Acoustic Metrics of Consonant Inconsistencies and Stress Difficulties Differentiate Between Children With and Without Childhood Apraxia of Speech

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Purpose: This study sought to determine if a set of acoustic metrics shown by Liss et al. (2009) to be sensitive to the stress difficulties of adults with dysarthria would be useful in differentiating between children with and without childhood apraxia of speech (CAS).

Method: Sixteen children participated in the study: 8 with CAS, 4 with non-CAS speech sound disorders, and 4 with typical speech sound development. The acoustic metrics were calculated using temporal measurements from repetitions of short, simple phrases. A stepwise discriminant function analysis (DFA) was conducted to determine if any of the metrics would differentiate between children with and without CAS.

Results: Three of the metrics, two of which reflected durational inconsistency of consonant and vowel productions (the latter reflecting stress difficulties), were significant predictors in a model that accurately differentiated between children with and without CAS in all cases.

Conclusions: A simultaneous examination of consonant inconsistencies and stress difficulties using these metrics may be useful in diagnosing CAS.