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In tune with technology: Music perception & appreciation of cochlear implant and hearing aid users

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It is well accepted that adult cochlear implant (CI) recipients score significantly lower on music perception tests, and rate music to sound poorer than normally hearing (NH) listeners. However given that CI recipients have a significant sensorineural hearing loss, are comparisons to NH listeners realistic? And what about hearing aid (HA) users? Music has been shown to contribute to quality of life, and is often a stimulus that patients consider in rating their satisfaction and outcomes with their hearing device. This presentation will overview the research comparing the music perception abilities of CI recipients, HA users, and NH listeners. Although HA users are better that CI recipients at pitch and melody perception tasks, their performance is lower than NH listeners. Further, CI and HA users score similarly on timbre perception tasks, and CI recipients rate music to sound more pleasant than HA users with equal levels of hearing loss. These findings suggest that a significant sensorineural hearing loss impacts on music perception, regardless of whether acoustic or electric hearing is used. The results from recipients using a simultaneous CI and HA will also be discussed, and the benefit of acoustic stimulation for CI recipients. So, what more could we be doing? Music training programs have been shown to be beneficial for CI recipients; can they help HA users? The findings of these studies are important for counselling, setting realistic expectations, and working with patients to help them improve their music listening experiences.

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Prediction of frequency-specific hearing threshold using chirp-ABR in young children

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The Chirp-Stimulus generates an optimized synchronous excitation of neurons in all regions of the basilar membrane. The stimulus structure allows modification to excite predefined regions in the cochlear. However, the chirp-ABRs have been investigated in few studies involving young children with varying degrees of hearing loss. Only some researchersreported that in this study a variety of tools were used to analyze the synchronicity of ABRs evoked by chirp- and click-stimuli at 40 dB HL in 32 normal hearing subjects aged 18 to 55 years. In our recent study, we investigated the relationship chirp-ABR and behavioral visual reinforcement audiometric (VRA) hearing thresholds in a group of infants with varying degrees of sensorineural hearing loss. In particular, we examine how accurately the prediction formulae (which were based on Chirp-ABR/VRA threshold correlation data) estimated hearing threshold in order to find out if it is possible to be used as the clinical application with regard to diagnostic audiology in young children. This study demonstrates the effective implementation of chirp-ABR predicted frequency-specific thresholds, especially of low- middle-frequency. The use of a chirp-ABR testing could be higher sensitivity and accuracy than that of auditory steady-state evoked response (ASSR) for measuring frequency-specific thresholds in young children.

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