

SPEAKING IN TONGUES

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Lap, lap, lapping up a cool bowl of water.

Panting in your face after a good game of tug.

Getting those last hard to reach tasty bits of peanut butter in the food puzzle. And who doesn't love an exuberant slobbery kiss?!

That seemingly inert moist glob that is the amazing canine tongue is such an active background soundtrack to our lives with dogs, it's easy to forget it is actually a complex muscle that is acutely connected to our dog's health that can give us clues to behavior state and overall well-being.

In general, healthy tongues are moist and bubble gum pink. There are exceptions to note such as benign pigmentation spots which may appear in any breed, and the required breed standard of a blue/black tongue in Chow Chow and Shar-Pei, but let's take an even closer look.

The main life-functions of the canine tongue are: moving food and water to the esophagus, aid in mastication, panting, and interacting with their world. A canine tongue is comprised primarily of skeletal muscle, nerves, mucous membrane, and vessels (2). It can also be described as intrinsic muscles (the muscles of the tongue itself) and extrinsic muscles (the muscles that 1 attach the tongue to structures). Its highly vascularized with the main blood supply being the lingual artery, as well as the tonsillar branch of the facial artery and ascending artery. At the most basic anatomical level it consists of a root, long body, and apex, with a dorsal and ventral side (1). The root is attached to the hyoid bone and the mandible via the hyoglossus and genioglossus muscle. The free, dorsal side is divided in two by the median groove. This side is also where the papillae are located which assist in taste, temperature, and touch response itself.

There are many nerves affecting the tongue; for a more complete view of cranial nerve roots please see attached plate from [Dog Anatomy: a coloring atlas](#) Plate 80. Some major nerves to note include (2):

glossopharyngeal nerve: taste and touch

hypoglossal nerve: motor function to muscles of tongue

facial nerve: chorda tympani branch joins lingual nerve and senses taste, motor to lacrimal and salivary glands

trigeminal nerve: sensory touch to the tongue and motor to mastication muscles

While technically the tongue CAN be palpated, it is generally not appreciated by your canine client. Being housed in the mouth, which may contain up to 42 teeth, it also may not be safe to palpate or physically handle the tongue. We can however use our powers of observation to glean information about our canine client's state by taking a moment to consider the nuanced tongue as we go about the business of providing them with aquatic bodywork.

According to Four Paws Five Directions “the tongue is a visual gateway to the interior of the body. The whole body ‘lives’ on the tongue, rather like a hologram”(5)

Color, shape, and texture all give vital information to the state of your canine client. How is the dog holding their tongue...

Is it lolling out the side? Is it slightly curled or spatulate at the end as the dog heavily pants? Is it tucked securely inside a mouth that has tightening at the corners? What color is it—dark pink or purple? Grey? Bubblegum pink?

What texture is it...moist and shiny, dry, cracked?

As they breath in and out, what does their breath and mouth smell like?

How has the tongue position and color changed as you’ve moved though the bodywork session? Has their breathing changed throughout the session?

What are they trying to communicate to you the practitioner, with their tongue?

Licking of the mouth (YOUR mouth) is an indication of submissiveness. Licking their own lips or smcking/chewing motions also “indicate submissiveness, willingness to learn, and to join up with the pack.”(4)

“When he feels discomfort or anxiety when you are working on a particular area, he will distract himself by stimulating another part of his anatomy, licking, or scratching. The licking distraction gives him a sense of comfort and control and can become addictive.”(4) This can lead to self-mutilation.

While we may not be able to directly massage the canine tongue, often form follows function. Remember those basic life functions mentioned earlier? The tongue’s extrinsic muscles have a direct connection to the throat, jaw, palate, and head.

“...dysfunction of activity can occur when either the position of the tongue is disturbed, when structures attaching to the tongue are compromised, or when the tongue’s neurological pathways are adversely stressed.”(3) By providing relief and restoring balance where possible to compromised areas via bodywork, we can have a chain reaction to the form and function of surrounding areas and those further down the chain, like the humble tongue!

Oral Cavity, Tongue, Pharynx, and Esophagus

PLATE 51

- Figure 1.** Right lateral view of a sagittal section of a dog's head.
Figure 2. Dorsal view of the tongue and dissected laryngopharynx, trachea, and esophagus.
Figure 3. A puppy's tongue.

Color each label in a different color and, where appropriate, color the structure indicated.

The **pharynx** is a musculomembranous chamber common to the digestive and respiratory tracts. Its three parts are: 1) **oropharynx** - ventral to the soft palate; 2) **nasopharynx** - dorsal to the soft palate, extending caudad from the chicanas (exits from the nasal fossa on each side); 3) **laryngopharynx** - dorsal to the larynx and leading into the **esophagus**.

During swallowing, muscles raise the **tongue**, pressing food and water against the **hard palate**. The **soft palate** is elevated. The root of the tongue moves caudad and dorsad in a boltlike manner, pushing the **epiglottis** partially over the **laryngeal entrance**. The **lingual folds** (space between the vocal folds) in the larynx is narrowed. Pressure by pharyngeal muscles forces food or water into the esophagus where automatic contractions carry food through to the stomach.

Color the dashed line indicating the movement of food or water.

