

JOINTS



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- **Joint** is a point of connection between two bones
- **Arthrology** is the study of the joints
- **Kinesiology** is the study of musculoskeletal movement



Joint Functions

1. Hold the skeletal bones together
2. Allow the skeleton some flexibility so gross movement can occur
3. Make bone growth possible

Classifications of joints

- ☐ Functional classification
- ☐ Structural classification



Functional classification

- ☐ **Diarthrosis (freely movable)**
- ☐ **Amphiarthrosis (slightly movable)**
- ☐ **Synarthrosis (little or no movement)**



Structural classification

- ☐ Fibrous
- ☐ Cartilaginous
- ☐ Synovial joints



Fibrous, Cartilaginous & Synovial Joints

- **Fibrous joints** have collagen fibers spanning the space between bones
- Allow no movement
- E.g. Sutures, Gomphoses & Syndesmoses
- **Cartilaginous joints** have 2 bones bound to each other by cartilage
- Allow slight movement
 - ⊠ E.g. Synchondroses or Symphyses
- Synovial joints**
- Joint in which two bones are separated by a space called a joint cavity
- Allow large range of movements



Fibrous joints

- Fibrous joints have collagen fibers spanning the space between bones
 - ☒ Sutures
 - ☒ Gomphoses
 - ☒ Syndesmoses

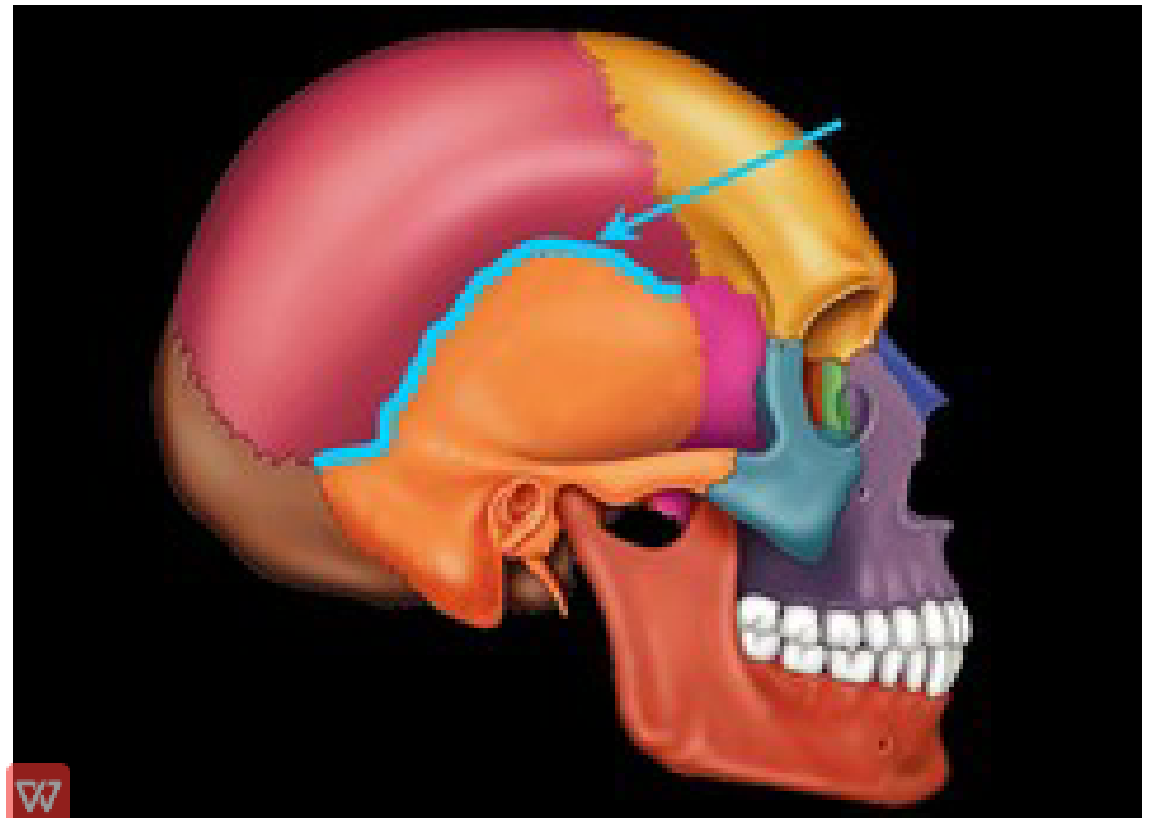


Fibrous Joint -- Sutures

- Immovable fibrous joints that bind the bones of the skull to each other
- **Serrate sutures** appear as interlocking wavy lines
 - ⊠ coronal, sagittal & lambdoid sutures



