**ASSIGNMENT**

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.1 The tongue, is the fleshy muscular organ in the mouth of a mammal, used for tasting, licking, swallowing, and (in humans) articulating speech. Thetongue is covered with moist, pink tissue called mucosa. It is partly in the oral cavity and partly in the oropharynx. Tiny bumps called papillae give the tongue its rough texture. Thousands of taste buds cover the surfaces of the papillae. Taste buds are collections of nerve-like cells that connect to nerves running into the brain.

The tongue is anchored to the mouth by webs of tough tissue and mucosa. The tether holding down the front of the tongue is called the frenum. In the back of the mouth, the tongue is anchored into the hyoid bone. The four common tastes are sweet, sour, bitter, and salty. A fifth taste, called umami, results from tasting glutamate (present in MSG). The tongue has many nerves that help detect and transmit taste signals to the brain. Because of this, all parts of the tongue can detect these four common tastes; the commonly described “taste map” of the tongue doesn’t really exist.

\***Development of the Tongue.**

The development of the tongue begins towards the end of the fourth gestational week. It is derived from the pharyngeal apparatus. The anterior two-thirds of the organ is known as the presulcal(oral) part, and the posterior third is the postsulcal(pharyngeal) part. The oral part originates from the first pharyngeal arch, while the pharyngeal part arises from the third and fourth pharyngeal arches. The presulcal tongue has lingual papillae and taste buds, while the postsulcal part has lingual tonsils and taste buds. Innervation of the tongue is dependent on the pharyngeal arch that the area was derived from.

**\*Parts of the Tongue.**

The tongue has a root, body and apex. The root of the tongue is the attached posterior portion, extending between the mandible, hyoid, and the nearly vertical posterior surface of the tongue. The body of the tongue is the anterior, approximately two thirds of the tongue between root and apex. The apex(tip) of the tongue is the anterior end of the body, which rests against the incisor teeth. The body and apex of the tongue are extremely mobile.

There are numerous important structures surrounding the tongue. It is limited anteriorly and laterally by the upper and lower rows of [teeth](https://www.kenhub.com/en/library/anatomy/the-teeth). Superiorly, it is bordered by the hard (anterior part) and soft (posterior part) palates. Inferiorly, the root of the tongue is continuous with the mucosa of the floor of the oral cavity; with the sublingual salivary glands and vascular bundles being located below the mucosa of the floor of the oral cavity.

The tongue has two surfaces. The more extensive, superior and posterior surface is the dorsum (top of the tongue). The inferior surface of the tongue (commonly referred to as its underside) usually rests against the floor of the mouth. The dorsum of the tongue is characterized by a V-shaped groove, the terminal sulcus of the tongue, the angle of which points posteriorly to the foramen cecum. The terminal sulcus divides the dorsum of the tongue transversely into a presulcal anterior part in the oral cavity proper and a postsulcal posterior part in the oropharynx.

The midline groove divides the anterior part of the tongue into right and left parts. The mucosa of the anterior part of the tongue is relatively thin and closely attached to the underlying muscle. It has a rough texture because of numerous small lingual papillae:

**\*Vallatte papillae:** Large and flat topped, lie directly anterior to the terminal sulcus and are arranged in a V-shaped row.

**\*Foliate papillae:** Small lateral folds of the lingual mucosa. They are poorly developed in humans.

**\*Filiform papillae:** Long and numerous, contain afferent nerve endings that are sensitive to touch.

**\*Fungiform papillae:** Mushroom-shaped pink or red spots scattered among the filiform papillae, but most numerous at the apex and margin of the tongue.

The mucosa of the posterior part of the tongue is thick and freely movable. It has no lingual papillae, but the underlying **lymphoid nodules** gives this part of the tongue an irregular, cobble stone appearance. The lymphoid nodules are known collectively as the **lingual tonsil.**

The **inferior surface of the tongue** is covered with a thin, transparent mucous membrane. The surface is connected to the floor of the mouth by the midline fold called the **frenulum of the tongue.**

\***MUSCLES OF THE TONGUE**

All the muscles of the tongue are paired structures, with each copy being found on either side of the median fibrous septum. There are muscles that extend outside of the organ to anchor it to surrounding bony structures, known as extrinsic muscles. The other set of muscles are confined to each half of the organ and contribute to altering the shape of the organ; these are the intrinsic muscles.

**\*EXTRNSIC MUSCLES**

These are; Geniglossus, Hyoglossus, Stloglossus and Palatglossus, and they originate outside the tongue and attach to it. They mainly move the tongue, but they can alter its shape as well.

\***INTRINSIC MUSCLES**

The intrinsic tongue muscles are responsible for adjusting the shape and orientation of the organ. It is made up of;

-The superior longitudinal muscles are made up of a thin layer of muscle fibers traveling in a mixture of oblique and longitudinal axes just deep to the superior mucosal surface of the organ.

