

Clinical Trial Protocol

Iranian Registry of Clinical Trials

19 Jul 2026

Effect of Cold Water Immersion on Neuro-Muscular and Biochemical Fatigue Factors Induced by Repeated Sprint Ability of College Soccer Players

Protocol summary

Study aim

Investigating the effect of cold water recovery on neuromuscular and biochemical fatigue indices of repetitive rate of fatigue

Design

Semi-experimental study with control group, with parallel and random groups

Settings and conduct

This study will be conducted in Shahid Beheshti University Exercise Physiology Laboratory, Tehran, with 20 subjects in two experimental groups (cold water immersion) and control (room temperature). Blood samples are taken before the subjects are warmed up, and then the electromyography (EMG) device is installed on the three main knee joint muscles and the person will be able to perform two stages of maximum voluntary Contraction test (MVC). Subjects are then placed on a workbench, and 4 stages of 8 repetitions of repetitive speed will take 7 seconds of intense activity and 23 seconds. Afterwards, blood sampling and electromyography (RMS and MDF) will be performed again. After the subjects, they will be divided into two groups of cold water and room temperature. And the person will be placed in a chamber containing cold water at 14 ° C for 12 minutes, and the blood will be taken again for 15 minutes and 24 hours afterwards.

Participants/Inclusion and exclusion criteria

Non-use of antioxidant supplements and substances, non-damage, having an average maximum oxygen consumption of 48 ml or more per oxygen

Intervention groups

Cold Water Immersion

Main outcome variables

Serum levels of lactate, ammonia, superoxide dismutase, carbonyl protein, Malondialdehyde and interleukin-6, as well as changes in RMS and MDF of knee muscles

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20170705034910N1**

Registration date: **2018-07-02, 1397/04/11**

Registration timing: **retrospective**

Last update: **2018-07-02, 1397/04/11**

Update count: **0**

Registration date

2018-07-02, 1397/04/11

Registrant information

Name

abbas hosseini

Name of organization / entity

university of tehran

Country

Iran (Islamic Republic of)

Phone

+98 31 1685 1823

Email address

abbashoseini@ut.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2017-05-09, 1396/02/19

Expected recruitment end date

2017-05-15, 1396/02/25

Actual recruitment start date

2017-05-16, 1396/02/26

Actual recruitment end date

2017-06-21, 1396/03/31

Trial completion date

empty

Scientific title
Effect of Cold Water Immersion on Neuro-Muscular and Biochemical Fatigue Factors Induced by Repeated Sprint Ability of College Soccer Players

Public title
Cold Water Recovery and Fatigue

Purpose
Other

Inclusion/Exclusion criteria
Inclusion criteria:
Professional college footballers with a mean maximum oxygen demand (VO2max) greater than or equal to 48 ml / min Without alcohol and antioxidant supplements and doping from 6 months before the study, Over the past year, they have not participated in a study similar to this study.
Exclusion criteria:
People with injuries or history of injury People with various illnesses Individuals consuming supplements and ergogenic substances

Age
From **19 years** old to **25 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **30**
Actual sample size reached: **20**

Randomization (investigator's opinion)
Randomized

Randomization description
Randomization by simple method and individual randomization

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of the Institute of Physical Education and Sport Science

Street address

No. 3Tehran Province, Tehran, District 7, 5th Dead

End,
City
Tehran
Province
Tehran
Postal code
1587958711
Approval date
2017-07-10, 1396/04/19
Ethics committee reference number
IR.SSRC.REC.1396.147

Health conditions studied

1

Description of health condition studied

Fatigue

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Lactate, Amonia. Protein Carbonyls, Malondialdehyde, Superoxide Dismutase, Interlukin-6 Serum, Median Frequency (MDF) and Root Mean Squer (RMS) EMG of Knee Joint Muscles

Timepoint

Measurement of neuromuscular and biochemical parameters before the intervention, immediately after the intervention, 15 minutes after recovery and 24 hours after it

Method of measurement

For the measure blood biochemical variables: Laboratory kit of Zellbio, GmbH, Germany, for measuring the median frequency (MDF) and root mean square indices (RMS) from Surface Electromyography (sEMG)

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Cold Water Immersion in 14 C, 12 min

Category

Diagnosis

2

Description

Control group: Room Temperature, 12 min Sit on the Chair

Category

Diagnosis

Recruitment centers

1

Recruitment center

Name of recruitment center

University of Tehran

Full name of responsible person

Mohammadreza Kordi

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Faculty of Physical Education and Sport Sciences -
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Tehran

Full name of responsible person

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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 Tehran

Proportion provided by this source

100

Public or private sector

Private

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 Tehran

Full name of responsible person

Abbas Hosseini

Position

Student

Latest degree

Master

Other areas of specialty/work

Exercise Physiology

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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

Not applicable

Informed Consent Form

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

Clinical Study Report

Not applicable

Analytic Code

Not applicable

Data Dictionary

Not applicable