- **Squamous sutures** are 2 bones with overlapping edges
 - ⊠ temporal & parietal bones

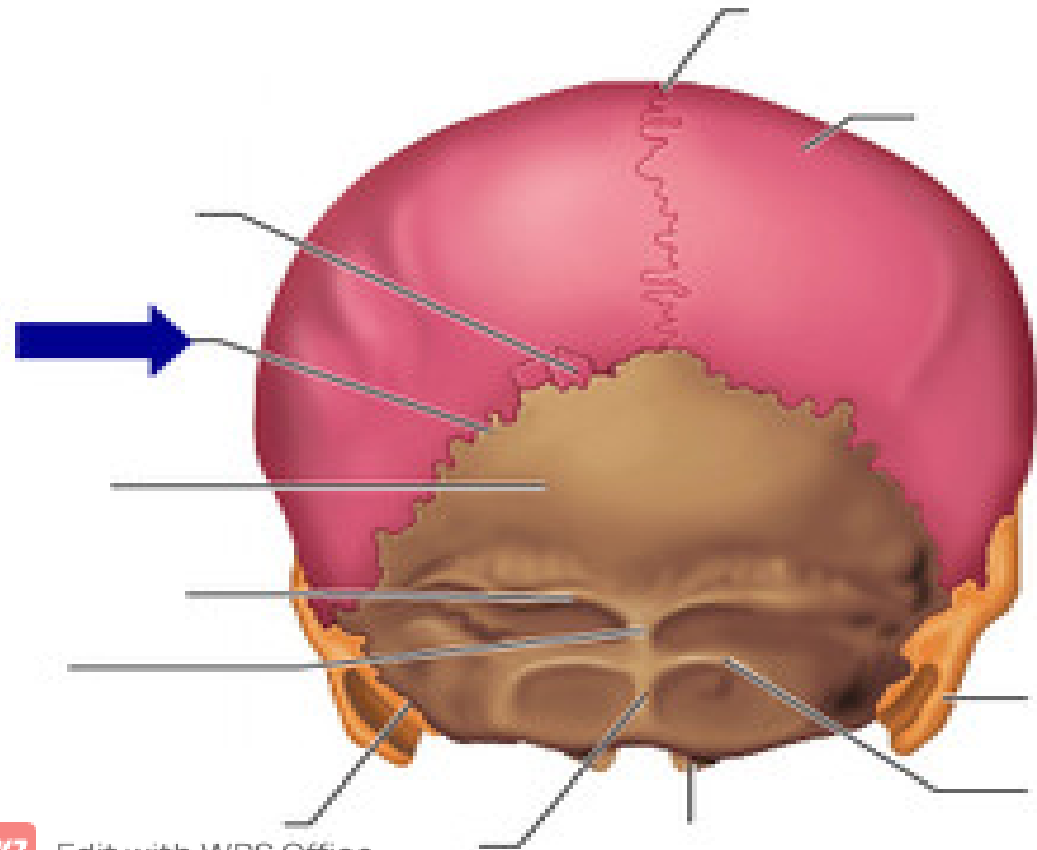


- **Plane sutures have straight, non overlapping edges**
 - ⊠ **palatine processes of the maxillae**



