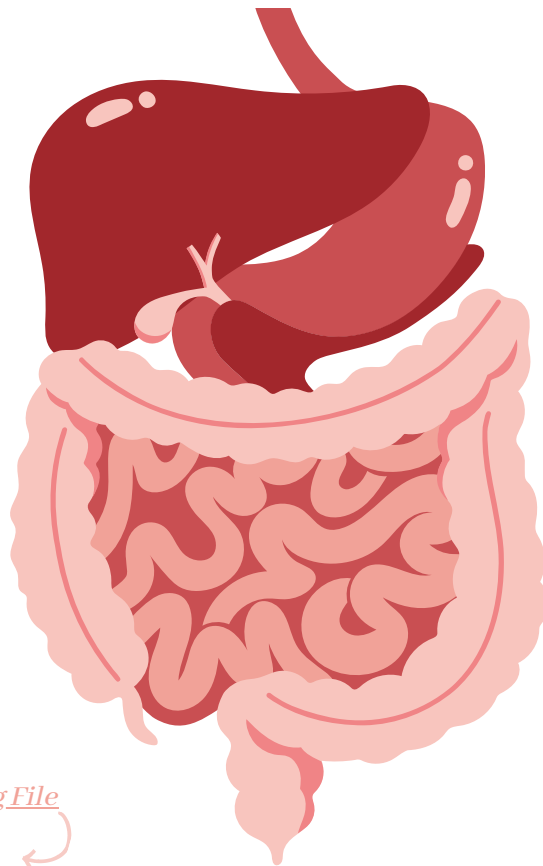




# Oral Cavity, Palate & Tongue

GNT Block



## Color Index

- ◆ Main Text
- ◆ Female Slides
- ◆ Male Slides
- ◆ Drs' Notes
- ◆ Important
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[The Editing File](#)



# Objectives



Describe the anatomy of the oral cavity, (boundaries, parts, nerve supply).



Describe the anatomy of the palate, (parts, muscles, nerve & blood supply).



Describe the anatomy of the tongue, (structure, muscles, motor and sensory nerve supply, blood supply and lymphatic drainage).

**This lecture was presented by :**

**Prof. Musaad Alfayez**

**Dr. Sameerah Shaheen**



You can find Atlas by [Clicking HERE!](#)

# Alimentary Canal (GIT)

## Definition

1

- ❖ It's a continuous, coiled & hollow muscular tube.
- ❖ It winds around the ventral body cavity.
- ❖ It opens at both ends.

## Length

2

- ❖ In cadaver: 9m
- ❖ In the living person: shorter because of the **muscle tone**.

1. Mouth 2. Pharynx 3. esophagus

3

4. Stomach 5. Small intestine

## Parts

6. Large intestine

1. Ingestion

2. Digestion

3. Absorption

4. Defecation

4

## Function

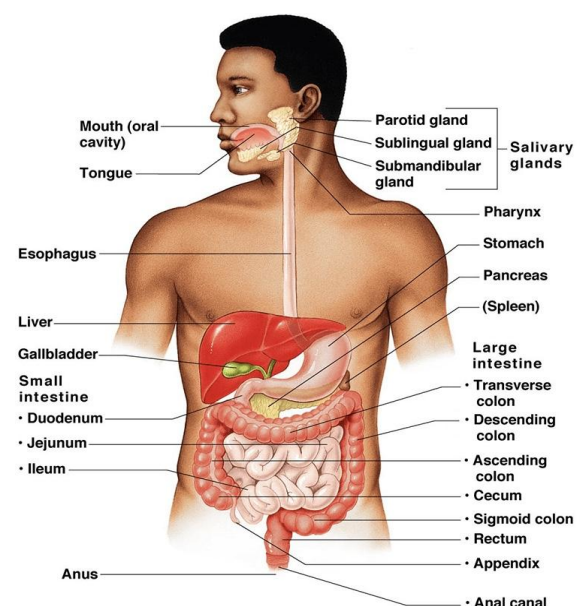
## Components:

1

**Alimentary (Gastrointestinal) Tract:** performs the whole digestive functions

2

**Accessory Organs:** assist the process of digestive break down



# Oral cavity

## The mouth

extends from lips to **oropharyngeal isthmus**, which is the junction of the mouth to the pharynx, is **bounded**: above by **soft palate and the palatoglossal fold**. Below by the **dorsum of the tongue**. and it's divided into :

### 1- Vestibule

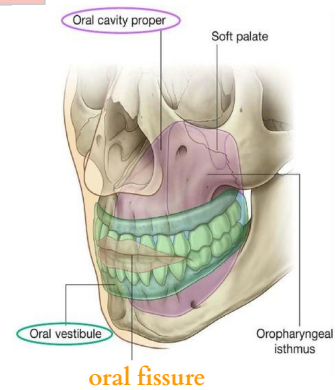
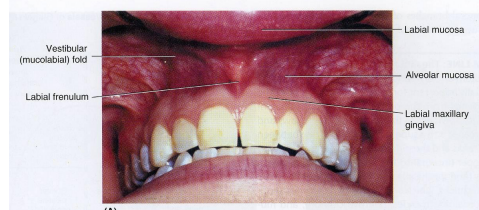
which lies between gums & teeth internally and lip & cheeks externally.

