Auditory Acuity and Auditory Feedback Response in Children With and Without Residual Speech Sound Disorder

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A speech sound disorder is any difficulty with perception or motor production of speech sounds and speech segments. If complications persist into late adolescence, individuals develop Residual Speech Sound Disorder (RSSD), facing increased risk of social, emotional, and academic challenges compared to their peers. Treatment by a speech-language pathologist can help children with RSSD achieve intelligible speech. However, traditional speech therapy is not always effective. One potential contributing factor is that traditional therapy methods rely on the patients' ability to hear and discriminate subtle differences between speech sounds. This is known as "auditory acuity." Auditory acuity is not the only requirement for a successful response to speech therapy: learners must also be able to monitor their own speech productions and make adjustments to their articulator placement if an error is detected. This ability is called "auditory feedback response." In this study, no significant difference in levels of auditory acuity between groups of with and without RSSD was found. However, children with RSSD have demonstrated lower auditory feedback responses, indicating a lesser ability to integrate what they hear into their long-term speech usage. This is known as "updating their feedforward plan" where individuals correct, maintain, and generalize correct articulation into their own speech. This difference between individuals with and without RSSD may be why traditional speech therapies are not effective for many. The inability of individuals with RSSD to update their feedforward plan is a strong candidate diagnostic differentiator of RSSD.

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Second Award of $2,000