Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparison of the Immediate Effect of Flat Treadmill Walking with Soleus Pushups versus Inclined Treadmill Walking on Glucose Levels in Type 2 Diabetes Patients: A Randomized Controlled Trial.

Protocol summary

Study aim
This study compares the immediate effects of flat treadmill walking with soleus pushups versus inclined treadmill walking on blood glucose levels in type 2 diabetes patients.

Design
Randomized, parallel group trial with 48 participants (24 in each group) at a single center.

Settings and conduct
Northwest General Hospital & Research Centre Peshawar, Pakistan. No blinding in the trial.

Participants/Inclusion and exclusion criteria
Inclusion Criteria • Able to complete Physical activity readiness questionnaire • Persons diagnosed with type 2 diabetes for at least a year • Age 18 years and older • Ambulatory (with or without assistive device) Exclusion Criteria • recently started a new treatment including medication or changed treatment • history of surgery of spine or lower extremity • comorbid conditions that may influence understanding, or answering of the questionnaires (e.g., cognitive impairments).

Intervention groups
Two groups: flat treadmill walking with soleus pushups and inclined treadmill walking.

Main outcome variables
Primary outcome is the change in blood glucose levels immediately after exercise.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20250222064811N1**
Registration date: **2025-03-09, 1403/12/19**
Registration timing: **prospective**
Last update: **2025-03-09, 1403/12/19**
Update count: **0**

Registration date
2025-03-09, 1403/12/19

Registrant information

Name
Rabia Qubais
Name of organization / entity
Khyber Medical University
Country
Pakistan
Phone
+92 332 9993006
Email address
rqubais4@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-04-01, 1404/01/12

Expected recruitment end date
2025-04-30, 1404/02/10

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparison of the Immediate Effect of Flat Treadmill Walking with Soleus Pushups versus Inclined Treadmill Walking on Glucose Levels in Type 2 Diabetes Patients: A Randomized Controlled Trial.

Public title
Comparing Walking Exercises to Improve Blood Sugar

Control in Type 2 Diabetes Patients.

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Able to complete Physical activity readiness questionnaire Age 18 years and above Persons diagnosed with type 2 diabetes for at least a year Ambulatory (with or without assistive device)

Exclusion criteria:

recently started a new treatment including medication or changed treatment history of surgery of spine or lower extremity comorbid conditions that may influence understanding, or answering of the questionnaires (e.g., cognitive impairments).

Age

From **18 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

Method of Randomization: Simple randomization using a lottery method. Unit of Randomization: Individual participants. Randomization Strata: No stratification is used in this study. Tools Used in Randomization: A lottery draw is used to generate the random sequence. How the Random Sequence Was Built: The random sequence is generated through a lottery draw, where participants randomly select their group assignment. Allocation Concealment: Allocation concealment is not explicitly implemented, as participants are aware of their group assignment immediately after the lottery draw. However, the lottery method ensures that the sequence is unpredictable until the participant makes their selection.

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 Khyber Medical university

Street address

phase 5, Hayatabad Peshawar

City

Peshawar

Postal code

25100

Approval date

2025-03-05, 1403/12/15

Ethics committee reference number

KMU/IPM&R/MSPT/42

Health conditions studied

1

Description of health condition studied

Type 2 diabetes

ICD-10 code

Type 2 dia

ICD-10 code description

E11

Primary outcomes

1

Description

blood glucose level

Timepoint

immediately after intervention

Method of measurement

glucometer

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Flat treadmill walking with soleus pushups.

