

ARTICLE REFERENCE: Tobey, E. A., Thal, D., Niparko, J. K., Eisenberg, L. S., Quittner, A. L., & Wang, N. (2013). Influence of implantation age on school-age language performance in pediatric cochlear implant users. *International Journal of Audiology*, 52(4), 219-229. doi:10.3109/14992027.2012.759666

KEYWORDS: Cochlear Implants, Age of implantation, Language

WHAT WAS STUDIED, HOW WAS IT STUDIED AND RESULTS:

This study examined the effect of age of cochlear implantation on long-term language outcomes. Age of implantation ranged from 6 months to 5 years of age. Spoken language outcomes were measured 4, 5, 6 years after implantation—that is when children were in elementary school. For children who were implanted between 6 months and 2.5 years of age, language outcomes were better the younger they received their CI. For children implanted between 2.5 and 5 years of age, the age they received their implantation did not affect their language. Spoken language outcomes were noticeably lower for early (before 2.5 years) vs late implantation. Grammar was particularly improved by early cochlear implantation (prior to 18 months). There was great variability in language outcomes. While some children developed age-appropriate language, others were very delayed, regardless of age of implantation. Language outcomes were related to speech, hearing, and language abilities prior to receiving cochlear implantation. Spoken language outcomes were also related to quality of parent-child interaction. Parents' use of sign did not interfere with spoken language development.

HOW THIS INFORMATION MAY BE USEFUL TO YOU AND YOUR CHILD:

Better long term spoken language outcomes are achieved with earlier cochlear implantation. If you and your doctors have decided that your child would benefit from a cochlear implant, it is extremely important to have the surgery as soon as possible. Even with early cochlear implantation, many DHH children continue to need support during elementary school. Using sign with your child will not interfere with his or her acquisition of spoken language.

WHO WAS STUDIED:

- 160 children from 6 implantation centers in the US. Implanted between 6 months-5 years old

WHAT STILL REMAINS TO BE ANSWERED: The effect of very early implantation. This study did not have enough participants to determine if CI under 1 year resulted in different outcomes.

WHERE CAN I FIND MORE INFORMATION:

<https://www.babyhearing.org/devices/cochlear-implants>

<https://www.ncbi.nlm.nih.gov/pubmed/23448124>