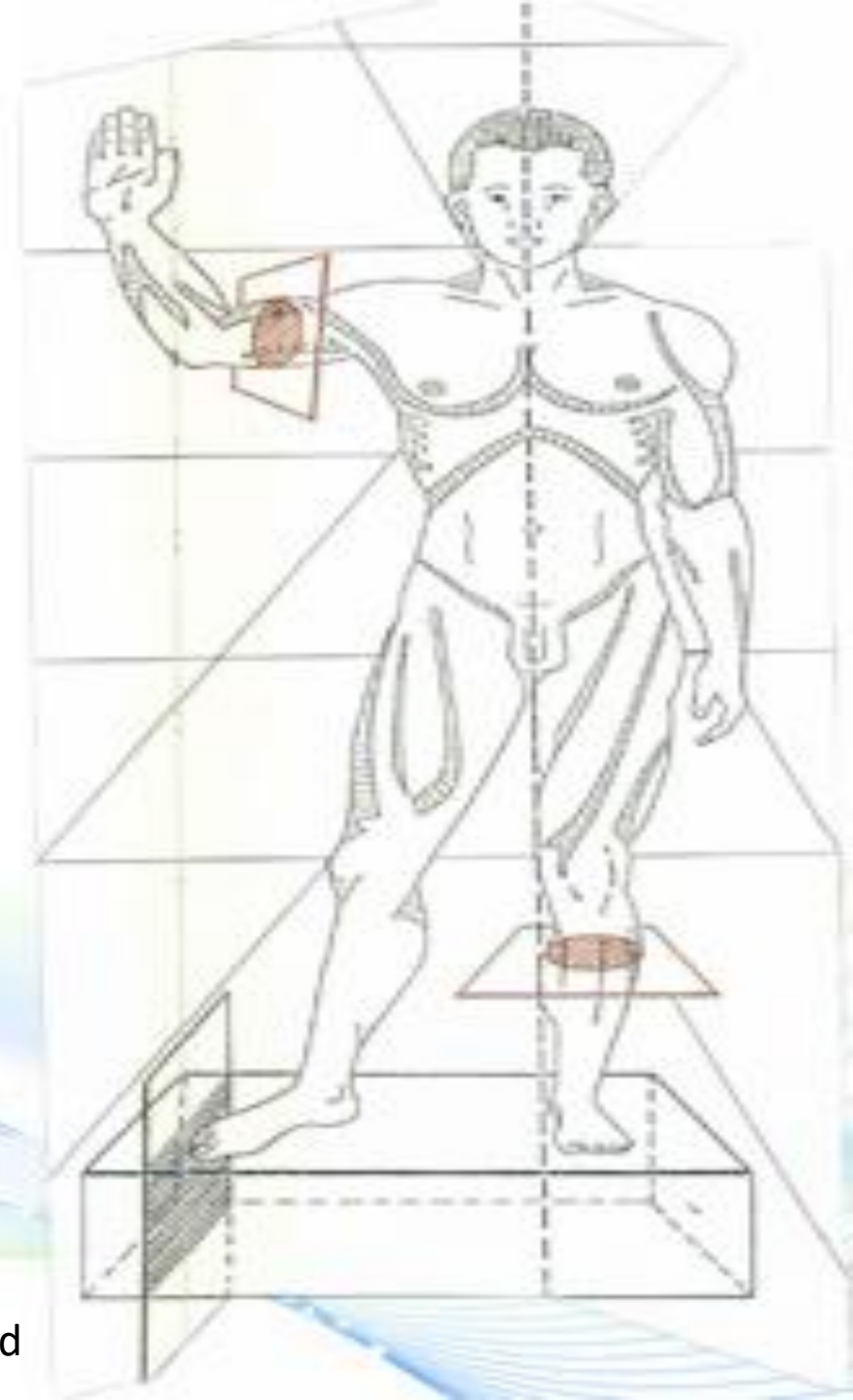


MOUTH



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I. INTRODUCTION

II. DESCRIPTIVE ANATOMY

III. STRUCTURE

IV. ANATOMICAL RELATIONS

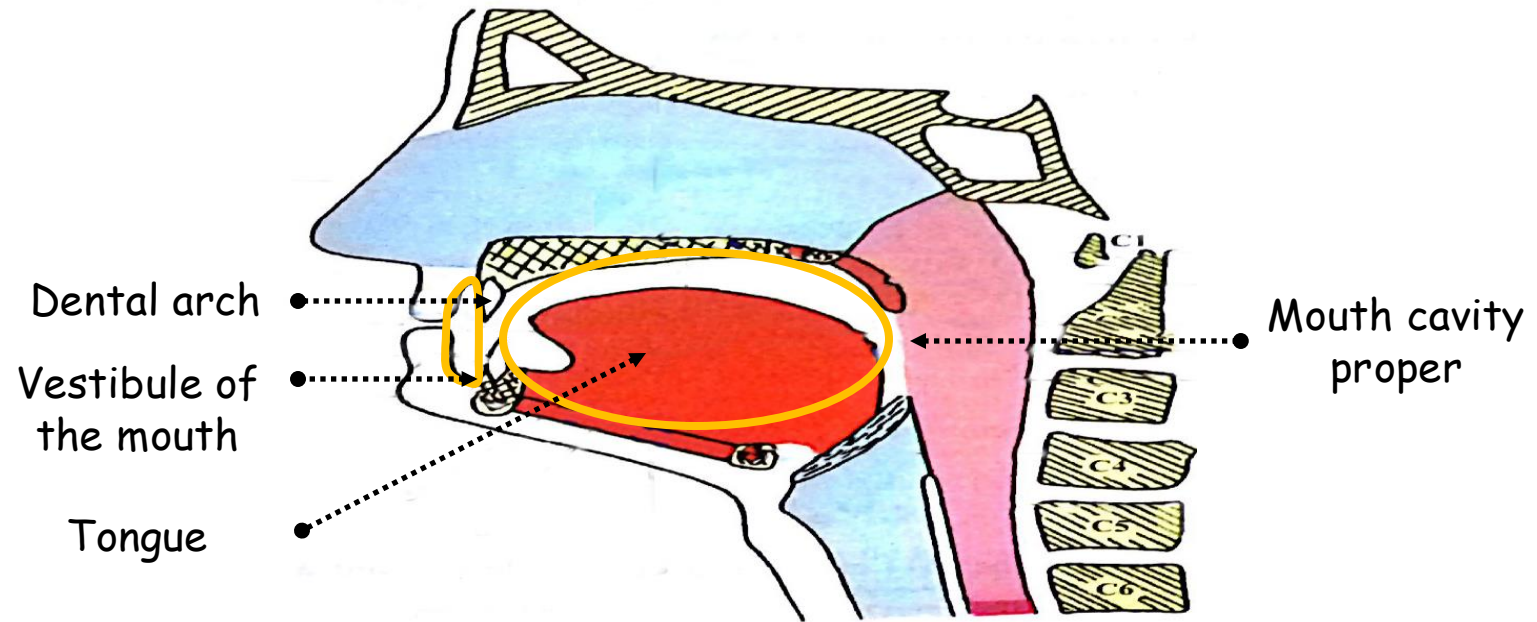
V. BLOOD SUPPLY; LYMPH DRAINAGE AND NERVE SUPPLY

VI. CONCLUSION



I. INTRODUCTION

- Initial portion of the alimentary tube
- Occupies the lower third of the face
- Limited by the maxilla upwards and the mandible downwards
- Irregular cavity
- Extends from the lips to the palatoglossal arches
- 2 parts separated by the dental arches
- Vestibule of the mouth: space between lips/cheeks and teeth/gingivae
- Mouth cavity proper: space inside the teeth and gums
- Main functions:
 - Digestion
 - Deglutition
 - Respiration
 - Communication

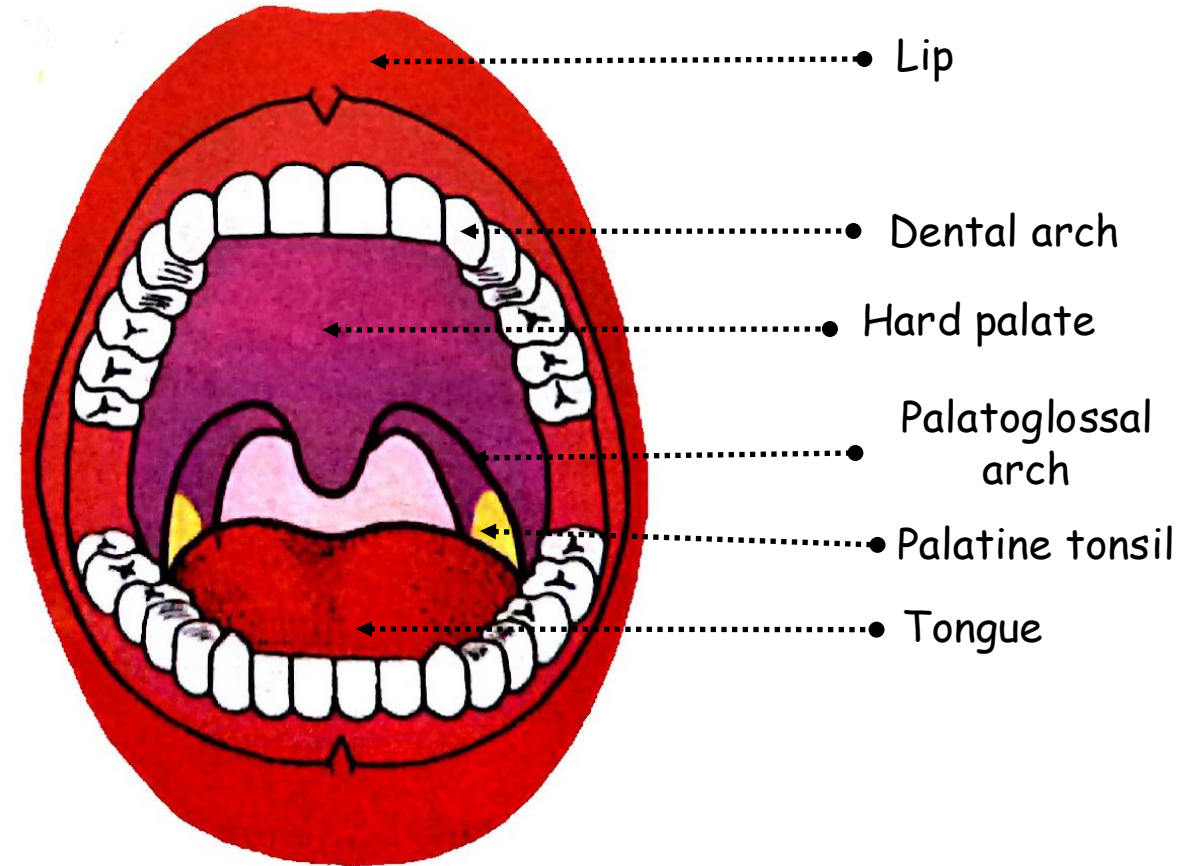


LATERAL VIEW OF THE HEAD AND NECK

II. DESCRIPTIVE ANATOMY

A. SITUATION

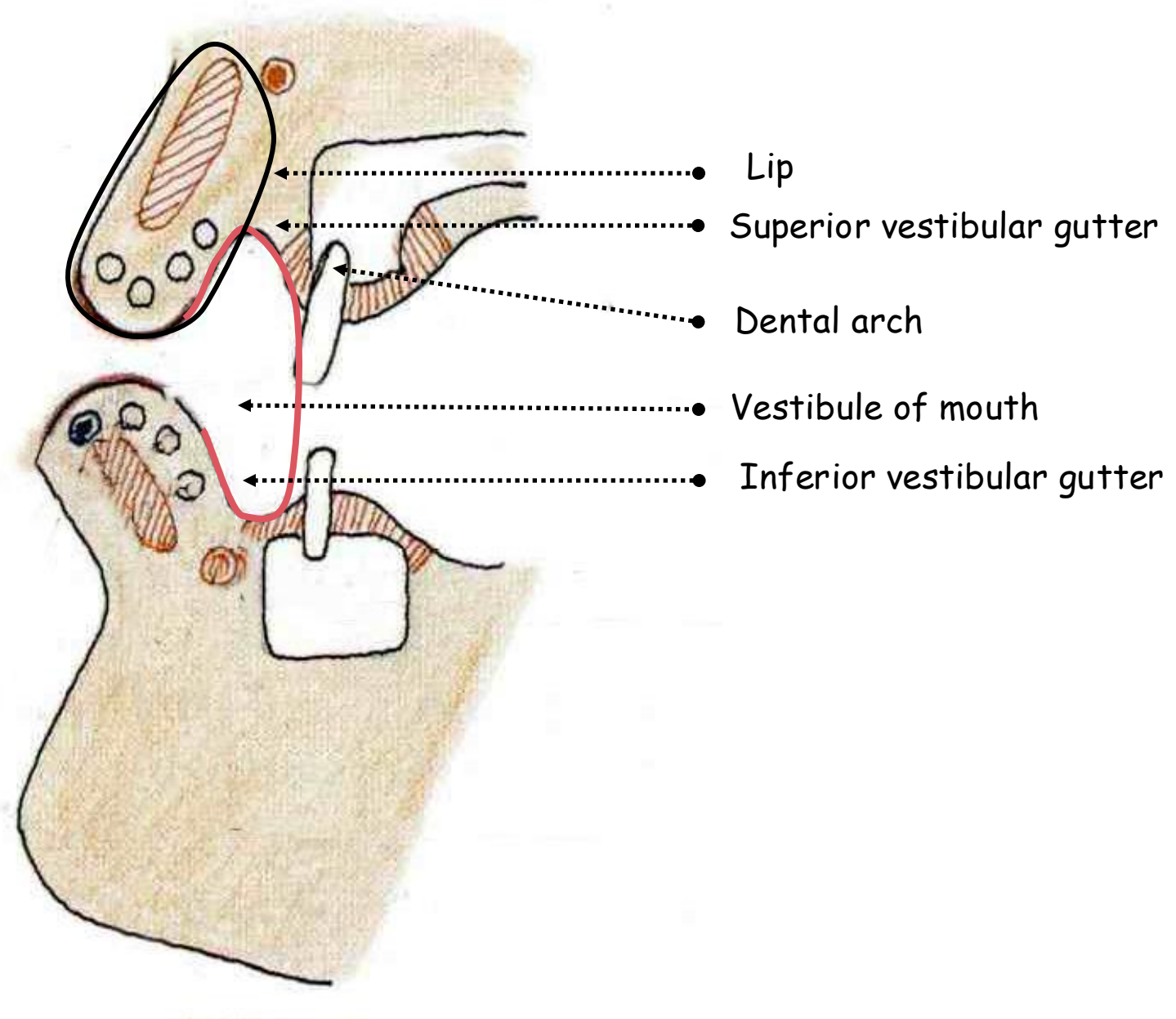
- Extends from the lips to the palatoglossal arches, the anterior pillars of the fauces
- Enclosed by the lips and cheeks
- The floor is largely occupied by the tongue, and the roof is the hard palate



ANTERIOR VIEW OF THE MOUTH OPENED

B. VESTIBULE OF THE MOUTH

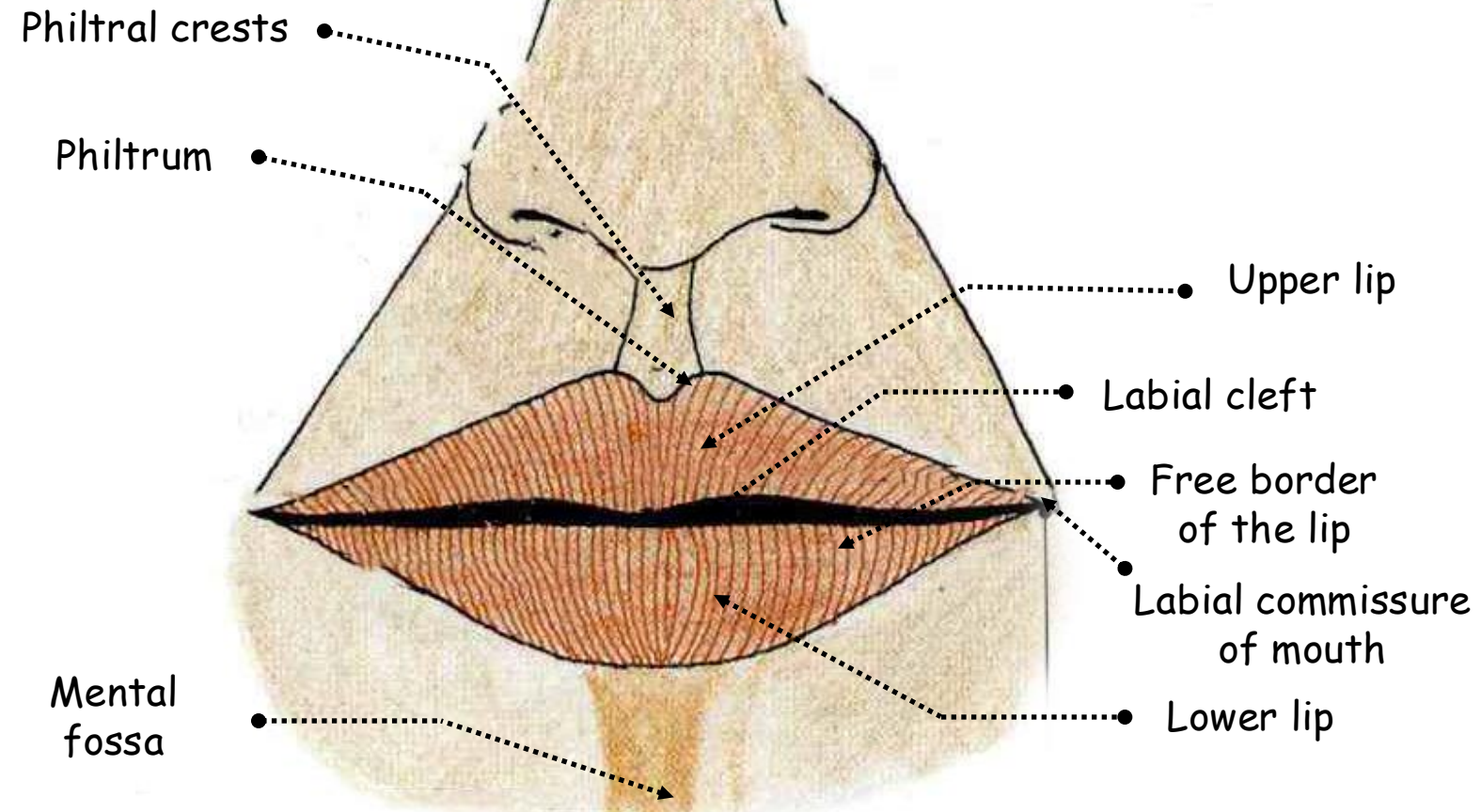
- Closed space
- Between lips forwards and cheeks laterally lying in contact with the teeth and gums of dental arches backwards
- 2 inferior and superior horseshoe-shaped gutters
- Communicates with the cavity of the mouth through the space behind the molar teeth and in the rest position with the teeth slightly parted