### 2- Mouth proper

which lies within the alveolar arches, gums, and teeth.

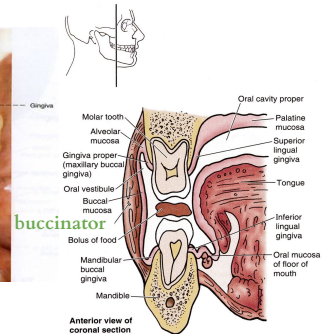
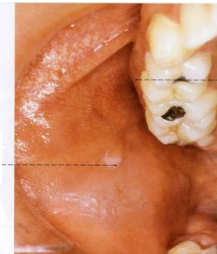
## Vestibule

- ▶ Is a slit-like space that communicates with the exterior through the **oral fissure**.
- ▶ When the jaws are closed, it communicates with the mouth proper behind the **3rd/last molar tooth**.



- ▶ **The cheek** forms the lateral wall of the vestibule and is made up of the **buccinator muscle**, which is covered by skin and is lined by mucous membrane.
- ▶ Opposite **the upper second molar tooth**, there is a small papilla on the mucous membrane, marking the **opening of the parotid duct**.

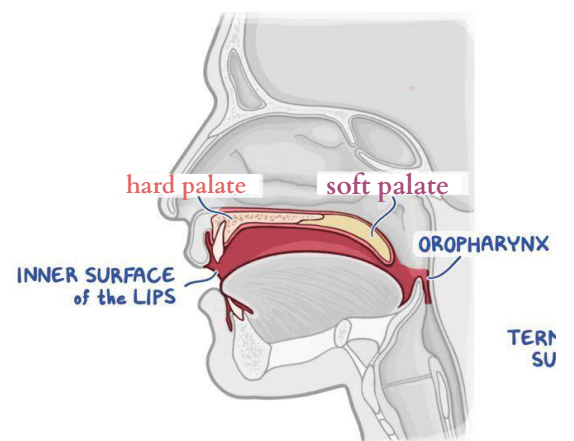
parotid papilla



## Mouth proper

It has:

- ▶ **Roof**, which is formed by the **hard palate anteriorly** & **soft palate posteriorly**.
- ▶ **The floor** is formed by the anterior 2/3 of the tongue



# palate

## Hard palate

### Bony part

is formed by 4 bones: **2 palatine processes of the maxillae anteriorly** and the **2 horizontal plates of palatine bones posteriorly**. —

The 4 bones are separated by **cruciform suture**. —

It is bounded laterally by the **alveolar arches**, and behind it is continuous with the **soft palate**. —

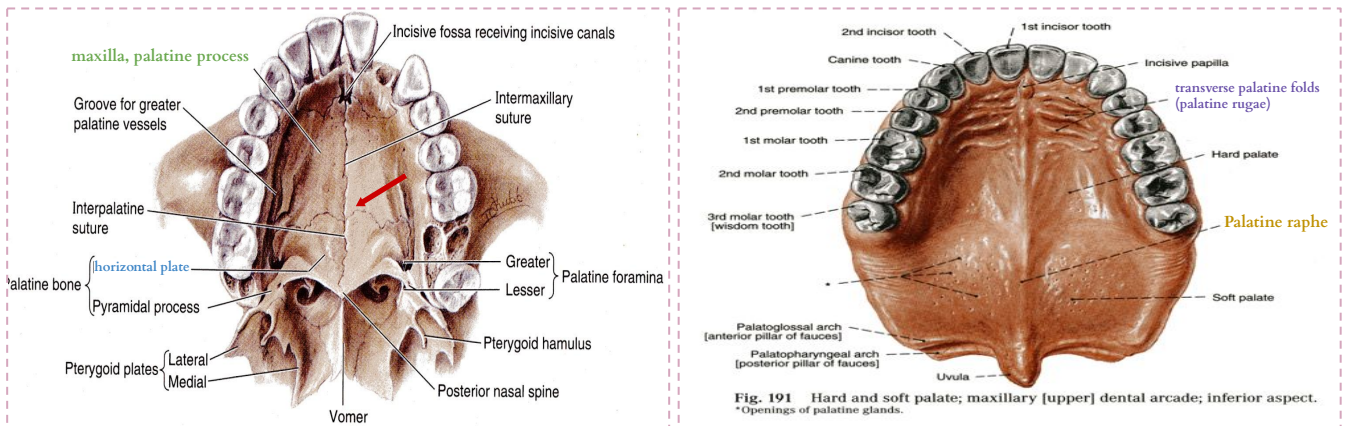
It forms the **floor of the nasal cavities**.

