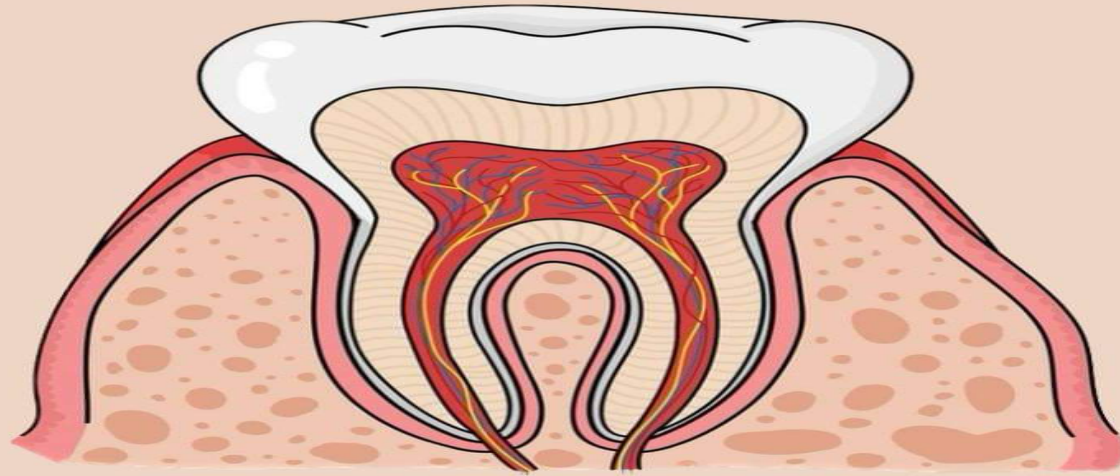




ANATOMY



LEC NO. : ١٥
DONE BY : Nour Al-amoush.

وَقُلْ رَبِّ زِدْنِي عِلْمًا



Anatomy & Embryology

Lecture 9:

Muscles of Head & Neck

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العضلات المسؤولة عن تعابير الوجه

- Muscles of facial expression
- Muscles of mastication
- Extrinsic eye muscles
- Muscles of neck
- Lateral Vertebral Muscles
- Muscles of tongue

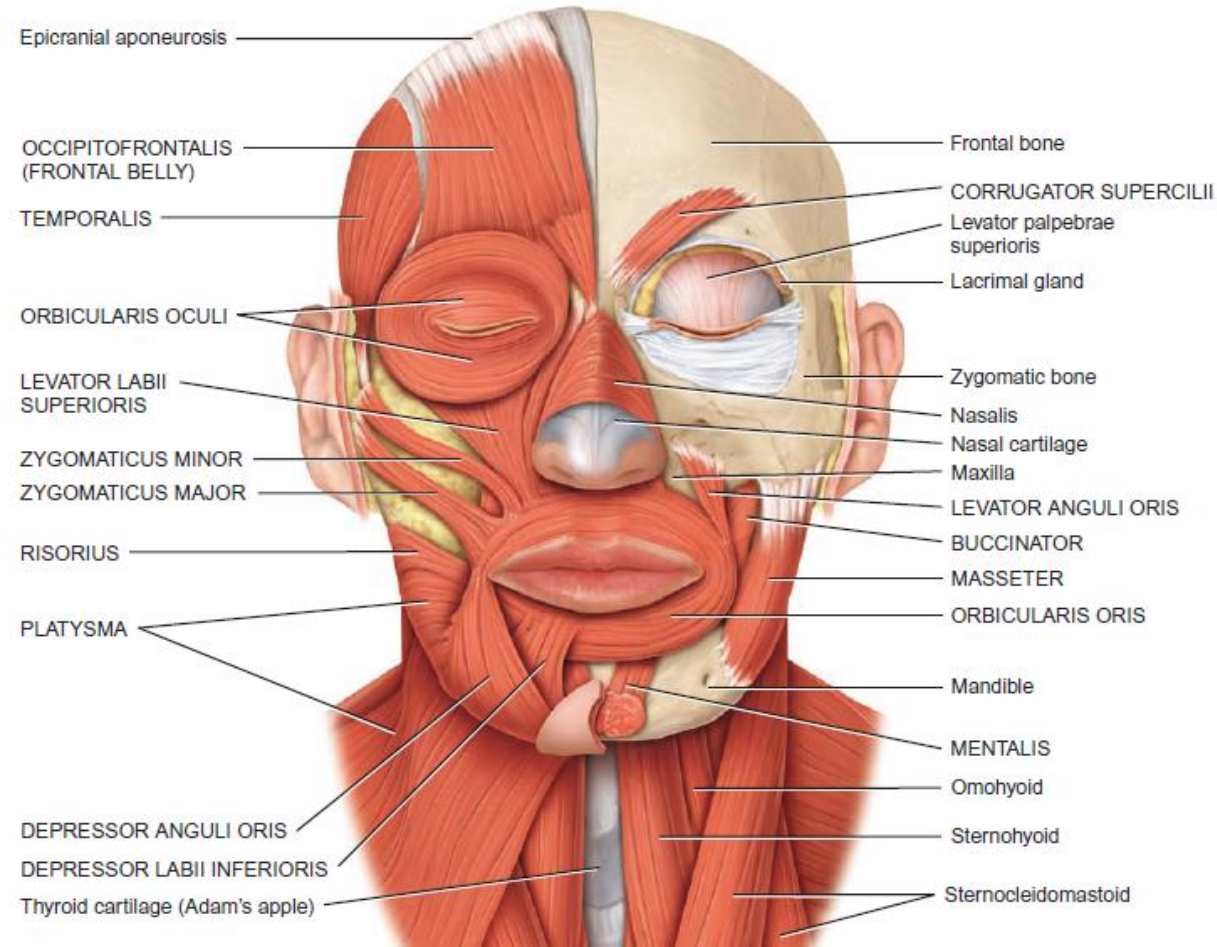
العضلات المسؤولة عن الهضم في الفك السفلي و العلوي

Muscles Of Facial Expression

أصلهم وعضلات عامة
& insertion & action

General characteristics :

1. All the muscles : arise from the **bones** of the skull or subcutaneous tissue.
2. All the muscles : are inserted into the **skin**.
عشان لما يصير لها contraction تعمللي التعابير المختلفة
3. **Action** : they move the skin of face **rather than a joint** in the different facial expressions (therefore called **muscles of facial expressions**).
4. **Nerve supply** : all are supplied by the **(Facial Nerve)**
5. **Main function** : serve as sphincters or dilators of face orifices



① Occipito-frontalis Muscle

الها جزء anterior & posterior

فروة الرأس
Scalp has only ONE muscle which is the **occipito-frontalis muscle**.

It is formed of **2 frontal bellies** and **2 occipital bellies** which are inserted in the epicranial aponeurosis.

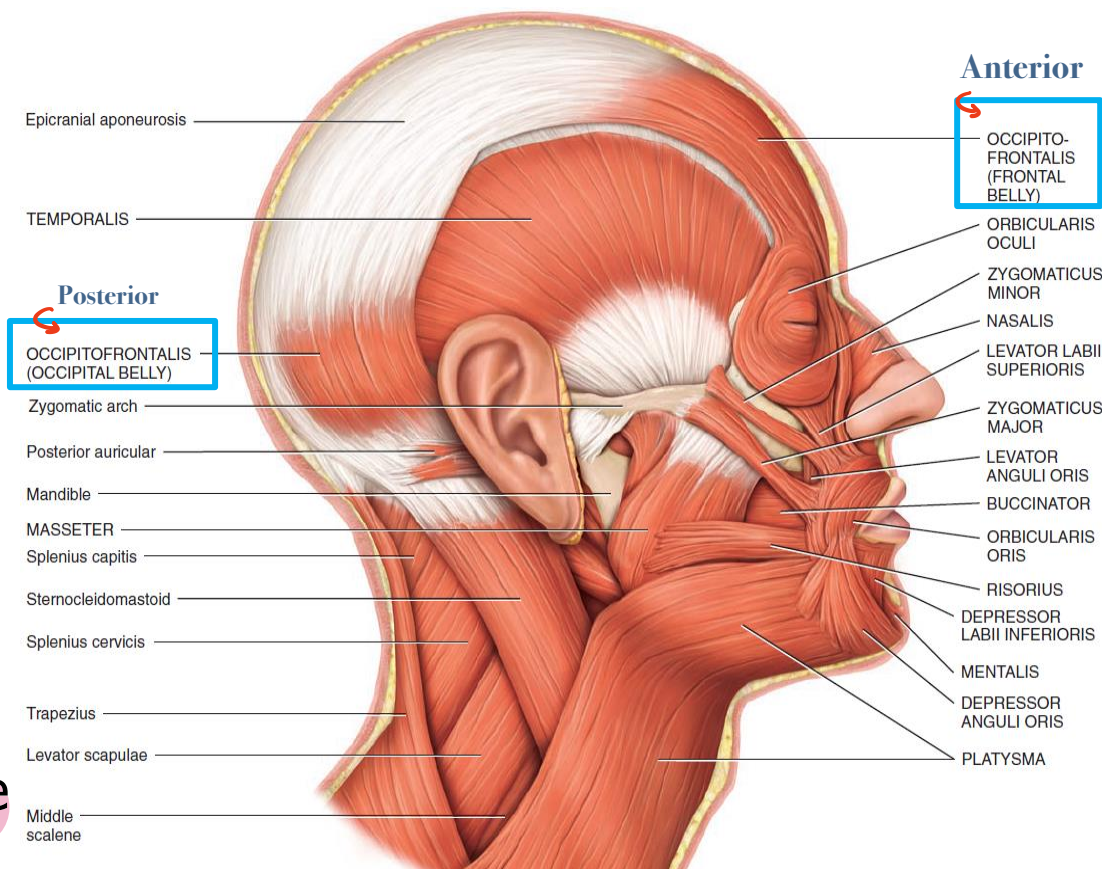
Epicranial Aponeurosis: Flat tendon

A sheet of strong fibrous tissue on the skull cap.

① **Frontal bellies** → take origin from eyebrows & are inserted in epicranial aponeurosis.

② **Occipital bellies** → take origin from occipital bone & are inserted in epicranial aponeurosis.

Action of muscle: Pull the scalp backwards and raise the eyebrows thus causing the transverse wrinkles of forehead (**giving expression of fear or surprise**).
بتعمل التجاعيد



Orbicularis Oculi

This is the sphincter of the eyelids (i.e. closes the eyes).

It encircles the orbital opening.

It consists of 3 parts :

a. Palpebral part: الجزء يلي بسكر العين لكن بغيري لما برمش

Action: gentle closure of eyelids (during sleeping & blinking → helps in flow of tears).

