Postural control aften an exergame training

No registrations found.

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

Summary

ID

NL-OMON22352

Source
NTR

Health condition

balance, training, exergame, prevention, falls, older adults
balans, training, exergame, preventie, vallen, ouderen

Sponsors and support

Primary sponsor: University Medical Center Groningen (UMCG)
Source(s) of monetary or material Support: SPRINT SNN Tender

Intervention

Outcome measures

Primary outcome

- Study parameters of the balance perturbation test

o Response types: in-place response or stepping response; single step, multiple steps and ‘fall’

o Balance recovery in terms of bodily displacement: step length, step width, presence of an APA (anticipatory postural adjustment), COM displacement, COP displacement and

accelerations.

o Balance recovery in terms of reaction times: onset latency (time to initial response), time to foot-off, time to foot-contact

- Study parameters of the target-directed weight-shifting test: accuracy, fluency and speed of the weight-shifting movements based on the CoP trajectory and the duration of the weight-shifting movement[26].

- The Narrow Ridge Balance Test (NRBT) is a test that is sensitive to assess balance performance in older adults. Because the difficulty of the test increases with the balance capacity of the participants ceiling effects are avoided, and each participant is exposed to a maximally challenging task.

Secondary outcome

not applicable

Study description

Background summary

The present study consists of a short-term exergame training preceded and followed by three balance tests. One group of 15 older adults will play the exergame and one group of 15 older adults will play a conventional ‘fun’ game (Angry Birds) on the iPad. With this study insights will be gained in within-subject improvements in postural control and balance recovery reactions after a short-term exergame training. Results of this experiment will provide further insights in the prospects and possible effects of a long-term exergame training to prevent fall risk, required before a large clinical (randomized) trial can be conducted to validate the exergame training.

Study objective

Falls are one of the greatest concerns among older adults, because the incidents are high and they lead to severe consequences. The extent of the problem will continue to expand as the number of older people is expected to increase dramatically over the next few decades. An important risk factor for falls in older adults is an impaired postural control, which is defined as the act of maintaining, achieving or restoring a state of balance during any posture or activity. A growing number of studies show the potential of video games incorporating training (exergames) to improve postural control. However, scarce evidence is available that these interventions actually contribute to a decrease in fall risk. In a previous study (METC nr. 2013/271) indicators for improved postural control were identified, by examining age-related differences in postural control and balance recovery reactions in response to a ‘near’ fall. By studying the effects of a short-term exergame balance training

(ice-skating game) on these indicators, insight into within subject improvements on postural control and/or balance recovery reactions after playing an exergame will be gained. The results will provide further insights in the prospects and possible effects of a long-term exergame training to prevent fall risk, required before a large clinical (randomized) trial can be conducted to validate the exergame training.

Study design

Before-after design. The three balance tests are performed as pretest on the first day before the exergame training and as post-test on the second day after the exergame training.

Intervention

The total exergame training consists of 45 minutes; the first day the game will be played in two blocks of 15 minutes. The second day the participants perform one block of 15 minutes exergame training, to avoid that fatigue would affect the results on the posttest. Depending on the scores, which are based on the speed and the accuracy (avoiding holes in the ice and bending to cross a bridge) of the ice-skater, the difficulty level will increase. Although the game will then become more difficult (number of holes to avoid increases; the distance to skate is longer) the same lateral weight-shifting movements are required to move the avatar on the screen.

As pre- and posttest three balance tests are performed:

- Balance perturbation test:A ‘near fall’ will be simulated by sudden, laterally directed, platform translations, during the performance of multiple reaching tasks.

- Target-directed weight-shifting test:Participants will perform several target-directed weight-shifting movements to targets in different directions, by leaning with their whole body while keeping both feet in place.

- The Narrow Ridge Balance Test: People will stand for 20 seconds with one leg on ridges of decreasing width

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Eligibility criteria

Inclusion criteria

To qualify adults are aged between 65 and 90 and are able to walk 15 minutes without aids, understand verbal instructions and the ‘written’ informed consent and information letter and have the visual ability to perceive the information presented on the screen

Exclusion criteria

Older adults who are not able to walk without aids, with orthopaedic or neurological disorders which prevent them for standing and reaching, have visual or hearing deficiencies that prevent them from perceiving or hearing presented information or/and have cognitive impairments that prevent them from understanding our instructions. Regular skaters (i.e. weekly training) are excluded as well.

Study design

Design

Study type:	Interventional
Intervention model:	Factorial
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	Active

Recruitment

NL
Recruitment status: Pending

Start date (anticipated):	18-05-2015
Enrollment:	30
Type:	Anticipated

Ethics review

Positive opinion

Date:	11-05-2015
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 42564
Bron: ToetsingOnline
Titel:

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

No registrations found.

In other registers

Register	ID
NTR-new	NL5133
NTR-old	NTR5273
CCMO	NL53309.042.15
OMON	NL-OMON42564

Study results

Summary results
Not applicable