Long Term Average Spectral (LTAS) Measures of Dysarthria and the Relationship to Perceived Severity K. Tjaden, G. Liu, J. Sussman, & G. Wilding

<u>Purpose:</u> This study investigated the relationship between scaled estimates of perceived severity and Long Term Average Spectral (LTAS) measures in dysarthria. Healthy controls were included for comparison.

<u>Methods:</u> 10 speakers with Parkinson's Disease (PD), 14 speakers with Multiple Sclerosis (MS) and 15 healthy controls produced 25 Harvard sentences. Speakers with dysarthria were selected from a larger database to include individuals spanning a more severe range of scaled severity than Controls, as judged by three speech pathologists. The LTAS was computed for sentence productions and coefficients of the first four moments were used to characterize energy across the speech spectrum. Potential group differences in LTAS measures as well as the relationship between LTAS measures and perceived severity were quantitatively examined.

<u>Results:</u> Spectral moment coefficients of the LTAS were not significantly different for the PD, MS, and Control groups. The absolute magnitude of correlations between acoustic and perceptual measures ranged from .16 to .53. Relationships were consistently in the expected direction and were strongest for the PD group.

<u>Conclusions:</u> Results suggest that measures of LTAS may be useful as an objective index of dysarthria severity. Results further suggest that different acoustic models of severity likely are needed for the dysarthria secondary to PD and dysarthria secondary to MS.