

Invloed van een amputatie van de onderarm op de aansturing van spieren in de onderarm

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We hypothesise that the braced condition is significantly more similar to the affected side than the non-braced condition

Ethische beoordeling	Niet van toepassing
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON28801

Bron

Nationaal Trial Register

Aandoening

Amputation, motor control

Ondersteuning

Primaire sponsor: University Medical Center Groningen (UMCG)

Overige ondersteuning: The European Council

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The EMG signals of forearm muscles will be measured from both limbs using the electrode bands. To compare EMG patterns during movement execution between conditions and affected / un-affected limb, we will compute three indexes:

(1) SI (separability index): How distinct are EMG activity patterns for different

movements?

(2) RI (repeatability index): How similar are patterns of the same movement if repeated?

(3) VI (variability index): How variable is each pattern over the time of one movement execution?

Toelichting onderzoek

Achtergrond van het onderzoek

Questions arise as to how the control strategy of the neuromotor system changes after amputation when muscles and other tissues are rearranged, degenerated, and when the feedback loop is heavily altered due to absence of a moving limb.

The findings of this study give a fundamental understanding of how neuromuscular plasticity, degeneration processes and altered feedback affect the production of an EMG signal to produce a movement.

Doel van het onderzoek

We hypothesise that the braced condition is significantly more similar to the affected side than the non-braced condition

Onderzoeksopzet

N/A

Onderzoeksproduct en/of interventie

The participants will be fitted with two elastic bands. Each band is fitted with 8 equally spaced clinically used electrodes (Otto Bock 13E200=50). The first band is placed on the thickest part of the forearm of the affected side that does not have scarring. The second band is placed at the same place on the unaffected side. The participant will then be placed in front of a computer monitor on which prompts will be shown that instructs the participant to perform specific bimanual movements. The participant will be instructed to perform the movements with moderate strength for three seconds. The movements are

- Forearm supination
- Forearm pronation
- Wrist flexion

- Wrist extension
- Open hand
- Key grip
- Fine pinch
- Radial deviation
- Ulnar deviation

Each movement will be performed three times and the order of the movements will be presented in a randomised order. While performing the movements, the EMG signal measured from the electrodes on the elastic bands are saved on a computer. After the participant has performed all the movements, the same movements will be performed while wearing a wrist/hand brace on the unaffected side. The order of the brace condition is counterbalanced over participants.

After completing all the movements for both conditions (no brace and brace), the participant will fill out a short questionnaire.

Contactpersonen

Publiek

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

The inclusion criteria for the participants are: individuals with acquired unilateral limb deficiency at the transradial level. The stump needs to be properly healed with sufficient reduction of stump oedema which can usually be expected 8 weeks after surgery. Participants should have a 2 cm broad region on the forearm with no scarring. Their understanding of the Dutch language needs to be sufficient to understand what they need to do in the experiment.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Anyone who do not match the inclusion criteria

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Anders
Blinding:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland	
Status:	Werving gestart
(Verwachte) startdatum:	21-02-2017
Aantal proefpersonen:	15
Type:	Verwachte startdatum

Ethische beoordeling

Niet van toepassing	
Soort:	Niet van toepassing

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	NL6724
NTR-old	NTR6935
Ander register	Ethische Commissie Bewegingswetenschappen, UMCG, Groningen (ECB) : ECB/2017.01.30_2

Resultaten