Distractor interference in hemianopic patients

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The current study further investigates residual vision in hemianopics by using a new measure of distractor interference on saccadic eye movements. Previous research with healthy participants has indicated that irrelevant distractors evoke saccade...

Ethical review	Approved WMO
Status	Pending
Health condition type	Structural brain disorders
Study type	Observational non invasive

Summary

ID

NL-OMON30185

Source
ToetsingOnline

Brief title
blind interference

Condition

- Structural brain disorders

Synonym
nvt

Research involving
Human

Sponsors and support

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

Intervention

Keyword: blindsight, eye movements, hemianopic

Outcome measures

Primary outcome

- Saccade trajectory deviations

- Saccade latency

Secondary outcome

not applicable

Study description

Background summary

There are two main neural pathways in human vision: the geniculostriate and the retinotectal pathway. Because the geniculostriate pathway is dominant in humans, people with lesions of this pathway are blind in the hemifield contralateral to the lesion and can not see even salient signals ('hemianopia'). Some residual visual processing might be possible however (*blindsight*) (Weiskrantz, 1986).

In a study of Rafal et al (Rafal, Smith, Cohen, & Brennan, 1990) it was shown that distractors in the blind field of three hemianopic patients increased saccade latencies to a target in the intact field. An increase in saccade latency in the presence of an irrelevant distractor is a typical finding in eye movement research.
Neurophysiological research has revealed that the Superior Colliculus (SC) plays an important role in this effect. The finding of a remote distractor effect of a *blind* distractor might therefore reflect processing of visual input in the retinotectal pathway from the retina to the SC.

The conclusions of Rafal et al. were questioned by a recent study by Walker et al. (Walker, Mannan, Maurer, Pambakian, & Kennard, 2000) who showed that saccade latency was not affected by visual distractors within the blind field.

Study objective

The current study further investigates residual vision in hemianopics by using

a new measure of distractor interference on saccadic eye movements. Previous research with healthy participants has indicated that irrelevant distractors evoke saccade trajectory deviations away from their location (Van der Stigchel, Meeter, & Theeuwes, in press). Similar to the remote distractor effect, these saccade trajectories deviations are claimed to be a reflection of the competition between saccade goals in the SC.

Similar to the previous studies investigating the interference evoked by *blind* distractors, we will present irrelevant distractors in the blind part of the visual field and record eye movement responses to targets in the intact visual field. The influence of the distractor will be examined by looking at saccade trajectory deviations.

Study design

By using an eyetracker, eye movements to objects in the intact visual field will be recorded. Simultaneously distractors willen be presented in the blind field. We will investigate the influence of distractors on the eye movement.

Study burden and risks

Minimal burden and risk

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

- hemianopic (or quadrantanopic)
- age range: 18-65
- participants should speak and understand either Dutch or English fluently

Exclusion criteria

- diagnosis of spatial neglect
- hemiaplegia
- problems with execution of accurate eye movements

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: Pending

Start date (anticipated):	01-09-2006
Enrollment:	10
Type:	Anticipated

Ethics review

Approved WMO

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	NL12897.029.06