

ARTS AND COMMERCE COLLEGE, ASHTA



CLASS : B.A. III

SUBJECT

**THE STRUCTURE AND FUNCTION OF MODERN
ENGLISH**

A Presentation by

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Speech Mechanism

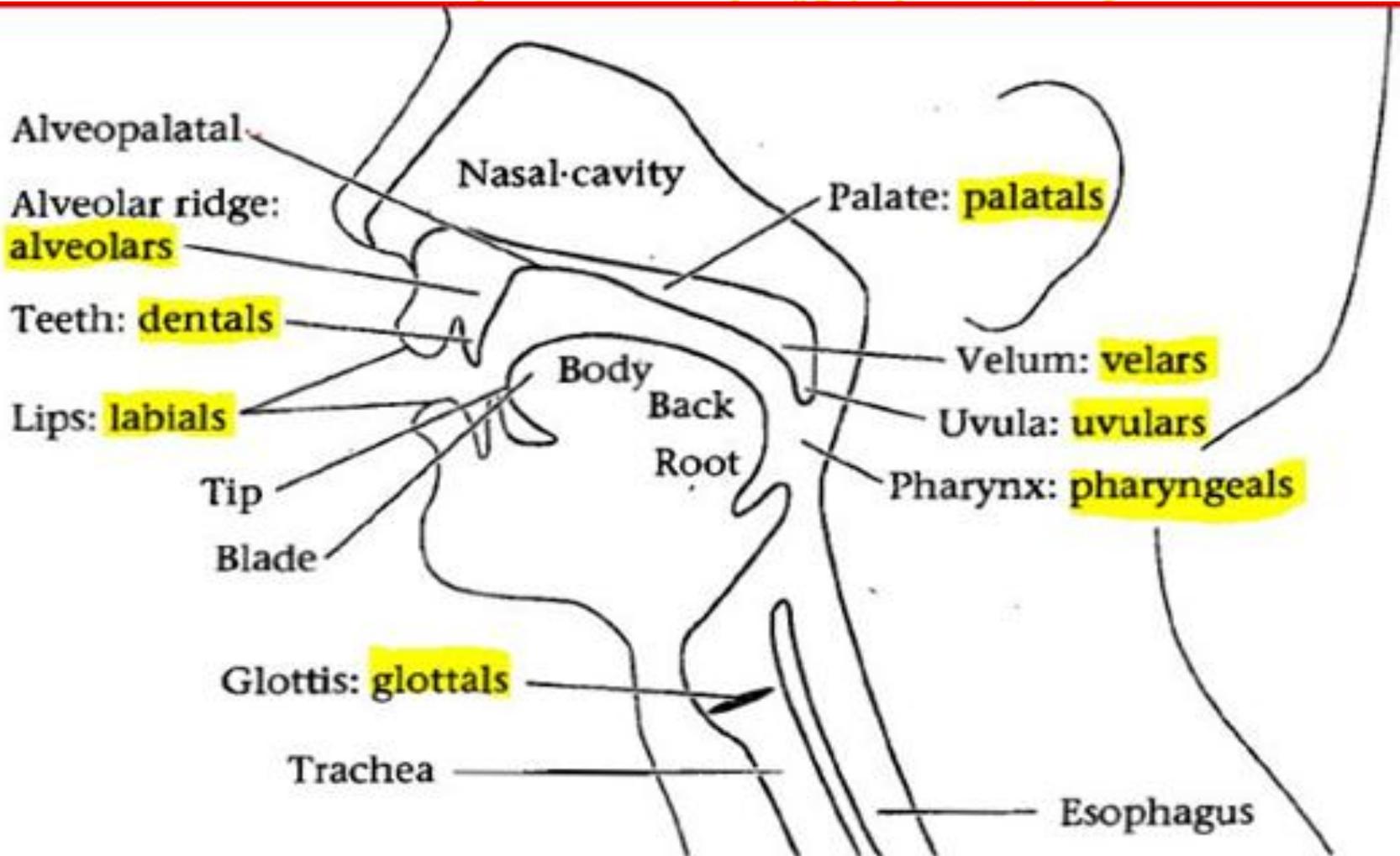


Figure 2.3 The vocal tract

The Speech Mechanism



⌘ Speech is an overlaid function

☑ there are no organs whose primary function is to produce speech

⌘ Articulators - parts of the speech mechanism that serve to produce different configurations which make up different sounds

Four Parts of the Speech Mechanism



⌘ Oral Cavity

⌘ Nasal Cavity

⌘ Pharynx

⌘ Larynx

Oral Cavity (oro/oral)

⌘ Lips (labio/labial) - bounded by the cheeks, chin, and nose

⊞ orbicularis oris - “lip muscle” that can contract to round, protrude, or spread the lips to make various speech sounds

⊞ philtrum - grooved indentation in the center of the upper lip

⊞ vermilion - adaptation of the mucous membrane that lines the mouth; reddish color

⊞ sounds produced at lips

⊞ bilabial /p, b, m, w/

⊞ labio-dental /f, v/

Oral Cavity (con't)

