different frequency bands is termed the Importance Function. The five frequency bands studied in this experiment were determined to be of equal importance to normally hearing listeners for the speech material used. The scores for each implantee were transformed into AI values, and hence the relative importance of the bands was determined. This relative importance was compared between the implantee group and normally hearing listeners to determine the way in which speech perception by electrical stimulation varies from that by acoustical stimulation. Comparisons were also made between individual implantees to determine whether correlations exist between their speech perception ability and their use of cues in different parts of the spectrum. Further research will determine whether the differences among implantees are correlated with their ability to perceive changes in stimulation place or temporal characteristics.

Aided Speech Audiogram

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Information on hearing aid amplification provided to teachers of hearing impaired children needs to be clear and indicate what speech information is available to the child. Current reports based on the aided audiogram are sometimes misunderstood because of the way speech and aided thresholds are represented. Insertion gain measures cannot be easily adapted to the aided audiogram graph. This paper reports on a computer assisted procedure that refers all measures to ear canal SPL. The procedure was partly derived from an approach suggested by Seewald et al. (1991) but has significant differences, mainly concerned with reconciling narrow band with broad band information. The benefit of displaying information in this format was evaluated by a group of audiologists and teachers of hearing impaired children.

Multichannel Auditory Brainstem Implants: An Australian Case Study

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The multichannel Auditory Brainstem Implant (ABI) is an implantable device designed to restore a level of auditory perception in patients with bilateral acoustic neuromas, where the removal of the tumours is expected to result in a total loss of hearing. As with the cochlear implant, the ABI utilises an externally worn speech processor and headset, together with a surgically-placed receiver-stimulator and electrode array. The electrode array, developed through the collaboration of the House Ear Institute in the United States and Cochlear Corporation, consists of eight electrodes on a carrier, which is placed on the surface of the brainstem in the area of the cochlear nucleus. Placement of the electrode package is performed during the surgical procedure to remove the acoustic neuroma on one auditory nerve. The ABI functions in a manner similar to the cochlear implant, with speech information being processed by the speech processor, and passed by radio transmission to the implanted receiver-stimulator. The encoded speech information determines which of the
electrodes is critical, and intraoperative monitoring is an important feature of the surgical procedure. Results of speech perception assessments with adult patients in the United States have shown that the ABI can provide significant speech benefits. Results with the first Australian ABI patient are also encouraging, and will be presented in combination with the United States data.

Current Trends in Speech Perception Performance in Adult Cochlear Implant Patients

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In 1994, Cochlear Pty Ltd (Now Cochlear Limited) released a new speech processor, the Spectra 22, for use with the Nucleus 22-channel cochlear implant. The Spectra 22 speech processor incorporates a new speech processing strategy called SPEAK, which is based upon research conducted by the University of Melbourne. This paper reports post-operative scores on open-set word and sentence materials for adult patients in the Melbourne Cochlear Implant Clinic who have been started up with the Spectra 22 speech processor. Speech perception data was collected at regular intervals for a period of 6 months from each patient’s ‘start-up’. The results so far, illustrate that patients are gaining significant open-set speech perception advantage after two weeks’ use of the cochlear implant. Speech perception scores are also seen to improve as patients gain more experience with the device. Comparison of the mean results at six months with similar data from patients using earlier speech processing strategies, confirms the findings from comparative studies that the SPEAK strategy is an improvement over the feature extraction type strategies. Although, to date, data has only been collected on a small number of people using the Spectra 22 speech processor, the trend in speech recognition performance obtained with cochlear implants is very encouraging. Cochlear implants should now be more widely considered as a viable option for severely, profoundly and totally hearing impaired people to improve their hearing ability.

Measuring the Ability of Hearing Impaired School-aged Children to Understand Connected Discourse: A Comparison of Two Methods

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This study was undertaken to compare the use of two methods in measuring the ability of hearing impaired children in Hong Kong to understand connected discourse. Twenty-five normal hearing and 54 sensorineural hearing impaired school-aged children participated in an experiment in which they were required (1) to rate, on a scale of 0 to 5, how well they could understand a connected discourse passage and (2) to answer five content-related questions to show their level of understanding of the same passage, resulting in speech scores ranging from 0 to 5. The effect of two different hearing aid frequency responses and two listening conditions (quiet/noisy) on self-ratings and speech scores was also investigated. Findings revealed no significant differences between ratings and scores of the two methods, when pooling across subject groups, frequency responses and listening conditions. A high correlation between ratings and scores under the respective frequency responses and listening conditions (Spearman correlation coefficient, $r = 0.85$) was found, indi-