

# Free Paper Submission

**Title:**

## **ACOUSTIC & AERODYNAMIC PROFILES OF PARKINSON'S DISEASE: THE INFLUENCE OF PATIENT-SPECIFIC FACTORS**

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**Abstract:**

The progression of PD has major impacts on articulation, voice, and swallowing abilities. Nearly 90% of individuals with PD will present with difficulties in speech and voice as the disease progresses over time. The key characteristics of PD speech and voice are monopitch (lack of pitch variation in utterances), monoloudness (lack of variability in speech volume), reduced word stress, imprecise articulation (e.g. errors in vowel and consonant production), breathy voice quality, and reduced loudness. Collectively, these deficits result in reduced speech intelligibility, which leads to loss of communicative function and decreased quality of life. While these key features are well known, the reality is the pattern of progression and severity level of these impairments varies widely across patients with PD. Our research has focused on the association between patient-specific factors, including motor phenotype (tremor dominant vs. non-tremor dominant), time-post onset, and age of diagnosis with the severity of voice and speech function in speakers with PD. The overarching goal of this research is determine which factors are most associated with, and might predict, different patterns of progression affecting voice and speech function so that preventative and restorative treatments can be applied to patients based on their individual clinical profile.

This presentation will report data from a recent investigation studying acoustic and aerodynamic measurements obtained from speakers diagnosed with PD. 30 participants were recorded using standard clinical acoustic and aerodynamic protocols. The participants were assigned to groups based on patient-specific factors including (a) tremor dominant and non-tremor dominant motor phenotype, (b) diagnosis prior to age 65 and after age 65; and (c) time post-onset within 5 years and later than 5 years. The results revealed significantly different levels of abnormality in acoustic and aerodynamic variables as a function of patient-specific factors. In addition, time post-onset and motor phenotype were highly correlated to specific acoustic and aerodynamic variables. The presentation will attempt explain the rationale for these findings and discuss the potential implications of the study results on treatment decisions for voice impairment in speakers with PD.