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### **Vowel spaces in Swedish children with cochlear implants**

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This study analyzed vowel productions of Swedish children with cochlear implants, capitalizing on the rich vowel system of Swedish with nine vowels. Minimal word pairs were used as linguistic material. A group of 12 children with CI (mean age 184 months, range 144-229 months), and a group of children with normal hearing (mean age 105 months, range 103-118 months) were recruited. The age at implantation of the CI was 79 months (range 31-155 months). The first two formants were measured for each vowel. To estimate the vowel space, the average Euclidean distance in the F1-F2 plane between each vowel and the mean first and second formant frequencies of all the vowels was calculated for each child. The results show a significantly smaller vowel space for the children with a cochlear implant. However, there was no overall significant correlations between the vowel space and measures of speech recognition and vowel production in the CI group. Although the present results show that speech recognition ability affects intelligibility and vowel production, the vowel space may not be a suitable measure for assessing speech production in this population. [Work supported by the Sunnderdahl Disability Foundation.]