

Tongue- and Jaw-Specific Displacement Changes in Response to Slow, Loud, and Clear Speech and their Acoustic Consequences in Talkers with Parkinson's Disease

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The dysarthria associated with Parkinson's disease (PD) is characterized by reduced acoustic vowel contrast. Abnormally small articulatory displacements have been shown to account for the reduced vowel contrast in these talkers. Although it is unknown if all articulators are equally affected or if an articulator is disproportionately more affected by the disease, it has been speculated that the jaw contributes the most to the reduced acoustic vowel contrast in PD. Slow, loud, and clear speech are speech behavioral approaches commonly used in speech treatments. All three approaches have been shown to elicit increased vowel acoustic contrast in these talkers. However, articulator-specific mechanisms underlying these increases in vowel acoustic contrast are currently poorly understood.

The current study sought to determine 1) the effects of slow, loud, and clear speech on tongue and jaw displacements in talkers with PD, and 2) tongue- and jaw-specific contributions to dysarthria-related loss and modification-specific gains in vowel acoustic contrast. Findings may inform clinical decisions on selection of specific speech modifications for therapeutic interventions. That is, clinicians may select the behavioral approach that can, in addition to changes across subsystems, specifically target the articulator that contributes the most to speech acoustic changes [funded by grant R03DC015075 NIDCD].