

TONGUE-I

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Lesson Plan

- ❖ Introduction
- ❖ Presenting parts:
 - Root
 - Tip
 - Body
- ❖ Muscles of Tongue
- ❖ Arterial supply
- ❖ Venous drainage
- ❖ Lymphatic drainage
- ❖ Nerve supply
- ❖ Applied aspects

Introduction

- Tongue is a mobile muscular organ.

Location:

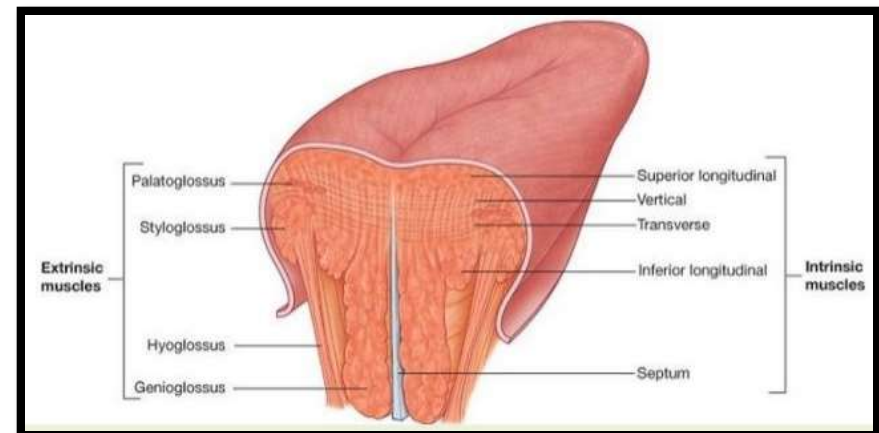
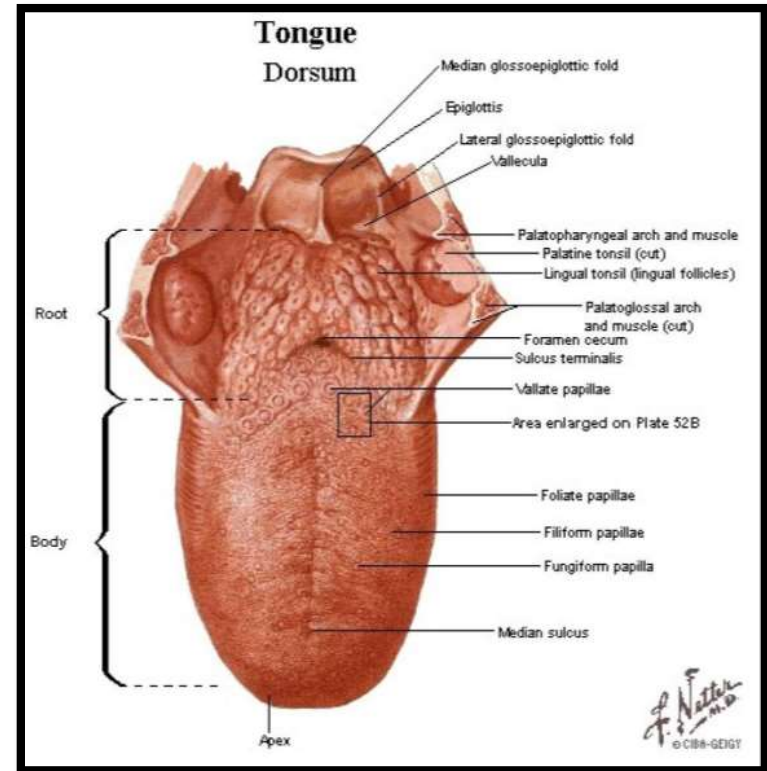
- Partly in the oral cavity and partly in the oropharynx.

Functions:

- Taste perception.
- Speech (articulation).
- Mastication.
- Deglutition.

Shape:

- Conical

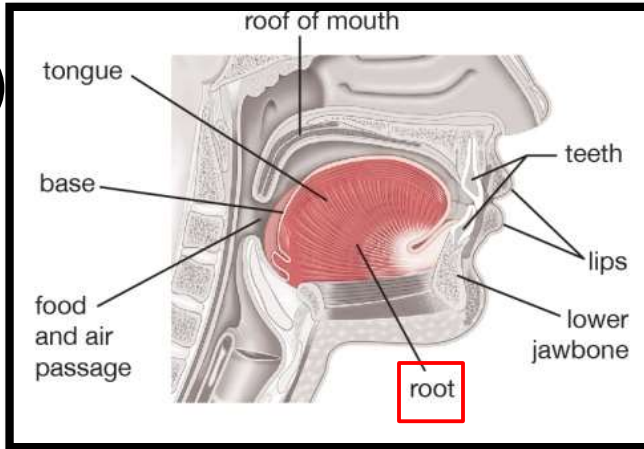


Presenting Parts

- Root

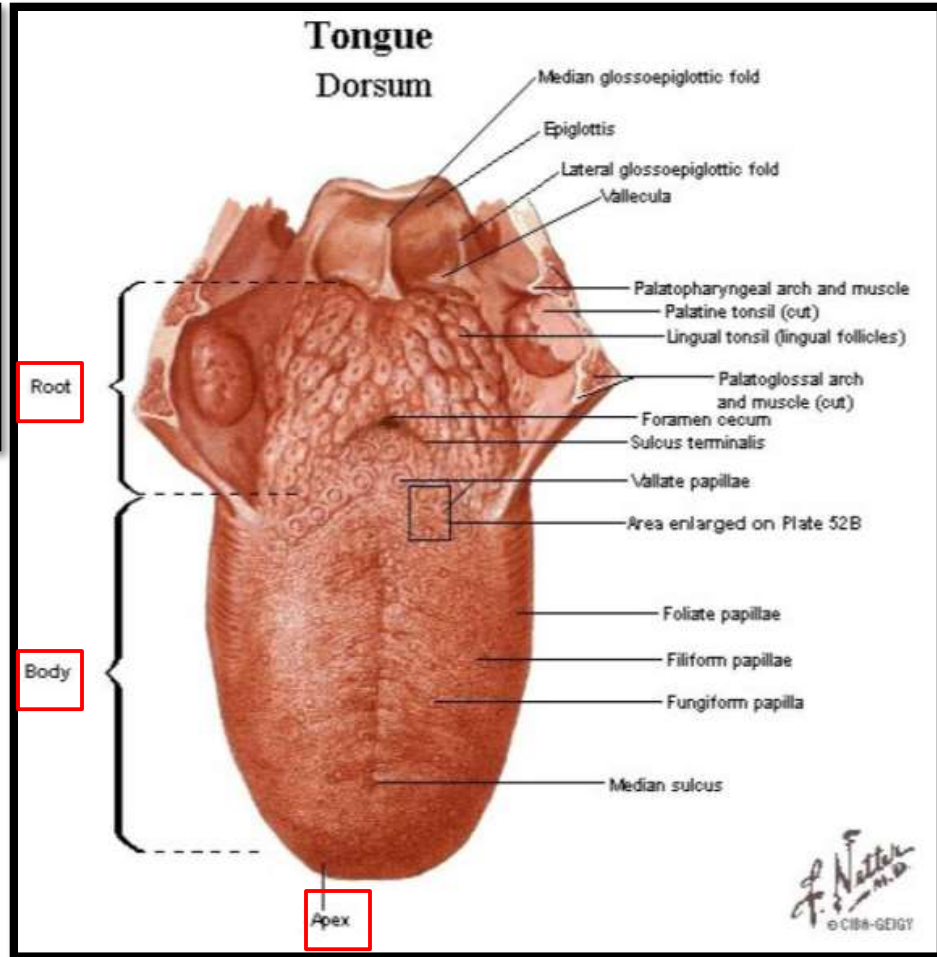
- Tip (Apex)

- Body



Root:

- It is the **attached part** of the tongue.
- It is attached to the **Mandible** and **Hyoid bone** by muscles.
- Nerve and blood vessels of the tongue enter through its root.



