Clinical Trial Protocol
Iranian Registry of Clinical Trials

02 Nov 2026

The effect of interval training and high-intensity resistance training on some serum myokine and physical fitness factors in overweight and obese men

Protocol summary

Study aim

This study aimed to investigate the effect of interval training and high-intensity resistance training on some serum myokine and physical fitness factors in overweight and obese men.

Design

The eight-week training program, including HIIT training with a maximum heart rate of 95-85% and high-intensity resistance training, was performed in a circular session of 80-85 RM for three sessions per week. The sample size was obtained by G power software according to the effect size of 0.27, power of 80.0% and alpha of 0.05 equal to 30 people. These individuals were randomly selected and randomly assigned to three groups: HIIT training (10 people), high-intensity resistance training group (10 people), and control group (10 people). Blood sampling and physical indicators were performed before and after the training period.

Settings and conduct

The place to study in the gym in Bardaskan. Subjects will be present at the gym (5 pm).

Participants/Inclusion and exclusion criteria

30 men with the criterion of not having a history of cardiovascular disease, diabetes, hypertension, liver, hypothyroidism Thyroid and physical injury and orthopaedic problems, as well as regular exercise in the six months leading up to the study.

Intervention groups

High-intensity intermittent exercise group: A 20-meter distance in 30 seconds of running back and forth with 85-95% maximum heart rate running and then 30 seconds of walking. High-intensity resistance training group: Subjects performed leg presses, chest presses, chest thighs, forearms, forearms, forearms, boats and long stretches with 85-80% intensity, a maximum repetition in a circle with 8- 6 repetitions and 60-60 seconds of rest between each movement. Resting between each round of circles was 120 seconds. The control group did not intervene.

Main outcome variables

Irisin; fibroblast growth factor 21

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200412047049N1**
Registration date: **2020-04-17, 1399/01/29**
Registration timing: **retrospective**

Last update: **2020-04-17, 1399/01/29**
Update count: **0**

Registration date

2020-04-17, 1399/01/29

Registrant information

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morteza hajinia

Name of organization / entity
Hakim sabzevari

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Iran (Islamic Republic of)

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+98 51 5543 4348

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-06-15, 1398/03/25

Expected recruitment end date

2019-08-31, 1398/06/09

Actual recruitment start date
2019-06-15, 1398/03/25
Actual recruitment end date
2019-08-31, 1398/06/09
Trial completion date
2019-08-31, 1398/06/09

Scientific title
The effect of interval training and high-intensity resistance training on some serum myokine and physical fitness factors in overweight and obese men

Public title
The effect of training on myokine
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Overweight and obese men 30 to 45 years old
Exclusion criteria:
No history of cardiovascular disease, diabetes, high blood pressure, liver, thyroid hypothyroidism and physical damage, orthopedic problems Lack of regular exercise in the six months leading up to the time
Age
From **30 years** old to **45 years** old
Gender
Male

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **50**
Actual sample size reached: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
The simple random method, the ball-throwing method was used. Each name removed from the container was placed in the interval, resistance training groups, and control.
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 in Research, Hakim Sabzevari University
Street address
Andisheh Town - End of Andisheh 5
City
Sabzevar
Province
Razavi Khorasan
Postal code
9613711111
Approval date
2020-01-21, 1398/11/01
Ethics committee reference number
IR.HSU.REC.1399.003

Health conditions studied

1

Description of health condition studied
Obesity and overweight
ICD-10 code
E66.0
ICD-10 code description
Obesity due to excess calories

Primary outcomes

1

Description
IRISIN
Timepoint
Baseline and after eight weeks
Method of measurement
Eliza Laboratory Method

2

Description
FGF21
Timepoint
Baseline and after eight weeks
Method of measurement
Eliza Laboratory Method

Secondary outcomes

1

Description
VO2MAX
Timepoint
Baseline and after eight weeks
Method of measurement
Rockport test

2

Description
Body mass index
Timepoint
Baseline and after eight weeks

Method of measurement
Digital scale and meter

3

Description
Body fat percentage
Timepoint
Baseline and after eight weeks
Method of measurement
Caliper

4

Description
Anaerobic power
Timepoint
Baseline and after eight weeks
Method of measurement
Rast test

5

Description
Muscle strength
Timepoint
Baseline and after eight weeks
Method of measurement
Leg press and bench press

Intervention groups

1

Description
Intervention group: High intensity interval training group : A distance of 20 meters in 30 seconds as a round trip with 85-95% of maximum heart rate and then 30 seconds of walking.
Category
Lifestyle

2

Description
Intervention group: High intensity resistance training group : Subjects performed leg presses, chest presses, back thighs, forearms, forearms, back, arms, boats, and sit-ups with an intensity of 85-80% of a maximum repetition in a circle with 6-8 repetitions and 60-30 seconds. Resting between each round of circles was 120 seconds.
Category
Lifestyle

3

Description
Control group: The control group did not intervene.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Shafa Laboratory
Full name of responsible person
Dr. Hassan Jabbari
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Central square, Pasazh pzshkan
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Hakim Sabzevari University
Full name of responsible person
Dr. Amir Hossein Haghighi
Street address
Sabzevar, Tohid Shahr, Sabzevar Hakim University
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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
Hakim Sabzevari 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
Hakim Sabzevari University
Full name of responsible person
Morteza Hajinia
Position
PHD student
Latest degree
Master
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
The information is confidential
Study Protocol
Yes - There is a plan to make this available
Statistical Analysis Plan
No - There is not 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
The consent form will be provided as an appendix to the dissertation
When the data will become available and for how long
6 months after printing the results
To whom data/document is available
Everyone has access to the data
Under which criteria data/document could be used
No plagiarism
From where data/document is obtainable
Contact Author / Supervisor
What processes are involved for a request to access data/document
One week after sending the request to the e-mail and the applicant's commitment not to use the data directly
Comments