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

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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.

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