# Introduction To Dental Terminology

## Locate the dental word:

Dental words are arranged and listed alphabetically in dictionaries, reference works, or glossary listings. These acronyms are listed along with other abbreviations representing a combination of word pieces, or initials that can indicate an occupation, specialty, procedure, condition, or chemical. In filling prescriptions and writing labels, the science of pharmacology uses many abbreviations, such as b.i.d (twice a day).

Care must taken when looking for or using acronyms or abbreviations to shorten words because many abbreviations are not universal. For example, the abbreviation *imp* in general dentistry charting may indicate an impression, but an oral surgeon's office may use *imp* to designate an impaction.

When in doubt about the spelling or meaning of an abbreviation or acronyms, it is best to spell out the word or look it up in a dictionary, glossary, or office manual.

Some words are very similar in sound and spelling, but have different meaning .

These homonyms may cause confusion and alter the meaning.

Some common homonyms used in dentistry are:

die: tooth or dridge pattern used in prosthodontic dentistry.

dye: coloring material.

auxiliary: helping subsidiary, such as a dental assistant.

axillary: underarm site; may be used to obtain body temperature.

Esthetics: pertaining to beauty.

Anesthesia: loss of pain sensation.

Facial: (a) pertaining to the face; (b) front surface of incisor tooth.

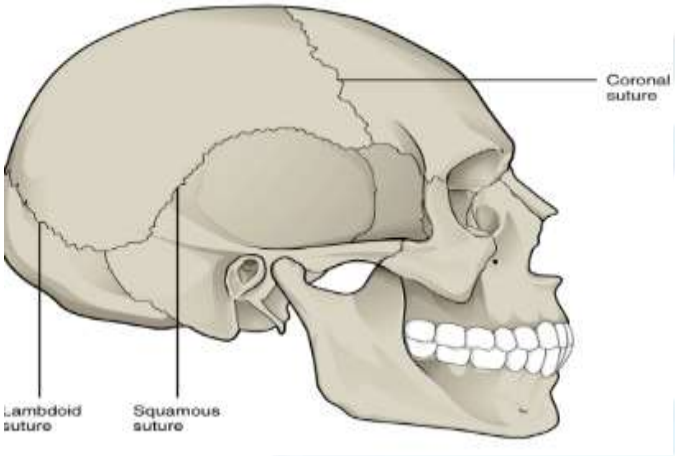
Fascial: pertaining to the fibrous membrane on muscles.

use of hand or finger pressure to examine:palpation

Palpitation: condition of racing or increased heartbeat

suture: line where two bones unite

Suture: closing wound




Sometimes dental terminology denotes the person who developed the procedure, discovered the anatomical area, designed the instrument, named the disease, and the like. Examples are Sharpey's Fibers, or Bass technique. These terms are called eponyms.

Analyze the structure of the dental word:

Dental terminology involves the study of words and terms related specifically to the dental sciences. Every science has its own unique terminology.

Many dental terms originate from the names of bones or structures, but more often, from the names of dental procedures or practical approaches.

When analyzing the structure of a word, some considerations to observe include the following:

A *prefix:* qualifies the word by indicating such things as the quantity, color, size, condition, or location. A word may or may not have a prefix.

*A root* provides the basic foundation for the word. A dental term may have more than one root. When two roots are combined, a combining vowel (usually o) is used to connect them.

A *suffix* is sometimes added to root (s) to qualify or describe the meaning.

*M*any word structure have multiple meanings, either from the Greek, Latin, or French languages.

## prefix

some common prefixes used in dental terminology:

Examples of Prefixes Denoting Quantity or Number

| prefix | Meaning | Example |
|---|---|---|
| a- an- | without | anemia |
| bi- | two, double | bifurcation |
| hemi- | half | hemisection |
| cent- | hundred | centimeter |
| deca(i)- | ten | decibel |
| holo- | all | holistic |
| mon/o- | one | monomer |
| poly- | many | polymerization |
| prim-/i- | first | primary |

| | | |
|---|---|---|
| quad-/quat- | four | quadrant |
| semi- | half | semiluminal |
| tri- | three | trigeminal |
| Uni- | one | unilateral |

Examples of Prefixes Denoting Color

| prefix | color | *example* |
|---|---|---|
| albus- | white | *albumen* |
| chlor-/o- | green | *chlorophyll* |
| cyan-/o- | blue | *cyanosis* |
| erythr-/o- | red | *erythrocyte* |
| leuk-/o- | white | *leukoplakia* |
| melan-/o- | black | *melanoma* |
| xanth-/o- | yellow | *xanthoma* |

Examples of Prefixes Denoting Size or Degree

| prefix | meaning | example |
|---|---|---|
| hyper- | over/excess | hypertrophy |
| hypo- | under/below | hypoplasia |
| iso- | equal | isograft |
| macro- | large | macrodontia |
| micro- | small/minute | microbe |
| pan- | all around | panoramic |
| ultra- | extreme/beyond | ultrasonic |

Examples of Prefixes Denoting Location or Direction

| prefix | meaning | example |
|---|---|---|
| ab- | away from | absent |
| ad- | toward/near | adjacent |

| | | |
|---|---|---|
| ambi- | both sides | ambidextrous |
| ana- | apart | analysis |
| ante- | in front | anterior |
| de- | down from | dehydration |
| dexi- | right side | dexter |
| dia- | complete | dialysis |
| ecto- | outside | ectopic |
| endo- | within | endodontia |
| epi- | upon/over | epidermis |
| ex/o- | out from | excretion |
| in- | into/in | incision |
| infra- | below | infraorbital |
| inter- | in midst of | interdental |

| | | |
|---|---|---|
| im- | into/position | implant |
| mes-/o- | mid, among | mesioclusion |
| para- | near/ beside | parenteral |
| peri-/o- | around | periodontal |
| post- | after/later | posterior |
| pre-/ante- | before | premolar |
| retro- | behind/back | retromolar |
| sub- | under,lesser | subdermal |
| supra- | above/over | supraorbital |
| syn- | together | synergism |
| trans- | through | transplant |

Examples of Prefixes Denoting Condition

| prefix | meaning | examples |
|---|---|---|
| a-,an- | without | anodontia |
| anti- | opposite to | antiseptic |
| brady- | slow | bradycardia |
| con- | with | connective |
| contra- | against | contrangle |
| dis- | take away | disinfectant |
| in- | not | insoluble |
| mal- | bad | malocclusion |
| malaco- | soft | malacosis |
| neo- | new | neoplasm |
| pachy- | thick | pachyderma |
| sclero- | hard | scleroma |
| tachy- | fast | tachycardia |
| un- | non/not | unerupted |

## Root word

The main section or division of a term that provides the foundation or basic meaning is a root word. A word may have one or more root sections.

When a root section is combined or connected with other elements, it may take on a combining vowel and become a *combining form*. The most common combining vowel is (o).

