

Auditory feedback perturbation in children with developmental speech sound disorders

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Several studies indicate a close relation between production symptoms and perceptual acuity in children with speech sound disorders (SSD). An important underlying factor here might be a reduced capacity to use auditory feedback. However, the mechanisms behind this relation are still poorly understood. The aim of this study was to investigate the ability to compensate and adapt for perturbed auditory feedback in children with SSD compared to age-matched normally developing children (age 4-8) to unravel the role of auditory feedback in the manifestation of SSD. 15 normally developing children aged 4.1-8.7 years (mean=5.5, SD=1.4), and 11 children with SSD aged 3.9-7.5 years (mean=5.1, SD=1.0) participated in the study. Auditory feedback was perturbed by real-time shifting the first and second formant of the vowel /e/ during the production of CVC words in a five-step paradigm (familiarization; baseline; ramp; hold; release). Preliminary results indicate a larger proportion of subjects responding to perturbation in children with SSD compared to the control group. However, in general the normally developing children showing a response were better able to compensate and adapt, adjusting their formant frequencies in the direction opposite to the perturbation where the majority of the children with SSD followed (amplifying) the perturbation.