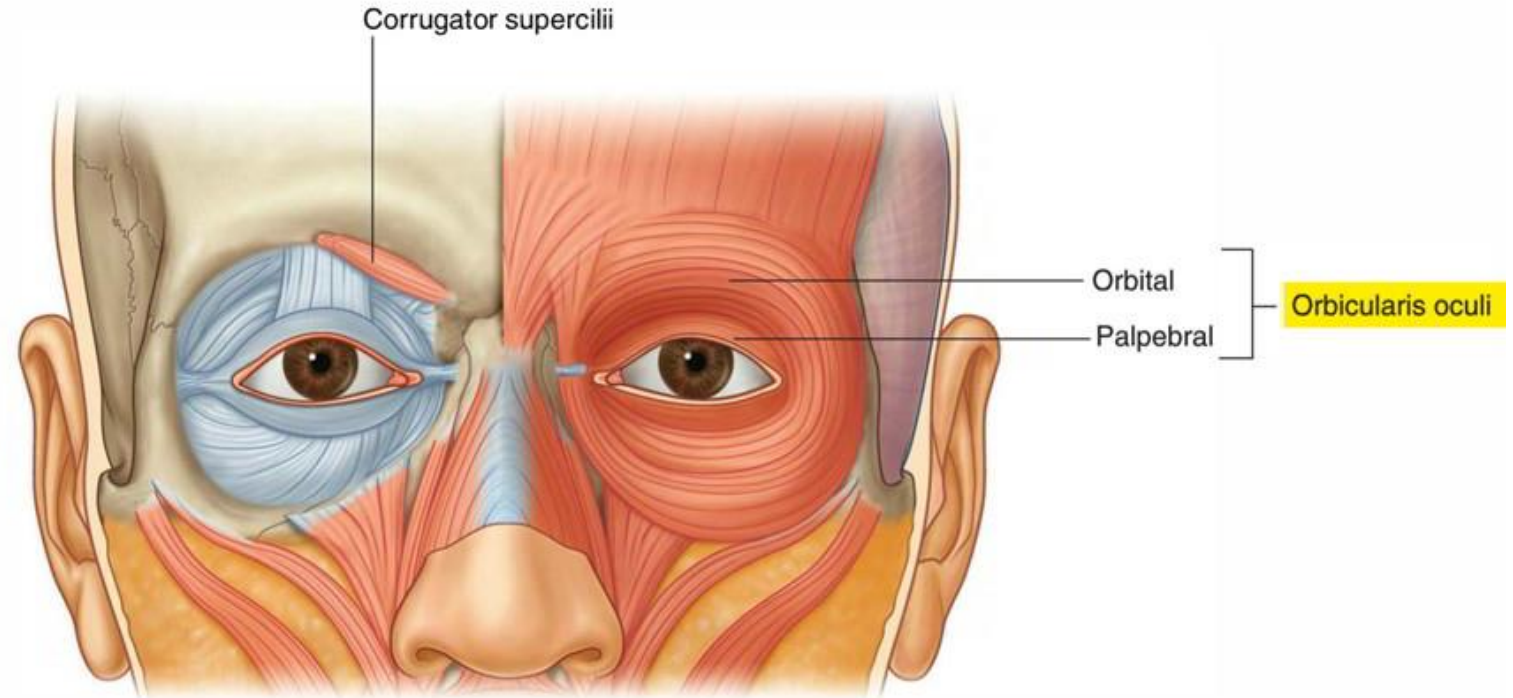
b. Orbital part: بسكر العين لكن بقوة زي لما حد يشوف ضوء مفاجئ

Action : firm closure of eyelids (for protection from dust & light).

c. Lacrimal part: جاي medial و لما ينفعل الانسان بصير ينزل سوائل من انفه بسبب nasolacrimal duct

A small part which lies medially.

Action: Dilates the lacrimal sac to help drainage of tears.



Muscles of Lips and Cheeks

3. **Orbicularis oris** (sphincter muscle of the lips) approaches lips together & help in whistling & speech

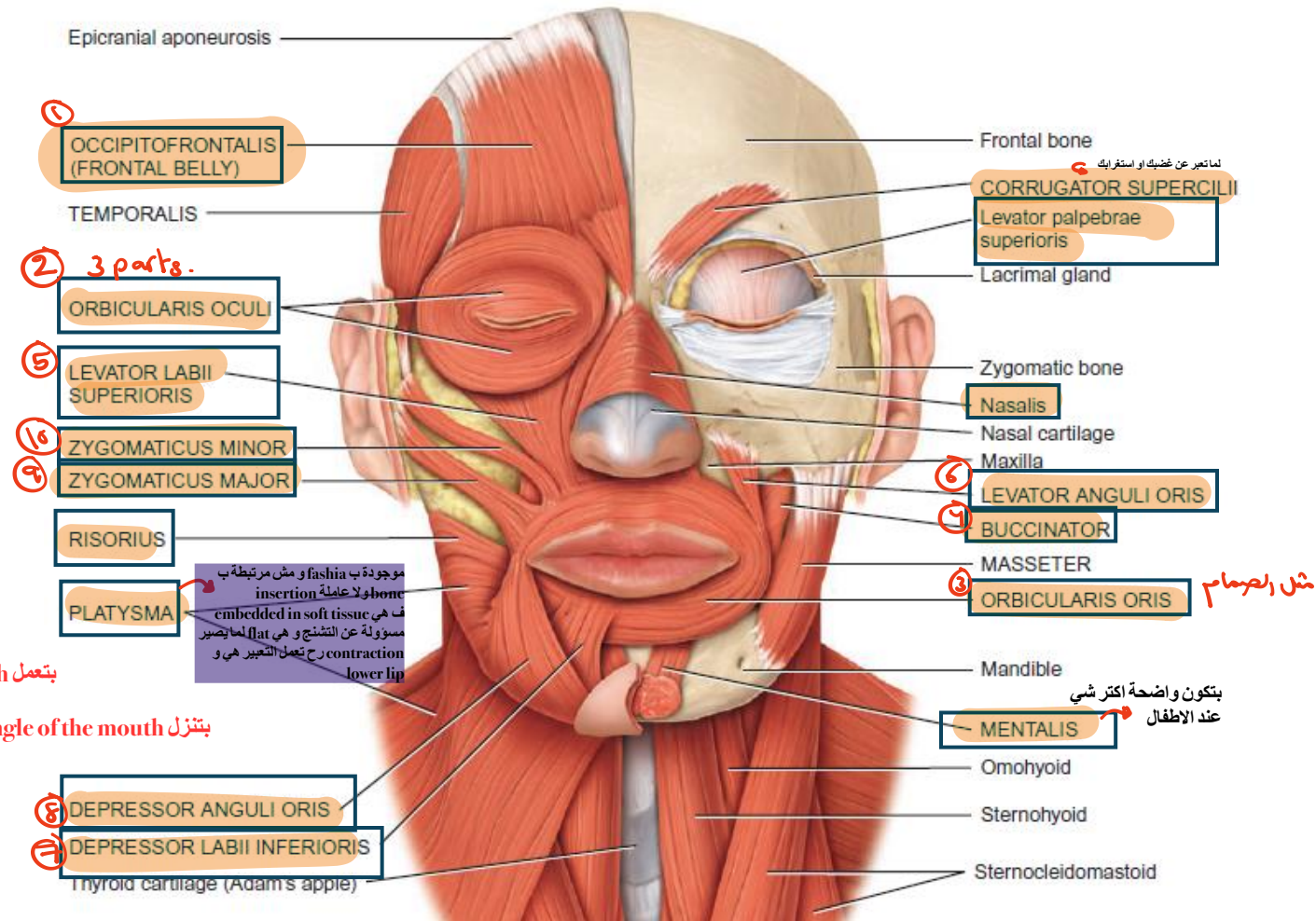
4. **Buccinator** (pressing cheeks against teeth, Whistling (buccina = trumpet), blowing of air, and Suckling (in babies))

5. **Levator labii superioris**

6. **Levator anguli oris**

7. **Depressor labii inferioris**

8. **Depressor anguli oris**



Muscles of Lips and Cheeks

9

• **Zygomaticus major** (angle of mouth sup. & lat. smiling)

10

• **Zygomaticus minor** *هدول التنتين بيجو من zygomatic arch و بعملوا insertion في mouth ف لما نضحك بتتحرك superiorly & laterally*

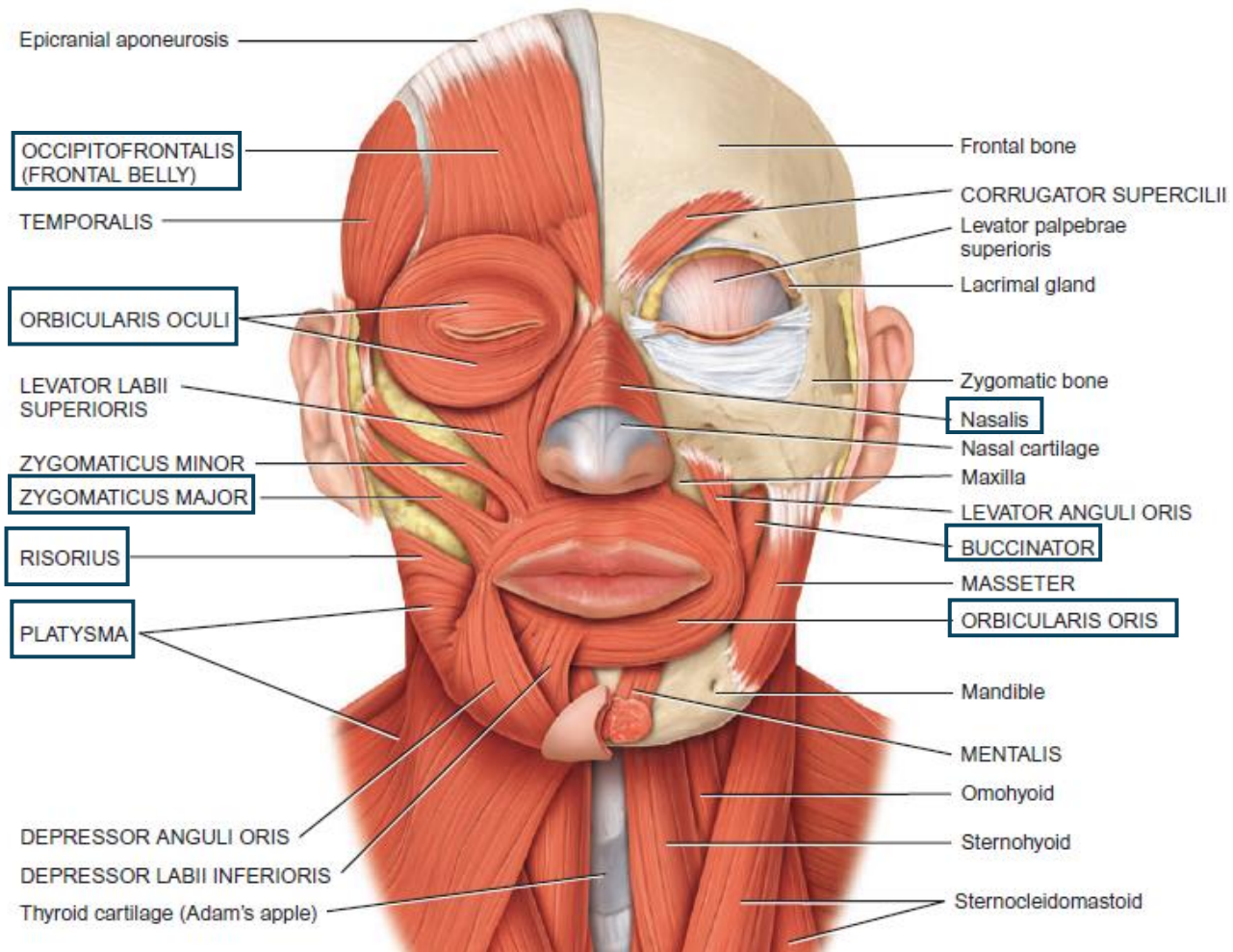
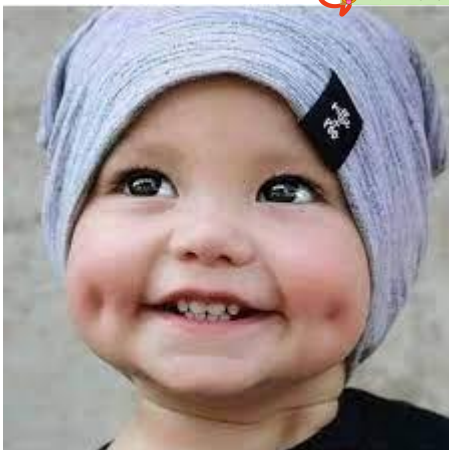
11