SAGITTAL SECTION OF THE MOUTH

C. LIPS

- 2 superior and inferior fibromuscular folds
- Transverse and mobile
- Free borders limit the labial cleft
- Fused ends constitute the labial commissures of mouth



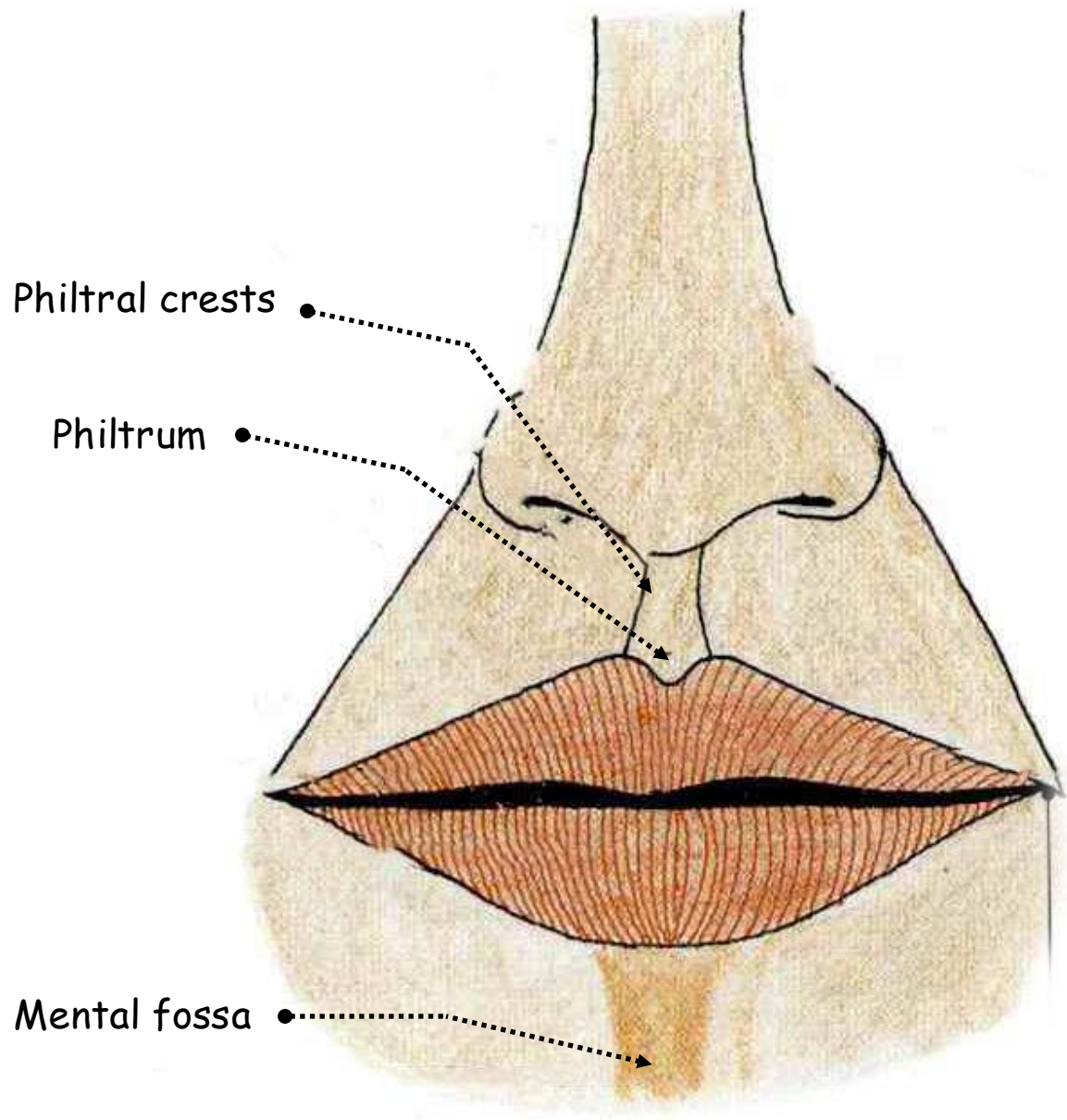
ANTERIOR VIEW OF THE MOUTH SHOWING THE LIPS

1. Upper lip:

- **Philtrum:** large sulcus under the nose limited by two **philtral crests**

2. Lower lip:

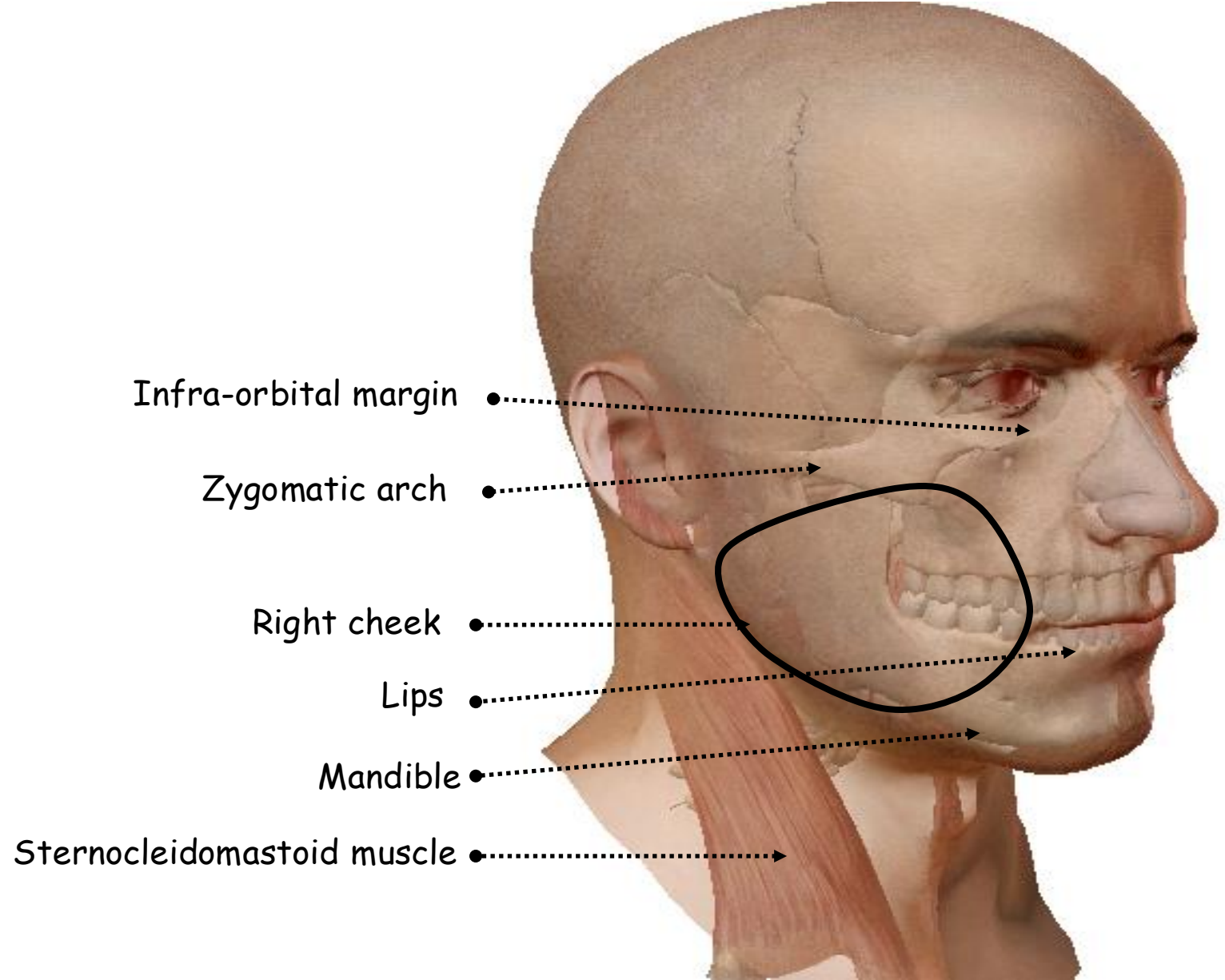
- **Mental fossa:** above the chin, hairy



ANTERIOR VIEW OF THE MOUTH SHOWING THE LIPS

D. CHEEKS

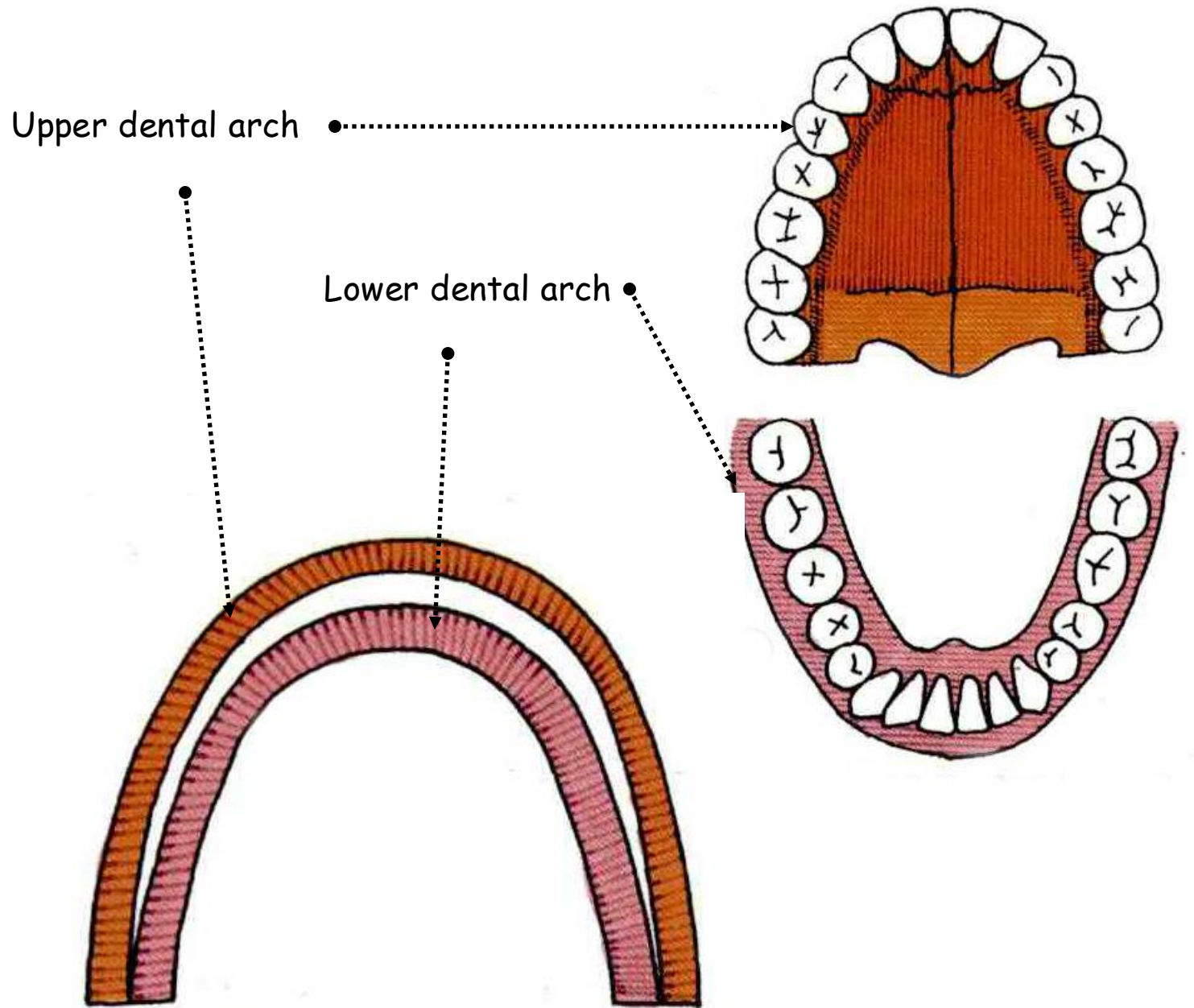
- Lateral walls of the vestibule
- Situated between:
 - Upwards: **zygomatic arch** and **infra-orbital margin**
 - Downwards: **lower margin of the mandibular body**
 - Forwards: **lips**
 - Backwards: **anterior border of sternocleidomastoid muscle**



LATERAL VIEW OF THE FACE

E. TEETH

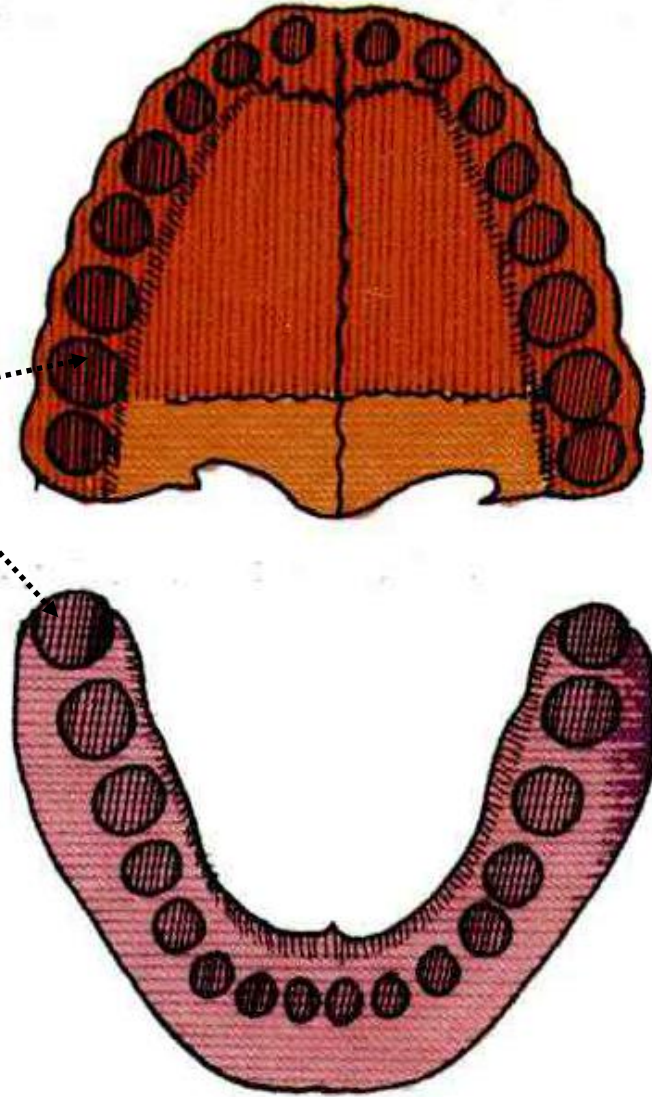
- Arranged in the alveolar bone of the maxilla upwards and the mandible downwards
- Upper dental arch: half ellipse-shaped
- Lower dental arch: in the shape of a parabola



