Perceptual effects of noise reduction in linear and compression hearing aids

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

Summary

ID

NL-OMON35358

Source ToetsingOnline

Brief title Noise reduction in hearing aids

Condition

• Hearing disorders

Synonym hearing impairement, hearing loss

Research involving Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum **Source(s) of monetary or material Support:** Heinsius Houboltfonds

Intervention

Keyword: hearing aid, intelligibility, noise reduction, preference

Outcome measures

Primary outcome

The different outcome measures are speech intelligibility (in terms of words

correct as well as the signal to noise ratio at which 50% is correctly

repeated), listening effort (indicated on a nine-point rating scale), speech

naturalness, noise annoyance and overall preference (all derived from paired

comparison ratings).

Secondary outcome

Study description

Background summary

One of the main reasons for hearing-aid dissatisfaction is the inability to understand speech in noisy environments. Therefore, noise reduction is an important feature implemented in most digital hearing aids. Unfortunately, details about the properties of noise reduction are rarely provided. Additionally, there is limited knowledge on the perceptual effects of noise reduction, such as changes in speech intelligibility, listening effort or personal preference. As a consequence, clinicians have to find out by trial and error which are the best noise reduction settings. If, however, more information would be available about noise reduction and its effects on the perception of the user, clinicians could actively select the best individual noise reduction system and setting, which may increase hearing aid satisfaction.

Study objective

The aim of this study is to determine the effects of hearing-aid noise reduction on the perception of normal hearing listener, in terms of intelligibility, listening effort, noise annoyance, speech naturalness and

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overall preference. Secondly, the perceptual effects of combining noise reduction with compression will be investigated.

Study design

The study is an observational study where several kinds of listening tests will be performed. All measurements take place during two visits of about 2.5 hours. During the first visit, standard pure tone audiometry will be performed. Additionally, both visits include an intelligibility measurement, listening effort ratings and paired comparison ratings.

Study burden and risks

Since this study is observational, the burden for the patients is minimal. Several tests similar or equal to those done in clinical practice will be done during the two visits. The possible benefit is high: this research might finally lead to fitting rules that help clinicians to actively select the best noise reduction system and setting for individual listeners. Such improved fitting can be beneficial for the group of hearing impaired, and might also lead to a shorter time required for optimal fitting, leading to improved clinical efficiency.

Contacts

Public Academisch Medisch Centrum

Meibergdreef 9 1105 AZ Amsterdam NL **Scientific** Academisch Medisch Centrum

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Trial sites

Listed location countries

Netherlands

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Eligibility criteria

Age

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

Inclusion criteria

Aged 18 years or older
Moderate sloping sensorineural hearing loss:
hearing threshold between 40 and 60 dB hearing level at 4 kHz
air-bone gap <<= 15 dB
more than 25 dB difference between the maximum and minimum hearing thresholds between 500 and 4000 Hz
Native speaker of the Dutch language

Exclusion criteria

-Pure tone hearing thresholds do not meet the specified criteria -Not native speaker Dutch

Study design

Design

Study type: Observational non invasive		
Masking:	Open (masking not used)	
Control:	Uncontrolled	
Primary purpose:	Treatment	

Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	13-06-2012
Enrollment:	20
Туре:	Actual

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Ethics review

Approved WMO Date: Application type: Review commission:

29-11-2011 First submission 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 CCMO **ID** NL38384.018.11