

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

The Effect of a Resistance Training Program on Lipid Profile and the Expression of miRNA-126 and miRNA-221 in Women with Overweight/Obesity

Protocol summary

Study aim

The main aim of the present study is to compare the effect of a selected resistance and aerobic training course on the expression of miRNA-126 and miRNA-221 and the lipid profile of overweight/obese women.

Design

This clinical trial will be carried out using parallel groups and simple randomization. blinding will not be implemented in this research.

Settings and conduct

This study will be conducted in the university gym and participants will be invited to participate in the study through announcements on social media channels. After selection and obtaining consent, they will be randomly assigned to the intervention and control groups and will participate in aerobic and resistance training groups with a trainer on specific days for 8 weeks, 3 sessions of 90 minutes each week. Blinding will not be performed.

Participants/Inclusion and exclusion criteria

Inclusion criteria: not participating in regular physical activities for the past year, obesity (having a body mass index of 26-34) and no underlying disease. Exclusion criteria: Having cardiovascular disease, having musculoskeletal disorders

Intervention groups

Intervention group 1 consists of individuals engaged in aerobic exercises in the gym, including running with an intensity of 70-80% of the maximum heart rate, for 60 minutes and 30 minutes of warm-up and cool-down exercises. Intervention group 2, participants in resistance exercises in the gym with gym equipment, to develop muscle strength, will perform the exercises with an intensity of 70-80% of a maximum repetition, in 3 sets and 10-12 repetitions. The exercises of both groups are scheduled for 8 weeks and 3 sessions per week.

Main outcome variables

Cholesterol; Triglycerides; Low-density lipoprotein

cholesterol; High-density lipoprotein cholesterol; MicroRNA-126; MicroRNA-221; Body fat percentage

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20251108067920N1**

Registration date: **2026-02-06, 1404/11/17**

Registration timing: **prospective**

Last update: **2026-02-06, 1404/11/17**

Update count: **0**

Registration date

2026-02-06, 1404/11/17

Registrant information

Name

Roya Hamdiasi

Name of organization / entity

Isfahan Faculty Of Sport Sciences

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2026-02-09, 1404/11/20

Expected recruitment end date

2026-04-09, 1405/01/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of a Resistance Training Program on Lipid Profile and the Expression of miRNA-126 and miRNA-221 in Women with Overweight/Obesity

Public title

Studying the effect of two exercise training methods on controlling obesity symptoms in women

Purpose

Prevention

Inclusion/Exclusion criteria**Inclusion criteria:**

Lack of participation in regular physical activity during the past year Obesity (without other underlying diseases) Being in the age range of 25-40 years Having a body mass index of 26-35

Exclusion criteria:

Having cardiovascular diseases Having musculoskeletal diseases

Age

From **25 years** old to **40 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

After obtaining the participants' consent and providing complete information about the intervention implementation process, 30 samples will be selected from among the eligible people. There will be 30 volunteers in this study. In the second step, the numbers 1 to 30 are inserted on the paper and placed in the lottery container. The 15 people who chose even numbers from the lottery are in the resistance training group and the people who chose odd numbers are in the aerobic training group. Blinding is not performed in this study.

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**

University of Isfahan Research Ethics Committee

Street address

University of Isfahan, University St., Isfahan, Iran

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Isfahan

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Postal code

81746-73441

Approval date

2025-09-13, 1404/06/22

Ethics committee reference number

IR.UI.REC.1404.148

Health conditions studied**1****Description of health condition studied**

Obesity

ICD-10 code

E66.09

ICD-10 code description

Other obesity due to excess calories

Primary outcomes**1****Description**

Cholesterol

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

Measurements are performed using special kits and the ELISA method.

2**Description**

miRNA-221

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

This procedure is conducted utilizing specialized kits and a real-time PCR apparatus.

3**Description**

miRNA-126

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

This procedure is conducted utilizing specialized kits and a real-time PCR apparatus.

4

Description

Cardiorespiratory Endurance

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

The cardiorespiratory endurance of the participants is assessed through the Rockport Walking/Running Test.

5

Description

Body fat Percentage

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

The body fat percentage of participants will be assessed through the use of hand calipers, skinfold measurements taken from multiple regions, and the application of the Peterson equation.

6

Description

Triglycerides

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

Measurements are performed using special kits and the ELISA method.

7

Description

Low Density Lipoprotein-Cholesterol

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

Measurements are performed using special kits and the ELISA method.

8

Description

High Density Lipoprotein-Cholesterol

Timepoint

Before intervention and after 8 weeks of exercise interventions

Method of measurement

Measurements are performed using special kits and the ELISA method.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group 1: Participants in this group will engage in specific aerobic exercises at the gym for a duration of 8 weeks, attending 3 sessions each week. The exercises will be conducted at an intensity level of 70-80% of the maximum heart rate for a total of 90 minutes. The aerobic activities will consist of running in the gym for 60 minutes. During the initial four weeks, the exercises will be performed at an intensity of 60-70% of the maximum heart rate, structured into 4 sets of 10 minutes each, with 5 minutes allocated for active rest in between. From the fifth to the eighth week, the intensity will increase to 80-70% of the maximum heart rate, with 6 sets of 10 minutes each and 3 minutes of active rest. The exercises will be tailored according to the participants' age and gender. The intensity will be adjusted every 4 weeks based on the participants' progress. Each session will commence with a 15-minute warm-up and conclude with a 5-10 minute cool-down that includes stretching and flexibility exercises.

Category

Lifestyle

2

Description

Intervention Group 2: Participants in this group will engage in resistance training at an intensity of 70-80% of their one repetition maximum, performing 3 sets of 10-12 repetitions using exercise machines for 90 minutes, three times a week over a period of 8 weeks. During the initial sessions, their one repetition maximum will be assessed across various movements, and the first four weeks will commence with an intensity of 70-75% of the one repetition maximum. In the subsequent four weeks, following a new one repetition maximum test, the training will progress to 75-80% of the one repetition maximum based on individual progress. The resistance training regimen will encompass: leg curl and extension exercises, squats, chest presses, and overhead pull-down exercises using the machine. Each session will start with a 15-minute warm-up and conclude with a cool-down period of 5-10 minutes that includes stretching and flexibility exercises.

Category

Lifestyle

Recruitment centers

1

Recruitment center

Name of recruitment center

University of Isfahan

Full name of responsible person

Vazgen Minasian

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Roya Hamdiasl

Position

MSc Student

Latest degree

Bachelor

Other areas of specialty/work

Others

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

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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

University of Isfahan

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**

The University of Isfahan

Full name of responsible person**Person responsible for scientific inquiries****Contact****Name of organization / entity**

The University of Isfahan

Full name of responsible person

Vazgen Minasian

Position

Professor

Latest degree

Ph.D.

Other areas of specialty/work

Exercise Physiology

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Person responsible for updating data**Contact****Name of organization / entity**

The University of Isfahan

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Roya Hamdiasl

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MSc Student

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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

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not 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

No - There is not a plan to make this available