Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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
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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

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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

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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
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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