Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 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

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Associate professor

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Person responsible for updating data

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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