Chapter 2
Speech Organs

- Speech organs are not created solely (only) for speech; they have other function as well. The nose and the mouth, for example are breath passages, the teeth and the tongue for chewing

- Most of Speech organs are in the Chest, throat and head.

Speech organs are those organs that take part in the speech act or speech process whether directly or indirectly.

- **Some organs are articulator such as (Lower Lip and five part of tongue):**

  1. **Lower Lip**
     - Moves upward to touch the upper lip as in /b, p/
     - or touch the upper teeth as in /f, v/
     - takes part in rounding process with the upper lip as in /w/.

  2. **The Tongue**
     - a. It located directly above the pharynx
     - b. It is a major speech organ.
     - c. One of the meaning of "tongue" is Language
     - d. The Tongue have five part:

       1. **Apex**
          - It's also called "Tongue tip.
          - It touches the alveolus as in /t/
          - Come between the upper and lower teeth as in /θ/ think
          - Curves back as in the American /r/

       2. **Front**
          - It is the part of the tongue between the apex and the middle of the tongue.
          - It touches or approaches the parallel part of the palate when producing some sound like /y/.

       3. **Center**
          - Between the front of the tongue and the dorsum

       4. **Dorsum**
          - Back of the tongue.
          - It usually touches or approaches the back part of the palate, i.e. the velum as with /k, g/.

       5. **Root**
          - The farthest part of the tongue.
          - It has a role in producing pharyngeal sound like /9/ in Arabic but it has no role in English.
Some organs are **Point of Articulator** such as (the Upper lip, upper teeth, lower teeth, alveolus, alveopalate, hard palate, velum and velum):

3- Upper Lip

4- Upper Teeth
   - The upper teeth are used more than the lower teeth as a point of articulation (POA)

5- Lower Teeth
   - The lower teeth co-operate with the upper teeth to make a point of articulation for sound called **interdentals** such as /θ, ð/ when the apex comes between the two sets of teeth.

6- The Alveolus (gum ridge) جسر اللثة
   - It is the area easily touched by the apex to produce several sound called **alveolar** such as /n, l, s, z/.
   - It also called the gum ridge or the alveolar ridge.

7- The Alveopalate
   - The front of the tongue may touch or approach this alveopalatal area to produce sound like /c̪, j̪, s̪, z̪/ which called alveopalatals.

8- The Palate سقف الحنك
   - It consist of three parts
     1- **Hard Palate (called the Roof of the mouth)**. It touched or approached by the front of the tongue to produce sound called palatals such as /ʢ, y/ as in yes.
     2- **Soft Palate or Velum**: It touched or approached by the dorsum to produce sound calls velars /k, g, ʣ/
     3- **Uvula** if touched the dorsum ظهر اللسان to produce sound called uvular such as Arabic /q/.

Some organs are **breath-stream (passages)** such as (trachea, larynx, pharynx mouth and nose):

9 - The Trachea القصبة الهوائية
   - It is an air passage between the lungs and the larynx.
   - It also called "Windpipe"

10- The larynx الحنكورة
    - At the top end of the trachea.
    - It also called the Voice Box.
    - It consists of four parts:
      b. The Base
      c. Adam's Apples نفافة أدم
      d. Vocal Cords (Most essential organ in the Larynx)
      e. The Glottis

**Vocal Cords** الأوتار الصوتية
    a) Man's cords are longer and thicker than the woman's.
    b) Responsible for voice and voicelessness of speech sound.
    c) If the vocal cords vibrate, the sound is **Voiced**
    d) If the vocal cords not vibrate, the sound is **Voiceless**
• **The Glottis** المزمار – فتحة أعلى الحنجرة
  
a) The glottis may have one of these positions:
  1- Opening with voiceless sound e.g., /p/.
  2- Narrowing, with whispered همصة sound.
  3- Repeated opening and closing with voiced sound e.g. /b/.
  4- Closing, with glottal sound, e.g., the Arabic hamza ء.

11- **The Pharynx** البلعوم or (Throat)
  
  - Is a cavity between the larynx and the mouth.
  - It is one of the resonance cavities.

13- **The Cavities**
There are four cavities or chambers related to the speech process:
  1. The lung Cavity.
  2. Pharyngeal Cavity.
  3. Oral Cavity.
  4. Nasal Cavity

  ❖ **Some organs is energy source**

14- **The Lungs** الرئتين
  
  - The Lungs are the source of energy, without which no speech can occur.

  ❖ **Some organs are merely auxiliary organs (the abdomen, diaphragm and chest muscles)**

15- **Abdominal Muscles** عضلات البطن
  
  - Speech is essentially dependent on the inhalation شهيق and exhalation زفير.
  - It is located below the Diaphragm.

16- **The Diaphragm** الحاجز الحاجز
  
  - The (most) speech usually happens during exhalation الزفير.
  - Above the abdomen, and between it and the chest.

17- **Chest Muscles** عضلات الصدر
  
  - There is no speech without exhalation, the longer exhalation is, the longer speech continues.

  ❖ **Classification of Speech Organs**
  
  1. **Articulator**
     ➔ It is a movable speech organ; it moves to touch or approach another static organ
     ➔ The Articulator are the tongue and the lower lip.
  2. **Point Of Articulation (POA)**
     ➔ It is an immovable organ whose function is to receive the articulator such as (the upper lip, upper teeth, lower teeth, alveolus, alveopalate, hard palate, velum and uvula).
  3. **Stream source** مصدر التدقق is the lung
     ➔ also lungs can be called energy source.
  4- **Vibrator** محضّت الانهارات
     ➔ The only vibrator in the speech system is the vocal cords.
  5- **Auxiliary Organ** أعضاء مساعدة do not directly take part in speech
     ➔ Such as (abdominal muscles, diaphragm and chest muscles)
     ➔ Nose, mouth and pharynx have double or multiple functions a passage and resonator.
Figure 2–3: Organs of Speech