Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Comparing the effect of intensity and type of endurance exercise on airway epithelial integrity in healthy adult men

Protocol summary

Study aim
Comparing the effect of intensity and type of endurance exercise on airway epithelial integrity in healthy adult men

Design
A randomized, sealed-envelope, unblinded, community-based trial with 3 intervention groups and no control group on 30 samples.

Settings and conduct
20 minutes of endurance exercise (continuous endurance exercise with an intensity of 80 to 90% of maximum heart rate, continuous endurance exercise with an intensity of 65 to 75% of maximum heart rate, and intermittent endurance exercise with an intensity of 80 to 90% of maximum heart rate) on a treadmill in the Exercise Physiology Laboratory of the University of Tabriz, from 9 am to 12 pm and without blinding the groups.

Participants/Inclusion and exclusion criteria
Inclusion criteria: Having a history of at least 1 exercise session per week; Exclusion criteria: having heart and lung diseases and smokers

Intervention groups
Intervention group: 30 healthy active men (3 groups of 10) who perform at least one and a maximum of 3 exercise sessions per week.

Main outcome variables
Serum levels of Clara cell protein, surfactant protein D, and the ratio of Clara cell protein to surfactant protein D in healthy, active men

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20180513039637N5**
Registration date: **2025-05-22, 1404/03/01**
Registration timing: **retrospective**
Last update: **2025-05-22, 1404/03/01**
Update count: **0**

Registration date
2025-05-22, 1404/03/01

Registrant information

Name
Hadi Pourmanaf

Name of organization / entity
Tehran University

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2025-05-19, 1404/02/29

Expected recruitment end date
2025-05-21, 1404/02/31

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Comparing the effect of intensity and type of endurance exercise on airway epithelial integrity in healthy adult men

Public title
The effect of aerobic endurance exercise on airway epithelial integrity in healthy adult men

Purpose
Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:

Adult men between the ages of 18 and 30 Those who participate at least 1 and a maximum of 3 exercise sessions per week

Exclusion criteria:

prior history of specific diseases such as pulmonary and cardiovascular diseases prior history of tobacco smoking for at least six months prior to intervention prior history of using β2-agonists and any anti-inflammatory medications or supplements

Age

From **18 years** old to **30 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Using stratified randomization, individuals were placed in two homogeneous groups (High-intensity endurance exercise group, moderate-intensity endurance exercise group, and interval endurance exercise group). Then random cluster randomization for each group was used. The randomization tool also sealed the envelope. The randomization unit was also individual. Individual numbers inside the pack identified the subjects of each group. And did not allocation concealment.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research Ethics committees of University of Tabriz

Street address

University of Tabriz, Central Library and Documentation Center of Tabriz University, First Floor, Secretariat of the University's Biomedical Ethics Committee

City

Tabriz

Province

East Azarbaijan

Postal code

5166616471

Approval date

2025-04-27, 1404/02/07

Ethics committee reference number

IR.TABRIZU.REC.1404.013

Health conditions studied

1

Description of health condition studied

Does not apply

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Serum levels of Clara cell protein in healthy, active men

Timepoint

Blood sampling before endurance exercise, 60 minutes and one day after endurance exercise

Method of measurement

Clara cell protein kit

2

Description

Serum levels of Surfactant D protein in healthy, active men

Timepoint

Blood sampling before endurance exercise, 60 minutes and one day after endurance exercise

Method of measurement

Surfactant D protein kit

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: 10 healthy active men who will perform 20 minutes of continuous endurance exercise at an intensity of 85-90 percent of maximum heart rate

Category

Other

2

Description

Intervention group: 10 healthy active men who will perform 20 minutes of interval endurance exercise at an intensity of 85-90 percent of maximum heart rate.

Category

Other

3

Description
Control group: 10 healthy active men who will perform 20 minutes of continuous endurance exercise at an intensity of 65-70% of maximum heart rate
Category
Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Imam Reza Hospital
Full name of responsible person
Hadi Pourmanaf
Street address
No. 497, 38 Banafsheh Alley, Danesh 2 Street, Roshdieh
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Tabriz
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
The University of Tabriz
Full name of responsible person
Saied Nikoukheslat
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University Square, 29th Bahman Street
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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
The University of Tabriz
Proportion provided by this source
10
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
The University of Tabriz
Full name of responsible person
Hadi Pourmanaf
Position
Researcher
Latest degree
Master
Other areas of specialty/work
Physiology
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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
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
Not applicable

Title and more details about the data/document
Data on the main outcomes will be shared on the Sportdezh.rzb.ir website.

When the data will become available and for how long
Access period starts 1 month after results are published.

To whom data/document is available
Everyone

Under which criteria data/document could be used
Pattern

From where data/document is obtainable
Sportdezh.rzb.ir

What processes are involved for a request to access data/document
Sportdezh.rzb.ir

Comments