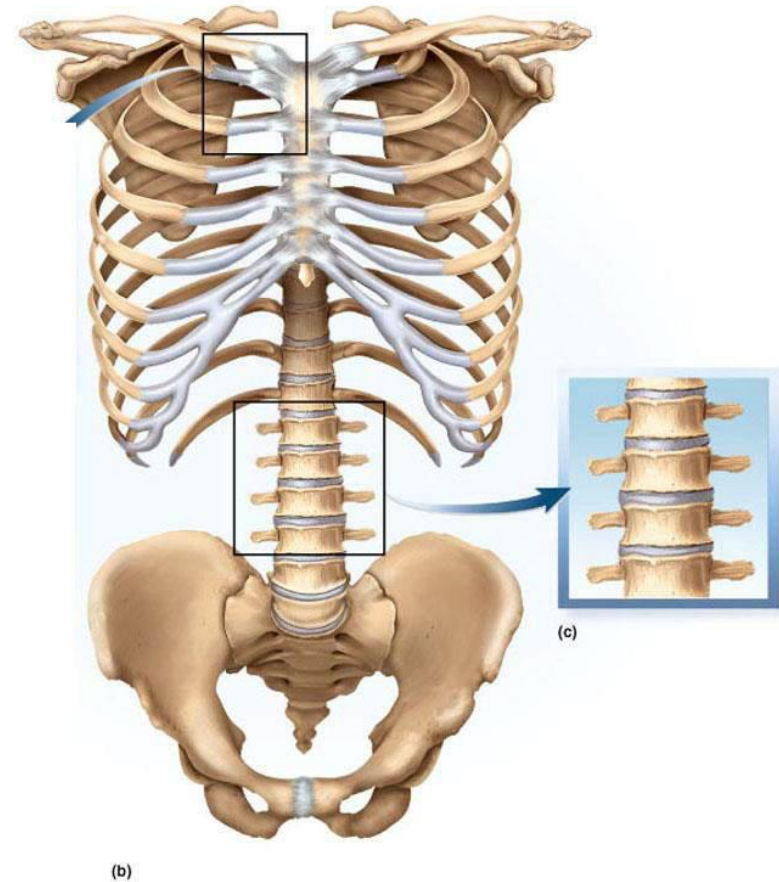
Cartilaginous Joint - (Synchondrosis)

- Bones are joined by hyaline cartilage
- 1st rib attachment to sternum
- Epiphyseal plate in children binds epiphysis and diaphysis
- Immovable



Cartilaginous Joint - (Symphysis)

- They are defined by the presence of an intervening pad or disc of fibrocartilage interposed between the articular hyaline cartilage that covers the ends of two bones
 - a) pubic symphysis and
 - b) intervertebral discs (between body of vertebra)
- Only slight amount of movement is possible

