Critical Review:
Which CI Strategy is the Most Successful for Music Appreciation

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This critical review examines the effects of different processing strategies on music perception and appreciation in adult CI users. Studies included investigate music perception in adult CI users, other factors affecting music appreciation scores, and comparison of different types of CI strategies in current use. Study designs include: single group clinical trials, randomized controlled trials, and quasi- experimental designs with case control. Overall, results indicate that CI users do not perform as well as as (rf) -1rficate 28

within the target population are needed. Caution should be used in generalizing melody recognition results because they were instrumental recordings while real melodies have transient note durations or lyrics. Another shortcoming is that CI users were not equipped with newer CI strategies except for one subject (*,*
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Kong, Singh, and Zeng, (2009) evaluated the contributions of spectral and temporal cues to melody recognition in CI users. They did this with recognition of melodies in three frequency ranges (low = 104-262Hz, middle = 207-523Hz, high = 414- 1046Hz ranges).

reducing artifact in the measure makes it difficult to compare CI users to NH listeners. Also, one cannot generalize conclusions from this study to other devices because all subjects had the Freedom processor CI systems, belonging to the Cochlear Ltd Company using the ACE strategy (- -   ).

Another factor that makes it difficult to generalize the conclusions from this study is that there was a variance of age (38-70 years) that can affect the differences between both groups. Finally, there was only one type of instrument used for the musical tasks in this study, the synthesized clarinet tone. Therefore, it would be difficult to generalize results to live music listening. Across studies, there appears to be a trade-off between generalization of results and better control of acoustic properties and this makes it problematic to compare performance measures between CI and NH subjects. Also, other cochlear implant strategies or models may yield different results when comparing CI user to NH groups for music perception performance.

A Comparison of Cochlear Implant Processing Strategies for Music Listening

The CIS   y and variations of CIS (such as the n-of-m) are   cess sound for CI users. The n-of-m strategy   ls with the highest amplitudes (n) from the   ) for perception. A new and major v   e Fine Structure Processi   P) strategy   on is repres   n the   he tempora   ts of the   or other CI   egies) using   on parts of   waveform in p   gh frequenc   FSP performs similar   m previous   dies have indicated im   or music a   ciation after conversion f   P (Rosslau   aafeld, Spreckelmeyer, Westho

One stu   y by Magnusson (2010) aimed to eval   he FSP stra egy in comparison with another new vari   on of the C S strategy; High definition CIS (HDCIS). The hypothesis assumes that both strategies should better provide fine spectral information, improve pitch perception and, thereby, increase music appreciation. This quantitative experimental design involved a sample of twenty experienced adult CI users. The subjects underwent double blinded paired-comparisons between the FSP and HDCIS for music quality. There were immediate and long term follow-up appointments (six months and two years) in a randomized order. Subjects used the FSP at first follow-up and FSP or HDCIS at the second.

Results of the study included measures for differences between sessions using repeated measures ANOVA and a Bonferroni adjusted post-hoc test. Significant differences between strategies were analyzed via Wilcoxon signed ranks test. The repeated measures ANOVA revealed no significant within-subject difference (p =0.08) between the three sessions. Paired comparisons results showed no significant differences (Wilcoxin: p= 0.13) between strategies.

The results indicate that the FSP