

Influence of voice focus on oral-nasal balance in speakers of Brazilian Portuguese

Background & Purpose – Oral-nasal balance in speech is difficult to influence in the therapy of hypernasal speakers because the velopharyngeal mechanism does not offer proprioceptive feedback. The present study investigated whether voice focus can be used to change oral-nasal balance. In a pilot study with English speakers, it was found that a forward voice focus raised and a backward voice focus lowered nasalance scores (de Boer & Bressmann, in press). However, the effects were small because the stimuli were not phonetically balanced. The present study revisited the question in speakers of Brazilian Portuguese, a language that features phonological vowel nasalization.

Method/Description – Data were collected from 10 normal speakers of Brazilian Portuguese. Participants wore a Nasometer 6400 headset and rested their chin on an ultrasound probe. The Nasometer provided scores for nasalance (an acoustic measure of oral-nasal balance), and the ultrasound transducer monitored the position of the tongue during each of the speaking conditions. The participants read oral (non-nasal), balanced oral-nasal and nasal loaded sentences in their normal voice, and with a backward focus and a forward focus.

Results – A Repeated Measures ANOVA of the nasalance scores from the participants demonstrated a significant main effect of speaking condition [$F(2,18) = 12.87, p < .001$]. The mean nasalance scores across the stimuli in the backward, forward and normal speaking conditions were 36.85 (16.85), 45.38 (18.90) and 40.18 (18.02) respectively. There was also a significant effect of speech stimulus [$F(7,63) = 240.29, p < .001$]. Across the speaking conditions, the nasalance scores for nasal stimuli were higher than the balanced stimuli, which in turn were higher than for the oral stimuli.

Conclusion – The results support the notion that speaking focus can influence oral-nasal balance. In future research, it should be investigated whether this could be a helpful avenue of behavioural treatment for the remediation of hypernasality in speakers with cleft palate and other disorders.