

Clinical Trial Protocol

Iranian Registry of Clinical Trials

23 Jul 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 Mohtadinia

Position

Associate Professor

Other areas of specialty/work

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PhD student of nutrition

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Person responsible for updating data

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Other areas of specialty/work

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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