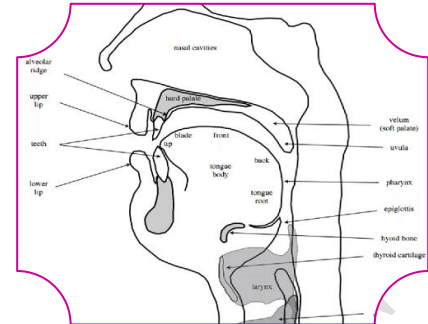




IMPORTANCE OF AIRSTREAM MECHANISM AND SPEECH ORGANS IN THE PRODUCTION OF SPEECH SOUNDS

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ABSTRACT

The paper attempts at a comprehensive study of speech organs and their role in the production of speech sounds. Humans are capable of producing numerous speech sounds but they are confined or limited to languages. Speech organs are vital in the production of speech sounds and the study of these sounds is carried out in an academic discipline called Phonetics. If the speech sounds are to function in proper way, organs need support from airstream mechanism. The airstream is inevitable for the production of speech sounds. The organs like, tongue, teeth, nose, teeth-ridge, hard palate, soft palate (velum), lips, larynx, vocal cords, trachea and lungs play a predominant role in producing speech sounds. Some organs play a direct role and a few are used passively in the speech process. All these organs collectively are responsible for the proper articulation of speech sounds.

KEYWORDS: Speech organs, airstream, vocal cords, articulation, phonetics.

INTRODUCTION :

Humans are special beings who use language as a medium of communication. It is language which makes human communication unique and different from other living species. Presently there are roughly 6,500 spoken languages in the world. In order to produce the speech sounds, organs are necessary and we can't produce a single sound without speech organs. Combined functioning of speech organs result in the speech sounds.

Phonetics is a branch of linguistics dealing with the acoustic transmission, articulation and functioning of speech sounds. It deals with how the speech sounds are pronounced and function in particular language.

AIRSTREAM MECHANISM

Airstream means current or flow of air. In the production of speech sounds airstream is necessary, without it not a single sound can be produced. Airstream can be of two types:

- i. **Ingressive or Inspiration:** The process of taking outer air into the lungs is called ingressive or inspiration. With the expansion of lungs and lung muscles the outer air is drawn into the lungs and only a few languages use this in the production of speech sounds e.g. African tribal languages.
- ii. **Egressive:** The process of throwing the lung air into the atmosphere is called egressive or expiration. Most of the languages use this air type in the production of speech sounds.

TYPES OF AIRSTREAM MECHANISM

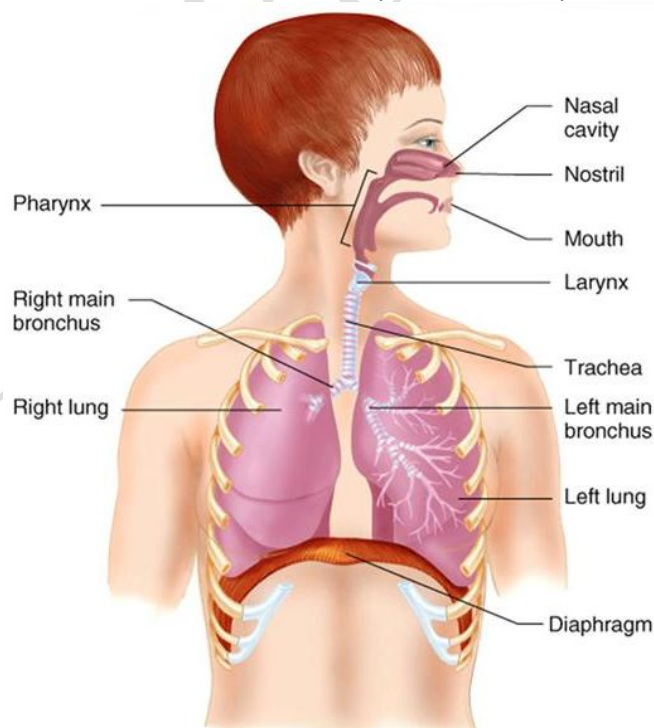
We humans have a rigid yet effective mechanism to produce an airstream. The airstream mechanism can be classified into three divisions.

- i. **Pulmonic Airstream mechanism:** Pulmonis is a Latin word meaning lungs in English. So the airstream produced with the help of lungs is called Pulmonic Airstream. This mechanism comprises lungs, muscles of the chest and trachea or wind pipe. Lungs are the spongy bodies and are not capable of independent movement. They need the help of muscles of the chest to produce an airstream. When muscles expand there is enough space in the lungs to store the outer air, is called Pulmonic ingressive. When muscles push the lungs to the chest the air passes out, is called Pulmonic egressive. Most of the languages in the world use pulmonic egressive airstream to produce speech sounds.
- ii. **Glottalic Airstream Mechanism:** Glottis is the space between the vocal cords. The airstream produced with Glottis and vocal cords is called Glottalic airstream mechanism. Sindhi language to some extent uses this airstream.
- iii. **Velaric Airstream Mechanism:** Soft palate is often called as Velum. In the velaric airstream mechanism, soft palate acts as initiator and the air in mouth is set in motion. Some African languages use this mechanism in the production of speech sounds.