### Mucous membrane

The undersurface of the hard palate is covered with **mucoperiosteum**.

It possesses a **median elevated ridge** (palatine raphe)

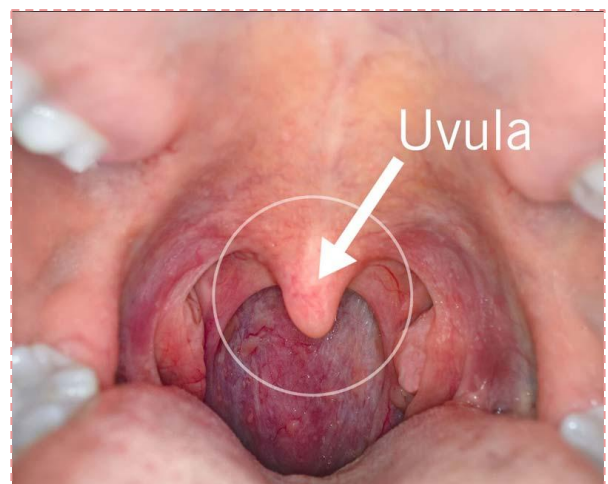
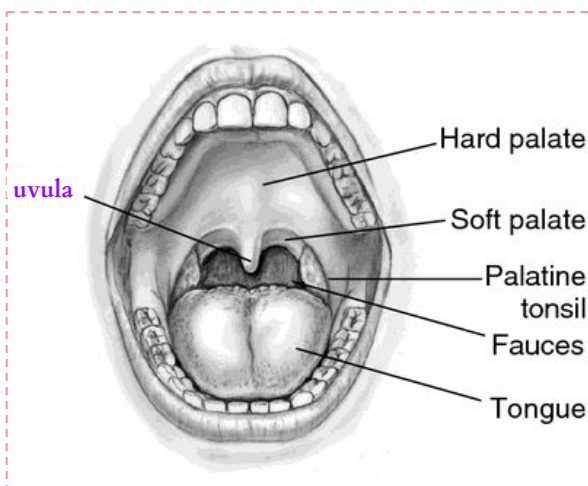
On either side of the ridge the mucous membrane shows **transverse corrugations** (palatine rugae). تساعد في تكوير الطعام وجمعه مع بعض عشان يتم تقطيعه بالأسنان



## Soft palate

The soft palate is a mobile fold of **mucous membrane** attached to the **posterior border of the hard palate**. —

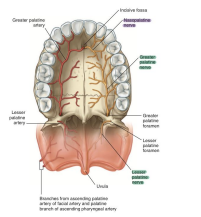
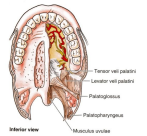
In its free posterior border there is a conical projection called the **uvula**.



# Palate

The soft palate composed of :

Mucous membrane	Palatine aponeurosis	Muscles	Nerves & vessels
Mucous membrane	covers its upper & lower surfaces.		
Palatine aponeurosis	is a fibrous sheet attached to the posterior border of the hard palate. It is the expanded tendon of the <b>tensor palatini</b> .		
Muscles	5 pairs of muscles 1-Tensor veli palatini, 2-Levator veli palatini, 3-Palatoglossus 4-Palatopharyngeus, 5-Musculus uvulae. Will be discussed in details in next slide		
Nerves & vessels Sensory innervation	1-The <b>greater</b> and <b>lesser palatine nerves</b> from the <b>maxillary nerve</b> , enter the palate through the <b>greater</b> and <b>lesser palatine foramina</b> . 2-The <b>nasopalatine nerve</b> , also a branch of the <b>maxillary nerve</b> , enters the palate through the <b>incisive foramen</b> . — 3-The <b>glossopharyngeal nerve</b> also supplies the soft palate.		

