

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

The effect of 6-week high intensity interval training using an exercise snack training on cardiometabolic and renal indicators in overweight/obese adults

Protocol summary

Study aim

Investigating the effect of 6 weeks of high-intensity interval training in the form of exercise snacks on cardiometabolic and renal markers in overweight/obese adults

Design

A randomized, single-blinded, parallel-group, controlled clinical trial on 60 patients. For randomization, opaque sealed envelopes will be used.

Settings and conduct

Study setting: Payame Noor University, Alborz Province, Karaj Branch; study population: overweight or obese adults; type of blinding: laboratory technicians will not be aware of the group allocation when assessing blood samples.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Participants were eligible for inclusion if they were sedentary and physically inactive, overweight or obese adults of both sexes with a body mass index of 25 kg/m² or greater, aged 35 to 55 years, in general good health or free from any serious illness or unstable condition requiring medical supervision over diet or physical activity, and without any physical limitations or restrictions. Exclusion Criteria: pregnancy, being currently adhering to a structured weight-loss program or using weight-loss medications, failed to obtain physician approval for study participation.

Intervention groups

Intervention Group 1: HIIT2; performing 2 bouts of high-intensity interval training per day with intervals of 1-4 hours apart, 3 days per week. Intervention Group 2: HIIT6; performing 6 bouts of high-intensity interval training per day with intervals of 1-4 hours apart, 3 days per week. Control Group: C; no training.

Main outcome variables

Cardiometabolic index; visceral adiposity index; lipid accumulation product; uric acid; urea

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20241008063290N3**

Registration date: **2026-08-01, 1405/05/10**

Registration timing: **prospective**

Last update: **2026-08-01, 1405/05/10**

Update count: **0**

Registration date

2026-08-01, 1405/05/10

Registrant information

Name

hamid rajabi

Name of organization / entity

Kharazmi university

Country

Iran (Islamic Republic of)

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Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-08-06, 1405/05/15

Expected recruitment end date

2026-10-07, 1405/07/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty	
Scientific title	The effect of 6-week high intensity interval training using an exercise snack training on cardiometabolic and renal indicators in overweight/obese adults
Public title	The effect of an exercise training period on cardiometabolic and renal markers in overweight/obese adults
Purpose	Supportive
Inclusion/Exclusion criteria	Inclusion criteria: Sedentary and physically inactive adults Overweight or obese individuals Body mass index (BMI) ≥ 25 kg/m² Both men and women Aged 35–55 years In generally good health Free from any serious illness or unstable medical condition requiring physician supervision over diet or physical activity No physical limitations or restrictions affecting exercise participation Exclusion criteria: Having acute cardiovascular disease Following specific dietary regimes With weight instability (+_5 kg) in the past 3 months Having any serious medical condition that precludes long-term participation in physical activity Pregnancy Currently adhering to a structured weight-loss program Using weight-loss medications Failure to obtain physician approval for study participation
Age	From 35 years old to 55 years old
Gender	Both
Phase	N/A
Groups that have been masked	Outcome assessor
Sample size	Target sample size: 60
Randomization (investigator's opinion)	Randomized
Randomization description	Simple randomization will be used for participant allocation. To ensure concealment, a series of opaque, sealed envelopes will be prepared. For this purpose, envelopes labeled with the name of either the exercise intervention group or the control group will be created, corresponding to the total number of subjects. After thoroughly mixing (shuffling) the envelopes, each participant will select one, and their group assignment will be recorded accordingly
Blinding (investigator's opinion)	Single blinded
Blinding description	Clinical laboratory technicians, unaware of the group allocation, will assess the blood parameters.
Placebo	Not used
Assignment	Parallel

Other design features	
Secondary Ids	empty
Ethics committees	
<u>1</u>	
Ethics committee	
Name of ethics committee	Research Ethics Committees of Kharazmi University
Street address	Kharazmi University, Shahid Keshvari Stadium, Shahid Hesari Street, Madar Square
City	Tehran
Province	Tehran
Postal code	14911-15719
Approval date	2026-05-26, 1405/03/05
Ethics committee reference number	IR.KHU.REC.1405.029

Health conditions studied	
<u>1</u>	
Description of health condition studied	Adults who are overweight or obese
ICD-10 code	E66
ICD-10 code description	Overweight and obesity

