Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Jun 2026

The effects of beta-hydroxy beta-methyl butyrate HMB supplementation with selected resistance training on some biochemical factors of blood and strength in bodybuilding athletes

Protocol summary

Study aim

Comparison of HMB Beta-Hydroxy beta-Methyl Butyrate Complementary Effects along with Selected Resistance Exercises on Liver, Muscle, Kidney Enzymes, Lipid Profile, Body Combination, and Some Other Physical Fitness Factors in Bodybuilding Athletes

Design

The sample size in this study was 40 people who were randomly divided into two experimental and control groups. After resistance training and HMB (by the experimental group) and polydextrose (by the control group), two samples were taken from all samples in the laboratory, and some biochemical factors in the serum of the subjects were analyzed.

Settings and conduct

The study site of Moradnia Club is in Lahijan. The experimental supplement group HMB and the placebo group received polydextrose capsules at a dose of 3 g / day as two succulents for 14 days. The subjects' training program included resistance exercises with a dual pyramid pattern for 8 weeks and 3 sessions per week. Laboratory and field tests are performed 48 hours before and after the training program.

Participants/Inclusion and exclusion criteria

inclusion criteria: age (19 to 23 years), gender (male) Exclusion criteria: 1) no history of cardiorespiratory, musculoskeletal, neurological, hormonal or orthopedic disorders, 2) no change in daily diet during the study, and 3) no ingestion of androgenic and energetic supplements in the past 1 months.

Intervention groups

Intervention groups consisted of two groups: a combined group (resistance training + HMB supplement) and a control group (resistance training + placebo).

Main outcome variables

Liver enzymes (ALT, AST), muscle (CPK, LDH), renal (BUN, UREA, Creatinine), lipid profile (cholesterol, LDL, HDL.TAG) and some physical fitness factors (strength, body composition, and Power)

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180503039517N4**
Registration date: **2020-07-14, 1399/04/24**
Registration timing: **retrospective**

Last update: **2020-07-14, 1399/04/24**
Update count: **0**

Registration date

2020-07-14, 1399/04/24

Registrant information

Name

Soleyman Ansari Kolachahi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 13 3375 2906

Email address

solomonansari@phd.iaurasht.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-05-05, 1398/02/15

Expected recruitment end date

2020-05-19, 1399/02/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effects of beta-hydroxy beta-methyl butyrate HMB supplementation with selected resistance training on some biochemical factors of blood and strength in bodybuilding athletes

Public title

The effects of beta-hydroxy beta-methyl butyrate HMB supplementation with selected resistance training on Liver, Muscular, Kidney Enzymes, Lipid Profile, Body Combination, Strength and Some Other Physical Fitness Factors in Bodybuilding Athletes

Purpose

Other

Inclusion/Exclusion criteria

Inclusion criteria:

Age (19-29years) Gender (male) a maximum of 3 months involving in resistance exercise

Exclusion criteria:

smoking having cardiorespiratory, musculoskeletal, neurological, hormonal or orthopedic disorders No ingestion of androgenic and energetic supplements in the past 1 months

Age

From **19 years** old to **29 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **63**

Randomization (investigator's opinion)

Randomized

Randomization description

40 bodybuilders were selected by available sampling method. Through drawing (The participants' names were written on paper and selected through a simple random draw for the two intervention groups and a control group).

Blinding (investigator's opinion)

Double blinded

Blinding description

In this research, participants are unaware of the group assigned to themselves and other participants. A separate workout hour is considered for each intervention group. The person in charge of collecting data and the processor are also unaware of the type of intervention and the people involved in the research groups.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

The ethics committee of Islamic Azad University, Rasht Branch

Street address

Islamic Azad University, Rasht Branch, Lakan Blv

City

RASHT

Province

Guilan

Postal code

۴۱۴۷۶۵۴۹۱۹

Approval date

2020-04-29, 1399/02/10

Ethics committee reference number

IR.IAU.RASHT.REC.1399.016

Health conditions studied

1

Description of health condition studied

supplementation in body builders

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Serum levels of liver enzymes (Aspartate transaminase (AST) and Alanine transaminase (ALT)

Timepoint

Initial blood sampling will be performed in the pre-test phase two days before the start of the study, and final blood sampling will be performed in the post-test phase two days after the end of the study in the laboratory.

