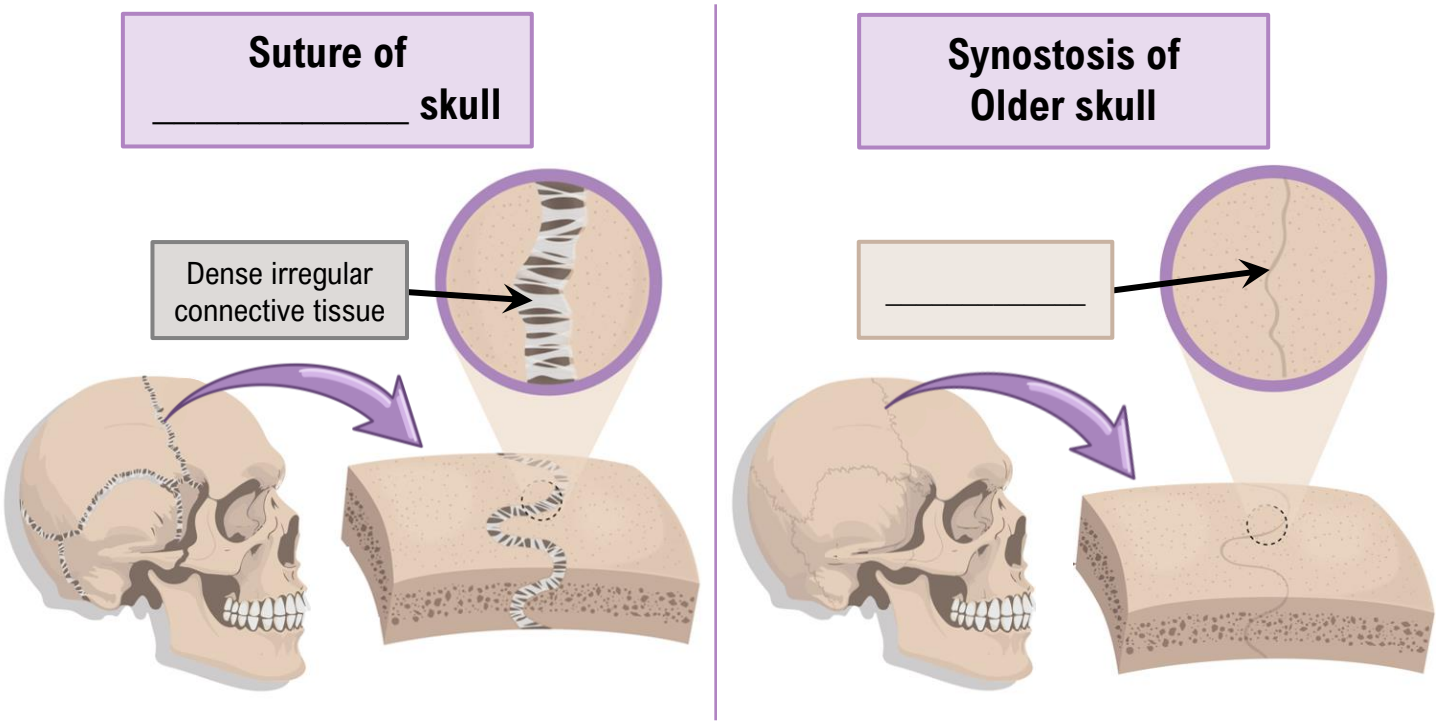
TOPIC: STRUCTURAL CLASS: FIBROUS JOINTS

- **Fibrous Joints:** skeletal elements bound by _____ *fibers* of dense connective tissue.
  - Structurally _____ BUT have _____ movement (always S or A).
- _____ types of fibrous joints: **1) Sutures** **2) Gomphoses** **3) Syndesmoses**

1) Sutures

- **Sutures**: fibrous joints of dense *irregular* connective tissue found only joining bones of the _____.
  - Provides structural _____ to the skull BUT allows _____ movement (always S).
  - Wavy, irregular, interlocking edges can add _____.
- Sutures allow skull _____ as brain grows during *youth*, but tissue *ossifies* (forms bone) in adults.
  - Ossification _____ suture bones into a *single* bone forming a **synostosis** or bony joint ("Ost-" = Bone).



EXAMPLE: Use the words in the word-bank to fill in the blanks and complete the sentences:

Word-Bank:	Ossify	Immovable	Skull	Protect

Sutures allow for the _____ to expand in youth as they do not completely _____ and fuse cranial bones together until brain development and growth are completely finished. Their primary function is to _____ the brain. They are able to do this because they are completely _____ joints.