- ⌘ Teeth (dento/dental)- important for sounds involving “lip & teeth” and “tongue & teeth”
 - ⊞ labio-dental sounds /f, v/ (“lip + teeth”)
 - ⊞ lingua-dental sounds /, / (“tongue + teeth”)
 - ⊞ Dental occlusion - how the teeth fit together when you bite down
 - ⊞ abnormal bite is a “malocclusion”
 - ⊞ neutroocclusion (normal jaw relationship)
 - ⊞ distocclusion (retruded mandible)
 - ⊞ mesiocclusion (protruded mandible)

Oral Cavity (con't)



⌘ Alveolar ridge (alveolo/alveolar) - gum ridge

☒ sounds made at alveolar ridge -

☒ /t, d, l, n, s, z/

Oral Cavity (con't)

⌘ Hard palate (palato/palatal) - anterior roof of mouth

☒ bone covered with membrane

☒ sounds made at hard palate

☒ /tʃ, dʒ, j, ʃ, ʒ/

Oral Cavity (con't)

⌘ Velum (velo/velar) - soft palate

- ☑ movable fold of mucuous membrane that is continous with hard palate
- ☑ divides oral cavity from nasal for non-nasal sounds --> is LOWERED for nasal sounds
- ☑ sounds made at velum - /k, g, ʔ/
- ☑ uvula - “little grape”
 - ☒ serves little function in humans

Oral Cavity (con't)

- ⌘ Tongue (lingua/lingual) - most important of the articulators
 - ☑ muscular organ capable of intrinsic (finer shapes) and extrinsic movements (responsible for up/down; backward/forward)
 - ☑ divided into parts:
 - ☑ tip
 - ☑ front or blade - beneath alveolar ridge
 - ☑ middle - beneath hard palate
 - ☑ back - beneath velum
 - ☑ root - most posterior part of tongue

Oral Cavity (con't)



⌘ Mandible (mandibulo/mandibular) - lower jaw

☑ regulates the size of opening beneath teeth

☑ tongue is connected to mandible by the *lingual frenum* which attaches tip and blade of tongue to floor of mouth

Oral Cavity (con't)



⌘ Facial muscles - important in controlling cheeks and size of mouth

☑ aids in building intra-oral breath pressure

Nasal Cavity (naso/nasal)

- ⌘ Extends from the nostrils (nares) to pharynx (throat)
- ⌘ important in resonance by opening or closing of velopharyngeal port
 - ☑ velopharyngeal valve or port is formed by the soft palate making contact with the pharyngeal wall
 - ☑ must be closed for vowels and non-nasal consonants

Pharynx (pharyngo/pharyngeal)



⌘ Throat

⌘ extends from the posterior portion of the nasal cavity downward through the back of the oral cavity to the larynx

⌘ pharynx is a vertical tube with 3 parts

Pharynx (con't)

- ⌘ Nasopharynx - continuation of the nasal cavity
 - ☑ uppermost part of pharynx; directly behind nasal cavity
 - ☑ nasopharynx can be closed off from the oropharynx where they join at the velopharyngeal port
- ⌘ Oropharynx - continuation of the oral cavity
 - ☑ opens to mouth
 - ☑ very versatile in assuming a variety of configurations
- ⌘ Laryngopharynx - area just above larynx
 - ☑ vibrating mechanism that houses the vocal folds
 - ☑ sits on top of trachea

Larynx



⌘ Two purposes of larynx

- ⊞ Prevent food from going into trachea

 - ⊞ epiglottis -- leaf-like cartilage below root of tongue and at junction of oropharynx and laryngopharynx

 - ⊞ covers glottis during eating and drinking to prevent food and liquids from going into lungs

- ⊞ Create a constriction in vocal tract which produces a sound source for communication

Anatomy of Larynx



⌘ cricoid cartilage - bottom ring of larynx that sits on top of trachea

☑ looks like a signet ring

⌘ arytenoid cartilages - mobile, paired, pyramid-shaped cartilages that sit on top of cricoid cartilage

☑ they attach to the vocal folds so that movement of the arytenoid cartilages moves the vocal folds

Anatomy of Larynx (con't)

- ⌘ thyroid cartilage - largest structure of larynx
 - ☑ shield-shaped cartilage that protects vocal folds
 - ☑ referred to as "Adam's apple"
- ⌘ hyoid bone - only bone in body not connected to other bones
 - ☑ attached to muscles and ligaments involved in swallowing and phonation
 - ☑ is a horse-shoe or "U"-shaped bone just above thyroid cartilage

Anatomy of Larynx (con't)

⌘ Vocal folds - mucous membranes that attach separately to the arytenoid cartilages in back of larynx and come together in front at angle of thyroid cartilage

⌘ Positions of vocal folds

☒ open (abducted) - for normal inhalation/
exhalation

☒ closed (adducted) - for phonation

Anatomy of Larynx (con't)

⌘ Glottis -- opening in the vocal folds

☑ two sounds produced at level of glottis /h, /

⌘ vocal folds vibrate to produce voicing

⌘ middle of vocal folds vibrate to produce voicing