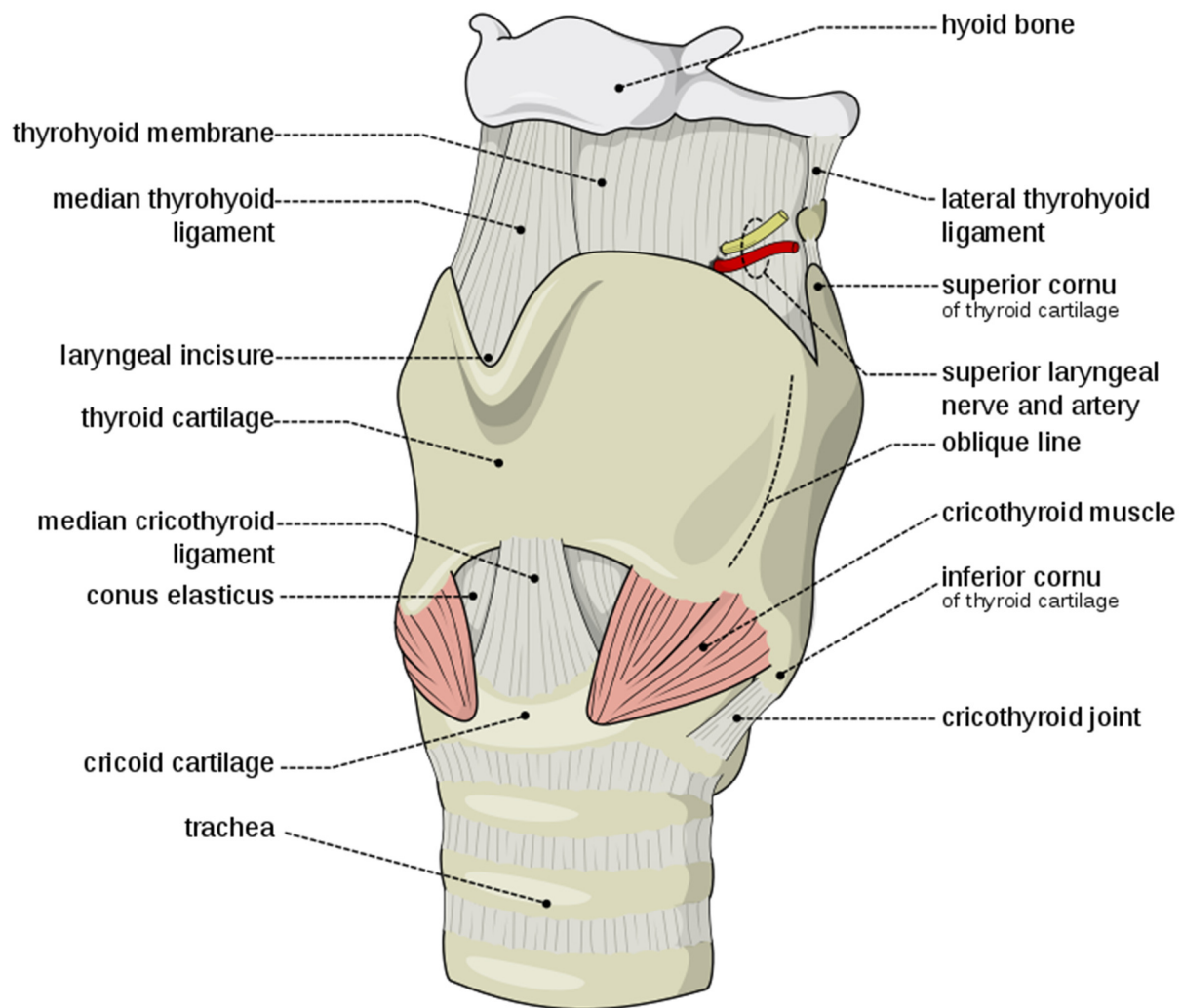
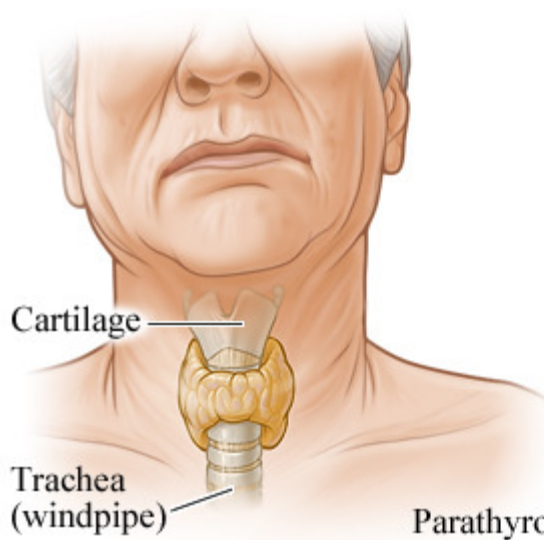