• **Mentalis** (elevates and protrude lower lip)

12

• **Risorius** (grimacing) *Moving the angle of the mouth laterally*

بتعرفوا شو سبب الغضارات؟ هو عبارة عن defeat of zygomaticus major بدل ما تكون one muscle بتحتوي على 2 heads ف لما يضحك الشخص بصير عا skin depression ما بين 2 heads يفتي ما تنبسطوا او علامة جمال 😊



Muscle	Nerve Supply	Main Action
Occipitofrontalis (Surprise!!) SCALP muscle	Facial (VII) nerve	Raises eyebrow Produce wrinkles in forehead
Orbicularis oculi (Blinking)		Closes eyelids gently and forcibly
Elevators of upper lip*		Elevates the upper lip
Depressors of lower lip		Depresses the lower lip
Platysma (pouting)		Depresses out angle of lower lip
Risorius (Grimacing) 		Pulls angles of mouth laterally
Orbicularis oris (Kissing)		Brings lips together – closes mouth
Buccinator (Whistling)		Presses cheek on teeth as in blowing, sucking and chewing
*Zygomaticus major Smiling muscle		Draws angle of mouth superior & lateral

ماي صا كلك (المعلومات)
لكي متبل، كلك شتر
مطلوب منهم.

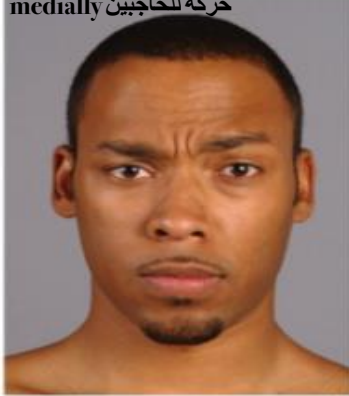
MUSCLE	ORIGIN	INSERTION	ACTION	INNERVATION
SCALP MUSCLES				
Occipitofrontalis (ok-sip'-i-tō-frun-TĀ-lis) Frontal belly (frontalis)	Epicranial aponeurosis	Skin superior to supraorbital margin	Draws scalp anteriorly, raises eyebrows, and wrinkles skin of forehead horizontally as in a look of surprise	Facial (VII) nerve
Occipital belly (occipitalis) (<i>occipit</i> -=back of the head)	Occipital bone and mastoid process of temporal bone	Epicranial aponeurosis	Draws scalp posteriorly	Facial (VII) nerve
MOUTH MUSCLES				
Orbicularis oris (or-bi'-kū-LAR-is OR-is; <i>orb</i> -=circular; <i>oris</i> =of the mouth)	Muscle fibers surrounding opening of mouth	Skin at corner of mouth	Closes and protrudes lips, as in kissing; compresses lips against teeth; and shapes lips during speech	Facial (VII) nerve
Zygomaticus major (zī-gō-MA-tī-kus; <i>zygomatic</i> =cheek bone; <i>major</i> =greater)	Zygomatic bone	Skin at angle of mouth and blends with fibers of orbicularis oris	Draws angle of mouth superiorly and laterally, as in smiling	Facial (VII) nerve
Zygomaticus minor (<i>minor</i> =lesser)	Zygomatic bone	Upper lip	Raises (elevates) upper lip, exposing maxillary (upper) teeth	Facial (VII) nerve
Levator labii superioris (le-VĀ-tor LĀ-bē-ī soo-per'-ē-OR-is; <i>levator</i> =raises or elevates; <i>labii</i> =lip; <i>superioris</i> =upper)	Maxilla superior to infraorbital foramen	Skin at angle of mouth and blends with fibers of orbicularis oris	Raises upper lip	Facial (VII) nerve

MUSCLE	ORIGIN	INSERTION	ACTION	INNERVATION
Depressor labii inferioris (de-PRE-sor LĀ-bē-ī; <i>depressor</i> =depresses or lowers; <i>inferioris</i> =lower)	Mandible	Skin of lower lip	Depresses (lowers) lower lip	Facial (VII) nerve
Depressor anguli oris (ANG-ū-lī; <i>angul</i> =angle or corner; <i>oris</i> =of the mouth)	Mandible	Angle of mouth	Draws angle of mouth laterally and inferiorly, as in opening mouth	Facial (VII) nerve
Levator anguli oris	Maxilla inferior to infraorbital foramen	Skin of lower lip	Draws angle of mouth laterally and superiorly	Facial (VII) nerve
Buccinator (BUK-si-nā'-tor; <i>bucc</i> =cheek)	Alveolar processes of maxilla and mandible and pterygomandibular raphe	Blends with fibers of orbicularis oris	Presses cheeks against teeth and lips, as in whistling, blowing, and sucking; draws corner of mouth laterally	Facial (VII) nerve
Risorius (ri-ZOR-ē-us; <i>risor</i> =laughter)	Fascia over parotid (salivary) gland	Skin at the angle of mouth	Draws angle of mouth laterally, as in grimacing	Facial (VII) nerve
Mentalis (men-TĀ-lis; <i>ment</i> =the chin)	Mandible	Skin of chin	Elevates and protrudes lower lip and pulls skin of chin up as in pouting	Facial (VII) nerve
Platysma (pla-TIZ-ma; <i>platys</i> =flat, broad)	Fascia over deltoid and pectoralis major muscles	Mandible, blends with muscles around angle of mouth, and skin of lower face	Draws outer part of lower lip inferiorly and posteriorly as in pouting; depresses mandible	Facial (VII) nerve

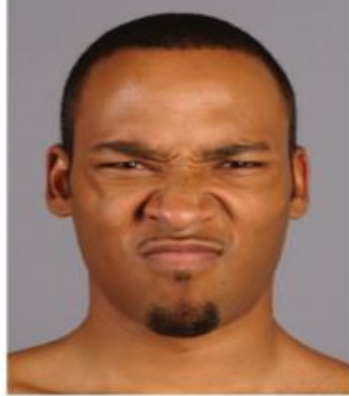
تعايير في الجبهة في حال كان الشخص متفاجئ



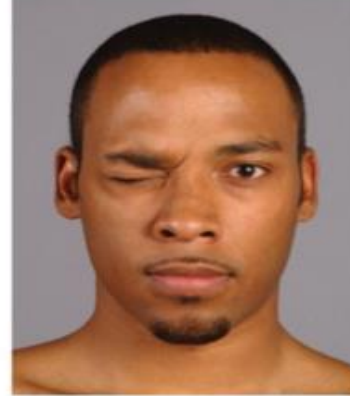
Occipitofrontalis



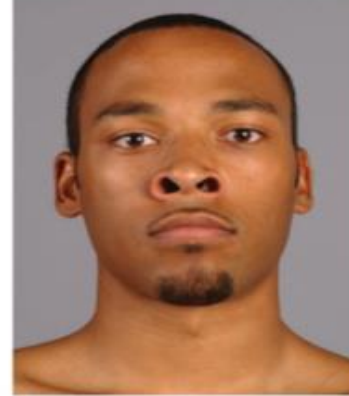
حركة للحاجبين medially
Corrugator supercilii



Procerus

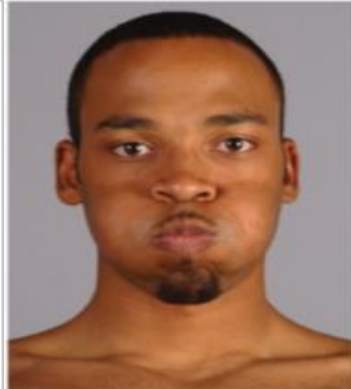


Orbicularis oculi

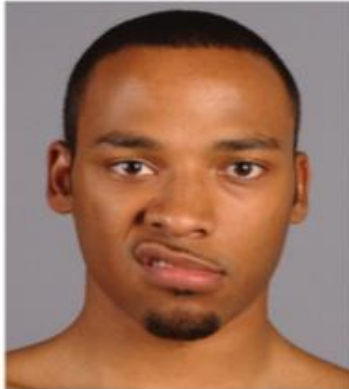


Nasalis (alar part)

لفتح الانف و تستعمل اكثر في animals لانه حاجتهم للشم اكثر



Buccinator



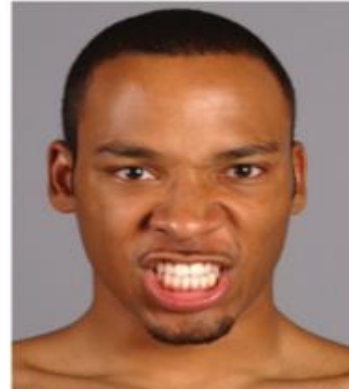
Zygomaticus major



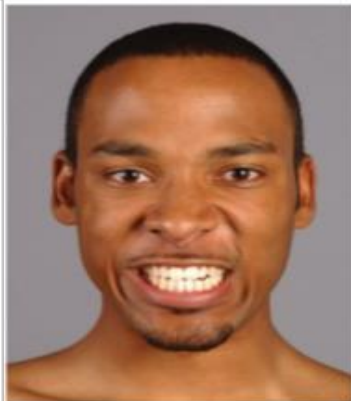
Risorius



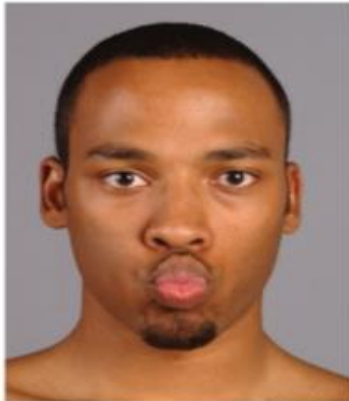
Risorius + DLI



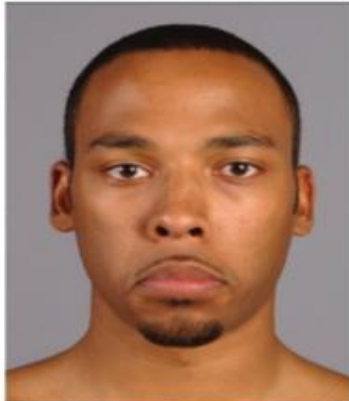
LLS + DLI



Risorius+LLS+DLI



Orbicularis oris



Depressor anguli oris



Mentalis

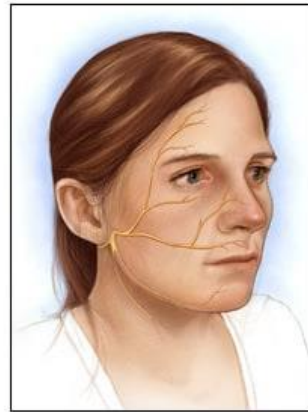


Platysma

احنا ك dentists ، ليش مهم لالنا facial nerve؟ لانه بدنا نعطي ابرة لحتى نشغل.
في نقطة في معالجة molars لحتى اعطيها مخدر لازم ادخل الابرة deep ب الفك عن طريق mandibular canal
و facial nerve قريب جداً من هاي النقطة ف لو انت دخلت الابرة بشكل خاطيء او كان عميق اكثر اما بتوصل
للnerve او السائل بيعمل على تحريك nerve من مكانه ف بصير عنا اشس اسمه bell's palsy و هو عبارة عن
العصب السابع ف هو بصير عنا شلل بعضلات الوجه و اسبابها جداً عديدة مو بس من dentist

