

وسهلا

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# الأستاذ الدكتور يوسف حسين

أستاذ التشريح وعلم الأجنة - كلية الطب - جامعة الزقازيق - مصر

رئيس قسم التشريح و الأنسجة و الأجنة - كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

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# Muscles of mastication

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# Muscles of mastication

- **General rules :**

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They include **4 muscles:**

1) Masseter.

2) Temporalis

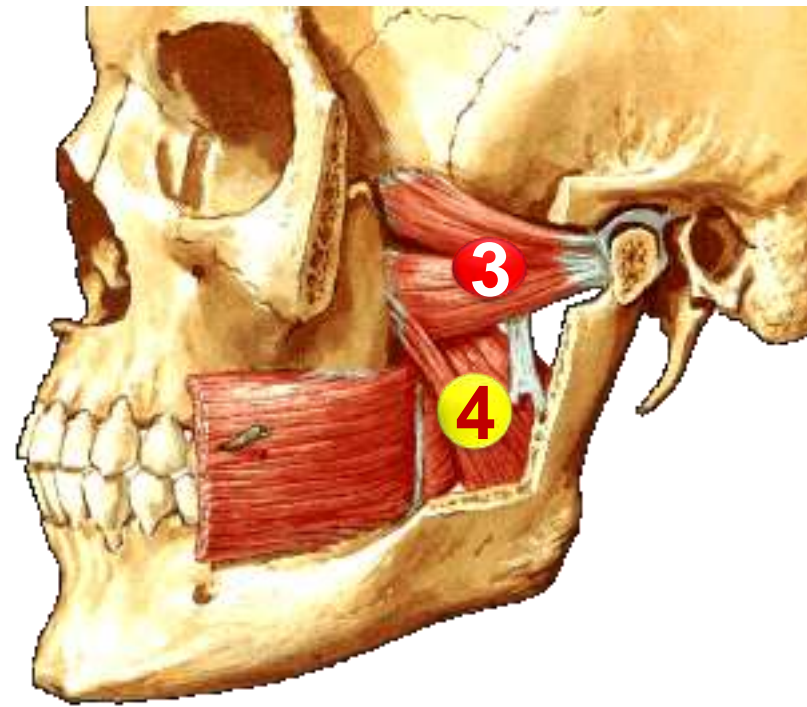
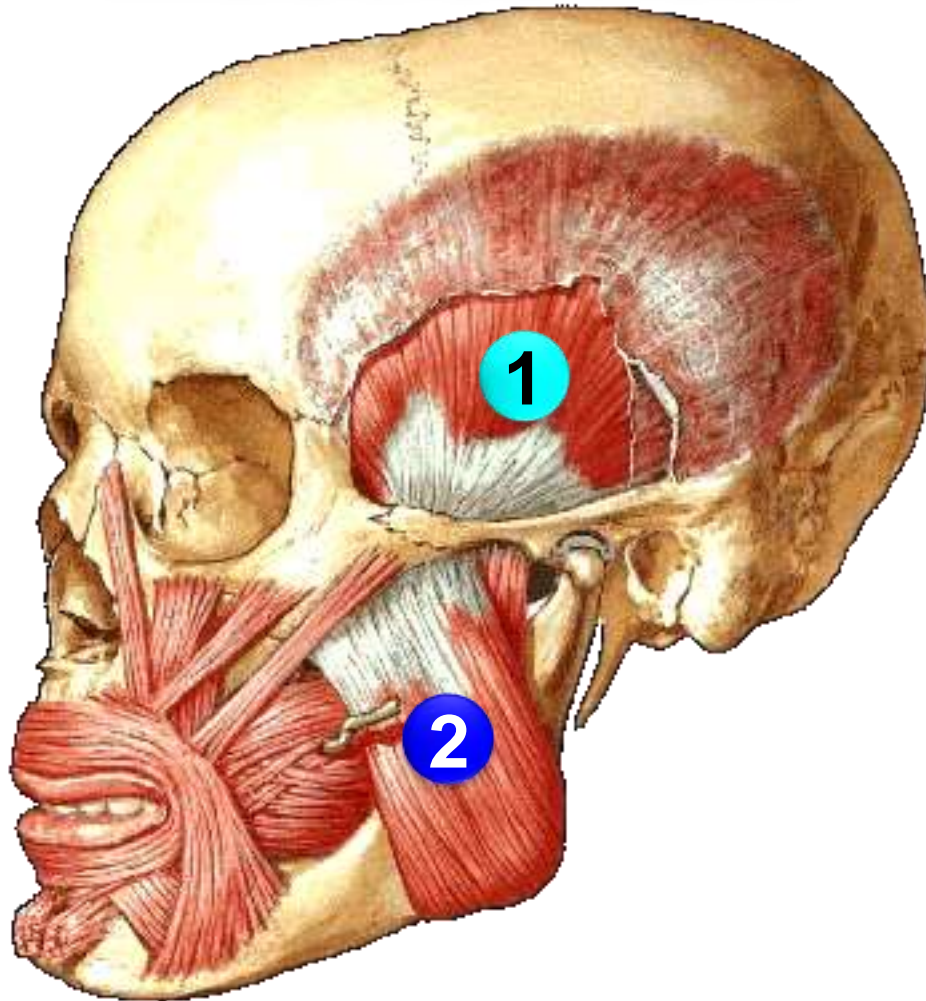
3) Lateral pterygoid.

4) Medial pterygoid.

- **Origin:** they arise from the temporal and infratemporal fossa.
- **Insertion:** they are inserted into the ramus of the mandible.
- **Nerve supply:** they are supplied by the mandibular nerve.
- **Development,** they developed from the 1<sup>st</sup> pharyngeal arch.

