

Speech Movements and Intelligibility in Parkinson Disease
E. Kearney, R. Giles, M. Haworth, P. Faloutsos, M. Baljko, Y. Yunusova

Parkinson's disease (PD) is a progressive neurodegenerative disease that affects speech movement. As the disease progresses, up to 45% of individuals develop impaired articulation leading to overall reduced intelligibility. The association between changes in speech movements and intelligibility loss, however, is not well studied and understood. The majority of studies to date have examined speech movement at the segmental level, demonstrating reduced amplitude and velocity in the jaw, lip, and tongue articulators. The effects of PD on speech movements at a global level (e.g. in sentences and paragraphs) that can be directly related to intelligibility of these speech units have not been studied. The effect of speech movement changes on intelligibility between different speaking conditions is examined in PD and healthy older adults (HA). Preliminary analysis of passage data did not reveal significant differences in articulatory working space (AWS) between groups in the normal condition. Both groups increased AWS and intelligibility across speaking conditions. Greater variability exists, however in the PD data. Analyses of potential explanatory variable of such variability (e.g., sex, vocal tract size, intelligibility) are ongoing. This study will contribute to the understanding of the articulatory breakdown of speech in PD and its relationship with intelligibility.