For example, the word temporal relates to the temporal bone in the skull, and the word mandible is the lower jaw bone. Independently, these are two separate words, but they can be combined to form the word temporomandibular, as in temporomandibular joint (TMJ).

Common Dental Root/ Combining Forms

| Root Word | Combo form | Pertains to |
|---|---|---|
| alveolar | alveo | alveous |
| apical | apic-o | Apix of a root |
| axis | Ax-o | Axis/midline |
| buccal | bucco | cheek |
| cheilo | Cheil-o | lip |
| coronal | Coron-o | crown |
| dens | Dent-o | tooth |
| distal | Dist-o | Farthest from center |
| enamel | Ename-o or amel-o | Tooth enamel tissue |
| fluoride | Fluor-o | Chemical- fluoride |

| | | |
|---|---|---|
| frenum | frene | frenum |
| front | Front-o | forehead |
| gingiva | Gingiv-o | Gingiva gum tissue |
| glossa | Gloss-o or gloss/a | tongue |
| gnatho | Gnath-o | Jaw-cheek |
| incisor | Incis-o | Incisor tooth |
| labia | Labi-o | Lip area |
| lingua | Lingu-o | tongue |
| mandible | Mandibu/a | Lower jaw |
| maxilla | Maxilla-o | Upper jaw |
| mesial | Mesi-o | Middle, midplane |
| mucosa | Muc-o | Tissue lining an orifice |
| occlude | occlus | Occluding, jaw close |
| odont | Odont-o | tooth |
| orthos | Orth-o | Straight,proper order |
| stoma | stoma | mouth |
| temporal | Tempor-o | temporal bone |

## suffix

An element added to the end of a root word or combing form to describe or qualify the word meaning is a suffix.

Word endings can act as an adjective or indicate time and size, condition, agents, or specialists.

Suffixes used as adjectives are word endings that describe or show a relationship. Suffixes have the ability to transform a noun or verb into an adjective, or verbs into nouns, by the addition of word endings.

Examples of Suffixes in Adjective Use

| suffix | Shows relation to the root |
|---|---|
| -ac | Cardiac-heart |
| -al | Gingival(gum tissue) |
| -ar | Alveolar (alveous) |
| -ary | Maxillary(maxilla) |
| -eal | Pharyngeal(pharynx) |
| -form | Fusiform (spindle shape) |

Examples of Suffixes in Adjective Use

| suffix | Shows relation to the root |
|---|---|
| -gram | Radiogram (X-ray) |
| -graphy | Sialography (saliva measurement) |

| | |
|---|---|
| -ic or tic | Cariogenic(start of decay) |
| -ior | Posterior(in the rear) |
| -iod | (crown)coronoid |
| -ous | Venous (vein) |

Examples of Suffixes Indicating Condition

| suffix | Condition of root foundations |
|---|---|
| -ant | Etchant (etching) |
| -cle | Vesicle (small blister) |
| -ule | Molecule(small bit of matter) |
| -ia | Anesthesia (without feeling) |
| -ible,-ile | Reversible (change to) |
| -id | Cuspid (cusp shape) |
| -ion | Occlusion(bite) |
| -ism | Bruxism(tooth grinding) |
| -itis | Arthritis(joint inflammation) |
| -ity | Acidity (acid) |

Examples of Suffixes Indicating Condition

| suffix | Condition of root foundations |
|---|---|
| -ium | Bacterium(germ) |
| -olus | Alveolus(air sac) |
| -oma | Lipoma(fat tumor) |
| -pathy | Myopathy(muscle disease) |
| -sion | (surgical cut) incision |
| -tic | Necrotic(dead tissue) |
| -tion | Mastication(chewing) |
| -y | Slurry(plaster water mix) |

Suffixes Denoting Agent or Person Concerned

| suffix | Agent or Person |
|---|---|
| -ee | Trainee, employee, leasee |
| -ent | Patient, recipient, resident |
| -eon | surgeon |

| | |
|---|---|
| -er | Subscriber, examiner, practitioner |
| -ician | physician |
| -ist | Dentist, orthodontist |
| -or | Doctor , donor |

Suffixes Expressing Medical Terms, Processes, Uses

| suffix | Meaning | Sample Words |
|---|---|---|
| -algia | pain | Odontalgia, neurolagia, myalgia |
| -ate, -ize | use/action | Vaccinate, luxate, palpate, visualize |
| -cide | kill | Germicide, homicide |
| -cyte | cell | Leukocyte, osteocyte |
| -ectomy | Surgical removal | Apicoectomy,appendectomy |
| -gnosis | knowledge | Prognosis, diagnosis |
| -ology | Study of | Histology, biology |
| -oma | tumor | carcinoma |
| -opsy | view | Biopsy, autopsy |
| -phobia | Dread fear | claustaphobia |

| | | |
|---|---|---|
| -plasty | Surgical repair | Gingivoplasty - |
| -plegia | paralysis | paraplegia |
| -rrhea | discharge | Hemmorrhea, sialorrhea |
| -scope | instrument | Microscope (micro), laryngoscope (larynx) |
| -tomy | incision | Myotomy(muscle) |
| -trophy | development | Osteotrophy(bone development) |

Guideline for Plural Forms

| Word Endings | Change To | Singular | Plural |
|---|---|---|---|
| a | *ae* (add *e* to end) | gingiva | gingivae |
| ex, ix | *ices* (drop *x*, add *ices*) | apex | apices |
| itis | *ides* (drop *s*, add *des*) | pulpitis | pulpitides |
| sis | *ses* (change *is* to *ses*) | cementosis | cementoses |
| nx | *nges* (change *nx* to *nges*) | larynx | larynges |
| on | *a* (change *on* to *a*) | ganglion | ganglia |
| oma | *omas* (add *s* to the end) | dentinoma | dentinomas |
| um | *a* (change *um* to *a*) | frenum | frena |
| us | *i* (change *us* to *i*) | sulcus | sulci |
| y | *ies* (drop *y*, add *ies*) | biopsy | biopsies |

## Anatomy of the Skull

Medical terminology deals with the entire body and all its systems, whereas the language of dentistry is related mostly to the head region. The skull area is composed of two main bone division: the cranium and the facial section.

### Cranium

The cranium is the portion of the skull that encloses the brain. Eight bones make up this section of the skull.

Temporal: two fan-shaped bones, one on each side of the skull, in the temporal area above each ear.