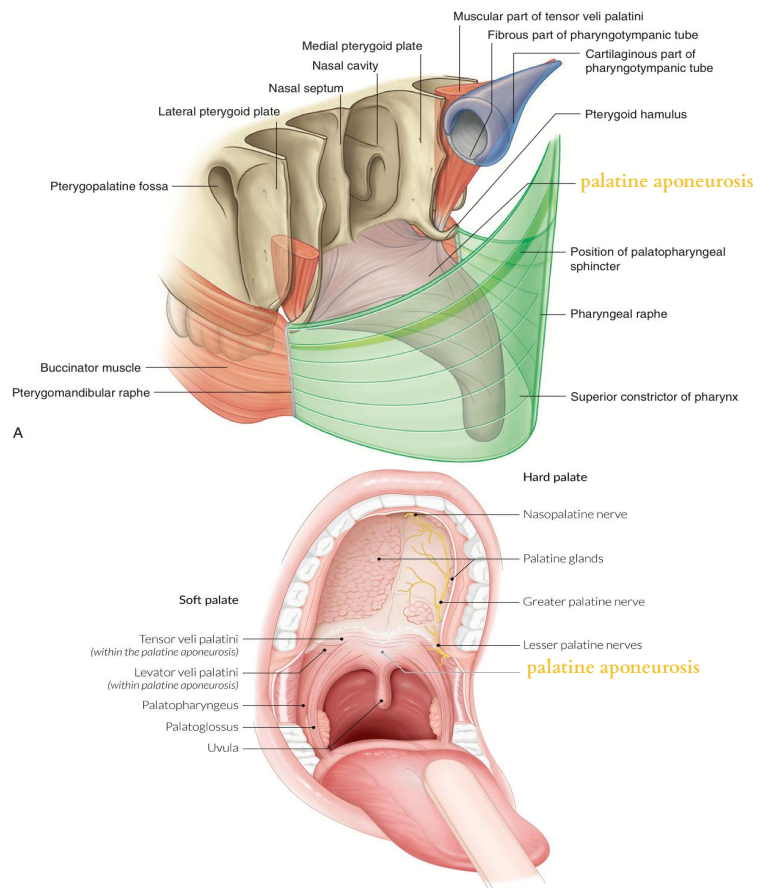


## Palatine aponeurosis & tensor veli palatini

The muscle fibers of the **tensor palatini** converge as they descend from their origin to form a narrow tendon, which turns medially around the **pterygoid hamulus**.

The tendon, together with the tendon of the opposite side, expands to form the **palatine aponeurosis**

When the muscles of the two sides contract, the soft palate is **tightened** so it moves upward as a tense sheet.



# Muscles of the soft palate

MCQ

Muscle	Origin	Insertion	Nerve supply	Picture
<p><b>Tensor veli palatini</b></p> <p>Action: Tenses soft palate</p>	Spine of sphenoid, auditory tube	With muscle of other side, forms Palatine aponeurosis	Nerve to medial pterygoid from mandibular nerve	
<p><b>Levator veli palatini</b></p> <p>Action: Raises soft palate</p>	Petrous part of temporal bone, auditory tube	Palatine aponeurosis	Pharyngeal plexus	
<p><b>Palatopharyngeus</b></p> <p>Action: Elevates wall of pharynx, pulls palatopharyngeal folds medially</p>	Palatine aponeurosis	Posterior border of thyroid cartilage	Pharyngeal plexus	
<p><b>Palatoglossus</b></p> <p>Action: Pulls root of the tongue upward &amp; backward, narrows oropharyngeal isthmus</p>	Palatine aponeurosis	Side of tongue	Pharyngeal plexus	
<p><b>Musculus uvulae</b></p> <p>Action: Elevates uvula</p>	Posterior border of hard palate	Mucous membrane of uvula	Pharyngeal plexus	

# Movement of soft palate

Female  
Slides

## Pharyngeal Isthmus (In girls slides):

(It is the communication between nasal and oral parts of the pharynx)

It is the space between the two palatopharyngeal arches.

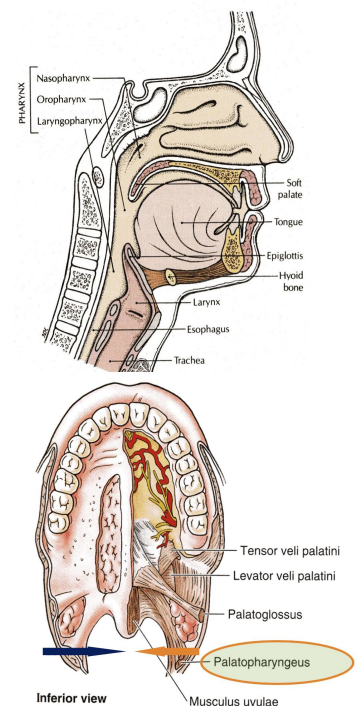
It is closed by raising the soft palate upward.

