

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 May 2026

Effects of Glutamine and Carnitine supplement on physical fatigue, inflamatin factors and indicators of exertional muscle damage in football players

Protocol summary

Summary

1) Introduction and background: Football players have to train or compete in several days of a week and this intensive exercise program may not give enough time for their muscle's rehabilitation; so the chance of muscle damage can be increased. In addition, they are susceptible to physical fatigue and impaired immune function in this intensive training program. 2) Objectives: The purpose of this study was to examine the effects of carnitine and glutamine supplementation (2 g/d of L-carnitine with or without 2 g/ d of L-glutamine) on markers of muscle damage, muscle soreness, physical fatigue and some inflammatory indicators after physical exertion on football players. 3) Design: This study is a double blind, randomized, placebo-controlled, parallel clinical trial. 4) Setting and conduct: Before of supplementation protocol, each participant had to run on the treadmill for 30 minutes at 75% VO₂max (maximal oxygen consumption) intensity. After this task, subjects were randomly allocated into four groups to receive supplements for 3 weeks. On day 22, at the end of supplementation period, all experimental procedures were repeated. Blood samples were obtained at preexercise and immediately after exercise. In addition, muscle soreness and physical fatigue was assessed at both occasions and 2 days after each exercise. 5) Participants including major eligibility criteria: Twenty-eight healthy male football players with more than 6-month training background were recruited in this study. 6) Intervention: L-carnitine, L- glutamine, L-carnitine + L-glutamine and placebo. 7) main outcome measures (variables): Physical fatigue, Creatine kinase, Aspartate amino transferase, Lactate Dehydrogenase, High sensitive C-reactive protein, Tumor necrosis factor - alfa, Interleukine - 6.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT138809282890N1**

Registration date: **2010-06-13, 1389/03/23**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2010-06-13, 1389/03/23

Registrant information

Name

Mohammad Hozouri

Name of organization / entity

Tabriz University of medical science

Country

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Recruitment status

Recruitment complete

Funding source

Drug Applied Research Center, Tabriz University of Medical Sciences

Expected recruitment start date

2010-04-04, 1389/01/15

Expected recruitment end date

2010-05-05, 1389/02/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effects of Glutamine and Carnitine supplement on physical fatigue, inflamatin factors and indicators of exertional muscle damage in football players

Public title

Effects of glutamine and carnitine on physical fatigue and recovery after exercise

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: - Male football players with more than 6-month training background. - Normal Homogram.
Exclusion criteria: - smoking. - supplement consumer. - took drugs for a chronic disease. - Weighed less than 40 kg. - had blood hemoglobin level less than 12 g/dL. - had history of acute disease or operational condition less than 3 months ago. - donating blood less than 1 month ago.

Age

From **19 years** old to **23 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **28**

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 science

Street address

Tabriz medical university- Attar avenue- Daneshgah square

City

Tabriz

Postal code**Approval date**

empty

Ethics committee reference number

895

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

Physical fatigue, exertional muscle damage and some inflammatory indicators after high intensity exercise in football players

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Serum Cratine Kinase

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Unit per liter- Enzymatic method

2**Description**

Serum Lactate Dehydrogenase

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Unit per liter- Enzymatic method

3**Description**

Serum Aspartate Amino Transferase

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Unit per liter- Enzymatic method

4**Description**

Serum Alanine Amino Transferase

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Unit per liter- Enzymatic method

5**Description**

Serum Tumor necrosis alfa

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Pg / mL - ELISA

6

Description

Serum Interleukin - 6

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Pg / mL - ELISA

7

Description

Serum High sensitive C- Reactive protein

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Pg / mL - ELISA

8

Description

Muscle soreness

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Milimeter- Visual analogue scale

9

Description

Physical fatigue

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

Milimeter- Visual analogue scale

10

Description

Serum Lactate

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

mg / dL - Enzymatic method

11

Description

Serum Free fatty acid

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

mmol / L - ELISA

12

Description

Plasma ammonia

Timepoint

Before exercise and after exercise (Before Intervention and after intervention)

Method of measurement

mg / dL - Enzymatic method

Secondary outcomes

empty

Intervention groups

1

Description

Carnitine

Category

Rehabilitation

2

Description

Glutamine

Category

Rehabilitation

3

Description

Maltodextrine (placebo)

Category

Placebo

4

Description

Carnitine + Glutamine

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Shahin Sport Complex

Full name of responsible person

Ali Houshiar

Street address

Golestan Avenue- Helale Ahmar Sq. Janbazan Street

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tabriz university of medical sciences

Full name of responsible person

sorour Alipour

Street address

Attar Avenue- Daneshgah Sq. - Azadi Street

City

Tabriz

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Tabriz university of medical sciences

Proportion provided by this source**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

2

Sponsor

Name of organization / entity

Drug Applied Research Center, Tabriz University of Medical Sciences

Full name of responsible person

Dr. Hossein Babaei

Street address

Attar Avenue- Daneshgah Sq. - Azadi Street

City

Tabriz

Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Drug Applied Research Center, Tabriz University of Medical Sciences

Proportion provided by this source**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**

Tabriz university of medical sciences

Full name of responsible person

Dr. Javad Mohtadina

Position

Associate Professor

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Position

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Person responsible for updating data

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Mohammad Hozouri

Position

PhD student in nutrition

Other areas of specialty/work**Street address**

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City

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Postal code**Phone**

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Email

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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