By Olek Remesz (wiki-pl: Orem, commons: Orem) - Own work, modified SVG version of PD picture from Gray's Anatomy., CC BY-SA 2.5-2.0-1.0, <https://commons.wikimedia.org/w/index.php?curid=3492701>



The [thyroid](#) is a butterfly-shaped gland that lies in front of the windpipe ([trachea](#)), just below the voice box (larynx).

The thyroid gland covers the windpipe from three sides.

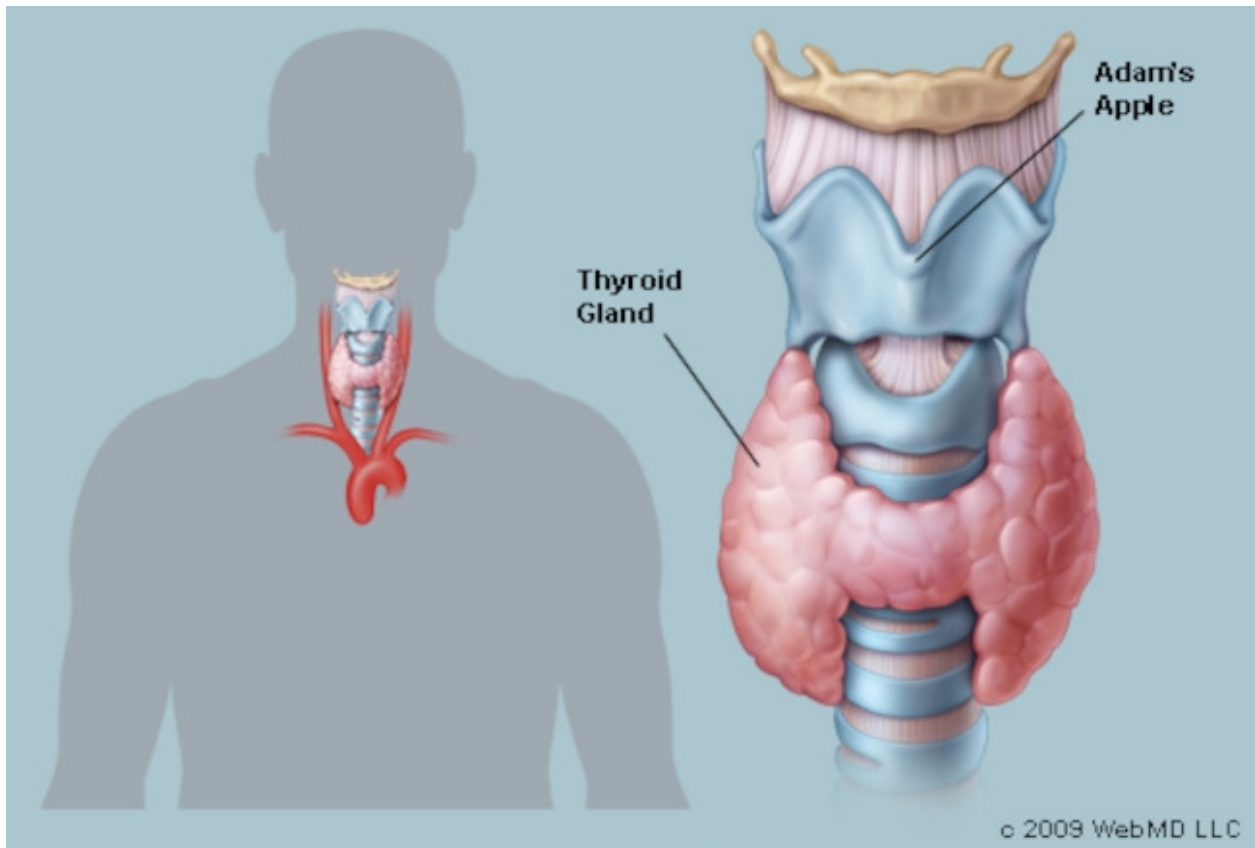


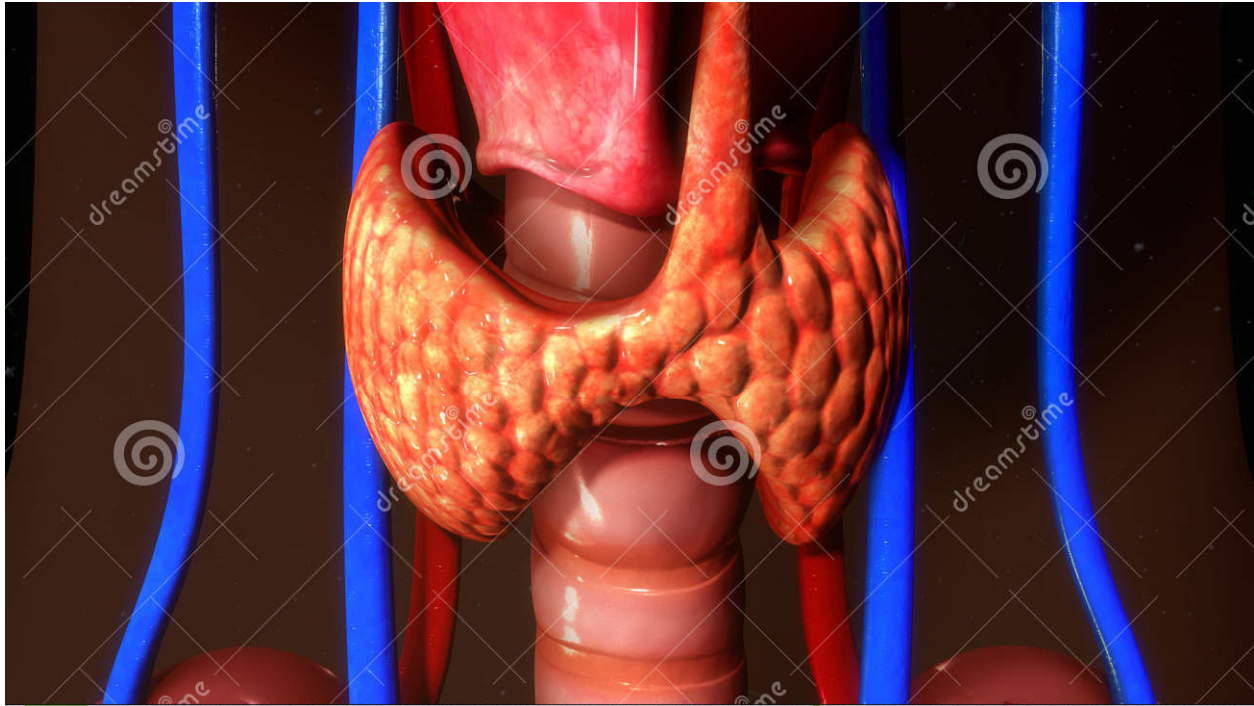
