

Clinical Trial Protocol

Iranian Registry of Clinical Trials

02 Jul 2026

Comparison of lactate and serum glucose changes with oxygen saturation, heart rate and VO₂max in response to the consumption of L-carnitine and placebo during exhaustive exercise in active young men

Protocol summary

Summary

The aim of this study is to investigate the relationship between serum levels of lactate and glucose with oxygen saturation, maximal heart rate and VO₂max in response to L-carnitine consumption during exhaustive exercise in young active men. Sixteen young men participate in this study. The subjects continuously add to the research and assignment is crossover in intervention giving (Supplement and Placebo); So that subsequently randomly divide into equal number groups involved Placebo and supplement (3gr L-carnitine). After the one week wash-out process, the location of the subjects of each group changed with another group. The subjects perform two sessions of the Bruce test. Serum levels of lactate, glucose, oxygen saturation (%SO₂), maximal heart rate and VO₂max register at before, immediately and 4min after the exhaustive exercise.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017051533979N1**

Registration date: **2017-08-26, 1396/06/04**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2017-08-26, 1396/06/04

Registrant information

Name

Mohsen Shabani

Name of organization / entity

Shahid Rajaee Teacher Training University

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Investigator

Expected recruitment start date

2016-11-30, 1395/09/10

Expected recruitment end date

2016-12-15, 1395/09/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of lactate and serum glucose changes with oxygen saturation, heart rate and VO₂max in response to the consumption of L-carnitine and placebo during exhaustive exercise in active young men

Public title

Sport Nutrition

Purpose

Basic science

Inclusion/Exclusion criteria

Inclusion criteria: Male; Young; Physical health; Active in terms of physical activity and sports; Accommodation in a dormitory (to control nutritional conditions). Exclusion criteria: Having a history of cardiovascular and respiratory diseases; L-carnitine supplementation usage during a month before the start of the test.

Age

From **24 years** old to **27 years** old

Gender

Male

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **16**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Shahid Rajaei Teacher Training University

Street address

Shabanloo St, Lavizan

City

Tehran

Postal code

Approval date

2017-07-23, 1396/05/01

Ethics committee reference number

SRTTU.SSF.1396.1100

Health conditions studied

1

Description of health condition studied

Consumption of L-Carnitine during Exhaustive Exercise

ICD-10 code

-

ICD-10 code description

-

Primary outcomes

1

Description

Lactate

Timepoint

Before, Immediately and 4 min after the Bruce test

Method of measurement

By Lactometer

2

Description

Glucose

Timepoint

Before, Immediately and 4 min after the Bruce test

Method of measurement

By Glucometer

3

Description

Maximal Heart Rate (HRmax)

Timepoint

Immediately and 4 min after the Bruce test

Method of measurement

By Oximeter

4

Description

Oxygen Saturation (%SO₂)

Timepoint

Before, Immediately and 4 min after the Bruce test

Method of measurement

By Oximeter

5

Description

Maximal Oxygen Consumption (VO₂max)

Timepoint

Immediately after the Bruce test

Method of measurement

Calculated by Bruce test and Formula

Secondary outcomes

empty

Intervention groups

1

Description

Giving L-carnitine supplement (3gr) along with solution of water (200gr) and a few drops lemon juice, at 90 minutes before Bruce graded exercise test on treadmill. Velocity and incline Increase in treadmill gradually and simultaneously so that initial incline is 10% and, incline increases 2% per 3 minutes until exhaustion. (in supplement group)

Category

Other

2

Description

Giving placebo that includes solution of water (200gr)

and a few drops lemon juice, at 90 minutes before Bruce graded exercise test on treadmill. Velocity and incline Increase in treadmill gradually and simultaneously so that initial incline is 10% and, incline increases 2% per 3 minutes until exhaustion. (in placebo group)

Category

Placebo

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

Department of Sports Science, Shahid Rajaei Teacher Training University

Full name of responsible person

Dr. Majid Kashef, Professor in Exercise Physiology

Street address

Shahid Shabanloo St, Lavizan

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

Vice Chancellor for research of Shahid Rajaei Teacher Training University

Full name of responsible person

Saied Olyaei

Street address

Shahid Shabanloo St, Lavizan

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 of Shahid Rajaei Teacher Training 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**

Shahid Rajaei Teacher Training University

Full name of responsible person

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Position

PhD student of Exercise Physiology

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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