Individual preferences for noise reduction in hearing aids: the perceptual effects of speech distortion and residual noise

Published: 01-03-2019
Last updated: 12-04-2024

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

Summary

ID

NL-OMON47988

Source
ToetsingOnline

Brief title
Sound quality of noise reduction

Condition

- Hearing disorders

Synonym
hearing impairment, hearing loss

Research involving
Human

Sponsors and support

Primary sponsor: Amsterdam UMC, lokatie AMC

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: hearing aids, individual trade-off, listener preference, noise reduction

Outcome measures

Primary outcome

The main outcome measure is preference for different degrees of noise

reduction.

Secondary outcome

ANL

SRT

Speech intelligibility

Self-adjusted preference for amount of gain reduction

APHAB (abbreviated profile of hearing aid benefit, questionnaire)

Study description

Background summary

One of the main reasons for hearing aid dissatisfaction is the inability to hear well in noisy environments. For that reason, most hearing aids currently marketed have a noise reduction algorithm that should make listening in noisy environments less effortful and more comfortable. It is known that stronger noise reduction is accompanied with a degradation of speech quality and therefore it is important to find a balance between the two. Available research on the perceptual effects of noise reduction concentrates on group results, not taking fully into account the possible influences of hearing loss and of differences between individuals. The aim of this research is to improve rehabilitation by optimizing noise reduction for an individual hearing aid user. To achieve this we will focus on individual preferences for the trade-off of two major aspects of noise reduction, namely the amount of residual noise and the speech distortion caused by the noise reduction algorithm.

Study objective

This study is designed to clarify how hearing ability and other individual differences influence the preference for a specific noise reduction strength. We will concentrate on the trade-off between residual noise and speech distortion * which is inherent in noise reduction * to systematically study listeners* preference.

Study design

This study is observational in which several listening test will be performed. The entire visit will last approximately 2.5 hours. The listening tests consist out of an ANL test, an SRT test and a speech intelligibility rating. Also, listener preference for the strength of noise reduction will be determined with a paired comparison experiment.

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 standard clinical practice will be done during the visit. This study forms an important step towards the goal of being able to tailor the noise reduction to the personal requirements and preferences of an individual user. Furthermore, it provides an essential base for further research into the effects of noise reduction in hearing aids.

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

Aged between 18-75 years old
Dutch native speakers
No reports of tinnitus
Mild to moderate sensorineural hearing loss

Exclusion criteria

If the subject for whichever reason cannot participate in the test. Examples include problems with sight or concentration.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	10-05-2019
Enrollment:	18

Type:	Actual

Ethics review

Approved WMO Date:	01-03-2019
Application type:	First submission
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	NL68444.018.18