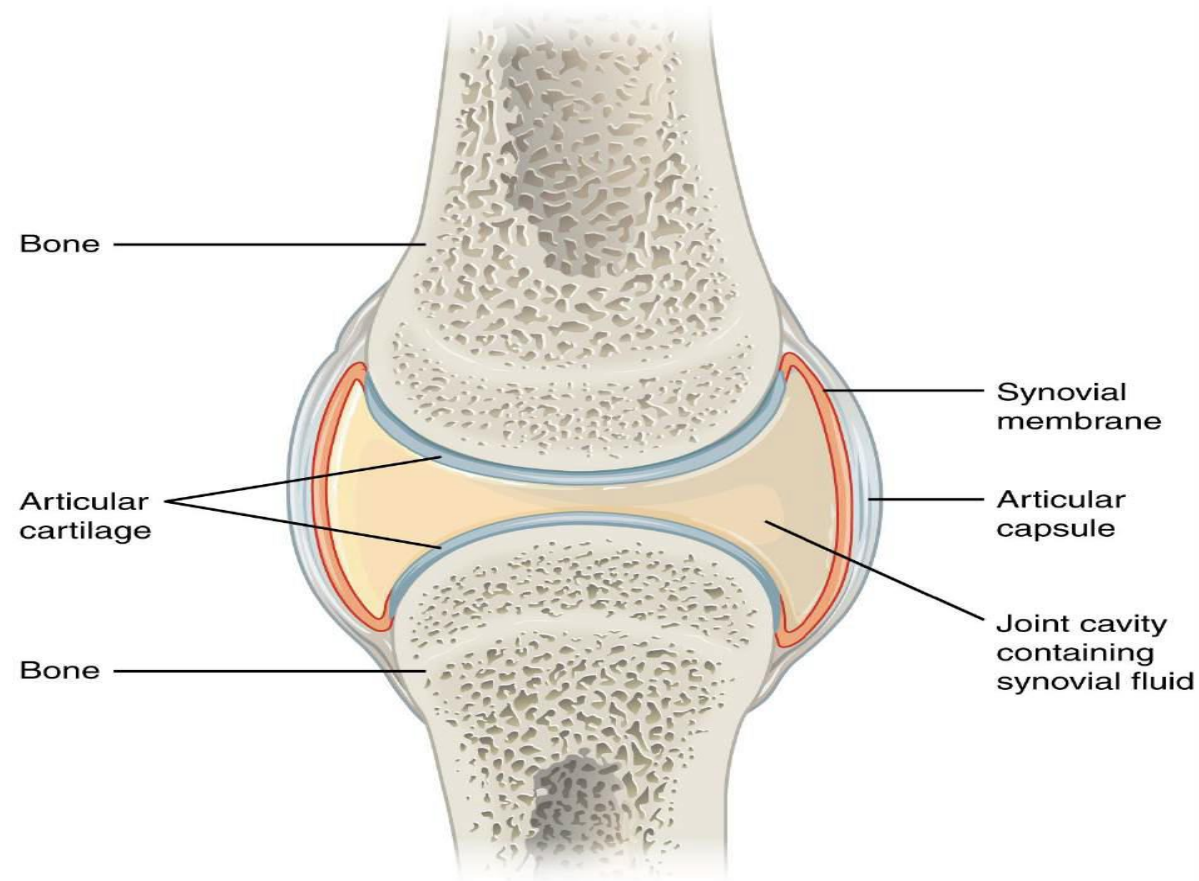


Synovial joint (Diarthrosis)

- Permit free movement
- Presence of synovial cavity
- Ends of articulating bones are covered by articular cartilage
- Joint is surrounded by fibrous capsule
- Fibrous capsule is lined by the synovial membrane