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Thyroid (front view)



Thyroid (back view)





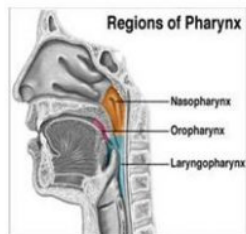
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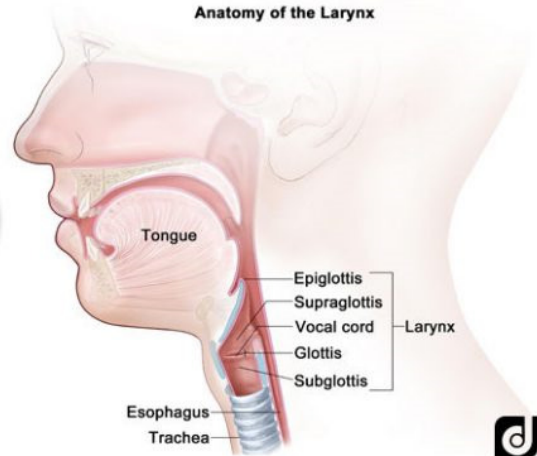
Pharynx

- It is a fibro-muscular funnel-shaped tube extending from the base of the skull to the lower border of **C. 6** where it continues as the oesophagus.
- It lies behind the nose, mouth, and larynx.



VS

Anatomy of the Larynx



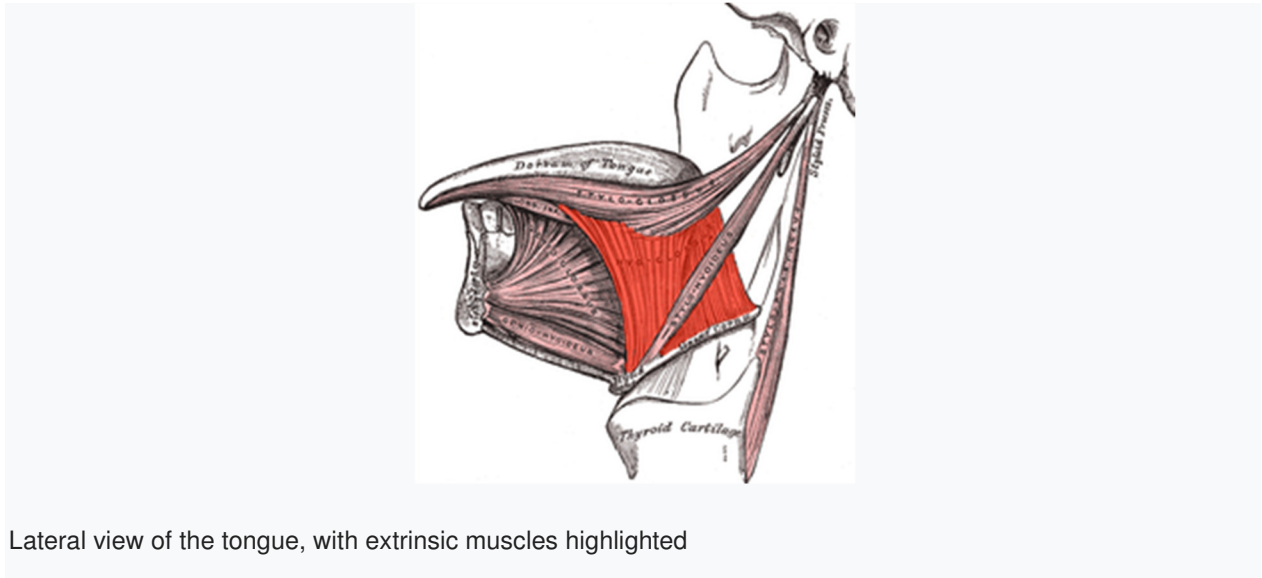
Pharynx vs. Larynx

Tongue

Muscles

The eight muscles of the human tongue are classified as either *intrinsic* or *extrinsic*. The four intrinsic muscles act to change the shape of the tongue, and are not attached to any bone. The four extrinsic muscles act to change the position of the tongue, and are anchored to bone.

Extrinsic



Lateral view of the tongue, with extrinsic muscles highlighted

The four extrinsic muscles originate from bone and extend to the tongue. They are the [genioglossus](#), the [hyoglossus](#) (often including the [chondroglossus](#)) the [styloglossus](#), and the [palatoglossus](#). Their main functions are altering the tongue's position allowing for protrusion, retraction, and side-to-side movement.^[5]

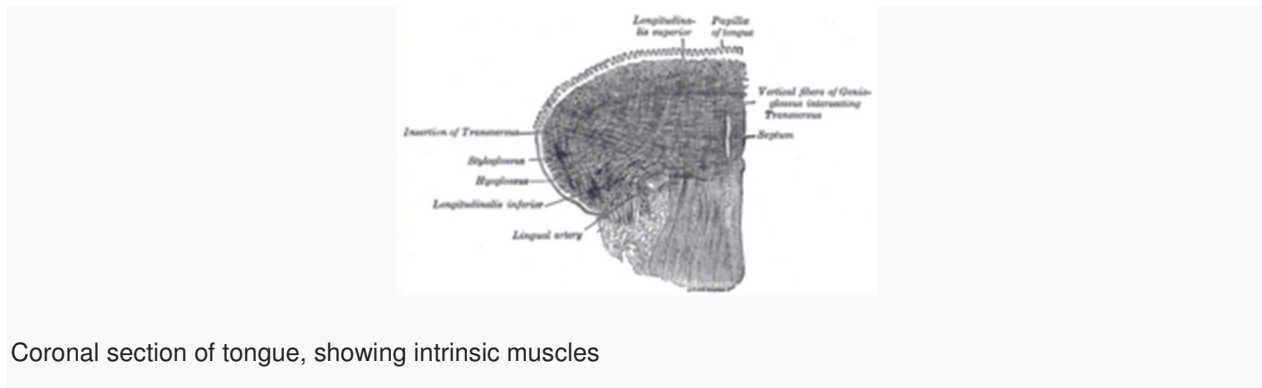
The genioglossus arises from the [mandible](#) and protrudes the tongue. It is also known as the tongue's "safety muscle" since it is the only muscle that propels the tongue forward.

The hyoglossus, arises from the [hyoid bone](#) and retracts and depresses the tongue. The chondroglossus is often included with this muscle.

The styloglossus arises from the [styloid process](#) of the [temporal bone](#) and draws the sides of the tongue up to create a trough for swallowing.

The palatoglossus arises from the [palatine aponeurosis](#), and depresses the [soft palate](#), moves the *palatoglossal fold* towards the midline, and elevates the back of the tongue during swallowing.

Intrinsic



Coronal section of tongue, showing intrinsic muscles

Four paired intrinsic muscles of the tongue originate and insert within the tongue, running along its length. They are the [superior longitudinal muscle](#), the [inferior longitudinal muscle](#), the [vertical muscle](#), and the [transverse muscle](#). These muscles alter the shape of the tongue by lengthening and shortening it, curling and uncurling its apex and edges as in [tongue rolling](#), and flattening and rounding its surface. This provides shape and helps facilitate speech, swallowing, and eating.^[5]

The superior longitudinal muscle runs along the upper surface of the tongue under the mucous membrane, and elevates, assists in retraction of, or deviates the tip of the tongue. It originates near the [epiglottis](#), at the [hyoid bone](#), from the median fibrous septum.

The inferior longitudinal muscle lines the sides of the tongue, and is joined to the styloglossus muscle.

The vertical muscle is located in the middle of the tongue, and joins the superior and inferior longitudinal muscles.

The transverse muscle divides the tongue at the middle, and is attached to the [mucous membranes](#) that run along the sides.

Nerve supply

Innervation of the tongue consists of motor fibers, [special sensory](#) fibers for taste, and [general sensory](#) fibers for sensation.^[6]

- Motor supply for all intrinsic and extrinsic muscles of the tongue is supplied by [efferent motor nerve fibers](#) from the [hypoglossal nerve](#) (CN XII), with the exception of the [palatoglossus](#), which is innervated by the [vagus nerve](#) (CN X).^[6]

Innervation of taste and sensation is different for the anterior and posterior part of the tongue because they are derived from different embryological structures ([pharyngeal arch](#) 1 and pharyngeal arches 3 and 4, respectively).^[8]

- Anterior two thirds of tongue (anterior to the [vallate papillae](#)):
 - Taste: chorda tympani branch of the [facial nerve](#) (CN VII) via [special visceral afferent](#) fibers

- Sensation: lingual branch of the mandibular (V3) division of the [trigeminal nerve](#) (CN V) via [general somatic afferent](#) fibers
- Posterior one third of tongue:
 - Taste and sensation: [glossopharyngeal nerve](#) (CN IX) via a mixture of special and general visceral afferent fibers
- Base of tongue
 - Taste and sensation: internal branch of the [superior laryngeal nerve](#) (itself a branch of the [vagus nerve](#), CN X)