# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

17 Sep 2026

## Effects of Acute β-Alanine supplementation on anaerobic performance and muscle fatigue in athletic female

## Protocol summary

**Study aim**

Since fatigue factors in female athletes increase rapidly, it is necessary to reduce these factors with appropriate methods. Due to the fact that the production of beta-alanine (BA) in the human body is limited and less in women than men, and the response to it is higher in trained people than in untrained people. Beta-alanine (BA) supplement, an ergogenic supplement and carnosine precursor, has been suggested to reduce or delay muscle fatigue and improve function. Beta-alanine (BA) can increase the level of muscle carnosine concentration and increases the buffering role in intense and short-term anaerobic exercise.

**Design**

The statistical population of this study consisted of 20-30-year-old girls who had done regular exercise at least 3 times a week for the past year. Then, 10 qualified people who meet the inclusion criteria will be selected as a sample. Subjects will be coded and divided into two groups of supplement and placebo based on random sampling by Excel software. One week after the implementation of the research protocol, the groups will change in terms of supplements and placebo and will implement the test protocol again.

**Settings and conduct**

The subjects will refer to the Faculty of Physical Education laboratory of Guilan University in 3 sessions. In the first session, tests related to physical fitness will be measured. In the second session, which will be held 5 days after the first session, they will be present in the laboratory at 8 in the morning and perform the protocol after warming up. Subjects will perform MVC tests for 3 seconds.

**Participants/Inclusion and exclusion criteria**

No musculoskeletal damage and physical problems affecting the research results

**Intervention groups**

Beta-alanine supplementation group; without supplement or placebo group

**Main outcome variables**

Maximum voluntary contraction muscle power rate of perceived exertion rate of pain

## General information

**Reason for update**

**Acronym**

**IRCT registration information**

IRCT registration number: **IRCT20190720044283N2**
Registration date: **2021-09-01, 1400/06/10**
Registration timing: **retrospective**

Last update: **2021-09-01, 1400/06/10**
Update count: **0**

**Registration date**

2021-09-01, 1400/06/10

**Registrant information**

**Name**
Siamand Abdollahpour

**Name of organization / entity**
Guilan university of medical sciences

**Country**
Iran (Islamic Republic of)

**Phone**
+98 13 3369 0274

**Email address**
siamand.abp1@gmail.com

**Recruitment status**

**Recruitment complete**

**Funding source**

**Expected recruitment start date**

2021-08-23, 1400/06/01

**Expected recruitment end date**

2021-08-27, 1400/06/05

**Actual recruitment start date**

empty

**Actual recruitment end date**
empty
**Trial completion date**
empty

**Scientific title**
Effects of Acute β-Alanine supplementation on anaerobic performance and muscle fatigue in athletic female

**Public title**
Acute effect of beta-alanine supplementation on anaerobic function and muscle fatigue in female athletes
**Purpose**
Other
**Inclusion/Exclusion criteria**
**Inclusion criteria:**
Trained girls have had at least 3 regular workout sessions a week in the past year No musculoskeletal injuries and physical problems
**Exclusion criteria:**
Existence of musculoskeletal injury and taking medication or supplements Physician not confirming physical health Alcohol or tobacco consumption
**Age**
From **20 years** old to **30 years** old
**Gender**
Female

**Phase**
1-2
**Groups that have been masked**

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

**Sample size**
Target sample size: **10**
**Randomization (investigator's opinion)**
Randomized
**Randomization description**
Using the random selection method by Excel software by writing the names of the subjects in cells and then in the other part, we specify the position of the desired groups in two separate sections of 5 subjects. Then in these two sections, we will execute the following code so that they are randomly placed in groups of 5 subjects. =INDEX($A$3:$A$12,RANDBETWEEN(1,ROWS($A$3:$A$12)),1)
**Blinding (investigator's opinion)**
Double blinded
**Blinding description**
In this study, one group will take 6 grams of beta-alanine supplement in capsules and the other group will take a placebo containing sucrose. It should be noted that capsules containing supplements or placebos will be coded by a third party who has no conflict of interest in the present study and is present merely as an observer and will distribute it with the knowledge of each individual supplement.
**Placebo**
Used
**Assignment**
Crossover
**Other design features**

## Secondary Ids

empty

## Ethics committees

### 1

**Ethics committee**
**Name of ethics committee**
Research Ethics Committee of Sports Science Institute (SSRI)
**Street address**
Fifth Alley, Mir Emad St., Ostad Motahhari St.
**City**
Tehran
**Province**
Tehran
**Postal code**
1587958711
**Approval date**
2021-07-20, 1400/04/29
**Ethics committee reference number**
IR.SSRC.REC.1400.079

## Health conditions studied

### 1

**Description of health condition studied**
Prevent depletion of energy resources during physical activity, Reduce or delay muscle fatigue and improve performance, Increase anaerobic power
**ICD-10 code**
**ICD-10 code description**

## Primary outcomes

### 1

**Description**
Electromyographic (EMG) indices of the quadriceps muscle
**Timepoint**
Implement the protocol in two steps with a one week wash-out interval and before and after supplementation
**Method of measurement**
Electromyography device (Muscle Tester ME 3000P8 Mega Electronic Ltd, Finland) with sampling frequency HZ 2000 and bandwidth Hz / 3 Db 450-30

