Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

Comparison of Immune and Hormone Changes in Response to Endurance, Resistance and Concurrent Exercise

Protocol summary

Summary

The aim of this study is to compare the acute effects of endurance exercise (EE), resistance exercise (RE), and concurrent exercise (CE) on immune and hormone changes in active men. One hundred thirty healthy young men (no history of special diseases, nonalcoholic and nonsmokers) as a research population, will perform two months regular physical activity (at least 2 days a week). So, as a active men, twenty one subject voluntarily will participate as a sample of this study and randomly will assign into three groups: endurance exercise (EE) (n=7), resistance exercise (RE) (n=7), and concurrent exercise (CE) (n=7). Four days before exercise session, anthropometric and body composition factors will measure and one-repetition maximum of RE and CE groups will calculate with Brzycki formula. Subjects will prohibit from any exercise activity three days before exercise session and will fast at least 12 hours before first sampling until last sampling (not eat any food). Special exercise protocol will perform consisted of 45 min for each group. Blood samples (4 cc) will obtain from antecubital vein before exercises, immediate and 1 hour post-exercises and will pour into free EDTA tubes. Fasting Blood Suger will determine by the enzymatic method and IL-17, IL-10, cortisol and testosterone will measure by ELISA method.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2012100511011N1**
Registration date: **2014-08-02, 1393/05/11**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2014-08-02, 1393/05/11

Registrant information

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Recruitment status

Recruitment complete

Funding source

Tarbiat Modares University

Expected recruitment start date

2013-08-23, 1392/06/01

Expected recruitment end date

2014-06-22, 1393/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of Immune and Hormone Changes in Response to Endurance, Resistance and Concurrent Exercise

Public title

Comparison of Immune and Hormone Changes in Response to Endurance, Resistance and Concurrent Exercise

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria: Healthy young men (No history of special diseases, Nonalcoholic and Nonsmokers); At least two months regular physical activity, at least 2 days a week; Normal BMI and body fat percentage; Not consuming special drugs or any other nutritional supplements Exclusion criteria: Less than 2 month exercise training period

Age
From **18 years** old to **25 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **130**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Single blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Tarbiat Modares University

Street address
Department of Physical Education and Sports Sciences, Faculty of Humanities, Tarbiat Modares University, Jalal Ale Ahmad Highway, Tehran, Iran. P.O.Box: 14115-111.

City
Tehran

Postal code
14115-111

Approval date
2014-07-12, 1393/04/21

Ethics committee reference number
52/3063ه

Health conditions studied

1

Description of health condition studied
Lifestyle-related condition

ICD-10 code
Y98

ICD-10 code description
Lifestyle-related condition

Primary outcomes

1

Description
interleukin-17

Timepoint
Pre, immediate and 1 h post-exercises

Method of measurement
ELISA

2

Description
interleukin-10

Timepoint
Pre, immediate and 1 h post-exercises

Method of measurement
ELISA

3

Description
Testosterone

Timepoint
Pre, immediate and 1 h post-exercises

Method of measurement
ELISA

4

Description
Cortisol

Timepoint
Pre, immediate and 1 h post-exercises

Method of measurement
ELISA

Secondary outcomes

1

Description
Fasting blood suger

Timepoint
Pre, immediate and 1 h post-exercises

Method of measurement
Enzymatic

2

Description
Body fat percentage

Timepoint
Pre session

Method of measurement
Bioelectrical impedance

Intervention groups

1

Description
Endurance exercise
Category
Lifestyle

2

Description
Resistance exercise
Category
Lifestyle

3

Description
Concurrent exercise
Category
Lifestyle

Recruitment centers

1

Recruitment center
Name of recruitment center
Payame Noor University of Hamedan
Full name of responsible person
Mostafa Baranchi
Street address
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tarbiat Modares University
Full name of responsible person
Dr. Hamid Agha-alinejad
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Department of Physical Education and Sports Sciences, Faculty of Humanities, Tarbiat Modares University, Jalal Ale Ahmad Highway, Tehran, Iran.
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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
Tarbiat Modares 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

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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