eg. Most of the joints of body

Synovial joint- structure

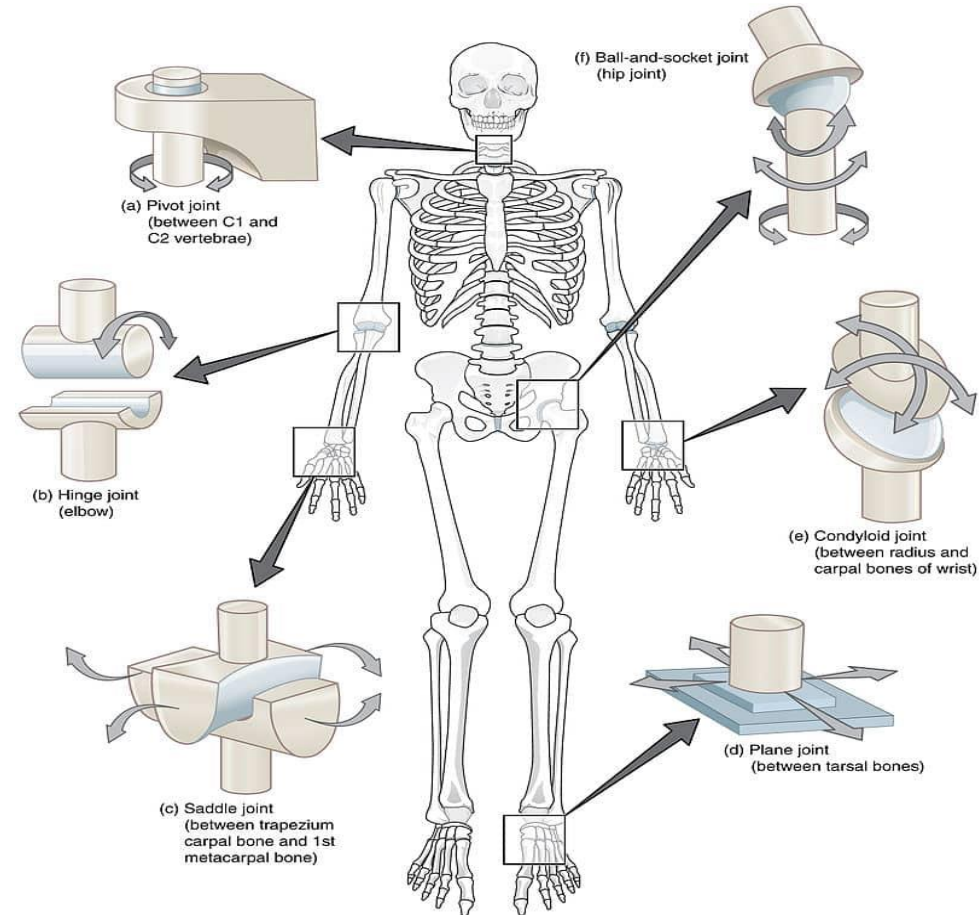


Classification of synovial joint

- Based on the shape of articulating surfaces
- According to plane/planes of movements
- According to number of articulating bones

According to shapes of articulating surfaces

- Plane Joint
- Hinge Joint
- Pivot Joint
- Condylod Joint
- Ellipsoid joint
- Saddle-shaped joint
- Ball and Socket Joint



According to the plane/ planes of movement

➤ Uniaxial: along one axis

1. Hinge joint :Movements only along transverse axis so only flexion and extension
2. Pivot joint: movement only along the vertical axis so only rotation.

➤ Biaxial: along two axis

1. Condylar joint
2. Ellipsoid joint
3. Saddle joint

According to the plane/ planes of movement

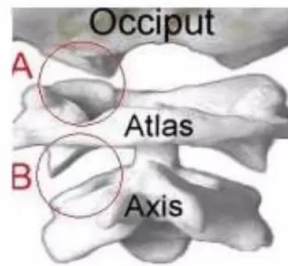
➤ Multiaxial: along many axis

Eg. Ball and socket

Movements occur in three planes or axis. So
all kind of movements possible.



