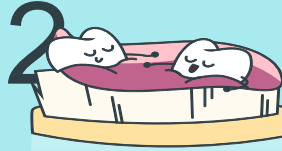


# THE ORAL REGION



## **Objectives:**

1. Recognize the types & neurovascular supply of the teeth
2. Study the structure, movements and neurovascular supply of the tongue
3. Identify the features and anatomy of the submandibular & sublingual glands
4. Study the course & branches of the nerves associated with oral structures

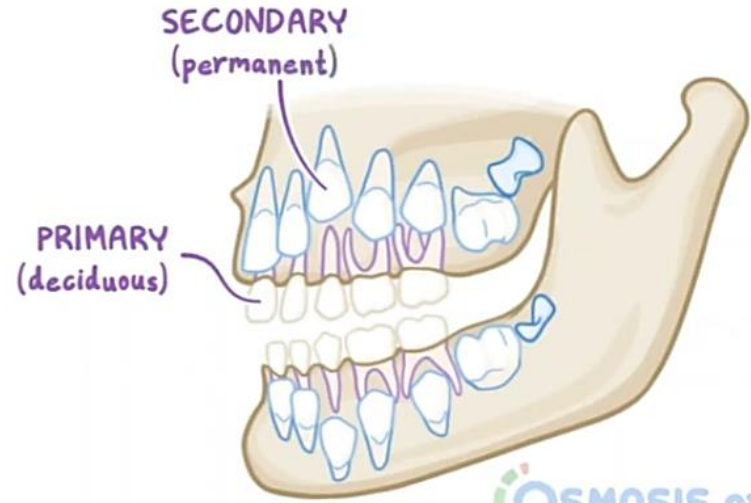


# Teeth & Gingiva: Sets & function

## TEETH



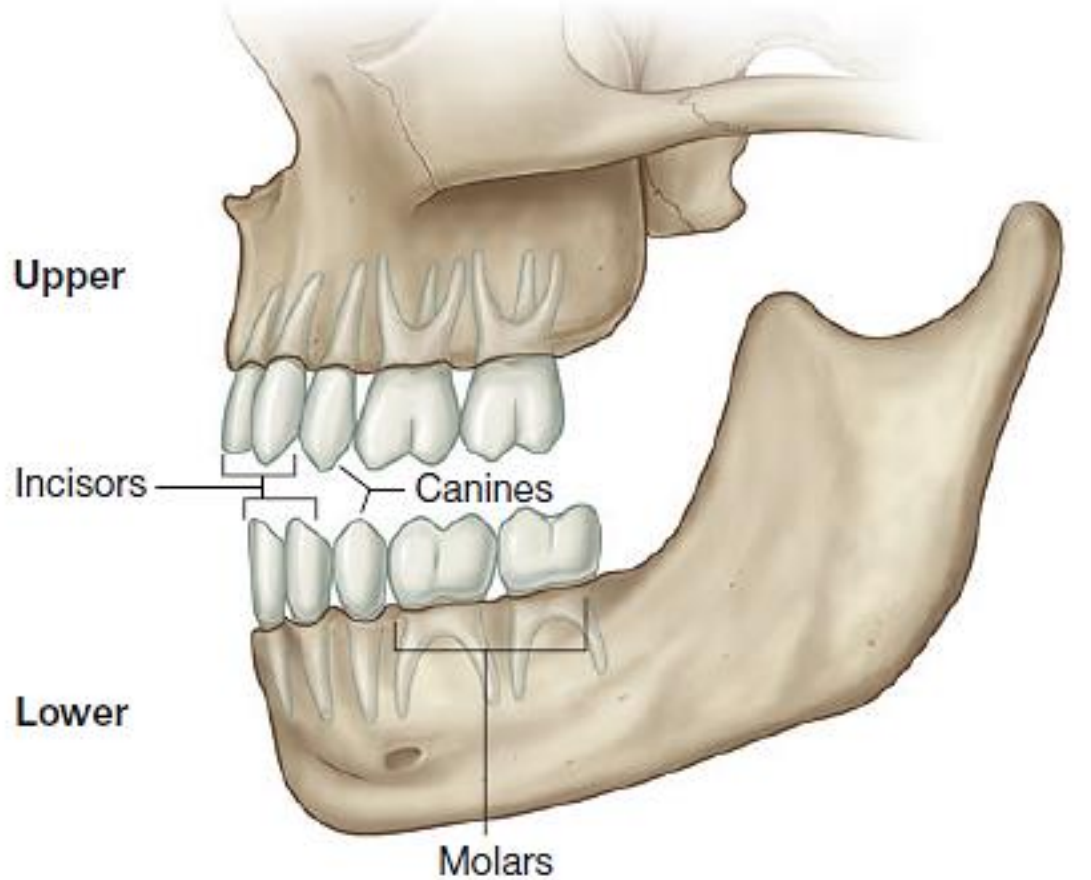
- \* CUTTING & CHEWING FOOD
- \* IMPORTANT during SPEECH
- \* 2 SETS of TEETH



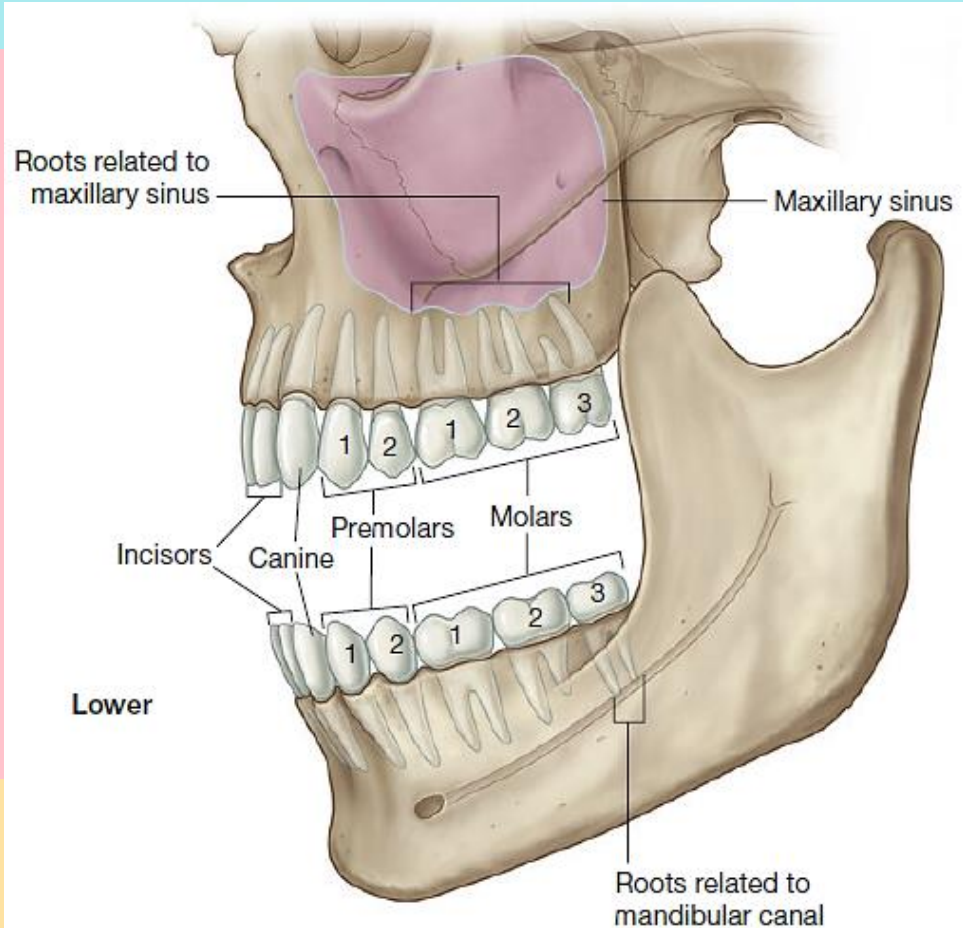
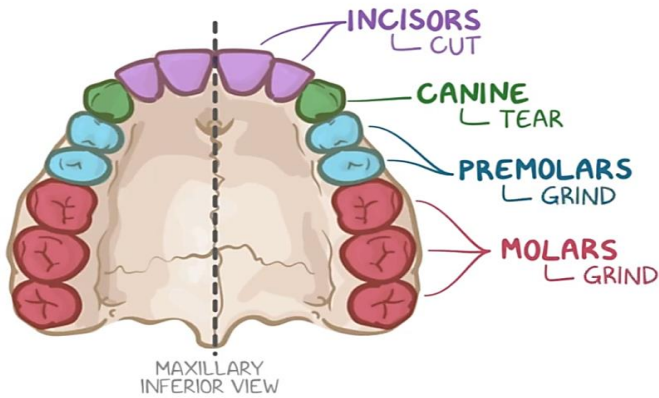
# The Deciduous (milk) Teeth [5X4]

**From 6 months to 2-4 years**

- 1 central incisor
- 1 lateral incisor
- 1 canine
- 2 molars



# The Permanent (adult) Teeth [8X4]

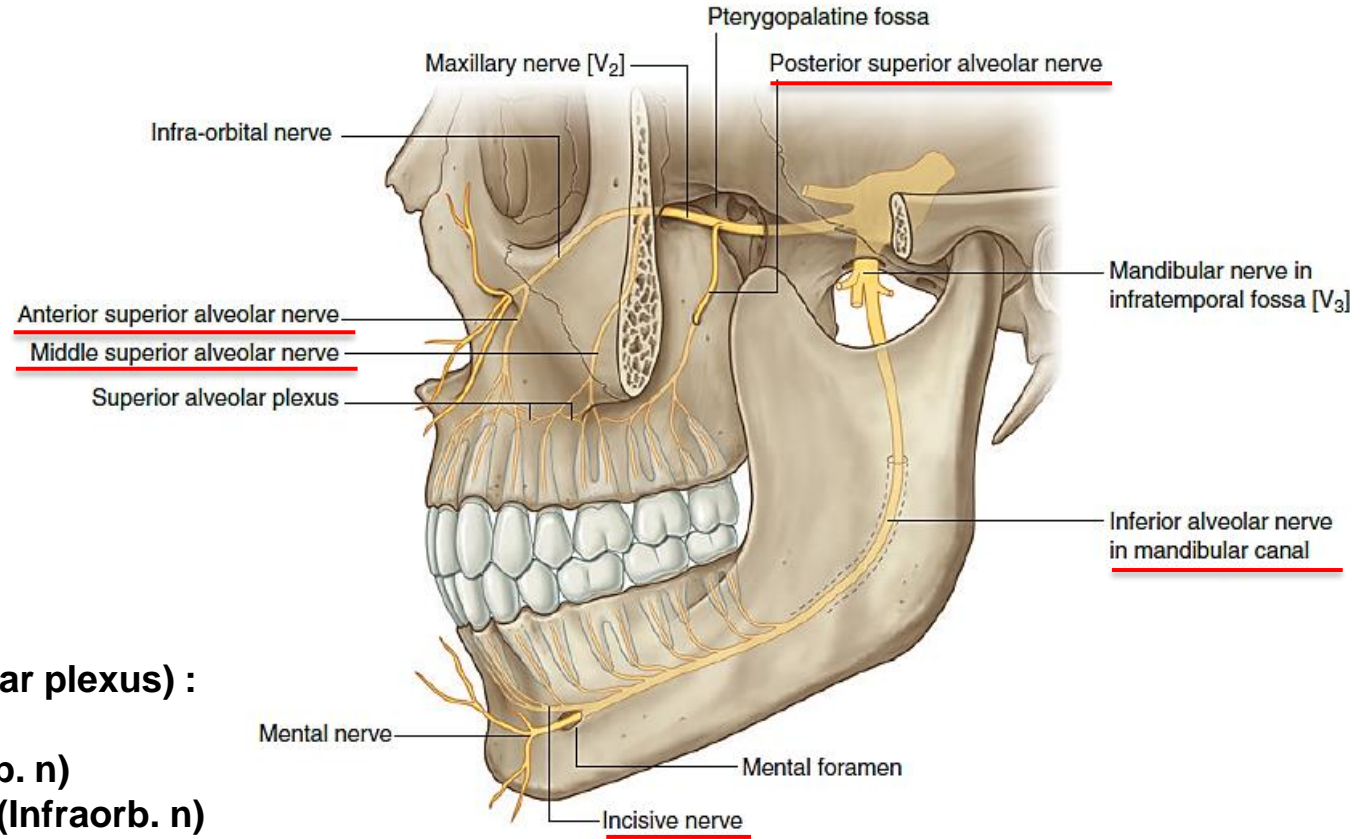


## Around 6 years

- 1 central incisor
- 1 lateral incisor
- 1 canine
- 2 premolars
- 3 molars

- Upper molar roots are closely related to the maxillary sinus
- Lower molar roots related to mandibular canal