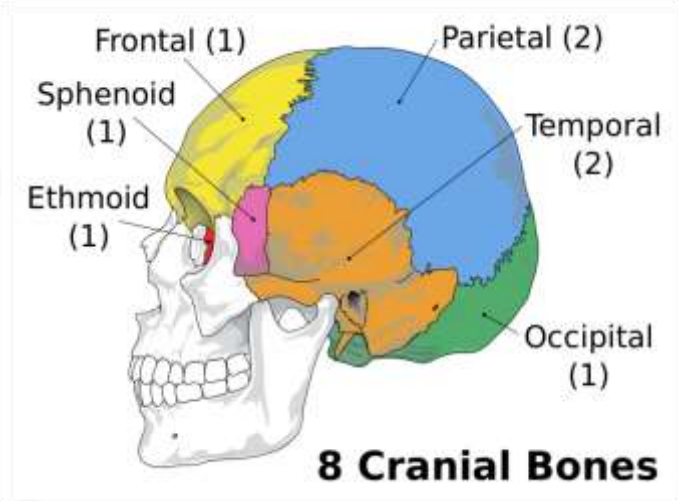
Parietal: two bones, one on each side, that make up the roof and side walls covering the brain.

Frontal: a single bone in the frontal or anterior region that makes up the forehead.

Occipital: one large, thick bone in the lower back of the head that forms the base of the skull and contains a large opening for the spinal cord passage to the brain.

Ethmoid: a spongy bone located between the eye orbits that helps form the roof and part of the anterior nasal fossa of the skull.

Sphenoid: a large bat-shaped bone at the base of the skull between the occipital and ethmoid in front, and the parietal and temporal bones at each side.



## Facial Bones

Zygomatic: two facial bones, one under each eye, that form the cheekbone and give character to the face. The zygomatic bones are also called the malar bones.

Maxilla: two large facial bones, one under each eye, that unite in the center in the *median suture* to form the upper jaw that supports the maxillary teeth in the *alveolar process*. Also present in this bone is the *maxillary sinus* (Atrium of Highmore), and the *infraorbital foramina* under each eye that permits the passage of nerves.

Palatine: two bones, one left and one right, that unite at the *median palatine suture* to form the hard palate of the mouth and the nasal floor. Present in this bone are multiple foramina, the largest, the *incisive foramen*, is directly behind the central incisors.

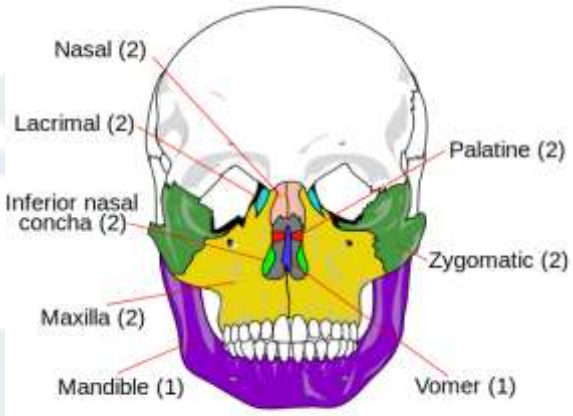
Nasal: two bones, one left and one right, that join side by side to form the arch or bridge of the nose.

Lacrimal: two small bones, one each on the inner side or nose site of the orbital cavity, that make up the corner of the eye where the *tear ducts* are located.

Inferior concha: two thin scroll-like bones that form the lower part of the interior of the nasal cavity.

Mandible: the strong, horseshoe-shaped bone that forms the lower jaw.

Vomer: a single bone that forms the lower posterior part of the nasal septum and separates the nose into two chambers.



14 Facial Bones

## Miscellaneous Bones of the Skull:

Although the **auditory** ossicles, small bones in the ear, are not considered bones of the face or cranium, they are present in the head or skull.

The three auditory ossicles are:

Malleus: the largest of three ossicles in the middle ear; commonly called the ear mallet.

Incus: one of the three ossicles of the middle ear; commonly called the anvil.

Stapes: one of the three ossicles in the middle ear; commonly called the stirrup.

Another bone of interest and closely related to the dental field but not located in the skull is the hyoid, a horseshoe-shaped bone lying at the base of the tongue. It does not articulate with any other bone.


## Anatomy Features of the Skull:

Many anatomical features are present in the cranial and facial bones, including the sinuses, bones sutures, processes of the skull bones, and major foramina.

Each feature has a specific location and purpose.

**Sinus**

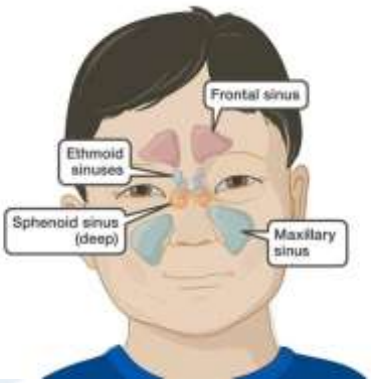
A sinus is an air pocket or cavity in a bone that lightens the bone, warms the air intake, and helps form sounds. These sinus cavities receive their names from the bone in which they are situated. They accessory paranasal sinuses that empty into the nasal cavity are:

Frontal: larger accessory sinus, located in the frontal bone or the forehead above each eye.

Ethmoid: multiple, smaller sinuses located in the ethmoid bone, at the side of each eyes.

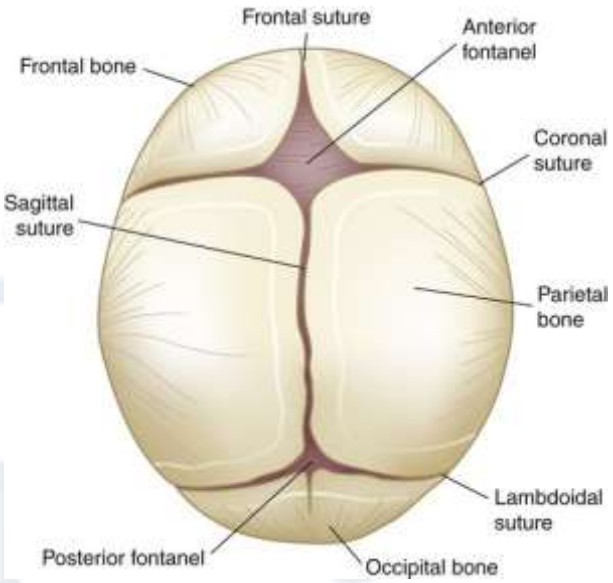
Sphenoid: multiple, smaller sinuses located in the sphenoid bone situated behind the eyes.

Maxillary: located in the maxilla; the maxilla sinus is the largest and is called the atrium **of Highmore**; this cavity is easily seen and is used as a landmark for identifying in the mounting of films.




**Sutures of the Skull**

A suture is a line where two or more bones unite in an immovable joint. Several main sutures are located in the cranium:

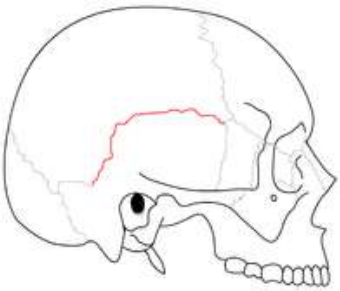


Coronal: junction of the frontal and the parietal bones; this area is soft at birth and shortly afterward, and it has been called the baby's "soft spot" or fontanel, sometimes spelled *fontanelle*.

