Speech Intelligibility in a Speaker with Idiopathic Parkinson's Disease Before and After Treatment M. Cannito, D. Suiter, L. Chorna, D. Beverly, T. Wolf, J. Watkins

A speaker with hypokinetic dysarthria secondary to idiopathic Parkinson's disease was studied before and after Lee Silverman Voice Treatment (LSVT) to evaluate treatment-related changes in intelligibility of connected speech. He presented with reduced loudness, and a weak, breathy voice quality (in addition to monoloudness, monopitch, short phrases and increased rate). Following treatment, a louder, less breathy voice quality was perceived. Sentence productions were recorded on each of three days before and after LSVT. These were presented to five healthy listeners, under carefully psycho-acoustically controlled conditions, with equalization of intensity of signal presentation of all utterances. Listeners typed what they thought the speaker said and percent words correctly understood were calculated. Additionally, harmonic amplitude differences and rate of syllable production were also analyzed for each utterance. Results indicated a significant improvement in intelligibility following treatment (p < .01). Rate of articulatory production did not differ significantly from pre-to-post LSVT; however, harmonic amplitudes (re: H1) increased significantly (p < .05) post-treatment as part of an overall upward redistribution of spectral energy. We propose that salience of formants due to increased harmonic energy, resulting from LSVT-related phonatory changes, accounts for much of the improved intelligibility exhibited by this speaker following LSVT.