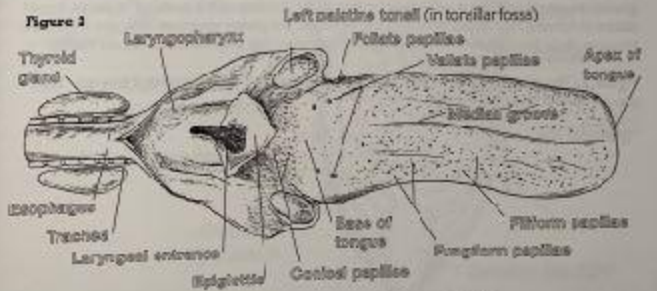
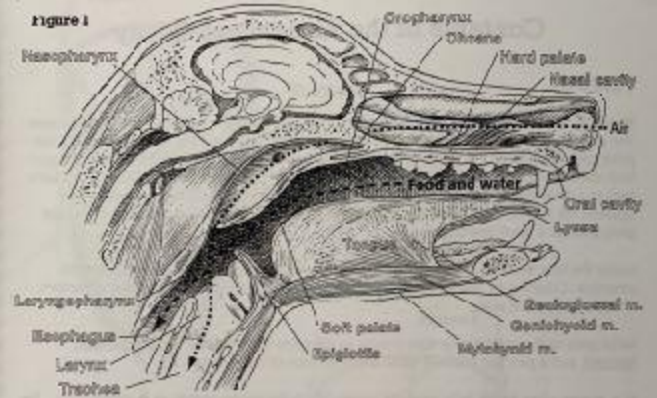
During breathing, the free edge of the soft palate is usually (but not always) under the epiglottis and the laryngeal entrance is open (see Plate 67).

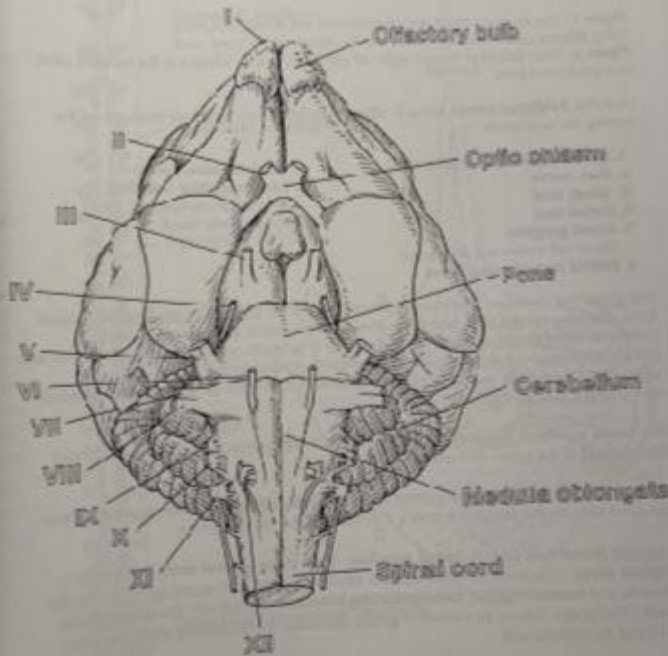
Within the apex of the tongue, the rodlike **lyssa** consists of adipose tissue, skeletal muscle and some cartilage. In older times, the lyssa was thought to be the cause of rabies, and it was sometimes removed to cure the disease. What a place for one's hands! Lyssa is also a synonym for rabies.

Vellate, foliate, and fungiform papillae contain taste buds, a complex of gustatory (taste) cells, supporting cells and nerve endings.

Conical, filiform, and marginal papillae do not contain taste buds.

Marginal papillae on a neonatal (newborn) puppy's tongue assist in suckling. As the diet changes from milk to solid food, marginal papillae regress until they no longer exist.





Cranial Nerves

PLATE 80

Ventral view of brain and cranial nerve roots.

In different colors, color the Roman numerals and the cranial nerves indicated on the plate.

CRANIAL NERVES and FUNCTION:

- I. Olfactory nerve** - Sense of smell. Many small nerve fibers come from the mucous membrane of the two nasal fossae. They pass through openings in the cribriform plate of the ethmoid bone to the **olfactory bulbs**.
- II. Optic nerve** - Vision. Some nerve fibers coming from the retina of one eye cross over at the **optic chiasm** and continue into the optic tract of the opposite side.
- III. Oculomotor nerve** - Motor to several muscles around the eye. Parasympathetic fibers motor to smooth muscles within the eye.
- IV. Trochlear nerve** - Motor to trochlear muscle around the eye.
- V. Trigemina nerve** - Sensory to face. Motor to muscles of mastication (chewing) and deep muscles of the head. Sensory to lower teeth. Lingual branch sensory for touch to the tongue.
- VI. Abducent nerve** - Motor to two muscles around the eye.
- VII. Facial nerve** - Motor to facial, eyelid and ear muscles. Its chorda tympani branch joins the lingual nerve and senses taste from the rostral 2/3 of the tongue. Parasympathetic fibers motor to lacrimal and salivary glands.
- VIII. Vestibulocochlear nerve** - Sensory for hearing and for motion and balance.
- IX. Glossopharyngeal nerve** - Motor to muscles of palate and pharynx. Senses taste and touch from the caudal 1/3 of tongue. Sensory to mucous membrane of palate and pharynx. Parasympathetic fibers to salivary glands.
- X. Vagus nerve** - Parasympathetic nerves to smooth muscle of cervical, thoracic and abdominal viscera. Sensory to external ear. Sensory to laryngeal mucous membrane, and motor to laryngeal muscles via cranial and caudal laryngeal nerves.
- XI. Accessory nerve** - Motor to four shoulder muscles. Notice the main part of the nerve coming from the cervical spinal cord.
- XII. Hypoglossal nerve** - Motor to muscles of the tongue.

References:

1. Anatomylearner.com Dog Tongue Anatomy
2. Dog Anatomy: a coloring atlas Plate 51,80
3. Massagemag.com The Tongue: how cranial sacral therapy can help this important muscle
4. Four Paws Five Directions pgs 47-50