Category

Treatment - Other

2

Description

Intervention group: inclined treadmill walk

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Northwest General Hospital & Research Centre

Full name of responsible person

Rabia Qubais

Street address
House no. 57, Street 5, Sector K-6, Phase 3, Hayatabad Peshawar, Pakistan.
City
Peshawar
Postal code
25000
Phone
+92 336 9104775
Email
rqubais4@gmail.com
Web page address
https://www.nwgh.pk/

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Khyber Medical University
Full name of responsible person
Rabia Qubais
Street address
Phase 5, Hayatabad Peshawar
City
Peshawar
Postal code
25100
Phone
+92 91 9217703
Fax
+92 91 9217703
Email
webmaster@kmu.edu.pk
Web page address
https://www.kmu.edu.pk
Grant name
Not applicable
Grant code / Reference number
Not applicable
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Khyber Medical University
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
Khyber Medical University
Full name of responsible person
Rabia Qubais
Position
Student
Latest degree
Master
Other areas of specialty/work
Physical Medicine
Street address
House no.57, street 5, sector k-6, phase 3, Hayatabad Peshawar, Pakistan.
City
Peshawar
Province
Khyber Pakhtunkhwa
Postal code
25000
Phone
+92 332 9993006
Email
rqubais4@gmail.com

Person responsible for scientific inquiries

Contact
Name of organization / entity
Khyber Medical University
Full name of responsible person
Rabia Qubais
Position
Student
Latest degree
Master
Other areas of specialty/work
Physical Medicine
Street address
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Person responsible for updating data

Contact
Name of organization / entity
Khyber Medical University
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Position
Student
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Physical Medicine
Street address
House no. 57, street 5, sector k-6, phase 3, Hayabatabad Peshawar, Pakistan
City
Peshawar
Province
Khyber Pakhtunkhwa
Postal code
25000
Phone
+92 332 9993006
Email
rqubais4@gmail.com

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
Yes - There is a plan to make this available
Clinical Study Report
Yes - There is a plan to make this available
Analytic Code
Yes - There is 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
COMPARISON OF THE IMMEDIATE EFFECT OF FLAT TREADMILL WALKING WITH SOLEUS PUSHUPS VERSUS INCLINED TREADMILL WALKING ON GLUCOSE LEVELS IN TYPE 2 DIABETES PATIENTS: A RANDOMIZED CONTROLLED TRIAL. Additional Details: This dataset includes deidentified participant data collected during the study, specifically focusing on blood glucose levels before and after exercise interventions. The shared data will include demographic information, exercise type (flat treadmill walking with soleus pushups or inclined treadmill walking), and corresponding glucose measurements.
When the data will become available and for how long
After data collection and analysis it will be provided which will probably take 6 months.
To whom data/document is available
Deidentified individual participant data (IPD) and supporting documents will be available to researchers from academic institutions, research organizations, and other entities upon request. Access will be granted for the purpose of scientific research and analysis, subject to approval by the study's principal investigator and adherence to ethical guidelines. The data will be shared through a secure platform, ensuring confidentiality and compliance with data protection regulations.
Under which criteria data/document could be used
Deidentified IPD will be shared for scientific research related to the study's objectives. Requests must be made in writing, specifying intended use. The principal investigator will review requests based on scientific merit, relevance, and adherence to ethical guidelines.
From where data/document is obtainable
Applicants can obtain the data/documents by contacting the principal investigator, Rabia Qubais, via email at rqubais4@gmail.com. Requests should include a brief description of the intended use of the data.
What processes are involved for a request to access data/document
Initial Contact: Applicants should contact the principal investigator, Rabia Qubais, via email at rqubais4@gmail.com to express interest in accessing the data/documents. Application Submission: A formal request must be submitted, including a detailed description of the intended use of the data and how it aligns with the study's objectives. Review Process: The request will be reviewed by the principal investigator and relevant stakeholders to ensure alignment with ethical guidelines and study objectives. Approval: Once approved, the applicant will receive instructions on how to access the data/documents securely. Timeline: The review process typically takes 2-4 weeks, depending on the complexity of the request and the availability of the review committee. Communication: Applicants will be notified via email regarding the status of their request. If additional information is required, they will be contacted promptly.
Comments
No additional comments at this time. For any further inquiries or clarification regarding the study or data sharing, please contact the principal investigator via the provided contact information.