

Effect of Virtual Reality training on reach after stroke.

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Chronic stroke subjects who will be trained in a stimulus rich context, specifically developed for rehabilitation (rehab game) will show similar or improved restoration of their arm function in comparison with chronic stroke subjects who will be...

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

Samenvatting

ID

NL-OMON24251

Bron

NTR

Aandoening

Stroke
CVA
chronic
beroerte
chronische fase

Ondersteuning

Primaire sponsor: Roessingh Research and Development, Enschede

Overige ondersteuning: Wetenschappelijk college fysiotherapie

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Before and after the training (including follow-up after 1 month) changes in general arm

function (Action Research Arm test and Fugl-Meyer assessment) and in motivation (Intrinsic Motivation Inventory) are quantified.

Toelichting onderzoek

Achtergrond van het onderzoek

To stimulate restoration of arm function after stroke, intensive and task-specific training is essential. To implement this, the application of virtual reality (VR) in rehabilitation is promising. Integration of stimuli and feedback in a rehabilitation game, taking principles of motor relearning into account, allows high motivation for patients during training. Additionally, VR can automate and intensify treatment, since patients can practice more independently, without the need for one-to-one supervision. This is an important issue in coming years with respect to the ageing of the population, leading to increased demand, but decreased availability of physical and occupational therapists.

Previous research of this group showed that arm training using a specifically developed game for rehabilitation (FurballHunt), combined with arm support, can improve reaching. However, this pilot study did not discern between the effect of arm support and the added value of training with a rehabilitation game. When training using a rehabilitation game proves (at least) as effective as conventional therapy, this already is promising for applying VR in rehabilitation, regarding independency during training.

Doel van het onderzoek

Chronic stroke subjects who will be trained in a stimulus rich context, specifically developed for rehabilitation (rehab game) will show similar or improved restoration of their arm function in comparison with chronic stroke subjects who will be trained in a less rich context (conventional reach exercises).

Onderzoeksopzet

Evaluation of arm function takes place once before and twice after training (within 1 week and follow-up after 1 month), totaling the duration to 12 weeks for each participant.

Onderzoeksproduct en/of interventie

Twenty stroke patients receive reach training for the affected arm during 6 weeks, 3 times 30 minutes per week. The intervention group (10 persons, randomized) will train using the FurballHunt game and the control group (10 persons, randomized) will perform standardized reaching exercises in a conventional physical therapy setting, with equal intensity.

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. At least 6 months post-stroke;
2. First ever stroke;
3. Stroke affecting the medial cerebral artery region (MCA);
4. Demonstrable motor limitations in upper proximal extremity (Fugl-Meyer < 45), with reach(-like) movement ability;
5. Ability to understand and follow instructions;
6. Ability to complete measurement and training sessions.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Co-morbidity of disorders affecting use of the upper extremity;
2. Additional training/therapy of the affected arm during participation to the study.

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	Gerandomiseerd
Blinding:	Enkelblind
Controle:	Geneesmiddel

Deelname

Nederland	
Status:	Werving gestart
(Verwachte) startdatum:	01-04-2010
Aantal proefpersonen:	20
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies	
Datum:	18-03-2010
Soort:	Eerste indiening

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	NL704
NTR-old	NTR2247
Ander register	METC : P10-09, VR1_prt
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Resultaten

Samenvatting resultaten

Prange GB, Kallenberg LAC, Jannink MJA, et al. Influence of gravity compensation on muscle activity during reach and retrieval in healthy elderly. J Electromyogr Kinesiol 2009a; 19(2):e40-e49 (DOI 10.1016/j.jelekin.2007.08.001)

Prange GB, Jannink MJA, Stienen AHA, Van der Kooij H, IJzerman MJ, Hermens HJ. Influence of gravity compensation on muscle activation patterns during different temporal phases of arm movements of stroke patients. Neurorehab Neural Rep 2009b;23(5):478-485.
 Prange GB, Jannink MJA, Stienen AHA, Van der Kooij H, IJzerman MJ, Hermens HJ. An explorative, cross-sectional study into abnormal muscle synergies during functional reach in chronic stroke patients. accepted for publication in J NeuroEng Rehab 2009c.

Prange GB, Krabben T, Renzenbrink GJ, IJzerman MJ, Hermens HJ, Jannink MJA. Changes in muscle activation after reach training with gravity compensation in chronic stroke patients. submitted 2009d.