

Typical young adults exhibit relatively independent movement of non-adjacent tongue regions such as the tip and dorsum during speech production. Such independence, indexed by a strong negative correlation of non-adjacent tongue region movements, allows for adequate phonetic distinctiveness during speech production. Therefore, the degree of negative intralingual coupling is an important metric of speech motor performance that is particularly relevant to our understanding of the articulatory mechanisms that underlie reduced speech precision and intelligibility loss in dysarthria. The aim of the current study was to examine if intralingual coupling is altered in Parkinson's disease (PD) and whether intralingual coupling varies with phonetic complexity demands in PD. 3D electromagnetic articulography was used to track tongue tip (TT) and tongue dorsum (TD) movements of 15 people with PD and 15 healthy controls, during 10 target words representing either low or high phonetic complexity levels. Phonetic complexity was calculated using the Kent (1992) framework. Intralingual coupling was estimated from a covariance index comprising the average pairwise correlation and standard deviations of TT and TD movements for each word. Preliminary results from 16 participants show highly coupled intralingual movements for high complexity words in controls. By contrast, in PD, regardless of phonetic complexity, weak intralingual coupling was observed, potentially driven by restricted movement of one or both tongue regions. The study findings will help advance our understanding of the articulatory mechanisms contributing to speech imprecision in PD and will allow us to meet translational needs aimed at developing more sensitive speech assessments for dysarthria.