

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

The acute effect of aerobic exercise with and without external load on blood glucose and blood pressure parameters in patients 40-60 years old with type 2 diabetes

Protocol summary

Study aim

Immediate effect of aerobic exercise with and without external load on blood glucose and blood pressure in patients with type 2 diabetes

Design

Clinical trial with a control group, with parallel, single-blind, randomized groups

Settings and conduct

The statistical population of this study is diabetics who refer to the Diabetes Center of Hamadan Province. People with type 2 diabetes, who have inclusion criteria, are classified into two groups: aerobic exercise and aerobic exercise by applying external load and control group, and then evaluated. The sampling method will be random

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age between 40 and 60 years At least 2 years of type 2 diabetes Lack of hypertension (Systolic pressure less than 16 mm Hg) Do not use insulin
Exclusion criteria Feeling tired during exercise Feeling short of breath during exercise

Intervention groups

First group (aerobic group): Treadmill walk for 30 minutes Second group (outdoor aerobic group): apply the weight of the weighted vest while walking on the treadmill Control group: without aerobic exercise

Main outcome variables

Blood glucose levels before and after the intervention
Blood pressure before and after the intervention

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20190202042581N3**
Registration date: **2020-04-29, 1399/02/10**

Registration timing: **prospective**

Last update: **2020-04-29, 1399/02/10**

Update count: **0**

Registration date

2020-04-29, 1399/02/10

Registrant information

Name

Mohammad Reza Asadi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 81 3423 0949

Email address

m.asadi@umsha.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-06-21, 1399/04/01

Expected recruitment end date

2021-03-19, 1399/12/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The acute effect of aerobic exercise with and without external load on blood glucose and blood pressure parameters in patients 40-60 years old with type 2 diabetes

Public title

The effect of aerobic exercise on blood glucose and blood pressure in type 2 diabetes

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age between 40 and 60 years At least 2 years of type 2 diabetes Lack of hypertension (Systolic pressure less than 16 mm Hg) Do not use insulin

Exclusion criteria:

Feeling tired during exercise Feeling short of breath during exercise

Age

From **40 years** old to **60 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **15**

Randomization (investigator's opinion)

Not randomized

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Factorial

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Hamedan University of Medical Sciences

Street address

Hamedan University of Medical Sciences, Fahmideh Blvd

City

Hamedan

Province

Hamadan

Postal code

6517838736

Approval date

2020-04-15, 1399/01/27

Ethics committee reference number

IR.UMSHA.REC.1399.049

Health conditions studied

1

Description of health condition studied

Type 2 diabetes

ICD-10 code

E11

ICD-10 code description

Type 2 diabetes mellitus

Primary outcomes

1

Description

Blood glucose level

Timepoint

Before and after the intervention in each session

Method of measurement

Glucose measuring device

2

Description

Blood pressure level

Timepoint

Before and after the intervention in each session

Method of measurement

Mercury sphygmomanometer

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group1: In this group, aerobic exercise, including walking on a treadmill, is performed for 30 minutes with an intensity of about 50% of the maximum heart rate and for one session

Category

Rehabilitation

2

Description

Intervention group 2: In this group, aerobic exercise with external load, including walking on a treadmill with weightlifting, is performed for 30 minutes with an intensity of about 50% of maximum heart rate and for one session.

Category

Rehabilitation

3

Description

Control group: Without aerobic exercise

Category

Rehabilitation

Recruitment centers**1****Recruitment center****Name of recruitment center**

Diabetes Center of Hamadan Province.

Full name of responsible person

Solmaz Rahbar

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

Hamedan University of Medical Sciences

Full name of responsible person

Saeed Bashirian

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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

Hamedan 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**

Hamedan University of Medical Sciences

Full name of responsible person

Solmaz Rahbar

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

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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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Other areas of specialty/work

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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

No more information

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

Not applicable

Data Dictionary

Not applicable