

Clinical Trial Protocol

Iranian Registry of Clinical Trials

23 Jun 2026

The impact of a single bout of high intensity interval training versus moderate continuous exercise on excess post-exercise oxygen consumption in over-weight sedentary women

Protocol summary

Summary

The aim of the present study is to compare the impact of a single bout of high intensity interval versus moderate intensity continuous exercise on post-exercise oxygen consumption and resting metabolic rate in over weight sedentary women. The study population are 15 women who come to the sports medicine clinic to receive an exercise program for weight reduction and have the inclusion criteria. Subjects will participate in two modes of exercise sessions on treadmill, 1 week apart. At the end of each exercise session, study variables will be measured. One exercise session is continuous moderate intensity exercise (50% of heart rate reserve (HRR) or 55% of the maximal oxygen consumption (VO₂max)) and the other session is interval high intensity exercise with the exercise to rest ratio of 2 to 1 (4 min high intensity with 80% of HRR or 82% of the VO₂max and 2 min low intensity with 40% of HRR or 45% of the VO₂max). Continuous moderate intensity exercise will be prescribed for 30 minutes and the duration of high intensity interval exercise will be adjusted on the basis of the measurement of oxygen consumption to have two isocaloric exercise sessions. Measurement of the study variables including oxygen consumption, respiratory exchange ratio, resting metabolic rate, carbohydrate and fat percentage at resting metabolic rate will be done by a gas analysis metabolic cart before, during and after each exercise session. The main outcome is oxygen consumption after each exercise session with the aim of detecting the changes of resting metabolic rate after exercise and secondary outcomes are respiratory exchange ratio, resting metabolic rate, CHO and fat percentage at resting metabolic rate.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017020124401N3**

Registration date: **2017-05-26, 1396/03/05**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2017-05-26, 1396/03/05

Registrant information

Name

Reza Mazaheri

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 8833 6782

Email address

mazaheri_md@tums.ac.ir

Recruitment status

Recruitment complete

Funding source

Tehran University of Medical Sciences and Health Services

Expected recruitment start date

2017-04-01, 1396/01/12

Expected recruitment end date

2017-10-01, 1396/07/09

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The impact of a single bout of high intensity interval training versus moderate continuous exercise on excess post-exercise oxygen consumption in over-weight sedentary women

Public title

The impact of two modes of exercise on energy expenditure of over-weight sedentary women

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria: Healthy over-weight women with BMI of 25-29.9 kg.m⁻²; Age between 20 to 45 years old; Sedentary life style (According to American college of sports medicine (ACSM), activity less than 30 minutes moderate intensity exercise, 3 times per week); No history of smoking; No history of weight gain or weight loss (more than 10 percent change) during the previous 6 month; Not pregnant; No history of taking any medications or supplements; Not having organized exercise activity during the last three months; Low risk based on ACSM criteria. Exclusion criteria: Any history of heart or pulmonary disease; Suffering any injuries during exercise which inhibit from continuing activity; Not planning to participate in the study; Endocrine problems including thyroid gland.

Age

From **20 years** old to **45 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **15**

Randomization (investigator's opinion)

N/A

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Tehran University of Medical Sciences

Street address

Tehran University of Medical Sciences

City

Tehran

Postal code

Approval date

2016-12-12, 1395/09/22

Ethics committee reference number

IR.TUMS.REC.1394.220

Health conditions studied

1

Description of health condition studied

Over-weight sedentary women

ICD-10 code

E66.9

ICD-10 code description

Obesity, unspecified

Primary outcomes

1

Description

Oxygen consumption after each exercise session

Timepoint

During the first ten minutes and then 1.5 and 2 hours within the recovery period after the exercise session

Method of measurement

Gas analysis metabolic cart

Secondary outcomes

1

Description

Resting metabolic rate

Timepoint

1.5 and 2 hours within the recovery period after exercise session

Method of measurement

Gas analysis metabolic cart

2

Description

Respiratory exchange ratio

Timepoint

1.5 and 2 hours within the recovery period after exercise session

Method of measurement

Gas analysis metabolic cart

3

Description

Carbohydrate and fat percentage at resting metabolic rate

Timepoint

1.5 and 2 hours within the recovery period after exercise session

Method of measurement

Gas analysis metabolic cart

Intervention groups

1

Description

Continuous moderate intensity exercise (50% HRR or 55% VO2max) which will be prescribed for 30 minutes.

Category

Lifestyle

2

Description

One week later, high intensity interval exercise with the exercise to rest ratio of 2 to 1 (4 min high intensity with 80% of HRR or 82% of the VO2max and 2 min low intensity with 40% of HRR or 45% of the VO2max). Continuous moderate intensity exercise will be prescribed for 30 minutes and the duration of high intensity interval exercise will be adjusted on the basis of the measurement of oxygen consumption to have two isocaloric exercise sessions.

Category

Lifestyle

Recruitment centers

1

Recruitment center

Name of recruitment center

Sports Medicine Center, Imam Khomeini Hospital

Full name of responsible person

Reza Mazaheri

Street address

Imam Khomeini hospital, End of Keshavarz Blv

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for research, Tehran University of Medical Sciences

Full name of responsible person

Dr. Reza Mazaheri

Street address

Sports Medicine Center, Imam Khomeini Hospital, End of Keshavarz Blv

City

Tehran

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Vice chancellor for research, Tehran University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Sports Medicine Research Center, Tehran University of Medical Sciences

Full name of responsible person

Dr. Reza Mazaheri

Position

Associate Professor

Other areas of specialty/work

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Person responsible for scientific inquiries

Contact

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Full name of responsible person

Dr. Reza Mazaheri

Position

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Full name of responsible person

Reza Mazaheri

Position

Associate Professor

Other areas of specialty/work**Street address****City****Postal code****Phone**

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Fax**Email****Web page address**

Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty