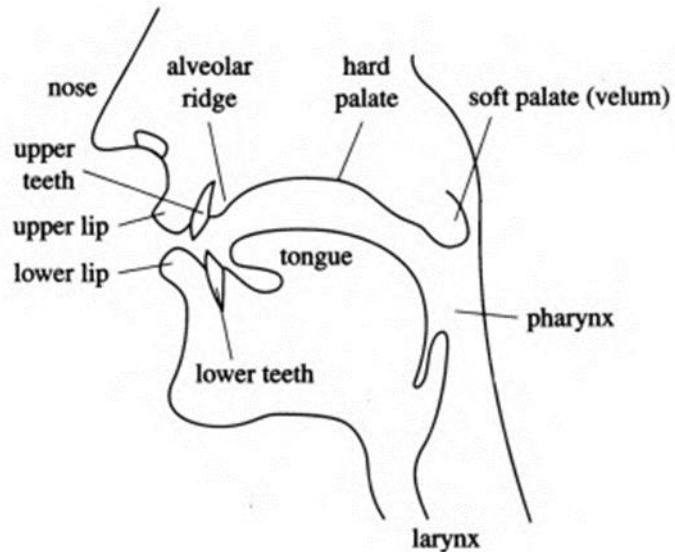


Section Two : Organs of speech



g. 1 The articulators

2.1 Articulators

Articulatory phonetics (physiological phonetics) studies the production of speech sounds. All the sounds we make when we speak are the result of the processes of muscles contracting. The muscles in the chest that we use for breathing produce the flow of air that is needed for almost all speech sounds. The muscles in the larynx produce different modifications in the flow of air from the chest to the mouth.

In order to study how the speech sounds are produced, it is necessary to study the different parts of the vocal tract. **The different parts of the vocal tract are called articulators.**

After passing through the larynx, the air goes through the vocal tract. The vocal tract ends at the mouth and the nostrils. We call the part that leads to the mouth the oral cavity and the part that leads to the nostrils the nasal cavity.

| Vocal Tract | |
|------------------------|-------------------------------------|
| Oral Cavity | Nasal Cavity |
| It leads to the mouth. | It leads to the nose. (nostrils) |

Vocal Tract

2.2 Organs of Speech

Human beings have the ability to produce speech sounds. When we speak we make use of organs situated in the respiratory tract such as the lips, the teeth, the tongue, etc. It is important for us to have an elementary knowledge of the construction of the speech organs and how they are used to produce speech sounds.

The human speech system consists of many speech organs. Most speech organs are in the chest, pharynx (throat), and head.

Organs of speech are divided into two main groups:

1-Movable Organs of Speech: the lips, the tongue, and the velum (the soft palate). They are also called active articulators.

2-Unmovable Organs of Speech: the teeth, the alveolar ridge, and the hard palate. They are also called passive articulators.

A speech sound is usually produced when a movable speech organ comes into contact with an unmovable speech organ. Examples:

1-The English sound /f/ is produced when the movable speech organ (an active articulator) the lower lip comes into contact with the unmovable speech organ (a passive articulator) the upper teeth.

2.2.1 The Lips

They are movable organs of speech (Active Articulators). They can take up various different shapes when speech sounds are produced. They are divided into the upper lip and the lower lip.

The lips can take up the following positions:

1-Closed position:

2-Spread position:

3-Neutral position:

4-Open position:

2.2.2 The Teeth

They are unmovable organs of speech (passive articulators). They are divided into two main groups: the upper teeth and the lower teeth. The upper teeth and the lower teeth function as a point of articulation for certain sounds such as /θ/, /ð/, /f/, /v/. in general, the upper teeth are used more than the lower teeth as a point of articulation (POA). The upper teeth are used in the production of certain speech sounds: /f/ and /v/ are produced when the lower lip comes into contact with the upper teeth.

2.2.3 The Tongue

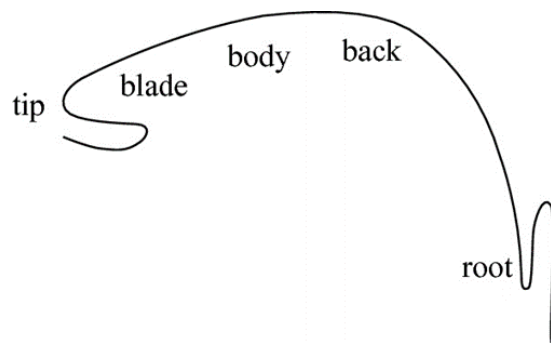
It is a major speech organ. Without the tongue, no one can speak any language. Because of its essential role in speech, one of the meanings of "tongue" is "language".

The tongue is one of the most important organs of speech in the human sound system. It is a very important articulator and it can be moved into many different places and different shapes. It is theoretically divided into different parts, though there are no clear dividing lines with its structure.

The tongue has five parts:

- 1-The tip: It is very front part of the tongue.
- 2- The front part of the tongue. (blade)
- 3-The center of the tongue.
- 4-The back part of the tongue. It is also called the "dorsum".
- 5-The root of the tongue.

(tip, front, center, back, root)



2.2.4 The hard palate

The hard palate is often called the “**roof of the mouth**”. You can feel its smooth curved surface with your tongue.