Sagittal: the union line between the two parietal bones on the top of the skull.

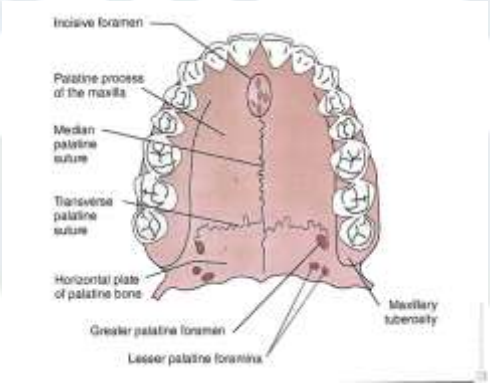
Lambdoid: located between the parietal bone and the upper border of the occipital bone.

Temporoparietal: located between the temporal and parietal bones; also known as the squamous suture.



## Bone Structures of the Hard Palate

Oral cavity sutures are unions of bones occurring in the mouth. The hard palate is composed of four main processes united by two palatine sutures, the *median* and the *transverse palatine sutures*. The left and right palatine processes and the left and right processes of the maxilla meet at the median palatine suture. All four edges of the processes combine at the transverse palatine suture completing the hard palate. Five foramina are present in this hard palate bone. The largest, the *incisive foramen*, is situated behind the incisors; a greater and a *lesser palatine foramina* are present on each side in the rear.



## Processes of the Cranium

A process is a projection or outgrowth of bone or tissue. This bone excess is not to be confused with the fusion line where two bones develop into one, such as the mandible. The symphysis is in the center of the mandible, forms the chin, and is called the mental or chin protuberance. The skull eight main processes or bony growths related to dentistry:

Alveolar: bone growth or border of the maxilla and the mandible; makes up and forms the tooth sockets.

Condyloid: posterior growth on the ramus of the mandible; articulates with the temporal bone in the temporomandibular joint.

Coronoid: anterior growth on the ramus of the mandible that serves as the attachment position for the temporalis muscle.

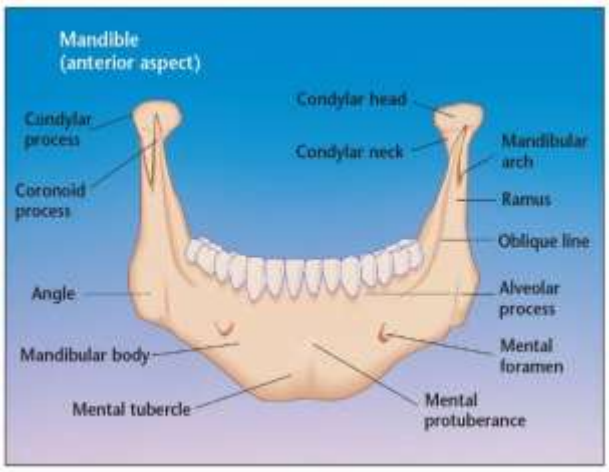
Frontal: the projection of maxilla meeting with the frontal bone to form the eye orbit.

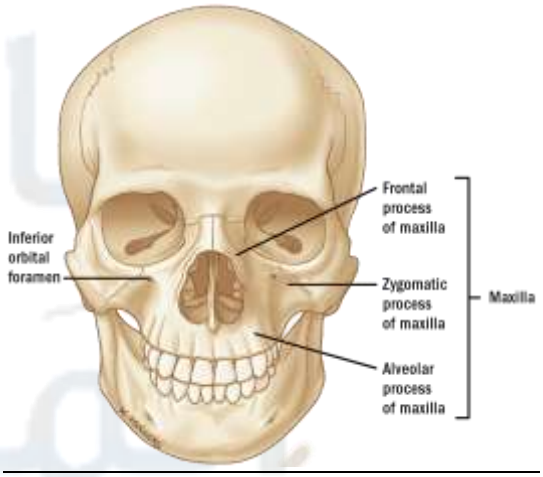
Infraorbital: growth process from the zygomatic bone that articulates with the maxilla to form the lower side of the eye orbit.

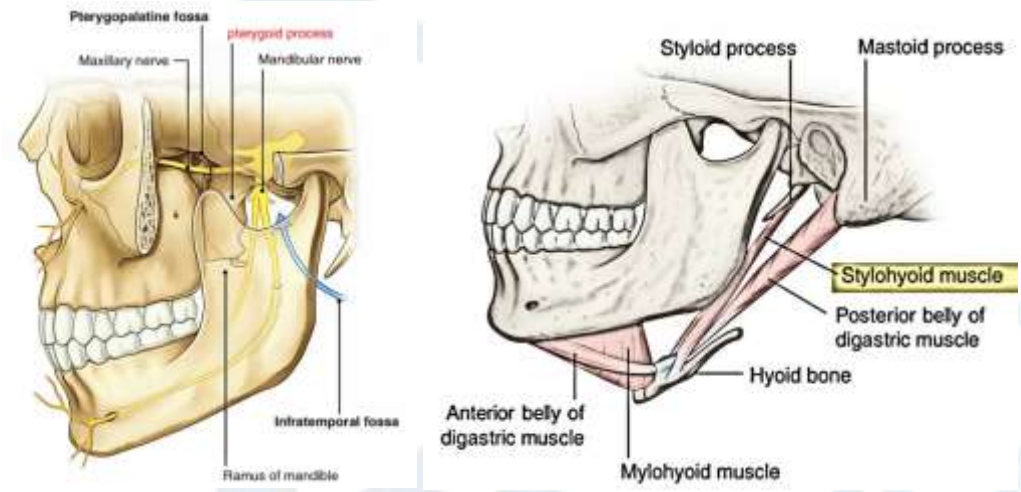
Mastoid: growth on the temporal bone behind the ear that is used for muscle attachment.

Pterygoid: growth of the sphenoid bone extending downward from the bone; the most inferior end of the process is known as the pterygoid Hamulus, a hook like end that serves as a site for muscle attachment.

Styloid: small, pointed growth from the lower border of the temporal bone; serves as a bone position for attachment of some tongue muscles.

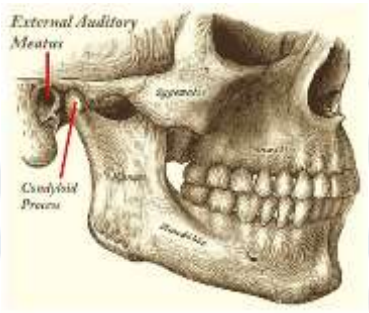





## Foramina of the Cranium

A foramen is an opening or hole in the bone for nerve and vessel passage. A foramen is not to be confused with the external auditory meatus, a large opening in the temporal bone used for the passage of auditory nerves and vessels. Knowing the location of the foramina is important because many injections for anesthesia are placed in these areas.




