

Clinical Trial Protocol

Iranian Registry of Clinical Trials

22 Jul 2026

Effect of hydrogen rich water consumption and exhaustive exercise activity under induced hypoxia conditions with facial mask on serum malondialdehyde level and total antioxidant capacity, blood pressure and rate pressure product in active young men.

Protocol summary

Study aim

the effect of hydrogen-rich water consumption on serum malondialdehyde levels, total antioxidant capacity, blood pressure and rate pressure product during exhaustive exercise under induced hypoxia with a face mask in active young men.

Design

This research is an applied type with an experimental method; 18 to 32 years old active young men of Rasht city have been selected, will be performed voluntarily and randomly, counterbalance, cross over and double blind.

Settings and conduct

The test venue will be the Physiology Laboratory of Gilgun University; Before the research, the subjects will be informed about the purpose, benefits and possible risks of the experimental design in the familiarization session. The researcher and the participants will be blinded.

Participants/Inclusion and exclusion criteria

inclusion criteria: Having perfect health
Exclusion criteria: Lack of full health
Body mass index above 25.
catching a cold
Taking any kind of medicine, including steroidal and non-steroidal anti-inflammatory drugs (aspirin family)

Intervention groups

Each subject will be in 4 different situations: 1. Mask with hydrogen rich water 2. Mask with placebo 3. hydrogen-rich water without mask 4. placebo without mask

Main outcome variables

effect of hydrogen-rich water consumption on serum levels of malondialdehyde; total antioxidant capacity; rate pressure product; Heart rate during exhaustive exercise under induced hypoxia with a face mask in active young men.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230304057606N1**

Registration date: **2023-04-16, 1402/01/27**

Registration timing: **registered_while_recruiting**

Last update: **2023-04-16, 1402/01/27**

Update count: **0**

Registration date

2023-04-16, 1402/01/27

Registrant information

Name

Soheila Khodadadikateshoori

Name of organization / entity

The University of guilan

Country

Iran (Islamic Republic of)

Phone

+98 13 3332 6958

Email address

s_khodadadi_0@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-09, 1402/01/20

Expected recruitment end date

2023-05-10, 1402/02/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of hydrogen rich water consumption and exhaustive exercise activity under induced hypoxia conditions with facial mask on serum malondialdehyde level and total antioxidant capacity, blood pressure and rate pressure product in active young men.

Public title

Investigating the effect of hydrogen-rich water on active young men.

Purpose

Health service research

Inclusion/Exclusion criteria**Inclusion criteria:**

People should be in perfect health. People who participate in the study will have normal blood pressure. Absence of any hormonal or inflammatory disease to affect blood pressure or antioxidant capacity. Absence of respiratory diseases due to the effect of the mask on the severity of the disease and heart rate during physical activity.

Exclusion criteria:

Subjects were excluded from the study if their mean systolic and/or diastolic blood pressure was equal to or greater than 140- and 90-mm Hg, respectively. Body mass index above 25 Hormonal diseases Inflammatory diseases respiratory diseases catching a cold Taking any medication, including steroidal and non-steroidal anti-inflammatory drugs (aspirin family), pharmaceutical and food supplements

Age

From **18 years** old to **32 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: **12**

Randomization (investigator's opinion)

N/A

Randomization description**Blinding (investigator's opinion)**

Double blinded

Blinding description

The researcher is unaware of which people are in the intervention group and which are in the control group. The task of preparing hydrogen-rich water is the responsibility of the researcher, but he does not know which bottle will be given to which person. The participants know that he will consume hydrogen-rich water in the research, but he doesn't know that the water he consumes is normal mineral water or hydrogen rich water. (Alkaline sticks do not cause any color or taste changes in mineral water, so hydrogen-rich water and placebo look the same). The second person, as a

research assistant, will control and implement this case based on a defined coding system.

Placebo

Used

Assignment

Crossover

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Research Ethics Committee of Gillan University

Street address

km 6 of Tehran road

City

rasht

Province

Guilan

Postal code

4188693139

Approval date

2022-12-28, 1401/10/07

Ethics committee reference number

IR.GUILAN.REC.1401.088

Health conditions studied**1****Description of health condition studied**

determination of serum malondialdehyde level; total antioxidant capacity; rate pressure product after consumption of hydrogen-rich water in active young men

ICD-10 code**ICD-10 code description****Primary outcomes****1****Description**

Malondialdehyde serum level and total antioxidant capacity after residual exercise after consumption of 3 servings of hydrogen-rich water

Timepoint

Blood sampling will be done ten minutes before the start of the physical activity and immediately after the end of the physical activity.

Method of measurement

Measurements will be done in the laboratory using the malondialdehyde and total antioxidant capacity assay kit.

Secondary outcomes

1

Description

Total antioxidant capacity serum level

Timepoint

Taking a blood sample ten minutes before starting physical activity and immediately after physical activity

Method of measurement

Using the measurement kit in the laboratory

Intervention groups

1

Description

We have two groups of 12 participants in the project, who are randomly divided into the intervention group and the control group. The first or intervention group consumes hydrogen-rich water. and 1.5 liters of water will be used in the form of half a liter before training, half a liter in the morning of the training day and half a liter 10 minutes before training.

Category

N/A

2

Description

The second group uses either placebo control or ordinary mineral water. The exercises and conditions of drinking mineral water will be the same as the intervention group.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Faculty of Physical Education and Sports Sciences,
University of Gilan

Full name of responsible person

Soheila khodadadikateshoori

Street address

8 km of Tehran Road

City

Rasht

Province

Guilan

Postal code

4188693139

Phone

+98 13 3332 6958

Email

S_khodadadi_0@yahoo.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The university of gilan

Full name of responsible person

جواد مهربانی

Street address

8 km of Tehran Road

City

Rasht

Province

Guilan

Postal code

4188693139

Phone

+98 13 3332 6958

Email

S_khodadadi_0@yahoo.com

Grant name

Grant code / Reference number

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

Yes

Title of funding source

The university of gilan

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

The university of Gillan

Full name of responsible person

Soheila Khodadadikateshoori

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

Nursery

Street address

No.28, Shir Mohammadi Ave, Emam Blvd

City

Rasht

Province

Guilan

Postal code

4188693139

Phone

+98 13 3332 6958

Email

S_khodadadi_0@yahoo.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

The University of guilan

Full name of responsible person

Soheila Khodadadikateshoori

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

Nursery

Street address

No 28 ,shirmohammadi Ave. ,Emamkhomai Blvd.

City

Rasht

Province

Guilan

Postal code

4188693139

Phone

+98 13 3332 6958

Fax**Email**

S_khodadadi_0@yahoo.com

Person responsible for updating data

Contact

Name of organization / entity

The University of guilan

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Phone

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Fax**Email**

S_khodadadi_0@yahoo.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