# Distractor interference after unilateral damage to the frontal, parietal or occipital system

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In this study, we will systematically investigate the influence of distractors on target processing in patients with lesions to the frontal, parietal and occipital system. This will be measured by eye movements. Furthermore, prism adaptation will be...

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

# Summary

### ID

NL-OMON37311

**Source** ToetsingOnline

**Brief title** Distractor interference after damage to cortex

### Condition

• Structural brain disorders

**Synonym** brain damage, cortical lesions

**Research involving** Human

### **Sponsors and support**

**Primary sponsor:** Universiteit Utrecht **Source(s) of monetary or material Support:** Ministerie van OC&W

#### Intervention

**Keyword:** eye movements, oculomotor competition, prism adaptation, unilateral brain damage

#### **Outcome measures**

#### **Primary outcome**

The main endpoint of the present study is the latency (reaction time) of the eye movement. This is measured as the time between the presentation of the target and the start of the eye movement.

#### Secondary outcome

The secondary study parameters are the saccade metrics like saccade trajectories and endpoint. Furthermore, it will be investigated whether the prismatic effect is more perceptual or more motor in nature, or a combination of both. The data for this will come from the neuropsychological neglect screening, in which changes in performance on screening tests with a strong perceptual component (e.g. Landmark task) will be compared to changes in performance on screening tests with a strong motor component (e.g. Star Cancelation). Additionally, differences in eye movements (reaction times, endpoints) between pre- and post prism adaptation will be investigated.

# **Study description**

#### **Background summary**

We propose to study the effects of unilateral brain damage to the frontal, parietal and occipital system on goal-directed behavior. Humans frequently make eye movements to explore their daily environment. Because of the wealth of visual information in our environment, there is a continuous competition between the various elements in the visual field for the next eye movement.

Crucial is therefore the correct selection of the relevant element (\*target\*) in the presence of irrelevant elements (\*distractors\*). Previous studies have shown that distractors interfere with target processing in that eye movement responses to a target are slower and less accurate. Moreover, in a small proportion of trials, the eyes are captured by the distractor in that eye movements are erroneously directed to the distractor. There is behavioral evidence that patients with damage to certain brain areas show abnormal distractor interference. However, the role of the various areas on target selection and distractor interference is largely unknown.

#### Study objective

In this study, we will systematically investigate the influence of distractors on target processing in patients with lesions to the frontal, parietal and occipital system. This will be measured by eye movements. Furthermore, prism adaptation will be used to investigate whether adaptation changes the competition between target and distractor. The prismatic aftereffect will first be tested with a brief neuropsychological neglect screening, which will be compared to the performance prior to prism adaptation. Prism adaptation will only be investigated in patients with lesions to the parietal and occipital system.

#### Study design

This is a group study (n=81) in which adult participants with lesions to frontal, parietal or occipital systems are invited to participate in a behavioral study to investigate the brain mechanisms underlying the competition between visual targets. Our goal is to have an equal number of patients for the three different groups. A control group (n=27), matched in age, will be tested using the same experimental set-up.

#### Study burden and risks

This is a non-therapeutic study in which the risks are negligible and the burden is minimal. The experiments are non-invasive, so there is no need for special preparation for the participants. There are no health risks doing the tests. The data are primarily used for research purposes.

# 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 older than 18 years and younger than 80 years
- having suffered brain damage frontal, parietal or occipital systems
- able to understand and carry out the test instructions

### **Exclusion criteria**

- psychiatric conditions that might interfere with the test performance

# Study design

### Design

Study type: Intervention model: Observational non invasive

Other

Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

#### Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	01-11-2008
Enrollment:	108
Туре:	Actual

# **Ethics review**

Approved WMO	
Date:	20-05-2008
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO	
Date:	24-11-2009
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO	
Date:	21-11-2011
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

# **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

ССМО

**ID** NL20247.041.07