- **Bell's palsy**, also known as **facial paralysis**, is a **unilateral paralysis of the muscles of facial expression**. طيب بتكون right ولا left؟

مهم ورح تنسأل عنها
nerve بالامتحان شو هو

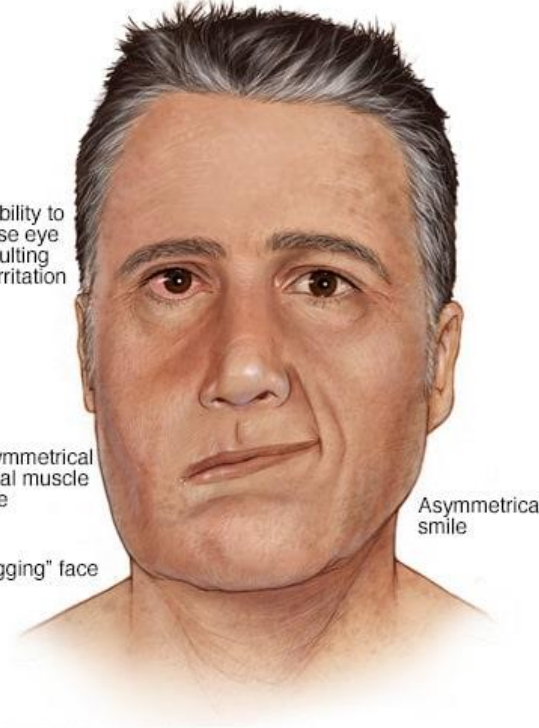


Location of facial nerve

Inability to close eye resulting in irritation

Asymmetrical facial muscle tone

"Sagging" face



Asymmetrical smile

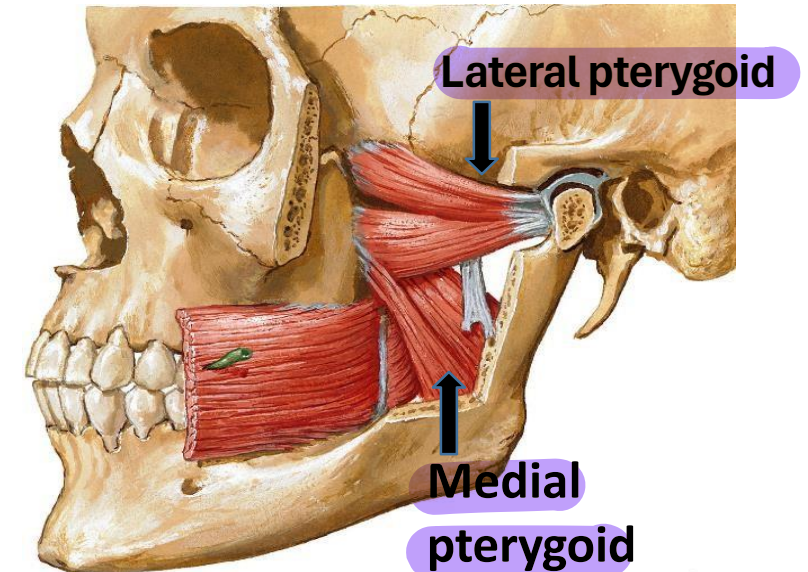
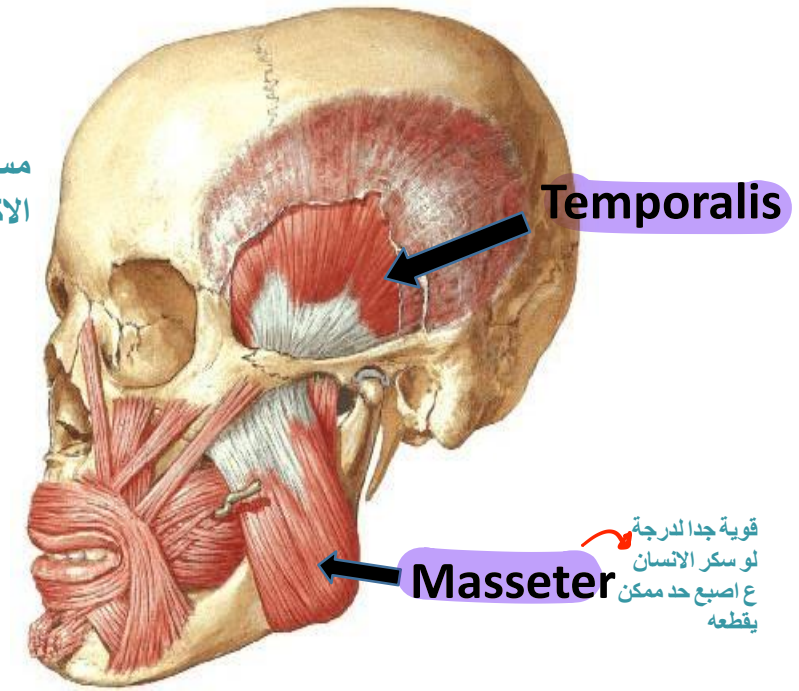
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Muscles of Mastication

مسؤولة عن المضغ (تحريك الفك السفلي لحتى نمضغ
الاكل ونحركه يمين و يسار)

- Four pairs of muscles move the mandible and are known as 'muscles of mastication'.
- They are all supplied by the **mandibular branch of the trigeminal nerve (cranial nerve V)**
- **The masseter, temporalis, and medial pterygoid** close the mouth and account for the strength of the bite.
- **The medial and lateral pterygoid muscles** help to chew by moving the mandible from side to side.



نصف تقس Nerve

MUSCLE	ORIGIN	INSERTION	NERVE SUPPLY	ACTION
Masseter	Zygomatic arch	Lateral surface of ramus of mandible	Mandibular division of the trigeminal nerve	Elevates the mandible to occlude teeth
Temporalis	Floor of temporal fossa	Coronoid process of the mandible	Mandibular division of the trigeminal nerve	Anterior and superior fibers elevate mandible; posterior fibers retract mandible
Lateral pterygoid (two heads)	Greater wing of the sphenoid and lateral pterygoid plate	Neck of mandible and articular disc	Mandibular division of the trigeminal nerve	Pulls neck of mandible forward (protraction)
Medial pterygoid (two heads)	Tuberosity of maxilla and lateral pterygoid plate	Medial surface of angle of mandible	Mandibular division of the trigeminal nerve	Elevates mandible

7

External

Extraocular muscles:

They lie outside the eyeball.

They are responsible for the movements of the eyeball.

They include:

A. 4 recti muscles:

1. Superior rectus. ^{Elevation}

2. Inferior rectus. ^{Depression}

3. Medial Rectus. ^{Adduction}

4. Lateral rectus. ^{Abduction}

B. 2 oblique muscles:

1. Superior oblique. ^{بتحرك العين downward with adduction}

2. Inferior oblique. ^{بتحرك العين upward with abduction}

C. Levator palpebrae superioris. ^{elevation بتعمل}

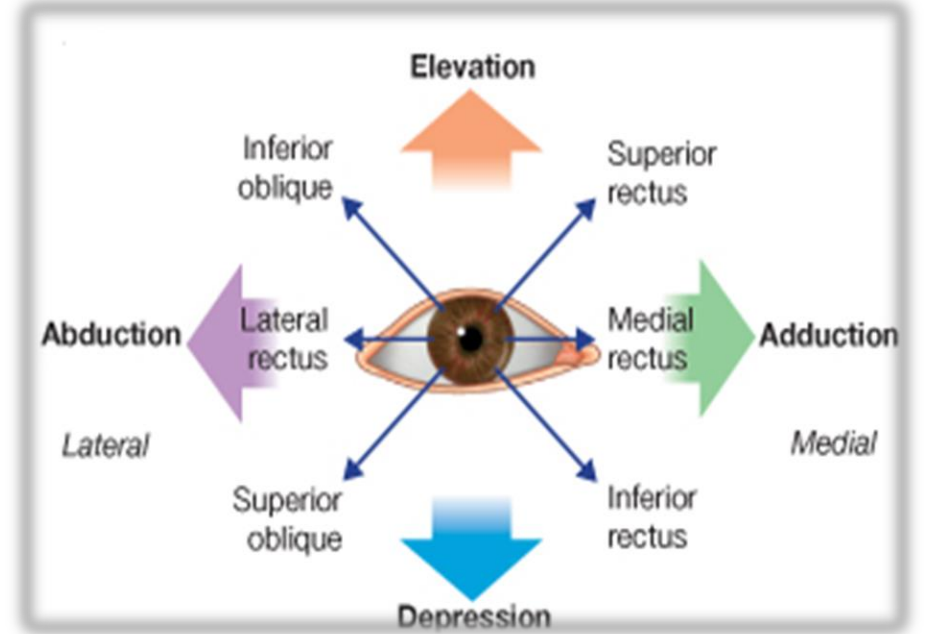
N.B.: All the 7 extraocular muscles are supplied by the Oculomotor N. (3rd cranial nerve) EXCEPT:

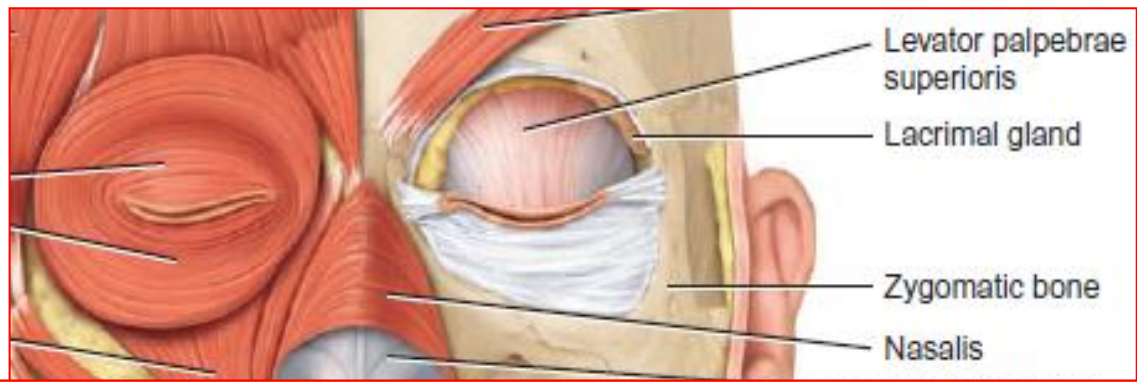
1. Lateral rectus (**LR6**): Abducent N. (6th cranial nerve).

