

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

30 Jun 2026

### Hormonal Adaptations to Endurance Training Versus Resistance in Postmenopausal Obese Women

#### Protocol summary

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#### Summary

This study examined the effects of resistance and endurance training on serum leptin and adiponectin levels and insulin resistance index in sedentary postmenopausal obese women. For this purpose; 24 sedentary menopausal obese (BMI  $\geq 30.53$  Kg/m<sup>2</sup>) women (mean aged  $52.25 \pm 3$  years old) randomly assigned to endurance and resistance training and control groups, studied before and after 10 weeks of resistance (40-60% of one-repetition maximum) and swimming endurance training (40-60% of maximal heart rate), 3 days per week. Leptin and adiponectin levels, HOMA-IR and anthropometric measurements were assessed before and after training.

#### Recruitment status

**Recruitment complete**

#### Funding source

investigator

#### Expected recruitment start date

2008-06-21, 1387/04/01

#### Expected recruitment end date

2009-01-20, 1387/11/01

#### Actual recruitment start date

empty

#### Actual recruitment end date

empty

#### Trial completion date

empty

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT2012090210709N1**

Registration date: **2013-06-28, 1392/04/07**

Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2013-06-28, 1392/04/07

##### Registrant information

###### Name

Najmeh Rezaeian

###### Name of organization / entity

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###### Country

Iran (Islamic Republic of)

###### Phone

+98 58 3292 2853

###### Email address

##### Scientific title

Hormonal Adaptations to Endurance Training Versus Resistance in Postmenopausal Obese Women

##### Public title

exercise training and adipokines

##### Purpose

Health service research

##### Inclusion/Exclusion criteria

Inclusion criteria: 45-60 years old women; postmenopausal; obese (BMI  $> 30$  kg/m<sup>2</sup>); healthy (without no history of diabetes, cardiovascular and neurological diseases); sedentary Exclusion criteria: women younger than 45 and older than 60; non-menopausal; not obese; with disease effecting on process and result of study; athletes

##### Age

From **45 years** old to **60 years** old

##### Gender

Female

##### Phase

N/A

##### Groups that have been masked

No information

**Sample size**

Target sample size: 24

**Randomization (investigator's opinion)**

Randomized

**Randomization description****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**

Alzahra University

**Street address**

Alzahra University, Deh Vanak, Tehran

**City**

Tehran

**Postal code**

-

**Approval date**

2009-06-15, 1388/03/25

**Ethics committee reference number**

25/3/88 / 456 / ٥ د

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

Insulin resistance

**ICD-10 code**

E10, E11,

**ICD-10 code description**

Diabetes mellitus, Obesity and other hyperalimentation

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

leptin

**Timepoint**

before and after 48 hours after

**Method of measurement**

elisa

**2****Description**

adiponectin

**Timepoint**

before and 48 hours after training

**Method of measurement**

elisa

**Secondary outcomes****1****Description**

insulin resistance index (HOMA-IR)

**Timepoint**

before and 48 hours after training

**Method of measurement**

Fasting serum glucose concentrations were measured by glucose oxidase method using a Beckman Glucose Analyzer (Beckman Instruments, Irvine, CA). Insulin was measured by radioimmunoassay with commercial kits (Immuno Nucleo, Stillwater, MN). The homeostasis model assessment of insulin resistance (HOMA-IR) was calculated using the HOMA-IR equation: [fasting insulin ( $\mu\text{U/mL}$ )  $\times$  fasting glucose (mmol/L)/ 18]/ 22.5

**Intervention groups****1****Description**

The endurance training group: Subjects participated in 10 weeks of endurance swimming training/ walking in water (pool) at an intensity corresponding to 40-60% of maximal heart rate, 3 days per week.

**Category**

Lifestyle

**2****Description**

control group: without Intervention

**Category**

Lifestyle

**3****Description**

The resistance training group: subjects participated in 10 weeks of resistance training, 3 days per week, including: three sets (with 60-90 second rest intervals) of 10 to 12 repetitions, at an intensity corresponding to 40- 60% of one-repetition maximum.

**Category**

Lifestyle

**Recruitment centers****1****Recruitment center****Name of recruitment center**

Tavanir sports complex

**Full name of responsible person**

**Street address**  
**City**  
Tehran

## Sponsors / Funding sources

1

### Sponsor

**Name of organization / entity**  
Vice Chancellor for Research of Alzahra University  
**Full name of responsible person**  
Dr Ensieh Zahedi  
**Street address**  
Alzahra University, Dehvanak, Tehran

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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 of Alzahra University

### 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**  
Department of Sports and Exercise Physiology,  
Faculty of Sports and Exercise Sciences, University of

**Full name of responsible person**  
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## Person responsible for scientific inquiries

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## 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*

