Effect of Virtual Reality training on reach after stroke.

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON24251

Source NTR

Health condition

Stroke
CVA
chronic
beroerte
chronische fase

Sponsors and support

Primary sponsor: Roessingh Research and Development, Enschede Source(s) of monetary or material Support: Wetenschappelijk college fysiotherapie

Intervention

Outcome measures

Primary outcome

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.

Secondary outcome

Besides clinical measures of arm function, additionally changes in reach performance are determined (during a maximal reach test).

Study description

Background summary

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.

Study objective

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).

Study design

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.

Intervention

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.

Contacts

Public

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Eligibility criteria

Inclusion criteria

- 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.

Exclusion criteria

1. Co-morbidity of disorders affecting use of the upper extremity;

2. Additional training/therapy of the affected arm during participation to the study.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	Active

Recruitment

NL	
Recruitment status:	Recruiting
Start date (anticipated):	01-04-2010
Enrollment:	20
Туре:	Anticipated

Ethics review

Positive opinion	
Date:	18-03-2010
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL704
NTR-old	NTR2247
Other	METC : P10-09, VR1_prt
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results

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.