

ARTICLE REFERENCE: Lund, E. (2016). Vocabulary knowledge of children with cochlear implants: A meta-analysis. *The Journal of Deaf Studies and Deaf Education, 21*(2), 107-121.

KEYWORDS: Vocabulary, Cochlear Implants

WHAT WAS STUDIED, HOW WAS IT STUDIED AND RESULTS:

- **What:** This study (1) measured the difference in vocabulary size between children with cochlear implants and matched peers with hearing in the normal range across many studies, (2) considered whether variables like age at implantation, duration of implantation, and age affected the magnitude of the difference between groups and (3) attempted to determine whether norm-referenced measures of vocabulary over or underestimate differences in vocabulary knowledge between the two groups.
- **How:** Differences between the groups (children with implants and children without) were weighted according to the number of participants in each study between these two groups.
- **Results:** Overall, children with cochlear implants, even those who received cochlear implants very early, demonstrated delayed vocabulary knowledge as compared to children with hearing in the normal range (especially when those children had the same advantages as the group with cochlear implants, such as parents with high education levels). By elementary school, age at cochlear implantation did not affect the magnitude of the difference between the groups. The study also indicated that norm-referenced measures may underestimate a vocabulary knowledge delay for children with cochlear implants who come from advantaged backgrounds.

HOW THIS INFORMATION MAY BE USEFUL TO YOU AND YOUR CHILD: It is important to know that a child who has experienced hearing loss may continue to struggle with vocabulary knowledge development, even when he or she has achieved age-appropriate scores on other measures. Continuing to emphasize vocabulary teaching from an early age may help close this gap in vocabulary knowledge.

WHO WAS STUDIED: **Note that this study is a meta-analysis. A meta-analysis is a research technique that allows a researcher to gather results from many studies and statistically pool those results to answer a research question.**

- **Number of participants:** N = 772 children with cochlear implants and N = 386 children with hearing in the normal range across 16 studies
- **Age of children at testing:** Average child age ranged from 4 years to 10 years by study. Children with hearing loss had at least one cochlear implant device. By study, average age of cochlear implant activation ranged from 16 months (less than two years old) to 46 months (less than four years old). All children included in these studies used spoken language.

WHAT STILL REMAINS TO BE ANSWERED:



- This study does not indicate that early implantation is unimportant! Rather, it suggests that even children who receive cochlear implants early in life may need support for vocabulary growth.
- We need to know more about the best way to teach vocabulary to children with hearing loss.

WHERE CAN I FIND MORE INFORMATION:

Werfel, K. L., & Douglas, M. (2017). Are We Slipping Them Through the Cracks? The Insufficiency of Norm-Referenced Assessments for Identifying Language Weaknesses in Children With Hearing Loss. *Perspectives of the ASHA Special Interest Groups*, 2(9), 43-53.

Lund, E., & Douglas, W. M. (2016). Teaching Vocabulary to Preschool Children With Hearing Loss. *Exceptional Children*, 83(1), 26-41.