

Clinical Trial Protocol

Iranian Registry of Clinical Trials

13 Jun 2026

The eight weeks effect of resistance training on rotational levels of Klotho and myostatin of muscle function in middle-aged women

Protocol summary

Study aim

The purpose of the present study is to determine the effect of an 8-week resistance training program on rotational levels of Klotho and myostatin of muscle function in middle-aged women.

Design

Practical trial with 20 subjects who entered in two groups of training and control using a random number table.

Settings and conduct

The subjects practiced three sessions per week for 8 weeks. The training protocol consisted of 8 stations of knee flexion, lying leg curl, bodyweight seated calf raise, barbell guillotine bench press, seated dumbbell shoulder press, barbell curl, LAT pull, and six-pack crunch performed by the subjects with the intensity of 50-80% of maximum strength.

Participants/Inclusion and exclusion criteria

Target age range, females, no history of regular physical activity, no cardiovascular disease, no neuromotor diseases, no high blood pressure, no diabetes

Intervention groups

Eight weeks of resistance training with bodybuilding equipment and control group without any exercise

Main outcome variables

Increasing the amount of Klotho, decreasing myostatin, and improving muscle function

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20211016052781N1**
Registration date: **2021-12-03, 1400/09/12**
Registration timing: **retrospective**

Last update: **2021-12-03, 1400/09/12**

Update count: **0**

Registration date

2021-12-03, 1400/09/12

Registrant information

Name

fatemeh foroughinasab

Name of organization / entity

The University of Shahid Chamran ahvaz

Country

Iran (Islamic Republic of)

Phone

+98 61 4252 3137

Email address

fafon1806@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-07-23, 1400/05/01

Expected recruitment end date

2021-09-23, 1400/07/01

Actual recruitment start date

2021-07-23, 1400/05/01

Actual recruitment end date

2021-09-23, 1400/07/01

Trial completion date

2021-09-25, 1400/07/03

Scientific title

The eight weeks effect of resistance training on rotational levels of Klotho and myostatin of muscle function in middle-aged women

Public title

The eight weeks effect of resistance training on rotational levels of Klotho and myostatin of muscle function in middle-aged women

Purpose

Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:

Target age range Females No history of regular physical activity

Exclusion criteria:

Having cardiovascular disease high blood pressure neuromotor diseases Diabetes

Age

From **40 years** old to **50 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **20**

Actual sample size reached: **20**

Randomization (investigator's opinion)

Not randomized

Randomization description**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 Shahid Chamran University

Street address

Shahid Chamran University, Golestan Boulevard, Ahvaz, Khoozestan. Iran

City

Ahvaz

Province

Khoozestan

Postal code

6135783151

Approval date

2021-05-23, 1400/03/02

Ethics committee reference number

EE/1400.3.02.25314/scu.ac.ir

Health conditions studied**1****Description of health condition studied**

Aging

ICD-10 code**ICD-10 code description****2****Description of health condition studied**

sarcopenia

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

klotho

Timepoint

48 hours before the first session and after the last session

Method of measurement

Using the ELISA kit

2**Description**

Myostatin

Timepoint

48 hours before the first session and after the last session

Method of measurement

Using the ELISA kit

3**Description**

Muscle function (Strength, endurance, muscle strength)

Timepoint

48 hours before the first session and after the last session

Method of measurement

Maximum power,30% of maximum power,Sargent test

Secondary outcomes

empty

Intervention groups**1****Description**

Intervention group: Resistance training group: After returning to the training site, the subjects warmed up their bodies for 10 minutes, which included general and specific warm-ups. 8 stations of knee flexion, lying leg curl, body weight seated calf raise, barbell guillotine bench press, seated dumbbell shoulder press, barbell curl, LAT pull, and six-pack crunch was performed with the intensity of 50-80% of maximum power. The number of repetitions of each station was 8-12. The subjects rested for 60-90 seconds between stations. There was also 2-3 minutes of rest time between training sessions (an 8-station exercise). There were 3 training sessions and at the end of the training, the subjects cooled their

bodies for 5 minutes with stretching movements. In order to observe the principle of overload, 5% was added to the training load every week until the fifth week, so the intensity of 50-55% to the eighth week reached the maximum of 75-80% since the first week.

Category

N/A

2

Description

Control group: They did not have any sports activities during the project

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Shahid Chamran University

Full name of responsible person

Fatemeh Foroughi Nasab

Street address

No. 228 Dehghan Street between Motahhari and Khayyam streets

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Email

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahid Chamran University

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?

Yes

Title of funding source

Shahid Chamran University

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Shahid Chamran University

Full name of responsible person

Fatemeh Foroughi Nasab

Position

Ph.D candidate

Latest degree

Ph.D.

Other areas of specialty/work

Sports physiology

Street address

No. 228 Dehghan Street between Motahhari and Khayyam streets

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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

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Position

Ph.D candidate

Latest degree

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Person responsible for updating data**Contact****Name of organization / entity**

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Full name of responsible person

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Other areas of specialty/work

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City**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

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Not applicable

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Not applicable

Analytic Code

Not applicable

Data Dictionary

Not applicable