The effect of top-down control of attention on speech perception and effort in adverse listening conditions

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The proposed studies will investigate the effect of auditory attention on speech comprehension, its relation to listening effort, and the effect of hearing loss on these processes.

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

Summary

ID

NL-OMON41406

Source
ToetsingOnline

Brief title
How attention affects effort and comprehension in speech perception

Condition

- Hearing disorders

Synonym
hearingdamage, hearinglos

Research involving
Human

Sponsors and support

Primary sponsor: Vrije Universiteit Medisch Centrum
Source(s) of monetary or material Support: NWO

Intervention

Keyword: Attention, Listening effort, Speech perception

Outcome measures

Primary outcome

This study*s main parameters are SRT scores and pupil diameter. We want to investigate how these are affected by attentional engagement and hearing-loss. Attentional engagement will be manipulated within subject and hearing-loss is a between subject factor.

Secondary outcome

n.v.t.

Study description

Background summary

Listening to speech in a noisy environment is an effortful task in particular for hearing impaired people. Attending to a persons face, voice, and his relative location can improve speech reception in adverse listening conditions. How these top-down attentional processes affect listening effort, a major cause of fatigue in the hearing impaired, is unknown. We hypothesize that attending to speech will lead to better comprehension and will result in a lower (i.e. better) speech reception threshold. Additionally, attending to speech will increase cognitive load, which results in a larger pupil response, an indication of enhanced listening effort.

Study objective

The proposed studies will investigate the effect of auditory attention on speech comprehension, its relation to listening effort, and the effect of hearing loss on these processes.

Study design

In separate studies the effect of time, location, and talker-voice uncertainty on listening effort by will be investigated. In case of time uncertainty, the

predictability of the onset of speech will be manipulated. Similarly the predictability of location and talker will be investigated. Both normal hearing and hearing-impaired individuals will participate in the experiments. Additionally, possible interactions between these attentional processes will be investigated.

Study burden and risks

This research is without any risk or burden for the participants. Participants will perform one 1-2 hour session, which involves a number psychophysical tests and the filling in of some questionnaires.

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

Must be able to give informed consent.
Dutch as native language.
Normal or corrected-to-normal vision.
Individuals with acquired brain injury must be fit for work.
Individuals with acquired brain injury no longer receiving treatment for their brain injury for over a year.
Individuals with acquired brain injury report to experience problems with having a conversation in background noise.

Exclusion criteria

Younger then 18 years or older then 80 years.
Additional serious conditions.
Diabetes, because of its effect on the pupil response.
Dyslexia or other restrictions that affect reading.
More then 20 dB hearing-loss for normal hearing and individuals with acquired brain injury.
More the 60 dB hearing-loss for hearing-impaired individuals.

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:	Recruitment stopped
Start date (anticipated):	16-04-2013
Enrollment:	180
Type:	Actual

Ethics review

Approved WMO Date:	06-06-2013
Application type:	First submission
Review commission:	METC Amsterdam UMC
Approved WMO Date:	13-03-2015
Application type:	Amendment
Review commission:	METC Amsterdam UMC

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	NL44306.029.13