The nine main foramina of the head related to dentistry are:

Magnum: opening in the occipital bone for spinal cord passage; largest of all foramina.

Mandibular: located on the lingual side of the ramus of the mandible; permits nerve and vessels passage to teeth and mouth tissues.

Mental: opening situated on left and the right anterior areas of the mandible; used for passage of nerve and vessels.

Lingual: small opening in the center of the mental spine for nerve passage to the incisor area.

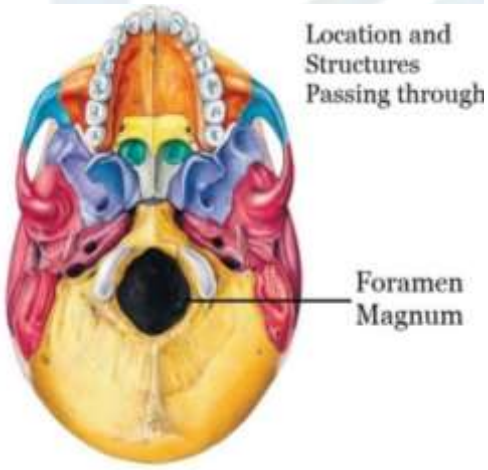
Incisive: opening in the maxilla behind the central incisors on the midline.

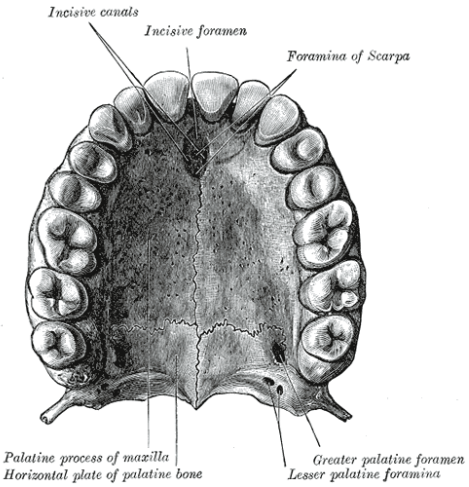
Supraorbital: an opening in the frontal bone above the eye orbit.

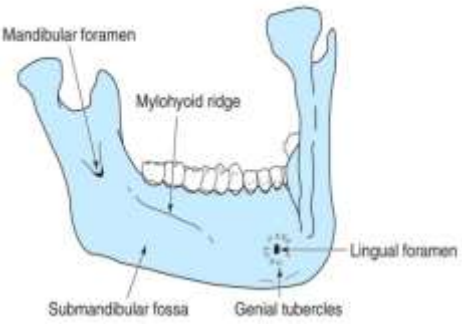
Infraorbital: an opening in the maxilla under the eye orbit.

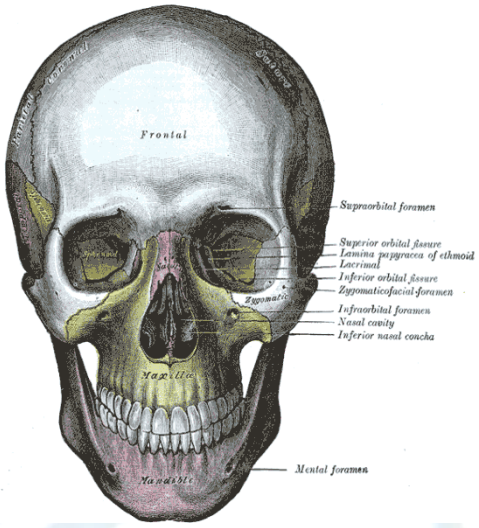
Palatine: anterior and posterior openings in the hard palate.

Zygomaticofacial: an opening in the zygomatic bone.






All bones are covered by a fibrous membrane called the periosteum that forms a lining on all surfaces, except the areas of articulation. When this layer has a mucous surface, it is called mucoperiosteum. The oral cavity has three types of oral mucosa:

Lining mucosa: mucous membrane that lines the inner surfaces of the lips and the cheeks.

Masticatory mucosa: elastic type of mucous membrane that undergoes stress and pull; located around the alveolar area of the teeth and lines the hard palate.

Specialized mucosa: smoother mucous tissue found on the dorsal side of the tongue.

## Landmarks and Features of the Mandible:

The mandible is the only movable bone in the skull. It is the strongest bone in the face and supports many features. The mandible has seven major anatomical parts:

Ramus: ascending part of the mandible that arises from the curved, lower arch.

Angle of the mandible: area along the lower edge of the mandible where the upward curve of the mandible forms.

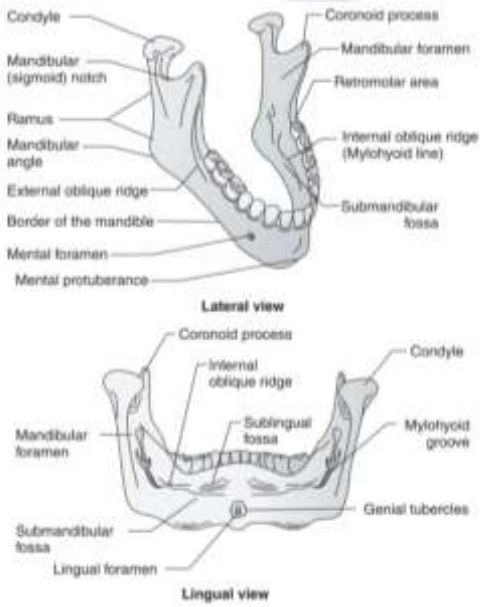
Sigmoid notch: S-shaped curvature between the condyle and coronoid processes; upper border of the mandible; also called the mandibular notch.

Mylohyoid ridge: bony ridge on the lingual surface of the mandible.

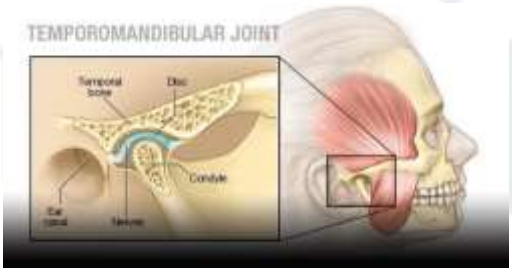
Oblique line: slanted, bony growth ridge on the facial side of the mandible.

Retromolar area: space located to the rear of the mandibular molars.

Symphysis: center of mandible; also known as *mental protuberance*.




The mandible articulates or comes together as a joint with temporal bone of the cranium. This temporomandibular joint is commonly abbreviated as TMJ. The condyle of the mandible rests in a depression in the temporal bone called the glenoid or mandibular fossa. The articular eminence of the temporal bone forms the anterior boundary of the fossa and helps maintain the mandible in position. Between the contact area of these two bones is the articular disc, a meniscus and synovial fluid that cushions and lubricates the joint that works in a hinge-action movement.