Primary outcomes	
<u>1</u>	
Description	Cardiometabolic index
Timepoint	24–48 hours before and after the intervention
Method of measurement	By means of the formula
<u>2</u>	
Description	Visceral adiposity index
Timepoint	24–48 hours before and after the intervention
Method of measurement	By means of the formula
<u>3</u>	
Description	Lipid accumulation product

Timepoint

24–48 hours before and after the intervention

Method of measurement

By means of the formula

4**Description**

Triglyceride

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

5**Description**

High-density lipoprotein

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

6**Description**

Low-density lipoprotein

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

7**Description**

Total cholesterol

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

8**Description**

The ratio of high-density lipoprotein to low-density lipoprotein

Timepoint

24–48 hours before and after the intervention

Method of measurement

By means of the formula

9**Description**

Thyroid-Stimulating Hormone

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

10**Description**

Thyroxine

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

11**Description**

Bilirubin

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

12**Description**

Urea

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

13**Description**

Uric acid

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

14**Description**

Creatinine

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

15**Description**

estimated Glomerular Filtration Rate

Timepoint

24–48 hours before and after the intervention

Method of measurement

By ELISA or enzymatic laboratory method

Secondary outcomes**1****Description**

Systolic blood pressure

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using a German Beurer device

2

Description

Diastolic blood pressure

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using a German Beurer device

3

Description

Resting heart rate

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using a German Beurer device

4

Description

Mean arterial pressure

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using the formula

5

Description

Body Mass Index

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using the formula

6

Description

Waist-to-hip circumference ratio

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using the formula

7

Description

Waist-to-height ratio

Timepoint

24–48 hours before and after the intervention

Method of measurement

Using the formula

8

Description

Body weight

Timepoint

24–48 hours before and after the intervention

Method of measurement

Scale

9

Description

height

Timepoint

24–48 hours before the intervention

Method of measurement

Wall-mounted height measure

10

Description

Wall squat test

Timepoint

24–48 hours before the intervention

Method of measurement

By recording the duration

11

Description

30-Second Chair Stand Test

Timepoint

24–48 hours before the intervention

Method of measurement

By counting the repetitions

12

Description

Quality of Life

Timepoint

24–48 hours before the intervention

Method of measurement

Questionnaire

Intervention groups

1

Description

Control group: Control group participants are to remain inactive throughout the study and are advised to follow their usual daily routines.

Category

Other

2

Description

Intervention group 1: Two-Bout High-Intensity Interval Training: The training protocol includes 2 bouts of exercise, each containing 4 sets of 2-minute body-weight HIIT exercises at 85% of maximal heart rate (HRmax). Each set is interspersed with 1 minute and 30 seconds of active recovery (at 65% HRmax) between successive sets.

Category

Rehabilitation

3

Description

Intervention group 2: Six-Bout High-Intensity Interval Training: The training protocol includes 6 exercise bouts, each containing 2 sets of 80-second body-weight HIIT exercises at 85% of maximal heart rate (HRmax). Each set is interspersed with 1 minute of active recovery (at 65% HRmax) between successive sets.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Payame Noor University, Alborz Province, Karaj Branch

Full name of responsible person

Dr. Farokh kia

Street address

Shahid Kamali Dehghan Boulevard, Shahid Moazen Boulevard

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Iran National Science Foundation

Full name of responsible person

Ali Mohammad Soltani

Street address

No. 33, Fifth Street, above Jalal Al Ahmad intersection, North Kargar Street.

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Email

rms@insf.org

Web page address

<https://insf.org/fa>

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Iran National Science Foundation

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

Other

Person responsible for general inquiries

Contact

Name of organization / entity

Kharazmi University

Full name of responsible person

Hamid Rajabi

Position

professor

Latest degree

Ph.D.

Other areas of specialty/work

exercise physiology

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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

There is no further information

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is 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

Yes - There is a plan to make this available

Data Dictionary

Not applicable

Title and more details about the data/document

NO

When the data will become available and for how long

Data is not published

To whom data/document is available

Data is not published

Under which criteria data/document could be used

Data is not published

From where data/document is obtainable

Data is not published

What processes are involved for a request to access data/document

Data is not published

Comments