

Clinical Trial Protocol

Iranian Registry of Clinical Trials

13 Jul 2026

Comparison of the Effect of Glucose and Fructose Ingestion before Exercise on Blood Lactate and Lactate dehydrogenase levels in non-athlete 17-19 years old Young men

Protocol summary

Study aim

Comparison of the effect of glucose and fructose intake before acute physical activity on lactate and lactate dehydrogenase levels in an athlete's blood

Design

Crossover trial without the control group, single blind was performed on 10 students aged 17 to 19 years.

Settings and conduct

Participants in the intervention group, without knowing which supplement to take at each stage, received glucose in one stage and fructose in the second stage, and engaged in strenuous physical activity. The levels of lactate and lactate dehydrogenase in the subjects were compared after two stages. This research was performed in the Moein gym of Sistan and Baluchestan University, Zahedan.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Being in the age range of 17 to 19 years, having minimal physical activity as a teenager and timely attendance at the physical activity session and blood sampling. Exclusion criteria: Having cardiovascular disease, diabetes, asthma, history of limb fractures and taking steroid drugs, non-steroidal anti-inflammatory drugs, blood pressure.

Intervention groups

The intervention group engaged in intense physical activity in one stage after glucose consumption and in the second stage after fructose consumption.

Main outcome variables

Changes in lactate and lactate dehydrogenase levels after strenuous physical activity following glucose and fructose intake.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180923041097N3**

Registration date: **2020-11-06, 1399/08/16**

Registration timing: **retrospective**

Last update: **2020-11-06, 1399/08/16**

Update count: **0**

Registration date

2020-11-06, 1399/08/16

Registrant information

Name

Reza Delavar

Name of organization / entity

The University of Sistan and Baluchestan

Country

Iran (Islamic Republic of)

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+98 54 3113 2674

Email address

delavar@ped.usb.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-04-09, 1398/01/20

Expected recruitment end date

2019-04-19, 1398/01/30

Actual recruitment start date

2019-04-09, 1398/01/20

Actual recruitment end date

2019-04-19, 1398/01/30

Trial completion date

2019-06-10, 1398/03/20

Scientific title

Comparison of the Effect of Glucose and Fructose

Ingestion before Exercise on Blood Lactate and Lactate dehydrogenase levels in non-athlete 17-19 years old
Young men

Public title

Comparison of the effect of glucose and fructose intake before physical activity on lactate and lactate dehydrogenase

Purpose

Basic science

Inclusion/Exclusion criteria

Inclusion criteria:

Being in the age range of 17 to 19 years. Having minimal physical activity as a teenager. Timely attendance at the physical activity session and blood sampling.

Exclusion criteria:

Having cardiovascular disease. Having diabetes disease. Having asthma disease. History of limb fractures. Taking steroid medicines. Taking non-steroidal anti-inflammatory drugs. Taking blood pressure medicines.

Age

From 17 years old to 19 years old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: 15

Actual sample size reached: 10

Randomization (investigator's opinion)

N/A

Randomization description

Blinding (investigator's opinion)

Single blinded

Blinding description

Participants were unaware that they were receiving glucose or fructose at any stage of the experiment.

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Sistan and Baluchestan University

Street address

Central Organization of Sistan and Baluchestan University, University Blvd.

City

Zahedan

Province

Sistan-va-Balouchestan

Postal code

9816745639

Approval date

2019-11-26, 1398/09/05

Ethics committee reference number

IR.USB.REC.1398.031

Health conditions studied

1

Description of health condition studied

Fatigue and muscle damage

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Blood lactate levels after strenuous physical activity, between 65 and 95 milligram per deciliter.

Timepoint

Blood lactate levels were measured before the intervention and immediately after the intervention.

Method of measurement

Laboratory kit of Bayrex Fars company with code BXC0622

2

Description

Blood lactate dehydrogenase level after strenuous physical activity, more than 350 international units per liter.

Timepoint

Blood lactate dehydrogenase levels were measured before and immediately after the intervention.

Method of measurement

Photometric method, using Pars Azmoun company kit.

Secondary outcomes

empty

Intervention groups

1

Description

The intervention group in the first stage, received glucose, the dose was 75 g in 350 ml of water (solution), which was taken orally only once 30 minutes before acute activity. Glucose, produced by Iran Dextrose Company.

Category

Prevention

2

Description

The intervention group received fructose in the second phase after 10 days, the dose was 75 g in 350 ml of water (solution), which was taken orally only once 30 minutes before acute activity. Fructose, produced by Iran Dextrose Company.

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Mehdi high school in Zahedan.

Full name of responsible person

Gholam Nabi Sarani

Street address

Mehdi high School, Ghods 20, Ghods street, Jaam e Jam.

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Sistan and Baluchestan

Full name of responsible person

Kordi Tamandani, Dor Mohamad

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Central Organization of Sistan and Baluchestan University, University Blvd.

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Email

info@usb.ac.ir

Web page address

Grant name

Grant code / Reference number

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

Yes

Title of funding source

University of Sistan and Baluchestan

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 Sistan and Baluchestan

Full name of responsible person

Reza Delavar

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiology

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Person responsible for scientific inquiries

Contact

Name of organization / entity

University of Sistan and Bluchestan

Full name of responsible person

Reza Delavar

Position

Assistant professor

Latest degree

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

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

Not applicable

Analytic Code

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

The individual data of the participants that were measured in this study, informed consent forms, study protocol and statistical analysis map can be shared.

When the data will become available and for how long

6 months after the publication of the research report.

To whom data/document is available

Professors and students working in Iranian universities.

Under which criteria data/document could be used

Using research results, citing the source.

From where data/document is obtainable

E-mail: delavar@ped.usb.ac.ir

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

Find out about the application, prepare the documentation and send it to the applicant.

Comments

Person responsible for updating data

Contact

Name of organization / entity

University of Sistan and Bluchestan

Full name of responsible person

Reza Delavar

Position

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Other areas of specialty/work

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