FIGURES SHOWING THE SHAPE OF THE DENTAL ARCHES

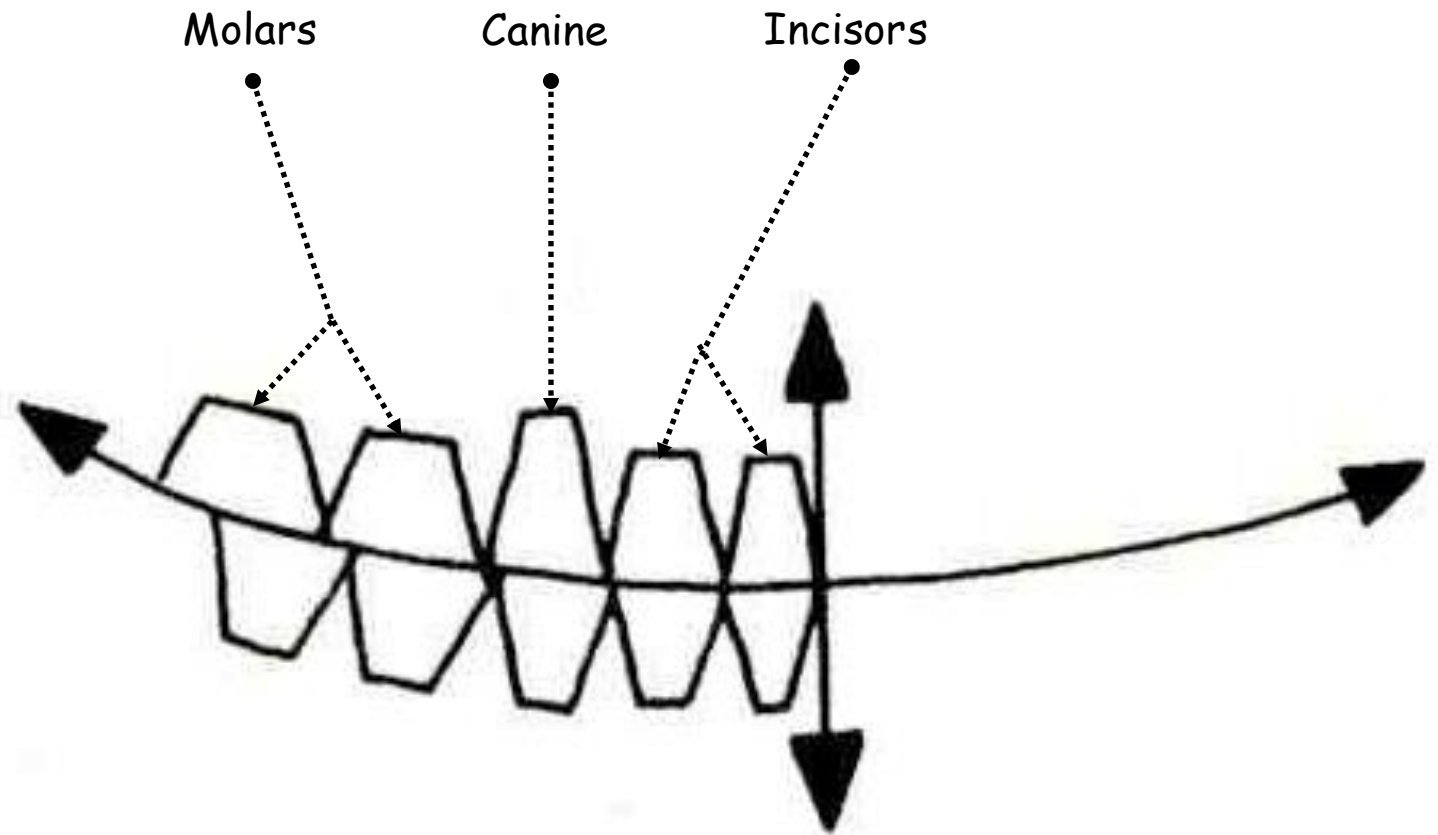
- **Tooth sockets:** cavities in the alveolar bone of the jaws giving attachment to the **periodontal ligament**
- **Walls of the tooth sockets:** projections **between teeth** of the alveolar bone

Tooth sockets



FIGURES SHOWING THE TOOTH SOCKETS

- **Hard and white organs** plugged into the tooth sockets of the maxilla and mandible
- **Deciduous dentition:**
 - Milk teeth
 - 5 teeth in each half jaw
 - 20 in all
 - 2 incisors
 - 1 canine
 - 2 molars



FIGURES SHOWING THE DECIDIOUS DENTITION

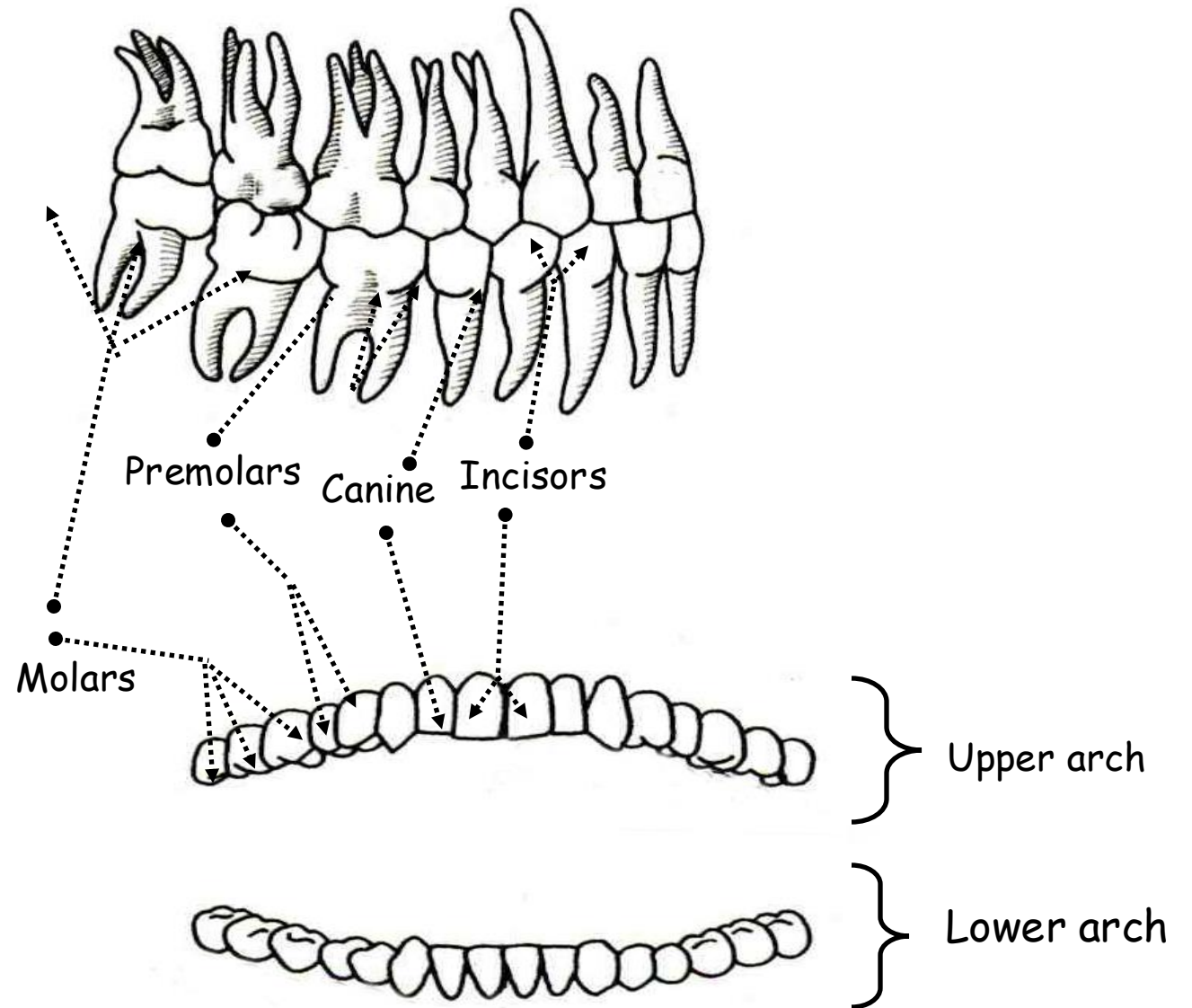
- **Permanent dentition:**

- 8 teeth in each half-jaw

- 32 teeth in all

- From the midline 2 incisors, 1 canine, 2 premolars and 3 molars

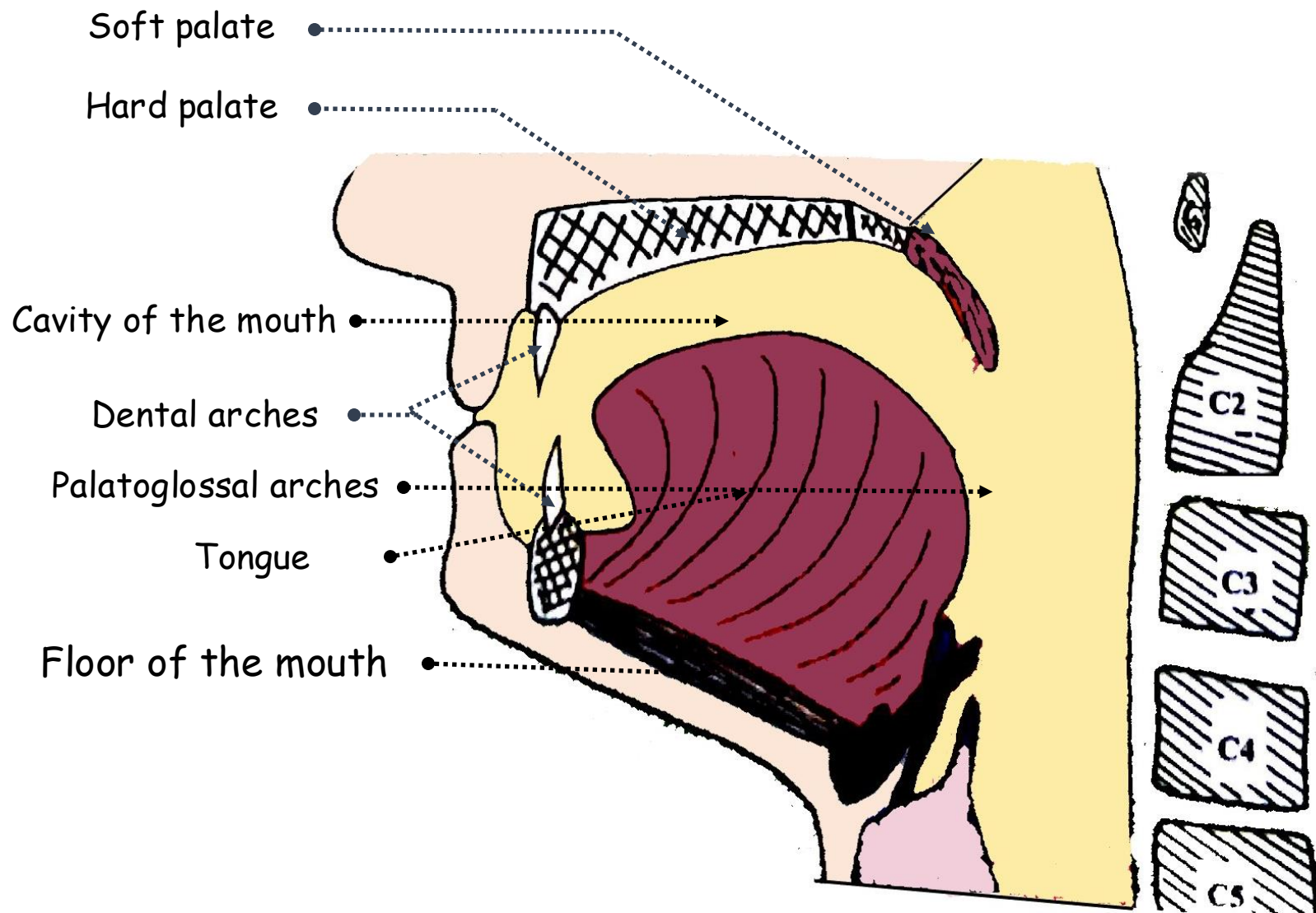
- In clinical dentistry it is common to refer to **teeth** by **number, 1 to 8** starting from the midline



FIGURES SHOWING THE PERMANENT DENTITION

F. CAVITY OF THE MOUTH

- Extends from the dental to the palatoglossal arches
- Enclosed by the hard and soft palates
- The floor of the mouth is largely occupied by the tongue



SAGITTAL SECTION OF THE HEAD

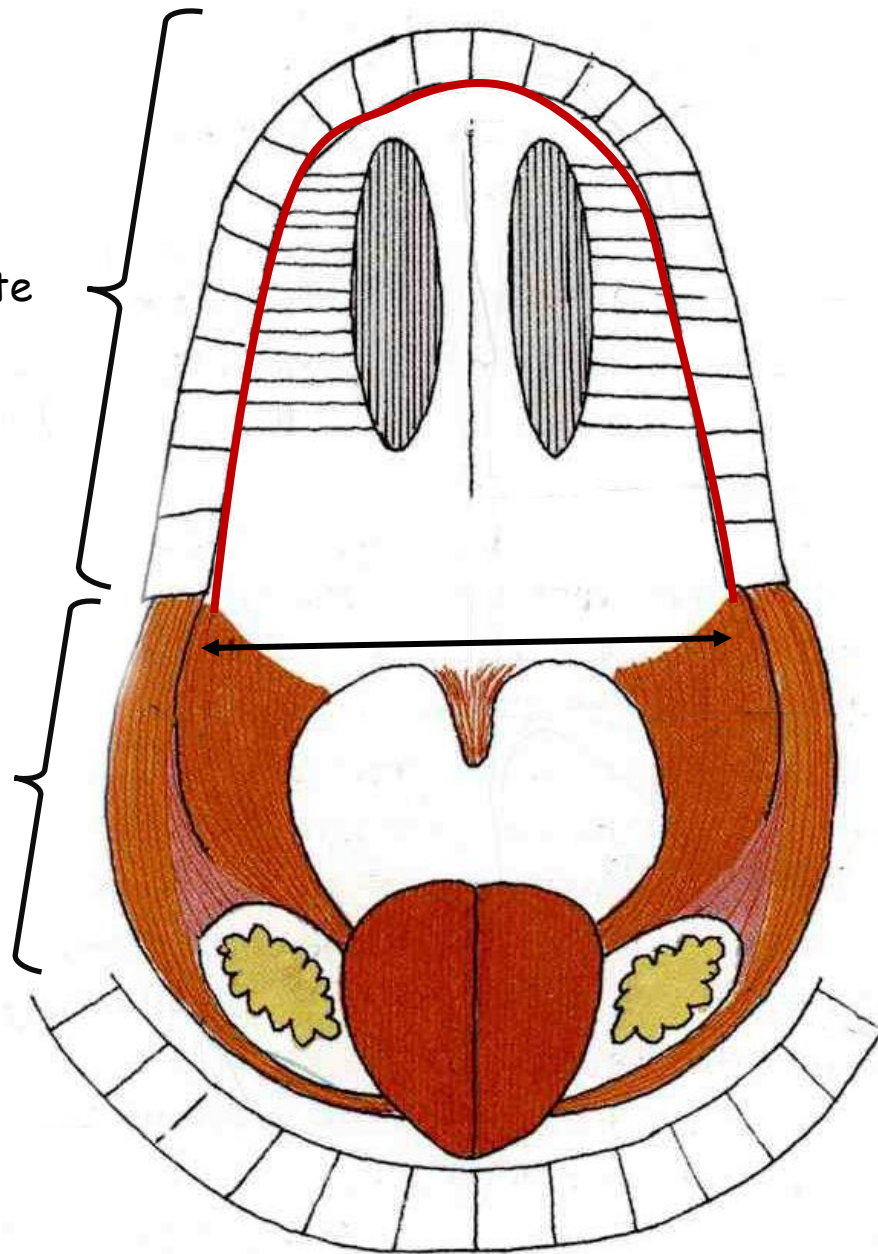
1. Hard palate:

- Half ellipse-shaped
- Posterior margin: soft palate



Hard palate

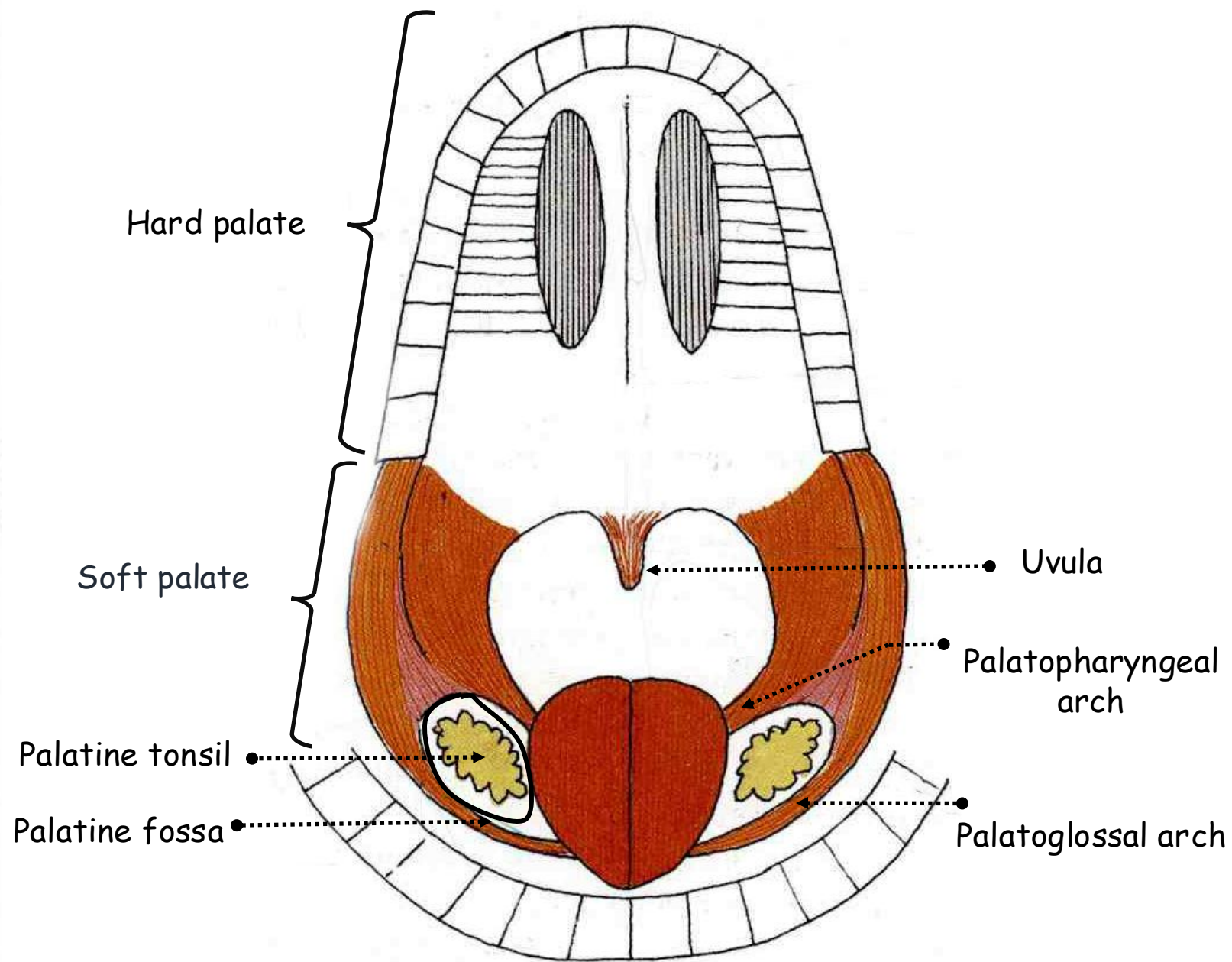
Soft palate



ANTERIOR VIEW OF THE CAVITY OF THE MOUTH

2. Soft palate:

- Fibromuscular mobile diaphragm
- Hangs down from the back of the hard palate
- **Free border:**
 - Fuses at the sides with the palatoglossal and palatopharyngeal arches around the palatine fossa and tonsil
 - Continuous with the uvula at the midline



