# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

22 Nov 2026

## The effect of 8 weeks of resistance training with pomegranate extract on resting metabolic rate, hypertrophy and muscle strength of inactive male students

## Protocol summary


**Study aim**
The aim of this study was to investigate the effect of 8 weeks of resistance training with pomegranate extract on resting metabolic rate, hypertrophy and muscle strength of inactive male students.

**Design**
42 inactive boys were selected voluntarily and randomly divided into four groups: resistance training (n = 11), resistance training with pomegranate extract (n = 11), pomegranate extract (n = 10) and control (n = 10).

**Settings and conduct**
Exercises were performed in the gym of Mohaghegh Ardabili University by an experienced instructor. Subjects' measurements were performed before and after 8 weeks of resistance training.

**Participants/Inclusion and exclusion criteria**
Subjects are inactive untrained men who have no cardiovascular or musculoskeletal disease.

**Intervention groups**
Resistance training program for 8 weeks, 3 sessions per week and will include 2 movements for the upper body (barbell chest press and barbell shoulder press) and 2 movements for the lower body (front leg and machine leg press). The subjects of the resistance training group + pomegranate extract (half an hour before training) and the pomegranate extract group will consume 100 ml of pomegranate extract 3 times a week.

**Main outcome variables**
Muscle hypertrophy, Resting metabolism, Body fat percentage and Muscle strength


## General information

**Reason for update**

**Acronym**

**IRCT registration information**
IRCT registration number: **IRCT20190927044893N2**
Registration date: **2021-10-25, 1400/08/03**
Registration timing: **prospective**

Last update: **2021-10-25, 1400/08/03**
Update count: **0**

**Registration date**
2021-10-25, 1400/08/03


**Registrant information**
**Name**
Roghayyeh Afroundeh
**Name of organization / entity**
University of Mohaghegh Ardabili
**Country**
Iran (Islamic Republic of)
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+98 45 3359 3278
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**Recruitment status**
**Recruitment complete**

**Funding source**

**Expected recruitment start date**
2021-11-06, 1400/08/15

**Expected recruitment end date**
2022-01-10, 1400/10/20

**Actual recruitment start date**
empty

**Actual recruitment end date**
empty

**Trial completion date**
empty

**Scientific title**
The effect of 8 weeks of resistance training with pomegranate extract on resting metabolic rate, hypertrophy and muscle strength of inactive male

students

**Public title**
The effect of resistance training with pomegranate extract on health factors
**Purpose**
Basic scienece
**Inclusion/Exclusion criteria**
**Inclusion criteria:**
Men do not practice inactive
**Exclusion criteria:**
Having any musculoskeletal injuries Use any medication or supplement Having underlying diseases
**Age**
From **20 years** old to **30 years** old
**Gender**
Male

**Phase**
N/A
**Groups that have been masked**
*No information*
**Sample size**
Target sample size: **42**
**Randomization (investigator's opinion)**
Randomized
**Randomization description**
The random number table will be used for simple randomization to assign subjects to the group. To use random number tables, the researcher must first determine direction for reading numbers in table (for example , up, down, left or right). The second step for researcher is considering numbers for different groups (eg, even numbers for intervention A and odd numbers for intervention B). The researcher then selects one number and assigning them to different groups.
**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 Ardabil University of Medical Sciences
**Street address**
Ardabil Mohaghegh Ardabili University, Department of Physical Education
**City**
Ardabil
**Province**
Ardabil
**Postal code**
5619911367
**Approval date**
2019-05-05, 1398/02/15
**Ethics committee reference number**
IR.ARUMS.REC.1398.054

## Health conditions studied

### 1

**Description of health condition studied**
Resting metabolism and health indicators
**ICD-10 code**
**ICD-10 code description**

## Primary outcomes

### 1

**Description**
Resting metabolism
**Timepoint**
Before and after 8 weeks of resistance training - before and after 8 weeks of resistance training with pomegranate extract - before and after 8 weeks of pomegranate extract
**Method of measurement**
By gas analyzer Device

### 2

**Description**
Percentage of body fat
**Timepoint**
Before and after 8 weeks of resistance training - before and after 8 weeks of resistance training with pomegranate extract - before and after 8 weeks of pomegranate extract
**Method of measurement**
By Caliper

### 3

**Description**
Muscle hypertrophy
**Timepoint**
Before and after 8 weeks of resistance training - before and after 8 weeks of resistance training with pomegranate extract - before and after 8 weeks of pomegranate extract
**Method of measurement**
Tape meter

### 4

**Description**
Muscle strength
**Timepoint**
Before and after 8 weeks of resistance training - before and after 8 weeks of resistance training with

pomegranate extract - before and after 8 weeks of pomegranate extract

**Method of measurement**

Test a maximum repetition

## Secondary outcomes

empty

## Intervention groups

### 1

**Description**

Intervention group: Subjects will take a measurement session to assess resting metabolism, body fat percentage, muscle hypertrophy, and muscle strength. They will then participate in an 8-week protocol of resistance training, resistance training with pomegranate extract, and pomegranate extract. After this period, they will repeat a measurement session to determine the desired factors.

**Category**

Diagnosis

### 2

**Description**

Control group: Subjects will take a measurement session to estimate resting metabolism, body fat percentage, muscle hypertrophy, and muscle strength. But they will not participate in any activities for 8 weeks. After this period, they will repeat a measurement session to determine the desired factors.

**Category**

Diagnosis

## Recruitment centers

### 1

**Recruitment center**

**Name of recruitment center**

Mohaghegh Ardabili University

**Full name of responsible person**

Roghayyeh afroundeh

**Street address**

Ardabil, Mohaghegh Ardabili University, Department of Physical Education and Sports Science

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## Sponsors / Funding sources

### 1

**Sponsor**

**Name of organization / entity**

Mohaghegh Ardabili University

**Full name of responsible person**

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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**

Mohaghegh Ardabili University

**Proportion provided by this source**

50

**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**

Mohaghegh Ardabili University

**Full name of responsible person**

Roghayyeh afroundeh

**Position**

Faculty Member

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Exercise physiology

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## Person responsible for scientific inquiries

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## Person responsible for updating data

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**Other areas of specialty/work**
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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**
No - There is not 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**
No - There is not a plan to make this available

**Data Dictionary**
No - There is not a plan to make this available

**Title and more details about the data/document**
There is possibility to share results and statistical information

**When the data will become available and for how long**
Access period starts 4 months after the results are published

**To whom data/document is available**
Sports researchers and coaches

**Under which criteria data/document could be used**
For use in projects and sports fields

**From where data/document is obtainable**
Roghayyeh afroundeh, afroundeh@gmail.com, 09141532136

**What processes are involved for a request to access data/document**
By email

**Comments**