# Teeth nerve supply



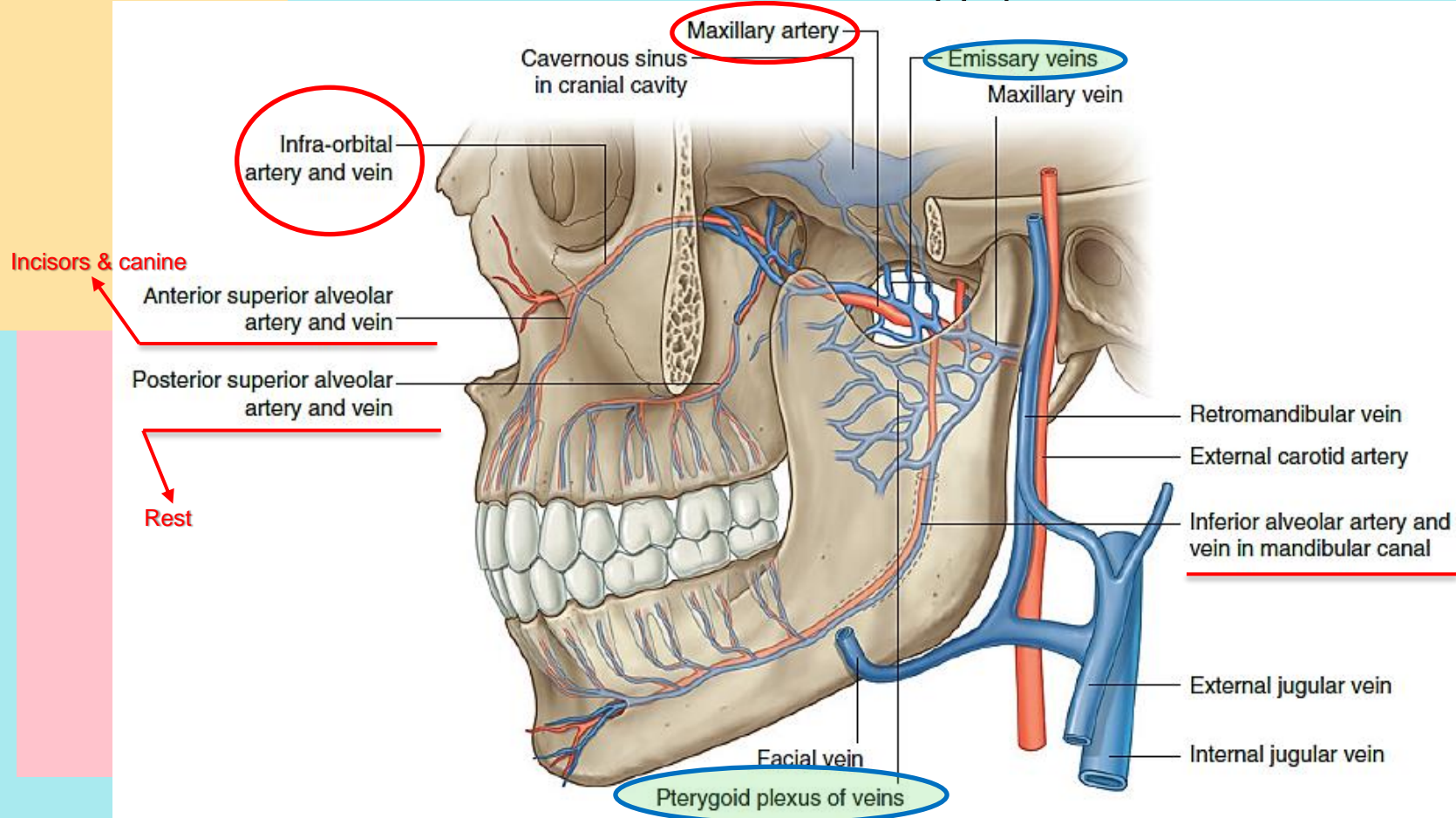
## -Upper teeth (superior alveolar plexus) :

- Molars: PSAN (**V2**)
- Premolars: MSAN (**Infraorb. n**)
- Canines & Incisors: ASAN (**Infraorb. n**)

## - Lower teeth (**V3**) :

- Molars & 2<sup>nd</sup> premolar: IAN (**V3**)
- The rest: **incisive br.** of IAN.

# Teeth vascular supply



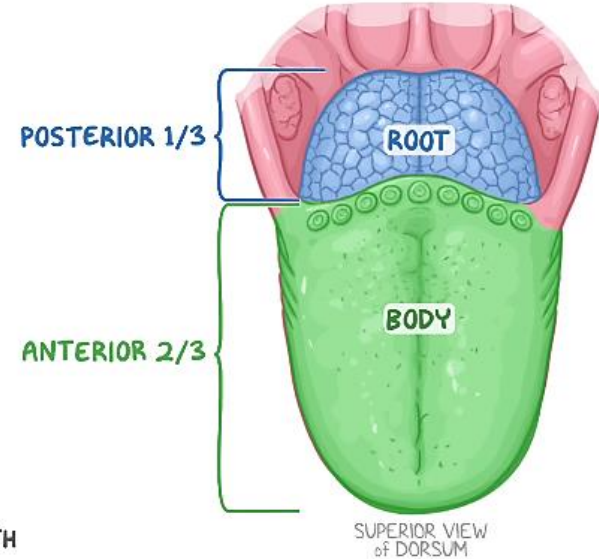
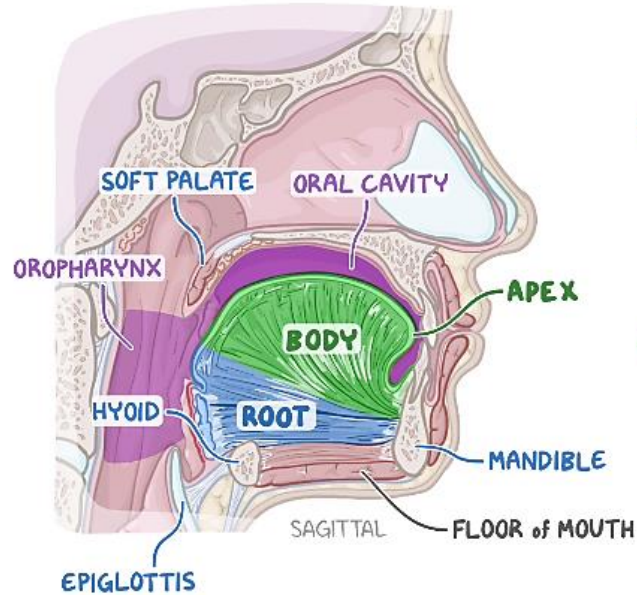
**Tooth infection reaching the pterygoid venous plexus can ascend to the cranial cavity via emissary vv.!!!!**

# The Tongue: parts & functions

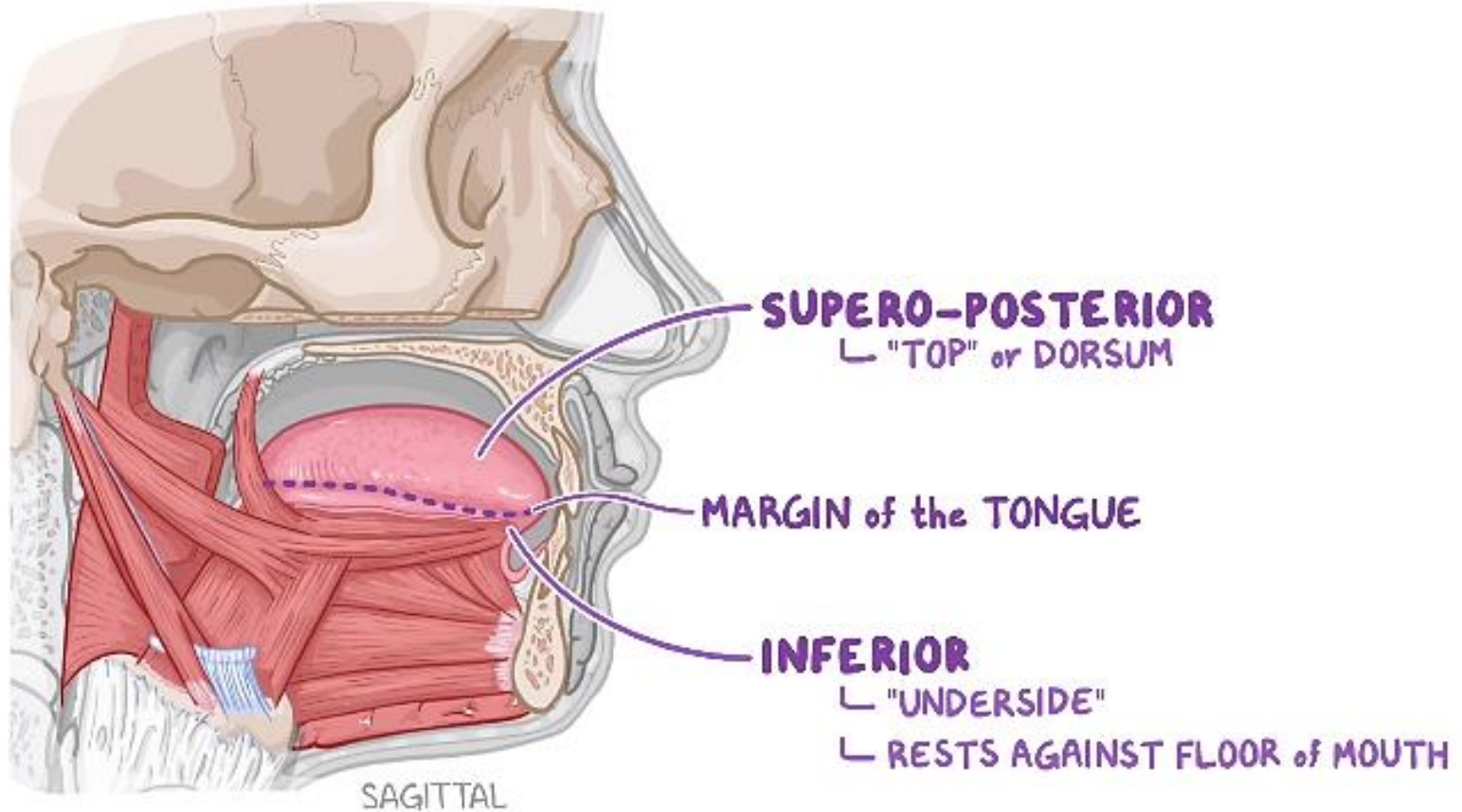
- \* MASS of MUSCLES covered by MUCOUS MEMBRANE
- \* can CONTRACT & RELAX QUICKLY