ANTERIOR VIEW OF THE CAVITY OF THE MOUTH

3. Floor of the mouth:

- Formed by:

- Forwards: the mandible
- Backwards: the hyoid bone
- Downwards: three pairs of muscles; mylohyoids, geniohyoids and anterior bellies of digastric

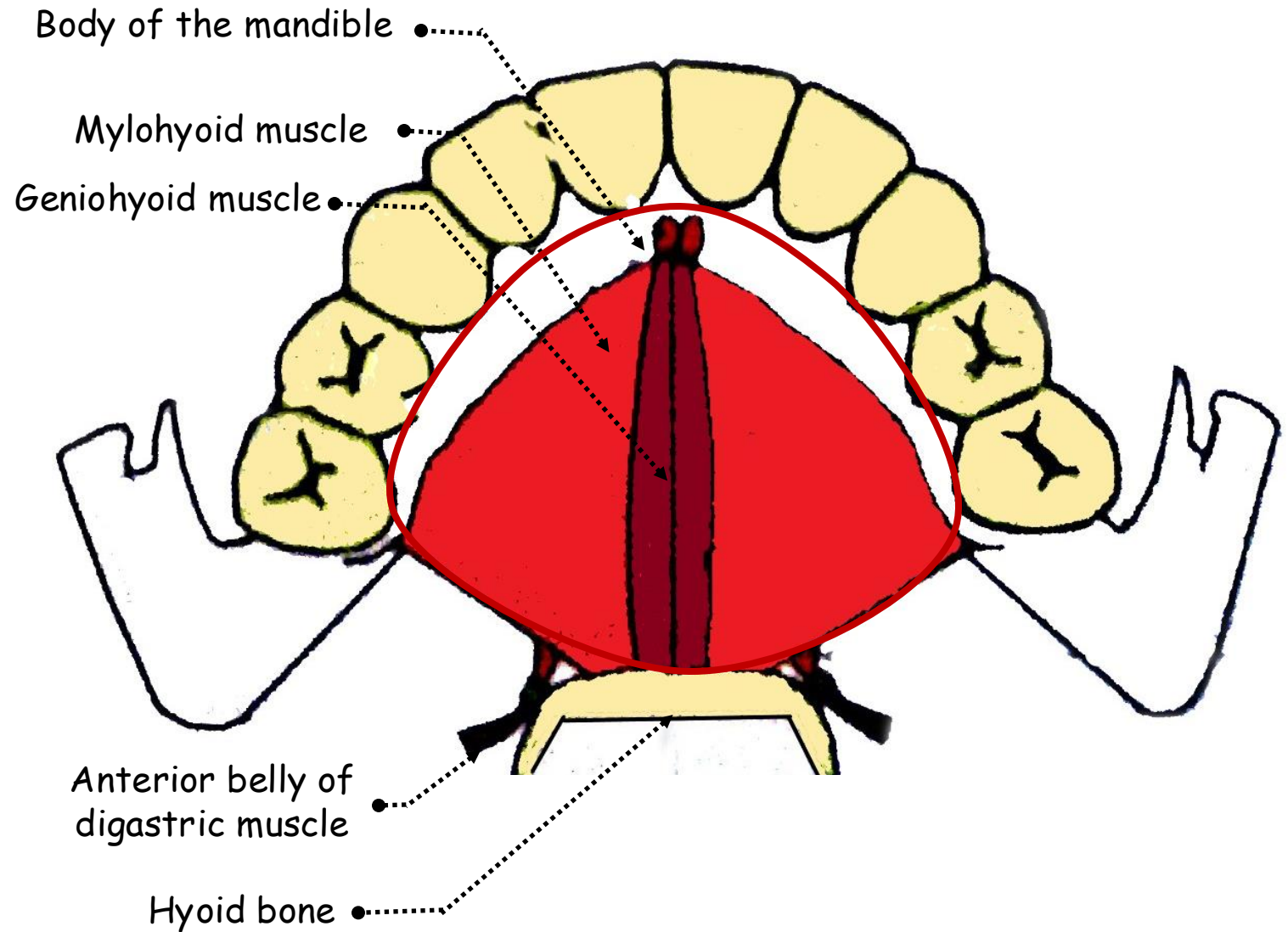


FIGURE SHOWING THE FLOOR OF THE MOUTH

G. TONGUE

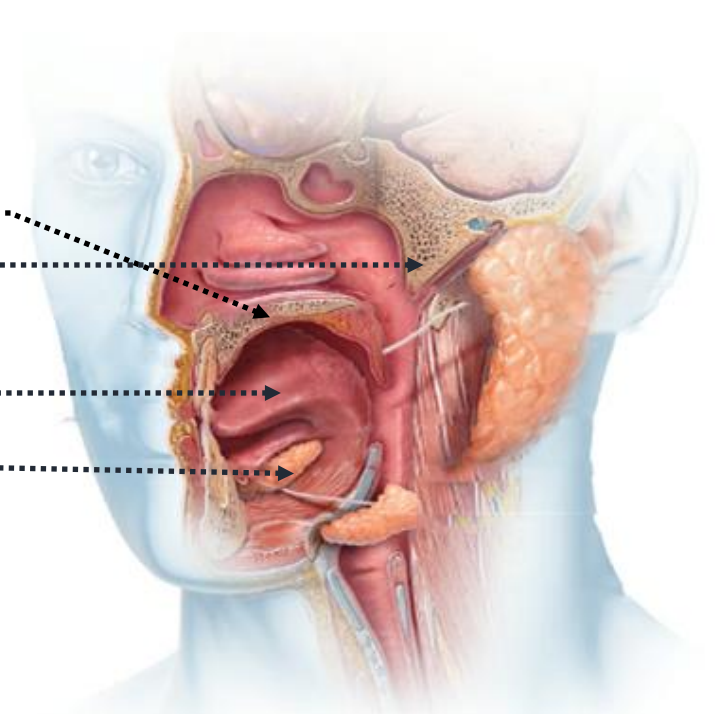
- The tongue is the mouth; all the rest is accessory

1. Situation:

- Largely occupies the floor of the mouth
- Straddles the pharynx and the mouth
- Attached to:
 - Hyoid bone
 - Mandible
 - Hard palate
 - Styloid process of temporal bone

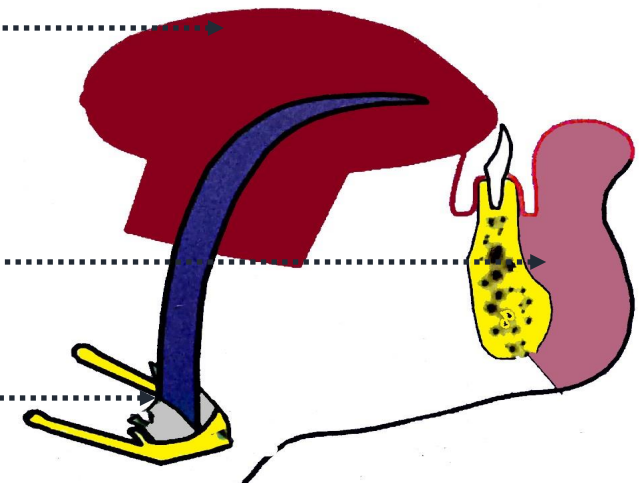
Hard palate ●
Styloid process ●

Tongue ●
Floor of the mouth ●



LATERAL VIEW OF THE CAVITY OF THE MOUTH

Tongue ●
Mandible ●
Hyoid bone ●



LATERAL VIEW OF THE CAVITY OF THE MOUTH

2. Shape:

- Oval
- Large posterior end
- Highly mobile
- Main parts: dorsum, tip, inferior surface and root
- 2 lateral edges

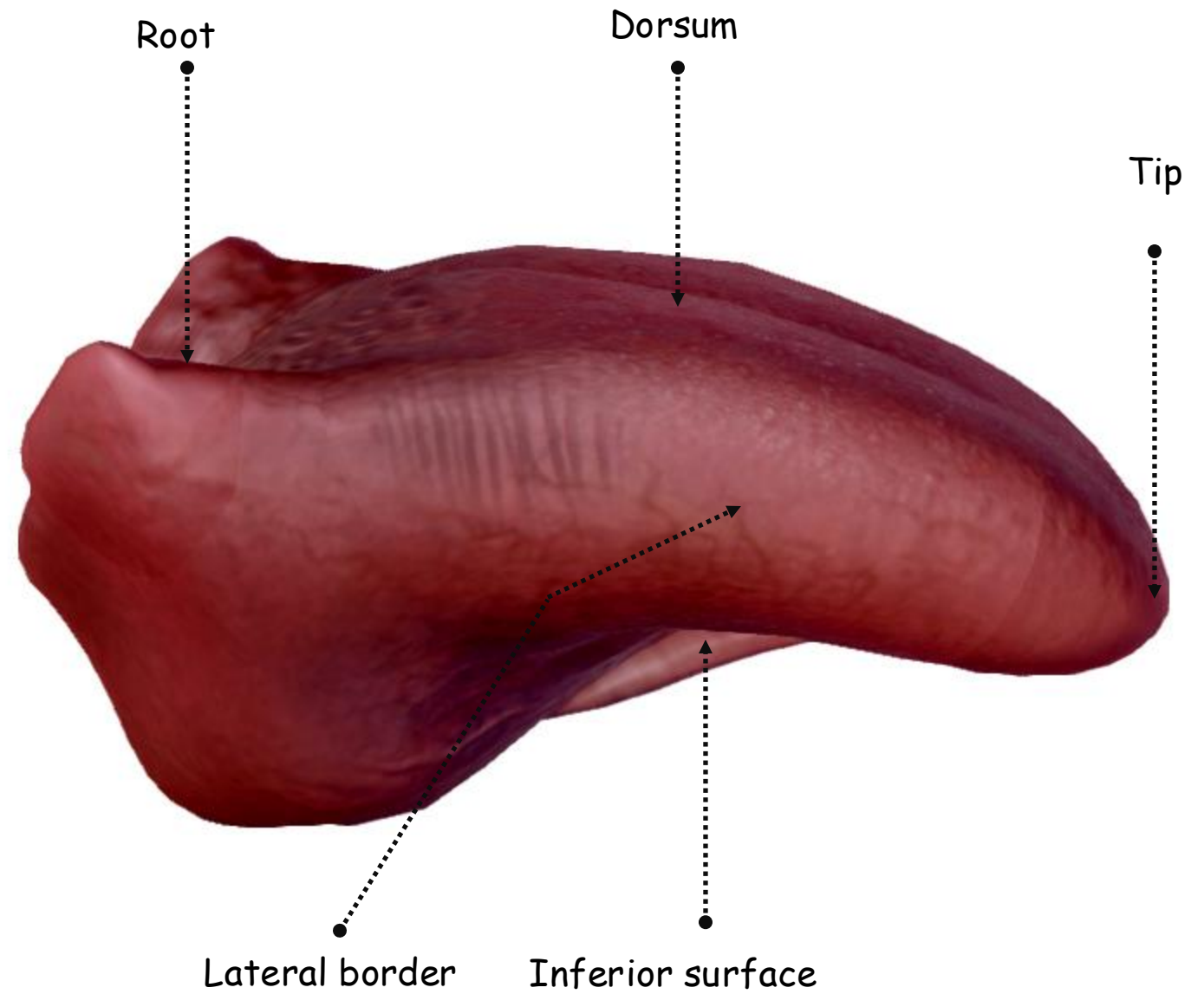
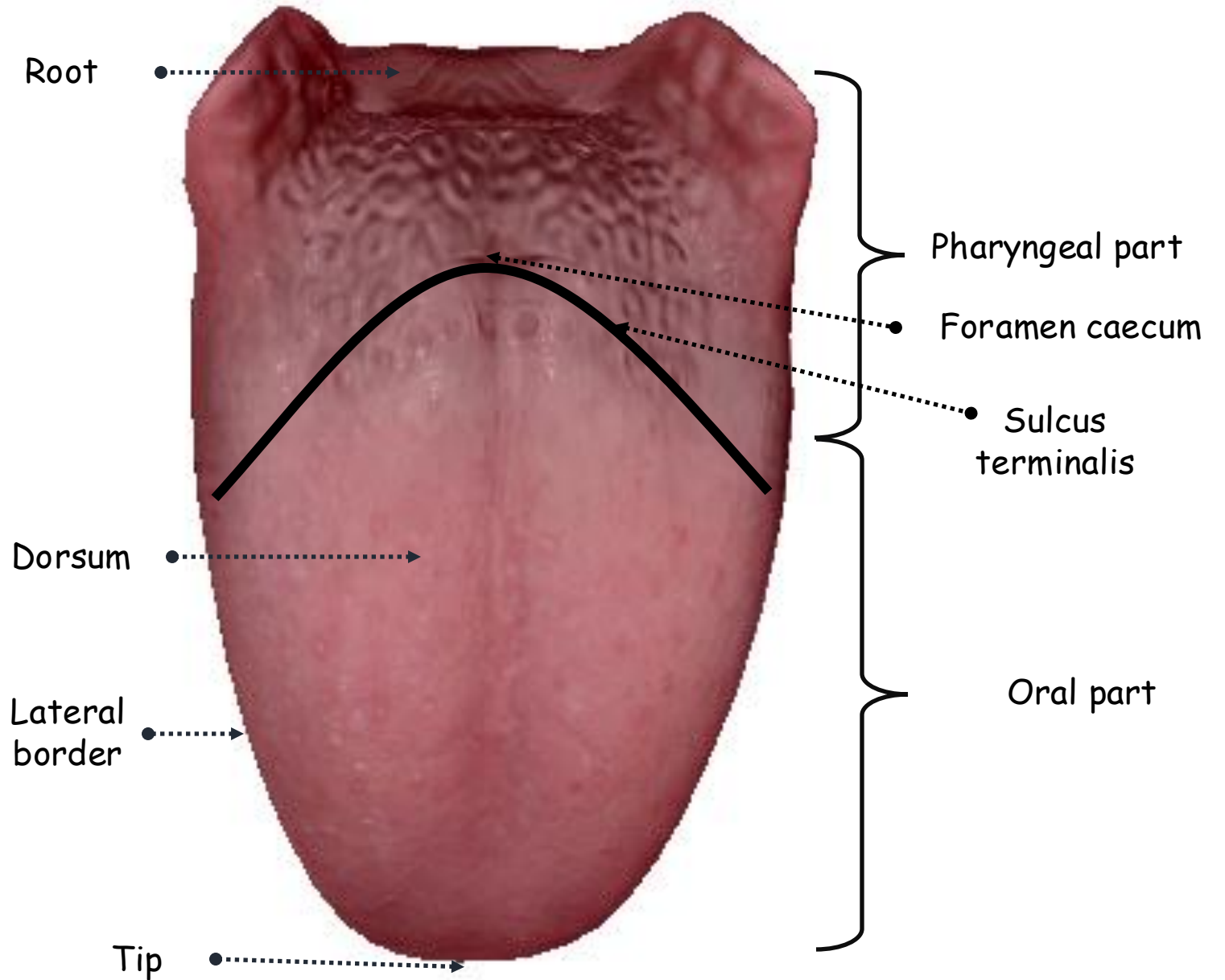


FIGURE SHOWING THE PARTS OF THE TONGUE

3. Dorsum of the tongue:

- Oral part: anterior two-thirds face upwards towards the hard palate
- Pharyngeal part or the base of the tongue: posterior one-third faces backwards and forms the anterior wall of the oropharynx
- Separated by the **sulcus terminalis** an ill-defined shallow groove in the form of a V with the apex pointing backwards
- At the apex of the sulcus is a small depression, the **foramen caecum**, which is the remains of the thyroglossal duct



