

**Is timing really everything?
Absolute and relative timing of speech in children with and without speech sound disorders.**

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Abstract

There is a critical need to develop effective and efficient differential diagnostic and intervention protocols for SSD (speech sound disorders). Here, temporal control of speech movement sequences in children with and without SSD, including childhood apraxia of speech (CAS) and phonological disorder (PD) are examined. Acoustically-defined vowel intervals were used to derive two dependent measures, E and AEprop (Grierson et al., 2017; Lai et al., 2000). E is a measure of absolute timing error and AEprop is a measure of relative timing (temporal structure) error. Thirty-four speakers (adults, typically-developing children, and children with SSD) repeated six phrases with consonant-vowel-consonant pseudowords after a prerecorded model across three sessions. Findings indicated no differences between typically-developing children and adults, but greater (absolute and relative) timing error in children with SSD compared to age-matched typically-developing children. Individual children's data suggest that greater timing error is not confined to children with CAS but also present in children with linguistically-based SSD. Taken together, the findings suggest that these timing measures are sensitive to detect speech timing difficulties in children with SSD, but do not distinguish between CAS and other SSD. *[Work supported by NIH-NIDCD (K01-DC010216)]*