TOPIC: STRUCTURAL CLASS: FIBROUS JOINTS

PRACTICE: Imagine you're a doctor, and an elderly patient comes to you with a medical condition that is causing their fibrous connective tissue to become weak. What affect would this have on the sutures in their skull?

a) Sutures are made of fibrous connective tissue, so their sutures would loosen and become fragile.

b) There is never fibrous connective tissue in sutures so it wouldn't have an effect.

c) At this patient's age their sutures will have ossified; therefore, this condition won't affect their sutures.

PRACTICE: In a baby, the bones of the skull are joined by fibrous connective tissue. Over time, these bones fuse together to form ossified immovable joints. How would you classify these joints?

a) Amphiarthroses in a young skull, synarthroses in an older skull.

b) Fibrous joints in a young skull, synostoses in an older skull.

c) Cartilaginous joints in a young skull, synostoses in an older skull.

d) Fibrous joints throughout life.

PRACTICE: Which of the following scenarios is most concerning for a pediatric patient?

a) The epiphyseal plate in their femur is not fully ossified.

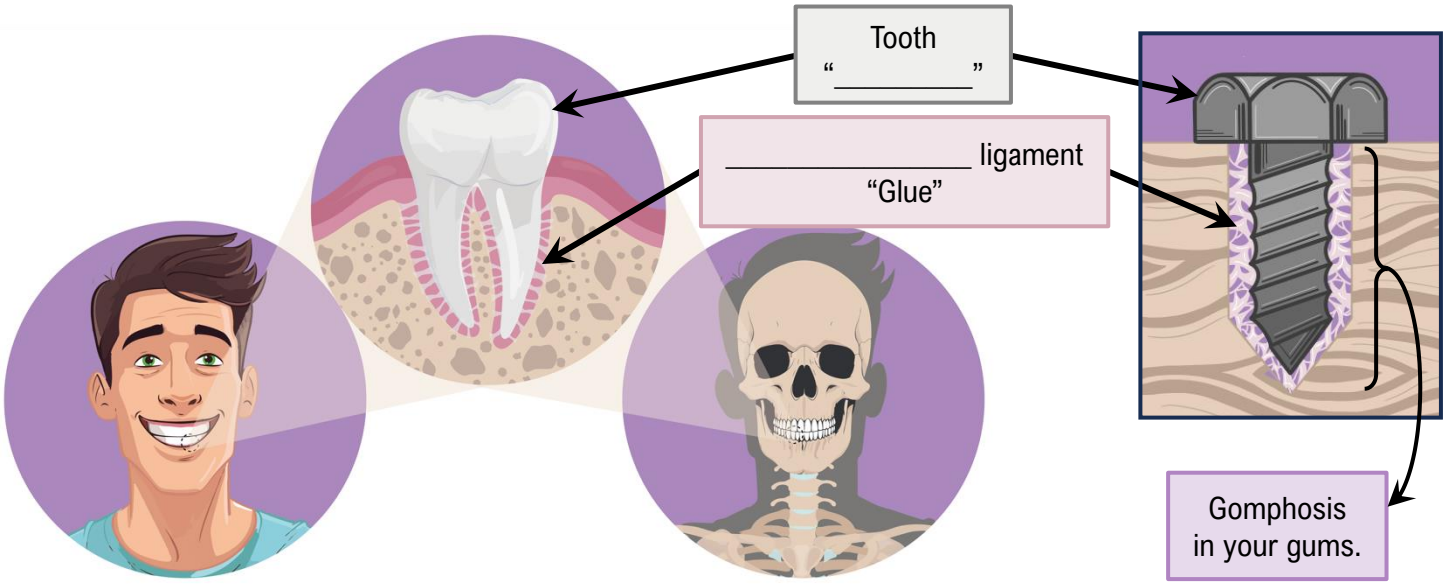
b) Their sutures are ossified.

c) Their sutures are not fully closed.

TOPIC: STRUCTURAL CLASS: FIBROUS JOINTS

2) Gomphosis (Pleural: Gomphoses)

- **Gomphoses**: fibrous joints found only "bolting" _____ to their bony sockets in our gums (*Gompho* = Bolt).
  - Structurally _____ (anchors to jawbone) BUT allows _____ movement, except if chewing (always S).
  - **Periodontal Ligament**: dense *irregular* connective tissue that "glues" teeth firmly to their bony socket.
    - In youth, the periodontal ligament deteriorates to allow deciduous teeth (baby teeth) to fall out.



EXAMPLE: Which of the following statements about the development of sutures and gomphoses is true?

a) They both start off rigid at birth and remain that way throughout life.

b) They both start off less developed at birth and continuously become more rigid throughout life.

c) Gomphoses, unlike sutures, break down completely during youth (to allow for shedding of baby teeth).

d) Sutures, unlike gomphoses, become weak and unstable in old age.

PRACTICE: In gomphoses, bones are connected to teeth via which of the following structures?

a) Tendons.

b) Periodontal ligament.

