

ABSTRACT

Using Acoustics to Evaluate Repeated Motoric Practice as a Treatment for Acquired Apraxia of Speech

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The most successful treatments for acquired apraxia of speech (AOS) focus on improving articulatory kinematics through the practice of speech targets. Many of these treatments have applied principles of motor learning (PML), and this literature has primarily documented speech motor learning using perceptual analyses. While perceptual analyses are valuable and clinically useful, they may not be sensitive enough to reveal the speed at which learning takes place or the mechanisms that underlie the change. In this study, we used both acoustic and perceptual analyses to evaluate improvement over time and to specifically reveal the aspects of speech production that improved. In particular, we examined the use of repeated motoric practice, applying PML, for an individual with AOS who was perceived to routinely devoice final voiced stops. Acoustic analyses showed that the perception of devoicing came from a single acoustic property (aspiration duration) as other properties were produced appropriately. Over the course of 25 testing sessions (670 tokens), there was a significant decrease in aspiration duration while other acoustic properties remained unchanged. The acoustic changes were not reflected in perceptual analyses, indicating that acoustic analyses may reveal additional insight about the processes of speech motor learning.