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Localization abilities in bilaterally implanted children

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Background:
Several tests of binaural hearing have been developed to determine the abilities of bilaterally implanted children to use binaural cues such as interaural time and level differences. These tests have been modified to the interest and attention span of young children and have been evaluated with large groups of normal-hearing children. In this study we focus on the sound localization test in free field that is administered to bilaterally implanted children.

Methods:
The test setup consisted of a bow with 9 loudspeakers positioned in the frontal horizontal plane from -60° to +60°. The task was embedded in a telephone game with smurfs. Approximately 30 bilaterally implanted children between 4 and 15 years of age participated in this task.

Results:
Mean absolute errors for the cochlear implanted children were between 9° and 50° (chance level = 44°). The best results were close to the results of young normal-hearing children (0°–21°). Results will be interpreted in the light of age at implantation, etiology of deafness and other factors influencing hearing impairment.

Conclusion:
The results of the current experiment show that sound localization is possible for bilaterally cochlear implanted children, with some children performing almost as well as their normal-hearing peers.

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