# Muscles of Mastication

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1. Temporalis
2. Masseter
3. Lateral Pterygoid
4. Medial pterygoid

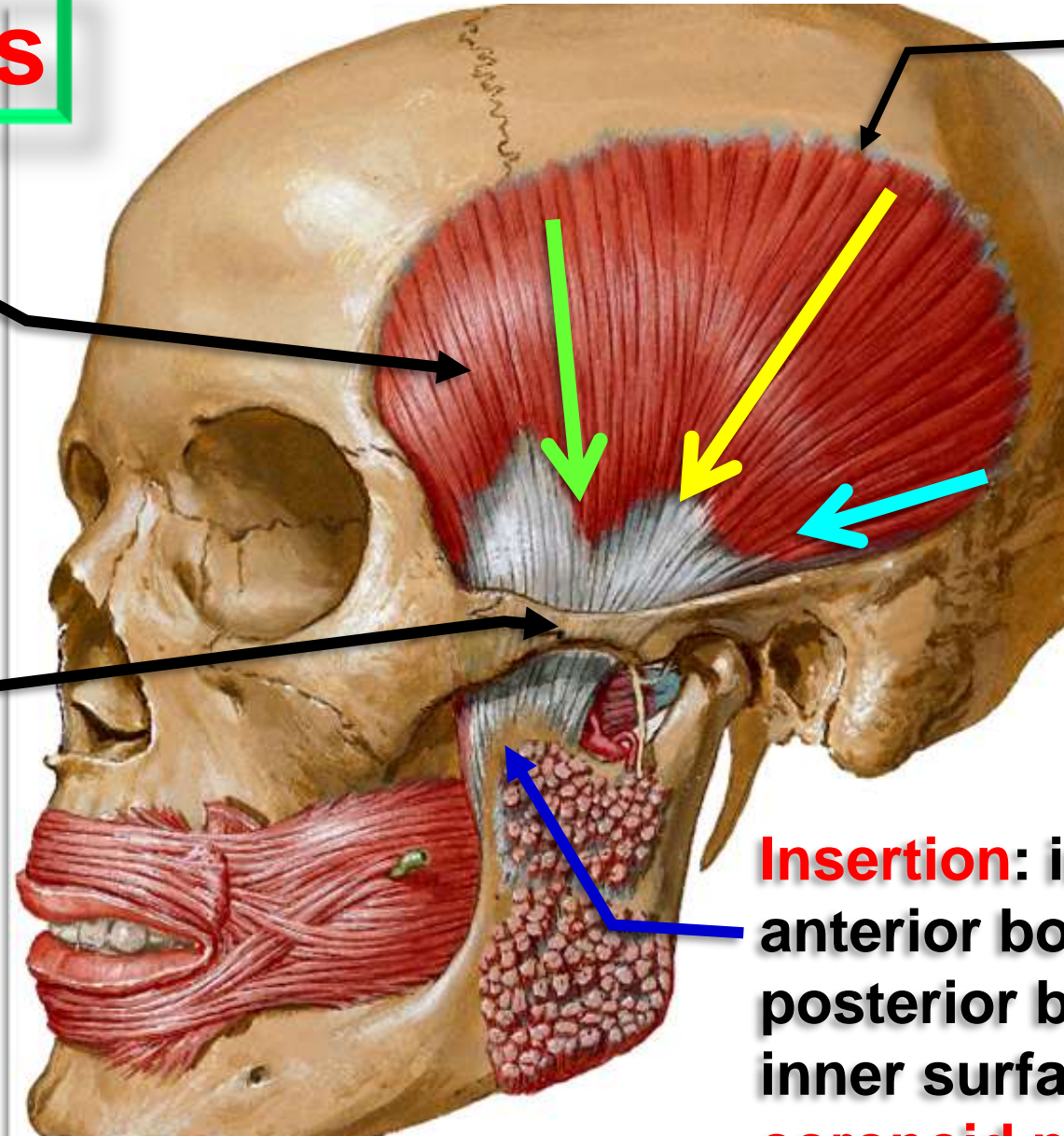
# Temporalis

**Origin** From Temporal fossa and temporal fascia

**Zygomatic arch.**

**Fan shaped muscle**

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**Origin From Inferior temporal line**