- \* AIDS SOUND FORMATION
- \* INVOLVED in TASTE (taste receptors)
- \* PUSHES FOOD into OROPHARYNX
- \* HELPS w/ MASTICATION & ORAL CLEANSING

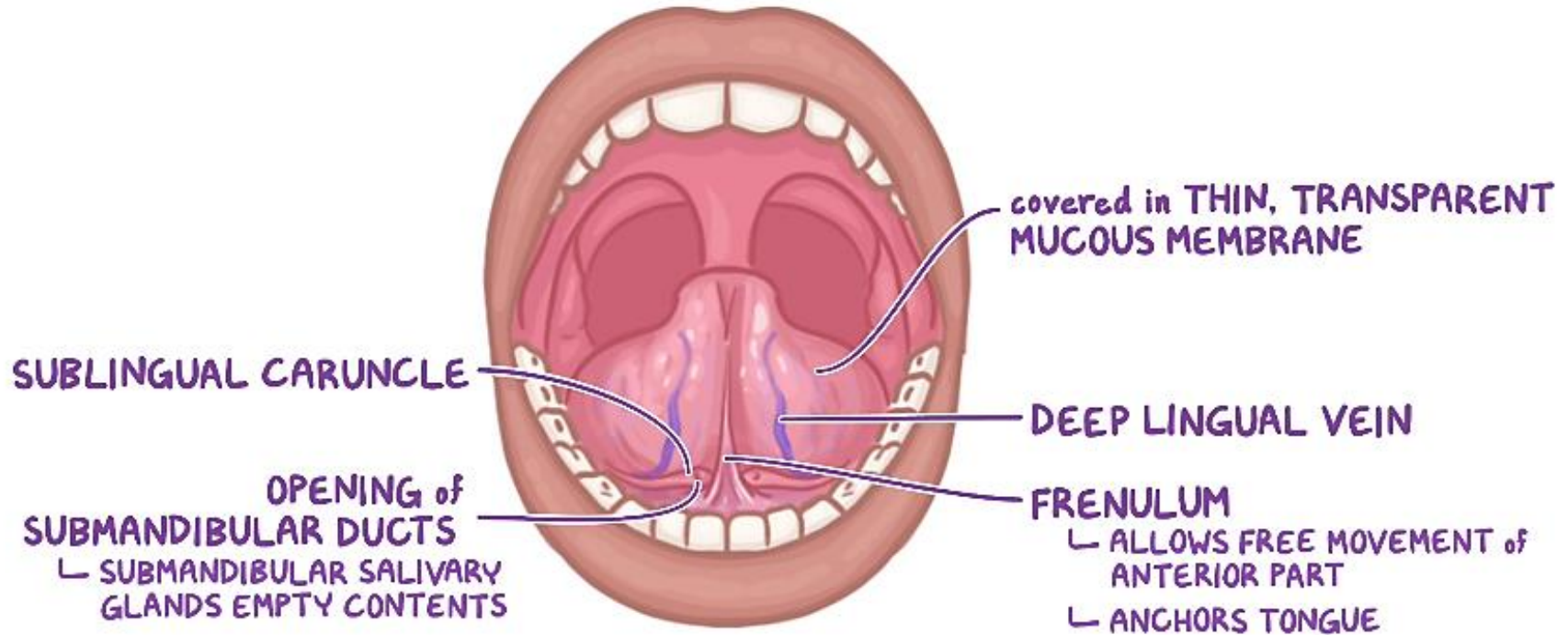


# The Tongue: surfaces

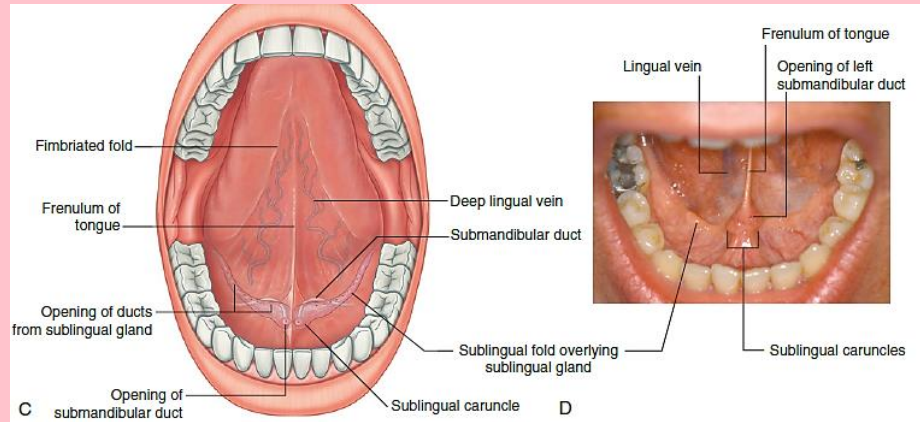




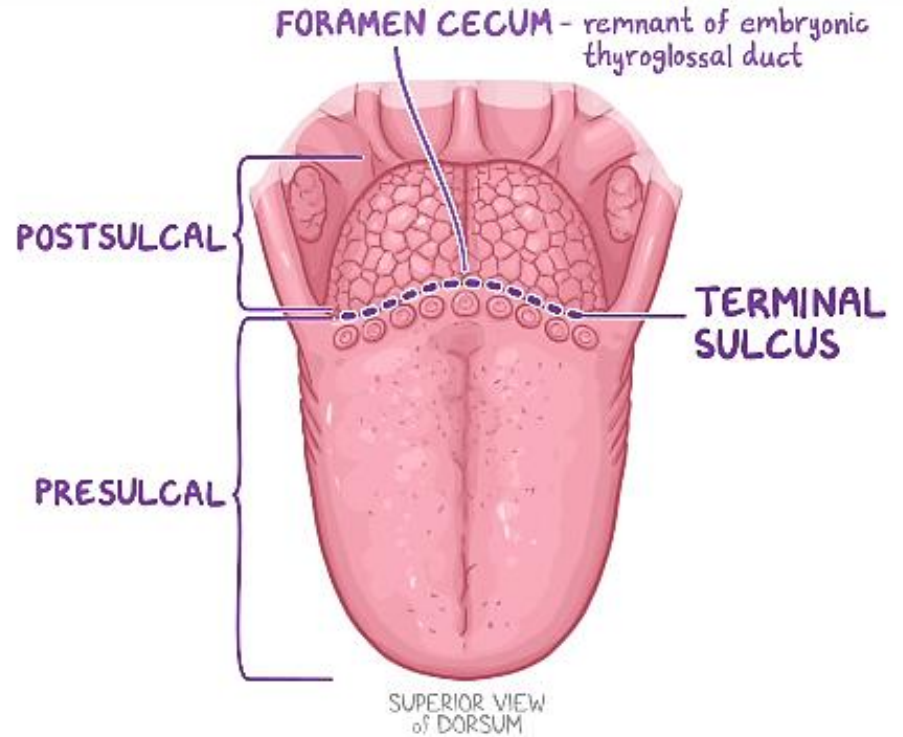
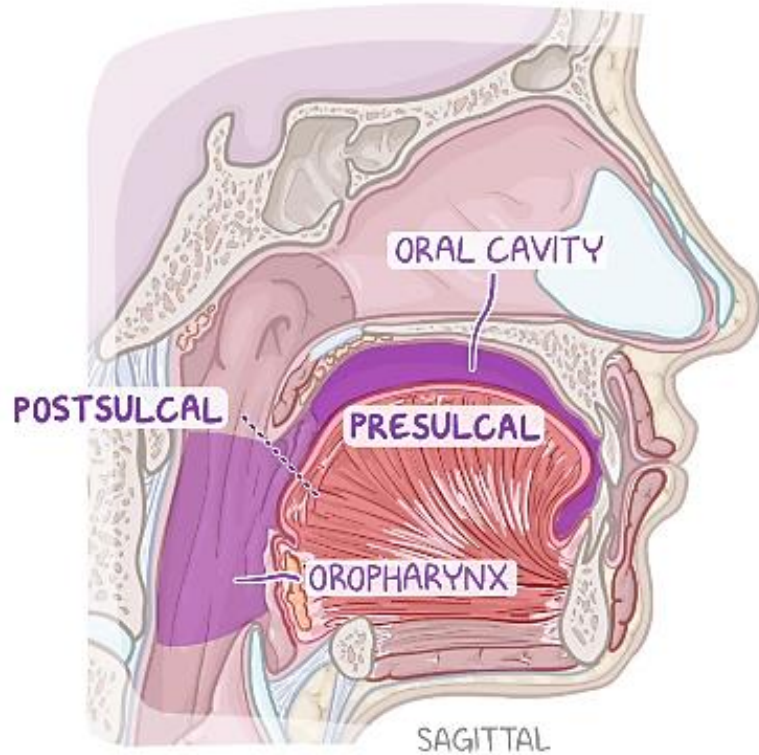
# The Tongue: inferior surface



