

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

Acute effects of anaerobic activity with and without magnesium on EMG indices of muscle, power output, fatigue, and the relationship between them

Protocol summary

Study aim

The purpose of this study was to investigate the acute effects of an anaerobic activity session with and without supplementation of magnesium on the parameters of muscle activity, extra strength, lactate levels and their relationship.

Design

Each subject received two tests in the laboratory for the tests. All tests were performed on the wheel of an ergometer (made in Holland). Upon the arrival of the subject, blood sampling was performed and then the electrodes were mounted on the right leg. At first warming was performed for 3 minutes with intensity of zero watts and 60 CPM. The amount of pedal movement per person was 60 rpm (CPM). To measure the anaerobic power, the Wingate test was used for 30 seconds with the Monarque countertops (Rotterdam Netherlands) and the right muscular activity was recorded by EMG.

Settings and conduct

The steps were taken at the Laboratory of Sport Sciences at Mazandaran University of Technology. Dual Blind Research was controlled by someone outside the study.

Participants/Inclusion and exclusion criteria

Not having a history of supplementing magnesium, smoking, having a history of heart disease and liver and thyroid disorders, skin allergies, and the condition of entry of subjects to study. The lack of supplementary supplementation was a measure of exit from the study.

Intervention groups

The supplement group received 350 mg of magnesium supplement every day. The placebo group consumed packs containing flour that were completely complementary in terms of shape, size, color and taste.

Main outcome variables

Supplementation and its effects on fatigue

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180123038481N1**

Registration date: **2018-09-30, 1397/07/08**

Registration timing: **retrospective**

Last update: **2018-09-30, 1397/07/08**

Update count: **0**

Registration date

2018-09-30, 1397/07/08

Registrant information

Name

Vahid Talebi

Name of organization / entity

University of Mazandaran

Country

Iran (Islamic Republic of)

Phone

+98 11 3527 6677

Email address

vahidtalebi99@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-06-23, 1397/04/02

Expected recruitment end date

2018-07-09, 1397/04/18

Actual recruitment start date

2018-06-23, 1397/04/02

Actual recruitment end date

2018-07-09, 1397/04/18

Trial completion date

2018-07-09, 1397/04/18

Scientific title

Acute effects of anaerobic activity with and without magnesium on EMG indices of muscle, power output, fatigue, and the relationship between them

Public title

The effect of magnesium supplementation on fatigue

Purpose

Other

Inclusion/Exclusion criteria

Inclusion criteria:

Not having a history of supplementing magnesium, smoking, having a history of heart disease and liver and thyroid disorders, skin allergies, and the condition of entry of subjects to study.

Exclusion criteria:

Age

No age limit

Gender

Male

Phase

3

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: **16**

Actual sample size reached: **16**

Randomization (investigator's opinion)

Not randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

An out-of-the-box person knew from the supportive and placebo group.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Committee of Ethics of Mazandaran University

Street address

University of Mazandaran-Babolsar

City

Babolsar

Province

Mazandaran

Postal code

13534 47416

Approval date

2018-06-20, 1397/03/30

Ethics committee reference number

IR.UMZ.REC.097005

Health conditions studied

1

Description of health condition studied

effect of magnesium supplementation on fatigue

ICD-10 code

ICD-10 code description

There is no disease.

Primary outcomes

1

Description

Record muscle activity through electromyography

Timepoint

Measurement in two steps before and after test

Method of measurement

Through the Beyogan 16 channels

2

Description

Lactate

Timepoint

In four stages, two times in the pre-test stage and two times in the post-test stage. At each stage before and after the test

Method of measurement

Through the blood sample of the venous vein

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: The amount of supplement was 350 mg, which was replicated in the same color and taste capsules and placed on the test portion for 14 days each day before dinner. Magnesium supplements from pharmacies and with the approval of the ministry of health was made official. Participants before the course of a session for blood measuring and recording the electrical activity of the muscles were coordinated. After the period of supplementation post-test measurements were similar pre-test .

Category

N/A

2

Description

Control group: The placebo was 350 mg of wheat flour, which was similar to that of the intervention group in 14 days. Magnesium supplements from pharmacies and with the approval of the ministry of health was made official. Participants before the course of a session for blood measuring and recording the electrical activity of the muscles were coordinated. After the period of supplementation post-test measurements were similar pre-test .

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

University of Mazandaran

Full name of responsible person

Vahid Talebi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Mazandaran

Full name of responsible person

Research Deputy

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Grant name

Grant code / Reference number

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

Yes

Title of funding source

University of Mazandaran

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

University of Mazandaran

Full name of responsible person

Vahid Talebi

Position

Ph.D. student

Latest degree

Master

Other areas of specialty/work

Physiology Sport-Neuromuscular

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Person responsible for scientific inquiries

Contact

Name of organization / entity

University of Mazandaran

Full name of responsible person

Zia Fallah Mohammadi

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

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Person responsible for updating data

Contact

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Position

Ph.D candidate

Latest degree

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Other areas of specialty/work

Exercise physiology

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

No specific data.

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

Information about muscle activity and blood measurements will be shared.

When the data will become available and for how long

Since the receipt of the clinical code

To whom data/document is available

For athletes, non-athletes and academic researchers

Under which criteria data/document could be used

Through articles

From where data/document is obtainable

Vahid talebi

What processes are involved for a request to access data/document

by Email

Comments