Childhood Apraxia of Speech: Kinematic & Perceptual Outcomes of Treatment S Lewis, LJ Ball, DS Williams, M Smith

Purpose: The purposes of this research were to evaluate 3D motion capture of lip movement and measures of speech-pause time for determining quantitative evidence of motor speech impairment patterns in children with childhood apraxia of speech and to track changes in lip movements associated with motor learning guided intervention. **Method:** Eight subjects diagnosed with childhood apraxia of speech participated in motor learning guided intervention. Data from six participants were analyzed kinematically and data from seven were used in speech-pause analyses. While participants produced a series of words and phrases, upper and lower lip movements were tracked in 3D. A story retell task was recorded for speech-pause analyses. **Results:** During the course of a separate motor learning speech intervention, changes in lip movement traces were suggested, illustrated by a decrease in the spatiotemporal index. Additionally, decreases were measured in both pause time percentage and the coefficient of variation ratio for speech-pause time.

Conclusion: The objective measurements of 3D motion capture and speech-pause time calculated over the course of treatment appear to be sensitive to speech changes in childhood apraxia of speech.