Closure occurs during the production of explosive consonants in speech and swallowing.  
Like the letters p,b,d

Soft palate is raised by the contraction of the levator veli palatini and Palatopharyngeus. At the same time, the superior wall of the pharynx is pulled forward.

The palatopharyngeus muscles on both sides also contract so that the palatopharyngeal arches are pulled medially, like side curtains.

By this means the nasal part of the pharynx is closed off from its oral part.



## Nerve supply of the soft palate

**Motor:** All muscles of the palate are supplied by pharyngeal plexus of nerves EXCEPT **Tensor Veli Palatini** by mandibular nerve.

Motor innervation of soft palate can be tested by saying 'Ah', normally soft palate rises upward, and the uvula moves backward in the middle.

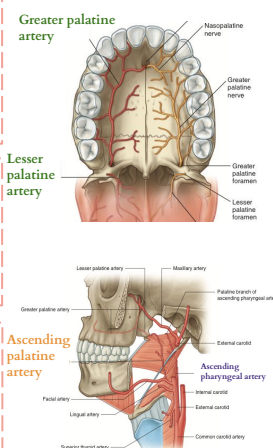
**Sensory:** **Maxillary nerve** through: Greater, Lesser palatine & Nasopalatine nerves. **Glossopharyngeal nerve**

## Blood supply of the palate

**Greater & lesser** branches of the maxillary artery.

**Ascending palatine** branch of the facial artery.

**Ascending pharyngeal** branch of the external carotid artery.





# Tongue

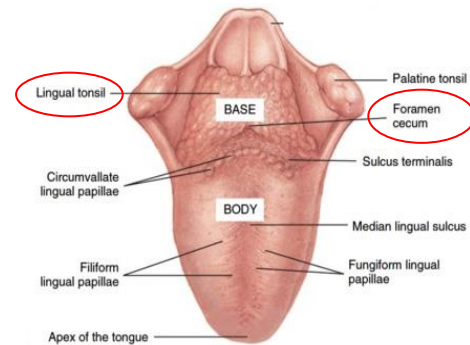
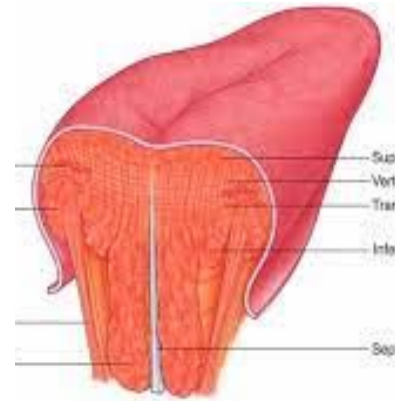
## Definition

The tongue is a mass of striated muscle covered with mucous membrane.

1 Its anterior 2/3 lies in the mouth, and its posterior 1/3 lies in the pharynx.

2 The tongue is divided into right & left halves by a median fibrous septum.

3 Muscles attach the tongue to the styloid process & soft palate above and to the mandible & the hyoid bone below.



## Dorsal surface of Tongue

The mucous membrane of the upper surface of the tongue can be divided into anterior 2/3 or oral part and posterior 1/3 or pharyngeal part by a V-shaped sulcus. The **sulcus terminalis**.

The posterior third has no papillae and only has **lingual tonsil**.

Female  
Slides

The apex of the sulcus projects backward and is marked by a small pit, the **foramen cecum**. It's an embryologic remnant which marks the site of the upper end of the **thyroglossal duct**.

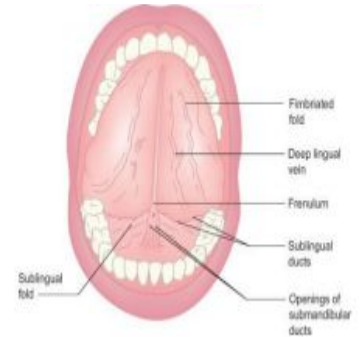
# Tongue

The mucous membrane on the inferior surface of the tongue is smooth and is reflected from the tongue to the floor of the mouth

On the lateral side of the frenulum, the **deep lingual vein** can be seen through the mucous membrane.

In the midline, the undersurface of the tongue is connected to the floor of the mouth by a fold of mucous membrane, The **frenulum of the tongue**.

Lateral to the lingual vein, the mucous membrane forms a serrated fold called the **fimbriated fold**.