2.2.5 The soft palate

The **soft palate or velum** allows air to pass through the nose and through the mouth. The important thing about the soft palate is that it is one of the articulators that can be touched

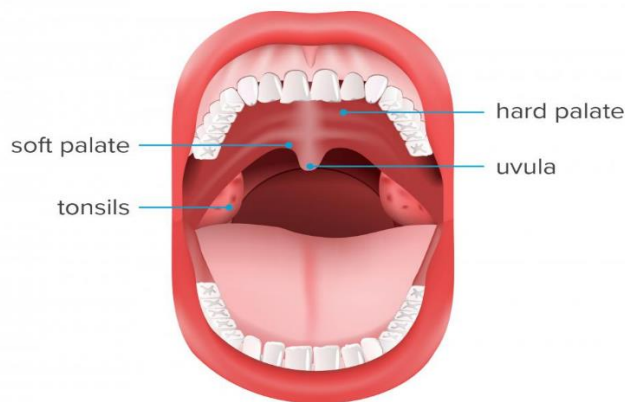
by the tongue. When we make the sounds k, g the tongue is in contact with the lower side of the soft palate, and we call these velar consonants.

2.2.6 The Alveolar ridge

It is an unmovable organ of speech which forms the part between the upper front teeth and the hard palate. The English consonant sounds /t/, /d/, /s/, /z/ are produced when the front of the tongue comes into contact with the alveolar ridge.

MEDICALNEWS TODAY

Human Mouth Anatomy



2.2.7 The Pharynx

It is a tube which begins just above the larynx. It is about 7 cm long in women and about 8 cm in men, and at its top end it is divided into two, one part being the back of the oral cavity and the other being the beginning of the way through the nasal cavity.

2.2.8 The Larynx

The larynx is a very complex and independent articulator in speech. It is an organ of speech which consists of four parts:

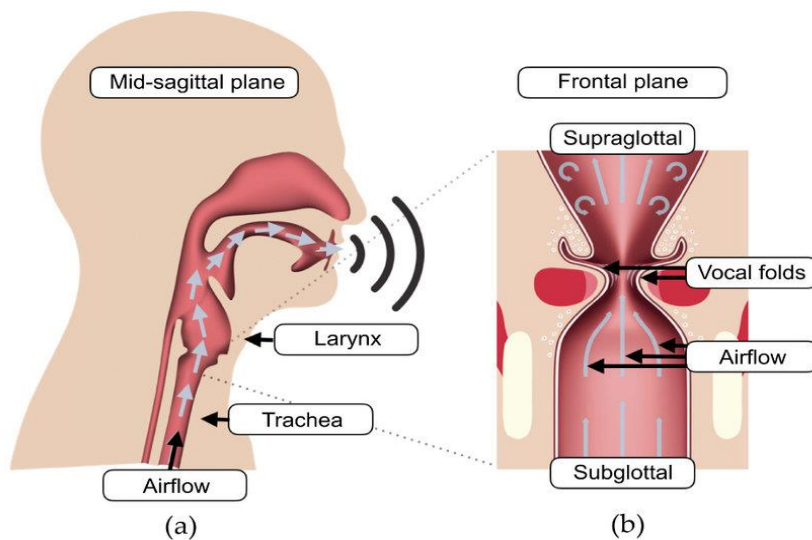
1-**the base**: (It is a circular cartilage at the bottom of the larynx.)

2-**Adam's apple**: (It is a cartilage and it forms the front part of the larynx.)

3-**the vocal cords**: (They are two cords in the middle of the larynx. They are the most essential organ in the larynx.)

4-**the glottis**: (It is the opening between the two vocal cords.)

The larynx is also called the "**voice box**".



2.2.9 The Vocal Cords

The vocal cords are two cords in the middle of the larynx. They are the most essential organ in the larynx. The man's vocal cords are longer and thicker than the woman's vocal cords. So the vibrations of the vocal cords in men are less than the vibrations of the vocal cords in women. The average vibrations of the vocal cords in men are 100 – 150 per second while the average vibrations of the vocal cords in women are 200 – 300 per second.

The vocal cords play an essential role in speech. If the vocal cords vibrate, the speech sound becomes voiced, e.g., /z/, /g/, /m/, /n/, /r/. If the vocal cords do not vibrate, the

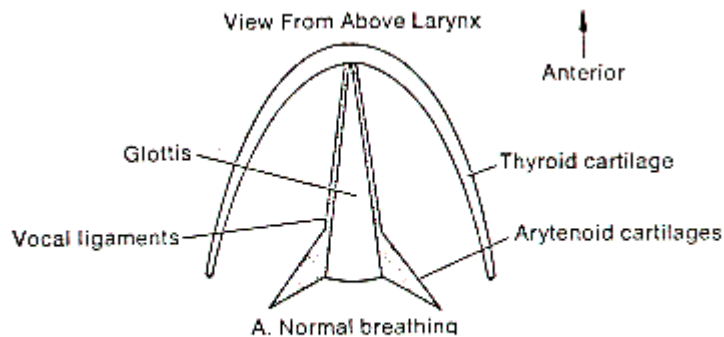
speech sound becomes voiceless, e.g., /k/, /tʃ/, /s/, /t/, /f/. this means that the vocal cords are scientifically responsible for voice and voicelessness of speech sounds.

2.2.10 The Glottis

The glottis is the opening between the vocal cords. If the speech sound is voiceless, the glottis opens. If the speech sound is voiced, the glottis opens and closes repeatedly. If the speech sound is glottal, the glottis closes completely.

Note: /h/ is the only glottal speech sound in English.

/h/ : voiceless, glottal, consonant sound.



2.2.11 The Trachea

The trachea is an air passage between the lungs and the larynx. It is also called "windpipe".