2. Superior oblique (**SO4**): Trochlear N. (4th cranial nerve).

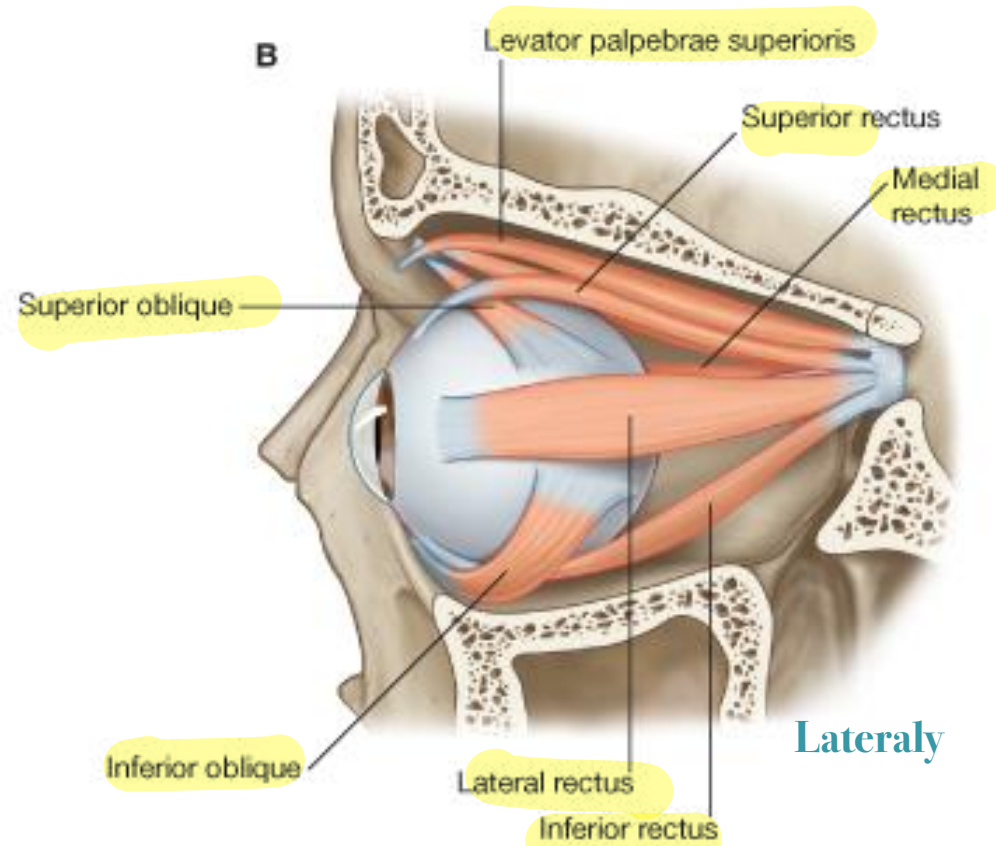
لهم الحفظ يساعدونا.

↓ Related to the eye.





* **Levator palpebrae superioris:** Raises the upper eyelids, opens the eyes



منطقة معقدة جداً وطبعاً مو غريب لانه اصلا رظيفتها
تعمل connection between skull & body

Muscles of Neck

A: Sternocleidomastoid

جاء من Sternum

جاء من Clavicle

process of temporal bone.

Origin :

Sternal head : front of manubrium sterni.

Clavicular head: medial 1/3 of clavicle.

Insertion:

mastoid process.

Nerve supply: Spinal accessory N. (11th cranial nerve).

زي لوفي حد قاعد ع الكرسي و بده يلف لورا رح يصير عنا contraction في جهة اليمين
رح تحرك الرأس لنفس الاتجاه ولكن الوجه للاتجاه المعاكس

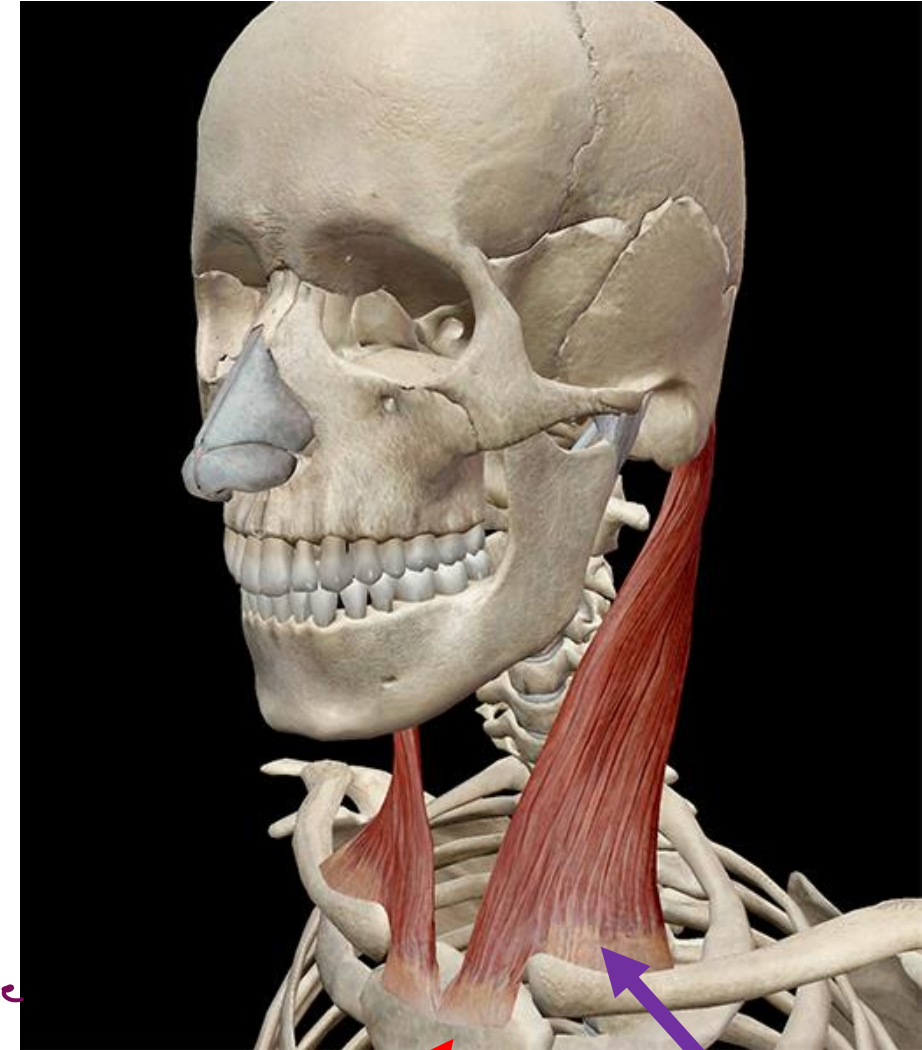
Action. One muscle bends the head to its own side & turns the face to the opposite side.

Both muscles acting together pull the head forwards & flex the neck at atlantooccipital joint.

بتعمل flexion & extension سوا

→ The name of The joint

كل ما صغر العضو كل ما كان اكثر تعقيداً



Sternocleidomastoid

- **Sternomastoid** divides the side of the neck into 2 triangles:

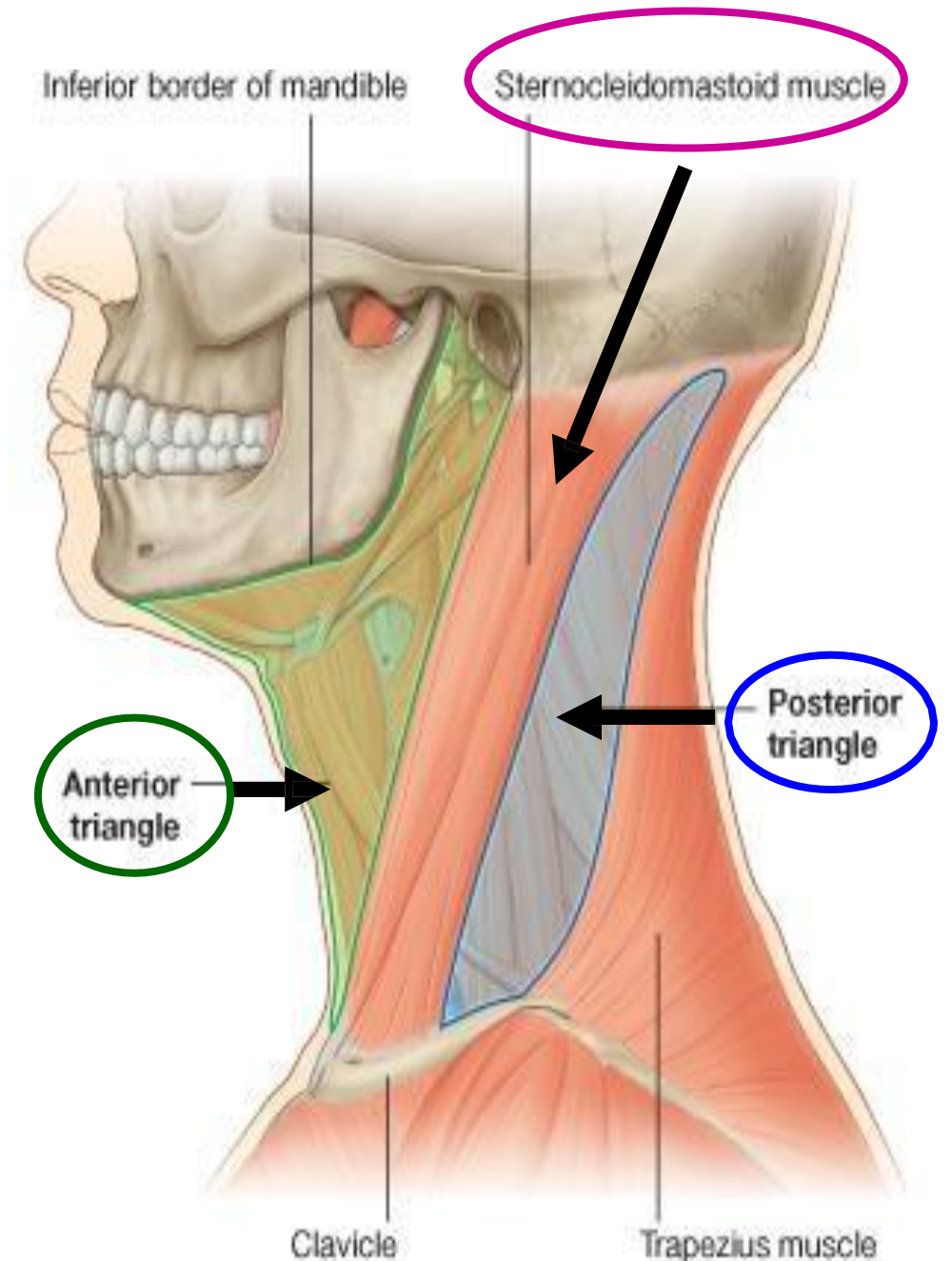
1. **Anterior triangle**

هون بس مقدمة في مساق head.&
neck ربح ندرسه كامل

→ in front of the sternomastoid.