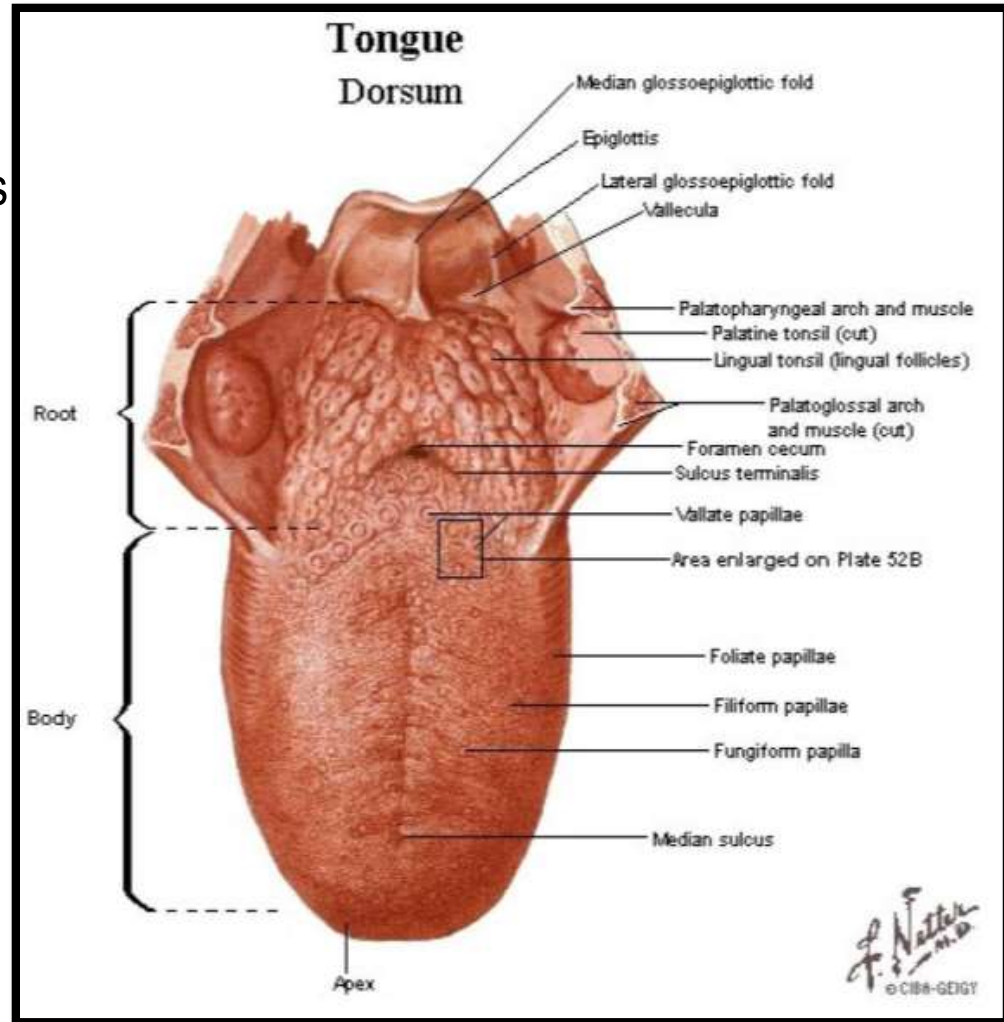
Presenting Parts contd...

Tip (Apex):

- ❖ It is the anterior free end.
- ❖ It comes into contact with central incisors

Body:

- ❖ The part of tongue, between its root and tip.
- ❖ It has **two surfaces**:
 - Dorsal
 - Ventral
- ❖ It has **two borders**:
 - Right lateral
 - Left lateral

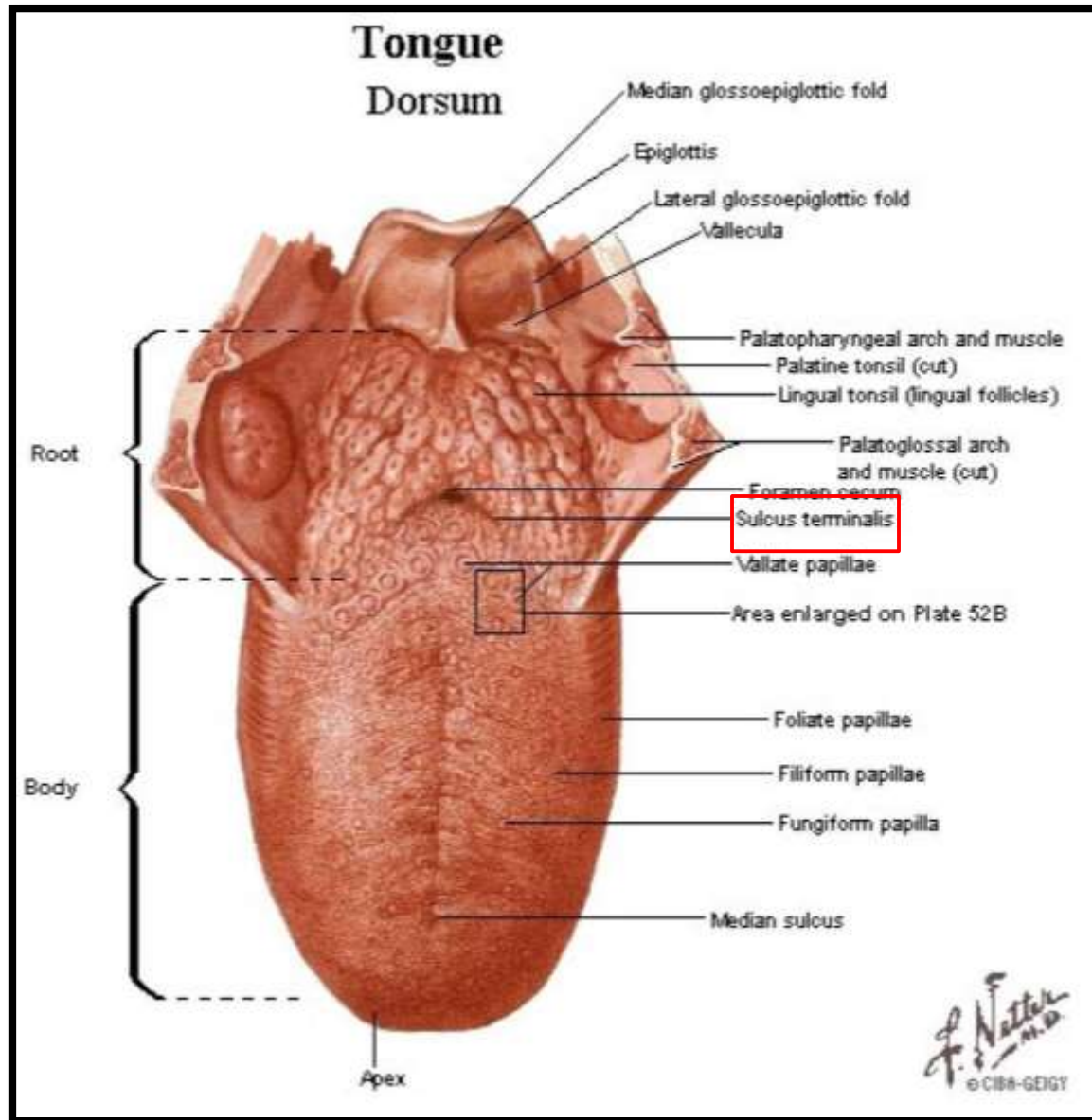


Dorsal Surface

- Convex.