Method of measurement

Using the Pars Azmoun laboratory kit (made in Iran) according to the manufacturer's instructions and the ELISA method.

2

Description

Serum levels of muscle enzymes (Creatine kinase (CK) and lactate dehydrogenase (LDH))

Timepoint

Initial blood sampling will be performed in the pre-test phase two days before the start of the study, and final blood sampling will be performed in the post-test phase two days after the end of the study in the laboratory.

Method of measurement

Using Pars Azmoun laboratory kit (made in Iran) according to the manufacturer's instructions and the ELISA method.

3

Description
Serum levels of renal function enzymes (the blood urea nitrogen (BUN), Creatinine and Urea

Timepoint
Initial blood sampling will be performed in the pre-test phase two days before the start of the study, and final blood sampling will be performed in the post-test phase two days after the end of the study in the laboratory.

Method of measurement
Using the Pars Azmoun laboratory kit (made in Iran) according to the manufacturer's instructions and the ELISA method.

4

Description
Serum levels of Lipid profile (low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, Total cholesterol and triglycerides

Timepoint
Initial blood sampling will be performed in the pre-test phase two days before the start of the study, and final blood sampling will be performed in the post-test phase two days after the end of the study in the laboratory.

Method of measurement
Using Biosystems Laboratory kit (made in Spain), according to the manufacturer's instructions and the ELISA method.

5

Description
Some physical fitness factors (strength, body composition and power)

Timepoint
Initial measurements in the pre-test phase will be performed two days before the start of the study, and final measurement in the post-test phase will be performed two days after the end of the study at the club.

Method of measurement
One maximum repetition test and body mass index (BMI) will be used to measure strength and body composition.

Secondary outcomes

empty

Intervention groups

1

Description
The experimental group performed selected resistance exercises for 8 weeks and 3 sessions per week and received HMB supplement in the amount of 3 g per day as two suckers for 14 days. Blood samples are taken from all samples in the laboratory before and after exercise (48 hours apart) and some biochemical factors such as liver, muscle, kidney, and lipid profiles are analyzed in the serum of the subjects. Placed.

Category
Other

2

Description
Control group: The selected resistance exercises were performed for 8 weeks and 3 sessions per week and the polydextrose capsule was taken in the amount of 3 g per day as two suckers for 14 days. Blood samples are taken from all samples in the laboratory before and after exercise (48 hours apart) and some biochemical factors such as liver, muscle, kidney, and lipid profiles are analyzed in the serum of the subjects.

Category
Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center
Shahid Moradnia Sports Club

Full name of responsible person
Mohammad Moradnia

Street address
Afrooz Alley, 7th Alley, Jomhuri Eslami Street, Lahijan, Guilan

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RASHT

Province
Guilan

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4419865615

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Email
solomonansari@yahoo.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Islamic Azad University

Full name of responsible person
Alireza Seidavi

Street address
Islamic Azad University of Rasht Branch, Lakan Blv

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Grant name

Grant code / Reference number

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

No

Title of funding source

Islamic Azad University of Rasht Branch

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

Islamic Azad University

Full name of responsible person

Soleyman Ansari Kolachahi

Position

Non faculty doctor

Latest degree

Ph.D.

Other areas of specialty/work

Sport Medicine

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Islamic Azad University

Full name of responsible person

Soleyman Ansari Kolachahi

Position

Non faculty specialist

Latest degree

Ph.D.

Other areas of specialty/work

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Person responsible for updating data

Contact

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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

There is no further information

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available

Title and more details about the data/document

Raw and processed data

When the data will become available and for how long

Start of access period from 1400

To whom data/document is available

Academic researchers, research colleagues and participants

Under which criteria data/document could be used

Use research results and data in future meta-analysis research

From where data/document is obtainable

Corresponding Author

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

Request the researcher via email

Comments