

Comparison of Auditory-Motor Mapping Training and Speech Repetition Training for Minimally Verbal Children with Autism Spectrum Disorder

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Background. Up to 25% of children with autism remain minimally verbal past the age of 5. Inadequate communication skills are related to challenging behaviors such as aggression, self-injury, and property destruction (Dominick et al., 2007; Matson et al., 2009), yet possessing even some spoken language is an important positive prognosticator (Venter et al., 1992). Thus, it is vital for children with minimally verbal ASD (MV ASD) to acquire at least some spoken language. **Objectives.** We report on a comparison of two interventions to teach minimally-verbal children with autism their first words. One, Auditory-Motor Mapping Training (AMMT; Wan et al., 2009), aims to promote speech production directly by training the association between sounds and articulatory actions using intonation and bimanual motor activities. The other, Speech Repetition Therapy (SRT), is a traditional therapeutic approach involving neither musical intonation nor bimanual motor activity.

Methods. Minimally verbal children with autism between the ages of 5 and 9 years of age, matched at Baseline, were treated with either AMMT (n=6) or SRT (n=6). Inclusion criteria included a diagnosis of autism and the ability to imitate at least 2 speech sounds. Exclusion criteria included other known neurological conditions and use of more than 20 words or word approximations functionally. Therapy consisted of 1-hour sessions, five days per week for 25 sessions. Probe assessments were conducted periodically during baseline, therapy, and post-therapy follow-up sessions to assess children's speech production on a set of 15 trained two-syllable words and a set of 15 untrained two-syllable words.

Results. Two-way mixed-measures ANOVAs showed that number of phonemes correct and percent CV syllables approximately correct improved significantly with therapy (both $p < .01$). Trained words showed significantly more phonemes correct and greater percent CVs approximately correct than untrained words, but stimulus type differences were not significant after controlling for better baseline performance on Trained stimuli. After correcting for differences in Baseline performance, significant between-group differences were found on number of phonemes correct and percent CV syllables approximately correct: children receiving AMMT performed significantly better (both $p > .05$).

Conclusions. Both AMMT and SRT resulted in significant improvement in speech production and in children's ability to approximate the pronunciation of two-syllable words, but AMMT resulted in a greater improvement in phonetic production than SRT after correcting for Baseline performance. Because these children had no or minimal vocal output prior to treatment, the acquisition of speech sounds and word approximations through therapy represents a critical step in expressive language development in children with autism. Participant factors associated with therapeutic success will be discussed, as will changes in speech production ability associated with therapeutic progress.

References

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