Sulcus Terminalis:

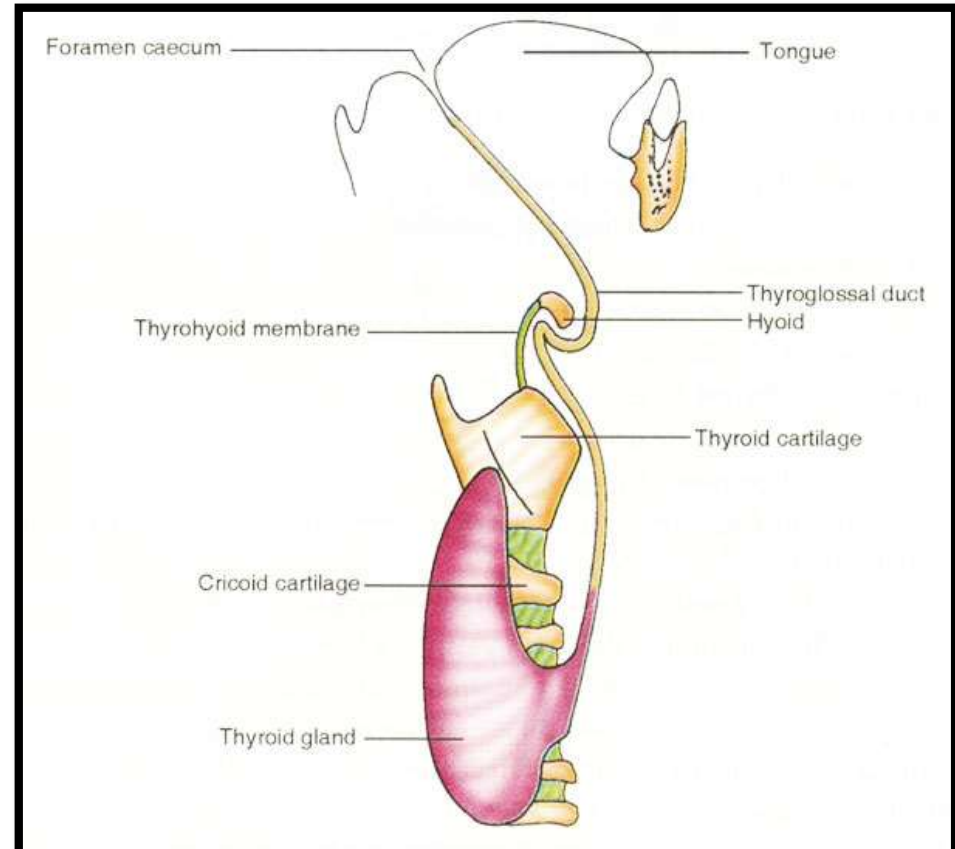
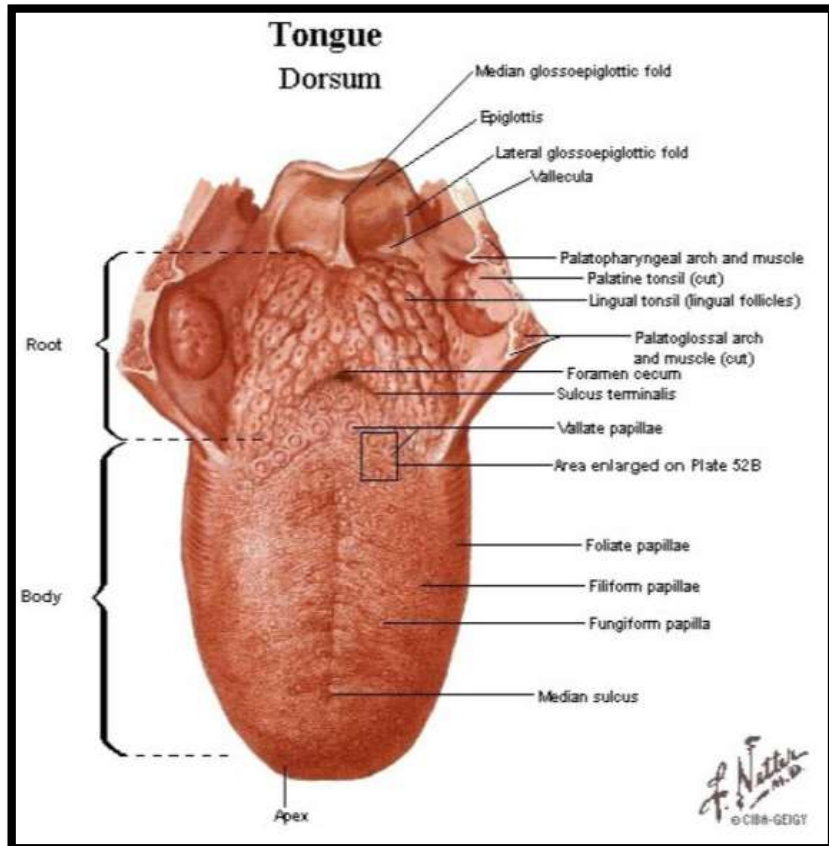
- An inverted V-shaped groove on the dorsum of the tongue.
- Divides the dorsum of tongue into anterior 2/3rd and posterior 1/3rd.
- **Anterior 2/3rd – Body** of tongue [**Oral part**]
- **Posterior 1/3rd – Root** of tongue [**Pharyngeal part**]



Dorsal Surface contd...

Foramen Caecum-

- Present at the apex of sulcus terminalis.
- A **blind** foramen.
- It indicates the point of origin of median thyroid diverticulum (thyroglossal duct) in embryonic life.



Dorsal Surface of Oral Part

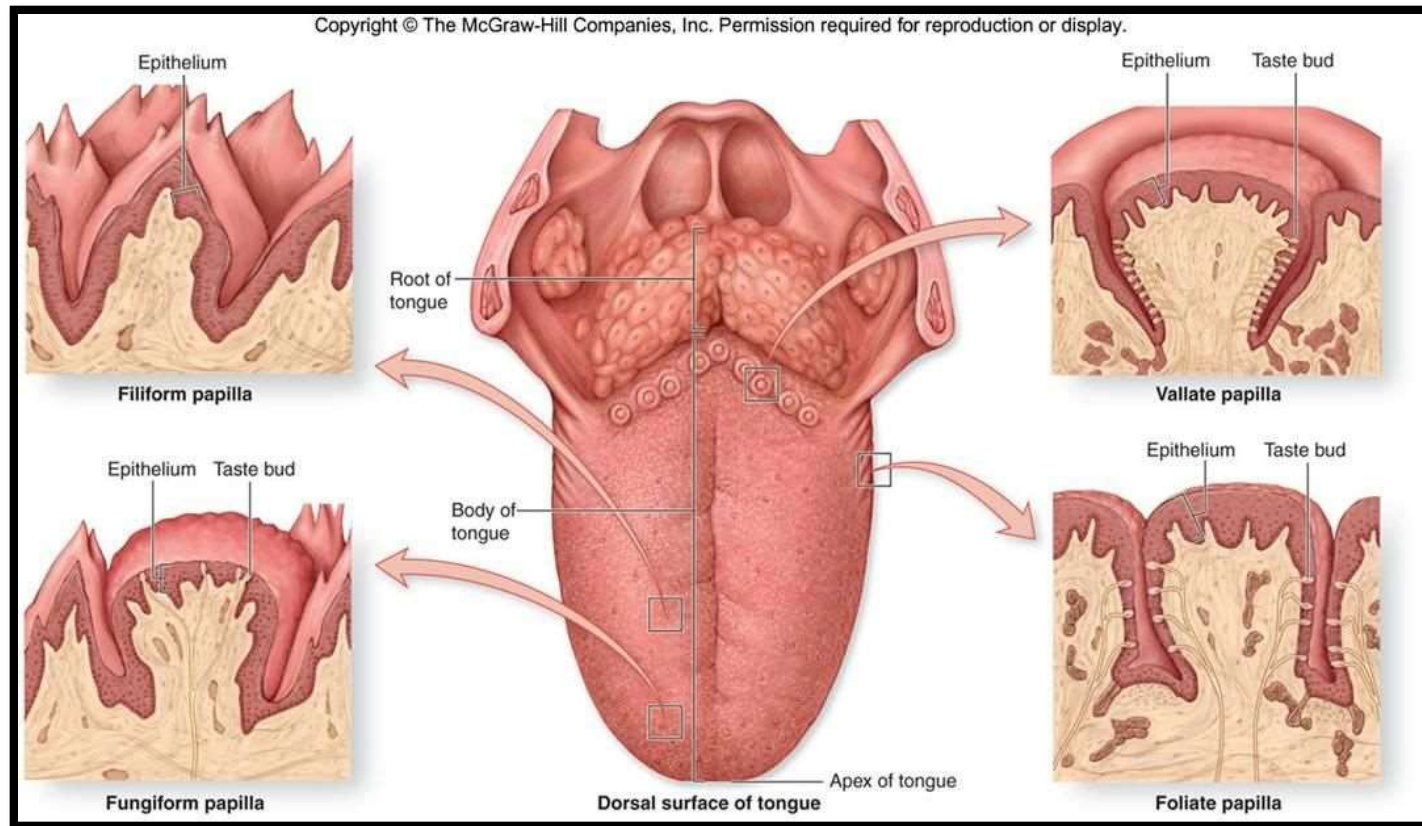
- Median furrow.
- Lingual papillae.

