The Neural Correlates of Route Choice

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The main objective is to find the neural correlates of route choice with an event-related fMRI experiment.

Ethical review	Approved WMO
Status	Pending
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON33194

Source
ToetsingOnline

Brief title
Neural Correlates of Route Choice

Condition

- Other condition

Synonym
non applicable

Health condition

niet van toepassing

Research involving
Human

Sponsors and support

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

Intervention

Keyword: Decision making, fMRI, Habits, Traffic congestion

Outcome measures

Primary outcome

BOLD-response as measured using fMRI.

Secondary outcome

Non applicable

Study description

Background summary

Behavioral studies have shown that people, when making traveling choices, often choose sub optimal routes. They, for example, tend to develop strong behavioral preferences that cause people to take the same way home every day, even when traffic information provides for a better alternative. This behavior is a major cause of congestion on the roads. This study investigates the neural correlates of route choice and of the prevalence of route preferences, with the use of an event-related fMRI experiment.

Study objective

The main objective is to find the neural correlates of route choice with an event-related fMRI experiment.

Study design

This study uses an experimental design. Participants will perform a computerized choice task and their brain activation patterns will be measured using functional Magnetic Resonance Imaging (fMRI) while they are performing the task.

Intervention

Non applicable

Study burden and risks

There are no known risks associated with participating in an fMRI study. This is a noninvasive technique involving no catheterizations or introduction of exogenous tracers. Numerous children and adults have undergone magnetic resonance studies without apparent harmful consequences. Some people become claustrophobic while inside the magnet and in these cases the study will be terminated immediately at the participant' requests.
The only absolute contraindications to MRI studies are the presence of intracranial or intraocular metal, or a pacemaker. Relative contraindications include pregnancy and claustrophobia. Participants who may be pregnant, who may have metallic foreign bodies in the eyes or head, or who have cardiac pacemakers will be excluded because of potential contraindications of MRI in such subjects.
Although there is no direct benefit to the participants from this proposed research, there are greater benefits to society from the potential knowledge gained from this study. First, a mayor economic and social problem in the Netherlands is the enormous amount of congestion on the roads. One of the ways to deal with this problem is to get people to change their (habitual) route choice behavior, by providing appropriate information to travelers. This study is a first step in determining what information can be provided to travelers to create safe and efficient transportation and limiting congestion. Second, looking at the neural mechanisms of complex choice behavior can help to uncover the link between emotional and informational cognitive processes, and can thus be of benefit to theories concerning the nature of decision making and can benefit the study of neurological patients with emotional or cognitive dysfunctions.

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

Adult subjects ages 24-40 years with no history of neurological disorder/disease and no counter-indications to MRI will be included in this study. All participants will be right-handed native Dutch speakers with normal vision or contact lenses.

Exclusion criteria

Potential participants will be prescreened for contraindications for fMRI, which include metal implants, heart arrhythmia, claustrophobia, and possible pregnancy (in adult females). They will additionally be prescreened for head trauma, premature birth, learning disabilities, and history of neurological or psychiatric illness and/or use of psychotropic medications. Additionally only native-Dutch speakers will be asked to participate in the study. Finally, left-handed individuals will be excluded from the study.

Study design

Design

Study type: Interventional

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-07-2009
Enrollment:	24
Type:	Anticipated

Ethics review

Approved WMO

Date:	24-08-2009
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)

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	NL28330.058.09