A Comparison of Stimulability Testing with Treatment Outcomes in Parkinson Disease

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The purpose of this study was to evaluate acoustic variables of vowels in stimulated and treated conditions in individuals with Parkinson disease (PD). Ten subjects with PD read a sentence ten times under three conditions: 1) habitual voice and speech, 2) stimulated loudness, and 3) treated loudness following the Lee Silverman Voice Treatment (LSVT®LOUD) or treated articulation following LSVT-ARTIC. Vowel space area (VSA) and formant centralization ratios (FCR) were calculated using the corner vowels /a/, /i/, and /u/ and sound pressure level (dB SPL) measurements were obtained. Results showed that more subjects demonstrated improvement in acoustic variables of vowels following both treatments, when compared to improvement following stimulated loudness. Increases in VSA and decreases in FCR for both groups from pre- to post-treatment suggest improvement in articulatory movement for vowels as a result of intensively treating vocal loudness or articulation. Vocal dB SPL following LSVT-ARTIC did not increase, suggesting that targeting loudness in LSVT-LOUD resulted in more widespread changes in acoustic speech features. Further investigation with additional subjects and perceptual ratings of intelligibility are needed to better understand if improvements in vowel acoustics translate into improved functional communication and to make comparisons between the two treatment approaches.