Lingual papillae:

- These are projections of lamina propria covered with epithelium.

Types- 4

- Vallate papillae.
- Filiform papillae.
- Fungiform papillae.
- Foliate papillae.

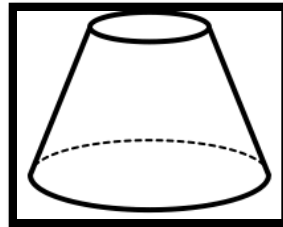


Vallate Papillae

[Circumvallate Papillae]-

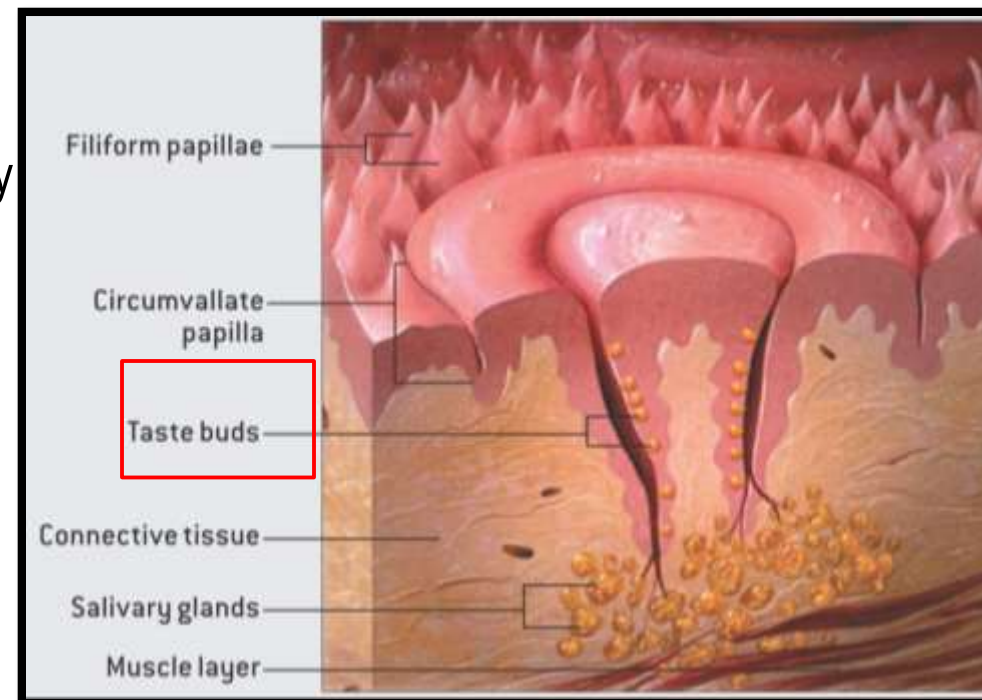
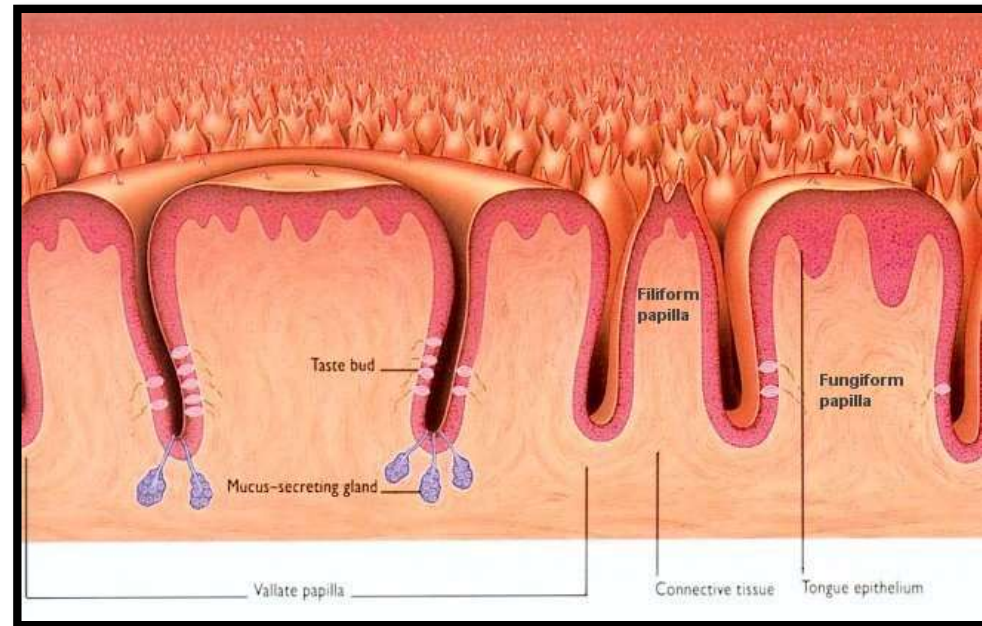
- **Largest** (1-2 mm in diameter).

Location- In front of sulcus terminalis in a 'V' shaped row



Shape- Truncated cone.

- Each papilla is surrounded by a circular sulcus.
- Circular sulcus is bounded on its periphery by a wall (vallum).
- Ducts of several salivary glands open in the circular sulcus.
- **Taste buds are present** in the papilla and its vallum.



Lingual Papillae

Filiform Papillae-

- Most numerous.

Shape- finger like.

- Have sharply pointed tips.

Location- all over the dorsal surface of oral part of tongue.

- **No taste buds** are present.

Fungiform Papillae-

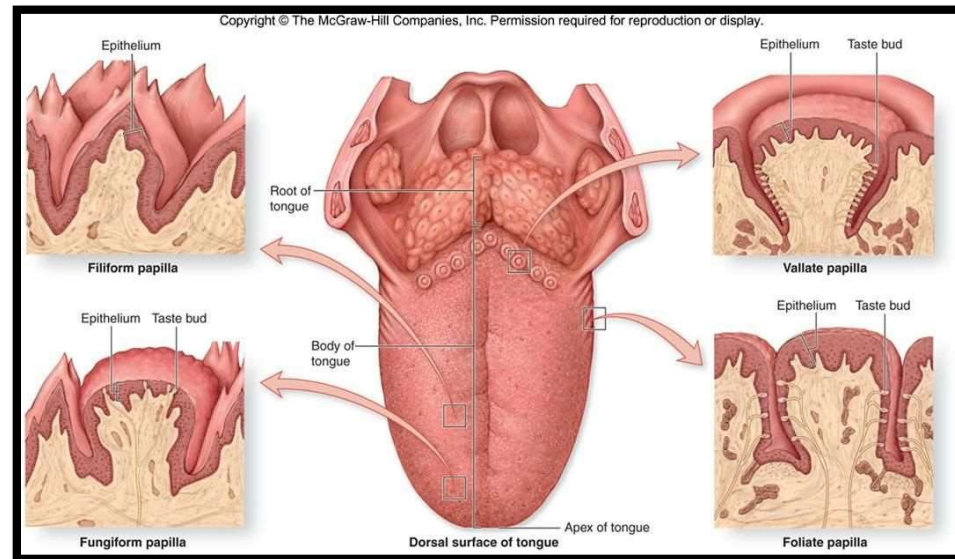
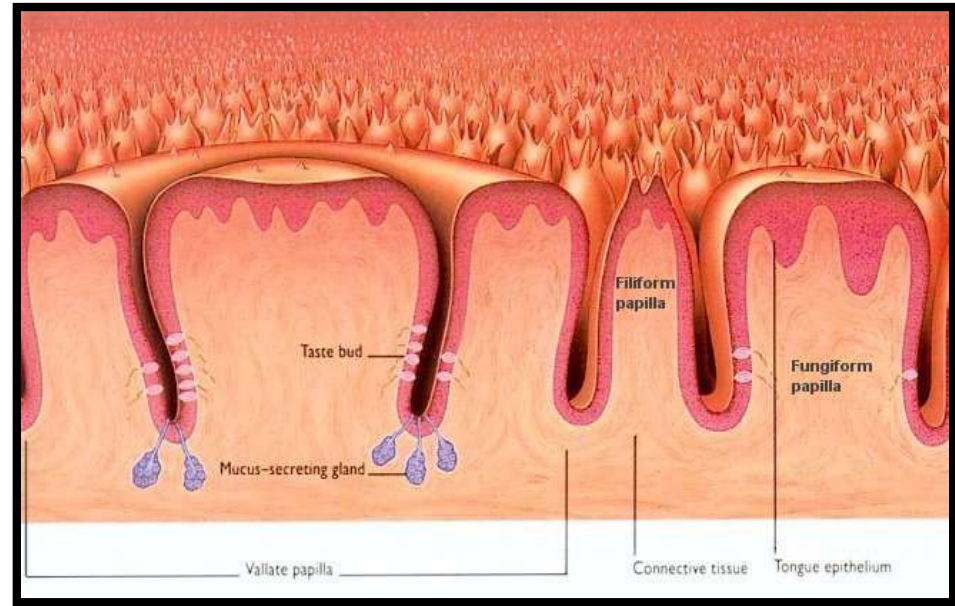
- ~ 1mm in diameter.