2. **Posterior triangle**

→ behind the sternomastoid.



above



B: Suprahyoid Muscles

- 4 muscles that lie **above** the hyoid bone.

- **Digastric Muscle**

anterior & posterior واحد bellys 2 لها

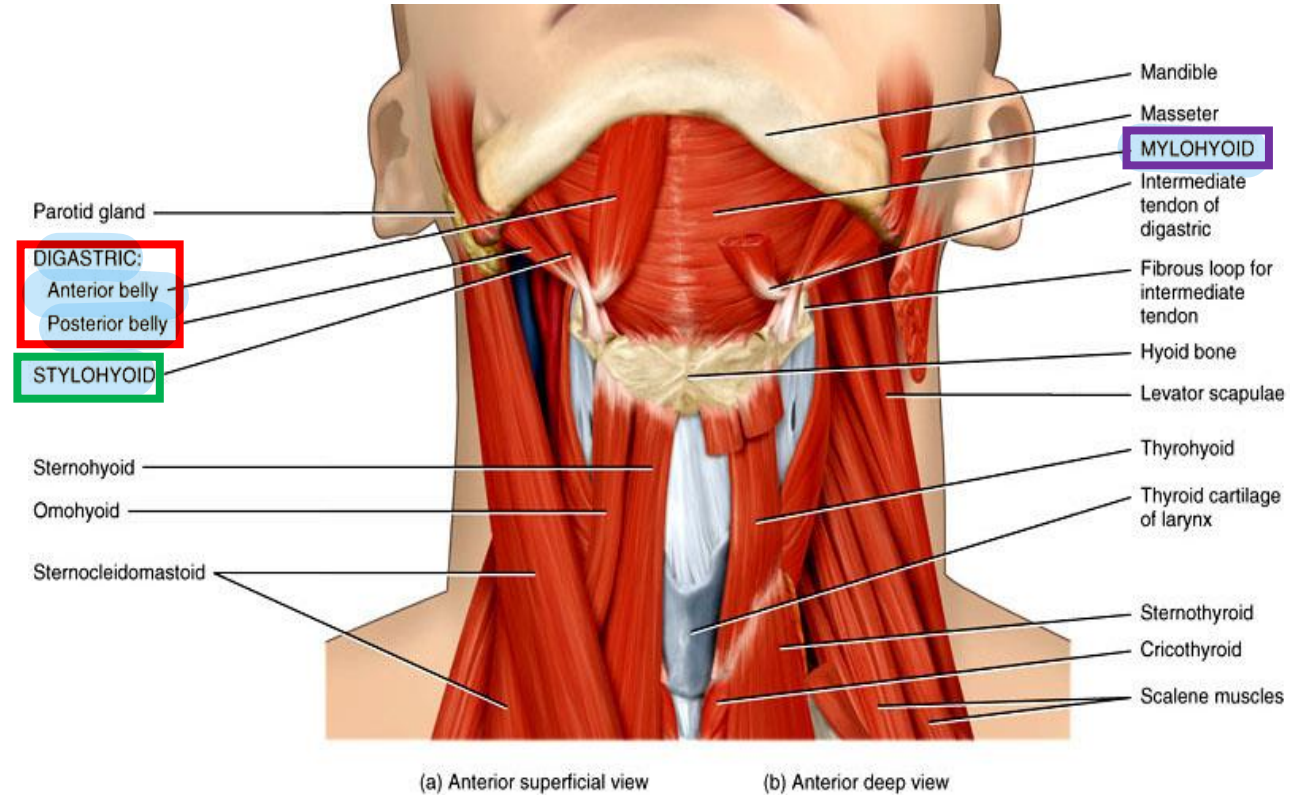
- **Mylohyoid Muscle**

insertion بتعمل
hyoid bone ب

- **Geniohyoid Muscle**

- **Stylohyoid Muscle**

elevation ogf hyoid bone بتعمل



Digastric Muscle

Origin :

- **Anterior belly** : lower border of mandible.
- **Posterior belly** : mastoid process.

Insertion :

- Both bellies meet at an **intermediate tendon** attached to Hyoid bone.

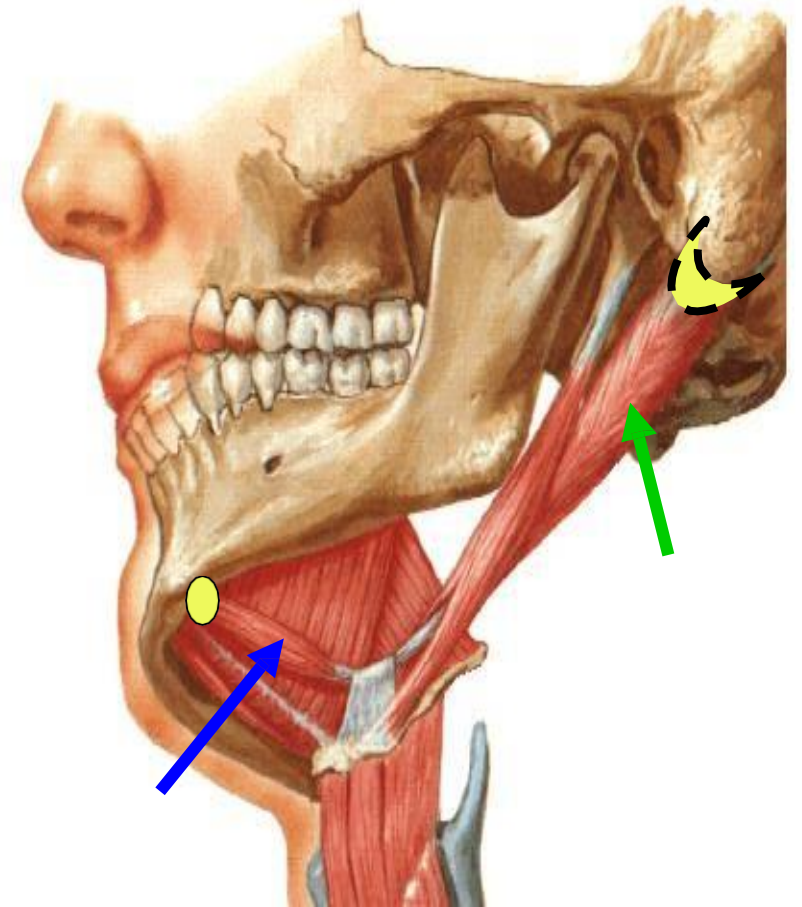
بشبه الحلقة

Action :

- Raises hyoid bone (during swallowing).
- Depresses mandible (if the hyoid bone is fixed)

Nerve supply:

- Anterior belly mylohyoid N. (from mandibular N.).
- Posterior belly : facial nerve.



Mylohyoid Muscle

Origin :

Mylohyoid line of mandible

Insertion :

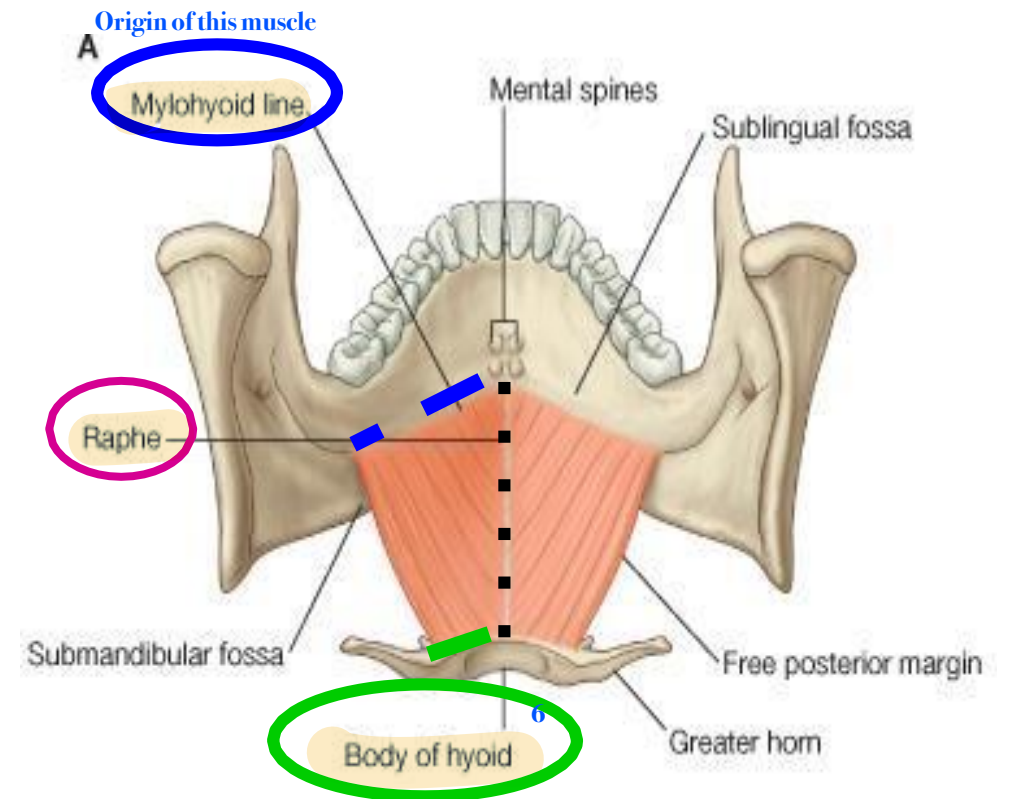
Mylohyoid raphe (between symphysis menti & hyoid bone)

Nerve supply : Mylohyoid nerve (from mandibular nerve).

