Gating of Laryngeal Somatosensory Detection During Active Phonation

M. Hammer, T. Abrams, J. Tessner

The human larynx participates in a remarkable number of human behaviors, including respiration, airway protection, deglutition, and spoken communication. However, little is known about the role of the somatosensory apparatus of the larynx, and how that role varies by task. In particular, why do the protective functions of the larynx behave vigilantly in response to a somatosensory stimulus during respiration, yet when similar somatosensory stimuli are present during other tasks such as voicing and spoken communication, these intrinsic stimuli go largely unnoticed by the speaker? We examined laryngeal somatosensory detection thresholds in healthy adults during restful breathing and again during a steady-state voice task. We found that thresholds were significantly higher during the voice task compared with restful breathing. These findings suggest that the laryngeal somatosensorium may utilize sensory gating to attenuate the influence of somatosensory input during voice and spoken communication, in favor of fluent voice production.