Shape- mushroom shaped (rounded head and narrower base).

Location- mostly at the **apex** and **margins** of the tongue.

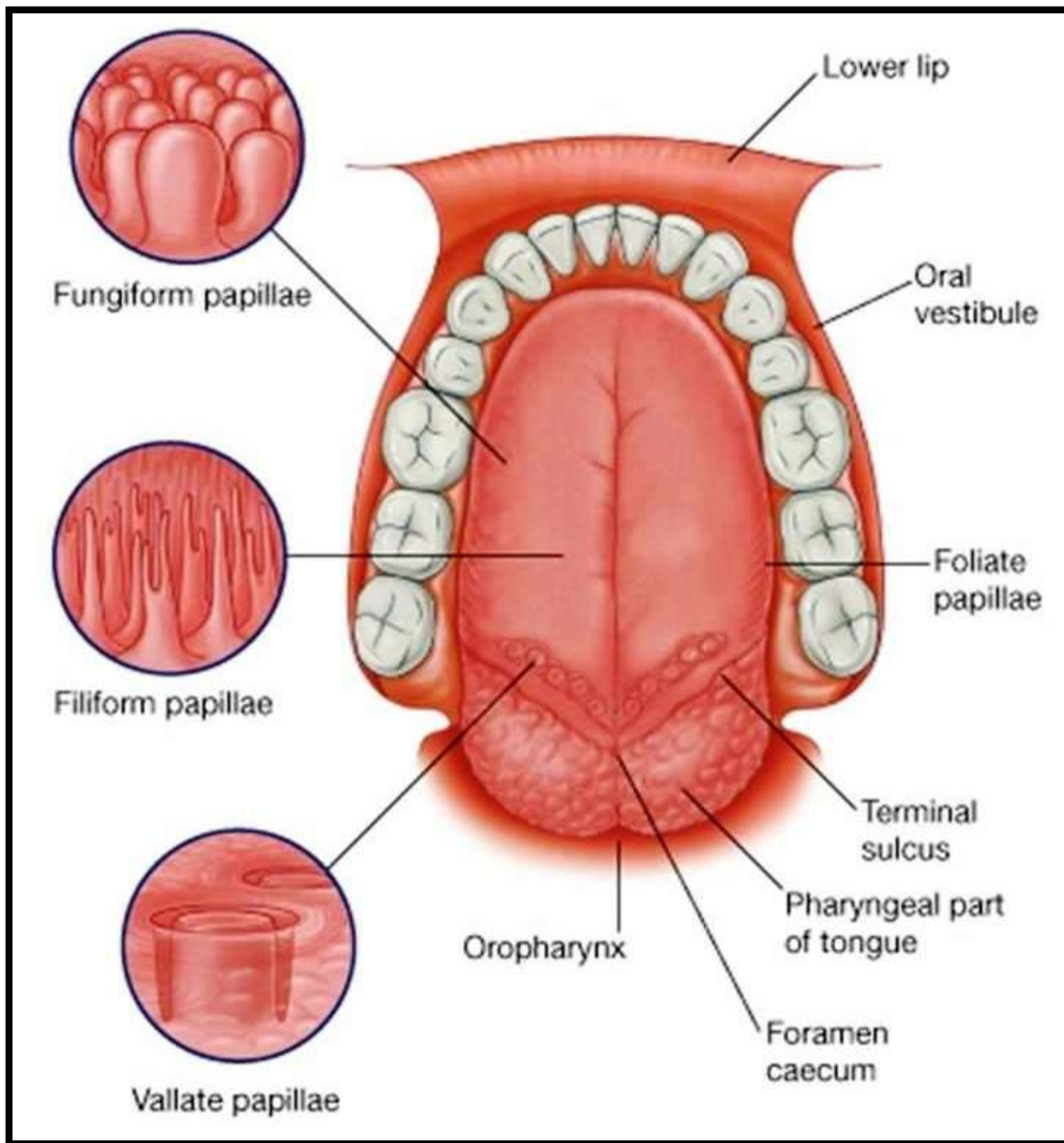
- Visible as discrete pink pinheads.

- **Taste buds** are present.



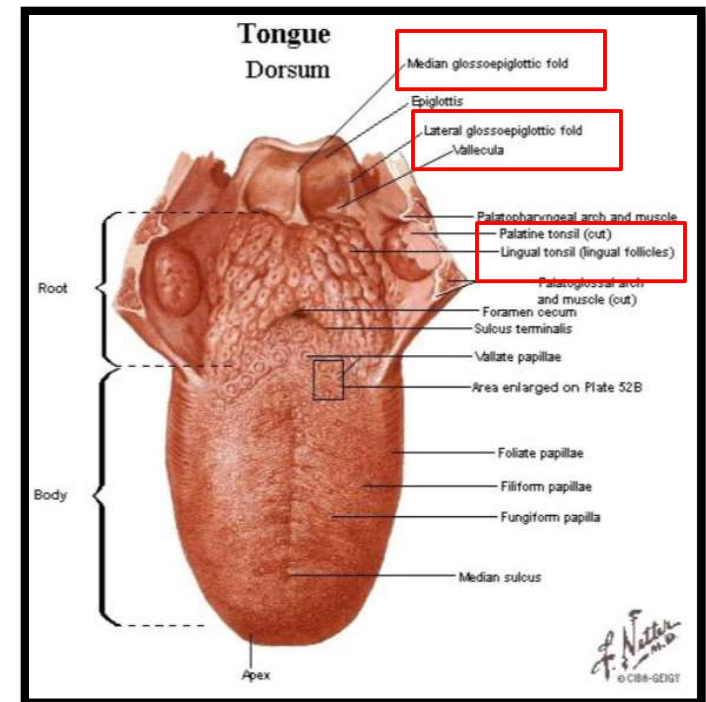
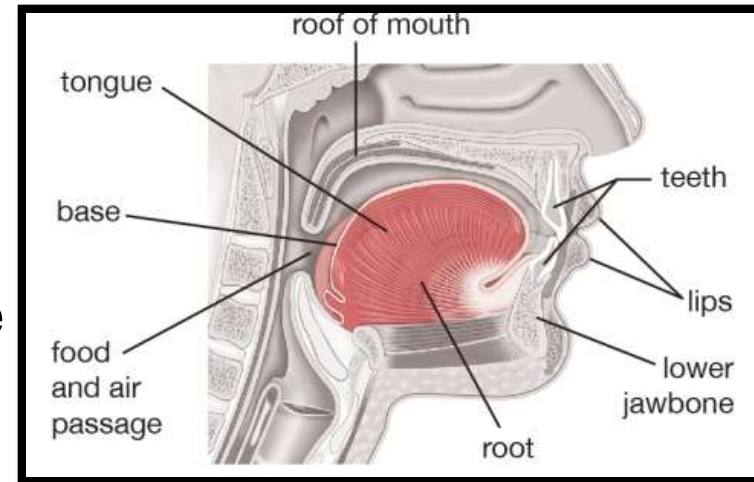
A.





