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Resistance band training in older adults

Submission date
26/06/2023

Recruitment status
No longer recruiting

Registration date
27/06/2023

Overall study status
Completed

Last Edited
23/08/2024

Condition category
Musculoskeletal Diseases

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
Resistance training is an important way for older adults to maintain their muscle mass and strength, which can help them avoid mobility limitations, sarcopenia (age-related progressive loss of muscle mass and strength), and frailty as they age. However, many older adults don't participate in resistance training because traditional programs can be difficult or expensive. Resistance bands are lightweight and easy to use, and recent studies have shown they can be effective in improving muscle strength and physical function in older adults. We propose using resistance bands in a new resistance training program that can be done both in person and online.

Who can participate?
We are recruiting community-dwelling older women and men aged 70 years and older.

What does the study involve?
This study involves participating in a resistance training program using bands twice a week for 18 weeks led by registered kinesiologists or completing simple flexibility exercises.

What are the possible benefits and risks of participating?
Participants are expected to benefit by accruing new or maintaining current muscle, strength and improving or preserving physical function.
As with any research, there are risks of participating such as during blood sampling or the physical function measures. The researcher team has done everything possible to mitigate any risks and will gladly provide further information if requested.

Where is the study run from?
McMaster University (Canada)

When is the study starting and how long is it expected to run for?
January 2023 to September 2024

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
Stuart Phillips, phillis@mcmaster.ca

Contact information

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Principal Investigator

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
16168

Study information

Scientific Title
The impact of a resistance band training program on older adults' physical function

Study objectives
1. 18 weeks of resistance training using resistance bands will improve functional capacity compared to a control group.
2. 18 weeks of resistance training using resistance bands will improve muscle strength, muscle mass, mobility, sarcopenia, habitual physical activity, frailty, and health-related quality of life compared to a control group.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 12/06/2023, Hamilton Integrated Research Ethics Board (293 Wellington St. N., Suite 120, Hamilton, L8L 8E7, Canada; +1 905-521-2100 Ext. 42013; eREBhelpdesk@hhsc.ca), ref: 16168

Study design
Single-centre interventional randomized control trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Fitness/sport facility, University/medical school/dental school

Study type(s)
Prevention, Treatment

Participant information sheet
Not available in web format, please use contact details to request a participant information sheet.

Health condition(s) or problem(s) studied
Prevention of mobility limitation and sarcopenia

Interventions
Participants will be randomized to either the resistance training group (intervention) or the flexibility group (control) using an online service known as sealed envelope https://www.sealedenvelope.com.

Participants in the resistance training group will sequentially complete the three phases of this study using a faded contact approach:
1. IN-PERSON phase (6 weeks) – twice-weekly group-based resistance training classes led by registered kinesiologists (R. Kins) and physiotherapists.
2. IN-PERSON & ONLINE (6 weeks) – twice-weekly (one class in-person and one class on Zoom) group-based resistance training classes led by R. Kins and physiotherapists.
3. ONLINE (6 weeks)– twice-weekly, online, group-based resistance training classes led by R. Kins and physiotherapists.

Measurements will be taken at baseline and the end of each phase.

The control group will receive the Canadian Society for Exercise Physiology 24-hour movement guidelines and simple flexibility exercises.

Intervention Type
Behavioural

Primary outcome measure
Functional capacity measured using various physical function measures such as the short physical performance battery, timed up and go, 6-minute walk test at baseline and the end of each phase.

Secondary outcome measures
1. Strength measured using handgrip and the stair climb power test at baseline and the end of each phase.
2. Proxies of muscle mass measured using Deuterium-labelled creatine (D3-Cr) and dual-energy X-ray absorptiometry (DEXA) at baseline and the end of each phase.
3. Sarcopenia measured using physical function, strength, and muscle mass and the Strength (S), Assistance walking (A), Rising from a chair (R), Climbing stairs (C), and Falls (F) (SARC-F) questionnaire at baseline and end of study.
4. Mobility measured using the Manty preclinical mobility limitation and life-space mobility assessments. at baseline and end of study.

5. Health-related quality of life measured using the SF-36 at baseline and end of study.
6. Physical activity levels measured using accelerometry and the PASE questionnaire.
7. Frailty measured using the Fit-Frailty Index at baseline and end of study.
8. General health measured using bloods and blood pressure at baseline and end of study.

Overall study start date
04/01/2023

Completion date
30/09/2024

Eligibility

Key inclusion criteria
1. Community-dwelling older adults 70 years of age and older
2. Are preclinically mobility limited based on self-report according to Manty's preclinical mobility limitation questionnaire
3. Able to walk independently and without assistive devices
4. Are eligible to participate in regular physical activity according to the Canadian Society Exercise Physiology Get Active Questionnaire
5. Have a body mass index (BMI) between 18.5 - 35 kg/m² (inclusive)
6. Willing and able to provide informed consent (speaks and understands English)
7. Generally healthy

Participant type(s)
Healthy volunteer

Age group
Senior

Lower age limit
70 Years

Sex
Both

Target number of participants
60

Key exclusion criteria
1. Have a history of neuromuscular conditions or muscle-wasting diseases
2. Are currently completing progressive strength training ≥2x/week (or have within <6 months of recruitment)
3. Planned travel and/or unable to attend >80% (missing ≥ 8 sessions) of the classes
4. Acute or chronic disease, in the opinion of the Investigator, that interfere with the participants capacity to exercise
5. Diabetes
6. Individuals who have undergone or who are currently undergoing cancer treatment in the last 5 years
7. Current smoker (smoking compromises exercise adaptation)

8. Any concurrent medical, orthopedic, or psychiatric condition that, in the opinion of the Investigator, would compromise his/her ability to comply with the study requirements
9. Excessive alcohol consumption (>21 units/wk)
10. Routine/daily usage of any anabolic or cortico-steroid
11. Do not have access to the internet at home via a personal smartphone, tablet (e.g., iPad), or computer.

Date of first enrolment
01/07/2023

Date of final enrolment
01/04/2024

Locations

Countries of recruitment
Canada

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Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Publication and dissemination plan
Planned publication in a peer-reviewed journal.

Intention to publish date
30/06/2025

Individual participant data (IPD) sharing plan
The data-sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date