Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

The effect of resistance training, detraining and maintenance training on Catabolic, Anabolic and Functional factors in elderly women

Protocol summary

Study aim
Evaluation of the effect of resistance training protocol and comparison of detraining and two types of maintenance training protocols on serum levels of IGF-1, MSTN and some functional factors in sarcopenic elderly women

Design
Forty sarcopenic elderly women are randomly divided into two groups: resistance training (n = 30) and control (n = 10). After performing the intervention at the end of week 8, the training group is randomly divided into three groups: maintenance training 1 (10 people), maintenance training 2 (10 people) and detraining group (10 people). Then, the maintenance training protocol is performed at a dose lower than the initial dose and its effect on maintaining the adaptations resulting from resistance training at the end of week 12 is investigated.

Settings and conduct
Resistance training will be done in the gym of Shiraz University Sports Center located on Saheli Street.

Participants/Inclusion and exclusion criteria
Older women over 60 years who have a muscle mass index of less than 6.76 kg / m2, grip strength of less than 20 kg and a speed of less than 8 m / s, and do not have severe musculoskeletal abnormalities or hypertension.

Intervention groups
Stage 1: Resistance Training and Control Group Stage 2: Maintenance Training Group 1, Maintenance Training Group 2, detraining Group and Control Group

Main outcome variables
Insulin-like growth factor-1, myostatin, muscle cross-section, muscle thickness, hand grip strength, gait speed, maximum dynamic strength, maximum oxygen consumption

General information

Reason for update
Adding the actual recruitment date and changing the registration to "Prospective"

Acronym

IRCT registration information
IRCT registration number: **IRCT20200828048549N1**
Registration date: **2021-04-04, 1400/01/15**
Registration timing: **prospective**

Last update: **2022-07-13, 1401/04/22**
Update count: **1**

Registration date
2021-04-04, 1400/01/15

Registrant information

Name
Zeinab Hooshmandi

Name of organization / entity
The University of Payame Noor

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2021-01-20, 1399/11/01

Expected recruitment end date
2021-03-20, 1399/12/30

Actual recruitment start date
2021-04-09, 1400/01/20

Actual recruitment end date
2021-04-19, 1400/01/30

Trial completion date
2021-08-22, 1400/05/31

Scientific title
The effect of resistance training, detraining and

maintenance training on Catabolic, Anabolic and Functional factors in elderly women

Public title
The effect of resistance training on elderly women muscles
Purpose
Health service research
Inclusion/Exclusion criteria
Inclusion criteria:
Muscle mass less than 6.76 kg/m2 measured by Bioelectrical Impedance Analysis Muscle strength less than 20 kg Walking speed less than 0.8 m/s Age more than 60 years no experience in resistance training
Exclusion criteria:
Musculoskeletal abnormalities Stroke sever Hypertention alzheimer and Parkinson disease
Age
From **60 years** old to **75 years** old
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **50**
Actual sample size reached: **40**
Randomization (investigator's opinion)
Randomized
Randomization description
Random allocation will be done with the balanced block method and 4 blocks will be used. Subjects will be placed in these blocks in order of entering the study and each patient randomly will be assigned to the study groups.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Shiraz University of Medical Sciences
Street address
Kian Building, Moezzi ALY, Ghanee Ave,Golestan Blvd,Adabyat Sq,
City
Shiraz
Province
Fars
Postal code
7146756388
Approval date
2020-06-08, 1399/03/19
Ethics committee reference number
IR.SUMS.REHAB.REC.1399.013

Health conditions studied

1

Description of health condition studied
Sarcopenia
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Insulin like growth factor-1
Timepoint
week 0,week 8 and week 12
Method of measurement
Blood serum sample

2

Description
Myostatin
Timepoint
week 0,week 8 and week 12
Method of measurement
Blood serum sample

3

Description
hand grip strength
Timepoint
week 0,week 8 and week 12
Method of measurement
Hand Dynamometer

4

Description
Muscle Mass
Timepoint
week 0,week 8 and week 12
Method of measurement
Bioelectric impedance analyzer

5

Description
Walking speed
Timepoint
week 0,week 8 and week 12
Method of measurement

6 meters Walking test

6

Description
Muscle Cross Sectional Area
Timepoint
week 0,week 8 and week 12
Method of measurement
Sonography

7

Description
Muscle Tickness
Timepoint
week 0,week 8 and week 12
Method of measurement
Sonography

8

Description
Maximum strength
Timepoint
week 0,week 8 and week 12
Method of measurement
1 Repetition Maximum

