

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

09 Jun 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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Hamedan University of Medical Sciences, Fahmideh Blvd

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+98 81 3838 1633

**Email**

s.rahbar@umsha.ac.ir

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

Hamedan University of Medical Sciences

**Full name of responsible person**

Saeed Bashirian

**Street address**

Deputy of Research and Technology, Hamadan University of Medical Sciences, Shahid Fahmideh Blvd

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S\_bashirian@yahoo.com

**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

**Street address**

Rehabilitation School, Hamedan university of Medical sciences, Fahmideh Blvd

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**Postal code**

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

Hamedan University of Medical Sciences

**Full name of responsible person**

Solmaz Rahbar

**Position**

Assistant professor

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Ph.D.

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## Person responsible for updating data

### Contact

**Name of organization / entity**

Hamedan University of Medical Sciences

**Full name of responsible person**

Mohammad Reza Asadi

**Position**

Assistant professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

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**Fax****Email**

m.asadi@umsha.ac.ir

## 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