## Muscles of Mastication

Mastication: is controlled by paired muscles, named for their placement area. Each performs a specific funetion. The four major muscles of mastication are:

Temporal: a fan-shaped muscle on each side of the skull; elevates and lowers the jaw and can draw the mandible backward.

Masseter: the muscle that closes the mouth; the principal mastication muscle.

Internal pterygoid: muscle that raises the mandible to close the jaw.

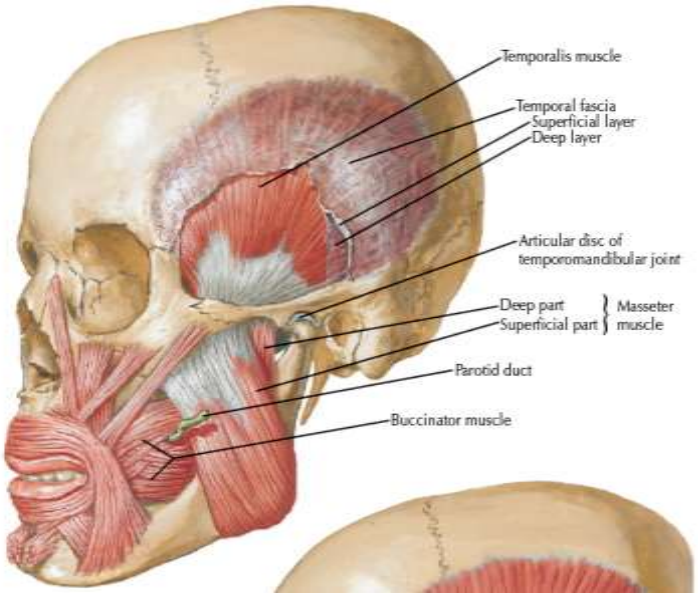
External pterygoid: muscle that opens the jaw and thrusts the mandible forward; assists with lateral movement.

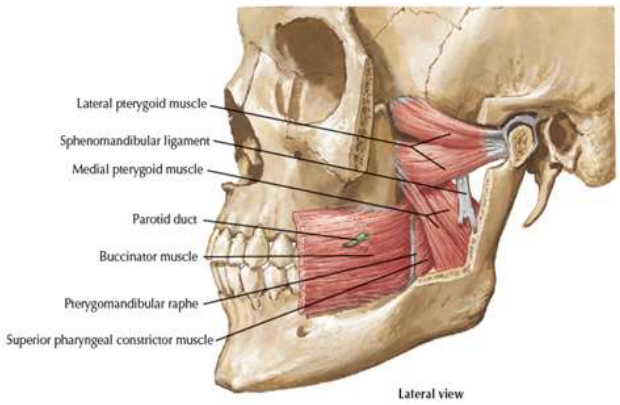
Several other muscles of the head are important to dentistry. These essential muscles relate to or control some of the anatomy concerned with dental care:

Orbicularis oris: Also known as the "kissing muscle" a circular muscle surrounding the mouth that compacts, compresses, and protrudes the lips.

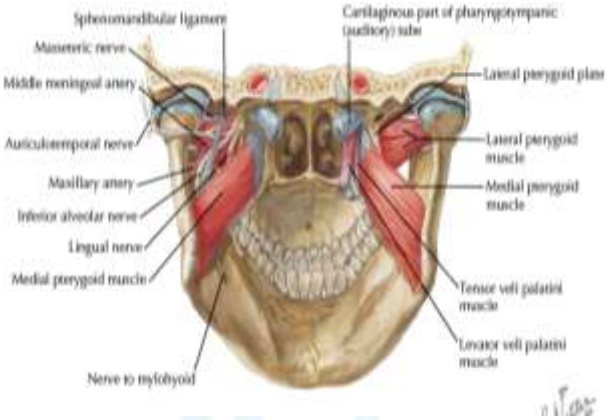
Buccinators: principal cheek muscle; compresses the cheek, expels air through the lips, and aids in food mastication.

Mentalis: muscle of the chin that moves the chin tissue and raises or lowers the lip.





Lateral view




## Cranial Nerve:

I. **Olfactory (s).**

II. **Optic (s).**

III. **Oculomotor(M).**

IV. **Trochlear (M).**

V. **Trigeminal (B).**

VI. **Abducens (M).**

VII. **Facial (M).**

VIII. **Vestibulocochlear (M).**

IX. **Glossopharyngeal (M).**

X. **Vagus (M).**

XI. **Accessory (M).**

**Hypoglossal (M).**

## Trigeminal Nerve Location and Functions

Muscle movement and the registration of sensations are accomplished by nerve, the communication lines to the brain. The head contains 12 pairs of cranial nerves. Each pair is numbered, and one of each pair is on the left and one on the right.

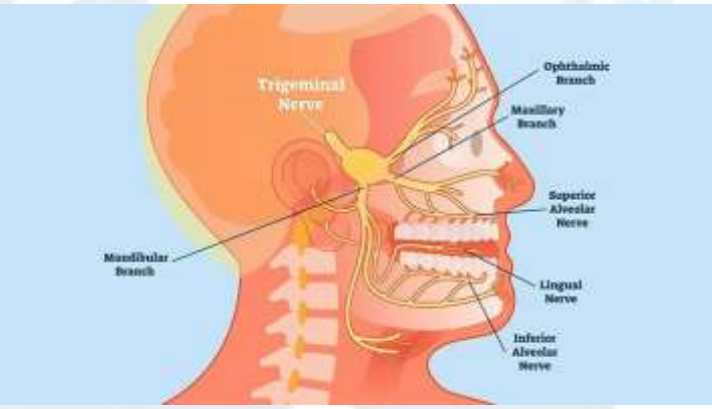
The most important nerve connected with dentistry is the fifth cranial nerve, the trigeminal. This combination motor and sensory nerve emerges from the brain and branches at the Gasserian or semilunar, ganglion. The trigeminal nerve divisions are the ophthalmic, maxillary, and mandibular, as described here:

Ophthalmic: smallest of the three division; a purely sensory nerve that has three branches:

Lacrimal: carries sensation from the lacrimal gland and eye conjunctiva.

Frontal: carries sensation from the forehead, scalp, upper eyelid, and nasal root.

Nasociliary: carries sensation from the nose, eye, and eyebrow.




Maxillary: a sensory division of the trigeminal nerve that has several branches:

Anterior palatine: carries sensation from the hard palate, periosteum, and muscous membrane of the molars and premolar teeth; sometimes considered the greater palatine nerve.

Middle palatine: carries sensation from the soft palate, the uvula, and upper or soft part of the palate, along with the posterior palatine nerve; may be grouped as lesser palatine nerve.

Posterior palatine: carries sensation from the tonsils and the soft palate.

Nasopalatine: carries sensation from the nose and the anterior area of the palate.