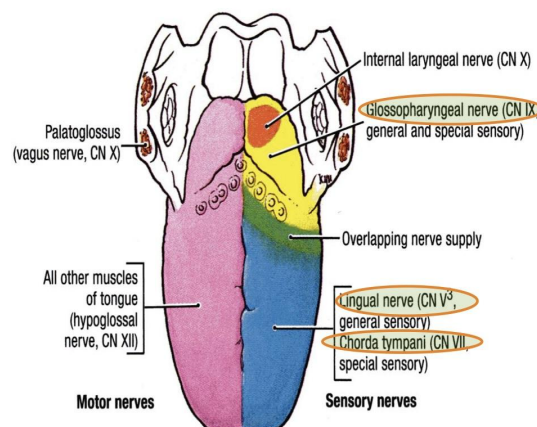


Female Slides

## Tongue: sensory innervation

MCQ

Part	General Sensation (from mucous membrane)	Taste Sensation (from taste buds)
Anterior 2/3	Lingual nerve.	Chorda Tympani of the (Facial) nerve. <b>EXCEPT</b> the vallate papillae
Posterior 1/3	Glossopharyngeal nerve.	Glossopharyngeal nerve. (including the vallate papillae)



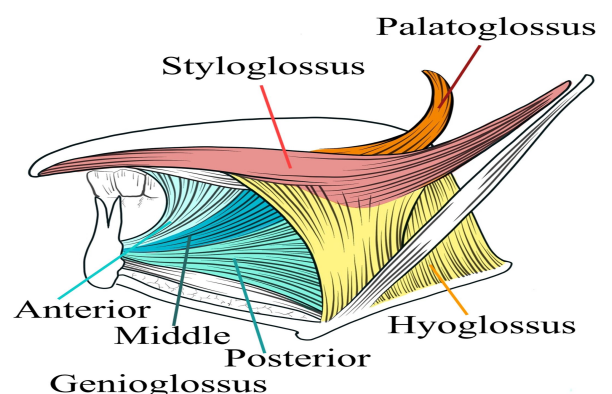
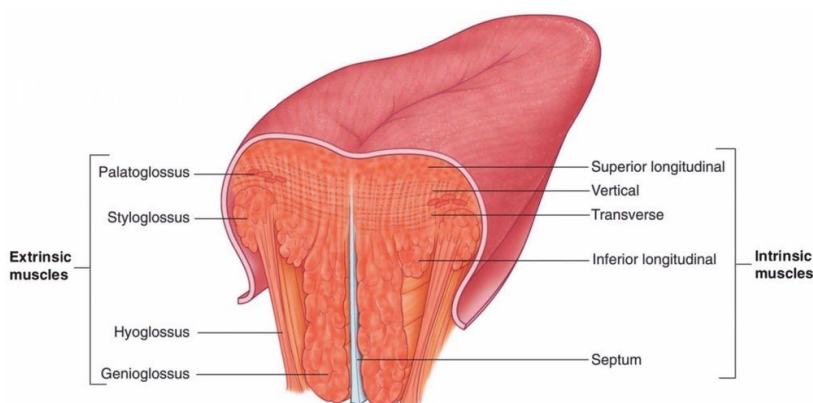
# Muscles of the Tongue

**Intrinsic Muscles** : are restricted to the tongue and are not attached to a bone

Muscle (pair)	Origin	Insertion	Innervation	Action
1- Superior and inferior longitudinal 2- Vertical 3-Transverse	Median septum and submucosa	Mucous membrane	Hypoglossal nerve	Alter the shape of the tongue while it lies within the mouth.

**Extrinsic Muscles**: are attached to bones and soft palate

Genioglossus	Superior genial spine of mandible	Blends with other muscles of tongue	Hypoglossal nerve	Protrudes apex of tongue through mouth
Hyoglossus	Greater cornu and body of hyoid bone			Depresses tongue
Styloglossus	Styloid process of temporal bone			Draws tongue upward and backward
Palatoglossus	Palatine aponeurosis	Side of tongue	Pharyngeal plexus	Pulls root of tongue upward and backward, narrows oropharyngeal isthmus