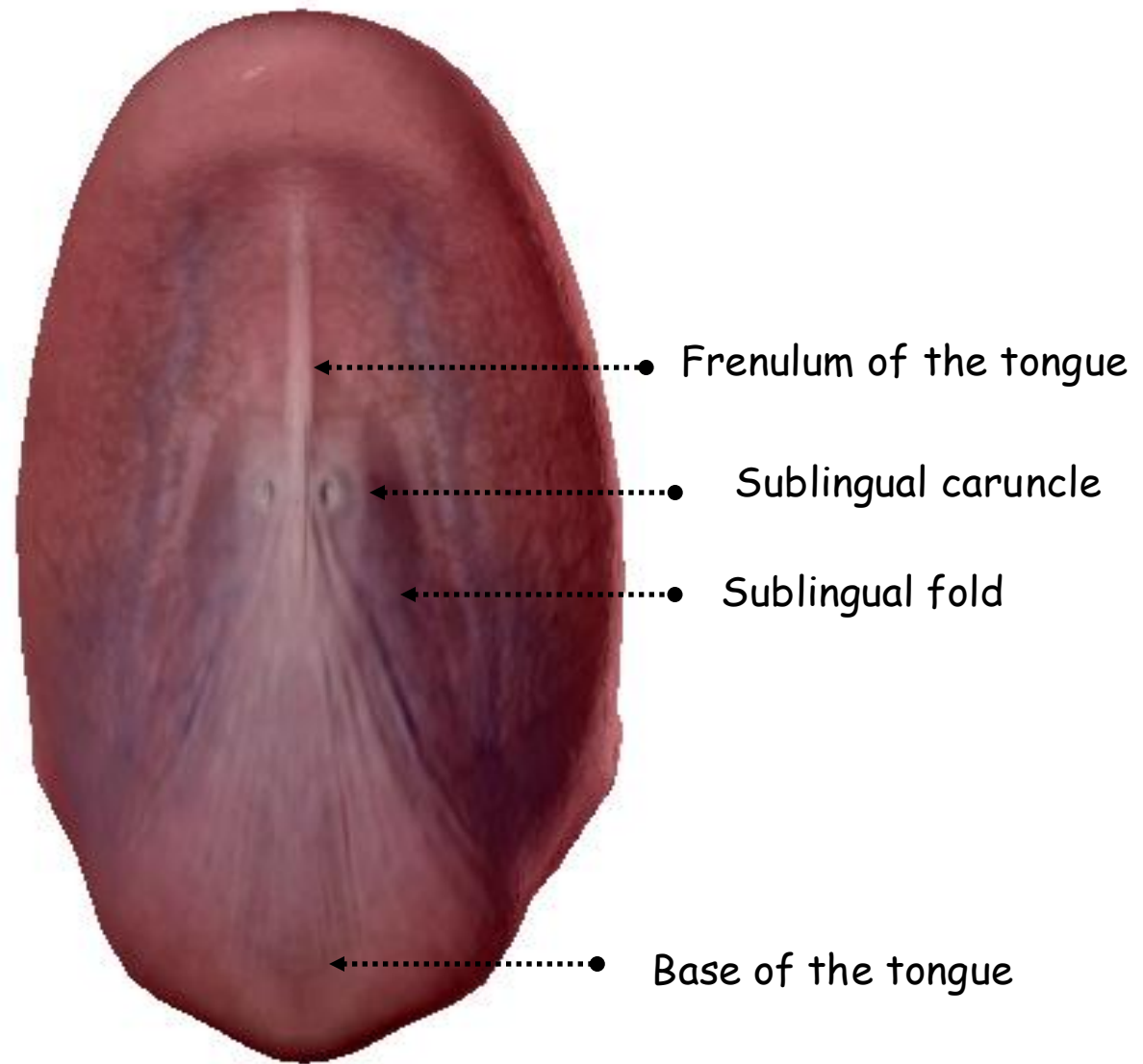
SUPERIOR VIEW OF THE TONGUE

- No papillae behind the sulcus
- Nodular appearance
- In front of the sulcus terminalis:
 - Vallate papillae: dozen in number and are arranged in the form of a V with the apex pointing backwards with many taste buds surrounding it
 - Fungiform papillae: discrete pink pinheads more numerous towards the edges of the tongue; each bears a few taste buds
 - Filiform papillae: velvety appearance and provide a non-slip surface for moving a food bolus



4. Inferior surface:

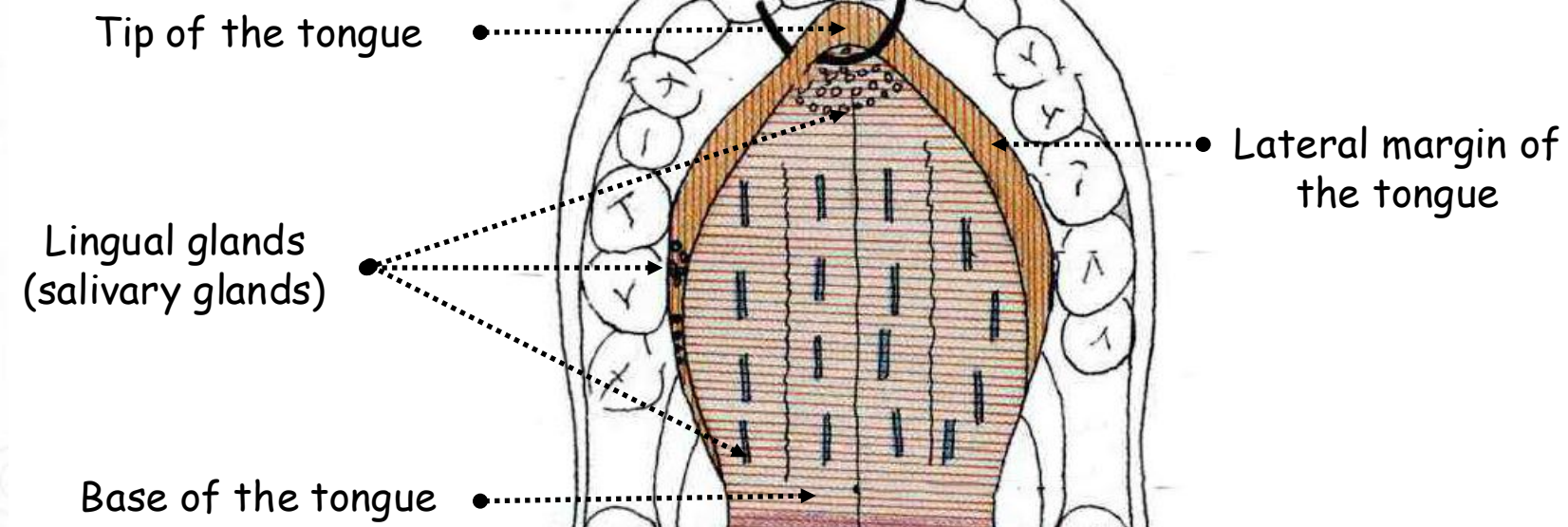
- Lingual frenulum: small midline septum of mucous membrane unites the base to the floor of the mouth
- Sublingual fold and caruncle laterally on each side of the frenulum



INFERIOR VIEW OF THE TONGUE

5. Lateral margins:

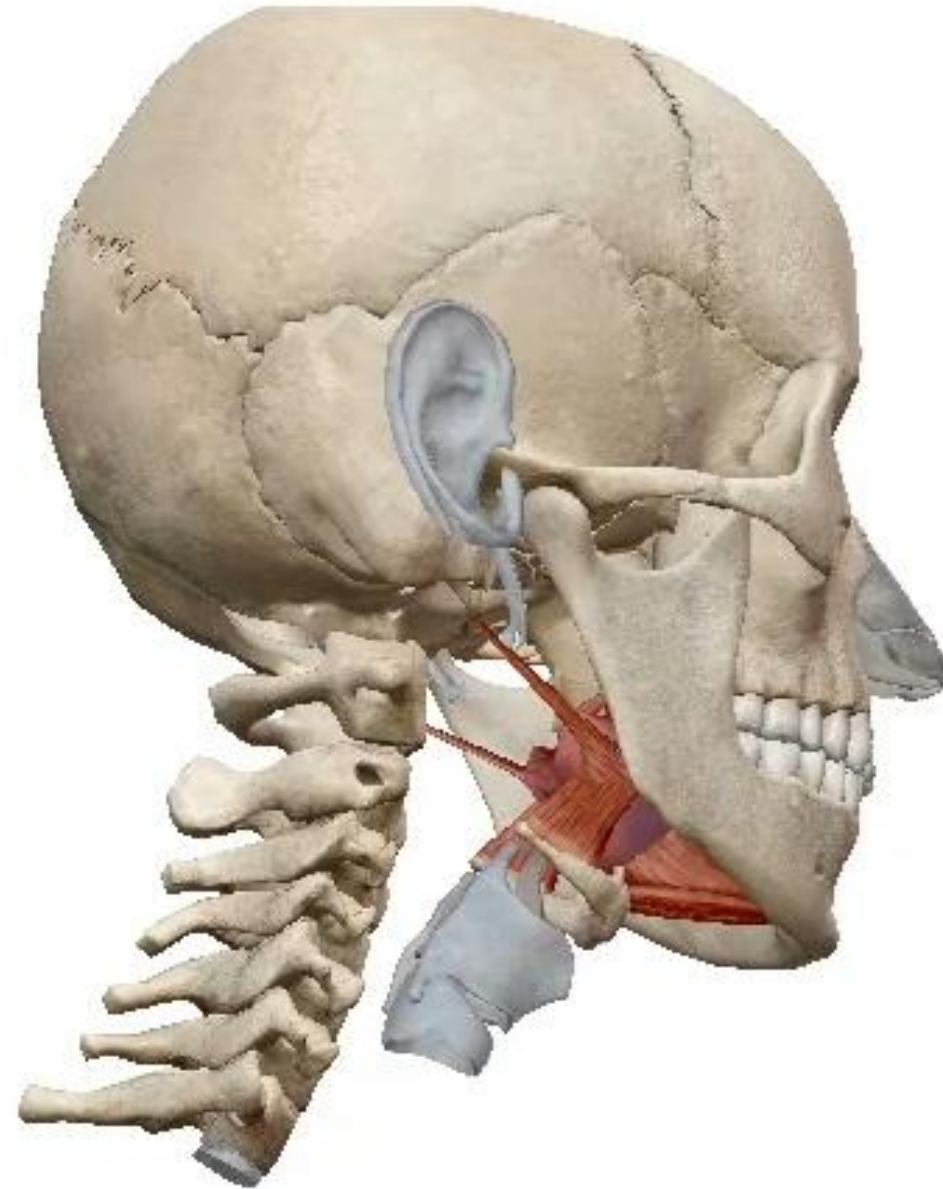
- Slim down from the base to the tip
- Lingual glands



INFERIOR VIEW OF THE TONGUE

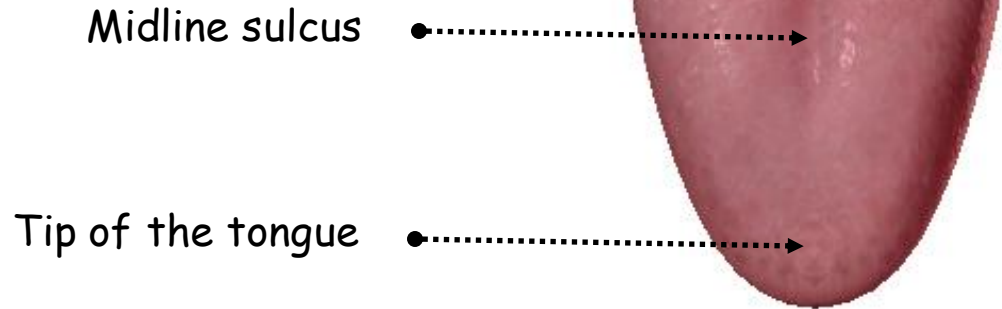
6. Base of the tongue:

- **Thickest part**
- **Lies on the floor of the mouth**
- **Fixed to the mandible and the hyoid bone through the hyoglossus and genioglossus muscles**
- **Lower wall of the oropharyngeal isthmus**
- **Lingual tonsils**

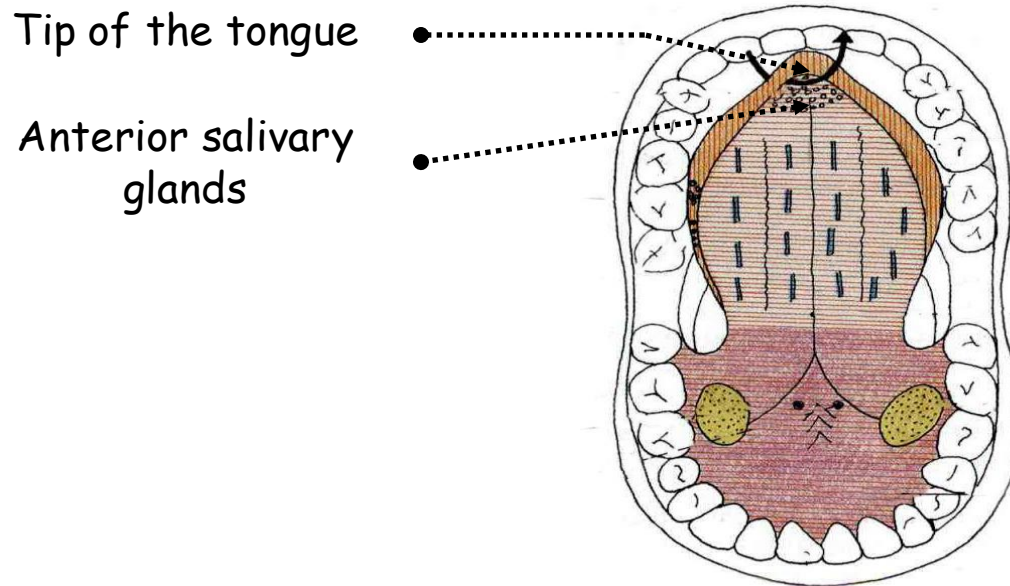


7. Tip of the tongue:

- Midline sulcus continuous on the dorsum and inferior surface
- Anterior salivary gland



SUPERIOR VIEW OF THE TONGUE

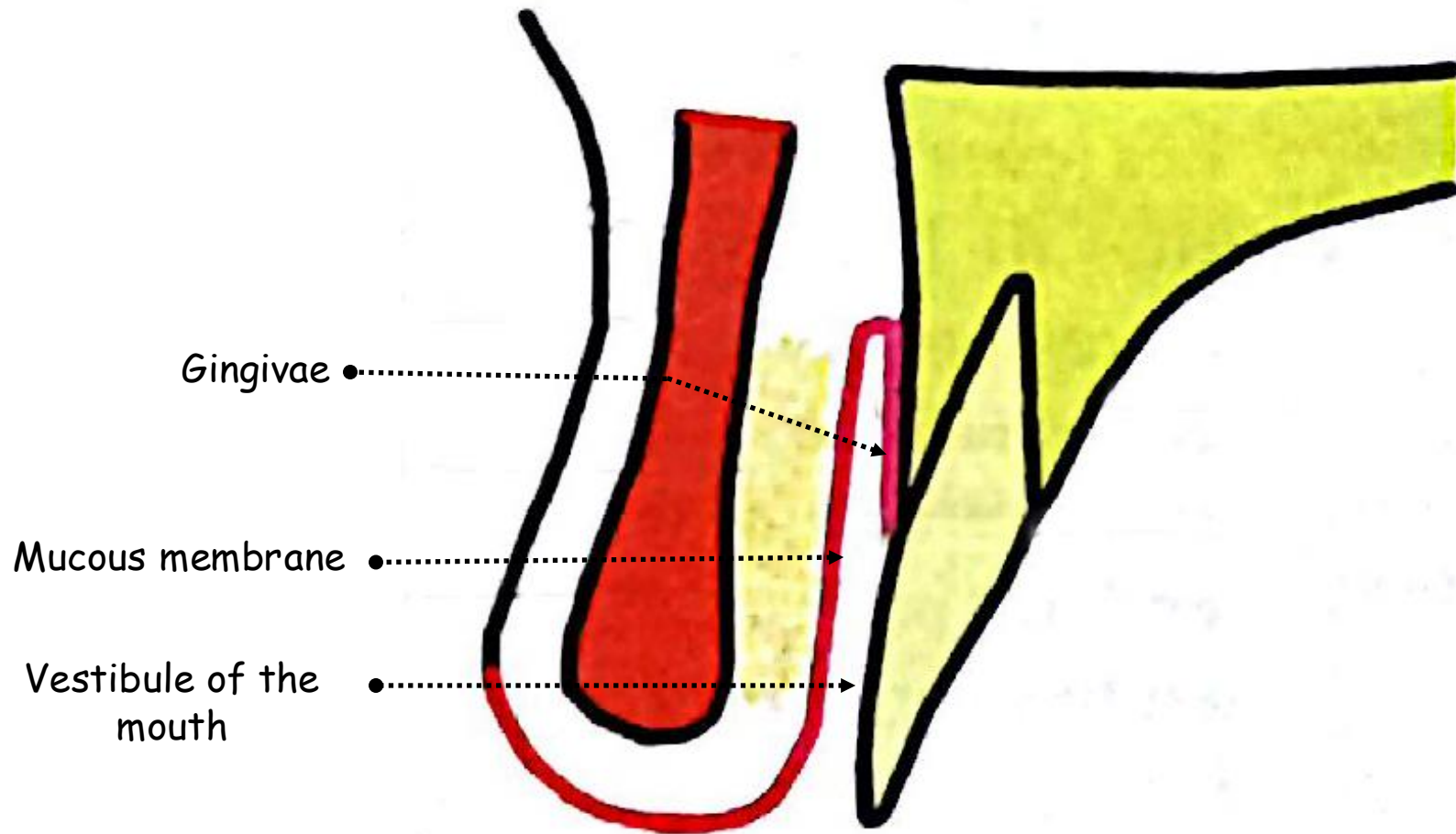


INFERIOR VIEW OF THE TONGUE

III. STRUCTURE

A. VESTIBULE OF THE MOUTH

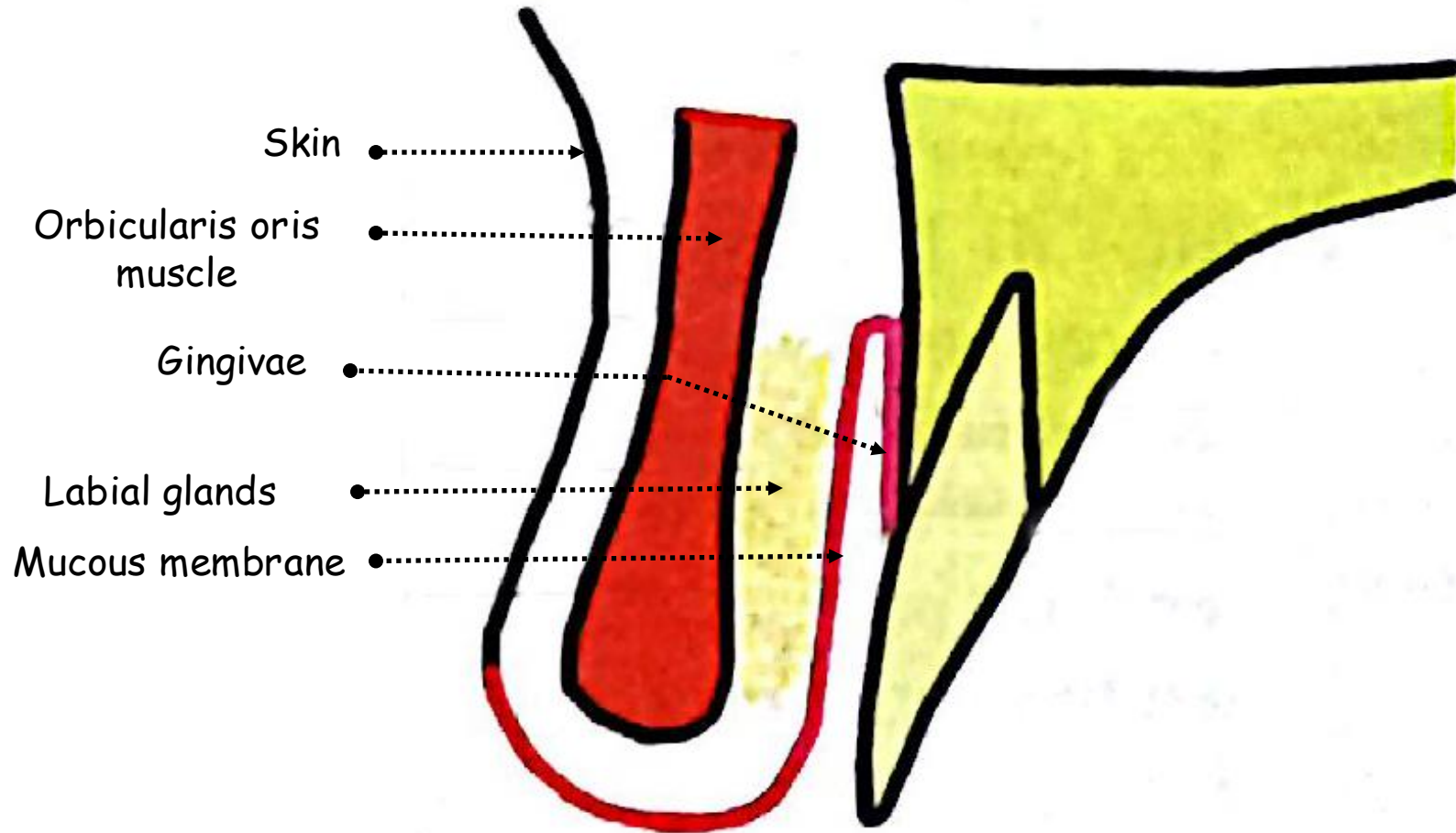
- Stratified squamous epithelium
- Continuous with the gingivae in the alveolar margins of the jaws
- Site of excretion of saliva