Dorsal Surface of Pharyngeal Part [**Base** of Tongue]

- This surface forms the anterior wall of oropharynx.
- **No lingual papillae.**
- A large number of lymphoid follicles are present in the submucosa [**Lingual Tonsils**].
- Mucosa of this surface is reflected onto the front of epiglottis as **median glossoepiglottic fold**.
- Mucosa is reflected onto the lateral wall of pharynx as **lateral glossoepiglottic folds**.
- The space on each side of median glossoepiglottic fold is termed '**epiglottic vallecula**'.



Ventral Surface of Tongue

- The mucosa of this surface is thin, smooth and purplish.

Features:

- Frenulum linguae.
- Deep lingual veins.
- Plica fimbriata.

Frenulum linguae-

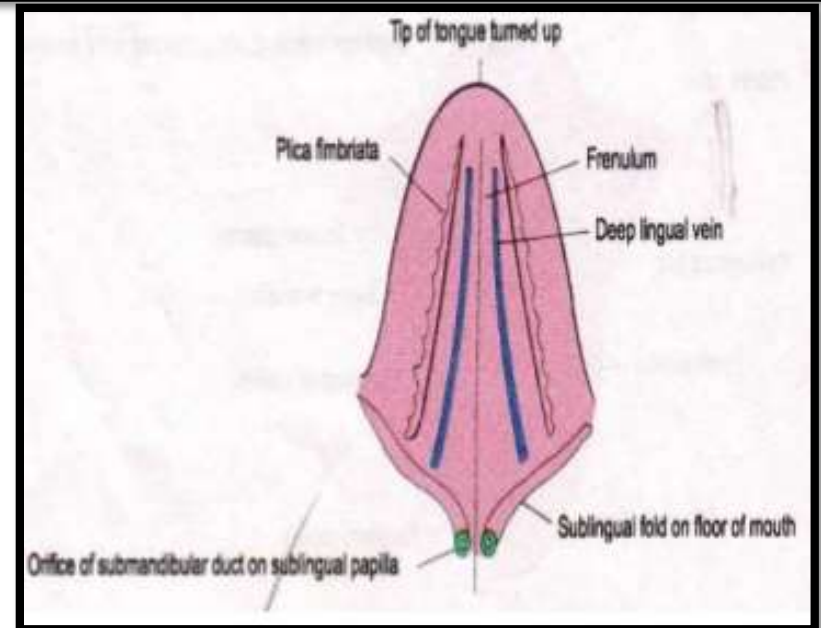
- A midline fold of mucous membrane, connecting the tongue to the floor of mouth.

Deep lingual veins-

- May be seen through mucous membrane on either side of frenulum linguae.

Plica fimbriata-

- A fringed fold of mucous membrane, lateral to the deep lingual vein.





Applied Aspects

Tongue Tie

- Frenulum extends towards the tip of the tongue.

Clinical Features-

- Inhibited movements of tongue.
- May interfere with normal speech.

Sublingual route of oral medication-

- Some lipid soluble drugs can diffuse through the thin mucous membrane of sublingual region of oral cavity.

e.g. Nitroglycerine (Sorbitrate).



Muscles of Tongue

- Extrinsic muscles.
- Intrinsic muscles.

Extrinsic Muscles-

- Take origin from structures outside the tongue.
- Insert in the tongue.
- Produce movements of tongue.
- Change the shape of tongue.

Intrinsic Muscles-

- Within the tongue.
- Change the shape of tongue.

Muscles of Tongue contd...

- Each half of tongue contains 4 **extrinsic** and 4 **intrinsic** muscles.

Extrinsic Muscles-

- Genioglossus.
- Hyoglossus.
- Styloglossus.
- Palatoglossus.

Intrinsic Muscles-

- Superior longitudinal.
- Inferior longitudinal.
- Transverse.
- Vertical.

Genioglossus [Safety Muscle of Tongue]

- A fan-shaped muscle.
- Forms most of the bulk of tongue.

Origin-

- Superior genial tubercle of mandible.

Insertion-

- *Fibers radiate backwards into the corresponding half of the tongue.*

Lower fibers – insert into the body of hyoid bone.

Intermediate fibers -

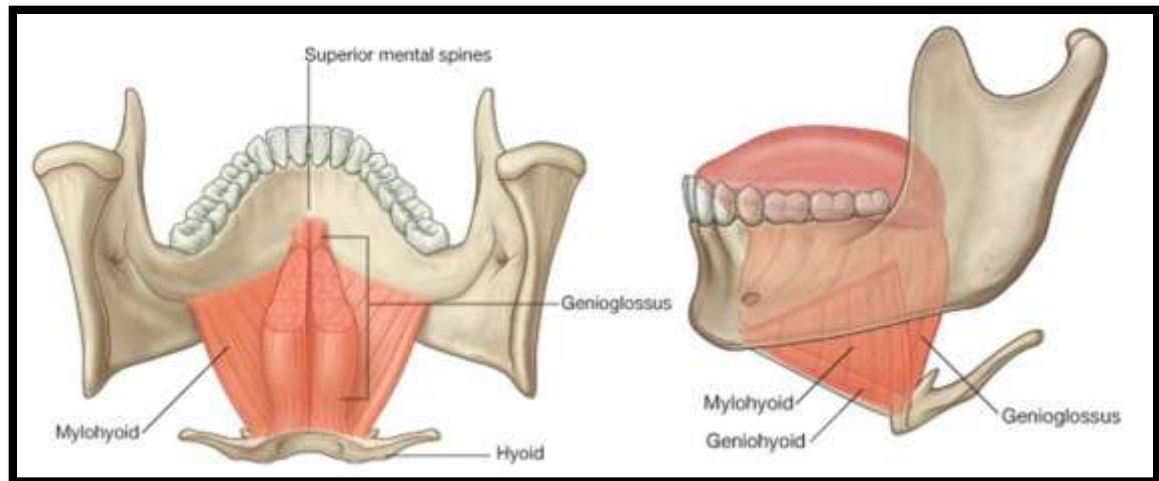
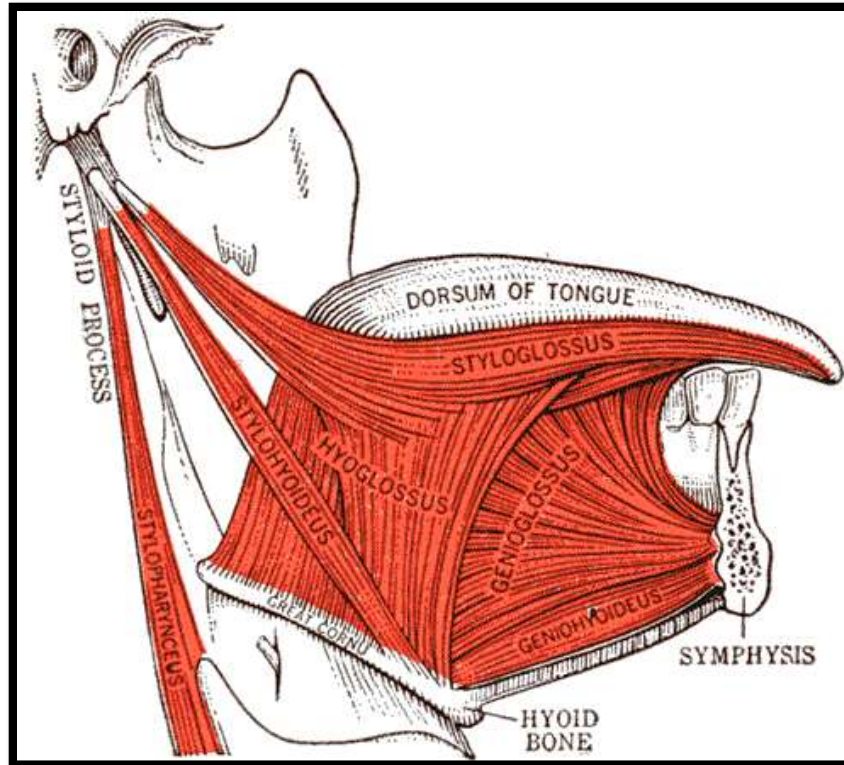
- Pass beneath the anterior border of hyoglossus.
- Extend upto stylohyoid ligament and middle constrictor of pharynx.

Upper fibers-

- Turn upwards and forwards.
- Extend up to the tip of tongue.

Actions-

- Protrusion of tongue [both muscles acting together].



Hyoglossus [Key Muscle of Suprahyoid Region]

- A flat, **quadrilateral** muscle.

