Multicenter evaluation and validation of the Dutch MATRIX test

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The primary goal of the present study is to evaluate and validate a new Dutch matrix test. The goal is to develop a new speech recognition test, the Matrix test, that can be used for clinical audiology and audiological research, both in the...

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

Summary

ID

NL-OMON38949

Source
ToetsingOnline

Brief title
The applicability of the new Dutch MATRIX test

Condition

- Hearing disorders

Synonym
hearing impairment, speech intelligibility in noise

Research involving
Human

Sponsors and support

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

Intervention

Keyword: closed-set, Dutch, sentence test, speech-in-noise

Outcome measures

Primary outcome

SRT results of normal hearing listeners that will determine reference values.

Test-retest differences for both normal hearing and hearing impaired subjects.

Secondary outcome

Comparison of SRT scores of the Matrix test with the gold standard (LIST and VU sentences and pure-tone audiometry), for normal hearing and hearing impaired subjects.

The effect of mother tongue of the listener in relation to the speaker (Dutch or Flemish)

Study description

Background summary

Speech recognition tests are powerful tools for both clinical and audiological research. They allow us to determine patients' speech perception ability and can help determine the potential benefits of hearing aids or cochlear implants. Speech intelligibilty is often assessed by measuring the recognition of sentences presented in a noisy background. Currently, two types of sentence-in-noise tests are widely used, The first type has some limitations. Sentences can only be used once because of training effects and sentence structure differs between sentences, complicating comparison among languages. Therefore another type of sentence-in-noise test, referred to as the Matrix test, can be the solution. Each sentence is grammatically and semantically correct and with no redundancy. The sentences are not predictable and thus can be used indefinitely. Currently, the matrix test available in Dutch does not meet the requierd test precision.

Study objective

The primary goal of the present study is to evaluate and validate a new Dutch matrix test. The goal is to develop a new speech recognition test, the Matrix test, that can be used for clinical audiology and audiological research, both in the Netherlands and in Flanders.

Study design

It is a two-center observational study. The Dutch matrix test will be compared with existing open-set speech tests that are commonly used in the Netherlands (VU) and in Flanders (LIST) by conducting the tests in the same subjects. As a reference the pure-tone audiogram will be measured. All teste will be conducted twice.

Study burden and risks

Since this study is observational, the burden of the patient is minimal. Several test similar or equal to those done in clinical practice will be done during a one time visit. Although the time of visit is approximately 1 hour, frequent breaks will be introduced.

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 18 years or older
Native speaker of the Dutch language
For normal-hearing group: normal hearing ability (average hearing loss at 0.5,1, 2, and 4 kHz equal to or less than 10 dB HL and all individual hearing threshold levels at octave frequencies egual to or less than 25 dB HL.
For hearing impaired group: sensorineural hearing loss (average hearing loss at 0.5, 1, 2, and 4 kHz between 10 dB HL and 60 dB HL).

Exclusion criteria

Language problems
Conductive hearing loss, as expressed by an air-bone gap greater than 10 dB HL.

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:	Diagnostic

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	16-09-2019

Enrollment:	30
Type:	Actual

Ethics review

Approved WMO Date:	24-10-2013
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	NL46381.018.13