Denticulate sutures

- ☒ Margin of bones interlock with each other like teeth of saw

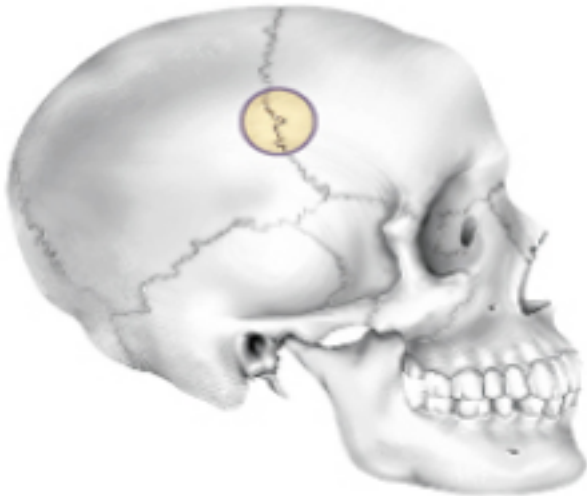


Schindylesis suture

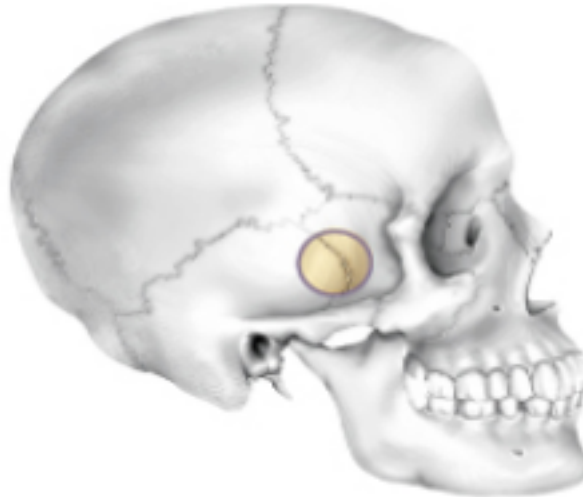
- ☒ **Ridge of one bone fits into grove of other bone**



