The quantitative assessment of Slow Vision

Published: 08-10-2014
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The main goal of this project is to develop and validate a practical method to quantify slow vision. We will develop new tools to measure *perception time* during the assessment of visual acuity.

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Vision disorders
Study type	Observational non invasive

Summary

ID

NL-OMON47506

Source
ToetsingOnline

Brief title
Assessment of Slow Vision

Condition

- Vision disorders
- Neurological disorders of the eye

Synonym
Slow vision, Slow visual processing speed

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universitair Medisch Centrum
Source(s) of monetary or material Support: ODAS stichting via Uitzicht competitite en KSBS via Koninklijke Visio

Intervention

Keyword: Development of visual perception, Oculomotor behaviour, Visual impairment, Visual processing speed

Outcome measures

Primary outcome

The main parameter is the outcome of the new speed acuity tests (i.e. percentage correct answers and reaction times for the different sizes of optotypes, accumulated in a visual acuity and delay score).

Secondary outcome

Additional parameters are the eye movement recordings (e.g., the number of saccades needed to fixate the target, fixation stability, and saccade properties such as amplitude-duration-velocity relationships), the results of the Developmental Eye Movement test (DEM) and Useful Field of View (UFOV) and the results of the funduspicture and OCT (for the group with an apparent delay, or if already available).

Study description

Background summary

For the majority of tasks in daily life we rely on visual information; the demands on our visual system become even greater in dynamic situations, for example in traffic, where visual information changes rapidly over time. Most of young adults and children are able to deal with this information efficiently. However, if it takes too long to process and respond to visual stimuli, problems occur. Existing tests of visual acuity do not take into account the time that is needed to respond. In the Netherlands, people who seek help because they encounter problems of slow vision cannot receive assistance from institutes for the visually impaired or (visual) rehabilitation facilities, because rehabilitation criteria are based on visual acuity but not on the processing speed of visual stimuli. At present, the definition of visual

impairment is primarily based on distant visual acuity and visual field. There are no nationally or internationally accepted tests to measure reaction time in acuity testing. Nevertheless, many children and adults, both normally sighted as visually impaired, complain about problems in coping with various daily activities due to slow vision. For example, children need more time to complete exercises at school, and adults as well as children encounter problems when using digitized information (e.g. using computers) or with participation in traffic.

Study objective

The main goal of this project is to develop and validate a practical method to quantify slow vision. We will develop new tools to measure *perception time* during the assessment of visual acuity.

Study design

The design of the study is an observational, cross sectional study.

Study burden and risks

The burden will consist of a maximum of two sessions of one hour per participant. Both the traditional screening of visual functioning as the measurements of perception time consist of child friendly methods, which require the participants to indicate what they perceive on the screen, using verbal responses, matching techniques, button presses or eye movements. Most children experience such measurements as a series of games. Eye movements will be recorded with a remote, video-based eye tracker. Participants will be asked to come to Zeist, Nijmegen or if possible will be tested at their own school. No physical or physiological discomfort is expected, therefore the risks are considered to be negligible.

Children with complaints of slow vision regularly visit Bartiméus or Koninklijke Visio. Especially for children these complaints have important consequences in daily life, particularly at school. Therefore, it is important to establish whether visually impaired children and children with CVI also have problems of slower visual perception. Because we expect developmental components in both perception time as well as oculomotor behaviour, it is important to gather normative data from different age groups.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Children (2-11 years)
Elderly (65 years and older)

Inclusion criteria

Normally sighted participants (controls): a visual acuity >= 0.8, aged 4 to 60 years old., Visually impaired children: a visual acuity >= 0.05 and <= 0.4 and born after normal pregnancy and with a normal birth weight and without additional impairments, aged 4 to 17 years old., Children with cerebral visual impairment (CVI): diagnosed with CVI and having visited Bartiméus for rehabilitation, treatment, diagnosis or checkups, aged 4 to 17 years old., Normally sighted children with an apparent delay in perception: a visual acuity >= 0.8, normal visual field, fine motor skills sufficient to perform the tests. Observations of ophthalmologists or optometrists of slow visual perceptual speed and/or complaints about slow vision, aged 4 to 17 years old.

Exclusion criteria

For the normally sighted participants (controls):

Fine motor skills insufficient to perform the tests., For the visually impaired children:
Retinal pathology leading to a central scotoma,
Diagnosis of additional mental impairments., For the children with CVI:
Severe mental retardation and/or motor problems leading to problems to understand or execute all the tests used in the study., Normally sighted children with an apparent delay in perception: Fine motor skills insufficient to perform the tests.

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:	Recruiting
Start date (anticipated):	09-09-2015
Enrollment:	310
Type:	Actual

Ethics review

Approved WMO Date:	08-10-2014
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	19-12-2019
Application type:	Amendment

Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	15-01-2020
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

ID: 21874
Source: Nationaal Trial Register
Title:

In other registers

Register	ID
CCMO	NL48708.091.14
OMON	NL-OMON21874