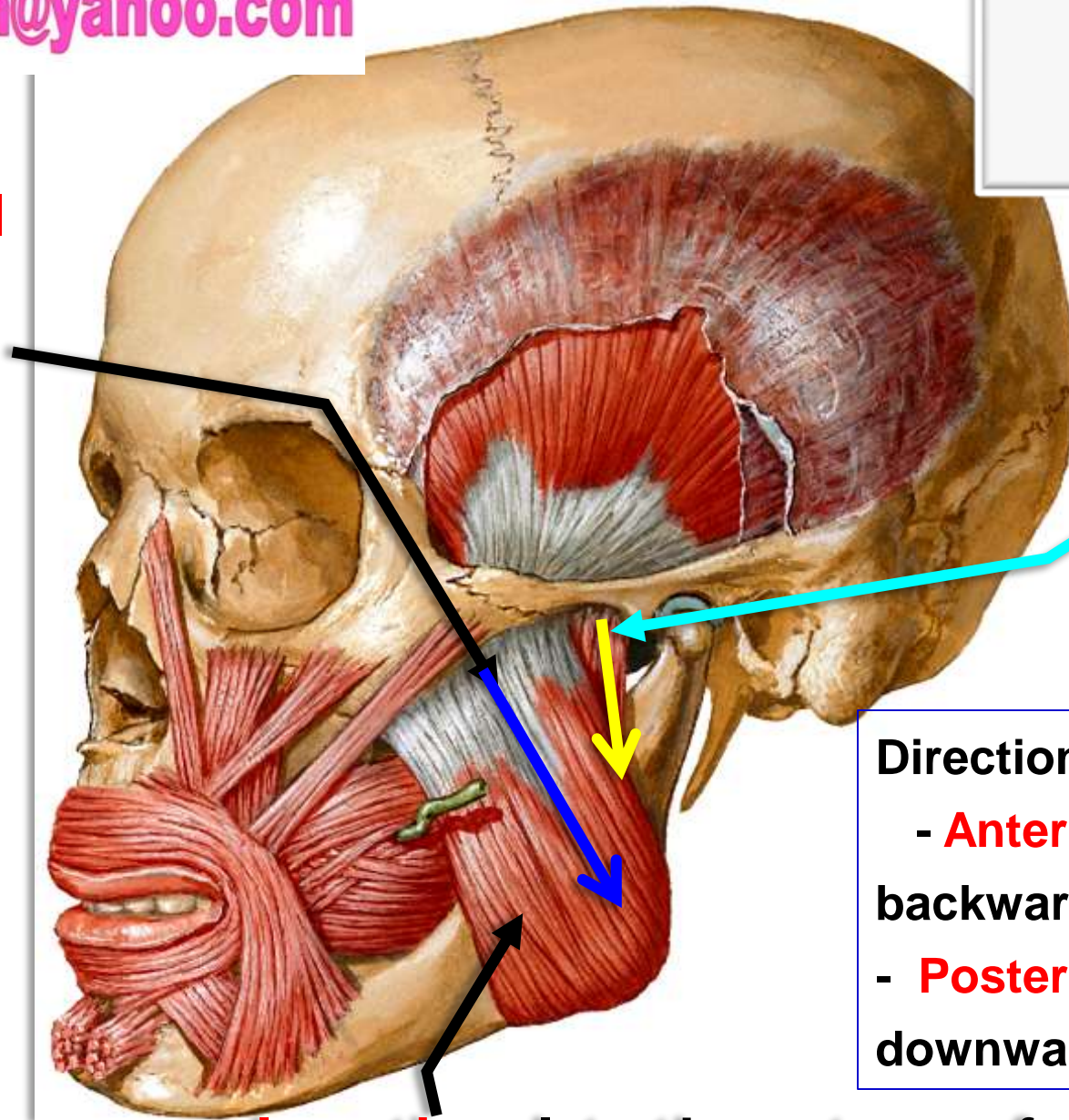
- **Direction of fibres;**
  - **Anterior** fibers are vertical downward.
  - **Posterior** fibers are downward and forward.
  - The **most posterior** horizontally forward.

**Insertion:** into the tip, anterior border and posterior border and inner surface of the **coronoid process.**

# Masseter muscle

**Origin:** Superficial fibers from lower border zygomatic arch

**Origin:** Deep fibers from deep surface of zygomatic arch

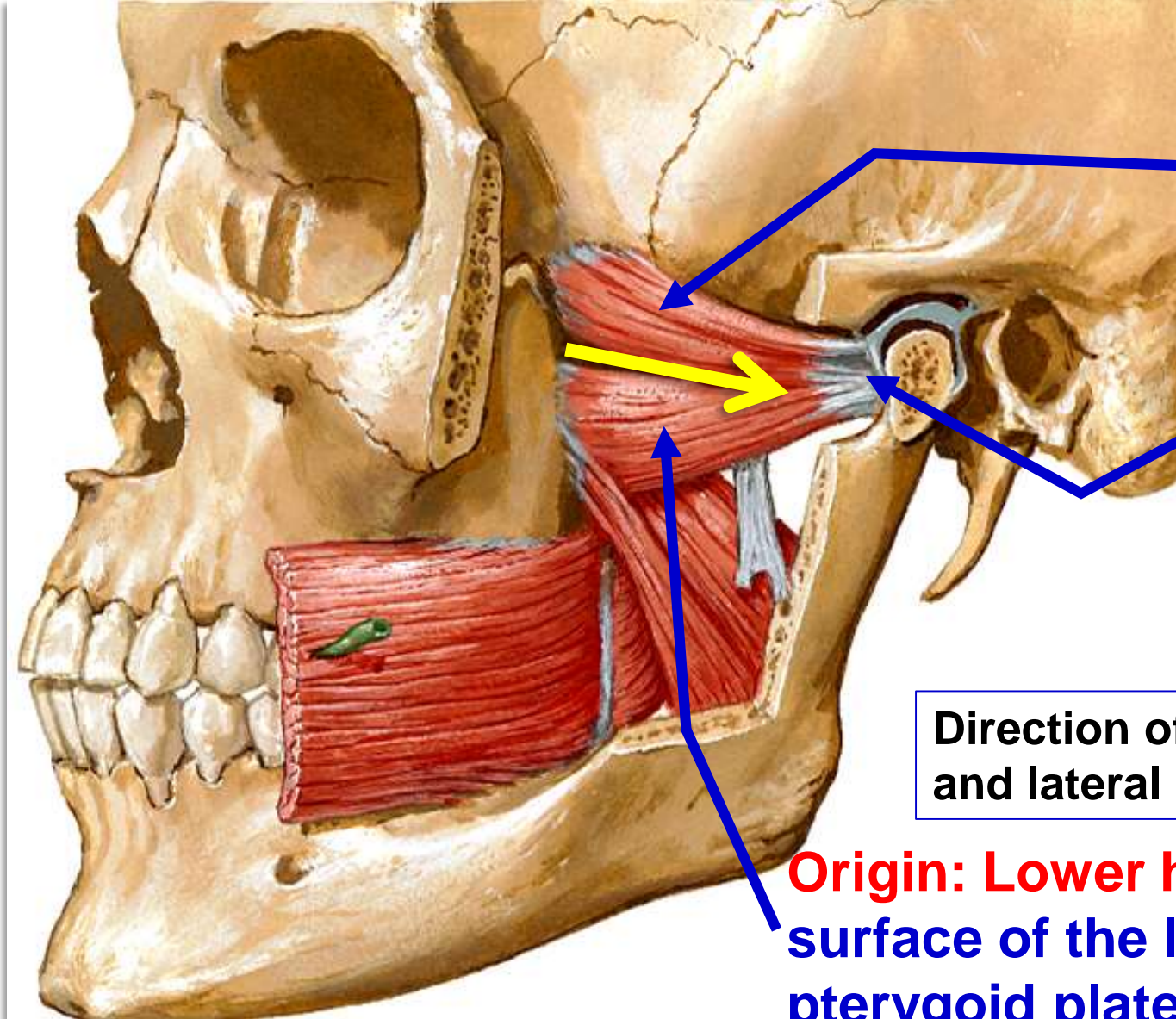


**Direction of the fibres:**

- **Anterior** directed downwards and backwards.
- **Posterior** directed vertically downwards.