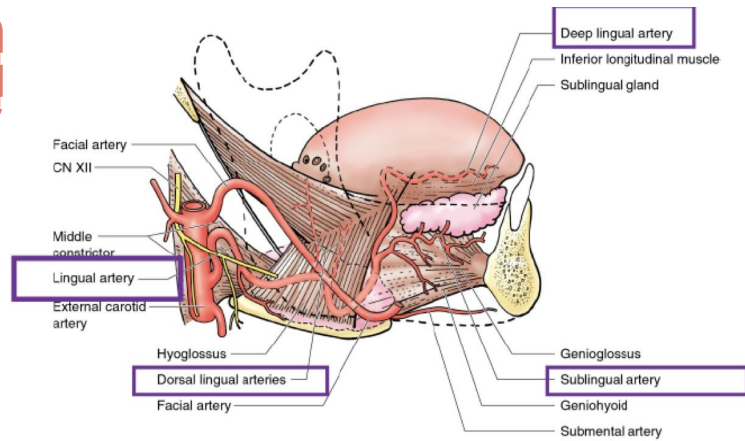


# Tongue supply

## Arterial supply

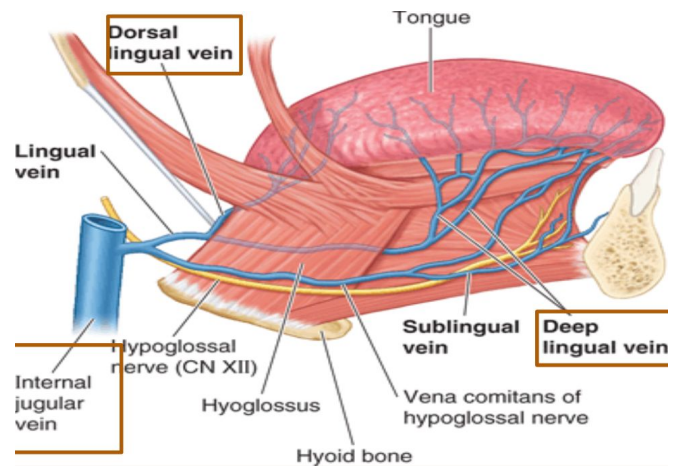
It is supplied by:

- 1- lingual artery,
- 2- Tonsillar branch of the facial artery.
- 3- Ascending pharyngeal artery.



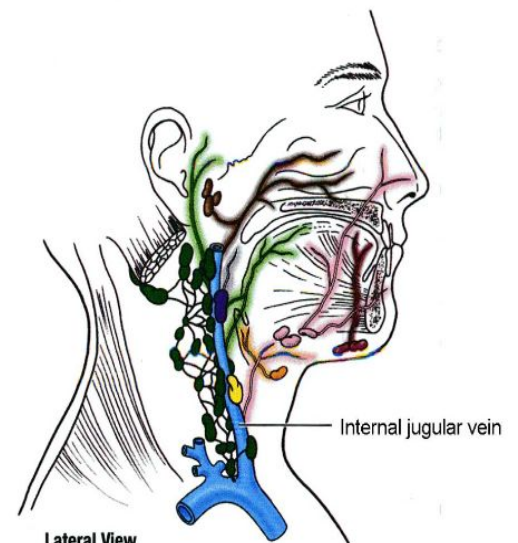
## Venous drainage

- ▶ dorsal lingual vein
- ▶ deep lingual vein
- ▶ The veins drain into the internal jugular vein.



## Lymphatic drainage

- ▶ The tip of the tongue drains into submental lymph nodes.
- ▶ The remainder of the anterior  $\frac{2}{3}$  drain into submandibular and deep cervical lymph nodes
- ▶ The Posterior  $\frac{1}{3}$  drain into deep cervical lymph nodes.



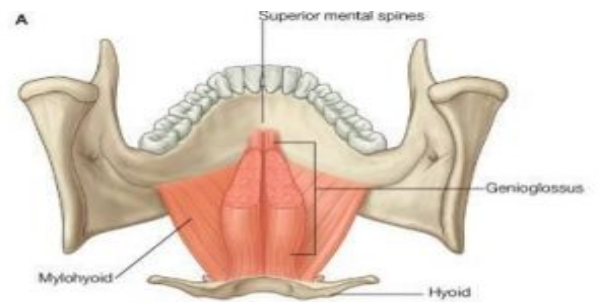
Retropharyngeal	Submental
Deep cervical	Submandibular
Jugulo-omohyoid	Infrathyoid
Jugulodigastric	

# Tongue movement

Extra

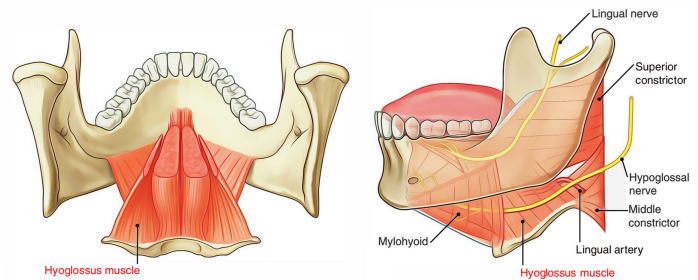
## Protrusion

Is brought by the **Genioglossus** on both sides acting together.



