Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

Effect of resistance training and high-intensity interval training (hiit) on metabolic parameters and serum level of sirtuin 1 in postmenopausal women with metabolic syndrome

Protocol summary

Study aim
Determining the effect of eight weeks of resistance training and high-intensity interval training(hiit) on sirtuin 1 levels in women with metabolic syndrome.

Design
Clinical trial with control group, with parallel groups, randomized, on 30 patients. Randomization by the method of equal blocks (8 blocks of 4) in which a number of intervention people and a number of comparison people are included in each block.

Settings and conduct
By referring to Imam Hossein Malayer Hospital and Department of Patients with Metabolic Syndrome, eligible people were identified and placed in the intervention groups using equal blocks randomization (8 blocks of 4). Then people will go to the sports club for exercise intervention and perform exercises for 8 weeks. And before and 24 hours after exercise interventions, blood samples are taken from people to be measured in the laboratory.

Participants/Inclusion and exclusion criteria
Inclusion criteria: suffering from metabolic syndrome
Exclusion criteria: inability to exercise

Intervention groups
The group of resistance exercises and Hiit: which are subjected to high-intensity resistance and interval exercises. Control group: which is not under any intervention.

Main outcome variables
Investigating the effect of resistance training and high-intensity interval training on sirtuin levels in women with metabolic syndrome

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20221120056548N1**
Registration date: **2022-11-23, 1401/09/02**
Registration timing: **registered_while_recruiting**

Last update: **2022-11-23, 1401/09/02**
Update count: **0**

Registration date
2022-11-23, 1401/09/02

Registrant information

Name
Saeid Shamlou kazemi

Name of organization / entity
Bu-Ali Sina university

Country
Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2022-11-21, 1401/08/30

Expected recruitment end date
2022-12-06, 1401/09/15

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Effect of resistance training and high-intensity interval

training (hiit) on metabolic parameters and serum level of sirtuin 1 in postmenopausal women with metabolic syndrome

Public title
Investigating the effect of resistance training and HIIT on metabolic syndrome
Purpose
Education/Guidance
Inclusion/Exclusion criteria
Inclusion criteria:
Women with metabolic syndrome Age range between 45-65 years
Exclusion criteria:
Inability and inability to do physical activity
Age
From **45 years** old to **65 years** old
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
In this randomization, the method of equal blocks (8 blocks of 4 each) is used, in which half of the intervention and half of the intervention people are included in each block. And we assigned resistance training groups, high intensity interval training and control group. The method and tool of block random sequence generation has been done using https://www.sealedenvelope.com/simple-randomiser/v1/lists.
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
Bu-Ali Sina University
Street address
Mahdiyeh Ave
City
Hamadan
Province
Hamadan
Postal code
6517838695
Approval date
2022-02-09, 1400/11/20
Ethics committee reference number
IR.BASU.REC.1400.046

Health conditions studied

1

Description of health condition studied
metabolic syndrome
ICD-10 code
E88.81
ICD-10 code description
Metabolic syndrome

Primary outcomes

1

Description
The percentage of people whose sirtuin level is increased
Timepoint
Measurement of sirtuin before and after the intervention
Method of measurement
Human Sirtuin 1 (SIRT1)ELISA Kit

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Sports exercises. The exercise program of the hiit group included 60 seconds of maximum intensity running (85-95% HRR heart rate) followed by 60 seconds of low intensity running (55-60% HRR). Subjects performed the protocol 6 times in the first week, 8 times in the second week, and 10 times in the third to eighth weeks. The training program in the resistance training group included two stages, in the first 4 weeks, the subjects did leg press, front thigh, back thigh, chest press, back lat, side push, back arm pull, front arm and two abdominal leg movements. did the The exercises consisted of 3 sets, eight to ten repetitions maximum, with 60 seconds rest between sets (75% 1RM). After 4 weeks, the training program was performed with 8 repetitions maximum with 90 seconds rest between sets (80% 1RM). The resistance exercises were based on the linear course and the classic model (high volume and lower intensity at the beginning of the exercise, then increasing the intensity and decreasing the volume).
Category
Rehabilitation

2

Description
Control group: It is not subject to any training program.
Category
Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Imam Hossein Hospital
Full name of responsible person
saeid shamlou kazemi
Street address
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Bu-Ali Sina university
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heidarian317@gmail.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Bu-Ali Sina university
Proportion provided by this source
10
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
Bu-Ali Sina University
Full name of responsible person
saeid shamlou kazemi
Position
student
Latest degree
Master
Other areas of specialty/work
Sport Medicine
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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is 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
Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report
Yes - There is a plan to make this available

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

Data Dictionary
Yes - There is a plan to make this available

Title and more details about the data/document
All data is potentially shareable after de-identifying individuals

When the data will become available and for how long
The access period starts 6 months after the results are published

To whom data/document is available
It will be available for researchers working in academic and scientific institutions

Under which criteria data/document could be used
If the intellectual rights are preserved, the data can be sent to the researchers

From where data/document is obtainable
Email address:saeidshamlou9092@gmail.com

What processes are involved for a request to access data/document
Submission of written request (one week)

Comments