**Insertion:** Into the outer surface of the ramus of the mandible

# Lateral Pterygoid muscle



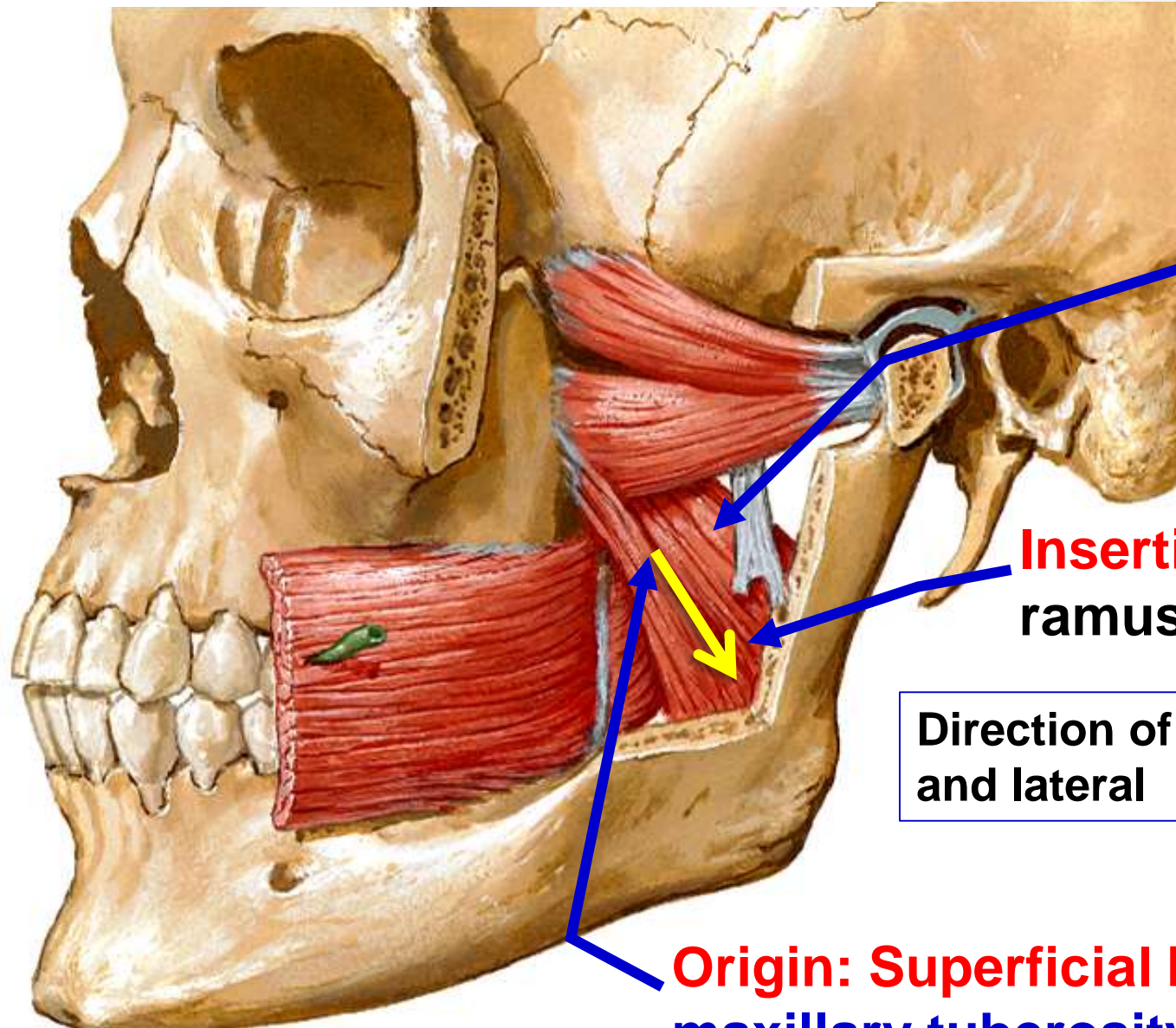
**Origin: Upper head** from infratemporal surface of greater wing of sphenoid

- **Insertion:** Pterygoid fovea on anterior aspect of neck of mandible.
- Capsule and articular disc of temporomandibular joint.

