

How important is it for a child to receive bilateral cochlear implants?

The science news website, [ScienceDaily](#)¹ reports on a recent study² that attempted to answer this important question by comparing the brain waves of children who received two cochlear implants at once with children who received their second implant after a long delay.

Background

The ability to process sound coming from two ears gives the effect of hearing in stereo. It enables a person to pick out soft or distant speech, separate a single voice from background noise and determine which direction sound is coming from. In people who hear normally, the brain helps them do this by what scientists call 'binaural processing.'

The study

The study compared three groups of children:

Group 1 lost their hearing as toddlers and received bilateral implants soon afterwards

Group 2 were born deaf and received one implant at about the age of four and the second after a long delay

Group 3 was a control group with normal hearing

The researchers monitored the brainwaves associated with hearing in all three groups when they were asked to listen for the syllables 'ta' and 'ka'.

The sounds were delivered to one or both ears.

Brain imaging showed that some children who received bilateral implants soon after losing their hearing processed the sounds in a way that involved binaural processing by the brain. The children who were born deaf and received their second implant after a long delay, did not process sounds in the same way.

Conclusion

According to ScienceDaily, the research suggests that “the auditory deprivation that results from a long delay between implants may render the system incapable of restoring itself.”

Cochlear’s comment:

The good news from this study is the suggestion that binaural processing can be preserved or restored in some children by bilateral implantation of cochlear implants.

REFERENCES:

¹ <http://www.sciencedaily.com/releases/2012/09/120920120416.htm>. Accessed 24 September 2012.

² Henkin Y, *et al.* Cortical binaural interaction during speech processing in children with bilateral cochlear implants. *Cochlear Implants International* 2011 Vol 12 No. S1 S61.