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Resistance Training: The 8-week training protocol includes 2 mesocycles. The first mesocycle, 2 weeks (6 sessions / 3 sessions per week / 2 to 4 sets, repetitions 8 to 15 and each session includes 8 training movements) and the second mesocycle, 6 weeks strength protocol (18 sessions / 3 sessions per week / 2 to 3 sets, 4 to 6 repetitions, 20 minutes of recovery, 2 repetitions in fatigue, 20 minutes of recovery and 1 or 2 repetitions until reaching helplessness and each session includes 8 training movements). At the beginning and end of the session, warm up for 5 minutes and cool down for 5 minutes with low intensity using movements such as walking, jogging and light stretching exercises. A training session lasts approximately 35 minutes. In this study, in order to comply with the principle of overload, the workload will increase by 5-10% on a weekly basis in proportion to the ability of the subjects.
Category
Treatment - Other

2

Description
Intervention group: Maintenance Training 1: The 8-week training protocol includes 2 mesocycles. The first mesocycle, 2 weeks (6 sessions / 2 sessions per week / 2 to 4 sets, repetitions 8 to 15 and each session includes 8 training movements) and the second mesocycle, 6 weeks strength protocol (18 sessions / 3 sessions per week / 2 to 3 sets, 4 to 6 repetitions, 20 minutes of recovery, 2 repetitions in fatigue, 20 minutes of recovery and 1 or 2 repetitions until reaching helplessness and each session includes 8 training movements). At the beginning and end of the session, warm up for 5 minutes and cool down for 5 minutes with low intensity using movements such as walking, jogging and light stretching exercises. A training session lasts approximately 35 minutes. In this study, in order to comply with the principle of overload, the workload will increase by 5-10% on a weekly basis in proportion to the ability of the subjects.
Category
Treatment - Other

3

Description
Intervention group: Maintenance Training 2: The 8-week training protocol includes 2 mesocycles. The first mesocycle, 2 weeks (6 sessions / 1 session per week / 2 to 4 sets, repetitions 8 to 15 and each session includes 8 training movements) and the second mesocycle, 6 weeks strength protocol (18 sessions / 3 sessions per week / 2 to 3 sets, 4 to 6 repetitions, 20 minutes of recovery, 2 repetitions in fatigue, 20 minutes of recovery and 1 or 2 repetitions until reaching helplessness and each session includes 8 training movements). At the beginning and end of the session, warm up for 5 minutes and cool down for 5 minutes with low intensity using movements such as walking, jogging and light stretching exercises. A training session lasts approximately 35 minutes. In this study, in order to comply with the principle of overload, the workload will increase by 5-10% on a weekly basis in proportion to the ability of the subjects.
Category
Treatment - Other

4

Description
Intervention group: detraining: They will leave the training for 4 weeks and will have no activities other than normal daily activities.
Category
Treatment - Other

5

Description
Control group: Control
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center

Soroush Elderly Care Center

Full name of responsible person
Tahereh Sokot

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No 30, Mirza Shirazi Blvd, Shiraz

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
The univetsity of Shiraz

Full name of responsible person
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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?
No

Title of funding source
Zeinab Hooshmandi

Proportion provided by this source
100

Public or private sector
Private

Domestic or foreign origin
Domestic

Category of foreign source of funding
empty

Country of origin

Type of organization providing the funding
Persons

Person responsible for general inquiries

Contact

Name of organization / entity
The University of Shiraz

Full name of responsible person
Zeinab Hooshmandi

Position
Phd Student

Latest degree
Master

Other areas of specialty/work
Resistance training rehabilitation

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available
Study Protocol
Yes - There is a plan to make this available
Statistical Analysis Plan
Undecided - It is not yet known if there will be a plan to make this available
Informed Consent Form
Yes - There is a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
Not applicable
Data Dictionary
Not applicable
Title and more details about the data/document
Information about the average of all data will be published.
When the data will become available and for how long
Access starts 12 months after the publication of results
To whom data/document is available
Researchers working in academic and scientific institutions
Under which criteria data/document could be used
Mentioning the name of the researcher of this study, the use of data is allowed.
From where data/document is obtainable
Zeinab Hooshmandi, phone number: 00989171248067, E-mail: z_hoshmandi@yahoo.com
What processes are involved for a request to access data/document
Access to the data will be possible one month after submitting the application and subject to the terms of use of the data.
Comments
Researchers who apply to use the data are only allowed to use the general average of the data, and mentioning the names of the main researchers in preparing the data of this research (Zeinab Hooshmandi and Farhad Darianush) is one of the conditions for using the data.