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

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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...

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON23722

Bron
NTR

Aandoening

StartReact effect

Ondersteuning

Primaire sponsor: Radboud University Medical Centre Nijmegen
Overige ondersteuning: Radboud University Medical Centre Nijmegen

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

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

Toelichting onderzoek

Achtergrond van het onderzoek

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.

Doel van het onderzoek

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 .

Onderzoeksopzet

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.

Onderzoeksproduct en/of interventie

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.

Contactpersonen

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

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

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

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).

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	N.v.t. / één studie arm
Blindering:	Enkelblind
Controle:	Placebo

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	29-04-2013
Aantal proefpersonen:	10
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	23-04-2013
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

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

Resultaten

Samenvatting resultaten
N/A