SAGITTAL SECTION OF THE UPPER LIP

B. LIPS

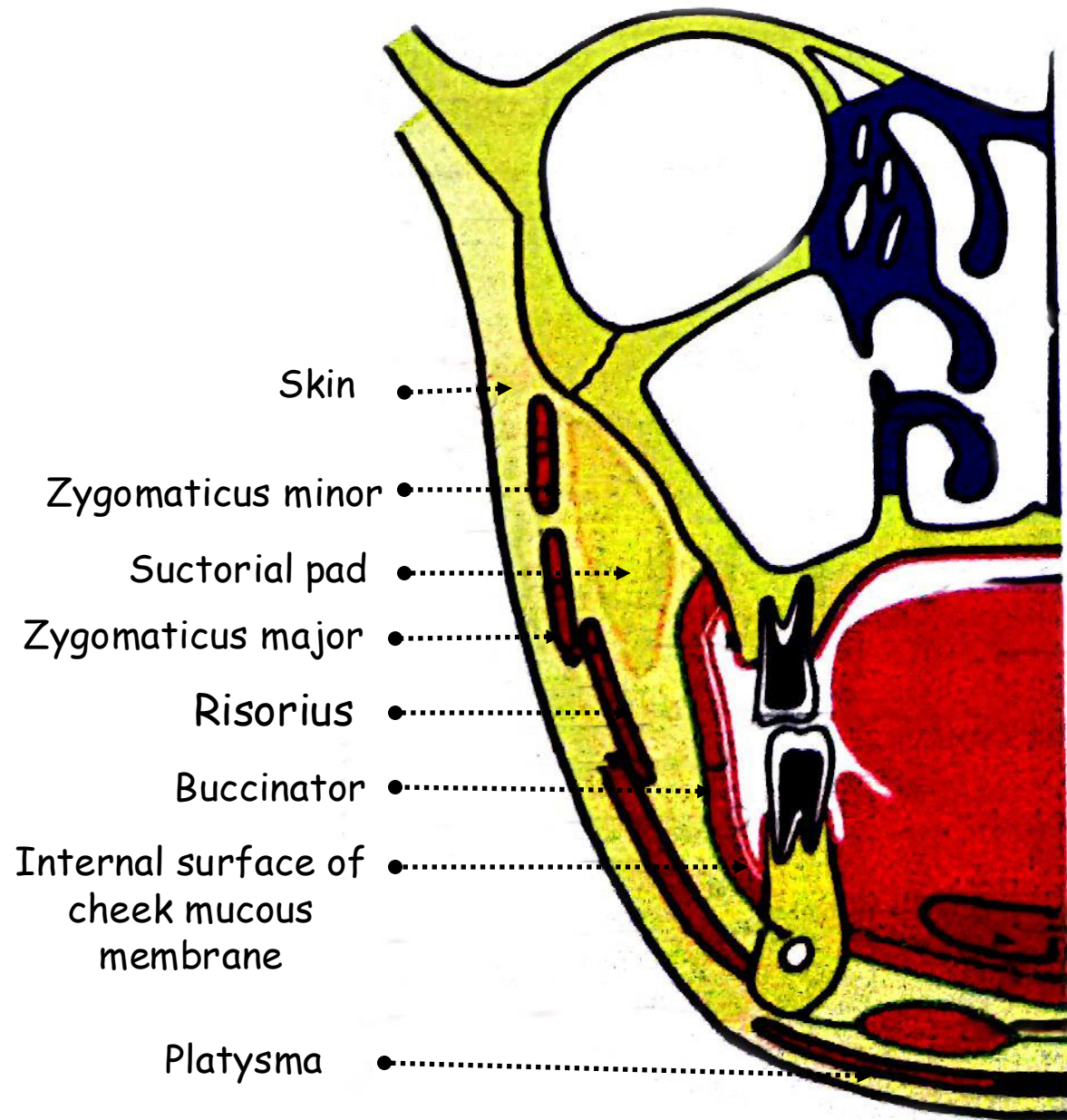
- 4 layers
- From the outer to the inner layer
- Skin: thick rich in sebaceous glands and hairy
- Orbicularis oris muscle
- Labial glands
- Mucous membrane: internal surface and the free border of the lip covering the red margin



SAGITTAL SECTION OF THE UPPER LIP

C. CHEEKS

- 4 layers
- From the outer to the inner layer
- Skin
- Subcutaneous tissue: the **suctorial pad** between **masseter** and **buccinator**
- **Muscles of the cheek:**
 - Zygomaticus minor
 - Zygomaticus major
 - Levator labii superioris alaeque nasi
 - Risorius
 - Posterior fibres of platysma
 - Levator labii superioris
 - Levator anguli oris
 - Depressor labii inferioris
 - Buccinator
- **Oral mucous membrane**

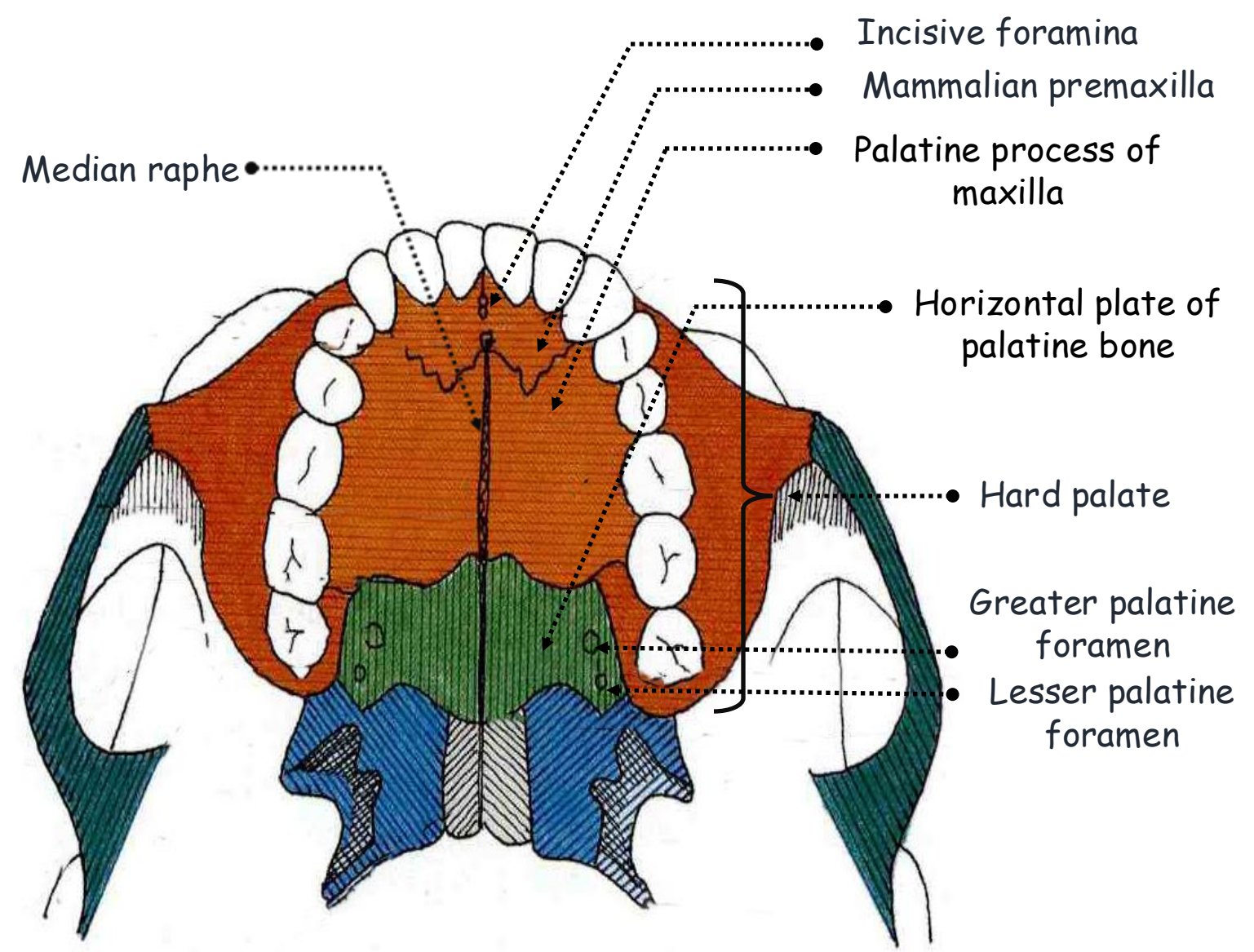


CORONAL SECTION OF THE FACE

D. CAVITY OF THE MOUTH

1. Hard palate:

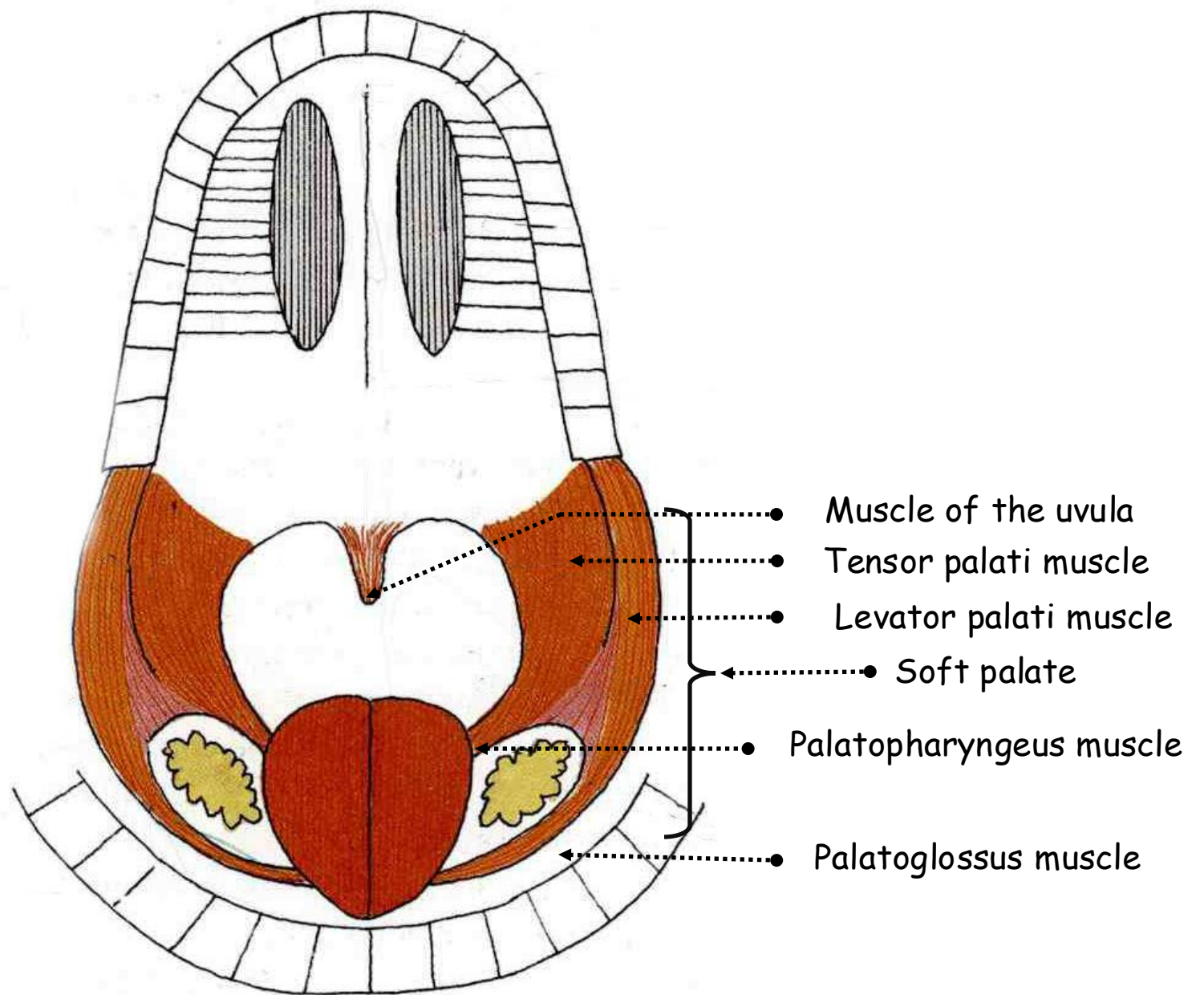
- From surface to depth
- **Palatine mucous membrane:**
 - Strongly united with the periosteum forming mucoperiosteum
 - Contains palatine glands over the horizontal plate of palatine
 - Macroscopic aspect: transverse masticatory ridges on each side of the median raphe ; smoothly polish over the horizontal plate of palatine
- **Palatine process of maxilla:**
 - Mammalian premaxilla
 - Incisive fossa and foramina
 - Greater and lesser palatine foramina
- Horizontal plate of palatine bone



INFERIOR VIEW OF THE HARD PALATE

2. Soft palate:

- From surface to depth
- Mucous membrane:
 - Continuous with that of **hard palate** on the oral surface containing **scattered taste buds**
 - Continuous with that of **nasopharynx**
- Muscles of soft palate:
 - 5 paired** muscles
 - Tensor palati muscle **in front** of the aponeurosis of soft palate
 - Levator palati muscle **behind**
 - Palatoglossus muscle
 - Palatopharyngeus muscle
 - Muscle of the uvula



ANTERIOR VIEW OF THE MOUTH OPENED

E. TONGUE

- Mass of skeletal muscle
- Mostly covered by mucous membrane
- Hyoglossal membrane: connects the base of the tongue to the upper margin of the body of hyoid bone
- Midline fibrous septum dividing the organ into two symmetrical halves continuous with the hyoglossal membrane
- Intrinsic muscles: wholly within the tongue and not attached to bone
- Extrinsic muscles: bony attachment
- Four muscles in each group in each half of the tongue

