The Aerodynamics of Phonation and Running Speech

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5.45 pm - 6.45pm
Room 750 Meng Wah Complex, HKU
(Chair: Dr Estella Ma)

Abstract:
This presentation will compare the results two retrospective studies of mean airflow in sustained phonation and estimated subglottal pressure (est-Psub) in 90 patients with primary MTD (Gillespie et al., 2013) and in 192 patients with a spectrum of voice disorders (Gilman et al., in submission) with a prospective study of connected speech of 40 patients seen for voice evaluation at a laryngology clinic (Gilman et al, in process).

Gillespie et al. identified a wide range of mean airflow during sustained phonation. In addition, Gillespie identified 5 subgroups or aerodynamic profiles when comparing mean airflow during sustained phonation and est-Psub. Among the subgroups was a group with low mean airflow but normal est-Psub. Gilman et al. (in submission) replicated the Gillespie study in a large retrospective study of all patients seen for voice evaluation over a 2 yr. period. Results were similar in both the ranges of mean airflow (from as low as 0.01 lit/sec up to 0.08 lit/sec) as well as the subgroups or aerodynamic profiles of the subjects. An additional finding showed no significant impact of diagnosis on airflow patterns.

The question then arises whether mean airflow in sustained phonation is different from that in running speech. In the prospective study, mean airflow rates during sustained phonation were compared with mean airflow during connected speech. In additional, the number and inspiratory volume of breath pauses was also assessed for patterns of breath holding. Results indicated statistical significance between measures of sustained phonation and airflow during voicing in connected speech (p=0.021). However in both cases the ranges of airflow were similar. These ranges were similar to those norms published by Zraick et al. (2012). Results suggest that respiratory phonatory patterns may reflect habituated patterns across all populations rather than patterns unique to the disordered voice population.

About the speaker:
Marina Gilman holds both a Masters in Music and Communication Disorders as well as Guild Certification as a Feldenkrais® Practitioner. She has taught voice at Cornell and Syracuse Universities, and the Theater School at DePaul University Chicago. She worked as a licensed speech pathologist at major medical voice centers in Chicago and is currently part of the interdisciplinary team at the Emory Voice Center in Atlanta Georgia. She has published on the relationship between body posture and voice. Her current research investigates the aerodynamic properties of voicing. She is the author of Body and Voice: Somatic Re-education, Plural Publishing.

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