NAL-R formula, but the degree of individual variation indicates the need for paired comparisons to fine-tune the hearing aid response.

Speech Perception for Children with Different Levels of Residual Hearing Using the Cochlear 22-Channel Cochlear Prosthesis

The Cooperative Research Centre for Cochlear Implant, Speech & Hearing Research, 384 Albert Street, East Melbourne
Australia

Over the past 10 years, since the implantation of the first children with the Nucleus 22-channel cochlear prosthesis in Melbourne, the number of profoundly deaf children using this implant system has rapidly expanded. Longer-term experience with implanted children has led to improvements in paediatric assessment and management. Speech processing strategies have also been improved, resulting in a series of increases in speech perception benefits. Results of comparative studies of Speak and Multipeak speech processing strategies have shown that open-set word and sentence scores for a group of thirteen children evaluated over a two year period showed an advantage with the Speak speech processing strategy. The increases were noted particularly in speech perception in poor signal-to-noise conditions. Analysis has shown that consonant perception was significantly increased, due to an improved place perception. Given current speech perception scores for implanted children, it has been suggested that severely-to-profoundly deaf children currently using hearing aids could in fact benefit more from a cochlear implant. Preliminary investigation of results for children in the Melbourne and Sydney cochlear implant programs has shown that children with higher levels of preoperative residual hearing as a group do score significantly on open-set word and sentence perception tests using the implant alone. In children with lower levels of residual hearing, results were variable across the group.

Speech Perception in Children Following Habilitation with Background Noise

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Recent evaluation of open-set word and sentence perception results for a group of children evaluated over a two year period showed that improvements to speech perception scores in poor signal-to-noise conditions were possible with use of the Speak speech processing strategy. The increases were noted particularly in speech perception in poor signal-to-noise conditions. However, overall scores were still lower than for hearing in quiet. As children are often in noisy environments, it was of interest to assess whether specific habilitation involving perception in controlled background noise could improve perception. A preliminary study evaluating perception of open-set words and sentences in background noise for four children has been completed. Each of the children was assessed over a six month period, using repeated assessments of connected discourse tracking, and word and sentence perception scores. At each assessment, measures were made both in quiet and in background noise. The specific signal-to-noise ratio varied with each child, but was kept constant through the evaluation. During the six month period, children had weekly habilitation sessions, which included specific perceptual training in controlled background
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