Direction of the fibres: horizontally backward and lateral

**Origin: Lower head** lateral surface of the lateral pterygoid plate

# Medial Pterygoid muscle



**Origin:** Deep head from medial surface of lateral pterygoid plate

**Insertion:** Into the inner surface of the ramus and angle of the mandible

Direction of the fibres: downward, backward and lateral

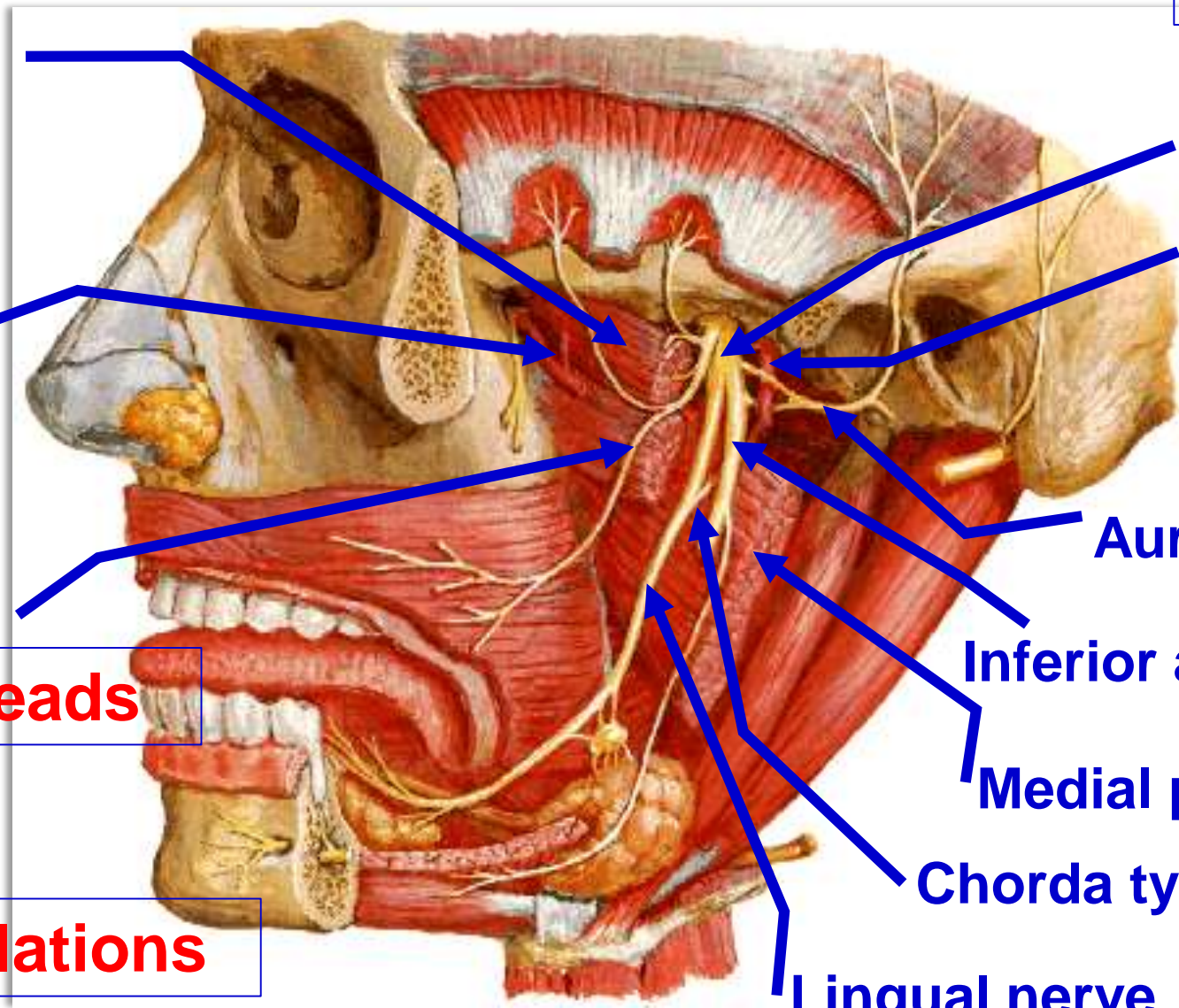
**Origin:** Superficial head from maxillary tuberosity



- Actions of the muscles of mastication**

	<b>Elevation (closing) Chewing</b>	<b>Depression (opening)</b>	<b>Protrusion</b>	<b>Retraction</b>	<b>Side to side movement</b>
<b>1- Masseter</b>	<b>+ve main</b>		<b>+ve</b>		
<b>2- Temporalis</b>	<b>+ve</b>		<b>+ve</b>	<b>+ve (posterior fibres)</b>	
<b>3- M. pterygoid</b>	<b>+ve</b>		<b>+ve</b>		<b>+ve</b>
<b>4- L. pterygoid</b>		<b>+ve</b>	<b>+ve</b>		<b>+ve</b>