# The Tongue: Tongue tie

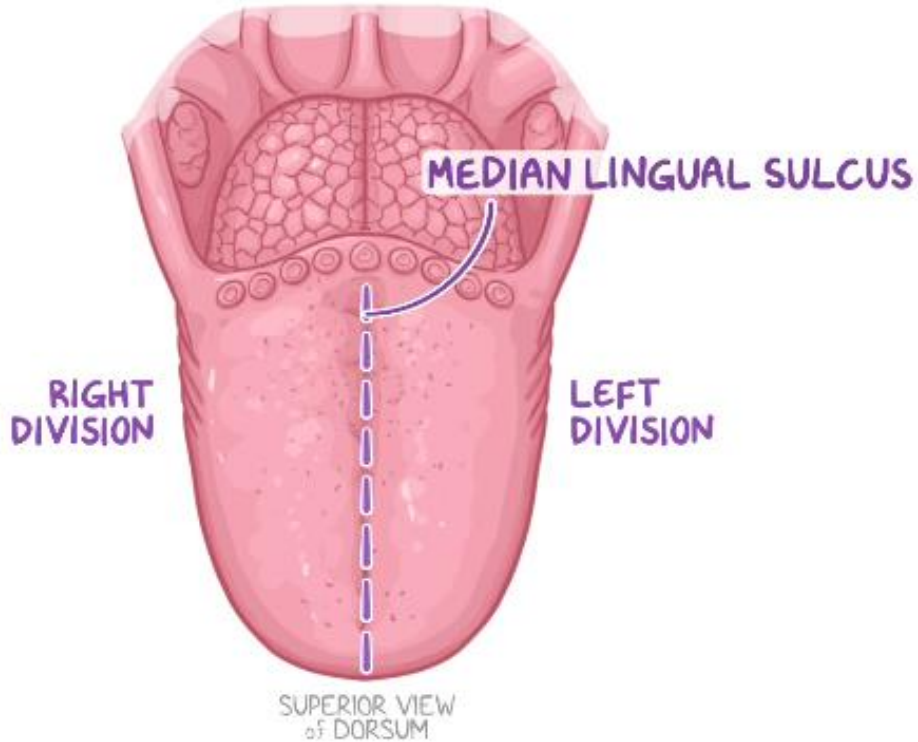


# The Tongue: dorsal surface features



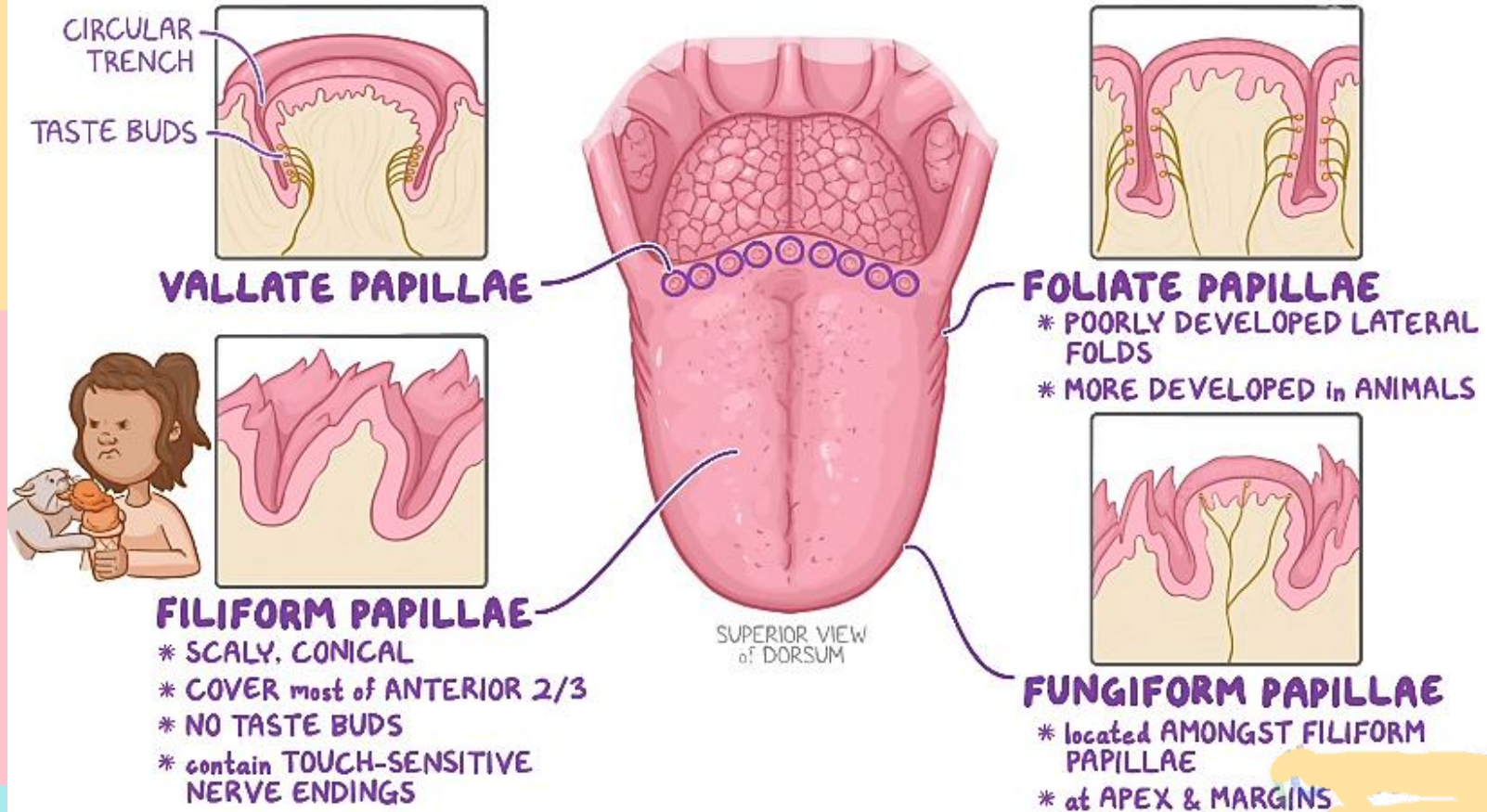
- **Terminal sulcus:** V-shaped, separates ant 2/3 from post 1/3 & has **foramen cecum** at its top
- **Presulcal part:** oral.
- **Postsulcal part:** pharyngeal.

# The Tongue: presulcal features



- ## LINGUAL PAPILLAE
- contain taste buds
- ① VALLATE
  - ② FOLIATE
  - ③ FILIFORM
  - ④ FUNGIFORM

# The Tongue: papilla



Filiform papilla are not concerned with taste

# The Tongue: taste map

UMAMI



SOUR



SWEET



BITTER

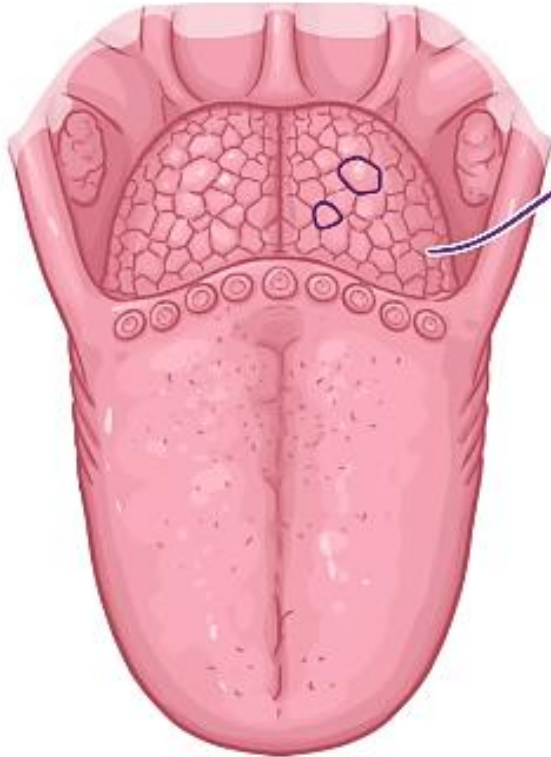


SALTY



**This is not 100% accurate!!!**

# The Tongue: postsulcal features



SUPERIOR VIEW  
of DORSUM

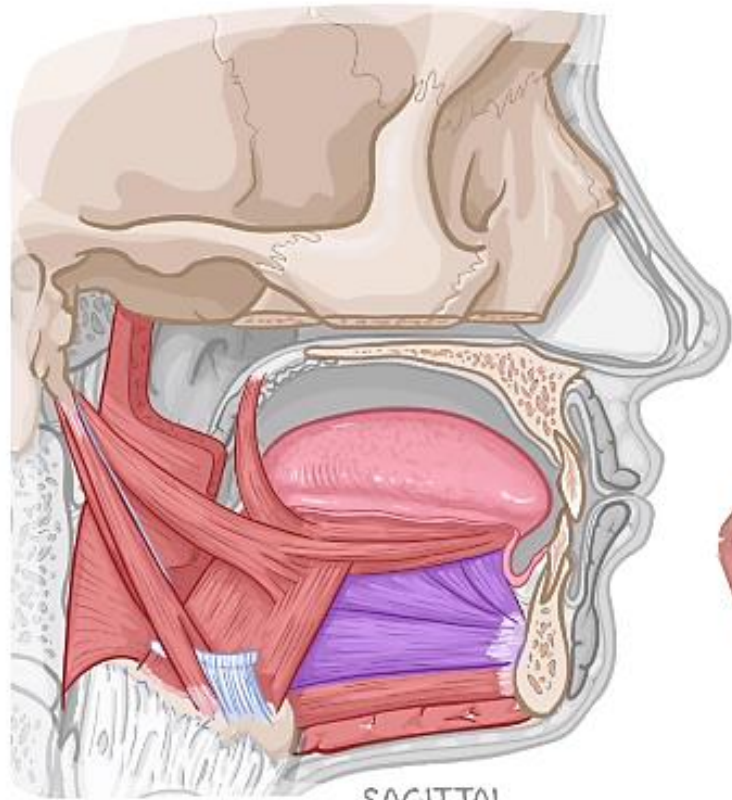
## MUCOSA of POSTERIOR PART

- ↳ THICK
- ↳ CONTRIBUTES to ANTERIOR WALL of OROPHARYNX
- ↳ NO LINGUAL PAPILLAE
- ↳ scattered w/ LYMPHOID NODULES

## LINGUAL TONSILS

- ↳ involved in IMMUNE RESPONSE to ORAL PATHOGENS

# Tongue: extrinsic muscles



SAGITTAL

## GENIOGLOSSUS

- ORIGIN: ~ <sup>Sup.</sup> MENTAL SPINE of MANDIBLE
- INSERTION: ~ DORSUM of the TONGUE  
~ BODY of the HYOID BONE
- ACTIONS: ~ DEPRESSION  
~ PROTRUSION  
~ CONTRALATERAL DEVIATION  
~ BILATERALLY: create a LONGITUDINAL FURROW





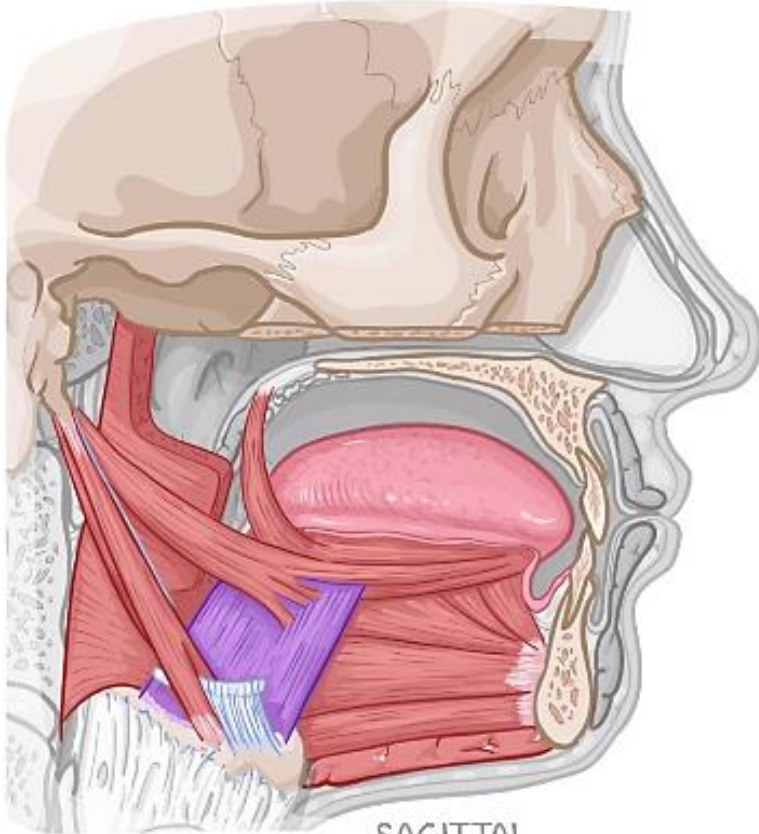
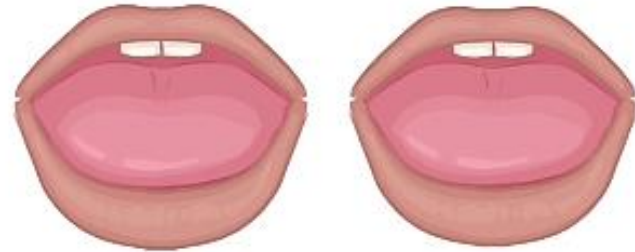
# Tongue: extrinsic muscles

