Introduction

1. Study Objectives:

- Children with bilateral CIs (age range 04-09 years), N=26
- Age at receiving the 1st CI = 07 to 62 months
- Age at receiving the 2nd CI = 07 to 80 months
- Inter-implant delay = 0 to 65 months
- All the participants received the first CI for the right ear

CRISP Speech Intelligibility Test

• A closed-set four alternative forced choice task (Figure 01).
• Each target spondee had a corresponding picture to indicate the response.
• Maskers were at 55 dB SPL.
• Target was initially presented at 60 dB SPL and then varied following an adaptive tracking procedure (3-down/1-up rule).
• 3-down/1-up rule - Three consecutive correct responses result to decrease the intensity level of the target and a single incorrect response result to increase the intensity level of the target.
• Each adaptive track ended after five reversals.
• After each reversal, the step size was halved, and the minimum step size was limited to 2dB.
• Speech Reception Thresholds (SRTs) were measured for Quiet, Co-located and Asymmetric Right conditions and 20 trials were used in each test condition.

Methods

Participant Characteristics

- Children with bilateral CIs (age range 04-09 years), N=26
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Results

- Children with NH showed significantly high benefit of spatial separation between the target and the masker, and this is on par with the SRM literature.
- The limited benefit of spatially separating target and maskers for children with bilateral CIs was observed and this may be due to several factors, including that the two CIs are not capturing the cues of inter-aural time and inter-aural level differences and therefore not synchronized during signal processing.
- Although not statistically significant, benefits of spatial separation of the target and maskers were larger in:
  - children received the second CI < 3 years of age and
  - children with < 2 years of inter-implant delay
- Future work will focus on factors that may improve and provide further insight into spatial hearing including cognitive factors, synchronized processors and the use of sentence length stimuli.

Discussion

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References


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