**Deep Relations**



Lateral pterygoid

3<sup>rd</sup> part of Maxillary artery

Buccal nerve

**Between 2 heads**

★ **Inferior Relations**

★ 1st part of maxillary artery

Mandibular nerve

Middle meningeal artery

Optic ganglion

Auriculotemporal nerve

Inferior alveolar nerve ★

Medial pterygoid muscle

Chorda tympani

Lingual nerve ★

2<sup>nd</sup> part of maxillary artery

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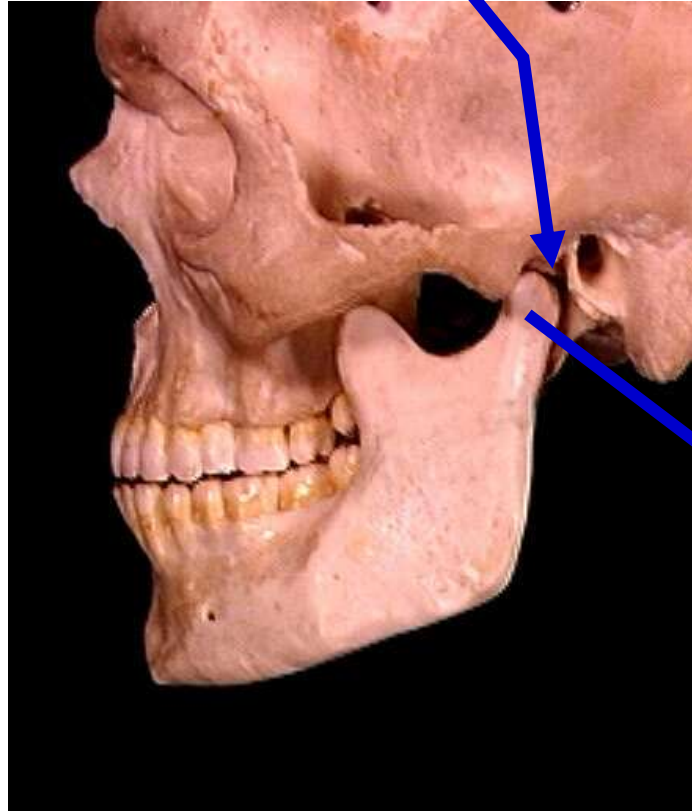
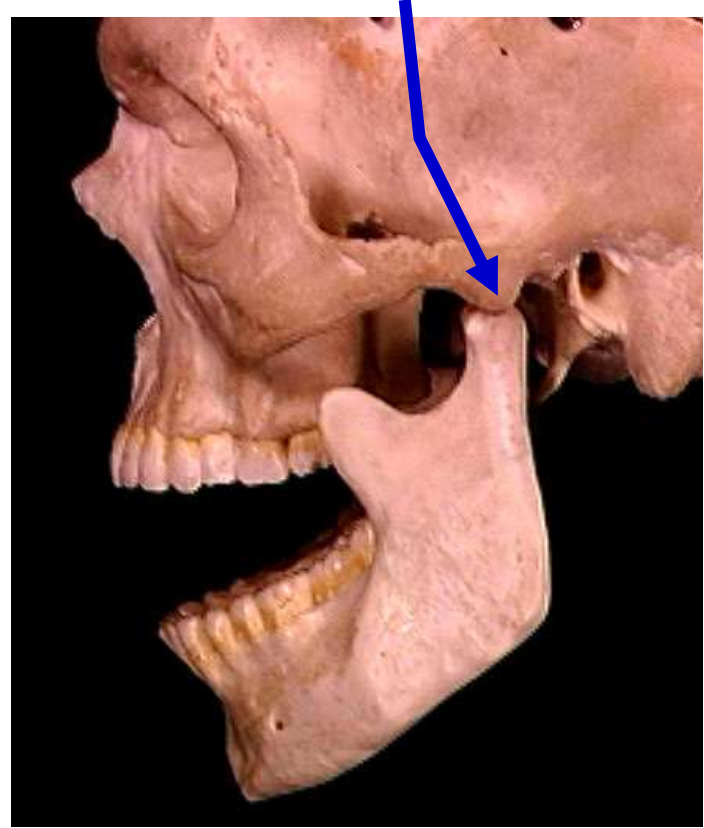
# Temporomandibular joint

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**Type:** synovial joint of **ellipsoid** variety

