

Speech Science / COMD 6305/ EXAM 2 Review

Chapter 4 -Phonatory system

Concepts

- A. Laryngeal function
 - Laryngeal skeleton
 - Cartilages
 - Vocal folds (*including composition*)
 - Gender differences
 - Valsalva mechanism
 - Joints & muscles of the larynx
 - Intrinsic & extrinsic
 - Abductors & adductors
- B. Myoelastic-aerodynamic theory of phonation
 - Bernoulli effect
 - Vocal fold vibration
 - Air pressures needed for speech
- C. Acoustic characteristics of phonation
 - Glottal spectrum
 - Harmonic spacing & roll-off rate
- D. Acoustic bases of voice analyses
 - Jitter & shimmer
 - Harmonics-to-noise ratio
- E. Vocal quality
 - Normal & abnormal/dysphonia
 - Vocal registers
- F. Normative phonatory variables
 - Fundamental frequency & variability
 - Voice amplitude/intensity & variabilities (*including voice range profile*)

Terminology

Amplitude perturbation	Cricoid cartilage	Glottis
Anterior commissure	Cricothyroid muscle	Harmonic spacing
Aryepiglottic folds	Cricothyroid joints	Harmonics-to-noise ratio
Arytenoid cartilages	Cuneiform cartilages	Hoarse voice
Average amplitude	Duty cycle	Hyoid bone
Average F_0	Dysphonia	Hyperadduction
Bernoulli principle	Epiglottis	Hypoadduction
Breathy voice	Falsetto	Infrahyoid muscles
Corniculate cartilages	False vocal folds	Interarytenoid muscle
Cover body model	Frequency perturbation	Jitter
Cricoarytenoid joints	Glottal spectrum	Lamina propria

Lateral cricoarytenoid muscle	Muscular process	Shimmer
Longitudinal phase difference	Myoelastic-aerodynamic theory of phonation	Suprahyoid muscles
Maximum phonational frequency range	Phonational threshold pressure	Thyroarytenoid muscle
Medial compression	Posterior cricoarytenoid muscle	Thyroid cartilage
Modal register	Pulse register	True vocal folds
Mucosal wave	Rough voice	Vertical phase difference
		Vocal register
		Vocal process
		Voice quality

Chapter 5 - Phonatory system – clinical applications

Concepts

- A. Measuring and observing vocal function
 - Electroglottography (*including quotients*)
 - Endoscopy & videostroboscopy
- B. Acoustic changes through the lifespan (*note – text covers this material in Chapter 4, but PPT slides for this topic are included in Chapter 5 series*)
- C. Neurological disorders that affect voice quality
 - Amyotrophic lateral sclerosis (ALS) & multiple sclerosis (MS)
 - Parkinson’s disease
 - Vocal fold paralysis/paresis
 - Spasmodic dysphonia & botox injections
- D. Benign conditions of the vocal folds
 - Nodules, polyps & contact granuloma
 - Gastroesophageal reflux disease (GERD)
 - Stuttering
 - Scar tissue
 - Intubation
- E. Jitter, shimmer involvement in stuttering & lie detection
- F. Laryngeal cancer & scar tissue

Terminology

Amyotrophic lateral sclerosis (ALS)	Dyspnea	Paresis
Botox injection	Electroglottography	Paradoxical vocal fold motion
Closed-to-open ratio (C/O ratio)	Endoscopy	Spasmodic dysphonia
Closed quotient (CQ)	Gastroesophageal reflux disease (GERD)	Speed quotient (SQ)
Contact index (CI)	Laryngectomy	Stridor
Diphlophonia	Laryngospasms	Videostroboscopy
Dopamine	Lx wave	Videokymography
	Open quotient (OQ)	

Chapter 6 - Articulatory system

Concepts

- A. Components of an oral periphery exam
 - Functional divisions of the tongue
 - Tonsils – palatine, lingual, adenoids
- B. Types of malocclusion
- C. Most important properties of the:
- D. Facial muscles/ tongue muscles/ pharyngeal muscles
- E. Endoscopy – normal versus cleft lip and palate
- F. Acoustic phonetics
 - main cues for vowels
 - vowel formants and formant frequency transitions
 - cues for fricatives
- G. Coarticulation
- H. Basics of spectrograms
 - What do the different phonetic segments “look like”?
 - What are on the axes?
 - How much speech is typically contained in a spectrogram?
- I. VOT – long lag, short lag, pre-voicing

Terminology

Affricates	Hypernasality/Hyponasality	Oropharynx
Alveolar ridge	Identification task	Palatoglossus muscle
Anticipatory coarticulation	Intonation	Palatopharyngeus muscle
Antiformants	Intrinsic tongue muscles	Place of articulation
Aspiration	Laryngeal valve	Quarter-wave resonator
Coarticulation – anticipatory, perseverative	Laryngopharynx	Release burst
Breath groups	Levator veli palatine muscle	Rhotic
Coarticulation	Liquids	Scaling procedure
Diphthong	Malocclusion	Silent gap
Extrinsic tongue muscles	Manner of articulation	Sonorants
F1/F2 plots	Mesioocclusion	Source-filter theory
Formants	Muscular hydrostat	Spectrograph
Formant transitions	Nasals	Stops
Frication	Nasal formant	Stridents (sibilants)\
Fricatives	Nasopharynx	Stress
Glides	Occlusion	Suprasegmentals
	Orbicularis oris muscle	Tensor veli palatine muscle

Variable resonator	Vocal tract	Vowel quadrilateral
Velum	Voice bar	Vowel reduction
Velopharyngeal closure	Voice onset time	Vowel space
Velopharyngeal passage	Voicing	
White noise		

Chapter 7 - Articulatory system – clinical application

Concepts

- A. The ‘dinosaurs’ of kinematics
 - cineradiography, strain gauge, x-ray microbeam
- B. Modern techniques
 - Ultrasound
 - EPG and glossometry
 - MRI and fMRI
 - EMA
- C. Speech in special populations
 - Dysarthria,
 - AOS (Apraxia of speech)
 - HI (Hearing impairment)
 - child phonological/ articulation disorders
 - cleft palate
 - ALS
 - Tracheotomy
 - PD (Parkinson’s disease)

Terminology

accelerated speech	cleft palate	
ALS	cochlear implants	Strain gauge
AOS (Apraxia of speech)	dysarthria	Tracheotomy
articulatory undershoot	EMA	Ultrasound
child phonological/ articulation disorders	glossometry	x-ray microbeam
cineradiography		