Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Effect of Postprandial walking duration on serum insulin and two-hour blood glucose response in overweight women.

Protocol summary

Study aim
comparisons of blood glucose and insulin levels over 120 minutes after meal consumption under different conditions (no walking, 10-minute walking, and 20-minute walking).

Design
A randomized, controlled, non-blinded crossover clinical trial in which each participant will receive the three conditions—postprandial rest (control), 10-minute walking, and 20-minute walking immediately after the meal—in three separate sessions in a randomized order.

Settings and conduct
This study will be conducted using a crossover design on 12 overweight women at the Research Institute of Physical Education and Sport Sciences. Each participant received a standardized meal in three separate sessions and was immediately assigned to one of three conditions after the meal: rest (control), 10-minute walking, or 20-minute walking. In each session, blood glucose and blood insulin will be measured at predetermined time points over 120 minutes after meal consumption

Participants/Inclusion and exclusion criteria
females with a body mass index (BMI) of 25–30 Age range: 34–44 years No history of chronic diseases No use of medications or supplements that affect blood glucose or insulin levels

Intervention groups
Control condition (rest): Participants remained at rest for 120 minutes after meal consumption. 10-minute walking intervention: Participants walked on a treadmill for 10 minutes at a speed of 4–6 km/h immediately after meal consumption, 20-minute walking intervention: Participants walked on a treadmill for 20 minutes at a speed of 4–6 km/h immediately after meal consumption,

Main outcome variables
Blood glucose: measured before the meal and at 10, 20, 60, and 120 minutes after meal consumption Glucose AUC (area under the curve) Serum insulin: measured at 120 minutes after meal consumption

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20260926071188N1**
Registration date: **2026-09-30, 1405/07/08**
Registration timing: **prospective**

Last update: **2026-09-30, 1405/07/08**
Update count: **0**

Registration date
2026-09-30, 1405/07/08

Registrant information

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Mohammad shariatzadeh
Name of organization / entity
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Recruitment status
recruiting

Funding source

Expected recruitment start date
2026-10-23, 1405/08/01

Expected recruitment end date
2026-11-26, 1405/09/05

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Effect of Postprandial walking duration on serum insulin and two-hour blood glucose response in overweight women.

Public title
The effect of light walking after a meal on blood sugar

Purpose
Prevention

Inclusion/Exclusion criteria

Inclusion criteria:
Female, aged 34–44 Body Mass Index (BMI) between 25 and 30 No history of chronic or metabolic diseases (e.g., diabetes, cardiovascular disease, hormonal disorders) Not pregnant or breastfeeding Not taking medications that could affect blood sugar or insulin levels

Exclusion criteria:
Having metabolic syndrome conditions such as diabetes, high blood pressure, etc.

Age
From **34 years** old to **44 years** old

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **15**

Randomization (investigator's opinion)
Randomized

Randomization description
Randomization method: Simple randomization. Unit of randomization: Individual participant. Stratification: No stratified randomization was used. Randomization tool: A software-based randomization procedure was used to generate the random sequence. Generation of the random sequence: For each participant, the order of the three study conditions, including the control condition (rest), 10-minute postprandial walking, and 20-minute postprandial walking, was randomly determined. Each participant received all three conditions in three separate study sessions, with a 72-hour interval between sessions. Allocation concealment: Because of the crossover design, each participant received all three study conditions and there was no permanent allocation to parallel intervention or control groups. The randomized order of the study conditions was not disclosed to the participant before the study schedule was determined.

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics Committee of Sport Sciences Research Institute

Street address
No. 3, 5th Alley, Miremad Street, Motahhari Street, Tehran, Iran.

City
Tehran

Province
Tehran

Postal code
1587958711

Approval date
2025-07-27, 1404/05/05

Ethics committee reference number
IR.SSRC.REC.1404.040

Health conditions studied

1

Description of health condition studied
overweight

ICD-10 code
E66.3

ICD-10 code description
overweight

Primary outcomes

1

Description
Blood glucose concentration at 0, 10, 20, 60, and 120 minutes after consumption of a standardized meal, measured using an Accu-Chek Active glucometer.

Timepoint
Blood glucose measurement at the beginning of each session (minute 0, before the start of the intervention) and at 10, 20, 60, and 120 minutes after consumption of a standardized meal.

Method of measurement
Accu-Chek Active Blood Glucose Meter, Roche Diagnostics, Germany

Secondary outcomes

1

Description
Area under the curve (AUC) of blood glucose concentration from time 0 to 120 minutes after consumption of a standardized meal.

Timepoint
From time 0 to 120 minutes after consumption of a standardized meal, in each of the three study sessions.

Method of measurement
Accu-Chek Active glucometer (Roche Diagnostics, Germany) using the device-specific test strips; the area under the curve will be calculated based on the measured blood glucose values using the trapezoidal method.

2

Description
Serum insulin concentration at 120 minutes after consumption of a standardized meal.
Timepoint
At 120 minutes after consumption of a standardized meal, in each of the three study sessions.
Method of measurement
Human insulin ELISA kit (Monobind, USA), using a microplate reader.

Intervention groups

1

Description
Control group: After consuming a standardized meal, participants remain at rest for 120 minutes and perform no exercise or training intervention during this period.
Category
Lifestyle

2

Description
Intervention group: First intervention group: Immediately after consuming a standardized meal, participants walk on a treadmill for 10 minutes at a speed of 4–6 km/h. After completing the 10-minute walk, participants remain at rest until the end of the 120-minute period.
Category
Lifestyle

3

Description
Intervention group: Second intervention group: Immediately after consuming a standardized meal, participants walk on a treadmill for 20 minutes at a speed of 4–6 km/h. After completing the 20-minute walk, participants remain at rest until the end of the 120-minute period.
Category
Lifestyle

Recruitment centers

1

Recruitment center
Name of recruitment center
sport sciences research institute
Full name of responsible person
Mohammad Shariazadeh
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
No
Title of funding source
Sport Sciences Research Institute
Proportion provided by this source
20
Public or private sector
Private
Domestic or foreign origin
Domestic
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
Persons

Person responsible for general inquiries

Contact
Name of organization / entity
Sport Sciences Research Institute
Full name of responsible person
Mohammad Shariatzadeh

Position
Associate Professor
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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
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
No - There is not a plan to make this available
Data Dictionary
Yes - There is a plan to make this available
Title and more details about the data/document
De-identified individual participant data, including data related to the primary and secondary outcomes of the study and the variables required to reproduce the reported analyses, will be available upon request and shareable after removal of any identifying information.
When the data will become available and for how long
Access will begin upon publication of the main study article and will continue for as long as the data remain usable for valid research purposes.
To whom data/document is available
Researchers and faculty members of universities and reputable research institutions who submit a justified research request.
Under which criteria data/document could be used
The data will be usable solely for valid research and scientific purposes, including reanalysis of the data, reproduction of the reported analyses, or conducting secondary analyses related to the research objectives. The data will be provided in a de-identified form, and their use for re-identification of participants is not permitted.
From where data/document is obtainable
Requests should be sent to the principal investigator of the study at the Research Institute of Physical Education and Sport Sciences.
What processes are involved for a request to access data/document
Any data sharing will be contingent upon adherence to the confidentiality of participants' information, research ethics principles, and relevant data protection regulations.

Comments

Any data sharing will be contingent upon adherence to the confidentiality of participants' information, research ethics principles, and relevant data protection regulations.