Infraorbital: subdivides into three parts:

- Anterior superior alveolar branch: carries sensation from the maxillary centrals, laterals, and canines.
- Middle superior alveolar branch: carries sensation from the maxillary premolars and the mesiobuccal root of the maxillary first molar.
- Posterior superior alveolar branch: carries sensation from the maxillary second and third molar, and the remaining roots of the maxillary first molar.

Zygomatic: carries sensation from the lacrimal and upper cheek.

Sphenopalatine: sensory nerve ending for the maxillary anterior mucosal and palatine tissues.

Mandibular: mixed nerve division that registers sensation and causes movement. It has several branches:

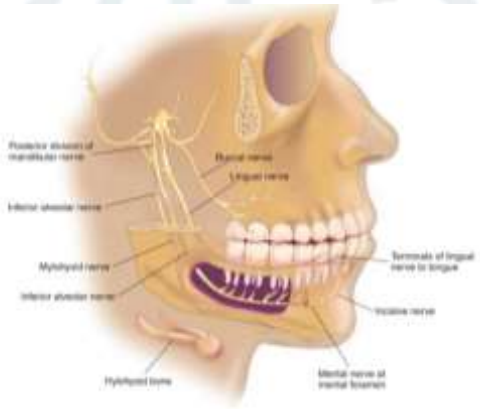
Inferior alveolar: carries sensation from the mandibular teeth and mucosa of the mouth floor and some tongue areas.

Mental: carries sensation from the skin of chin and the lower lip.

Incisive: carries sensation from the anterior teeth and alveoli, chin, and lip areas.

Buccal: carries sensation from the buccal gingiva and mucosa of the molar region.

Lingual: carries sensation from the tongue and causes some movement of the tongue and mastication; thereby the classification of the trigeminal nerve is mixed.



## Blood Supply of the Cranium

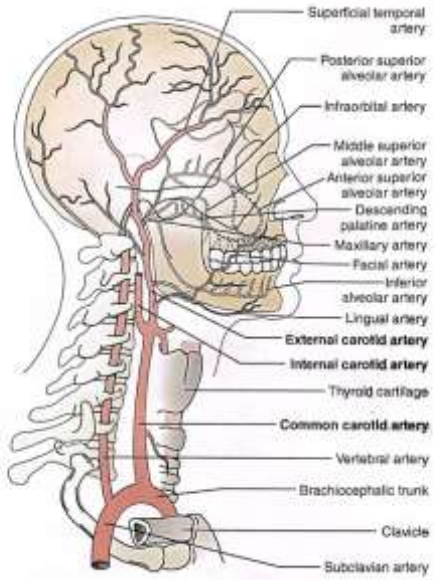
Blood is supplied to the head by a vascular system of arteries and veins. An artery carries blood away from the heart, and a vein takes blood to the heart. Knowledge of the vascular system is important for controlling bleeding and also for administering local anesthesia. The major blood supply vessels to the head that are of interest in dentistry are the carotid artery, jugular veins, and capillaries:

Carotid artery: rises from the aorta right and left, and divides in the neck to form two arteries:

Internal carotid artery: provides the blood supply to the brain and eyes.

External carotid artery: provides blood to the throat, face, mouth, tongue, and ears through these branches:

- Infraorbital: provides blood to the maxillary anterior teeth and surrounding tissues.
- Inferior alveolar: provides blood to the mandibular teeth, periodontal ligaments, and surrounding tissues.
- Facial: provides blood to the face, tonsils, palate, and submandibular gland.
- Lingual: divides into branches to serve the tongue, tonsil, soft palate, throat, and floor of the mouth.
- Maxillary: largest of the branches of the external carotid; provides blood to the maxillary teeth, periodontal ligaments, muscles, sinus, and palate.



Jugular vein: carries blood from the head to the heart through two divisions:

Internal jugular vein: collects and drains blood from the brain, cranium, face, and neck.

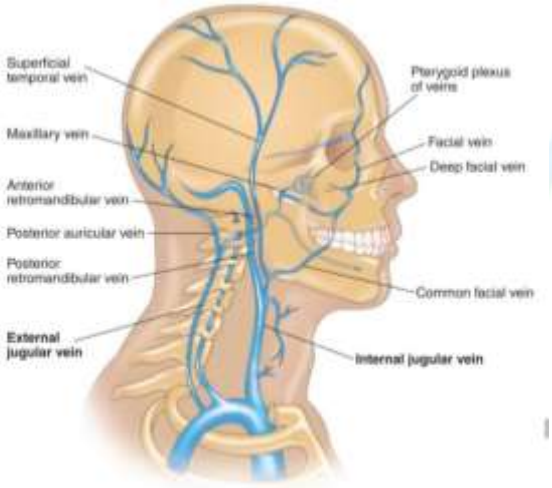
External jugular vein: collects and drains blood through assorted branches. The major branches are:

Facial division: carries blood from the face structures and mouth area.

Maxillary division: carries blood from the maxillary region.

Pterygoid venus plexus: collects the blood supply from the head, nasal cavity, palate, teeth, and muscles.

Capillaries: tiny blood vessels that help to transport blood from the veins to the arteries.




## Location and Purposes of the Salivary Glands

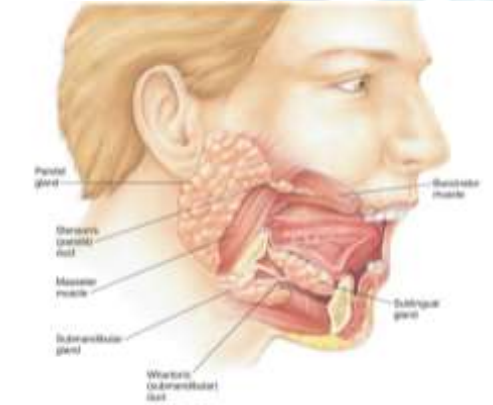
Salivary glands supply secretion to the oral cavity that protect the lining of the mouth, help moisten food, assist in speech, and make saliva to expectorate. The major salivary glands produce large amounts of secretions, and the minor salivary glands maintain oral tissue.

Secretions may produce serum or mucin that forms mucus. Some glands produce both with enzymes to digest food. In dentistry, the three major pairs of salivary glands are:

Parotid: the largest salivary gland, located near the ear, produces serum saliva that empties into the mouth near the maxillary second molar through the Stenson's duct. This gland becomes swollen when infected by mumps.

Submandibular: a smaller gland located on the lower side of the face that secrets mucin and serum fluids with enzymes; empties through the submandibular duct openings in the small fleshy growths, called caruncles. These growths may be seen under the tongue on each side of the lingual frenum.

Sublingual: smallest major salivary gland, situated in the floor of the mouth; secretes mucin through multiple ducts; many other small glands are nearby, and they function to keep the mouth tissues moist.