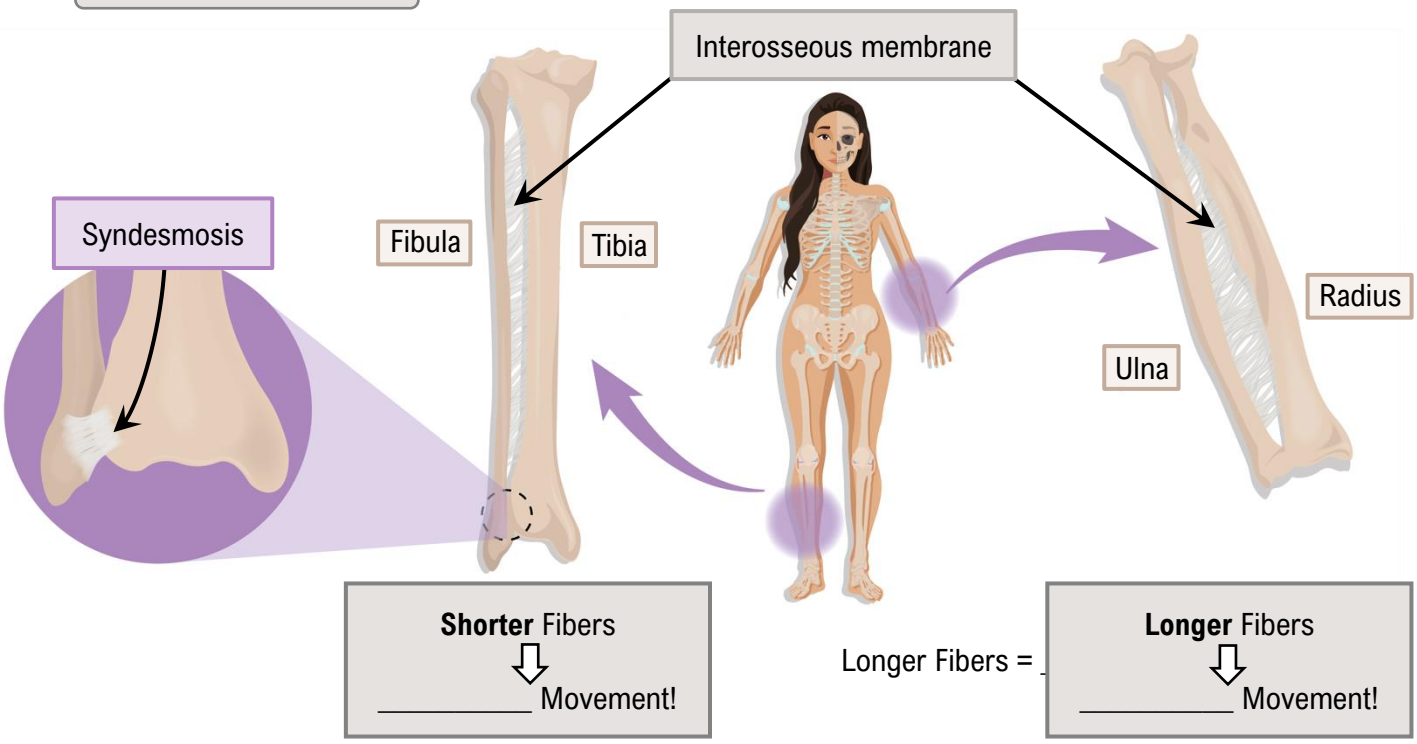
c) Loose connective tissue.

d) Osseous membrane.

TOPIC: STRUCTURAL CLASS: FIBROUS JOINTS

3) Syndesmosis (Pleural: Syndesmoses)

- **Syndesmoses:** fibrous joints connecting bones via _____ made of dense *irregular* connective tissue.
  - *Greater* bone separation & *longer* fibers allow _____ mobility than sutures or gomphoses (always A) .
  - **Interosseous Membranes:** _____ sheets of dense connective tissue between certain bones.



EXAMPLE: Which of the following statements is false?

a) Syndesmoses are unique in that they are the only fibrous joint that are amphiarthroses.

b) Syndesmoses are composed of loose connective tissue to allow for free movement.

c) Syndesmoses are the only type of fibrous joint that can be found in the appendicular skeleton.

d) The connecting fibers of syndesmoses are generally longer than those in sutures.

PRACTICE: Fibrous joints are all functionally classified as synarthroses because they don't allow for movement.

a) True b) False

PRACTICE: How does the length of ligaments in syndesmoses affect the joint?

a) The longer the ligaments are, the more movable the joint.

b) The shorter the ligaments are, the more movable the joint.

c) The length of ligaments has no effect on the joint.