

Title: The impact of Levodopa-induced dyskinesias on acoustic speech measures in Parkinson's disease

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This retrospective study aimed to systematically investigate the effects of Levodopa-induced dyskinesias (LID) on the speech characteristics of individuals with Parkinson's disease (PD). Eight acoustic speech measures derived from three speech tasks were selected to comprehensively examine the changes in speech acoustics associated with LID. The speech tasks were completed by twenty subjects with PD, ten during the "off" medication state without dyskinesia, and ten during the "on" medication state with documented and clinically observable dyskinesia. Data analysis revealed that three acoustic speech measures, all in the frequency domain; standard deviation of fundamental frequency (F0 SD) derived from sustained vowel, and both F0 SD and pitch range in semitones (ST) derived from running speech, demonstrated sensitivity to changes associated with LID. This investigation provides the pilot data for future studies working towards a means of remotely monitoring motor fluctuations in individuals with PD using acoustic speech samples.