Reactieve voetplaatsing in balanshandhaving tijdens staan en lopen in gezonde jongeren en mensen met een cerebrovaculaire aandoening

Gepubliceerd: 07-10-2014 Laatst bijgewerkt: 19-03-2025

What is the relation between body states (e.g. center of mass position and velocity) following a change in externally applied pelvic force, and the resulting swing time and stepping location used to maintain balance in standing and walking.

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

Samenvatting

ID

NL-OMON25102

Bron
NTR

Verkorte titel
Reactive stepping in balance control

Aandoening

Stepping responses in healthy subjects and stroke survivors.

Dutch keywords:
Balans
Staan
Lopen
Reactieve voetplaatsing
CVA

Ondersteuning

Primaire sponsor: University of Twente

Overige ondersteuning: European Union CORDIS Seventh Framework Programme

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Foot placement location and swing time

Toelichting onderzoek

Achtergrond van het onderzoek

In daily life the upright human body is continuously challenged by external disturbances, such as gravitational forces and forces originating from interactions with the environment. These disturbances can lead to a loss of balance, which must be acted upon accordingly to prevent a fall. Following a disturbance, proper foot placement is crucial for maintaining balance during both standing and walking. However it is unclear why humans place their foot at a certain location at a certain time following an unexpected balance disturbance. A model based prediction of a suitable foot placement location to maintain balance and prevent falls can have great value in both clinical and robotics fields of research. Investigating foot placement in stroke patients can lead to a better understanding how stroke related complications affect foot placement, and how these might be compensated using supportive devices such as exoskeletons.

Doel van het onderzoek

What is the relation between body states (e.g. center of mass position and velocity) following a change in externally applied pelvic force, and the resulting swing time and stepping location used to maintain balance in standing and walking.

Onderzoeksopzet

All instances from perturbation onset up and including to the moment of first, second and possibly third subsequent foot contact.

Onderzoeksproduct en/of interventie

Forces applied at the pelvis during standing and walking to disturb balance and invoke a stepping response.

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Healthy subjects :

- between 18 and 30 years of age

Stroke survivors :

- between 18 and 70 years of age
- diagnosed with a hemiparesis as the result of a first ever ischemic stroke

- > 6 months post-stroke (chronic stage)

- functional ambulation category (FAC) 4 : walk independently on level surfaces

- physical condition allows independent walking for at least 3 consecutive minutes

- stable medical condition

- sufficient cognitive abilities (mini-mental state examination >= 22)

- sufficient communication abilities (Utrechtse communicatie onderzoek >= 3)

Both :

- body weight < 100 kg

- has given written informed consent

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Healthy subjects :

- has current lower extremity problems or deficiencies (e.g. knee problems, disabilities in walking)

- has (a history of) neurological or balance related disorders

Stroke survivors :

- has (a history of) other neurological or balance related disorders not related to stroke

Both :

- is using medication that can affect balance control

- is pregnant, or has a chance of being pregnant

- has chronic joint pain

- has orthopedic problems

- has (a history of) cardiac conditions that interfere with physical load

- has (a history of) skin diseases that could result in irritation of the skin underneath the EMG

electrodes

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:	01-11-2014
Aantal proefpersonen:	60
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	07-10-2014
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 44237
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL4412
NTR-old	NTR4841
CCMO	NL50450.044.14
OMON	NL-OMON44237

Resultaten