Tracking object-based attention with the steady-state visual evoked potential

Published: 08-12-2006 Last updated: 20-05-2024

The object of the study is to assess whether attentional processes can be tracked by measuring the responses of the visual cortex.

Ethical review Approved WMO

Status Pending

Health condition type Cognitive and attention disorders and disturbances

Study type Observational non invasive

Summary

ID

NL-OMON30028

Source

ToetsingOnline

Brief title

SSVEP

Condition

Cognitive and attention disorders and disturbances

Synonym

not relevant

Research involving

Human

Sponsors and support

Primary sponsor: Vrije Universiteit Medisch Centrum

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

Intervention

Keyword: Attention, MEG, SSVEP

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Outcome measures

Primary outcome

- amplitude of response to stimulus (SSVEP), with time-frequency
- representation of brain activity.
- coherence and generalized synchrony of brain responses.

Secondary outcome

not relevant

Study description

Background summary

At any given time a wealth of perceptual information is present in our environment. Our capacity to process and respond to all this information is limited. Therefore mechanisms are necessary to organize the information and to permit selective processing of currently relevant stimuli.

What is relevant is determined by the task at hand. For exemple, a driver should pay more attention to the road when there is a lot traffic and as a result of this, can be less attentive to a conversation with a passenger.

An important question is: how is the selection of information achieved in the brain? Previous research has shown that people respond better and faster to the appearance of a stimulus at a certain location when their attention is directed to that location. However, it seems that we are not only able to attend a part of space but also attend a certain object.

In our study we will compare the brain activity that is related to a relevant object to the activity related to an irrelevant object.

Study objective

The object of the study is to assess whether attentional processes can be tracked by measuring the responses of the visual cortex.

Study design

Subjects will be presented with two curves starting left and right to the fixation point with either 0 intersections (crossings between the two curves), 1 intersection or 2 intersections. A part of one of these curves will consist of a contrast-reversing checkerboard, eliciting a steady-state visual evoked field. The subjects are then cued to covertly trace (without making eye movements) the curve starting either left or right (target curve) and ignore the other (distracter curve). Finally, they have to indicate whether the target curve ends left or right from the fixation point. Brain responses are measured in a Magnetoencephalography scanner while the experimental task is performed.

Study burden and risks

The risks of participating in this study and the extent of the burden are minimal: estimated length of 2 hours of non-invasive measurements.

Contacts

Public

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adults (18-64 years)

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Elderly (65 years and older)

Inclusion criteria

18-40 jaar oud

Exclusion criteria

diseases of the central nervous system, under treatment by neurologist or psychiatrist, usage of medicines that act on the central nervous system

Study design

Design

Study type: Observational non invasive

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Other

Recruitment

NL

Recruitment status: Pending

Start date (anticipated): 01-07-2006

Enrollment: 8

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 NL12800.029.06