## HYOGLOSSUS

ORIGIN: ~ **BODY & GREATER HORN of HYOID BONE**

INSERTION: ~ **INFERO-LATERAL PART of TONGUE**

ACTIONS: ~ **DEPRESSION**  
~ **RETRUSION**



SAGITTAL

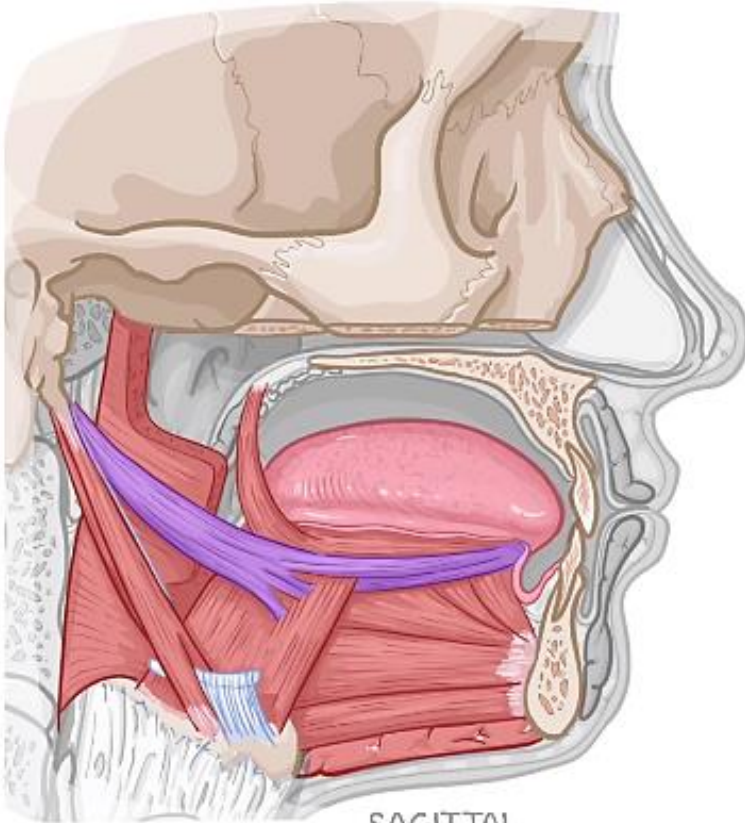
# Tongue: extrinsic muscles

## STYLOGLOSSUS

ORIGIN: ~ DISTAL STYLOID PROCESS  
~ STYLOHYOID LIGAMENT

INSERTION: ~ POSTERIOR SIDES of TONGUE

ACTIONS: ~ RETRUDE & CURL SIDES of the  
TONGUE



SAGITTAL



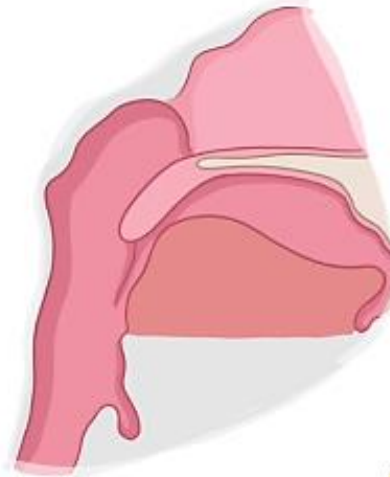
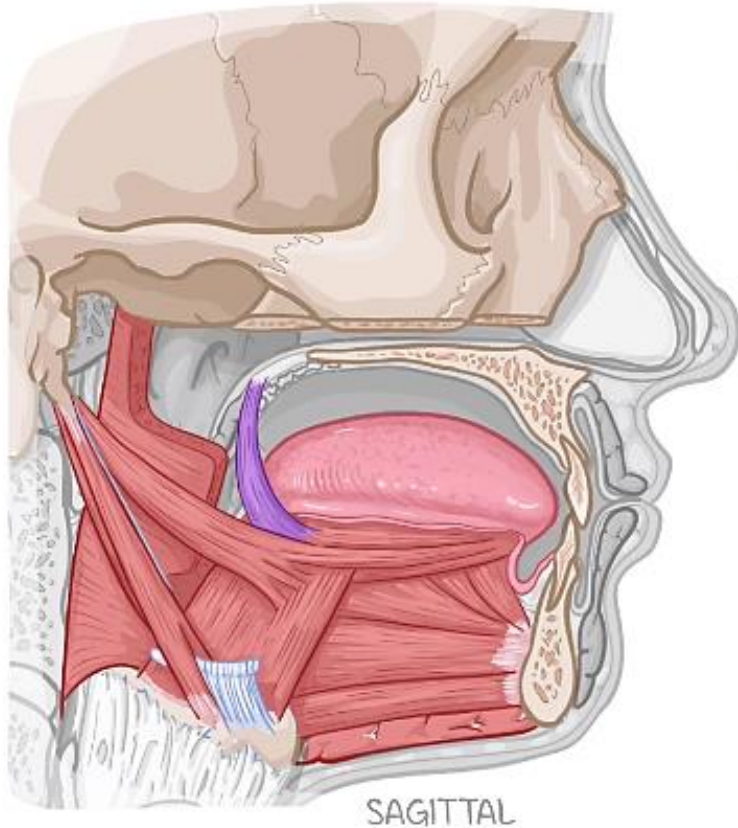
# Tongue: extrinsic muscles

## **PALATOGLOSSUS**

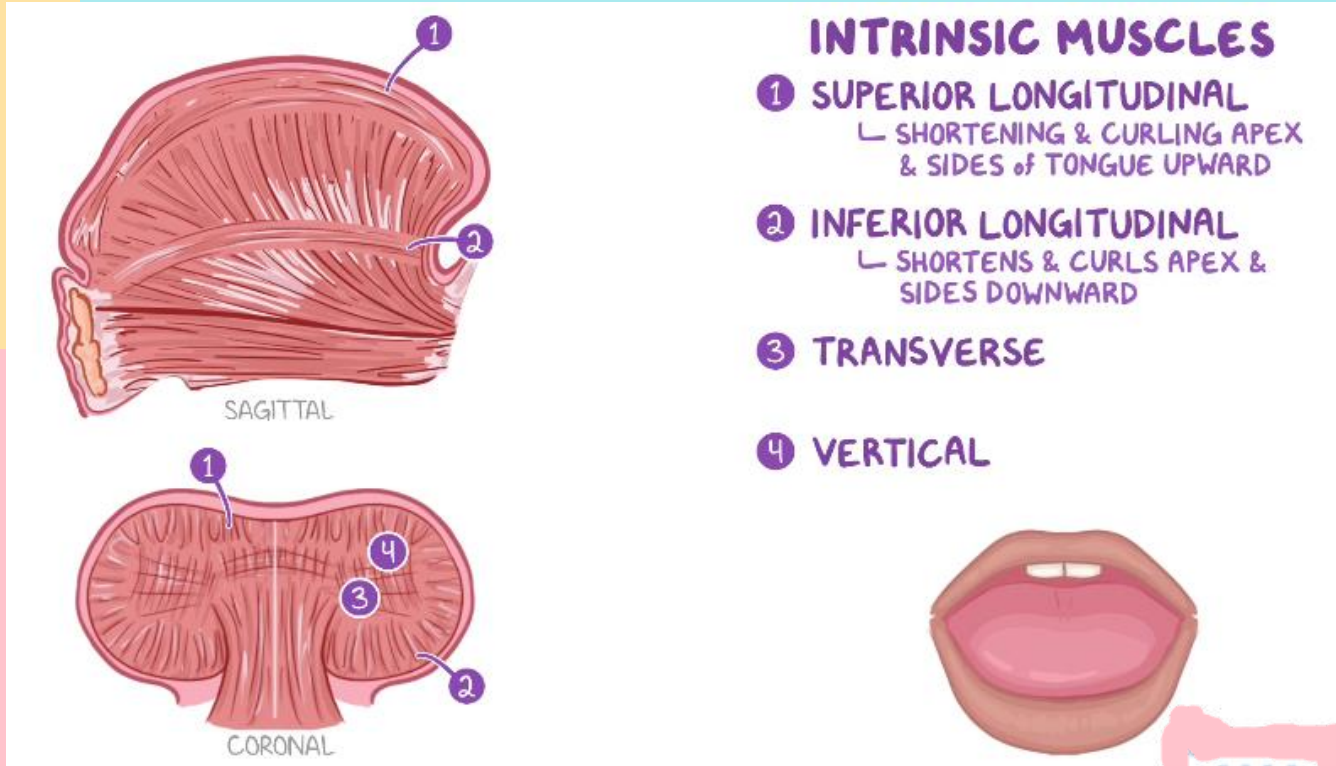
ORIGIN: ~ PALATINE APONEUROSIS of SOFT PALATE

INSERTION: ~ POSTEROLATERAL ASPECT of the TONGUE

ACTIONS: ~ ELEVATING POSTERIOR TONGUE  
~ DEPRESSING SOFT PALATE



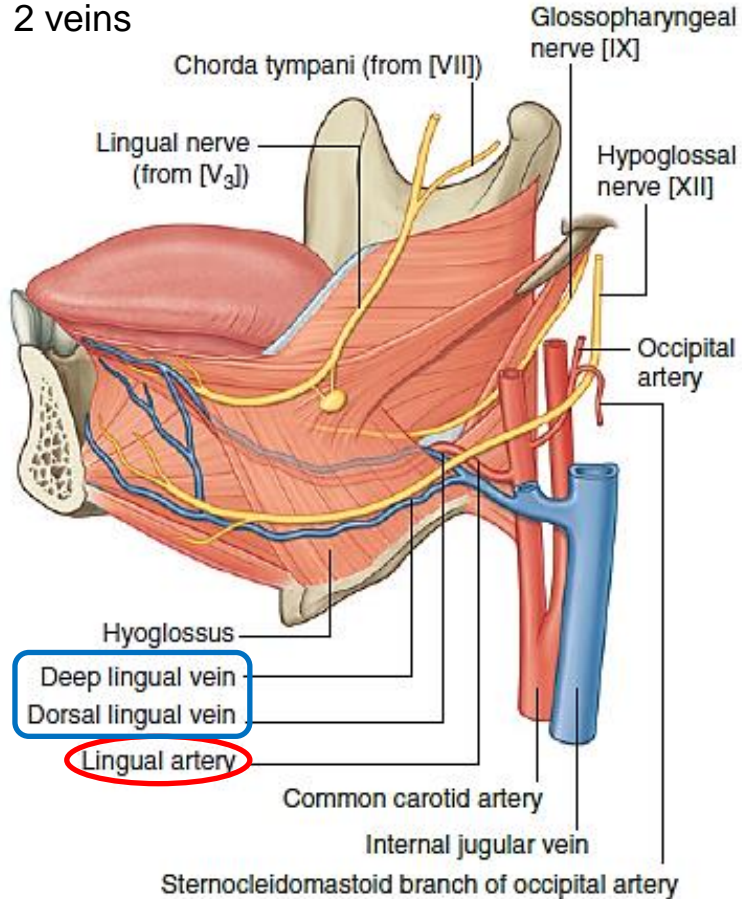
# The Tongue: intrinsic muscles



All tongue muscles are supplied by **CN XII**  
EXCEPT **palatoglossus** which is supplied by **CNX** (via pharyngeal plexus)

