Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Effect of exercise training on serum levels of tumor necrosis factor-alpha, C-reactive protein, muscle strength, and cardio-respiratory function in inactive adolescent girls

Protocol summary

Summary

The purpose of this study was to survey effect of exercise training on serum levels of tumor necrosis factor-alpha, C-reactive protein, muscle strength, and cardio-respiratory function in inactive adolescent girls. To do this, forty six inactive (without experience of regular physical activity in one year before beginning of the study) adolescent (16-17 year) girls from Pakdasht city randomly are placed at four groups: strength, aerobic, concurrent, and control. General characteristics of subjects, serum levels of tumor necrosis factor-alpha, C-reactive protein, muscle strength, and cardio-respiratory function are evaluated before and after the training. Strength training protocol is consisted of eight weeks weight training (3 sessions per week, with intensity of 60-70% of one repetition maximum and duration of 25-55 min per each session). Aerobic training protocol is consisted of eight weeks aerobics (3 sessions per week, with intensity 60-75% of maximum heart rate and duration of 15-30 min per each session). Concurrent training protocol is combination of strength and aerobic training protocols.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2014080618713N1**
Registration date: **2014-09-07, 1393/06/16**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2014-09-07, 1393/06/16

Registrant information

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Recruitment status

Recruitment complete

Funding source

Islamic Azad University of Central Tehran

Expected recruitment start date

2010-05-22, 1389/03/01

Expected recruitment end date

2010-06-10, 1389/03/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of exercise training on serum levels of tumor necrosis factor-alpha, C-reactive protein, muscle strength, and cardio-respiratory function in inactive adolescent girls

Public title

Effect of exercise training in inactive adolescent girls

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: Girl; adolescent (16-17 year); inactive (without experience of regular physical activity in one

year before beginning of the study); Exclusion criteria: history of cardiovascular diseases; diabetes; thyroid diseases; drug consumption; being under any diet or medication; addiction to any narcotic substances; smoking; alcoholism; caffeine.

Age
From **16 years** old to **17 years** old

Gender
Female

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **46**

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
Islamic Azad University of Baneh (Ethical Committee)

Street address
Islamic Azad University of Baneh

City
Baneh

Postal code
34679-66919

Approval date
2014-07-07, 1393/04/16

Ethics committee reference number
21-11-11-1680

Health conditions studied

1

Description of health condition studied
Obesity

ICD-10 code
E66

ICD-10 code description
Obesity

Primary outcomes

1

Description
Body weight

Timepoint
Before and after the exercise training

Method of measurement
Digital weighing machine

2

Description
Body fat percent

Timepoint
Before and after the exercise training

Method of measurement
subcutaneous fat measurement

Secondary outcomes

1

Description
Tumor necrosis factor-alpha

Timepoint
Before and after the exercise training

Method of measurement
Determination of serum concentration

2

Description
C-reactive protein

Timepoint
Before and after the exercise training

Method of measurement
Determination of serum concentration

3

Description
Muscle strength

Timepoint
Before and after the exercise training

Method of measurement
Chest press and semi-squat

4

Description
Cardio-respiratory function

Timepoint
Before and after the exercise training

Method of measurement
maximal oxygen consumption measurement

Intervention groups

1

Description
Strength training protocol consisted of twelve weeks weight training in strength training group
Category
Other

2

Description
Aerobic training protocol consisted of twelve weeks aerobics in aerobic training group
Category
Other

3

Description
Concurrent training protocol consisted of twelve weeks weight training and aerobics in concurrent training group
Category
Other

4

Description
Continuing daily living without doing regular physical activity in control group
Category
Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Moallem girls high school
Full name of responsible person
Street address
City
Pakdasht

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University of Central Tehran
Full name of responsible person
Hasan Matinhomaee
Street address
Exercise Physiology Department, Faculty of Physical Education and Sport Sciences, Iran Zamin Ave, Sanaat Sq.
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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
Islamic Azad University of Central Tehran
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
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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

Data Dictionary

empty