

ABSTRACT

Background & Purpose - The North American English rhotic sound /ɹ/ has a high articulatory complexity and can be difficult to remediate in speech therapy. Therapy outcomes are usually assessed perceptually but our understanding of associated changes of tongue movement is limited. The aim of the present study was to describe perceptual, durational and tongue displacement changes over a course of articulation therapy.

Methods - **Six children with rhotic speech errors** underwent articulation therapy. Four of the participants also received ultrasound feedback for their tongue shape and position. The participants' speech and tongue movement were recorded pre-therapy, after 5 sessions, in the final session and at a one month follow-up.

Results - The results of a perceptual analysis demonstrated that the listeners perceived an improvement of the r-sounds in the final and follow-up assessments, compared to the pre-treatment assessment. The listeners also classified a greater number of the tokens as /ɹ / in the final and follow-up assessments. The durations of VɹV syllables at the midway point of the therapy were longer than at the other assessments. Productions of /uɹ u/ took longer than /aɹ a/ and /iɹ i/. There was also an increase in cumulative tongue displacement in the final session. The average standard deviation was significantly higher in the middle and final assessments compared to the intake assessment.

Conclusions - The perceptual measures indicated that most participants made progress with /ɹ / as a result of the therapy. The duration and tongue displacement measures provided somewhat heterogeneous information but illustrated how the articulation therapy affected different aspects of tongue movement. The suggested measures may be useful for future research about the effectiveness of articulation therapy.