Types of suture



Serrate suture



Lap suture



Plane suture

Bone



Wood



Dovetail joint

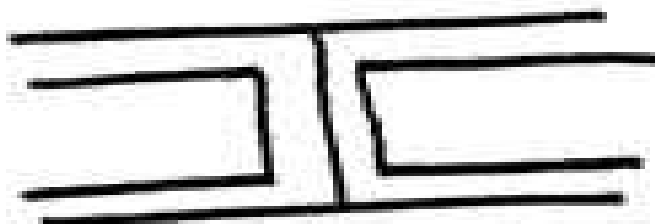


Miter joint

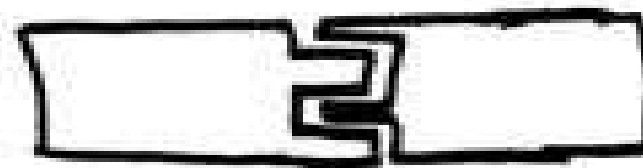


Butt joint

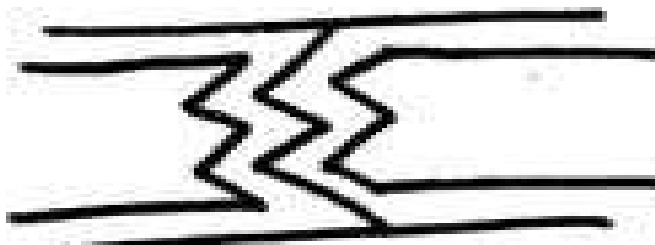




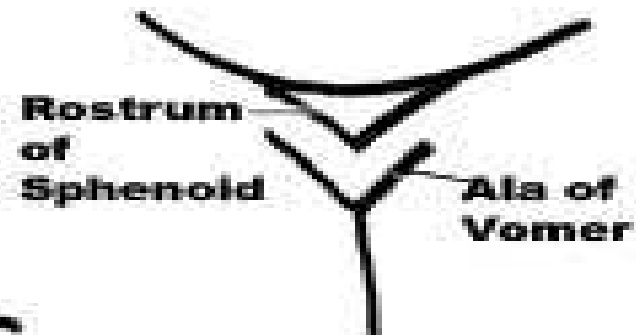
Plane Suture



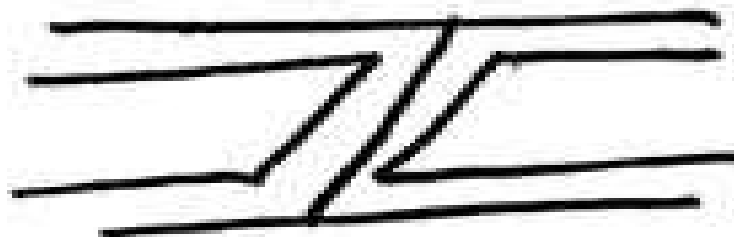
Denticulate Suture



Serrate suture



Schindylesis



Squamous suture

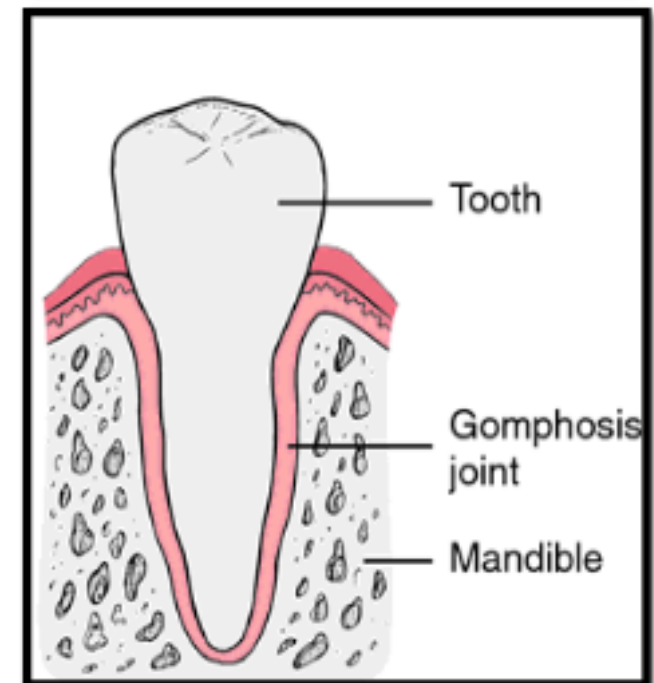
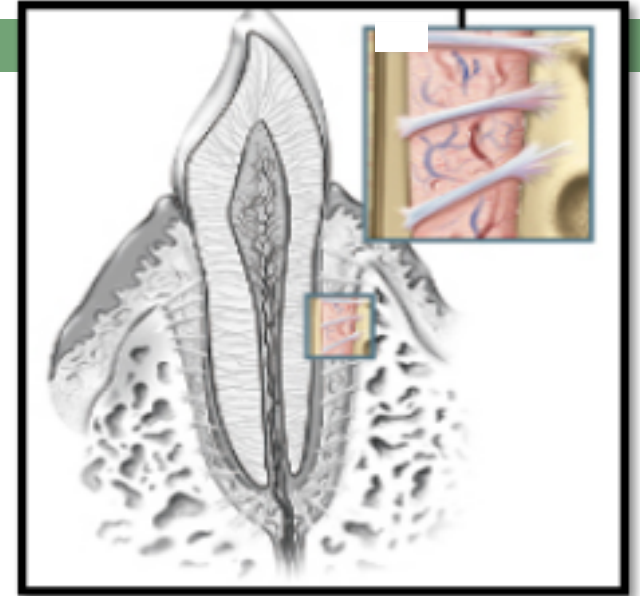
Fibrous Joint -- Syndesmoses

- Joint in which two bones are bound by
- a ligament only (interosseus membrane)
- Most movable of fibrous joints
- Interosseus membranes unite radius to ulna and tibia to fibula



Fibrous Joint -- Gomphoses

- Attachment of a tooth to its socket is a joint called a gomphoses
- Tooth held in place by fibrous periodontal ligament
 - ⊠ collagen fibers that extend from bone of jaw to tooth
- Allows tooth to move a little
- while chewing



Cartilaginous Joint --(Synostoses)

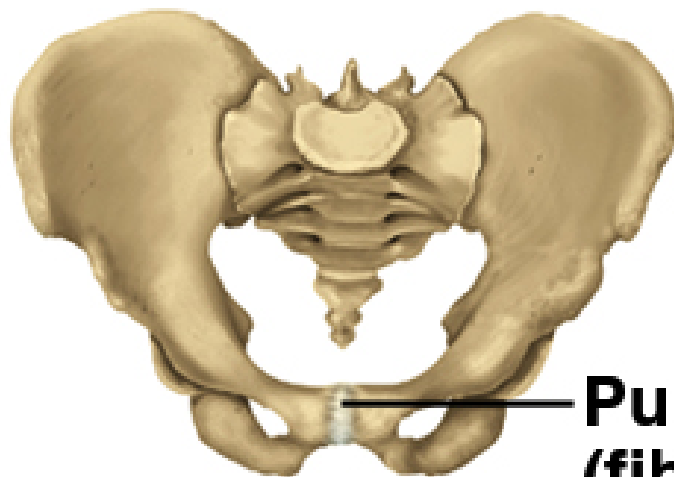
Primary cartilaginous joints

- ☐ 2 bones, once separate, fused by osseous tissue
- ☐ Ossification occurs with age
 - ☒ left and right mandible present at birth
 - ☒ left and right frontal bones present at birth
- ☐ Bones covered with hyalin cartilage
- ☐ Immoveable



Cartilaginous Joint -- Symphyses

- Secondary cartilaginous joints
- 2 bones joined by fibrocartilage
 - ⊠ pubic symphysis and intervertebral discs
- Only slight amount of movement is possible



**Pubic symphysis
(fibrocartilage)**

**Intervertebral disc
(fibrocartilage)**

Body of vertebra