# The Tongue: neurovascular supply

1 artery  
2 veins



## Sensory

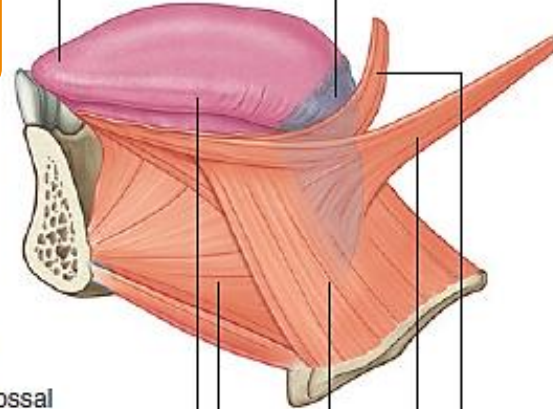
Anterior two-thirds (oral)

- General sensation mandibular nerve [V<sub>3</sub>] via lingual nerve
- Special sensation (taste) facial nerve [VII] via chorda tympani

Posterior one-third (pharyngeal)

- General and special (taste) sensation via glossopharyngeal nerve [IX]

Except vallate papillae



## Motor

Hypoglossal nerve [XII]

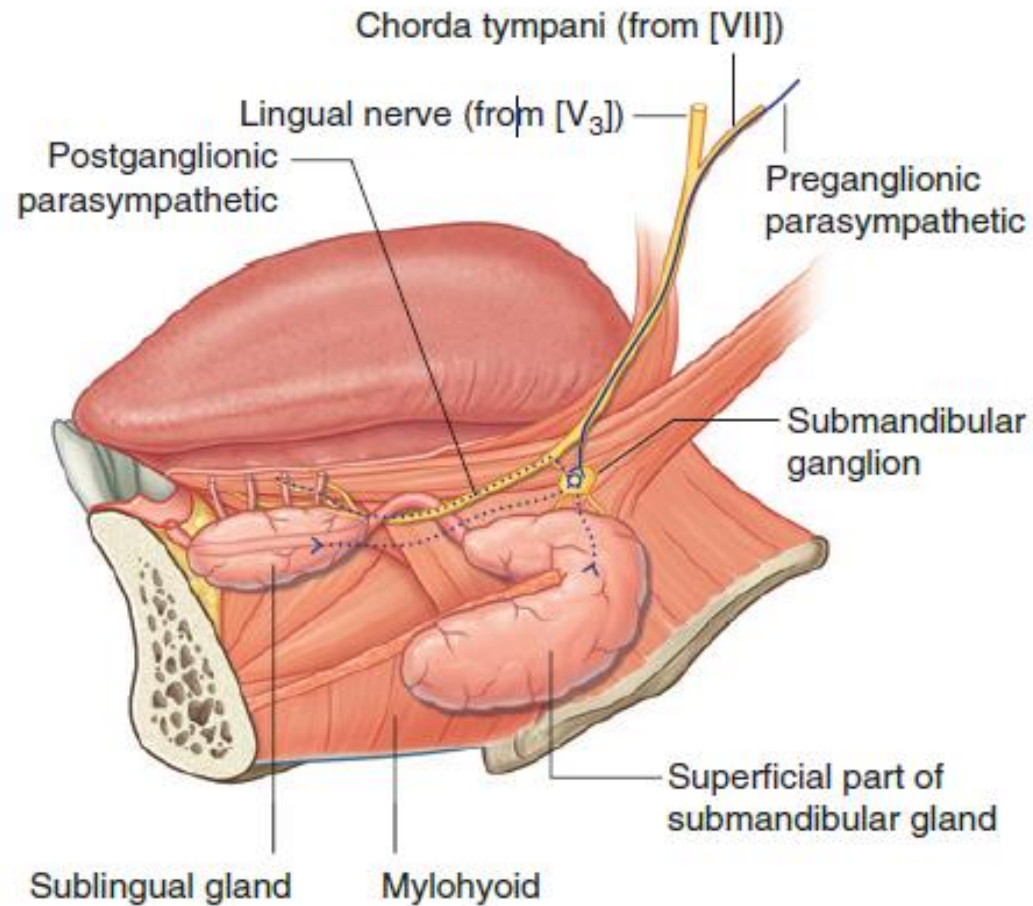
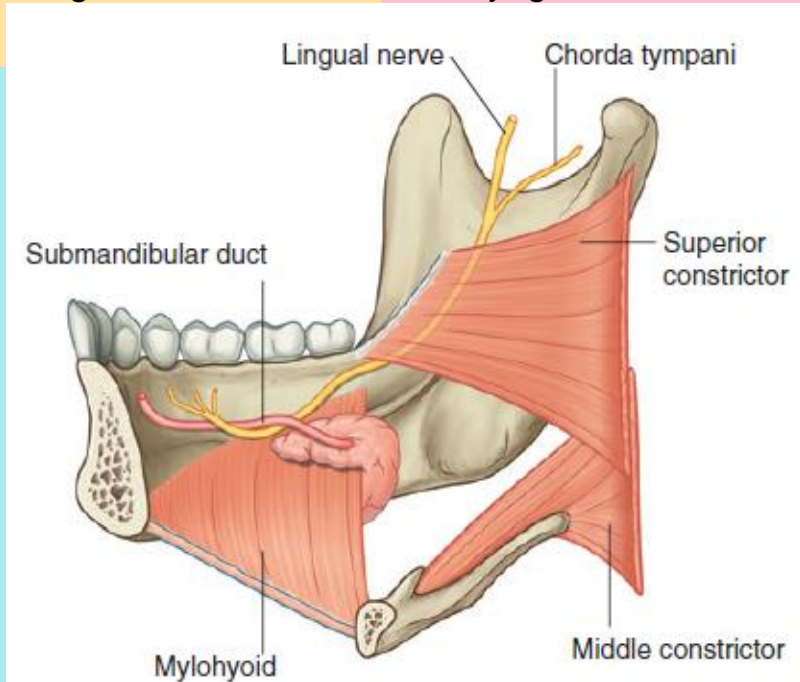
- Intrinsic muscle
- Genioglossus
- Hyoglossus
- Styloglossus

Palatoglossus - vagus nerve [X]

# The lingual nerve & chorda tympani

V3 → Lingual n. ←----- chorda tympani ← CN VII

**Lingual n. passes orophar. triangle, run on the medial surface of the mandible close to the last molar tooth and deep to the gingiva. Then it loops under the submandibular duct to tongue surface, external to hyoglossus.**