Action:

نتاجين من contraction

1. Elevates hyoid bone during swallowing
2. Support the floor of the mouth
3. Depresses mandible



Geniohyoid Muscle

It lies deep to mylohyoid (above it)

Origin :

Genial tubercle of mandible

Insertion:

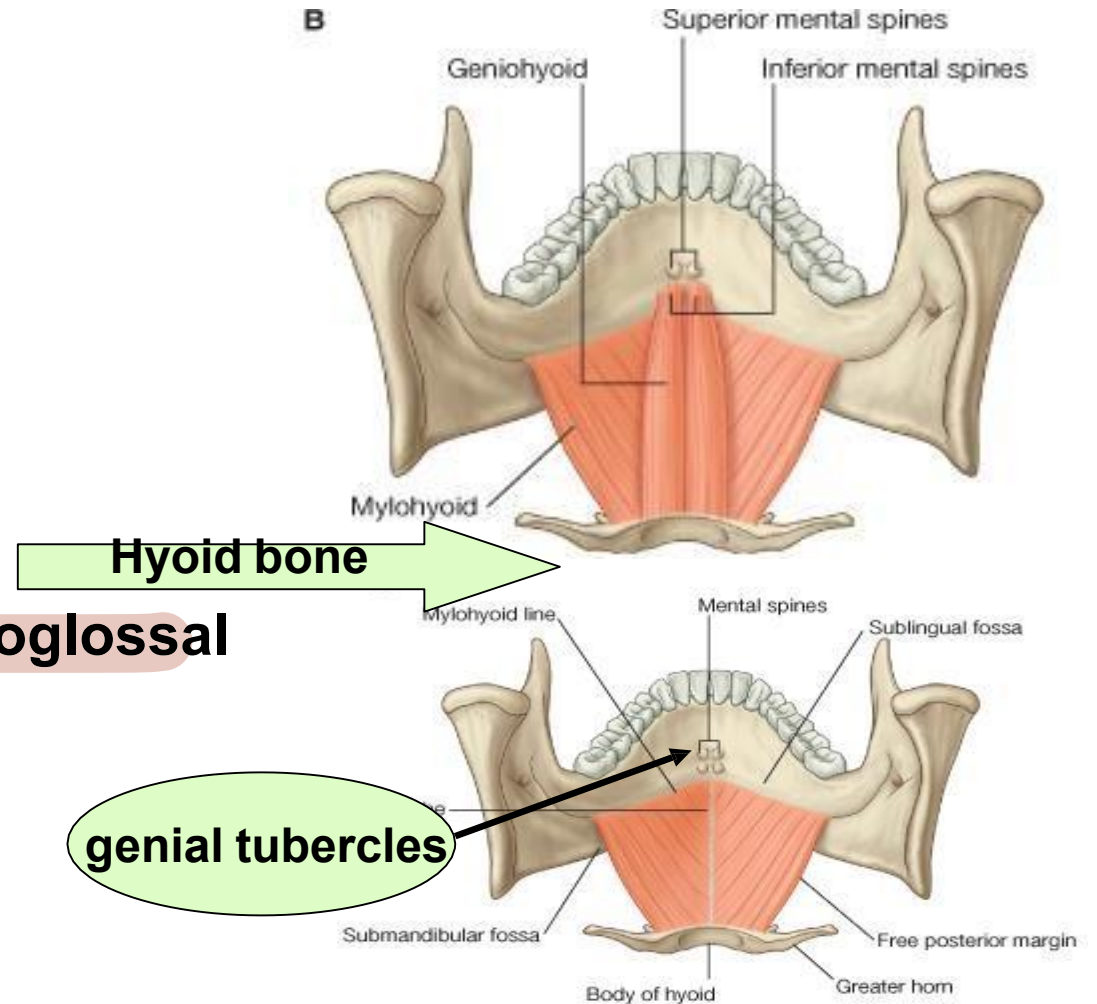
Body of Hyoid bone

Nerve supply:

C1 fibers (1st spinal nerve) (through hypoglossal nerve)

Action : Same actions of mylohyoid

1. Elevates hyoid bone
2. Depresses mandible



Stylohyoid Muscle

A small muscle that lies along upper border of posterior belly of digastric

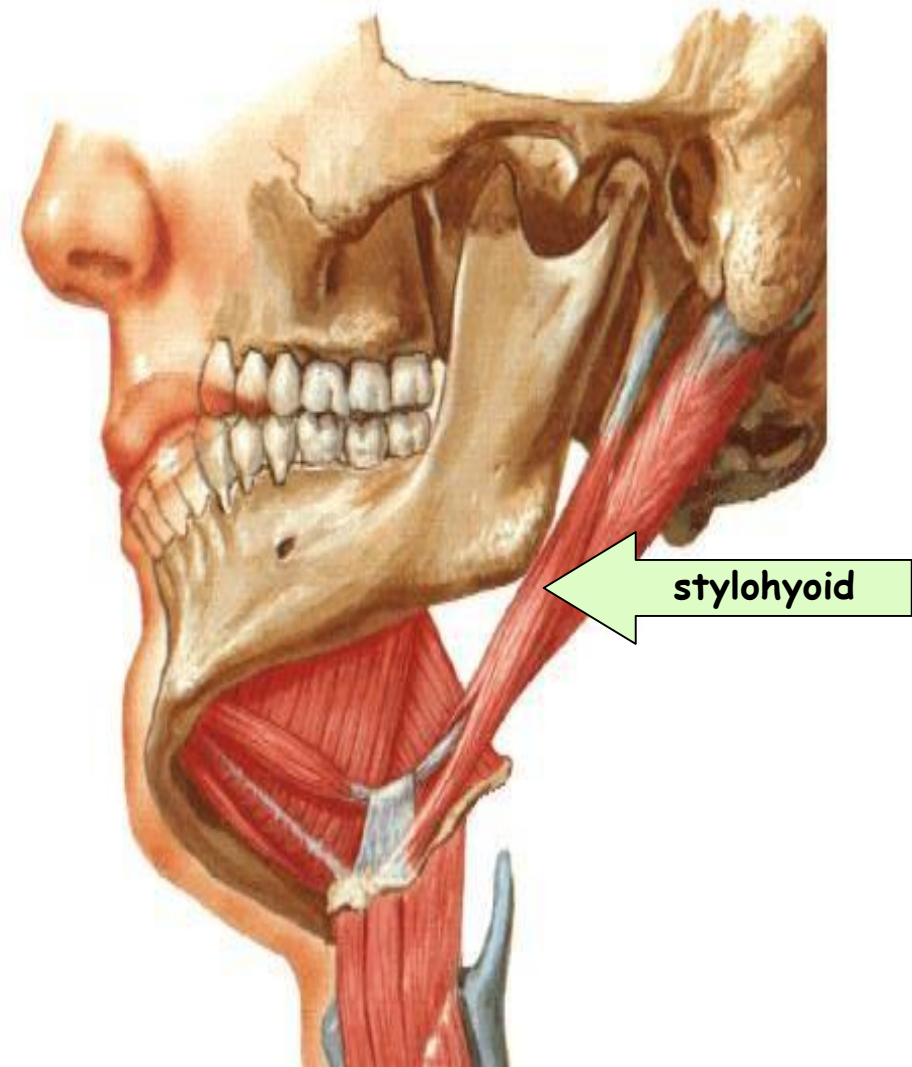
Origin → styloid process

Insertion → hyoid bone

Nerve supply → facial nerve

Action → elevates hyoid bone

ما بتشتغل على mandible



بشبهوا الاشرطة

C. Infrahyoid Muscles اسفل hyoid muscle

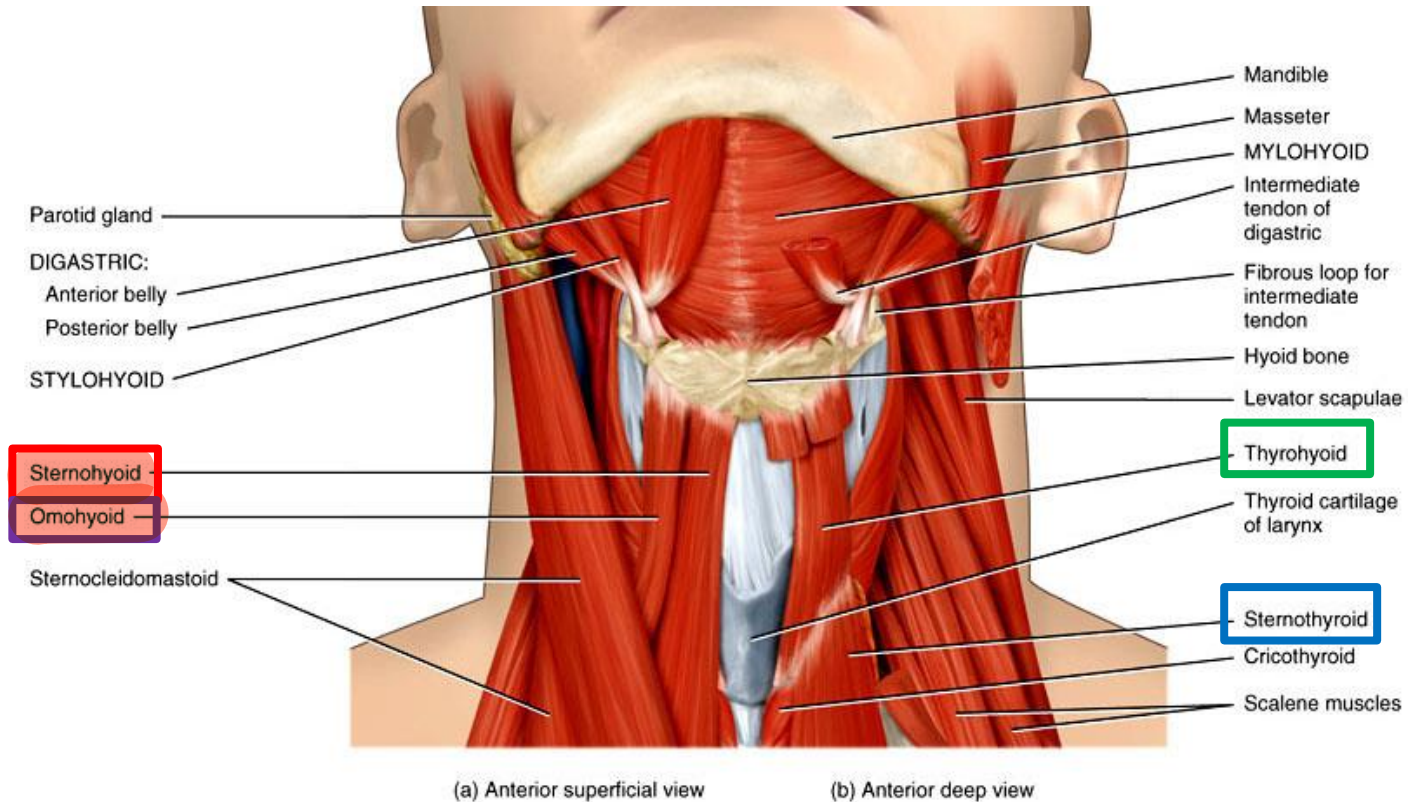
- 4 muscles that lie **below** the hyoid bone.

Include:

- **Sternohyoid**. From the sternum to the hyoid bone
- **Omohyoid**. From scapula to the hyoid bone
- **Sternothyroid**. From the sternum to hyoid cartilage
- **Thyrohyoid**. From hyoid cartilage to the hyoid bone

All infrahyoid muscles are supplied by **Ansa Cervicalis (C1,2,3)** except **Thyrohyoid** which is supplied directly by **C1** (through hypoglossal N.).