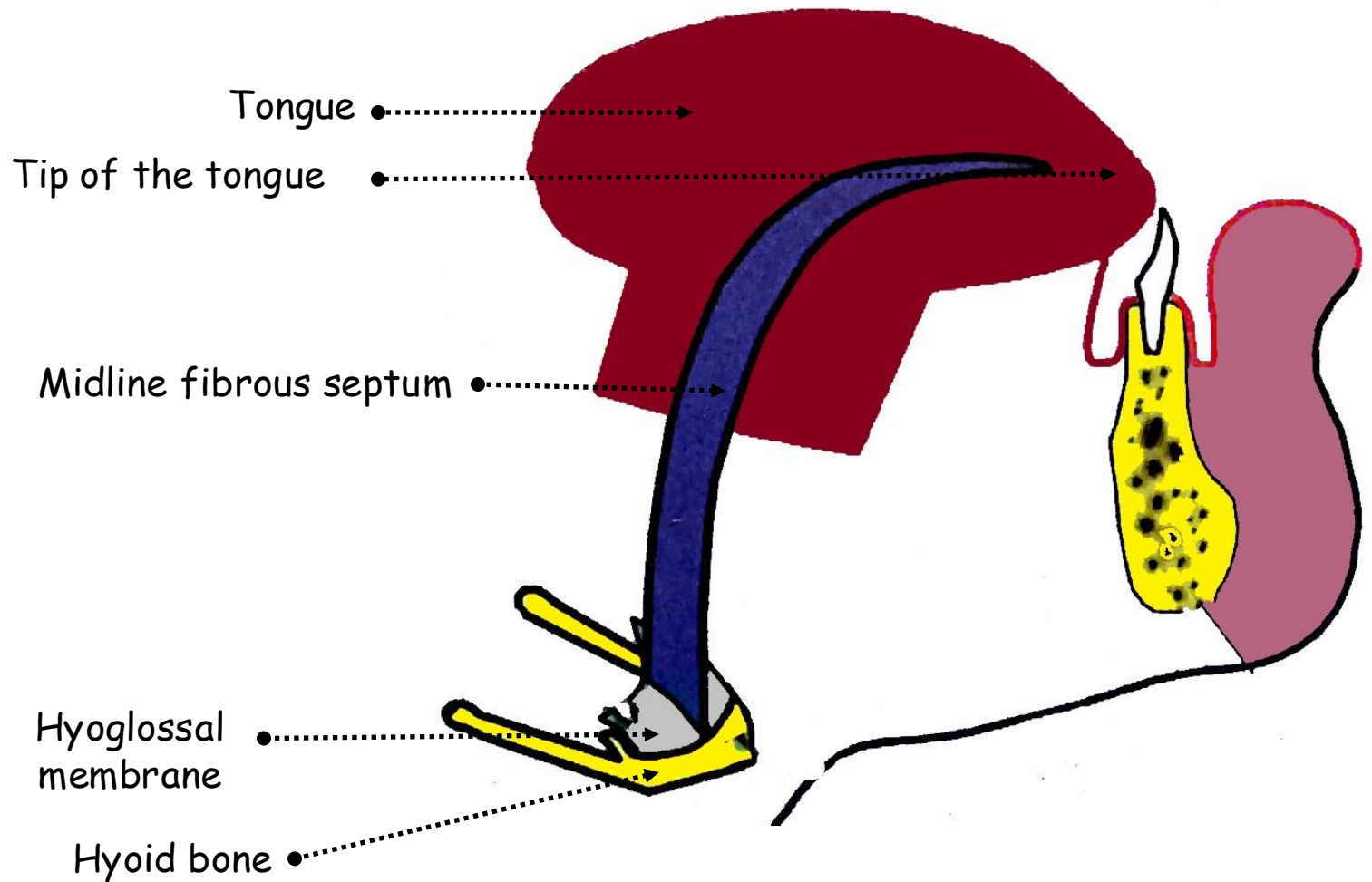


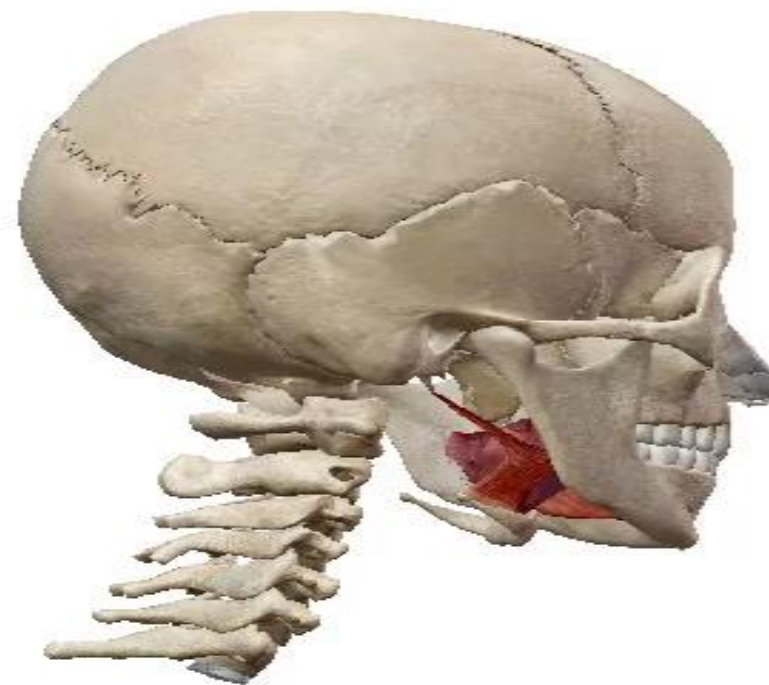
FIGURE SHOWING THE STRUCTURE OF THE TONGUE

1. Extrinsic muscles:

- **Attached to:**

- Mandible
- Hyoid bone
- Styloid process of temporal bone

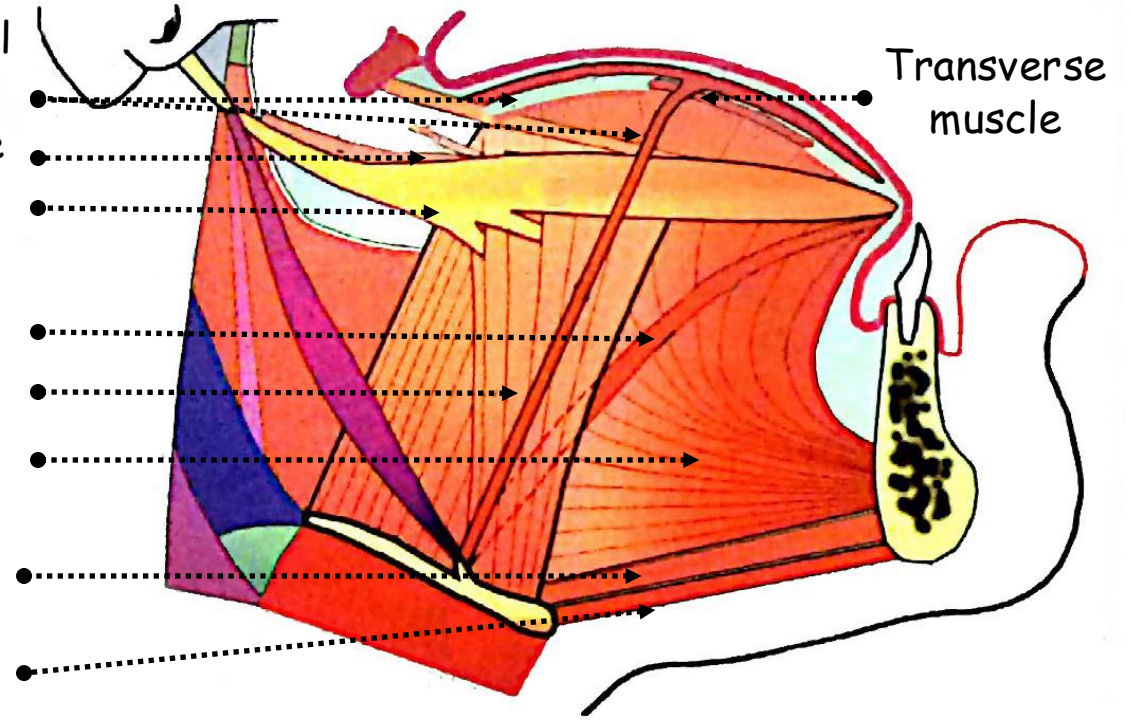
- Genioglossus muscle
- Hyoglossus muscle
- Styloglossus muscle
- Palatoglossus muscle



2. Intrinsic muscles:

- Superior longitudinal muscle
- Inferior longitudinal muscle
- Transverse muscle
- Vertical muscle

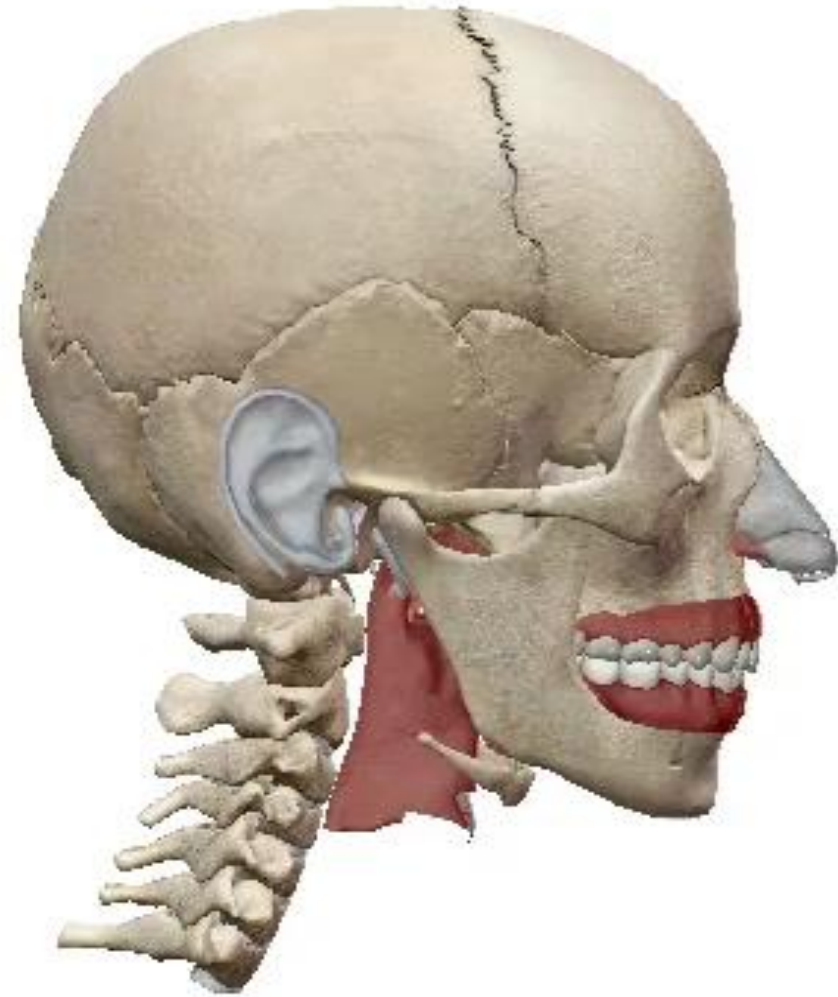
Superior longitudinal muscle
Palatoglossus muscle
Styloglossus muscle
Inferior longitudinal muscle
Hyoglossus muscle
Genioglossus muscle
Geniohyoid muscle
Mylohyoid muscle



SAGITTAL SECTION OF THE TONGUE AND THE FLOOR OF THE MOUTH
SHOWING THEIR MUSCLES

IV. ANATOMICAL RELATIONS

- Upwards: nasal cavity and maxillary sinuses
- Downwards: infrahyoid region including posterior and anterior triangles of the neck
- Laterally: masseter muscle
- Backwards: pharynx



V. BLOOD SUPPLY; LYMPH DRAINAGE AND NERVE SUPPLY

A. LIPS

1. Arteries:

- Superior and inferior labial arteries
- Branches of the facial artery
- Divide into two branches posterior and anterior
- Run across the lip beneath the red margin, one in front and the other behind the orbicularis oris
- Anastomose end to end at the midline

2. Veins:

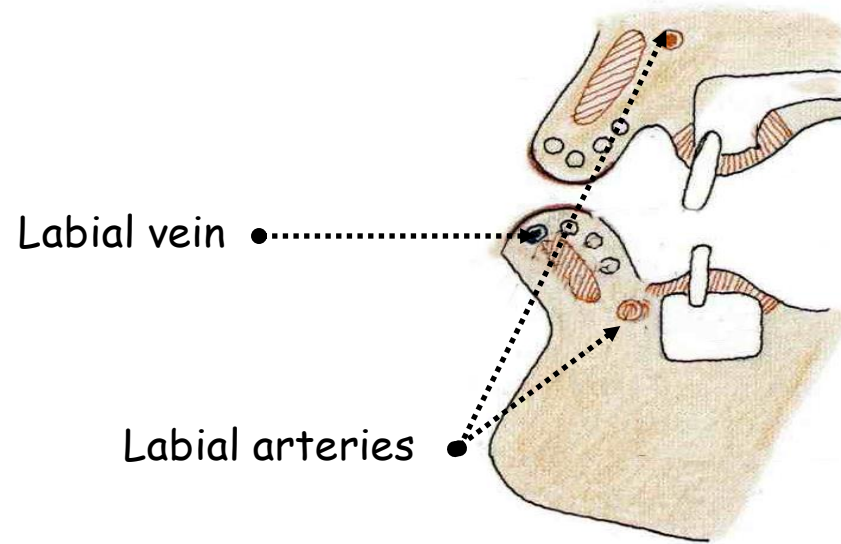
- Flow into facial vein

3. Lymph drainage:

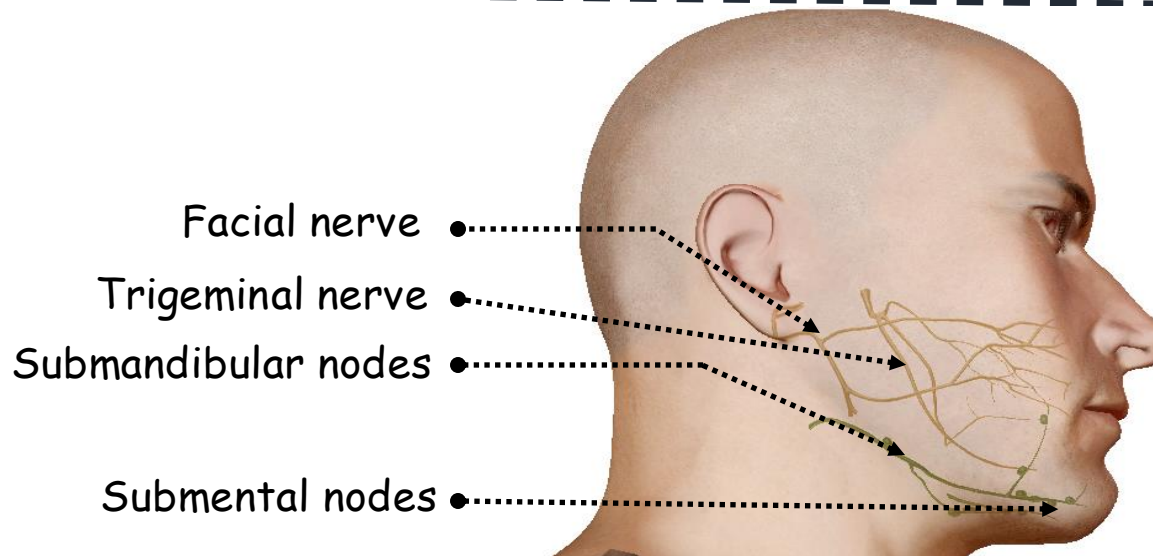
- Submandibular nodes
- Submental nodes

4. Nerves:

- Facial nerve: motor
- Trigeminal nerve: sensitive



SAGITTAL SECTION OF THE MOUTH SHOWING THE BLOOD SUPPLY OF THE LIPS



OVERVIEW OF THE NERVES AND LYMPH DRAINAGE OF THE LIPS

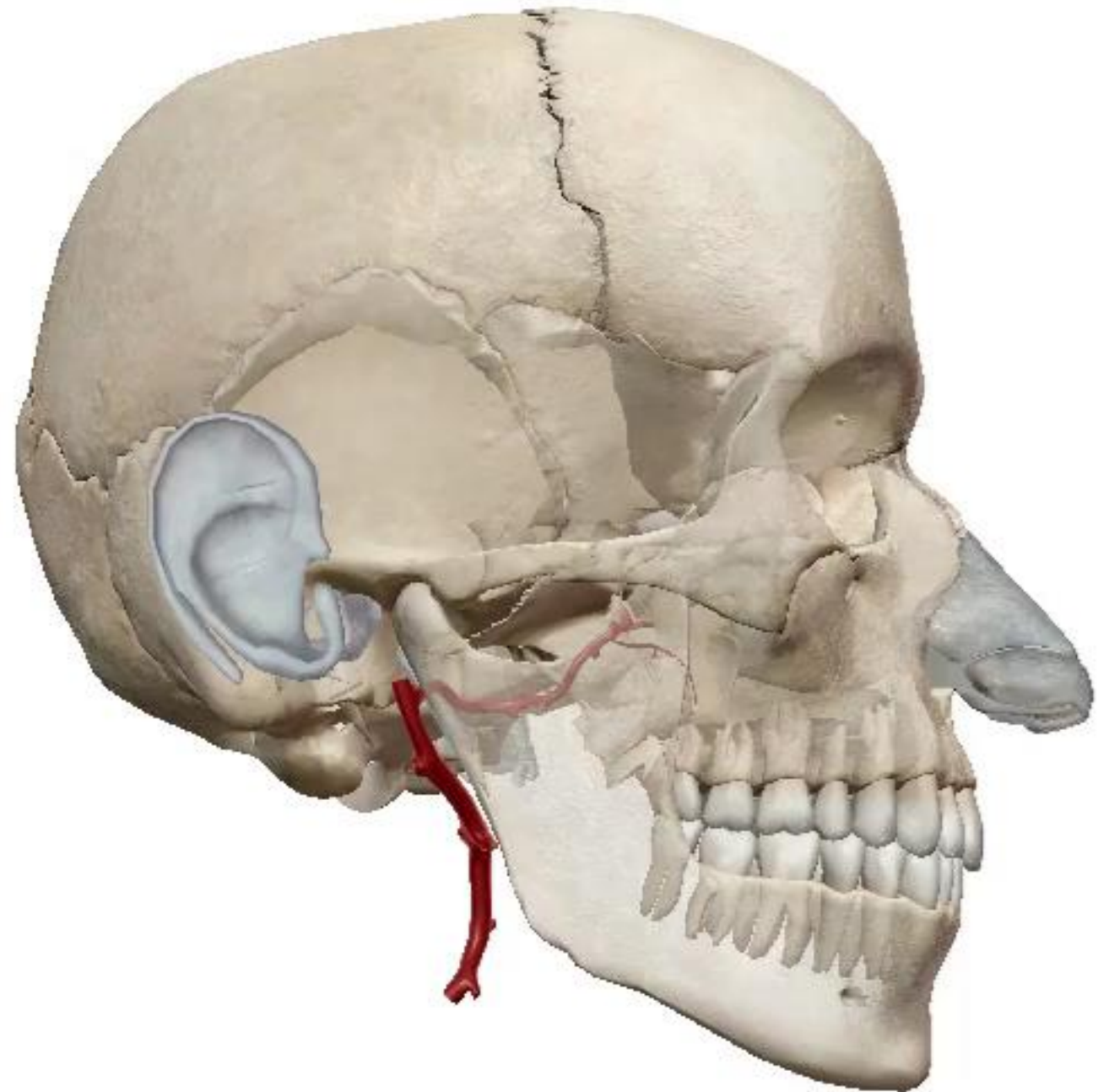
B. CAVITY OF THE MOUTH

1. Arteries:

- Greater palatine artery
- Branch of the maxillary artery, terminal branch of the external carotid artery
- Emerges from the greater palatine foramen and passes around the palate, lateral to the nerve, to enter the incisive foramen and pass up into the nose