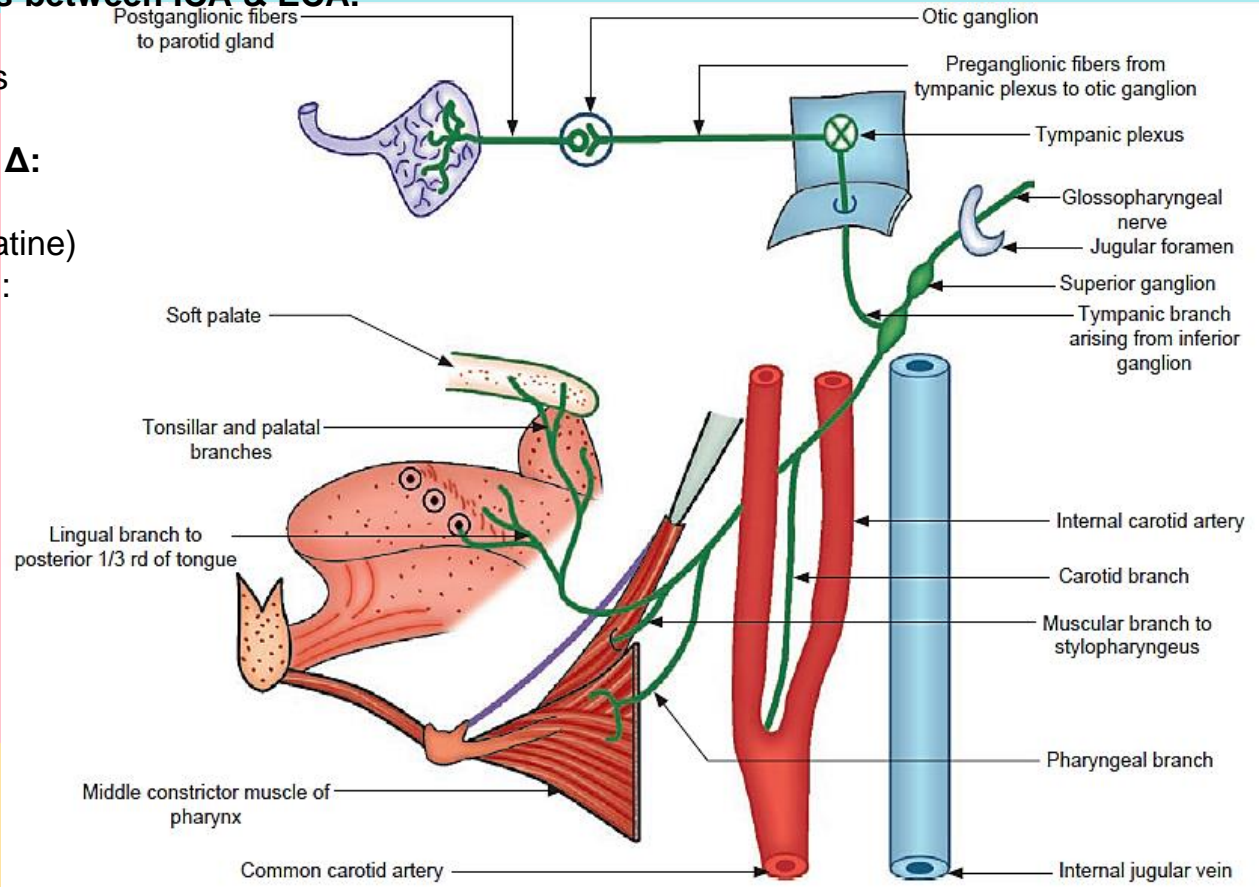


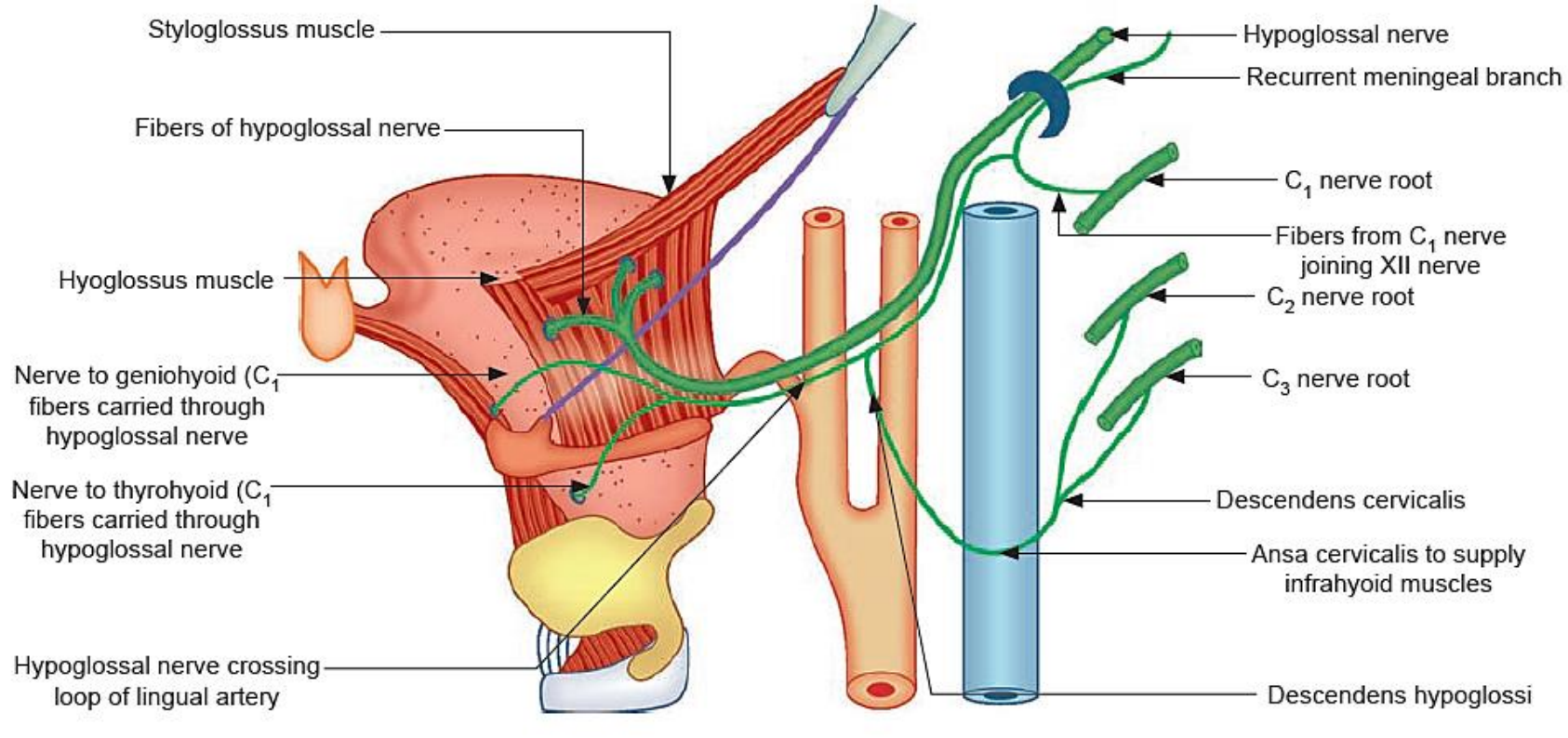
**Lingual n. → general sensation of ant. 2/3 of tongue+ gingiva+floor.**  
**Chorda tympani → taste of ant. 2/3, parasymp. To oral slivary gl.**

# CN IX

1. Exits jugular foramen.
2. Forms sup. & inf. Ganglia.
3. Inf. Ganglion → tympanic br. → tympanic plexus → lesser petrosal n. → otic ganglion.
4. Descends with stylopharyngeus between ICA & ECA:

- Carotid n. → carotid bodies.
  - Pharyngeal br. → Pharyngeal plexus
  - Muscular → stylopharyngeus
- 5. Passes through oropharyngeal Δ:**
- Tonsillar br. (tonsillar fossa)
  - Palatal br.s (plexus with lesser palatine)
  - Lingual br. (post. 1/3+ vallate pap.):
- General & taste.

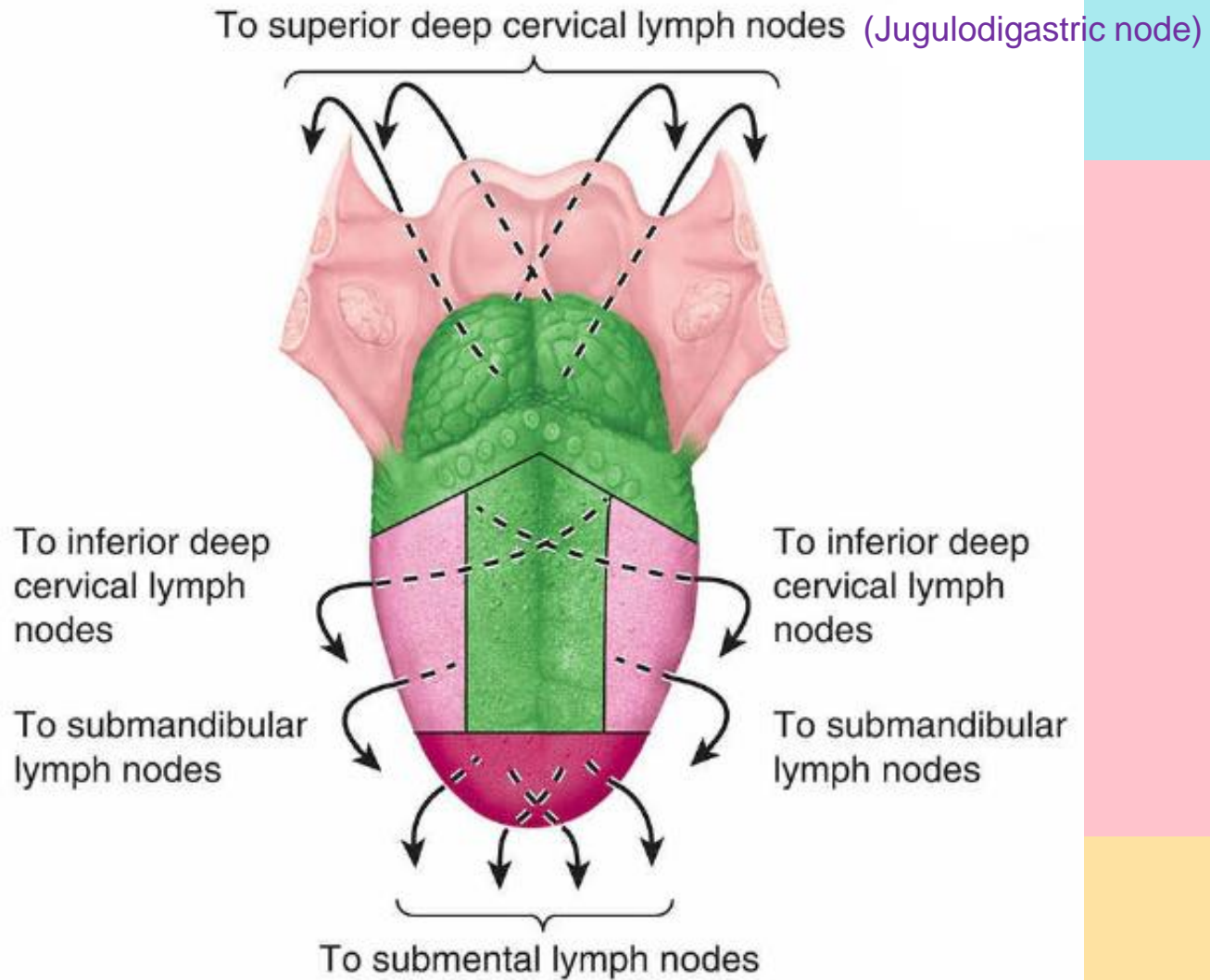




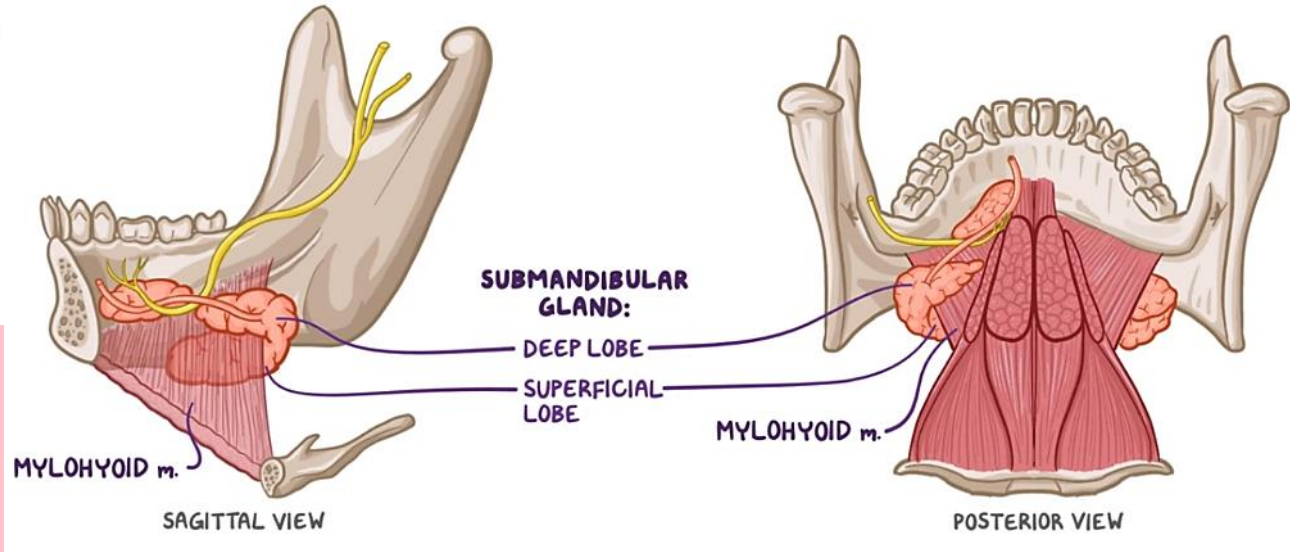
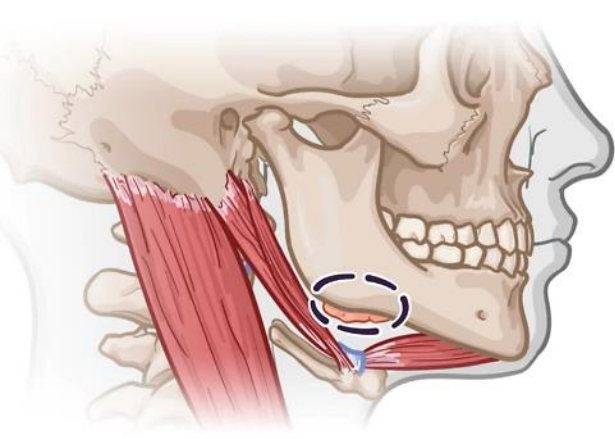
1. Exits hypoglossal canal
2. **Joined by branch from C<sub>1</sub>** (gives recurrent meningeal branch and the rest descend with CN XII)
2. **Descends** between IJV & ICA
3. **Angles anteromedially** just below the level of the mandible.
4. **Crosses the ECA and loop of lingual a. forwards** superficial to the lower part of hyoglossus.
5. C<sub>1</sub> leaves CN XII as n. to geniohyoid & n. to thyrohyoid.
6. CN XII enters with hypoglossus via orophar. **Δ** to supply all tongue muscles **EXCEPT** palatoglossus.