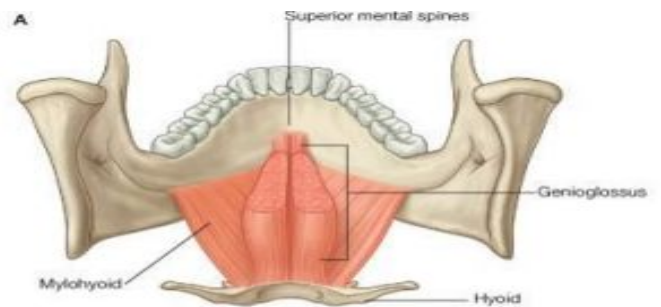
## Retraction

Is produced by **Styloglossus** and **hyoglossus** on both sides acting together.



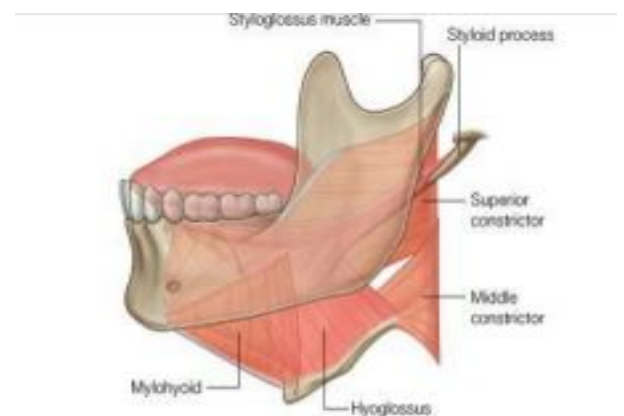
## Depression

Is produced by the **hyoglossus** & **genioglossus** on both sides acting together.



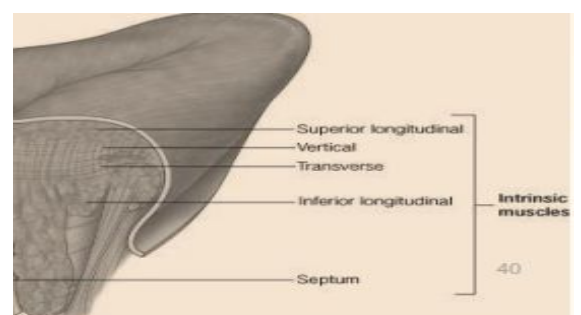
## Retraction and elevation

Retraction and elevation of the **posterior third** of the tongue is produced by the **styloglossus** and **palatoglossus** muscles on both sides acting together.



## Shape Changes

The tongue is modified in shape by the action of its **intrinsic** muscles.



# MCQs

Q1. The uvula is the structure in the back of the mouth that is an extension of the ?

- |                |                |                   |         |
|----------------|----------------|-------------------|---------|
| A. Soft palate | B. Hard palate | C. Vestibule area | D. None |
|----------------|----------------|-------------------|---------|

Q2. Most muscles of the soft palate are supplied by?

- |                            |                      |                |                    |
|----------------------------|----------------------|----------------|--------------------|
| A. Glosso-pharyngeal nerve | B. Pharyngeal plexus | C. Vagus nerve | D. Maxillary nerve |
|----------------------------|----------------------|----------------|--------------------|

Q3. Which muscle of these forms the palatine aponeurosis?

- |                   |                          |                      |                    |
|-------------------|--------------------------|----------------------|--------------------|
| A. Tensor tympani | B. Levator veli palatini | C. Palato-pharyngeus | D. Tensor palatini |
|-------------------|--------------------------|----------------------|--------------------|

Q4. Opposite to the ..... , there is a small papilla on the mucous membrane, marking the opening of the parotid duct.

- |                     |                             |                            |                             |
|---------------------|-----------------------------|----------------------------|-----------------------------|
| A. Last molar tooth | B. Upper second molar tooth | C. Upper third molar tooth | D. Lower second molar tooth |
|---------------------|-----------------------------|----------------------------|-----------------------------|

Q5. Which part of the tongue contains NO papillae ?

- |                 |                  |                 |                  |
|-----------------|------------------|-----------------|------------------|
| A. Anterior 2/3 | B. Posterior 2/3 | C. Anterior 1/3 | D. Posterior 1/3 |
|-----------------|------------------|-----------------|------------------|

A1. **A** A2. **B** A3. **D** A4. **B** A5. **D**

**FOR ANKI FLASHCARDS**



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