Origin-

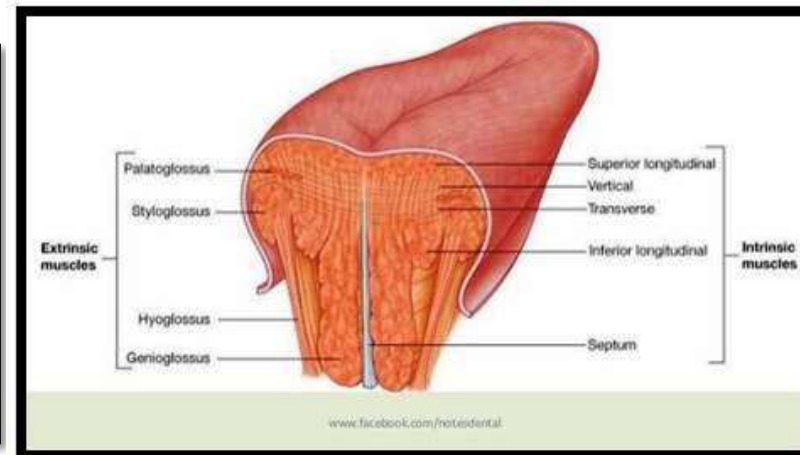
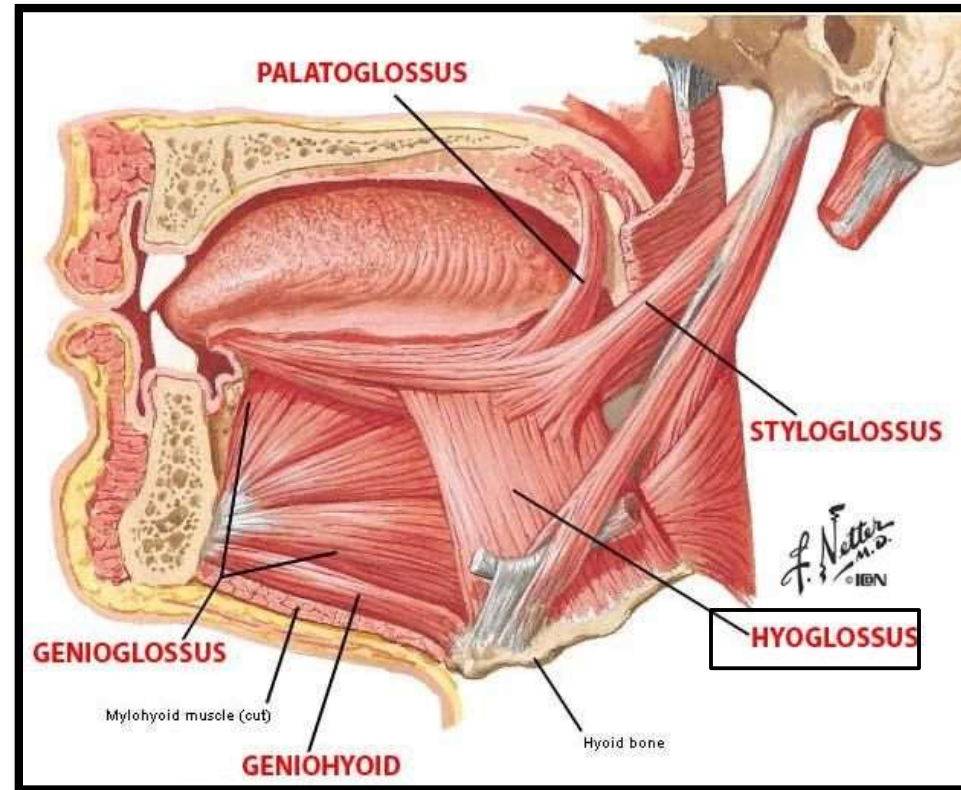
- Upper surface of greater cornu and adjacent part of body of hyoid bone.

Insertion-

- Side of tongue between styloglossus laterally and inferior longitudinal muscle medially.

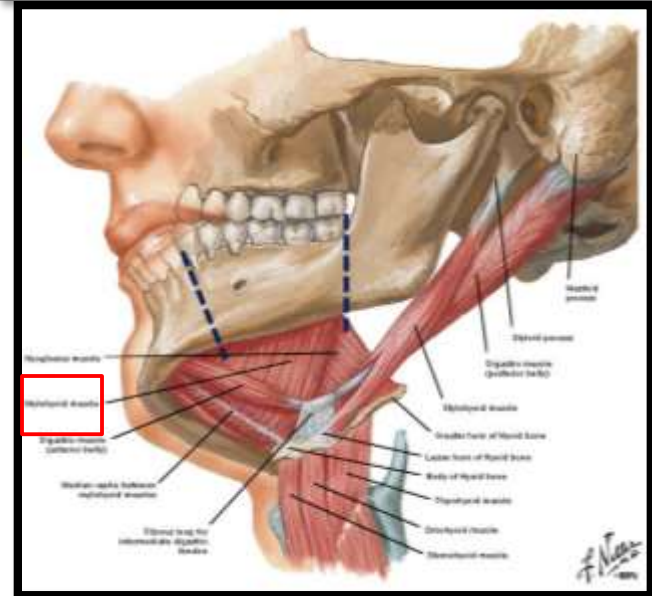
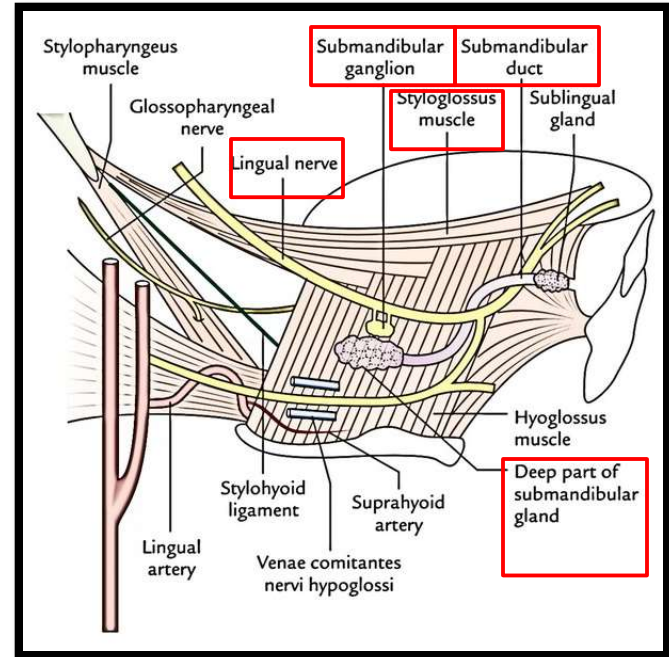
Actions-

- **Depression** of Tongue (make the dorsal surface convex).
- **Retraction** of Tongue.



Superficial Relations of Hyoglossus

- Hypoglossal nerve.
- Lingual nerve.
- Deep part of Submandibular gland.
- Submandibular duct.
- Submandibular ganglion.
- Styloglossus muscle.
- Mylohyoid muscle.



Deep Relations of Hyoglossus

- Inferior longitudinal muscle of tongue.