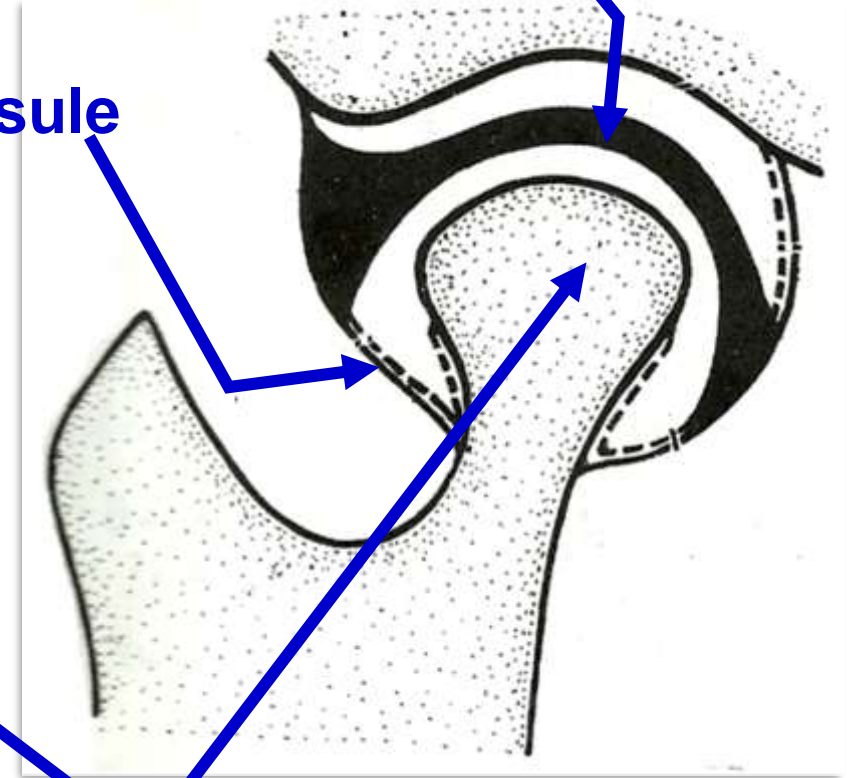
Articular tubercle

Mandibular fossa



Capsule

Articular disc



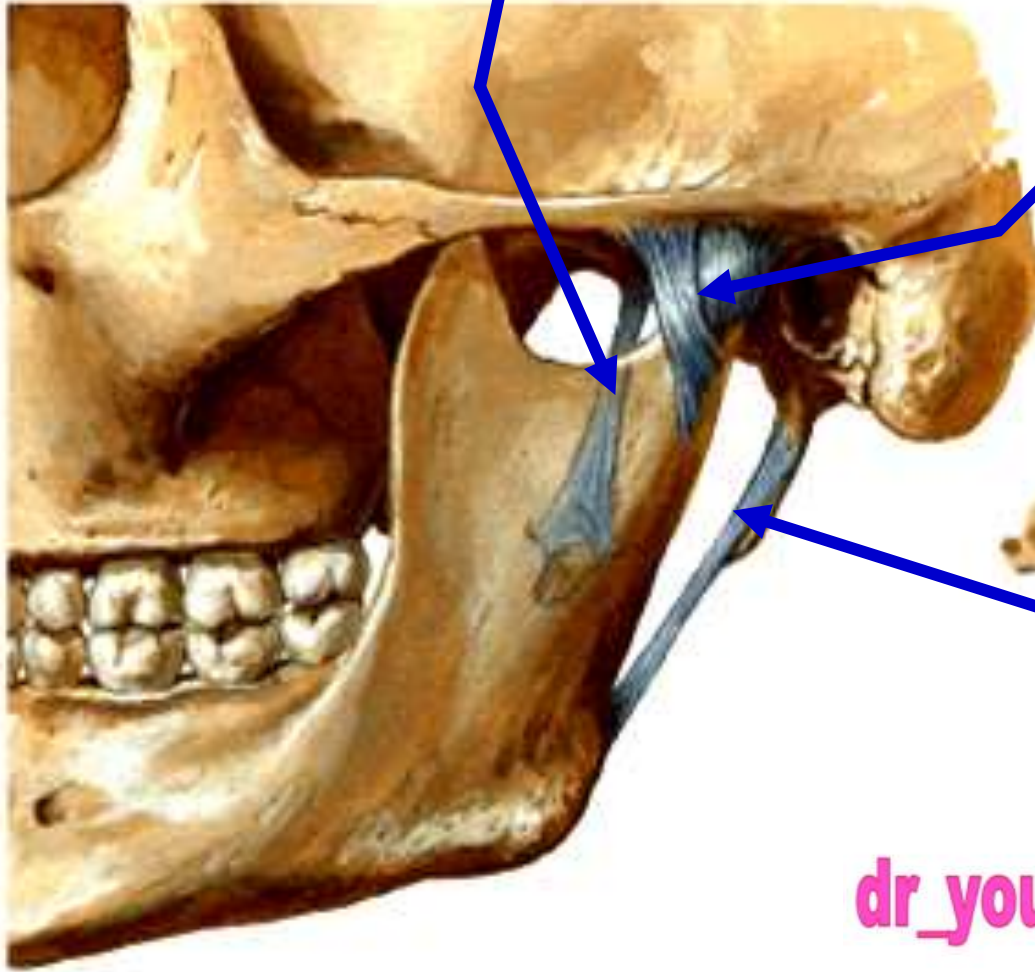
Head of mandible

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- **Articular surfaces:** a) Head (condyle) of the mandible.  
b) Articular (glenoid) fossa and articular tubercle of temporal bone.  
c) Articular disc divided the cavity into upper and lower parts.
- **Capsule:** attached around the articular surfaces. It is lined by synovial membrane.

**Sphenomandibular ligament** from spine of sphenoid to lingula

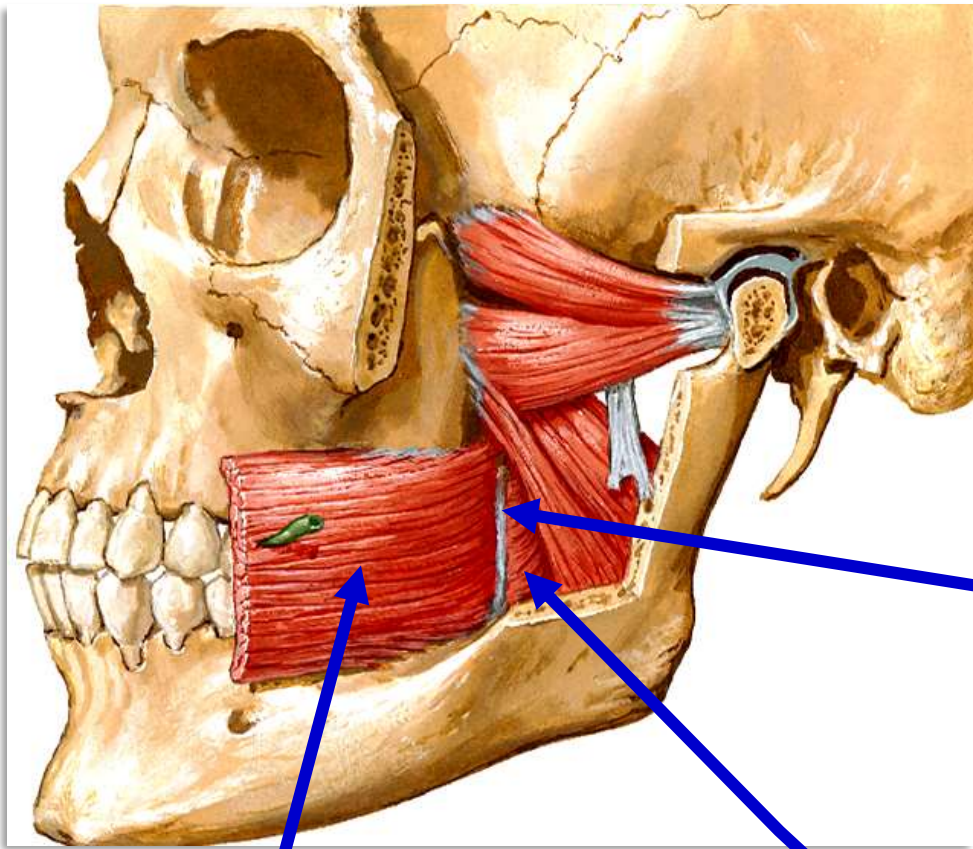
**Tempromandibular ligament** from articular eminence (root of zygomatic arch) to lateral side of neck of mandible



