Perception of Indexical Cues in Kids and Adults

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The main objective of this study is to investigate the developmental trajectory of the perception of voice characteristics in children and how it relates to the recognition of gender, emotions, and linguistic processing in CI children, in comparison...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Hearing disorders
Study type	Observational non invasive

Summary

ID

NL-OMON47332

Source
ToetsingOnline

Brief title
PICKA

Condition

- Hearing disorders

Synonym
Cochlear implantaat, deafness

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: Ministerie van OC&W,NWO VICI

Intervention

Keyword: Cochlear implant, Language development, Speech perception, Voice characteristics

Outcome measures

Primary outcome

The main study parameters are performance measures in non-invasive tests of behavioural or eye-tracking methods. These will involve parameters such as sensitivity measures, (just noticeable differences (JNDs), d primes), accuracy scores (percent correct scores), response times, gaze fixations and pupil dilation over time. Measures within the same tasks, as well correlations between different tasks will be analysed.

Secondary outcome

Additional information will be received via questionnaires and Otorhinolaryngology departments of medical centres with the written consent of parents of CI children and CI children that are more than 12 years old.

Study description

Background summary

A cochlear implant (CI) is a prosthetic device that partially restores the hearing of profoundly deaf individuals. However, the speech signal that is delivered via the device contains spectro-temporal degradations. As a consequence, CI users have difficulties with recognizing and distinguishing the voices of speakers, but the size of this deficiency is currently not fully known. The main focus of this research is on the perception of voice characteristics that are mainly determined by fundamental frequency (F0), related to the glottal pulse rate of the vocal chords, and vocal tract length (VTL), related to the size of the speaker. Voice characteristics are crucial for speech communication. They deliver essential information that can be used in noisy environments to identify the speaker*s voice and to segregate speech

from noise and other speech streams. Understanding speech in noise is particularly challenging for CI users. Since most speech communication in everyday life occurs in background noise, the impaired perception of voice characteristics can considerably and negatively affect the quality of life of CI users.

Earlier research from our research group has demonstrated that the impaired perception of voice characteristics in adult CI users leads to abnormal patterns of vocal gender categorization and emotion recognition (Fuller et. al, 2014; Gilbers et al., 2015). The current study will follow up on these studies by investigating whether the perception of voice characteristics is also impaired in children with CIs and how this relates to their general perception of speech-related indexical cues, speech, and language development, an important matter for the overall healthy development of deaf children who use a CI (Szagun, 2001; Geers, Davidson, Uchanski, & Nicholas, 2013).

Study objective

The main objective of this study is to investigate the developmental trajectory of the perception of voice characteristics in children and how it relates to the recognition of gender, emotions, and linguistic processing in CI children, in comparison to control groups of NH children, and NH adults.

Study design

The study consists of a questionnaire concerning the language, hearing, and demographics of participants, behavioural experiments and eye-tracking experiments on the perception of voice characteristics, speech perception and linguistic processing.

Study burden and risks

There are no known risks or benefits associated with participation. All tests are non-invasive and consist of simple tasks, such as listening to a recorded speech sample, and making a judgement about the voice or meaning of this sample. The test duration and frequency will be adjusted to accommodate the age and attention span of participants. To further reduce potential fatigue, adequate breaks will be built into the experiment and will also be given on request of the participant.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Children (2-11 years)
Elderly (65 years and older)

Inclusion criteria

General inclusion criteria:
- Native Dutch speakers
- Normal vision (after correction);Inclusion criteria CI children:
- Aged between 4 and 16 years
- More than one year experience with the CI
- No other health conditions (comorbidity);Inclusion criteria NH children:
- Aged between 4 and 16 years
- Normal hearing (hearing thresholds * 20 dB for 250 to 4000 Hz)
- No speech or language disorders, such as dyslexia
- No developmental disorders, such as autism spectrum disorders;Inclusion criteria NH adults:
- Aged 18 years or older
- Normal hearing (hearing thresholds * 20 dB for 250 to 4000 Hz)
- No speech or language disorders, such as dyslexia
- No developmental disorders, such as autism spectrum disorders

Exclusion criteria

General exclusion criteria:
- No native speaker of Dutch or bilingual
- Not being able to perform the experiments;Exclusion criteria NH children and adults
- Hearing impairment

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	25-02-2018
Enrollment:	210
Type:	Actual

Ethics review

Approved WMO Date:	09-05-2017
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Approved WMO Date:	06-11-2018
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

ID: 27372
Source: NTR
Title:

In other registers

Register	ID
CCMO	NL59930.042.16
OMON	NL-OMON27372