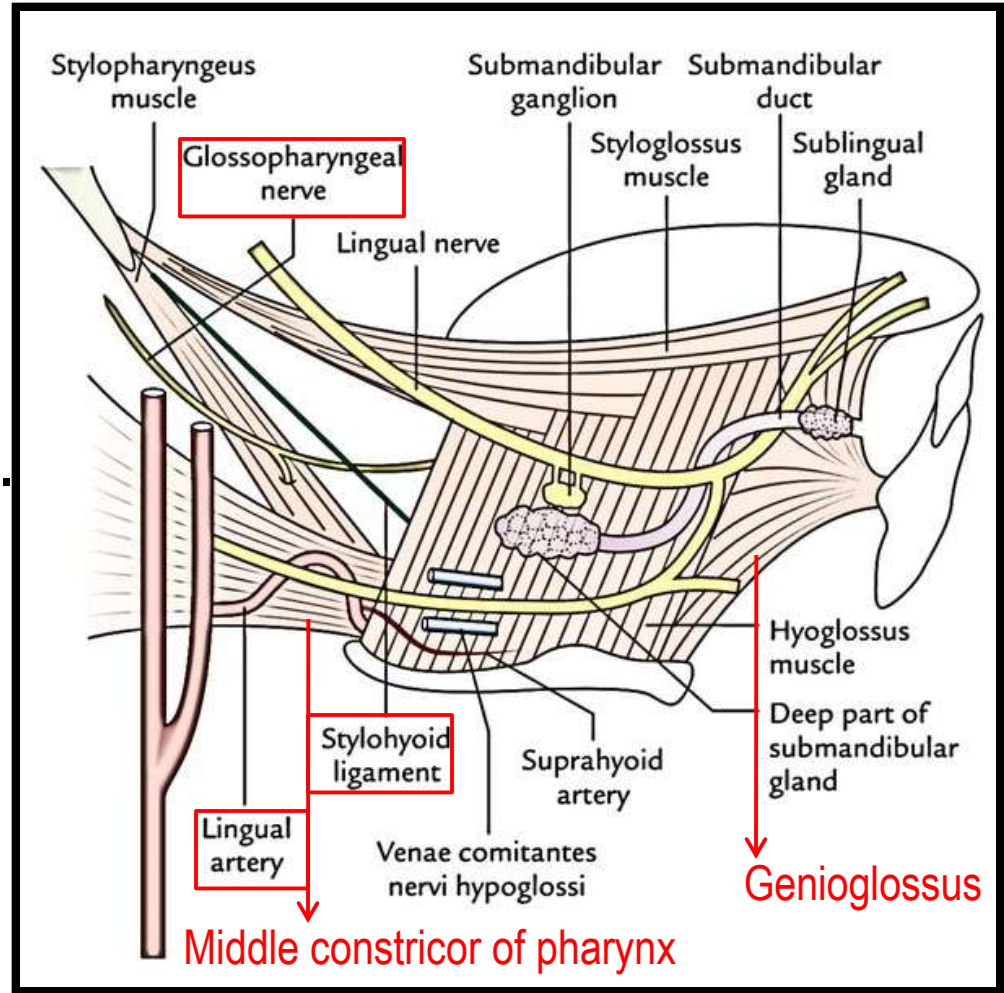
- Genioglossus.

- Middle constrictor of pharynx.

- Glossopharyngeal nerve.

- Stylohyoid ligament.

- Lingual artery.



Styloglossus

Origin-

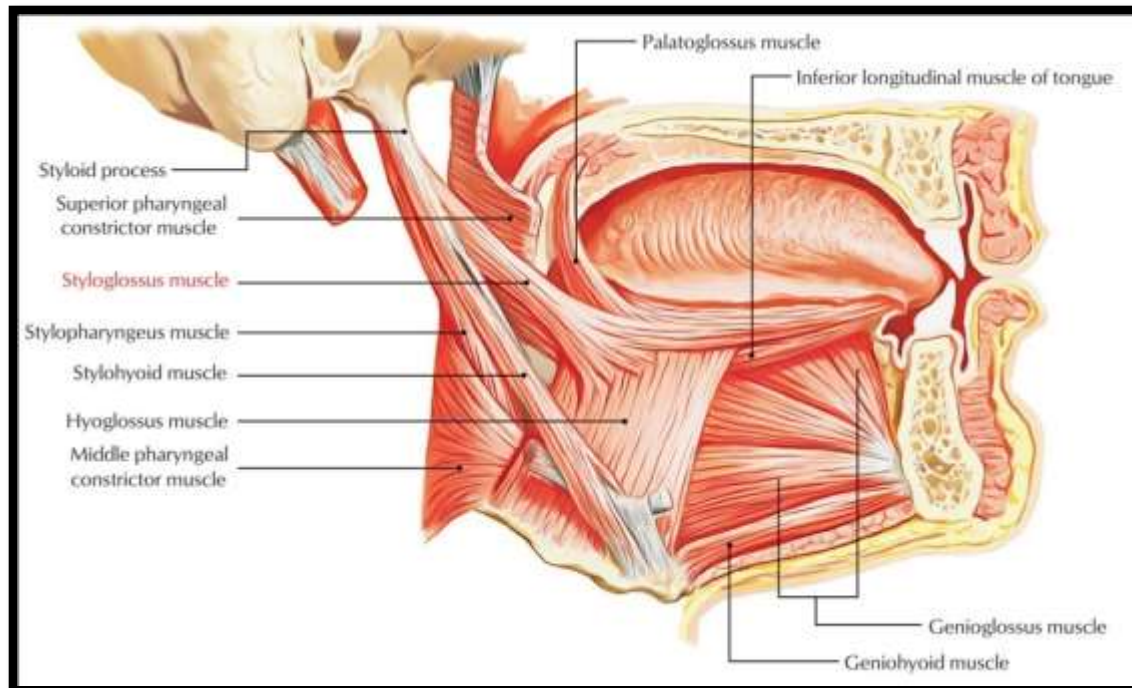
- Front of tip of styloid process.
- Adjoining part of stylohyoid ligament.

Insertion-

- Whole length of side of tongue.

Actions-

- Retraction of tongue (**antagonist to genioglossus**).



Palatoglossus

Origin-

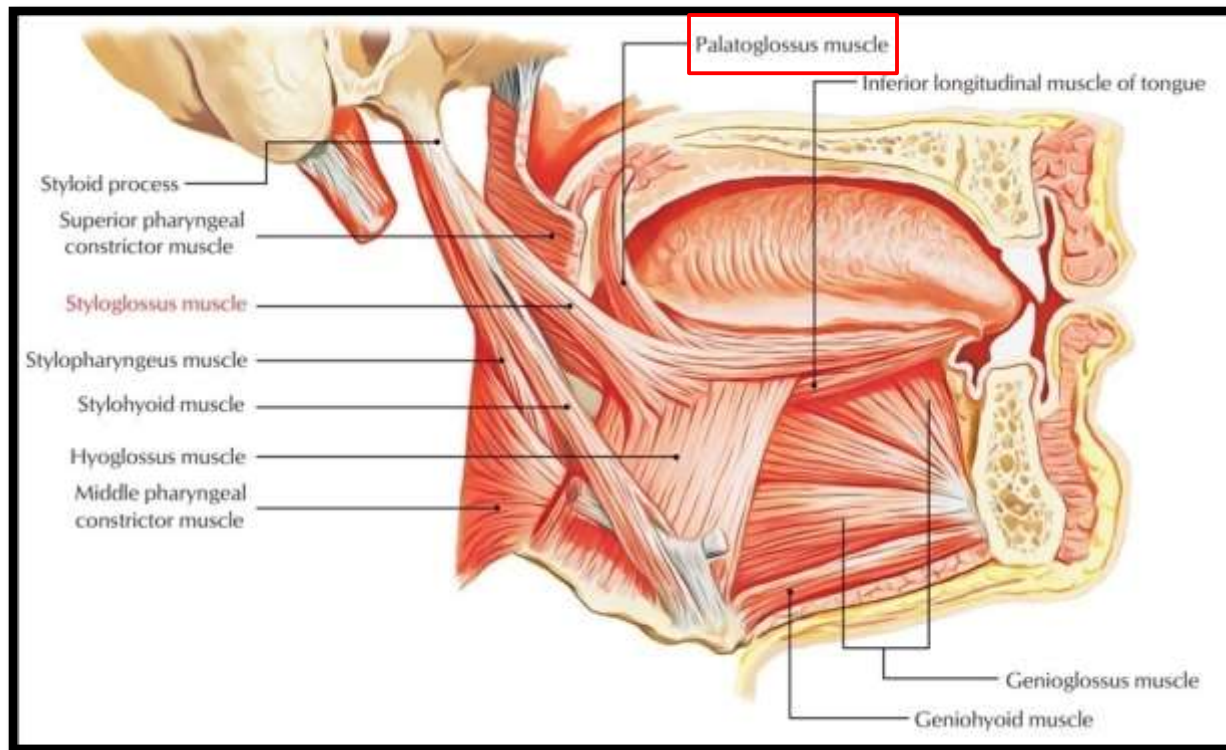
- Oral surface of palatine aponeurosis.

Insertion-

- Side of tongue (at the junction of anterior 2/3rd and posterior 1/3rd)

Actions-

- Pulls up the tongue.
- Approximates palatoglossal arches.



Thank
You

