The purpose of this study was to examine the emergence of sound localization skills in toddlers with bilateral cochlear implants (BCIs) and compare them with their normal hearing (NH) peers using a novel Reaching for Sound (RFS) method.

**PARTICIPANTS**

Thirteen 34-44 mo. old toddlers with normal hearing (NH) were enrolled in this study. All the children had normal hearing and did not have any history of hearing loss, ear infections, or other developmental or behavioral disorders. The age range was from 34 to 44 months old. All children were native English speakers and had no known language delay or disordered language development.

**PROCEDURE**

Training consisted of a randomized single discrimination task, with blocks of trials in which only two locations, at equal angular separations from midline, are visible. The following rules apply:

- **Testing begins with the widest angular separation (60°).**
- The child must pass the criterion of 4/5 correct trials before proceeding to a smaller separation of 45°.
- If the child passes at 60°, then testing is also conducted at 45°.
- If the child does not pass at 30°, then testing is conducted at 45°.
- If the child passes at 45° then 30° is repeated, followed by 15°.

**STIMULUS**

- The stimulus for the task was a tone presented through loudspeakers. The child must be able to understand the task in order to proceed.
- All stimuli were presented at 60 dB SPL.

**SAMPLE**

- Thirteen toddlers with BCIs were enrolled in the study. All the children had bilateral cochlear implants and had normal hearing at the time of testing.
- The children were divided into two groups: one with BCIs and one with NH.

**DATA ANALYSIS**

- The data was analyzed using statistical software to determine the proportion of correct trials and the RMS errors for each child.

**RESULTS**

- The results showed that the children with BCIs performed significantly worse than the NH children on the discrimination task.
- The RMS errors for the children with BCIs were significantly higher than the NH children.

**CONCLUSIONS**

- The study demonstrates the importance of early intervention for children with cochlear implants.
- Further research is needed to improve sound localization skills in children with cochlear implants.

**REFERENCES**


**ACKNOWLEDGMENTS**

We would like to thank the families who have participated in this study. This study could not have been conducted without the help of Sheryl Gaden, Alyssa Sartore, and Megan Jochanas. The project was supported by NIH-NIDCD Grant # R21 DC014437 (Erica Ehlers) and in part by a core grant to the Wisconsin Center from the NICHD (P30 HD030916) and in part by a core grant to the Wisconsin Center from the NICHD (P30 HD030916).