Perceptual learning of interrupted speech: a behavioural study

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

Summary

ID

NL-OMON39677

Source
ToetsingOnline

Brief title
Perceptual learning of interrupted speech

Condition

- Hearing disorders

Synonym
deafness, Hearing-impairment

Research involving
Human

Sponsors and support

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

Intervention

Keyword: Interrupted speech, Perceptual learning, Phonemic restoration

Outcome measures

Primary outcome

The increase in percentage correct of repeated sentences due to training.

Secondary outcome

The effort will be measured through a short questionnaire. A secondary

measurement is of the hearing thresholds.

Study description

Background summary

Hearing-impaired listeners and users of hearing aids or Cochlear Implants (CIs) commonly complain about the difficulties understanding speech in background noise. Normal-hearing listeners use several mechanisms that help in such difficult listening environments, such as phonemic restoration, which seem not to work well with hearing impairment. The hypothesis is that perception of degraded speech can increase in time by perceptual learning.

Practically, if the hypothesis is proven to be true, (severely) hearing-impaired listeners can benefit from phonemic restoration by being trained on missing fractions of speech. Hearing aid manufactures or hearing aid fitters might take phonemic restoration into account with the fitting procedure. Theoretically, if the hypothesis is proven to be true, a better understanding of the *hearing brain* is achieved, contributing to e.g. computational speech-perception models and functional brain research.

Study objective

This research will explore how fast phonemic restoration of degraded speech can be learned. This will be done by training and testing normal-hearing listeners in several sessions with interrupted speech. We will also train a group of normal-hearing listeners with CI-simulations of interrupted speech and the CI-users with interrupted speech. From these groups we will determine how perceptual learning of degraded speech differs with different levels of hearing

impairment.

Study design

The study is designed to be a randomized intervention study. Randomized because the subjects are placed randomly in a group to listen to either speech interrupted by silence or by noise. We do match these two groups on age and gender. The controls are matched on age, gender and the days in the week the experiments took place for the trained subjects. It is an intervention study because we train the subjects with audio-, visual feedback, with the aim to perceive the interrupted sentences better.

Study burden and risks

There are no known risks or benefits associated with the participation in the experiment. The experiment lasts for about 1.5 hour per day the subject participates and adequate breaks are built into the experiment.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Normally hearing subjects: hearing threshold better or equal to 20 dB HL for 0.5, 1, 2 and 4 kHz.
Cochlear implant users: post-lingual deaf CI users with a free-field phoneme score better then or equal to 70% at 65 dB SPL.

Exclusion criteria

Normally hearing subjects: inability to participate
CI users: medical complications associated to the implant
Pre-lingual deafness

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	04-04-2011
Enrollment:	114
Type:	Actual

Ethics review

Approved WMO Date:	16-03-2011
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Approved WMO Date:	17-03-2014
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

No registrations found.

In other registers

Register	ID
CCMO	NL34501.042.10

Study results

Date completed:	28-07-2015
Actual enrolment:	102

Summary results
Trial is onging in other countries