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Speech perception of Finnish adult cochlear implant users during four years of implant use

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Background: It is well established that adult cochlear implant users benefit from implant in auditory speech perception. However, whether there is a continued or consistent improvement in overall performance over time or whether performance plateaus appear is largely unknown. This study investigated auditory speech perception in adult cochlear implant users in a prospective four-year follow-up design.

Methods: Sentence, word and phoneme perception in quiet were studied before implantation with and without a hearing aid (HA) and at 3 days, at 1, 3, 6, 12, 18, and 24 months as well as at 3 and 4 years after the switch-on of the implant.

Results: Speech perception results for 30 adults were computed. Before implantation, the subjects' mean sentence recognition score was 0% without and 20% with a HA. Six months after switch-on of the implant, their mean score was 77% (95% confidence interval [CI] 65–88), at 12 months it was 80% and at 4 years 88% (95% CI 78–97). In word recognition, the mean scores before implantation were 5% without and 12% with a HA. Six months after switch-on, the mean score was 54% (95% CI 45–64), at 12 months it was 65% and at 4 years 70% (95% CI 59–81). In phoneme perception, the subjects scored 0% without and 5% with a HA before implantation. Six months after switch-on, the mean score was 35% (95% CI 27–43), at 12 months it was 42% and at 4 years 53% (95% CI 42–63).

Conclusions: Auditory speech perception in these Finnish-speaking adult cochlear implant users continued to improve for several years. More precise analyses of the data will be conducted in order to investigate the rate or degree of the improvement over these years in different tests and to determine whether there are performance plateaus at some points.

