Clinical Trial Protocol
Iranian Registry of Clinical Trials

21 Jul 2026

The effect of two types of concurrent aerobic and resistance training on C-reactive protein and some obesity-related microRNAs levels in middle-aged men

Protocol summary

Study aim

The effect of two simultaneous aerobic and resistance training methods on the levels of C-reactive protein and some micro RNAs related to obesity in middle-aged obese men.

Design

The present study will be conducted in the form of a three-group quasi-experimental design (concurrent training in one day, concurrent training on separate days, and control group) with a post-test design and will be blinded. The method of voluntary sampling and division will be in three groups with a random allocation of 10 obese people will be in the concurrent training in one day group, 10 people in the concurrent training on separate days group, and 10 people in the control group.

Settings and conduct

In the present study, 30 middle-aged obese men (40-50 years old) were selected as research samples. Subjects will be randomly divided into 3 groups of 10: control, concurrent training on one day, and contemporary training on separate days. 24 hours before the start of the training period, blood samples will be taken from the subjects, and 48 hours after the last session of training, blood samples will be retaken. All measurements and exercises will be measured at Tabriz University. The present study is single-blind, and the participants do not know how to be assigned to study groups.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age range 40 to 50 years؛ body mass index above 30 Exclusion criteria: Smoking Blood sugar is above the normal range؛ Blood lipids are above the normal range؛ Taking certain medications to control body weight and blood pressure during the last three months؛ Diastolic and systolic pressures greater than 100 and 140 mm Hg respectively and having a physical injury and physical limitation.

Intervention groups

concurrent training in one day group concurrent training on separate days group control group

Main outcome variables

mir-155 and mir-128-1

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20220816055719N1**
Registration date: **2022-09-02, 1401/06/11**
Registration timing: **prospective**

Last update: **2022-09-02, 1401/06/11**
Update count: **0**

Registration date

2022-09-02, 1401/06/11

Registrant information

Name
Amir Shakib
Name of organization / entity
University of tabriz
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Iran (Islamic Republic of)
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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-09-06, 1401/06/15

Expected recruitment end date

2022-09-12, 1401/06/21

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
The effect of two types of concurrent aerobic and resistance training on C-reactive protein and some obesity-related microRNAs levels in middle-aged men

Public title
The relationship between different types of exercise training and obesity
Purpose
Education/Guidance
Inclusion/Exclusion criteria
Inclusion criteria:
Age range between 40 and 50 years body mass index above 30
Exclusion criteria:
Use of cigarettes and other tobacco products Taking special drugs to control body weight and blood pressure within three months having physical injuries and physical limitations
Age
From **40 years** old to **50 years** old
Gender
Male

Phase
N/A
Groups that have been masked

- Participant

Sample size
Target sample size: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
Allocating to each group will be through the lottery and random paper which has been concealed in draw balls. In this method, first, the list of names of all members is recorded and then a number is assigned to each one and placed inside a box. Then the papers are selected and removed one by one until the sample volume is complete.
Blinding (investigator's opinion)
Single blinded
Blinding description
The present study is single-blind, and the researchers know how to assign individuals to different groups. In general, all participants in this project are unaware of what kind of sports group they are said to be in, and the researchers will individually give the exercise to individuals and will not be explained to people the type and name of the exercise.
Placebo
Not used
Assignment
Parallel
Other design features
In the current study, the participants are randomly divided into three groups: 1-concurrent training on one day, 2-concurrent training on different days, and 3-control. The control group does not receive any intervention (exercise or supplement). Blood samples are taken from the control group only in two time intervals.

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee in Tabriz University research
Street address
29 Bahman Blvd, Tabriz, Iran
City
Tabriz
Province
East Azarbaijan
Postal code
5166616471
Approval date
2022-01-09, 1400/10/19
Ethics committee reference number
IR.TABRIZU.REC.1400.060

Health conditions studied

1

Description of health condition studied
obesity
ICD-10 code
E66.0
ICD-10 code description
Obesity due to excess calories

Primary outcomes

1

Description
The level of mir-155
Timepoint
Before and after starting 12 weeks of concurrent resistance and aerobic exercises
Method of measurement
Real-Time PCR and using PCR mic

2

Description
The level of mir-155
Timepoint
Before and after starting 12 weeks of concurrent resistance and aerobic exercises
Method of measurement

Real-Time PCR and using PCR mic

3

Description
The level of C-Reactive Protein (CRP)
Timepoint
Before and after starting 12 weeks of concurrent resistance and aerobic exercises
Method of measurement
It will be measured by Elisa Reader method with high sensitivity.

Secondary outcomes

1

Description
Blood sugar
Timepoint
Before and after starting 12 weeks of concurrent resistance and aerobic exercises
Method of measurement
Using the kit of Pars Azmoun company and with the sensitivity of the kit, 5 mg/dL will be measured.

2

Description
Lipid profile
Timepoint
Before and after starting 12 weeks of concurrent resistance and aerobic exercises
Method of measurement
The test will be measured by enzymatic calorimetric method and Pars Company kit.

Intervention groups

1

Description
Intervention group1: This group will do aerobic and resistance training in one session, so that in the first six weeks, they will train two sessions per week and in the second six weeks, five sessions per two weeks.
Category
Prevention

2

Description
Intervention group2: This group will do aerobic and resistance training on different days, so that in the first six weeks, they will train four sessions a week and in the second six weeks, they will train 10 sessions every two weeks.
Category
Prevention

3

Description
Control group: They will not do anything
Category
Placebo

Recruitment centers

1

Recruitment center
Name of recruitment center
University of Tabriz
Full name of responsible person
Amir Shakib
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Sponsors / Funding sources

1

Sponsor
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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
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

University of Tabriz

Full name of responsible person

Amir Shakib

Position

Ph.D student

Latest degree

Master

Other areas of specialty/work

Physiology

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Person responsible for scientific inquiries

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available

Title and more details about the data/document

In this study, the results will be reported in the form of an article

When the data will become available and for how long

Depending on the variable, the data of some variables will be accessed before the start of the research and others after the end of the research.

To whom data/document is available

Project participants, researchers and university professors

Under which criteria data/document could be used

Other researchers will be allowed to access the data in order to use and assist other researchers and to commit

not to misuse the data.

From where data/document is obtainable

Amirn7373@gmail.com

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

Provide identification documents and research resume and provide commitment in order not to misuse the data

Comments