Effect of Virtual Reality training on reach after stroke

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To compare the effect of a stimulus rich context, specifically developed for rehabilitation (rehab game), with a less rich context (conventional exercises) during reach training for restoration of arm function in chronic stroke patients.

Ethical review   Approved WMO
Status   Recruitment stopped
Health condition type   Central nervous system vascular disorders
Study type   Interventional

Summary

ID

NL-OMON34652

Source
ToetsingOnline

Brief title
VR arm training after stroke

Condition

- Central nervous system vascular disorders

Synonym
Cerebrovascular accident, Stroke

Research involving
Human

Sponsors and support

Primary sponsor: Revalidatiecentrum Het Roessingh
Source(s) of monetary or material Support: Wetenschappelijk college fysiotherapie

Intervention

Keyword: arm function, motivation, stroke, Virtual Reality

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

To compare the effect of a stimulus rich context, specifically developed for rehabilitation (rehab game), with a less rich context (conventional exercises) during reach training for restoration of arm function in chronic stroke patients.

Study design

Pilot randomised controlled trial with one baseline measurement pre-training and two end measurements post-training (within one week and follow-up after one month).

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.

Study burden and risks

The risks for the participants are limited to a minimum, since the movement tasks consist of functional and familiar arm movements, all executed within the ability of the person, while sitting. Furthermore, the measurements in this study are non-invasive (motion analysis, functional scales) and pose no risk or inconvenience for the participants.
Participation in this study can present an immediate benefit for the participant, in the sense that additional training of reaching of the affected arm is received. Whether, and to what extent, this benefit will present, can*t be predicted, because getting insight in this information is the purpose of this study.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

- Chronic phase (> 6 months post-stroke)
- Motor impairment of upper (proximal) extremity (Fugl-Meyer<45)
- Sufficient cognitive skills (MMSE>=22)
- Sufficient communicative skills (UCO>=3)

Exclusion criteria

- Patients with more than one stroke
- Presence of other medical disorders which influence recovery of upper extremity
- Limited physical capacity (not able to follow training of 30 minutes)

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)

| Control: | Active |
| Primary purpose: | Treatment |

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	14-06-2010
Enrollment:	20
Type:	Actual

Ethics review

Approved WMO

Date:	06-04-2010
Application type:	First submission
Review commission:	METC Twente (Enschede)

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
CCMO	NL31477.044.10