# The Tongue: lymphatic drainage



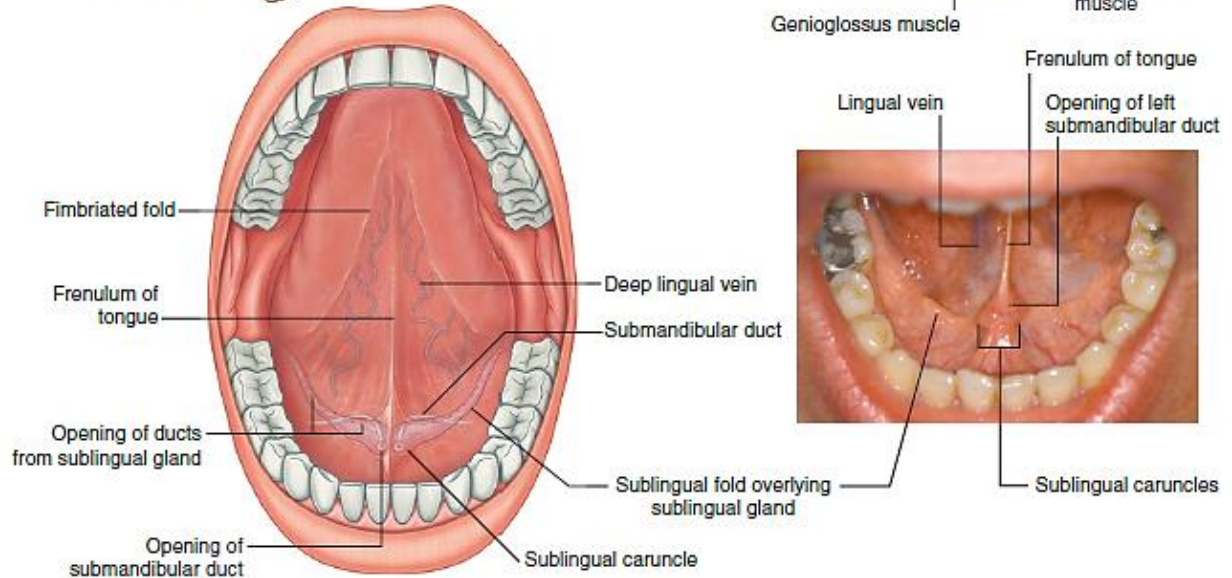
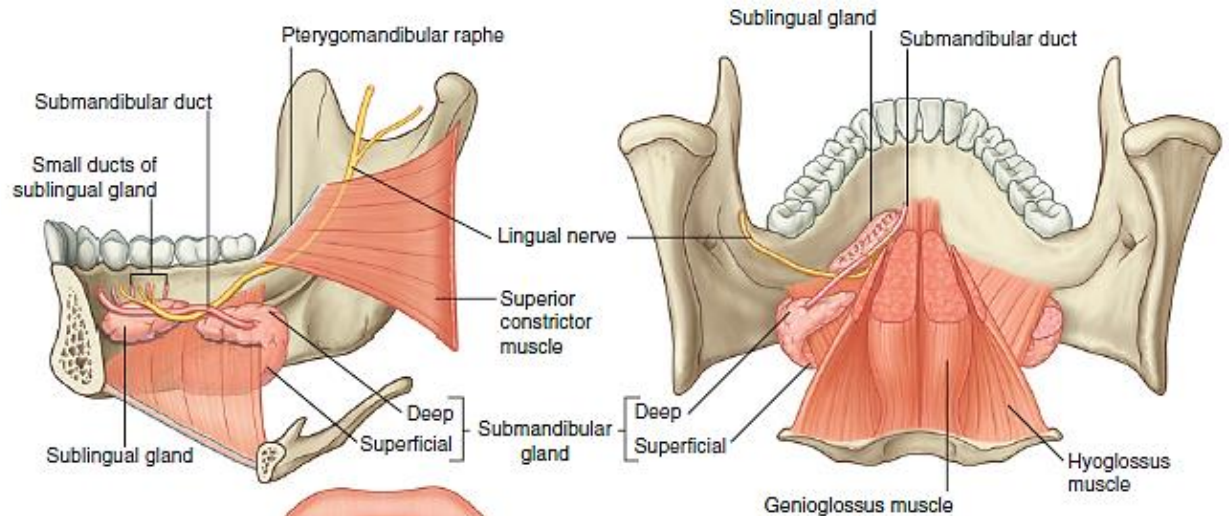
# The submandibular gland: location & parts



- **Deep to the mandible** just anterior to the mandibular angle. **Hook-shaped** with long & short arms.
- **Long arm (superficial part):** horizontal, inferior to mylohyoid (out of oral cavity) in submandibular fossa below mylohyoid line.
- **Short arm (deep part):** loops behind the border of mylohyoid to lie on the oral floor lateral to the root of the tongue & hyoglossus.
- **The submandibular duct** emerges from the medial side of the deep part

# The submandibular duct / opening

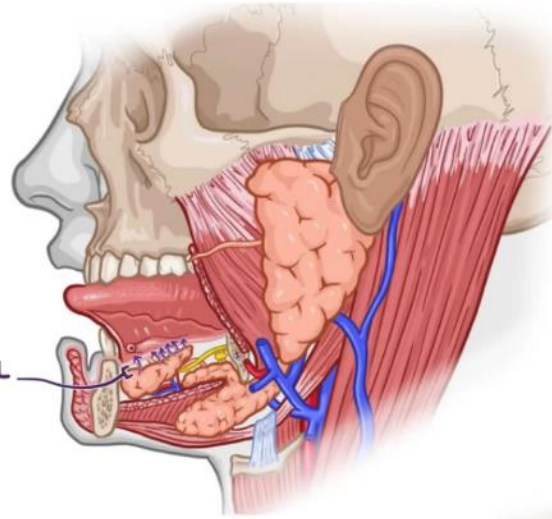
- The duct runs forward to open on the summit of a small **sublingual caruncle (papilla)** beside the base of the frenulum of the tongue.
- **The lingual nerve loops under the duct from lat. to med.**



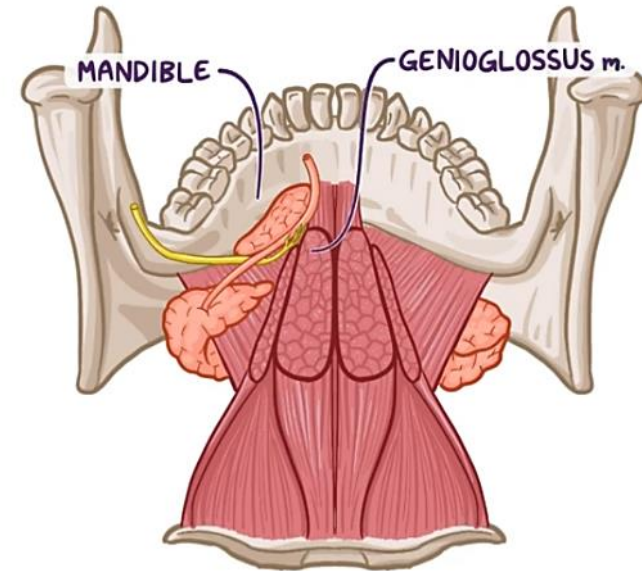
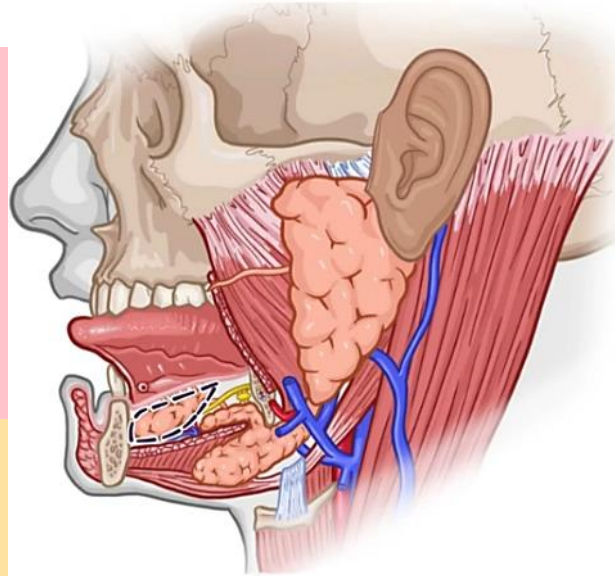
# The sublingual gland: location & ducts

- Almond shaped. Immediately lateral to the submandibular duct & lingual n. (between mandible (sublingual fossa) & tongue ;above mylohyoid).
- Raises the mucosa as **sublingual fold**

SUBLINGUAL  
DUCTS or  
DUCTULES

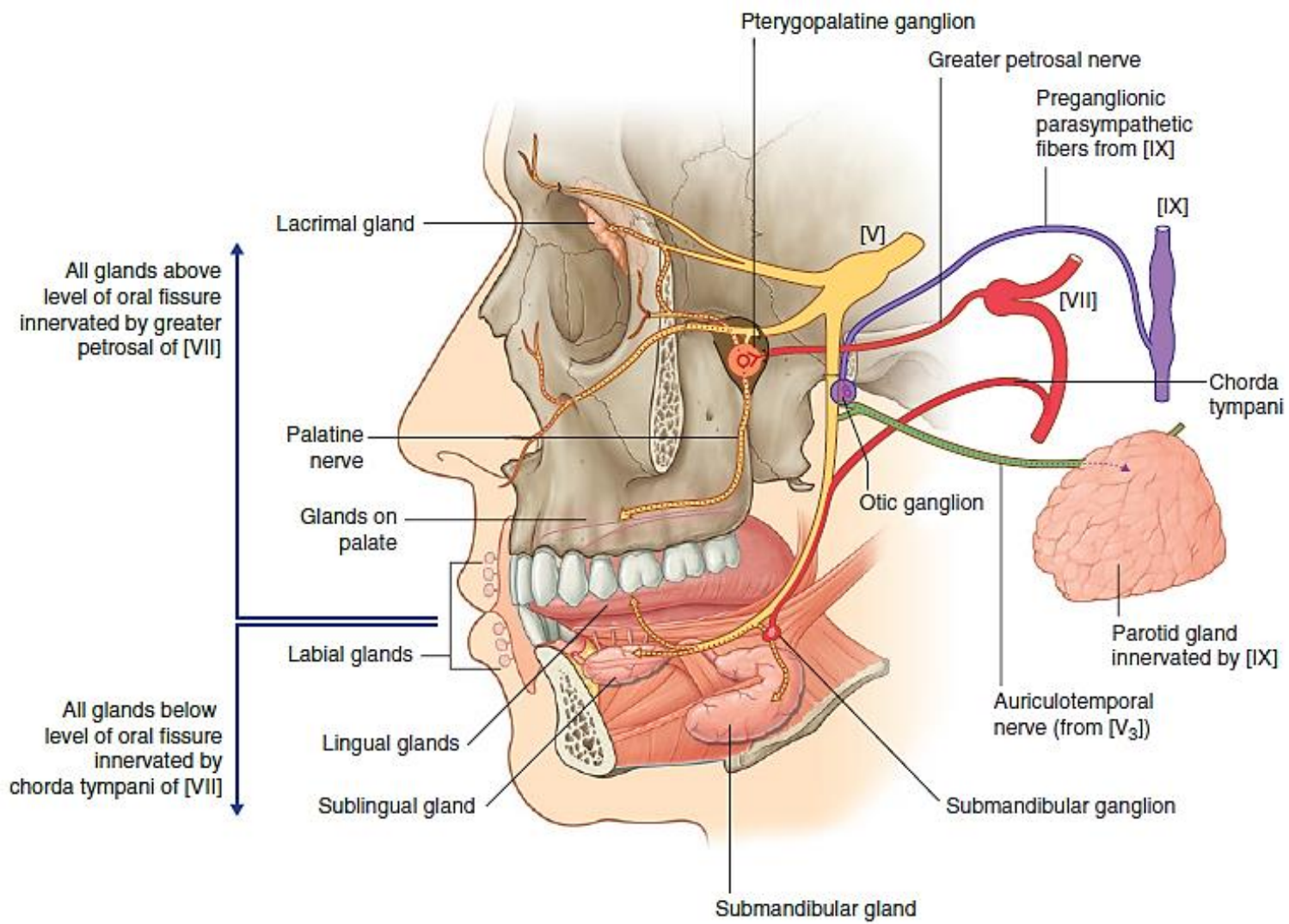


**Drains** into the oral cavity via numerous small ducts (**ductules**), which open onto the sublingual fold.



- **Blood supply:** facial & lingual aa.

- **Nerve supply:**  
1. **Parasymp.**



## 2- SYMPATHETIC INNERVATION

SUPERIOR  
CERVICAL  
GANGLION

EXTERNAL CAROTID  
PLEXUS

