Localization of electroctutaneous stimuli.

Gepubliceerd: 19-04-2011 Laatst bijgewerkt: 15-05-2024

Stimulus strength, duration and modality influence the reported location of cutaneous stimuli.

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

Samenvatting

ID

NL-OMON29141

Bron
Nationaal Trial Register

Verkorte titel
Localization of electroctutaneous stimuli

Aandoening

Touch
Tast
Nociception
Nociceptie
Electrocutaneous stimulation
Elektrocutane stimulatie
Subjective localization
Subjectieve localisatie
Body schema
Lichaamsschema

Ondersteuning

Primaire sponsor: Universiteit Twente
Overige ondersteuning: EU

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Reported perceived stimulus locations: Subjects report the perceived location of each stimulus on the tablet monitor after each trial.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale:

The body schema is the unconscious awareness of our body, which is fed by various sensory modalities. Various disorders have been hypothesized to be reflected in this awareness. When people report the location of a cutaneous stimulus they refer to their body schema, therefore studying the reported locations of stimuli on the skin may provide information about this schema. Although tactile localization has been studied repeatedly, many factors which may influence spatial perception of touch remain unidentified, which impedes interpretation of the results. Localization data is known to have both systematic and stochastic errors when comparing it to the actual stimulus sites. The systematic component differs between subjects. It is at present unknown whether the systematic component is a trait of a subject or whether it changes when repeating the same measurement at another time. Also, the effect of stimulus strength and duration on the stochastic and systematic components is unkown. Another unknown is whether the spatial perception of touch and nociception are the same. Finally, the study of spatial perception would benefit from a critical evaluation about the statistical methods used for analyzing the data.

Objective:

In this study we address the influence of stimulus strength, modality and duration on reported locations of cutaneous stimuli. In addition, we assess the reproducibility of these reports and test whether we can improve the analysis of localizations by identifying clusters in this data. All stimuli will be applied using electric stimulation on the skin.

Study design:

The study consists of 5 series of experiments which use electric stimuli of tactile afferents:

1. Reproducibility and clustering study consisting of a pilot phase (5 subjects, 2 experiments

each) and final series (25 subjects, 2 experiments each);

2. Influence of stimulus strength on tactile localization (45 subjects);

3. Effect of stimulus frequency and duration on tactile localization with a pilot stage (5 subjects) and final stage (40 subjects);

4. The effect of gaze direction on clustering in tactile localization with a pilot stage (max 5 subjects) and final stage (15 subjects). Experiment series 5 also includes nociceptive electric stimuli and will compare the localization of tactile and nociceptive stimuli (15 subjects).

Study population:

Healthy, right-handed volunteers, aged between 18-30 years.

Main study parameters/endpoints:

Main parameters of the various experiment series are the following stimulus parameters: Location, strength, frequency, duration and modality. In one experiment, gaze direction of the subject will be varied. The outcome measures are reported location, which will be analysed in respect to variance and mean per site as well as clustering behaviour.

Nature and extent of the burden and risks associated with participation, benefit and group relatedness:

Each experiment will last approximately 1.5-2 hours depending on the experiment. The first hour consists of preparations; the remainder is taken up by the main experiment. In 4/5 experiments all stimuli feel as a dull tap. In the tactile/nociceptive comparison experiment half of the stimuli will feel as a light pinprick. There are no risks involved in participating in these experiments. The needle electrodes used in experiment series 5 can cause mild skin irritation which disappears within half an hour after removal of the electrodes.

Doel van het onderzoek

Stimulus strength, duration and modality influence the reported location of cutaneous stimuli.

Onderzoeksopzet

Each experiment lasts 2 hours.

Onderzoeksproduct en/of interventie

Subjects receive electrocutaneous stimulati at 8 sites on their forearm. The electrode positions are hidden for the subjects by a tablet screen which presents a picture of the arm without electrodes. Subjects report the perceived location of the stimuli by tapping on this screen.
All experiments are performed on healty subject. All analyses will be within subject, no comparison between groups is made. Experiments last approximately 2 hours, of which 1 hour is preperation and 1 hour the actual localization task.

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Healthy subjects aged 18-30 years.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Skin condition on left arm;

2. Excessive amount of hair on left arm.

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	N.v.t. / één studie arm
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-05-2011
Aantal proefpersonen:	155
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	19-04-2011
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 35894
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL2727
NTR-old	NTR2865
CCMO	NL35875.044.11
ISRCTN	ISRCTN wordt niet meer aangevraagd.
OMON	NL-OMON35894

Resultaten

Samenvatting resultaten
N/A