## Agents and Function of the Lymphatic System

The lymphatic system's presence throughout the body helps protect the body from disease and assists with immunity. The lymphatic system is composed of a structure:

Lymph: vessels that transport lymph fluid of plasma and water and waste products.

Lymph capillaries: tiny vessels or tubes that carry lymph fluid.

Lymph node: a mass of lymph cells forming a unit of lymphatic tissue that is named after the formation site, for example:

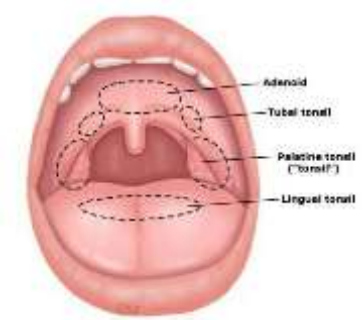
Axillary: lymph nodes located under the armpit.

Cervical: lymph nodes located in the neck.

Inguinal: lymph nodes found in the groin area near the abdomen.

Tonsil: lymphatic tissue masses found in the posterior of the throat between the anterior and posterior fauces and on the back of the tongue. Tonsils act as filters, aid in the production of disease-fighting immune responses, and may help immunity.

Adenoid: lymphatic tissue found in the nasopharynx area; sometimes called the pharyngeal tonsil.




## Important Structures in the Oral Cavity

The composition of the oral cavity involves many different tissues and forms. Each structure is designed for a specific purpose and function. The more important landmarks of note in the dental field are described next.

**Labia**

The lips, or labia, have several sections or division:

Superior labial: the upper lip.

Inferior labial: the lower lip.

Labial commissure: area at the corners of the mouth where the lips meet.

Vermillion border: area where the pink-red lip tissue meets facial skin.

Philtrum: median groove in the center external surface of the upper lip.

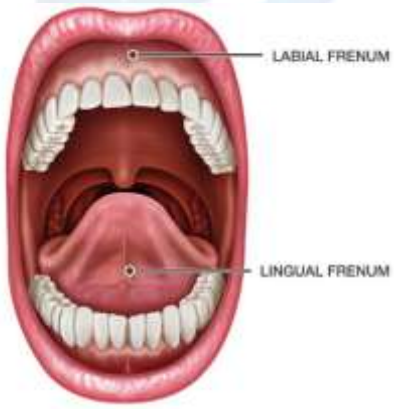
## Frenum

The tongue and each lip and cheek attach to the oral membrane with a triangular piece of tissue called a frenum. The oral cavity has five major frena:

Labial frenum: tissue that attaches the inside of the lip to the mucous membrane in the anterior of the oral cavity. The labial frena occur in both the maxillary and the mandibular arches. The maxillary labial frenum is a common site for a surgical frenectomy to permit closure of the two central incisors' gap caused by a labial frenum that is too large or thick.

Ligual frenum: attaches the lower side of the tongue to the floor membrane. Openings for the Wharton's duct are found on each side of this frenum in the fleshy tissue elevations called caruncles. If the lingual frenum is too short, ankyloglossia, a "tongue-tied" condition, can result.

Buccal frenum: attaches the inside of the cheek to the oral cavity in the maxillary first molar area. This frenum occurs one each on the left and the right sides.




## Tongue Structures

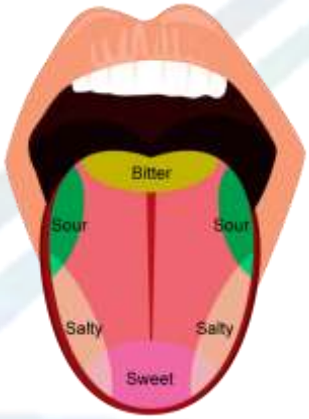
The tongue is an important organ in the oral cavity that performs many necessary functions. The tongue, or glossa, is a strong muscular organ that aids in chewing, talking, and deglutition. A median sulcus divides the tongue's top surface into two parts. The tongue also has many papillae or taste buds situated on the dorsal surface of the tongue. The major papillae are:

Circumvallate: the largest, V-shaped papillae, situated on the dorsal aspect of the tongue; sense bitter taste.

Filiform: the smallest, hair-like papillae covering the entire dorsal aspect of the tongue; do not sense taste.

Fungiform: small, dark red papillae on the middle and anterior dorsal surface and along the sides of the tongue; sense sweet, sour, and salty taste.

Foliate: present on the posterior lateral borders of the tongue and can be seen if the tongue is grasped with gauze and extended; sense sour tastes.




## Palate Structures

The palate or roof of the mouth is composed of assorted structures. Its two main division are the hard palate and soft palate:

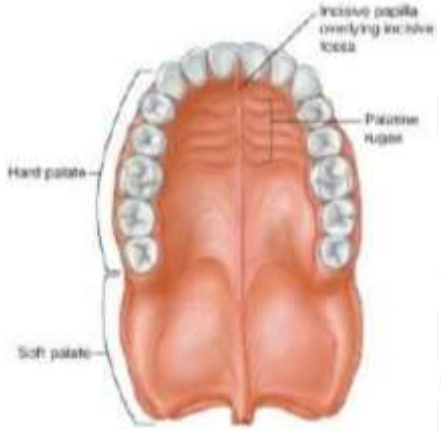
Hard palate: composed of the palatine processes of the maxillary bones; covered with mucous membrane and has the following features:

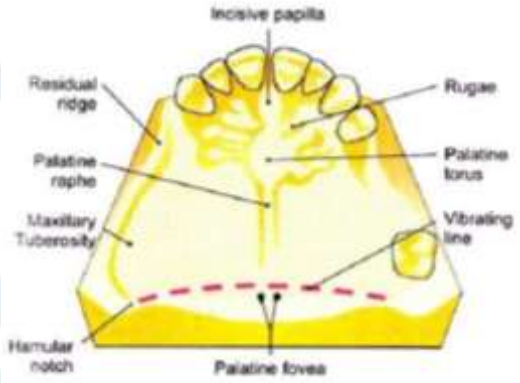
Rugae: irregular folds or bumps on the surface.

Incisive papilla: tissue growth that is situated at the anterior portion of the palate behind the maxillary centrals; the site for infiltration injection of local anesthesia.

Palatine raphe: white streak in the middle of the palate.

Soft palate: flexible portion of the palate without bone; area where the gag reflex is present. The soft palate is movable and closes off the nasal passage during swallowing.




**Miscellaneous Oral Cavity Structures:**

Additional oral cavity structures include the following:

Uvula: tissue structure hanging from the palate in the posterior of the oral cavity.

Vestibule: open gum and tissue area between the teeth and the cheek.

Fauces: constricted opening or passage leading from the mouth to the oral pharynx, bound by the soft palate, the base of tongue, and the palatine arches. The fauces are considered two pillars of mucous membranes:

Glossopalatine arch: anterior pillars.

Pharyngopalatine: posterior pillars. The palatine tonsils lay between these pillars.