All infrahyoid muscles **depress** hyoid bone



Lateral Vertebral Muscles – The Scaleni:

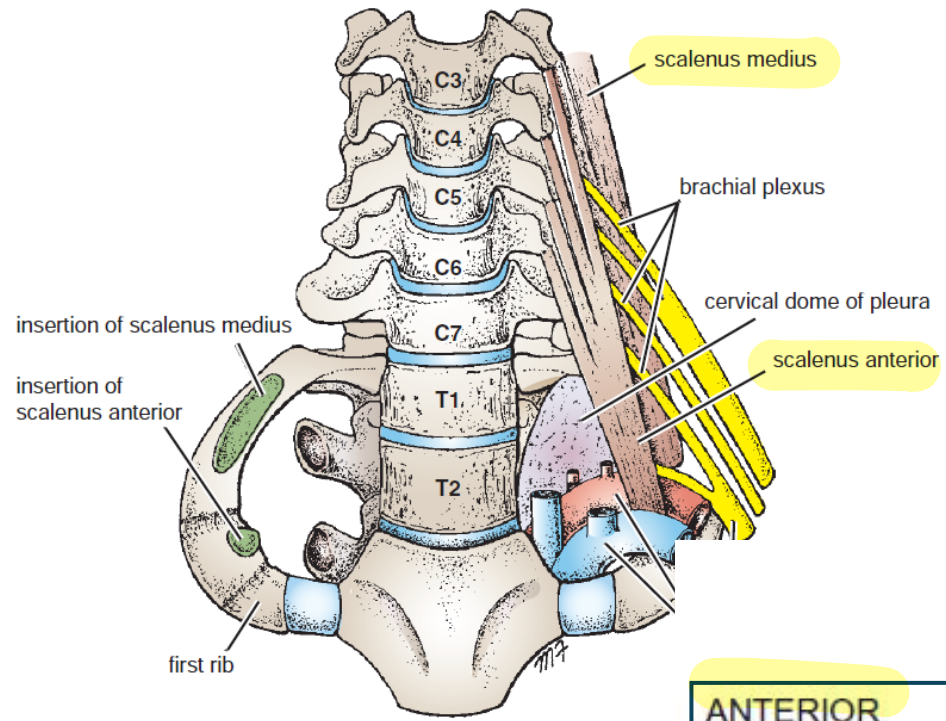
These are attached to the cervical part of the vertebral column and pass laterally – attached to 1st and 2nd ribs

Scalenus anterior is an important landmark in the neck with several important relations

المهم علاقة مع الشرايين و
الاوردة

- **V** ---- **Subclavian vein**
- **A** ---- **Subclavian artery**
- **N** ---- **Trunks of the brachial plexus nerves**

Muscle	Action
Scalenus Anterior (1 st rib)	1. Lateral flexion and rotation of cervical part of vertebral column
Scalenus Medius (1 st rib)	
Scalenus Posterior (2 nd rib)	
	2. Assist in respiration <small>عَلِيَّة التَّنَسُّم (inhalation)</small> <small>لما بتعمل contraction بتوسع القفص الصدري و يدخل الهواء لاله ف هما primary بسموها secondary مو لا ارادي</small>



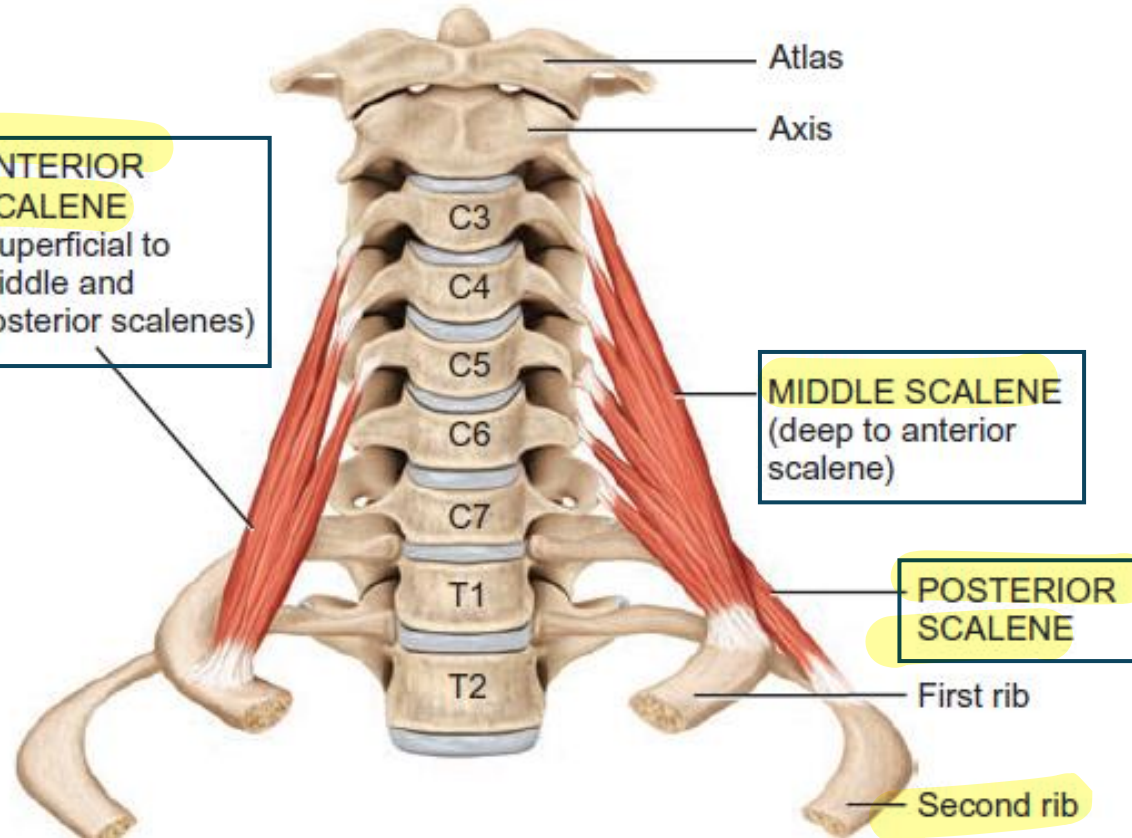
N ---- nerves

A ---- artery

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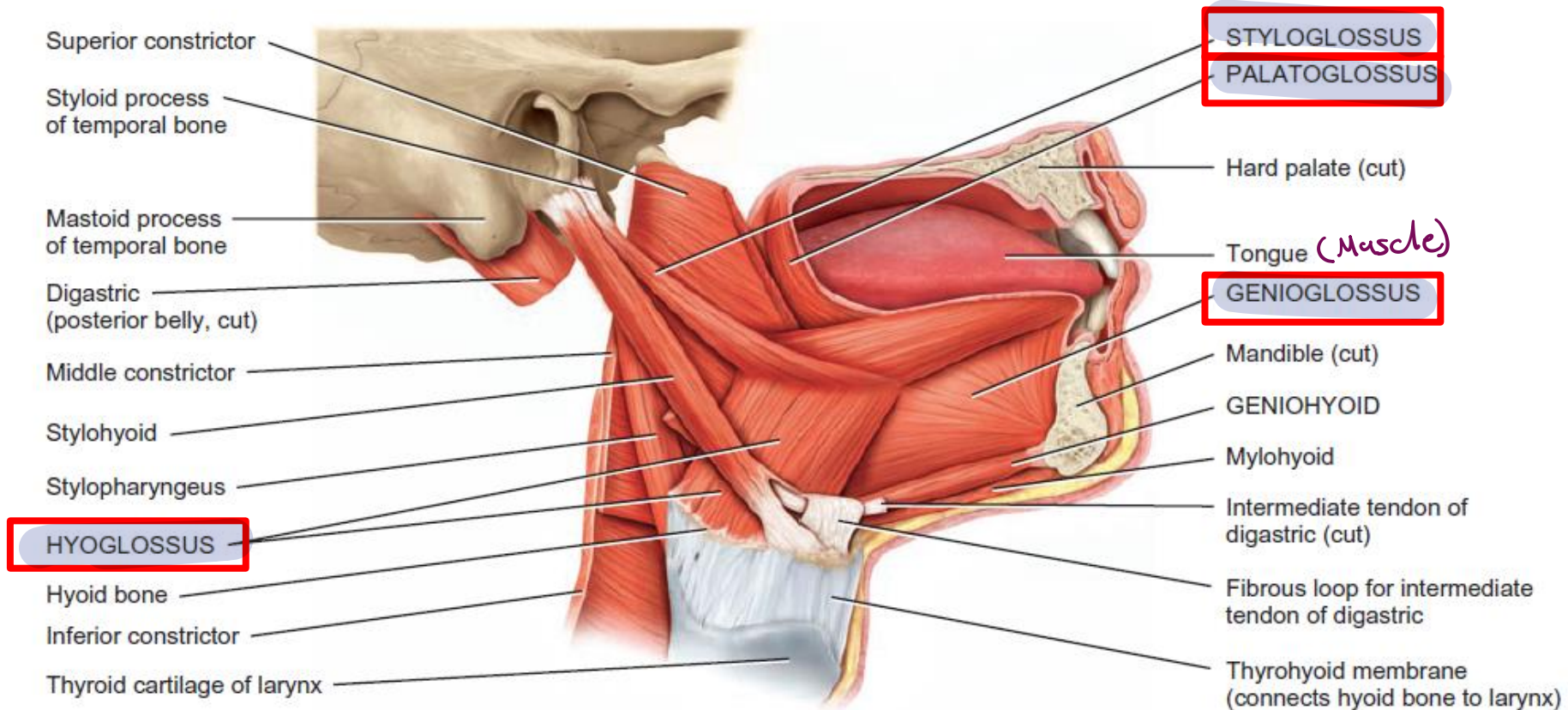
V ---- vein

ANTERIOR SCALENE
(superficial to middle and posterior scalenes)



Muscles of tongue

اي اشي glossa ف هو
عاند لل tounge



(a) Right side deep view

Muscles Of The Tongue

glossal + lingual → Tongue.

Muscle	Action	Nerve Supply	
Extrinsic Muscle (originate outside the tongue, insert into tongue)	Tongue movements (protraction – retraction.....)	Most of them innervated by Hypoglossal (XII) nerve	
			Genioglossus <small>Origin: genio tubercle Insertion: tongue</small>
			Hyoglossus <small>Origin: hyoid bone Insertion: tongue</small>
			Styloglossus <small>Origin: styloid process Insertion: tongue</small>
Intrinsic Muscles (originate and insert within tongue)	Change shape of tongue		

Genioglossus

Origin: genio tubercle
 Insertion: tongue

Hyoglossus

Origin: hyoid bone
 Insertion: tongue

Styloglossus

Origin: styloid process
 Insertion: tongue

Palatoglossus
 (vagus nerve)

الوصلة المصطنعة

Origin: soft palate
 Insertion: mouth

(١٥)

(١٢)

- Thanks!