**Stylomandibular ligament** from styloid process to angle of mandible, separates parotid gland from submandibular gland

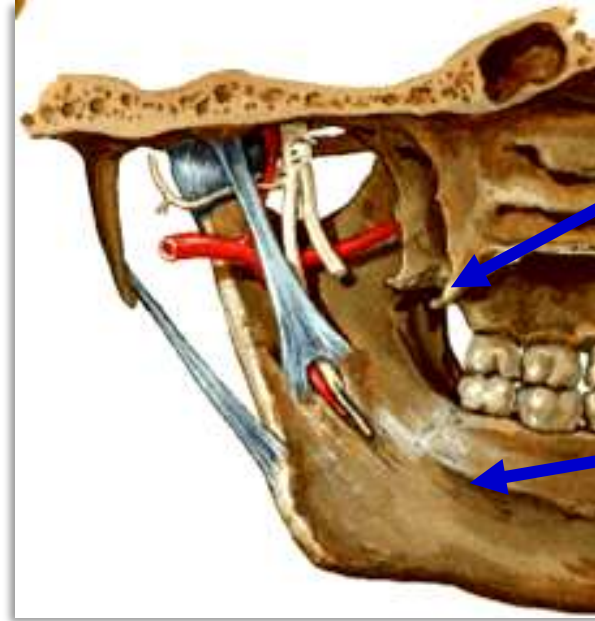
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**Ligaments of temporomandibular joint**



Buccinator

Superior constrictor  
muscle of pharynx



Pterygoid  
hamulus

Mylohyoid line

**Pterygomandibular ligament:** extends from **pterygoid hamulus** to the **posterior end of mylohyoid line** of mandible.

- It gives origin to buccinator and superior constrictor muscle of the pharynx.

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**Ligaments of temporomandibular joint**

## ❖ Movements of TMJ

	<b>Elevation (closing) Chewing</b>	<b>Depression (opening)</b>	<b>Protrusion</b>	<b>Retraction</b>	<b>Side to side movement</b>
<b>1- Masseter</b>	<b>+ve main</b>		<b>+ve</b>		
<b>2- Temporalis</b>	<b>+ve</b>		<b>+ve</b>	<b>+ve (posterior fibres)</b>	
<b>3- M. pterygoid</b>	<b>+ve</b>		<b>+ve</b>		<b>+ve</b>
<b>4- L. pterygoid</b>		<b>+ve</b>	<b>+ve</b>		<b>+ve</b>

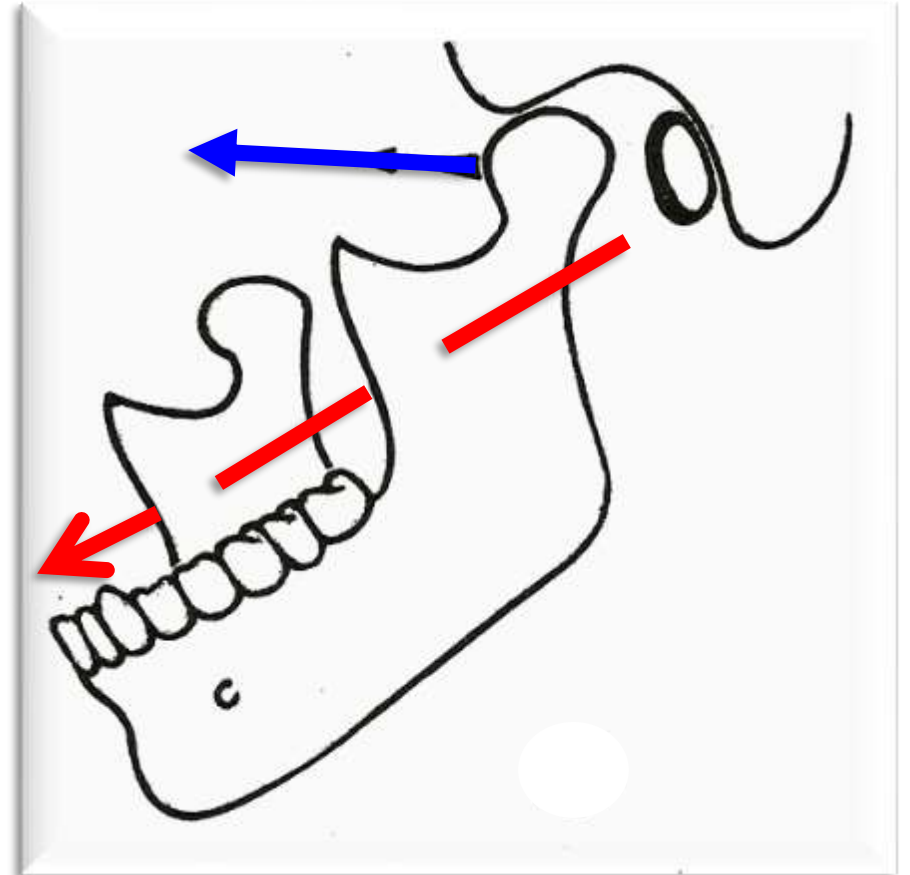
- **Depression:** Lateral pterygoid, digastric, geniohyoid, mylohyoid and gravity.

- 1- Resting position**, the lower teeth are slightly behind the level of the upper teeth.
- 2- Closing position**, jaws are closed, the upper and lower teeth come into apposition.

- **Nerve supply:** 1) auriculotemporal nerve. 2) Masseteric nerve.

- **Arterial supply**, from the superficial temporal and maxillary arteries.

- **During opening of the mouth Forward sliding movement of the head of mandible with articular disc Over of the articular tubercle**
- **The axis of movement passes through the Mandibular foramen**



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- **TMJ dislocation**

- **Causes**, spontaneous or traumatic.
  - It occurs when **one or both mandibular condyles** are displaced in front and above articular eminence outside the articular surfaces.
  - Dislocation may be **reducible** if the condyle (head of mandible) returns spontaneously to the mandibular (glenoid) cavity (**subluxation**) or **irreducible** when one or two condyles remain dislocated (**luxation**).
  - In the latter condition, the mouth remains open
  - There are stretch of the ligaments and muscles causing intense local orofacial pain
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