

Response to a foot muscle strengthening program in a man of ~85 years with intrinsic foot muscle atrophy

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Ethical review	Approved WMO
Status	Will not start
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON50361

Source

ToetsingOnline

Brief title

STIFF single-subject study

Condition

- Other condition

Synonym

Muscle atrophy, muscle weakness

Health condition

Gezonde oudere volwassene

Research involving

Human

Sponsors and support

Primary sponsor: Fontys Hogescholen

Source(s) of monetary or material Support: NWO

Intervention

Keyword: Balance, Gait, Intrinsic foot musculature, Strengthening exercise

Outcome measures

Primary outcome

The change in 1) foot muscles* size measures derived from ultrasound imaging, 2) gait biomechanics and spatiotemporal parameters and 3) balance during gait after 12 weeks of intervention.

Secondary outcome

none

Study description

Background summary

Falling is highly prevalent among older adults and has serious societal impact. Falls occur mainly during walking as a result of altered gait and/or the inability to maintain balance. The plantar intrinsic foot muscles (PIFM) have a role in these dynamic functions. When these muscles atrophy, strengthening these muscles may be beneficial in order to improve or retain gait performance. In one of our previous studies, one physically active man, aged around 85 years, stood out because of the substantially decreased force producing capacity of the PIFMs, probably due to unintentional disuse.

Study objective

The aim of this study is to investigate the extent to which changes are observed in a physically active man, aged around 85 years in 1) PIFMs* size, 2) dynamic balance and 3) foot function during gait after participating in a PIFM strengthening intervention.

Study design

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A single-subject study design, with a 1-week baseline period, 12-week intervention period and 4-week follow-up period in which in total 5 measurement occasions take place.

Intervention

The intervention is a 12-weeks exercise program consisting of foot strengthening exercises and a gradual transition to minimal foot arch support.

Study burden and risks

Participation may improve balance and gait in this specific subject. The burden for the participant consists mainly of 1) the time spent and effort put in engaging in the exercise therapy, 2) any discomfort (e.g., fatigue) or pain (e.g., cramp, muscle soreness) during or after the exercises, 3) the time that is spent on the measurement occasions (1 x 1 hour (home visit) and 4 x 3 hours (laboratory)), 4) the necessity of travelling to the motion analysis laboratory, 5) the inconvenience of wearing the activity monitor attached to the skin of the thigh for 7 days, and 6) questionnaires may unintentionally make the subject aware of declined health condition.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Elderly (65 years and older)

Inclusion criteria

A man of around 85 years of age, atrophy of intrinsic foot muscles

Exclusion criteria

No neurological, neuromuscular or musculoskeletal conditions that is anticipated to affect gait, balance or to interfere with the execution of the exercises

Study design

Design

Study type: Interventional

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Prevention

Recruitment

NL

Recruitment status: Will not start

Enrollment: 1

Type: Anticipated

Ethics review

Approved WMO

Date: 15-12-2021

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
CCMO	NL78717.015.21