Uniaxial



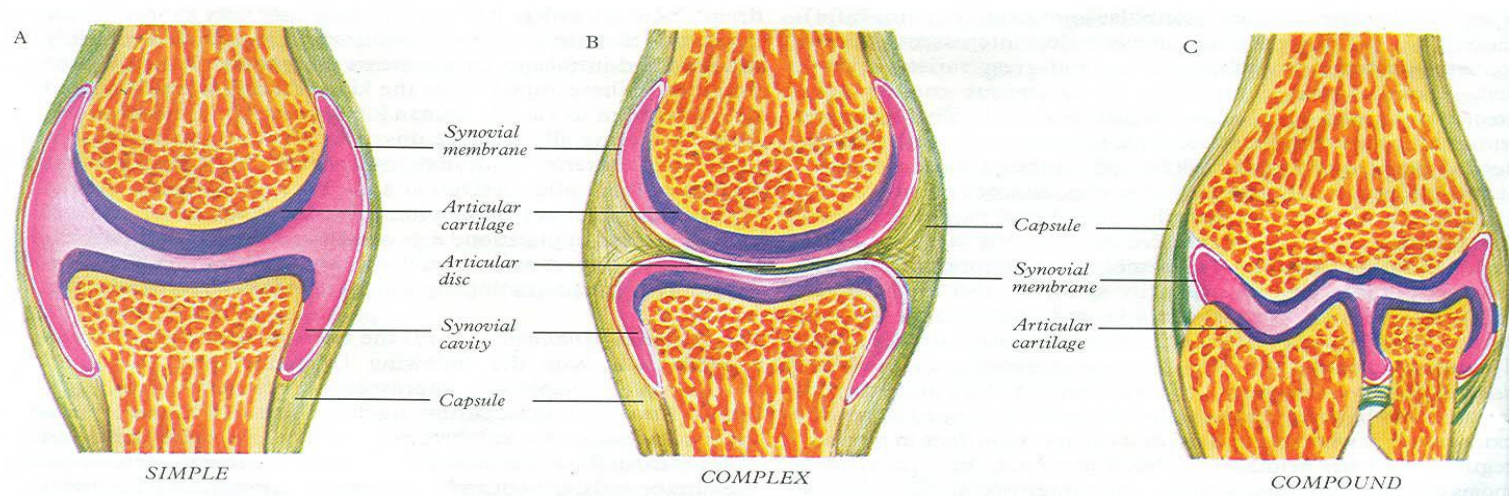
Biaxial



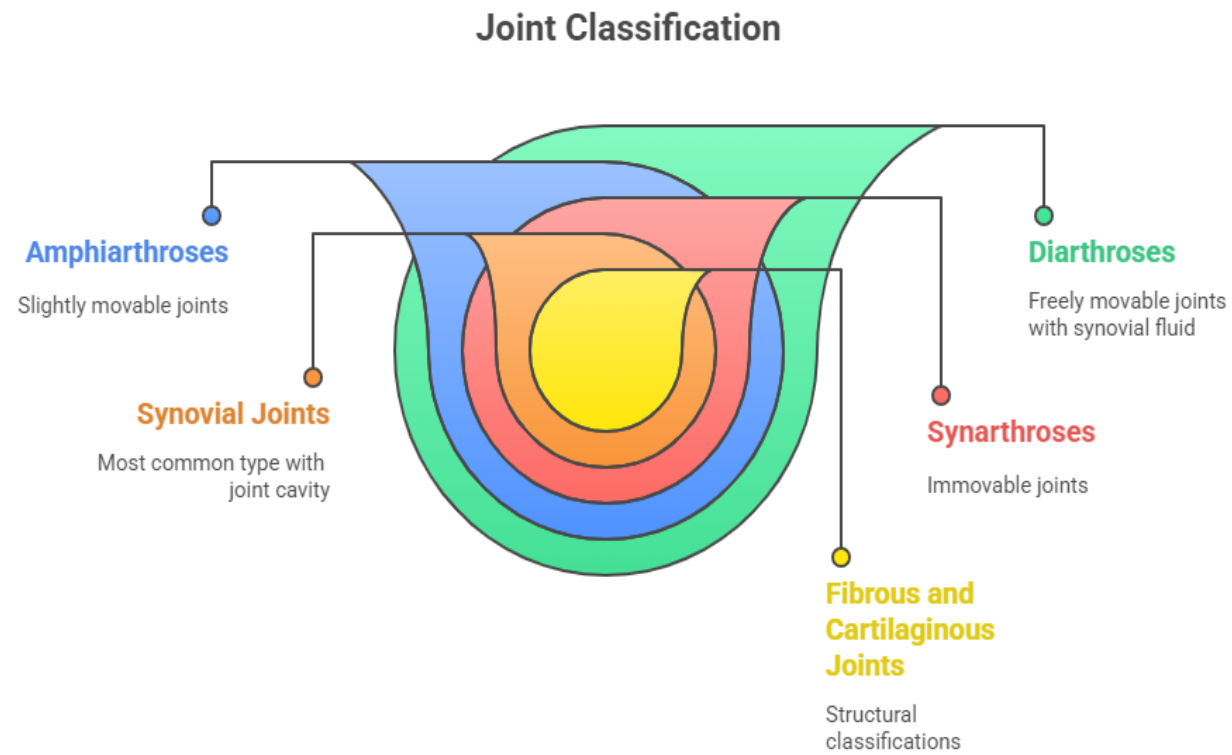
Multiaxial

According to the number of articulating bones

- Simple joint : only two bones form the joint e.g. joints of fingers and toes
- Compound joint : more then two bones form the joint e.g. tibia fibula talus in ankle
- Complex joint: joint cavity is divided into two compartment e.g. Knee joint



Summary



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In class assessment

1. Which of the following is a fibrous joint?
 - A. Shoulder joint
 - B. Skull sutures
 - C. Pubic symphysis
 - D. Hip joint
2. A joint that allows free movement in many directions is classified as:
 - A. Cartilaginous
 - B. Fibrous
 - C. Synovial
 - D. Gomphosis

In class assessment

3.The epiphyseal plate (growth plate) is an example of which type of joint?

- A. Synchronosis
- B. Symphysis
- C. Hinge
- D. Ball-and-socket

4. Which synovial joint permits rotation only?

- A. Pivot joint
- B. Hinge joint
- C. Condylloid joint
- D. Saddle joint

In class assessment

5. The pubic symphysis is an example of a:

- A. Synovial joint
- B. Synchondrosis
- C. Symphysis
- D. Syndesmosis

Thank you

