

Electrical stimulation for post stroke hand opening.

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Application of multichannel electrical stimulation on the wrist extensor, finger extensor, thumb abductor and thumb extensor will instantaneously increase functional hand opening of stroke patients.

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

Samenvatting

ID

NL-OMON28137

Bron

NTR

Verkorte titel

R2G

Aandoening

Stroke

Ondersteuning

Primaire sponsor: Roessingh Research & Development BV

Overige ondersteuning: Euregio European Union (Interreg IV A)

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The primary outcome of the present experiment is the Box and Block test which measures hand function of stroke patients. This functional measure is used to evaluate the influence of

different types of electrical stimulation (EMG triggered and position triggered multichannel ES, single channel ES and none) on functional hand opening.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale:

The majority of stroke patients have to cope with impaired arm and hand function after a stroke. Post stroke rehabilitation training aims to regain (partly) lost functions by stimulation of restoration or promoting compensational strategies, in order to increase the level of independence. During rehabilitation training movements are practiced preferably with high intensity, in a task-oriented way, with an active contribution of the stroke survivor in a motivating environment. An effective training modality that is commonly applied in post stroke upper extremity rehabilitation training is arm support by means of gravity compensation. In order to increase functional abilities of the affected arm, hand function should also be trained. A promising technique to train hand function, or more specifically hand opening, after stroke is electrical stimulation of wrist and finger extensors and thumb abductors/extensors.

Objective:

The primary objective of the present study is to study influence of different types of electrical stimulation on functional hand opening. The secondary objective of the study is to gain more insight in muscle activation patterns and kinematics during functional reach-to-grasp movements.

Study design:

The study has a cross-sectional design, with one measurement session (T1) for healthy elderly and two sessions (T1 and T2, spaced approximately 3 months apart) for stroke patients.

Study population:

20 healthy elderly and 20 stroke patients.

Doel van het onderzoek

Application of multichannel electrical stimulation on the wrist extensor, finger extensor, thumb abductor and thumb extensor will instantaneously increase functional handopening of stroke patients.

Onderzoeksopzet

The experiment consist of two measurements, spaced approximately three months apart.

Onderzoeksproduct en/of interventie

Patients will receive different types of single and multichannel electrical stimulation. The instantaneous influence on functional hand opening of these types of electrical stimulation is addressed by the Box and Block Test.

Contactpersonen

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. A history of a single unilateral stroke in the medial cerebral artery (MCA) region resulting in

single-sided hemiparesis;

2. The onset of the stroke was more than six weeks ago;
3. The ability to voluntarily generate 20 degrees excursions in the plane of elevation (horizontal ab-/adduction) and elevation angle (ab-/adduction, ante-/retroflexion) of the shoulder joint;
4. The ability to voluntarily generate an excursion of 20 degrees of elbow flexion/extension;
5. The ability to voluntarily extend the wrist 10 degrees from neutral flexion/extension;
6. Adequate cognitive function to understand the experiments, follow instructions, and give feedback to the researchers.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. A fixed contracture deformity in the (affected) upper limb was present;
2. Pain as a limiting factor for the subject's active range of motion;
3. The use of a pace-maker.

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	Niet-gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland	
Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-02-2011

Aantal proefpersonen: 40
Type: Verwachte startdatum

Ethische beoordeling

Positief advies
Datum: 05-12-2010
Soort: Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 38359
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL2520
NTR-old	NTR2638
CCMO	NL34868.044.10
OMON	NL-OMON38359

Resultaten

Samenvatting resultaten
N/A