

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 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 $6.76 \text{ kg} / \text{m}^2$, grip strength of less than 20 kg and a speed of less than $8 \text{ m} / \text{s}$, 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

Country

Iran (Islamic Republic of)

Phone

+98 71 3225 5090

Email address

z_hoshmandi@yahoo.com

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 Thickness

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
Street address
No 30, Mirza Shirazi Blvd, Shiraz
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
The university of Shiraz
Full name of responsible person
Farhad Daryanoosh
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Province
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Postal code
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Phone
+98 71 3647 4408
Email
webadmin@shirazu.ac.ir
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
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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.