- Another set of muscles occupy the dorsoventral plane of the tongue deep to the superior longitudinal muscles. These are the vertical muscles that arise from the root of the organ and genioglossus muscle and insert into the median fibrous septum, along the entire length of the organ. These muscles facilitate flattening and widening of the tongue.

- Deep to the ventral muscles is the layer of transverse muscles of the tongue.

- The inferior longitudinal muscles travel above the ventral submucosa of the tongue. These fibers travel between hyoglossus and genioglossus as it arises from the base of the tongue and body of the hyoid bone. The fibers end in the apex of the tongue; allowing the muscle to pull the tip of the tongue inferiorly and also shortening the organ.

**BLOOD SUPPLY AND LYMPHATIC DRAINAGE**

The vascular supply to the tongue muscles is provided by derivatives of the [lingual artery](https://www.kenhub.com/en/library/anatomy/lingual-artery). This is a branch of the [external carotid artery](https://www.kenhub.com/en/library/anatomy/the-external-carotid-artery-and-its-branches) that traverses the region between the [middle pharyngeal constrictor](https://www.kenhub.com/en/library/anatomy/middle-pharyngeal-constrictor) and hyoglossus in order to access the floor of the mouth. On entering the tongue, the lingual artery passes deep to the hyoglossus muscle. The **dorsal lingual arteries**, supply the root of the tongue. The **deep lingual arteries** supply the body of the tongue. The deep lingual arteries communicate with each other near the apex of the tongue.

The veins of the tongue are the **dorsal lingual veins,** and these accompany the lingual artery. The **deep lingual veins,** which begin at the apex of the tongue, run posteriorly beside the lingual frenulum to join the sublingual vein.

When discussing the lymphatic drainage of the tongue, it helps to group them according to the region of the tongue that they drain. The marginal and central groups drain the anterior parts of the tongue, while the dorsal group rains lymph from the posterior third of the organ. It is not uncommon to see the central area of the tongue draining to both marginal and dorsal groups of lymph vessels. The marginal lymph vessels will carry lymph to the submandibular nodes or to the jugulo-omohyoid nodes. It is not uncommon to see lymph vessels decussating to drain to contralateral lymph nodes. The vessels from the central region may go to the deep cervical nodes, with a particular preference for the jugulo-omohyoid or jugulodigastric nodes. The dorsal group of vessels also pass laterally on either side to eventually join the marginal vessels in their course to the jugulo-omohyoid and jugulodigastric vessels.

**APPLIED ANATOMY**

A particular pharyngeal arch defect, known as PIERRE ROBIN SYNDROME, causes glossoptosis among other symptoms. This particular defect causes the tongue to be displaced posteriorly and may cause apnea.

**2. Paranasal sinuses (air sinuses) are a group of four paired air-filled spaces** that surround the nasal cavity. They are; The maxillary sinuses which are located under the eyes; the frontal sinuses are above the eyes; the ethmoidal sinuses are between the eyes and the sphenoidal sinuses are behind the eyes. The sinuses are named for the facial bone in which they are located.

Paranasal sinuses form developmentally through excavation of bone by air-filled sacs from the nasal cavity. This process begins prenatally (intrauterine life), and it continues through the course of an organism's lifetime.

At birth only the maxillary sinus and the ethmoid are developed but not yet pneumatized; only by the age of seven they are fully aerated. The sphenoid sinus appears at the age of three, and the frontal sinuses first appear at the age of six, and fully develop during adulthood.

**CLINICAL SIGNIFICANCE**

### **Inflammation**

The paranasal sinuses are joined to the nasal cavity via small orifices called ostia. These become blocked easily by allergic inflammation, or by swelling in the nasal lining that occurs with a cold. If this happens, normal drainage of mucus within the sinuses is disrupted, and sinusitis may occur. Because the maxillary posterior teeth are close to the maxillary sinus, this can also cause clinical problems if any disease processes are present, such as an infection in any of these teeth. These clinical problems can include secondary sinusitis, the inflammation of the sinuses from another source such as an infection of the adjacent teeth.

These conditions may be treated with drugs such as decongestants, which cause vasoconstriction in the sinuses; reducing inflammation; by traditional techniques of nasal irrigation or by corticosteroids.

### **Cancer**

Malignancies of the paranasal sinuses comprise approximately 0.2% of all malignancies. About 80% of these malignancies arise in the maxillary sinus. Men are much more often affected than women. They most often occur in the age group between 40 and 70 years. Carcinomas are more frequent than sarcomas. Metastases are rare. Tumors of the sphenoid and frontal sinuses are extremely rare.

Ad may cause airway obstruction or apnea.