Quantify the ability of the human hand to perform independent movements

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

Samenvatting

ID

NL-OMON22010

Bron
NTR

Verkorte titel
Symbionics

Aandoening

Duchenne Muscular Dystrophy
Duchenne Spierdystrophie

Ondersteuning

Primaire sponsor: University of Twente
Overige ondersteuning: STW

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The main study parameter is the amount of information in bits/sec people convey through

their hands. This can change depending on the amount of stimuli, and their presentation rate (frequency). We are interested in measuring this.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale: Current hand orthoses, do not take into consideration the limits of the human in terms of information transfer rate (ITR). Neither it is clear how many gestures can be distinguished in patients with DMD when using sEMG as a control input. A quantification of these limits can lead to a simplification of the design and control of such orthoses.
Objective: The main objectives of this study are to determine the rate people convey information through their hand and to assess the associated mental workload of the subjects through a questionnaire. The secondary objective is to determine to what extend sEMG can be used for controlling an active device. Moreover, as we already have pilot data from healthy subjects, we are also interested in the comparison between healthy people and people with Duchenne.
Study design: Explorative investigational study. Because of the physical limitations of people with Duchenne to respond fast by moving their fingers, we also want to measure EMG signals from the forearm in order to have the exact time of muscle activation. This is done for the sake of the comparison with healthy subjects.
Study population: A maximum of 6 patients with Duchenne Muscular Dystrophy (DMD), 18 - 28 years old.
Intervention (if applicable): The participants in this study will have to sit in front of an apparatus, which will provide them with visual stimuli (in the form of LEDs switching on and off). They will be responsible for clicking a mouse button, depending on the stimuli they receive. During the additional experiment the participants will be asked to make 7 different gestures which are presented on a screen.
Main study parameters/endpoints: The main study parameter is the amount of information in bits/sec people convey through their hands. This can change depending on the amount of stimuli, and their presentation rate (frequency). Also, the workload every condition imposes on the subject is assessed via a questionnaire.
Secondary study parameters/endpoints: The secondary study parameter is the capability of sEMG on the forearm of people with DMD to provide the necessary information to recognize different gestures. Additionally, the difference between healthy people and people with DMD will be evaluated.
Nature and extent of the burden and risks associated with participation, benefit and group relatedness: The measurement protocol is not invasive, the measurements require some time investment of the subject. Participation in the investigation is not directly beneficial for the participants. A contribution is made to the future development of a new 'adaptive' hand orthosis.

Doel van het onderzoek

The main objective of this study is to determine the rate people convey information through their hand. The secondary objective is to assess the mental workload of the subjects through a questionnaire. Moreover, as we already have pilot data from healthy subjects, we are also interested in the comparison between healthy people and people with Duchenne.

Onderzoeksopzet

All Outcomes will be measured at the same time point (Day of the measurement).

Onderzoeksproduct en/of interventie

None

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

-Age: 18-28 years

-Affected hand function

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

-Above or below the age band allowed (18-28)

-Epileptic seizure history

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Anders
Toewijzing:	N.v.t. / één studie arm
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving gestopt
(Verwachte) startdatum:	01-12-2016
Aantal proefpersonen:	6
Type:	Werkelijke startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

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	NL6045
NTR-old	NTR6184
Ander register	METC Twente : METC NL59061.044.16

Resultaten