Autonomic Correlates of Speech Function in Parkinson's Disease

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Rationale & Purpose

A growing body of evidence suggests that disease-related dysfunction of the autonomic nervous system (ANS) may be an important factor in the motor speech disorder and overall communication impairment associated with Parkinson's disease (PD). Further, it has been postulated that improved ANS function is a key factor in improvements in speech production following intensive speech treatment. However, empirical studies of the relationship between ANS function and speech motor performance are lacking. Therefore, the primary purpose of this project is to elucidate the relationship between ANS function and objective measures of speech motor performance in individuals with PD.

Methods

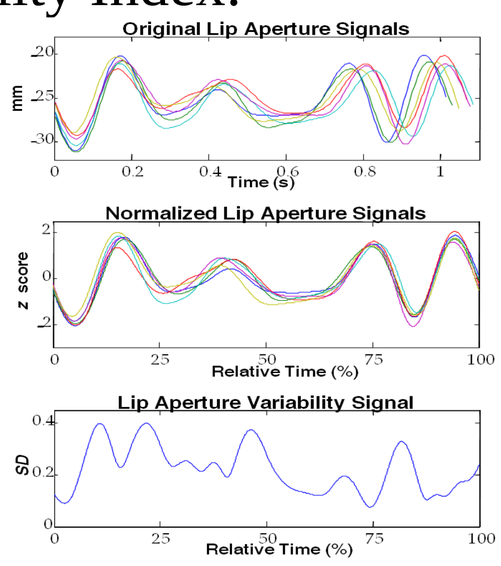
Speech Motor Equipment

Optotrak Certus System

3D movements of the lips and jaw are recorded during speech production.

Select Measures

- Lip Aperture Variability Index: Variability in lip and jaw coordination to control oral opening over repeated productions (↑ = ↓ motor stability)
- Dynamic Range



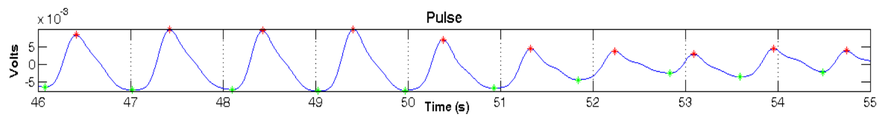
Autonomic Equipment

Cardiovascular and electrodermal signals are recorded during speech and at rest.

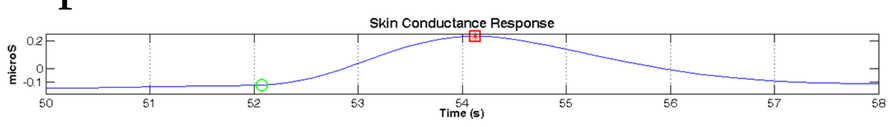
Biopac MP150 System

Select Measures

- Pulse Volume: Capillary blood volume
- Pulse Period: Duration of pulse cycles

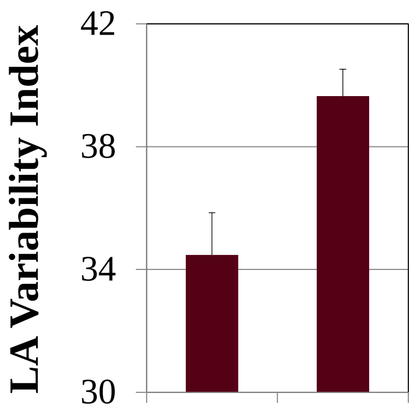


- Skin Conductance Level and Response: Mean and peak electrodermal response amplitudes

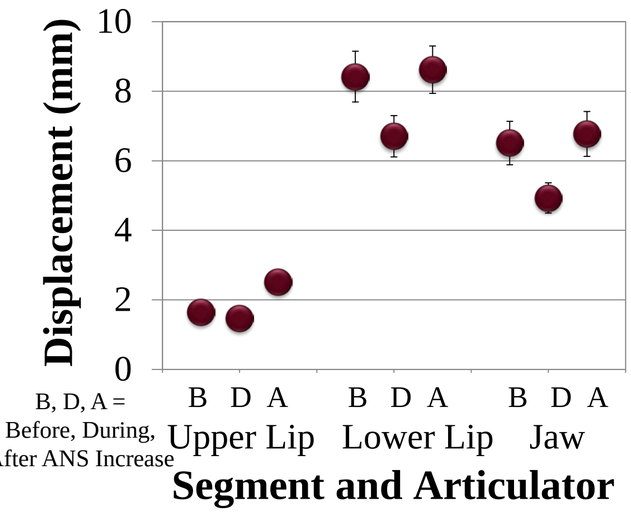


Preliminary Findings

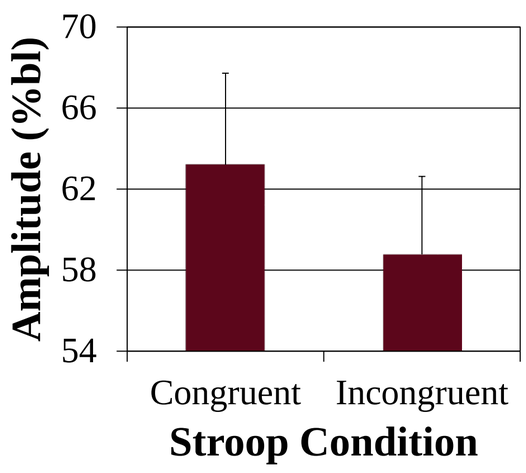
Speech Motor Stability



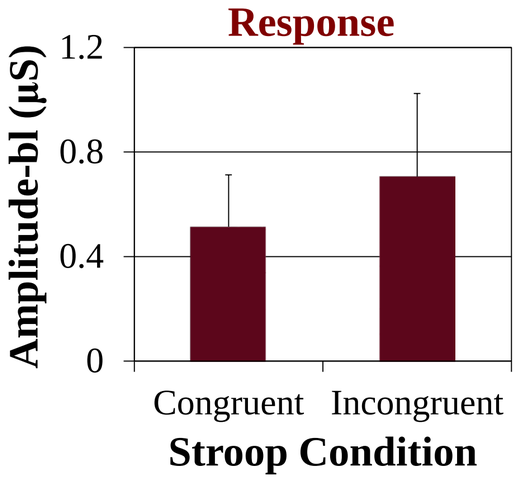
Articulatory Dynamic Range



Pulse Volume



Skin Conductance Response



Preliminary findings are reported for control subjects.

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