2. Veins:

- Accompany the artery back to the pterygoid plexus
- Other veins pass back to the supratonsillar region and join the pharyngeal plexus



3. Lymph drainage:

- Retropharyngeal nodes
- Deep cervical nodes

4. Nerves:

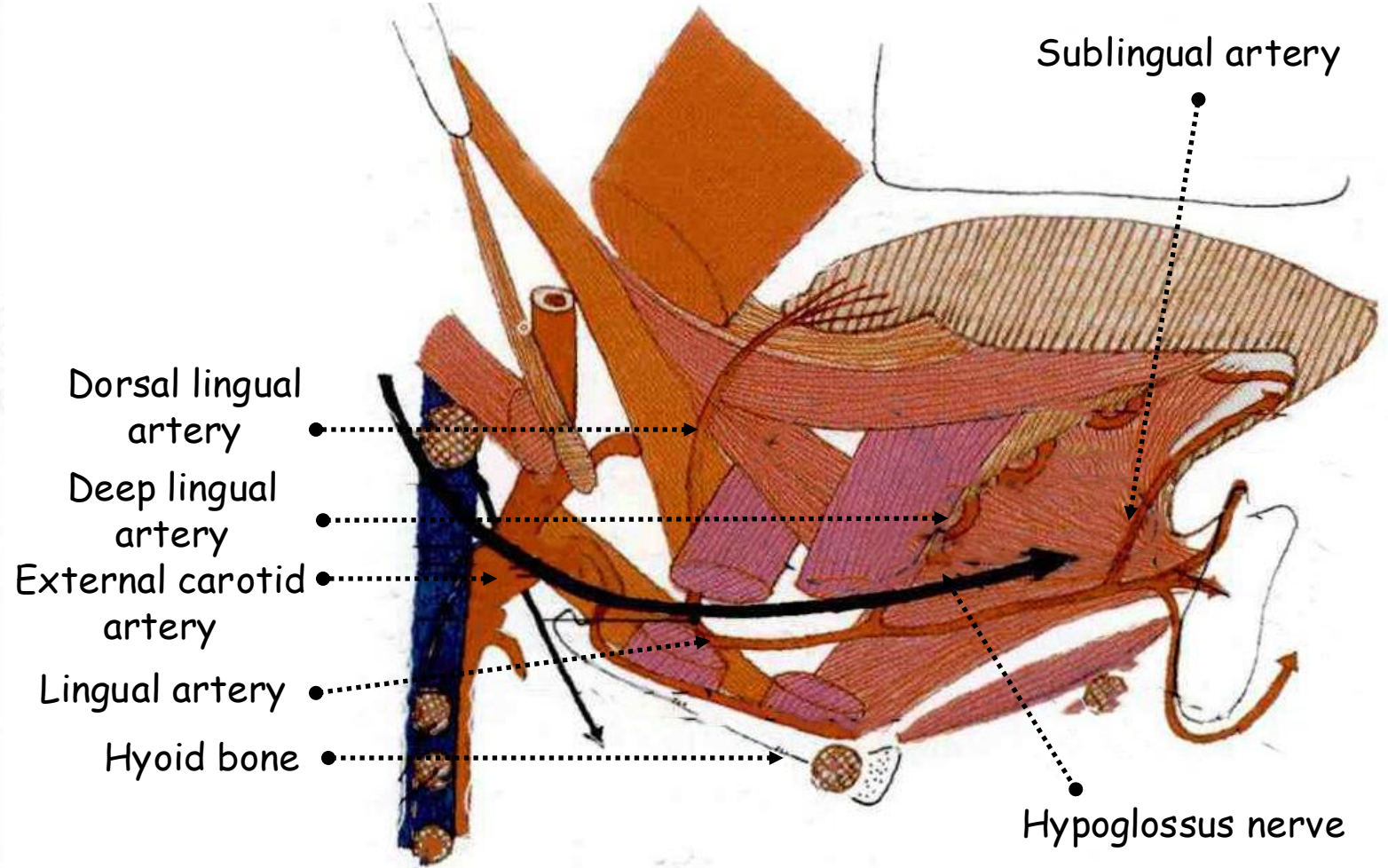
- Sensitive: greater palatine nerve from the maxillary via the pterygopalatine ganglion and nasopalatine nerves for the area of the premaxilla behind the incisor teeth
- Motor: accessory and vagus nerves except the tensor palati muscle supplied by the mandibular nerve, third main branch of the trigeminal nerve



C. TONGUE

1. Arteries:

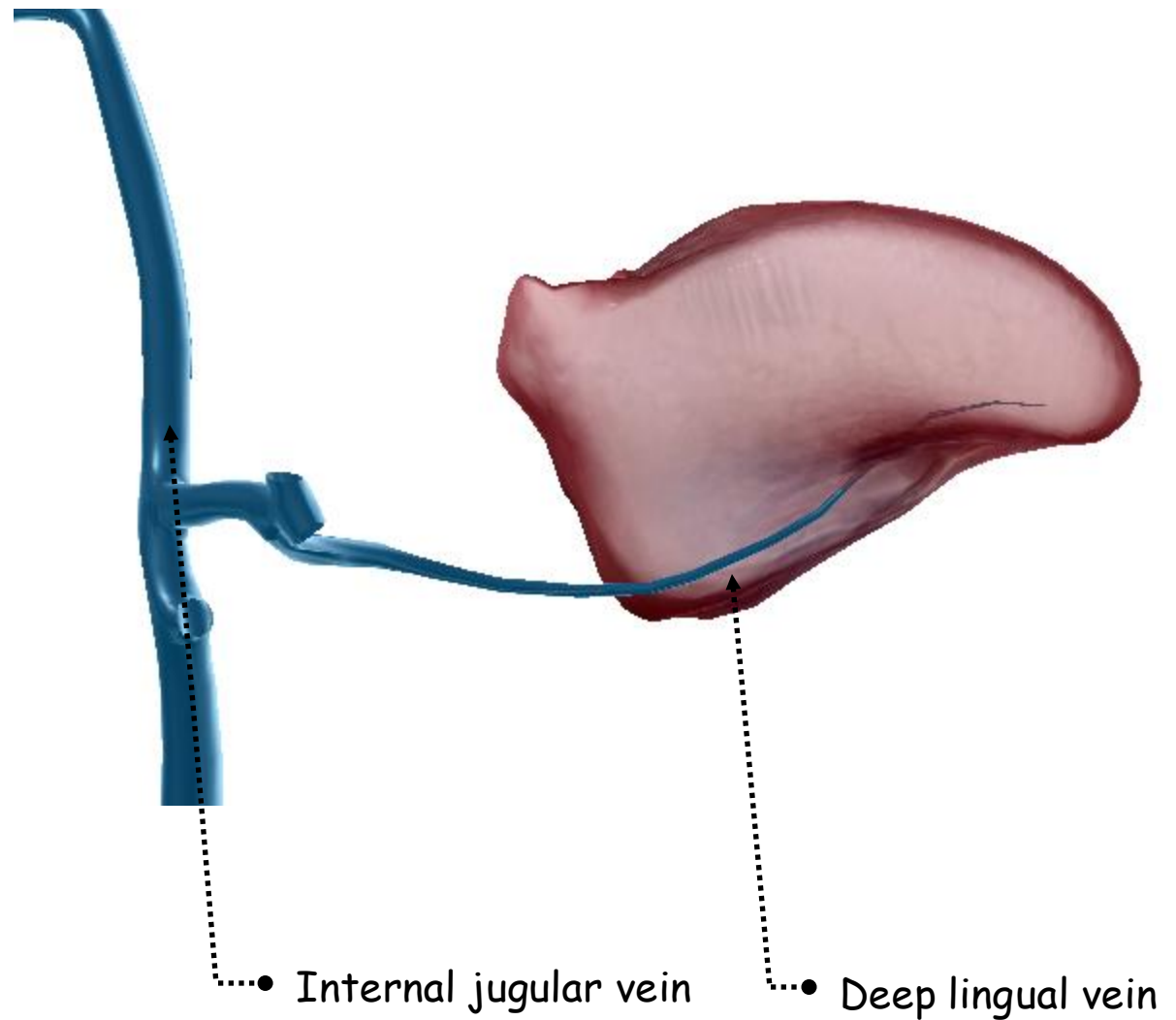
- Lingual artery
- Branch of the external carotid artery
- Runs above the greater horn of the hyoid bone deep to hyoglossus and passes forwards to the tip
- Beneath hyoglossus gives off dorsal lingual branch into the posterior part and deep lingual branch into the anterior part
- At the anterior border of hyoglossus it gives a branch to the sublingual gland and the floor of the mouth
- Tonsillar branch of the facial artery
- Ascending pharyngeal artery
- The fibrous septum dividing the two halves of the tongue prevents any significant anastomosis of blood vessels across the midline



LATERAL VIEW OF THE TONGUE SHOWING ITS BLOOD SUPPLY AND LYMPH DRAINAGE

2. Veins:

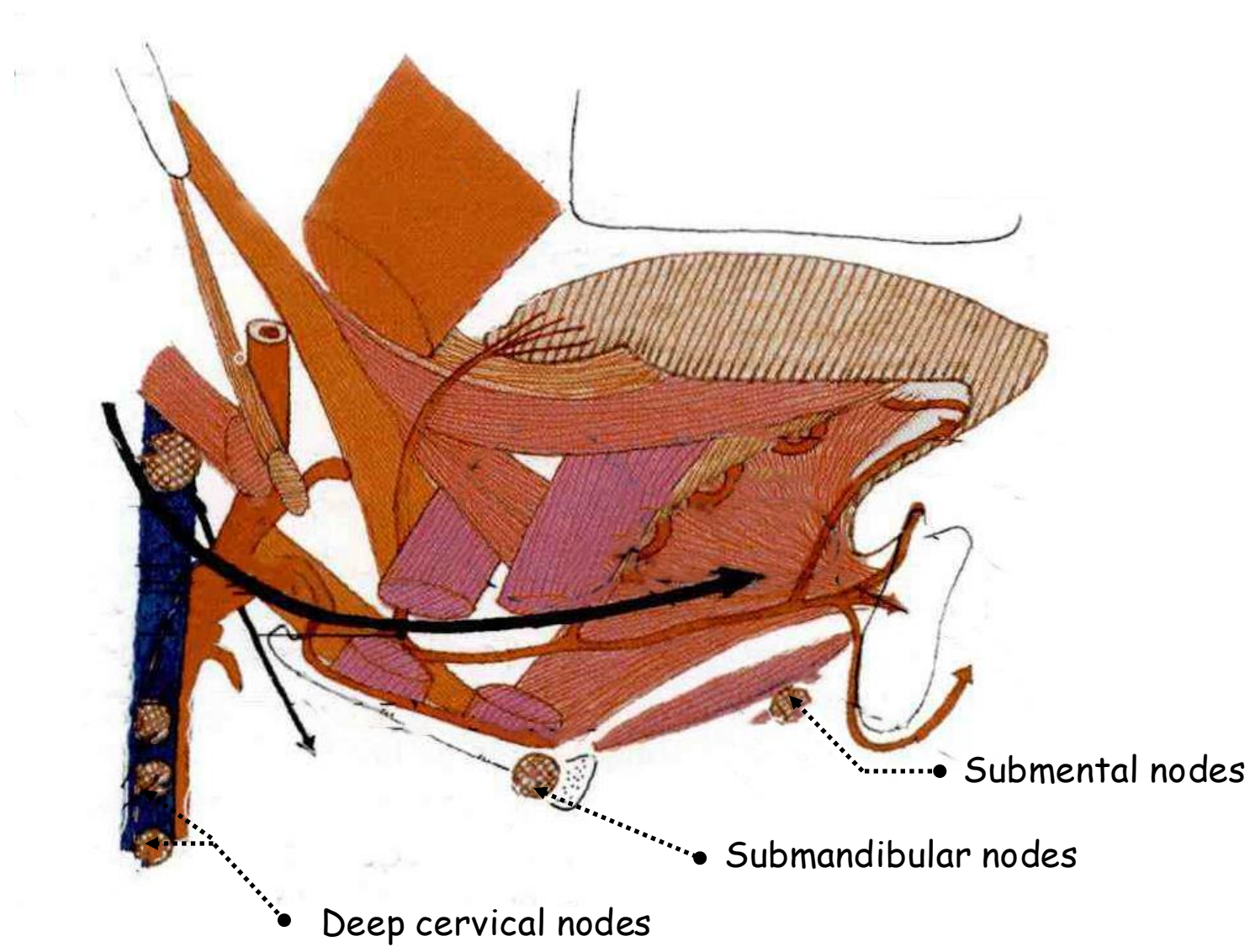
- Accompany the arteries
- Deep lingual vein
- Superficial to hyoglossus
- Joined at the anterior border of that muscle by the sublingual vein from the sublingual gland
- Dorsal lingual vein
- Come together as the lingual vein
- Flows into the internal jugular vein



OVERVIEW OF THE VEINS OF THE TONGUE

3. Lymph drainage:

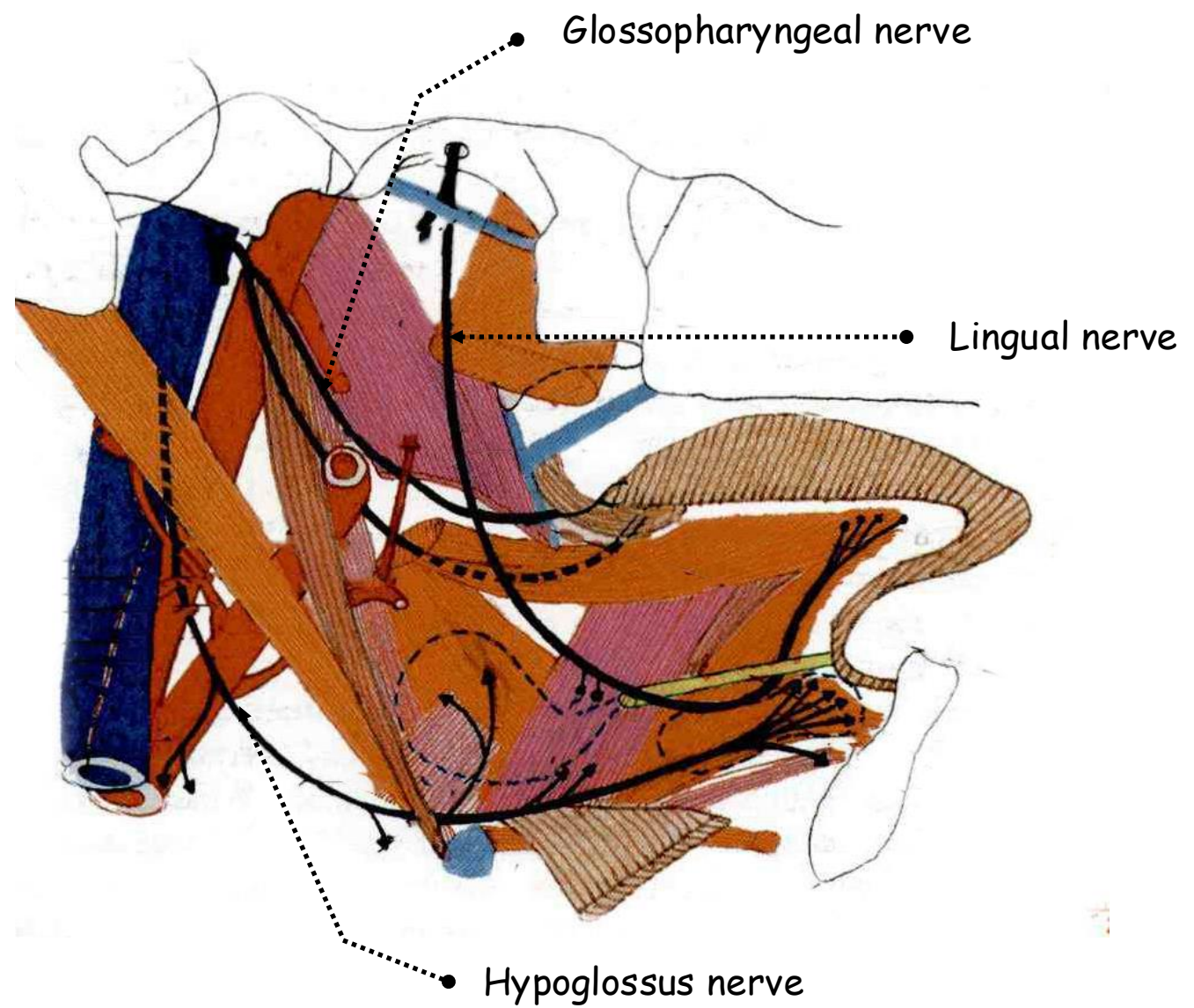
- Through the floor of the mouth
- Lymph from one side, especially of the posterior part, may reach nodes of both sides of the neck
- **Tip:** submental nodes
- Anterior part: submandibular nodes and then to nodes of both the upper and lower end of the deep cervical group
- Posterior part: directly to deep cervical nodes



LATERAL VIEW OF THE TONGUE SHOWING ITS BLOOD SUPPLY AND LYMPH DRAINAGE

4. Nerves:

- Motor: hypoglossus nerve
- Sensitive:
 - Lingual nerve: branch of the mandibular nerve, third major branch of the trigeminal nerve, supplies the anterior part of the tongue
 - Glossopharyngeal nerve: supplies the posterior part of the tongue



LATERAL VIEW OF THE TONGUE SHOWING ITS NERVES

VI. CONCLUSION

- Initial portion of the digestive system
- Multiple components
- Multiple major functions
- Diverse blood supply, lymph drainage and nerve supply





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