### 2

**Description**
Maximal Voluntary Contraction (MVC)
**Timepoint**
Before and after supplementation
**Method of measurement**

Manual Muscle Testing Device (MMT, North coast, USA)

**3**

**Description**
Rate of Perceived Exertion (RPE)
**Timepoint**
Immediately after the fatigue protocol (consecutive side jump)
**Method of measurement**
Borg scale (6-20)

**4**

**Description**
Muscle Pain
**Timepoint**
Immediately, 24 and 48 hours after the fatigue protocol
**Method of measurement**
Visual Analogue Scale (VAS)

**5**

**Description**
Muscle Power
**Timepoint**
Before and after supplementation and Immediately after the fatigue protocol
**Method of measurement**
Johnson's and Bahamonde Method

**6**

**Description**
Sense of Fatigue
**Timepoint**
Immediately, 24 and 48 hours after the fatigue protocol
**Method of measurement**
Sense of Fatigue Questionnaire

## Secondary outcomes

empty

## Intervention groups

**1**

**Description**
Intervention group: Beta-alanine supplementation; The intervention group took 4.5 g of beta-alanine in capsules and the other group took a placebo containing the same amount of sucrose as beta-alanine. One week after the effects of the supplement disappear, in the third session, the two groups of subjects will change in terms of supplementation, and the group that uses the beta-alanine will use a placebo.
**Category**
Other

**2**

**Description**
Control group: The placebo group consumes 4.5 grams of sucrose in capsules. After one week, in the third session, the two groups of subjects will change in terms of supplementation, and the group that uses the placebo will use beta-alanine.
**Category**
Placebo

## Recruitment centers

**1**

**Recruitment center**
**Name of recruitment center**
Faculty of Physical Education and Sports Sciences
**Full name of responsible person**
Dr. Javad Mehrabani
**Street address**
5th Kilometer of Persian Gulf Highway, Rasht, Guilan Province, Iran
**City**
Rasht
**Province**
Guilan
**Postal code**
4199613776
**Phone**
+98 13 3366 9027
**Email**
int@guilan.ac.ir
**Web page address**
https://fe.guilan.ac.ir/

## Sponsors / Funding sources

**1**

**Sponsor**
**Name of organization / entity**
University of Guilan
**Full name of responsible person**
Seyed Ziaaldein MirHossini
**Street address**
Rasht, km 6, Rasht-Qazvin road, Guilan University complex, in front of the central university organization, Vice Chancellor for Research and Technology
**City**
Rasht
**Province**
Guilan
**Postal code**
4199613776
**Phone**
+98 13 3369 0348
**Fax**
+98 13 3369 0447
**Email**
mehrabanij@guilan.ac.ir
**Web page address**
https://resvp.guilan.ac.ir/%D8%B5%D9%81%D8%AD%D9%87-%D9%86%D8%AE%D8%B3%D8%AA

**Grant name**
**Grant code / Reference number**
**Is the source of funding the same sponsor organization/entity?**
Yes
**Title of funding source**
University of Guilan
**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**
Faculty of Physical Education and Sports Sciences, University of Guilan
**Full name of responsible person**
Dr. Javad Mehrabani
**Position**
Assistant Professor
**Latest degree**
Ph.D.
**Other areas of specialty/work**
Exercise physiology
**Street address**
8 km of Tehran road, Faculty of Physical Education and Sports Sciences, University of Guilan
**City**
Rasht
**Province**
Guilan
**Postal code**
4199843653
**Phone**
+98 911 230 9074
**Email**
mehrabanij@guilan.ac.ir

## Person responsible for scientific inquiries

**Contact**
**Name of organization / entity**
Faculty of Physical Education and Sports Sciences, University of Guilan
**Full name of responsible person**
Dr. Javad Mehrabani
**Position**
Assistant Professor
**Latest degree**
Ph.D.
**Other areas of specialty/work**
Exercise physiology
**Street address**
8 km of Tehran road, Faculty of Physical Education and Sports Sciences, University of Guilan
**City**
Rasht
**Province**
Guilan
**Postal code**
4199843653
**Phone**
+98 911 230 9074
**Email**
mehrabanij@guilan.ac.ir

## Person responsible for updating data

**Contact**
**Name of organization / entity**
Guilan university of medical sciences
**Full name of responsible person**
Siamand Abdolahpour
**Position**
Student
**Latest degree**
Bachelor
**Other areas of specialty/work**
Sport sciences - Applied physiology
**Street address**
Rasht, Khalije fars Highway, 5th km of Qazvin Road, Faculty of sport Science
**City**
Rasht
**Province**
Guilan
**Postal code**
4199843653
**Phone**
+98 13 3369 0274
**Fax**
**Email**
Siamand.abp1@gmail.com

## Sharing plan

**Deidentified Individual Participant Data Set (IPD)**
Undecided - It is not yet known if there will be a plan to make this available
**Study Protocol**
Undecided - It is not yet known if there will be a plan to make this available
**Statistical Analysis Plan**
Undecided - It is not yet known if there will be a plan to make this available
**Informed Consent Form**
Undecided - It is not yet known if there will be a plan to make this available
**Clinical Study Report**
Undecided - It is not yet known if there will be a plan to make this available
**Analytic Code**
Undecided - It is not yet known if there will be a plan to make this available

| | |
|---|---|
| **Data Dictionary** | Undecided - It is not yet known if there will be a plan to make this available |