The effect of transcranial direct current stimulation on the StartReact effect: An explorative study.

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON23722

Source
Nationaal Trial Register

Health condition

StartReact effect

Sponsors and support

Primary sponsor: Radboud University Medical Centre Nijmegen
Source(s) of monetary or material Support: Radboud University Medical Centre Nijmegen

Intervention

Outcome measures

Primary outcome

The main outcome variable is the reaction time in a simple reaction time task and the onset of postural responses.

Secondary outcome

N/A

Study description

Background summary

Transcranial direct current stimulation (tDCS) is a noninvasive brain stimulation technique that alters cortical excitability. A recent study in anaesthetized cats showed that tDCS also facilitates subcortical neurons . Here, we hypothesize that subcortical facilitation also occurs in humans. We evaluate the effect of tDCS on two responses that are thought to be evoked from subcortical structures; (1) the StartReact effect, in which a startling acoustic stimulus (SAS) accelerates the latencies of movement responses to an imperative stimulus, and (2) automatic postural responses to external balance perturbations.

Study objective

Transcranial direct current stimulation (tDCS) is a noninvasive brain stimulation technique that alters cortical excitability. A recent study in anaesthetized cats showed that tDCS also facilitates subcortical neurons. Here, we hypothesize that subcortical facilitation also occurs in humans. We evaluate the effect of tDCS on two responses that are thought to be evoked from subcortical structures; (1) the StartReact effect, in which a startling acoustic stimulus (SAS) accelerates the latencies of movement responses to an imperative stimulus, and (2) automatic postural responses to external balance perturbations.

We expect that anodal-tDCS will shorten the latencies of responses, both during the simple reaction time tasks and during the balance perturbations .

Study design

In one session anodal stimulation will be given, in the other session sham stimulation will be given. The order of the sessions will be balanced over the participants.

Intervention

tDCS (2 mA; 15 min) will be applied to one cortical area (M1 on the non-dominant hemisphere). In one session anodal stimulation will be given, in the other session sham stimulation will be given. The order of the sessions will be balanced over the participants.

Contacts

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Eligibility criteria

Inclusion criteria

Only healthy, competent, men and women , 18–45 years old, with normal hearing will be recruited.

Exclusion criteria

With regard to transcranial brain stimulation:

1. Serious head trauma or brain surgery;

2. Large or ferromagnetic metal parts in the head (except for a dental wire);

3. Implanted cardiac pacemaker or neurostimulator;

4. Pregnancy.

With regard to other experimental techniques:

1. Skin diseases at intended electrode sites (EMG, tDCS).

With regard to general experimental requirements:

1. Disorders of hearing;

2. Any neurological or orthopaedic disorder;

3. Cognitive impairments;

4. Any prescribed medication that can alter cortical excitability (e.g. antiepileptics, tricyclic anti-depressives or benzodiazepines) within two weeks prior to participation. Medication negatively affecting balance (e.g. neuroleptics, antidepressants, anticonvulsants, sedatives).

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Non controlled trial
Masking:	Single blinded (masking used)
Control:	Placebo

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	29-04-2013
Enrollment:	10
Type:	Anticipated

Ethics review

Positive opinion

Date:	23-04-2013
Application type:	First submission

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
NTR-new	NL3802
NTR-old	NTR3975
CCMO	NL42504.091.13
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results
N/A