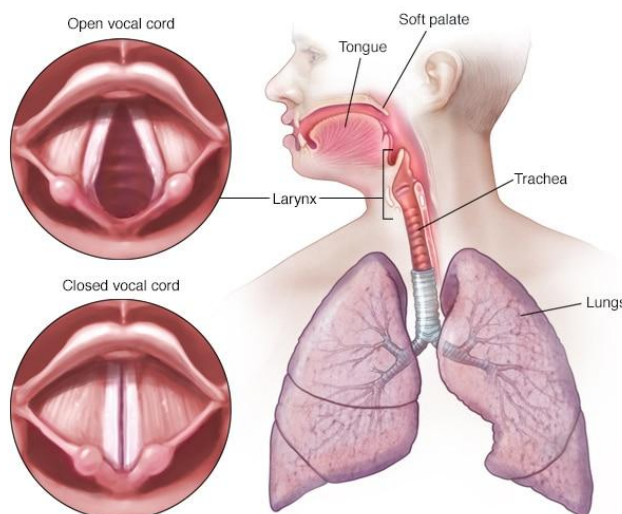
ORGANS OF SPEECH

There are various organs playing vital part in the production of speech sounds, namely tongue, teeth, nose, teeth-ridge, hard palate, soft palate, larynx and others. The organs can be classified into three broad categories. They are:

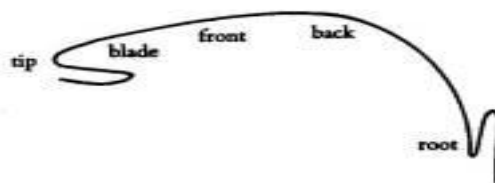
- I. **The Respiratory System:** The respiratory system consists of the lungs, muscles of the chest and windpipe or Trachea. Lungs are spongy bodies; they are made up of small sacks called Alveoli. The oxygen is supplied to these sacks through small vessels or tubes. The lungs with the help of muscles of the chest produce an airstream which is vital to the production of speech sounds.



- II. The Phonatory System:** It consists of the larynx and the vocal cords. It is also called Adam's apple. In Larynx are situated a pair of lip like structures they are called Vocal Cords. Vocal cords are attached at one end and left loose at another. The space between vocal cords is called "Glottis." The air from the lungs passes through the glottis and produces a sound which is modified into speech sounds by other organs. The human sounds are the result of vibration of the vocal cords. The frequency of vibration varies from male to female. When the vocal cords are very near the sounds are produced with radical vibration are called voiced sounds e.g. /j/, /m/, /n/, /v/, /w/, /ð/, /z/, /ʒ/, /g/, /ŋ/, /b/, /d/, /ð/, /r/ and /l/. When the vocal cords are far away sounds produced are called voiceless sounds e.g. /p/, /t/, /k/, /tʃ/, /f/, /θ/, /s/, /ʃ/ and /h/.

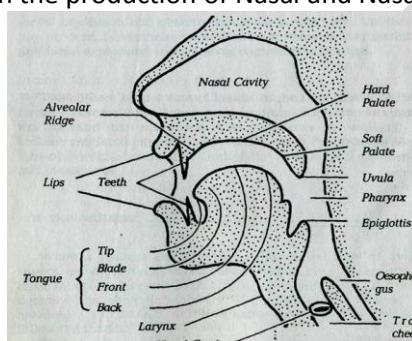


- III. The Articulatory system:** Articulatory system is the most active and dominant part of organs playing an active role in the production of speech sounds. The articulatory system has two parts: active and passive articulators.
- Active Articulators:** Organs situated in the jaw are active articulators. They are called so because they are capable of horizontal and vertical movement.



- Tongue:** It is the most flexible organ of speech and without tongue most of the sounds can't be produced. It can be divided into four types.
 - Tip of the tongue:** It is the extreme edge of the tongue which produces certain sounds with the help of teeth and teeth-ridge.
 - Blade of the tongue:** The part which lies immediately after the tip is called blade. It helps in producing speech sounds in collaboration with teeth-ridge and hard palate.
 - Front of the tongue:** It lies after blade and this is the most important part of the tongue which helps in producing numerous speech sounds in collaboration with hard palate.
 - Back of the tongue:** It is the least used part of the tongue in producing speech sounds.
- Lower lip and teeth:** They help in producing speech sounds along with the upper lip and upper teeth such as bilabial, labio-dental and dental sounds.

- ii. **Passive Articulators:** As the name suggests these organs play a passive role in the articulation of speech sounds. Passive articulators are upper lip, upper teeth, teeth-ridge, hard palate, soft palate and uvula. These organs are fixed in their place and can't produce sounds independently.
- A. **Teeth-ridge:** It is also known as Alveolar-ridge or Alveolum. It is hard and bony part associated with the teeth. It helps in the production of speech sounds along with tip and blade of the tongue. Alveolar and Post Alveolar sounds are produced with this.
- B. **Hard palate:** The part which lies immediately after teeth-ridge. As the name suggests it is convex and hard. It is situated in the mid part of the roof of the mouth. Along with blade and front of the tongue it plays an important role in the production of speech sounds. Palato-Alveolar and Palatal sounds are produced with the help of hard palate.
- C. **Soft Palate:** It lies after the hard palate. As the name suggests it is soft and fleshy and in the production of Velar sounds it is vital.
- D. **Uvula:** It is the extreme end of the roof of mouth and plays predominant role in producing Oral and Nasal sounds by acting as a valve to the nasal cavity.
- E. **Nose:** It doesn't play direct role but in the production of Nasal and Nasalized sounds it is inevitable.



CONCLUSION

Thus, the production of speech sounds requires the symmetry and combined use of all the organs of speech, then only the speech sounds in a language can be produced to form a meaning or to make a language meaningful. So all the organs are important to produce speech sounds in order to form a language and make it usable and comprehensive. Though there are linguistic differences yet one has to use organs of speech to make a language intelligible. The importance of airstream mechanism and speech organs in the production of speech sounds is inevitable and vital.

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