Perturbation-based gait training

No registrations found.

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

Summary

ID

NL-OMON21354

Source
Nationaal Trial Register

Brief title
REACT study

Health condition

balance, aging, gait stability, reactive response

Sponsors and support

Primary sponsor: Vrije Universiteit Amsterdam
Source(s) of monetary or material Support: This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Marie Skùodowska-Curie grant agreement No 721577

Intervention

Outcome measures

Primary outcome

The primary outcome is dynamic gait stability in daily life, based on inertial sensor data.

Secondary outcome

Secondary outcomes are the amount of physical activity in daily life, clinical balance and gait

assessment scores and treadmill parameters (force plate data).

Study description

Background summary

The training program involves use of unpredictable, randomized perturbation in anterior-posterior direction while walking under cognitive dual-task conditions. Perturbation intensity and base walking speed will increase over a 4-week training program. The program was developed with regards to well-established principles of motor learning, such as specificity, challenging, adaption-progression and variability. Specific goals are the fall risk reduction by improving daily life gait stability and by improving reactive response to perturbation in means of faster recovery of balance to be able to resist a balance loss with resulting fall and to continue walking.
A randomized controlled trial will be performed to evaluate the efficacy of this gait training program. A total of 70 community-dwelling older adults with either a history of falls and/or difficulties with mobility and balance will be assigned to either the experimental group with gait perturbations or a control group. Before and after the intervention daily life gait stability will be tested with one week of accelerometry as well as performance on clinically often used balance and gait tests.

Study objective

Perturbation-based gait training improves dynamic stability and reactive responses in daily life in older adults. Therefore, the risk of falling can be reduce by training.

Study design

The measurements are done at baseline and post-intervention. Data will be recorded continuously over the training period.

Intervention

The perturbation-based gait training programme is a 4-week reactive gait training on a treadmill, with simulated slips and trips, in combination with cognitive dual tasks. The control intervention is a conventional 4-week training treadmill under cognitive dual task conditions.

Contacts

Public

Scientific

Eligibility criteria

Inclusion criteria

older adults aged 65 years and older at risk of falling

Exclusion criteria

-MoCa < 24 points

-Body weight over 135 kg

-Body height over 2.0 m

-Open skin lesion or bandage in the area of the harness contact

-Neurological comorbidities, e.g. Parkinson’s disease, multiple sclerosis, diabetic neuropathy, stroke, polyneuropathy

-Lower extremity fractures or torn ligaments in the past 6 months

-Not able to walk without walking aid at self-preferred speed

-Hip or knee joint replacement in the past 6 months

-Uncontrolled comorbid conditions, e.g. heart or lung/breathing diseases where physical activity at medium intensity is forbidden

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial

Masking:	Single blinded (masking used)
Control:	Active

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-02-2019
Enrollment:	70
Type:	Anticipated

Ethics review

Positive opinion

Date:	04-01-2019
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 45859
Bron: ToetsingOnline
Titel:

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

No registrations found.

In other registers

Register	ID
NTR-new	NL7461
NTR-old	NTR7703
CCMO	NL66322.028.18
OMON	NL-OMON45859

Study results

Summary results

1. Effects of a 4-week perturbation-based treadmill training in terms of improvements in dynamic gait stability in daily life compared to conventional treadmill training.

2. Effects of a 4-week perturbation-based treadmill training on the amount of physical activity in daily life compared with conventional treadmill training.

3. Effects of a 4-week perturbation-based treadmill training on performance on clinical balance tests compared with conventional treadmill training.

4. Validity of the quantified recovery performance (QRP) as a measure of gait stability.