Effect of different kinds of augmented feedback on learning an arm motor task in healthy subjects and stroke survivors

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The main objective of this study is to examine the effect of different kinds of augmented feedback on learning an arm motor task.

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

Summary

ID

NL-OMON34851

Source
ToetsingOnline

Brief title
Effect augmented feedback on motor learning

Condition

- Central nervous system vascular disorders

Synonym
CVA, stroke

Research involving
Human

Sponsors and support

Primary sponsor: Roessingh Research & Development
Source(s) of monetary or material Support: subsidie Economische Zaken

Intervention

Keyword: feedback, kinematics, motor learning, stroke

Outcome measures

Primary outcome

The goal of this study is to assess the difference in amount of learning

between different kinds of augmented feedback. The main outcome measure is the

performance error, which is the difference in the performed movement with the

predefined movement.

Secondary outcome

nvt

Study description

Background summary

After a stroke, many patients suffer from an impaired motor task performance. Optimal restoration of arm and hand function is essential for stroke survivors to independently perform activities of daily life. To stimulate restoration of arm function, rehabilitation must consist of intensive, active and functional movement exercises. Addition of augmented feedback to exercises can stimulate the learning process by making patients more aware of their performance. There are different possibilities of providing the desired augmented feedback, such as a score on a screen or knowledge about the way the arm moved, during movement execution or when the movement is performed. Research about the effect of these different kinds of augmented feedback in stroke survivors is scarce.

Study objective

The main objective of this study is to examine the effect of different kinds of augmented feedback on learning an arm motor task.

Study design

In the study three conditions of different kinds of augmented feedback are tested. The order of the feedback conditions differs per subject due to the use

of block randomisation. The study has a cross-sectional character, because the subjects are tested at three independent moments. The experiment is completed within three sessions. In each session subjects will learn arm movements by means of a visual rotation on the screen, which represents their arm movement. Three conditions of different kinds of augmented feedback are tested: 1) feedback about the movement trajectory while performing the movement, 2) feedback about the movement trajectory after the movement is performed, 3) feedback about the achievement of the goal of the movement after the movement is performed. In one measurement sessions one condition is tested. Time between the different measurement sessions is one week.

Intervention

nvt

Study burden and risks

The risks for the subjects are limited to a minimum, since the movement tasks are not beyond the capabilities of the subject. In addition the measurements in this study (kinematics) are all non-invasive and involve no risks to the subjects in any way. Participation of the subject in this experiment has no direct benefit for him/her, other than expanding knowledge about the effect augmented feedback on motor learning. This may eventually lead to the development of new applications or adaptations to existing treatments in the rehabilitation of arm function after stroke.

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

Both healthy subjects and stroke survivors need to be able to understand and follow instructions, and be in the age of 18-75 years. For stroke survivors the time post stroke should be more than six months, there is no maximum to time post stroke.

Exclusion criteria

- Shoulder pain, either in rest or in movement.
- Neurologic, orthopaedic or rheumatologic disease of upper extremity, which is likely to interfere with mobility and/or strength of the arm.

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Completed
Start date (anticipated):	17-02-2011
Enrollment:	40
Type:	Actual

Ethics review

Approved WMO

Date:	29-04-2010
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

ID: 25305
Source: Nationaal Trial Register
Title:

In other registers

Register	ID
CCMO	NL31361.044.10
OMON	NL-OMON25305