

THE DEVELOPMENT OF AUDITORY COMPREHENSION IN CHILDREN AFTER RECEIVING A COCHLEAR MULTIPLE-CHANNEL IMPLANT

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Since late 1989, half the cochlear implant patients at the Royal Victorian Eye and Ear Hospital have been young children. There is a gradual improvement of auditory comprehension in most cases using the criteria of environmental sound detection, as well as, prosody, high frequency phoneme and word discrimination. The rate of improvement and final result depend on the duration of deafness, presence of residual hearing, and quality of auditory-oral habilitation. Younger children usually progress more quickly than older children. Some adolescents who use Total Communication and who have no residual hearing, achieve assistance with lipreading. Children with Usher's Syndrome should be actively encouraged to participate in auditory-oral habilitation should they become totally deaf or blind.

The aetiology of the hearing loss may influence results. Meningitis may result in a limited electrode insertion which affects the quality of speech information received. Two children with the Mondini dysplasia have obtained assistance with lipreading but not open-set word discrimination without lip-reading. Finally, the help a child receives from therapists and parents is important in achieving success.

AN IMPROVED SPEECH PROCESSOR FOR A 22-ELECTRODE COCHLEAR IMPLANT

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A spectral maxima speech processing strategy (SMSP) has been developed as a result of research to improve the speech perception performance of a multiple-channel cochlear implant. With this speech processing strategy, the six spectral maxima from the outputs of 16 band pass filters are used to stimulate the cochlea on a place basis at a constant rate. This SMSP strategy has been compared with the MSP-MULTIPEAK strategy, the present speech processor provided by Cochlear Pty. Limited, on four postlinguistically deaf adults. The study showed that the SMSP strategy was significantly better than the MSP-MULTIPEAK for the recognition of closed-set vowels and consonants, and open-set monosyllable words and sentences in background noise.



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