

Clinical Trial Protocol

Iranian Registry of Clinical Trials

22 Jul 2026

Effect of aerobic exercise and short-term coenzyme Q10 supplementation on on serum total antioxidant capacity, malondiadehyde and creatine kinase in male non-athletes.

Protocol summary

Summary

The purpose of the present study is to investigate the effect of aerobic exercise and short-term Coenzyme Q10 supplementation on serum total antioxidant capacity (TAC), cellular damage and malondiadehyde (MDA) in male non-athletes. Twenty healthy male volunteer non-athletes (aged 22-28 years) in a randomized, double-blind design will be allocated in two equal groups to receive supplement (2.5 mg/kg/day Coenzyme Q10) or placebo (2.5 mg/kg/day dextrose) groups. After the supplementation period (14 days), all subjects will participate in an aerobic exercise protocol with 75% VO2max on the treadmill for 30 minutes. Blood samples will be obtained before the Q10 supplementation along with before and after the exercise protocol. The serum total antioxidant capacity (TAC) and Malondialdehyde (MDA) along with biochemical profiles will be measured by FRAP and spectrophotometer, respectively. The hematologic, creatine kinase and lactate changes will be determined by automatic analyzer. The normal data will be analyzed by repeated measure ANOVA, Bonferroni and independent t test at $\alpha \leq 0.05$.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201011024663N3**
Registration date: **2011-12-01, 1390/09/10**
Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2011-12-01, 1390/09/10

Registrant information

Name

Afshar Jafari

Name of organization / entity

University of Tabriz

Country

Iran (Islamic Republic of)

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+98 41 1339 3251

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Recruitment status

Recruitment complete

Funding source

University of Tabriz

Expected recruitment start date

2010-05-22, 1389/03/01

Expected recruitment end date

2010-06-22, 1389/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of aerobic exercise and short-term coenzyme Q10 supplementation on on serum total antioxidant capacity, malondiadehyde and creatine kinase in male non-athletes.

Public title

Coenzyme Q10 and aerobic exercise effect on oxidative damages

Purpose

Basic science

Inclusion/Exclusion criteria

Inclusion criteria: Healthy male non-athletes, age 22-28

years, without any exercise training and inflammatory or oxidative supplement ingestion during 6 months prior to the study. Exclusion criteria: chronic diseases, injuries, aerobic power higher than 55ml/kg/min, fat percent lower than 10%.

Age

From **22 years** old to **28 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **20**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Tabriz University of Medical Sciences

Street address

Golgasht St. Daneshgah St. Tabriz,

City

Tabriz

Postal code

Approval date

2010-07-08, 1389/04/17

Ethics committee reference number

8959

Health conditions studied

1

Description of health condition studied

Exercise-induced Oxidative damages

ICD-10 code

Y57.9

ICD-10 code description

Drug or medicament, unspecified

Primary outcomes

1

Description

Serum Total antioxidant capacity (TAC)

Timepoint

14 days after the initiation of the intervention

Method of measurement

by Frap Method

2

Description

Serum Malondialdehyde

Timepoint

14 days after the initiation of the intervention

Method of measurement

by thiobarbituric acid reactive substance (TBARS) and spectrophotometer

3

Description

Creatine Kinase Activity

Timepoint

14 days after the initiation of the intervention

Method of measurement

by automatic analyzer and spectrophotometer

Secondary outcomes

1

Description

Plasma Lactate

Timepoint

14 days after the initiation of the intervention

Method of measurement

by automatic analyzer .

2

Description

Peripheral blood leukocytes counts

Timepoint

14 days after the initiation of the intervention

Method of measurement

It will determine by automatic analyzer

3

Description

Maximal Oxygen Consumption

Timepoint

14 days after the initiation of the intervention

Method of measurement

by Bruce treadmill protocol

Intervention groups

1

Description

After 14-days supplementation, Placebo group (2.5 mg/kg/day Dextrose), will participate in an aerobic exercise protocol with 75% VO2max on the treadmill for 30 minutes.

Category

Placebo

2

Description

After 14-days supplementation, supplement group (2.5 mg/kg/day Coenzyme Q10), will participate in an aerobic exercise protocol with 75% VO2max on the treadmill for 30 minutes.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

University of Tabriz

Full name of responsible person

Dr Afshar Jafari

Street address

Faculty of physical education & sports sciences,
University of Tabriz, Tabriz, Iran.

City

Tabriz

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Tabriz

Full name of responsible person

Dr Hamidreza Ghassemzadeh

Street address

University of Tabriz, 29 Bahman Ave, Tabriz, Iran.

City

Tabriz

Grant name

بودجهی مربوط به پایان نامه های تحصیلات تکمیلی دانشگاه تبریز

Grant code / Reference number

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

Yes

Title of funding source

University of Tabriz

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

Person responsible for scientific inquiries

Contact

Name of organization / entity

University of Tabriz

Full name of responsible person

Dr Afshar Jafari

Position

PhD in Molecular Exercise Physiology

Other areas of specialty/work

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Person responsible for updating data

Contact

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