

Clinical Trial Protocol

Iranian Registry of Clinical Trials

26 May 2026

The Effect of 10 Weeks High-Intensity Interval Functional Circuit Training on Insulin Resistance and HbA1C in type 2 diabetes women

Protocol summary

Study aim

The effect of High-intensity interval circuit functional training on Insulin resistance, hemoglobin A1c, body fat percent, and weight loss in diabetes type 2 need to be scrutinized in more detail.

Design

The clinical trial will be conducted on women with type 2 diabetes ranging from 45 to 55 years old. The participants will be randomised into intervention groups and a parallel control group by using "flip the coin" method.

Settings and conduct

pre and post-intervention anthropometric data and blood samples will be collected. The intervention program will last for 10 weeks and 3 sessions per week. Each session includes about 10 minutes of warm-up, about 25 to 30 minutes of main workout, and 5 to 10 minutes of cool down.

Participants/Inclusion and exclusion criteria

in this study, working women with type 2 diabetes aging from 45 to 55 will take part. people with fasting blood sugar over 120, with a sedentary lifestyle, and without any chronic disease history will meet the inclusion criteria.

Intervention groups

The program for the intervention group will be High-intensity interval circuit functional training that will be held for 10 weeks and 3 sessions per week and include bodyweight exercises. The control group will not receive any intervention.

Main outcome variables

insulin resistance and hemoglobin a1c :

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20160103025828N1**

Registration date: **2021-05-31, 1400/03/10**

Registration timing: **registered_while_recruiting**

Last update: **2021-05-31, 1400/03/10**

Update count: **0**

Registration date

2021-05-31, 1400/03/10

Registrant information

Name

Rahman Soori

Name of organization / entity

University of Tehran

Country

Iran (Islamic Republic of)

Phone

+98 21 6111 8844

Email address

soori@ut.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-05-22, 1400/03/01

Expected recruitment end date

2021-06-22, 1400/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of 10 Weeks High-Intensity Interval Functional Circuit Training on Insulin Resistance and HbA1C in type 2 diabetes women

Public title

Effect of HIIT in type 2 diabetes

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
Fasting blood sugar should be over 120 Being a non-athlete diabetic women that are overweight diabetic women that are non-smoker diabetic women that do not drink alcohol
Exclusion criteria:
diabetic women that are suffering from cardiovascular disease diabetic women that are suffering from orthopedic problems diabetic women that are suffering from liver problems diabetic women that are suffering from neuropathic problems

Age
From **45 years** old to **55 years** old

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **12**

Randomization (investigator's opinion)
Randomized

Randomization description
30 women with type 2 diabetes will take part in this study. Their age will range from 45 to 55 years old. This selection was based on a randomized convenience sampling procedure because of the ease of their volunteering, convenient accessibility. All the participants will get familiar with the process. their anthropometric data and blood samples will be collected. The qualified participants will be assigned into two groups randomly by using "flip the coin" method.

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 Tehran University of Medical Sciences

Street address

Faculty of Physical Education and Sport Sciences, University of Tehran, North Kargar Ave., Tehran, Iran

City

Tehran
Province
Tehran
Postal code
۱۴۱۵۵۶۶۱۹

Approval date

2021-02-23, 1399/12/05

Ethics committee reference number

IR.TUMS.FNM.REC.1400.001

Health conditions studied

1

Description of health condition studied

diabetes type 2

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Hba1c in women with type 2 diabetes

Timepoint

Measuring Hba1c 24 hours before intervention and 48 to 72 hours after intervention.

Method of measurement

Hba1c blood test

2

Description

Insulin resistance in women with type 2 diabetes

Timepoint

Measuring insulin resistance 24 hours before intervention and 48 to 72 hours after intervention

Method of measurement

measuring insulin resistance by blood test

Secondary outcomes

1

Description

Body fat percent

Timepoint

Measuring body fat percent pre - and post-intervention

Method of measurement

using body composition analyzer scale and caliper

2

Description

Vo2max

Timepoint

pre- and post intervention

Method of measurement

Rockport test

Intervention groups

1

Description

Intervention group: 15 women with diabetes type 2 will be allocated to circuit HIIT group. circuit HIIT will be conducted 3 sessions per week and includes high intensity interval body weight functional movements such as push up, squat, lunge, plank, etc.

Category

Treatment - Other

2

Description

Control group: 15 women with diabetes type 2 will be allocated to control group. This group will not receive any intervention.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

diabetes and metabolic syndrome clinic

Full name of responsible person

کاملیا رامبد

Street address

No 10, Jalale Al Ahmad St., Next to Dr. Shariati Hospital Complex, Tehran, Iran

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2

Recruitment center

Name of recruitment center

Taban health diabetes clinic

Full name of responsible person

Dr Saeed Kalbasi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran University of Medical Sciences

Full name of responsible person

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Web page address

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Tehran University of Medical Sciences

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

University of Tehran

Full name of responsible person

Rahman soori

Position

professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiology

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Latest degree

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Other areas of specialty/work

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Person responsible for updating data

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Soudabeh Nazari Shoul

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Student

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Master

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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

Yes - There is 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

Not applicable

Data Dictionary

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

Title and more details about the data/document

For more meticulous comparison Blood test results and anthropometric data will be shared anonymously.

When the data will become available and for how long

Data will be accessible 6 months after paper publication.

To whom data/document is available

Researcher and students focusing on type 2 diabetes and exercise training

Under which criteria data/document could be used

For comparing with other studies and using in review articles.

From where data/document is obtainable

Corresponding Author Dr. Rahman Soori soori@ut.ac.ir

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

Researcher can send an email to the corresponding author and ask for documents. Results will be sent in the next 2 weeks.

Comments