

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 2026

The effect of short term pre-cooling by cold water immersion and cold shower on dehydration, body temperature, plasma lactate, and electrolytes in young male soccer players during 45 minutes of treadmill running in warm environment.

Protocol summary

Summary

1- Objectives: The study of the effect of two pre-cooling methods (cold water immersion and cold shower) on thermoregulation, dehydration status, plasma lactate, and electrolytes levels during a treadmill running test in the warm condition(temperature= 32- 34 °C , humidity= 50%). 2- Design: The design of the study was: a randomized controlled clinical trial. 3- Setting and conduct: Three study groups were involved in the study. The Control group conducted 45 minutes of treadmill running test after warm up. Cold Water Immersion group conducted the same treadmill running test after cold water immersion. Cold Shower group conducted the same test after cold shower exposure. 4- Participants: 24 young male soccer players (aged 15-18 years) were randomly divided into control, cold water immersion and cold shower groups (Inclusion criteria were: Young male soccer players; age between 15-18 years; regular engagement in competitive soccer training in the past 3 years. Exclusion criteria was: Subjects with any musculoskeletal injuries or inflammatory diseases.). 5- Intervention: 10 minutes of cold water immersing, or 2 minutes of cold shower exposure. 6- Main outcome: plasma volume, oral temperature.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015121325503N1**
Registration date: **2016-01-23, 1394/11/03**
Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2016-01-23, 1394/11/03

Registrant information

Name

Ahmad Azad

Name of organization / entity

University of Zanjan

Country

Iran (Islamic Republic of)

Phone

+98 24 3305 4121

Email address

azad@znu.ac.ir

Recruitment status

Recruitment complete

Funding source

Investigator

Expected recruitment start date

2014-05-01, 1393/02/11

Expected recruitment end date

2014-08-01, 1393/05/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of short term pre-cooling by cold water immersion and cold shower on dehydration, body temperature, plasma lactate, and electrolytes in young male soccer players during 45 minutes of treadmill running in warm environment.

Public title

The Effect of Body Pre-Cooling on Heat Stress

Purpose

Diagnostic

Inclusion/Exclusion criteria

Inclusion criteria were: Young male soccer players; age between 15-18 years; regular engagement in competitive soccer training in the past 3 years. Exclusion criteria was: Subjects with any musculoskeletal injuries or inflammatory diseases.

Age

From **15 years** old to **18 years** old

Gender

Male

Phase

3

Groups that have been masked

No information

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

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 University of Zanjan

Street address

University of Zanjan, Research and Technology Vice-Presidency, University Blvd., Zanjan, I. R. Iran

City

Zanjan

Postal code

45371-38791

Approval date

2010-08-20, 1389/05/29

Ethics committee reference number

35579/پ

Health conditions studied

1

Description of health condition studied

Heat stress

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Plasma volume

Timepoint

pre, mid and post test

Method of measurement

Dill and Costill method

2

Description

Body themperature

Timepoint

pre, mid and post test

Method of measurement

Thermometer

Secondary outcomes

1

Description

Plasma lactate

Timepoint

pre, mid and post test

Method of measurement

Kobas Auto-analyzer and kits manufactured by Randox Company of England

2

Description

Plasma Na and K

Timepoint

pre, mid and post test

Method of measurement

Electrolyte Analyzer

Intervention groups

1

Description

Control group:conducted 45 minutes of treadmill running test after a 10 minutes of warm (10 minutes treadmill run[7km/h])(tem=32-34 °C, humidity=50%) .

Category

Other

2

Description

Intervention(cold water immersion group): conducted 45 minutes of tread mill running test after 10 min of warm up+10 min of cold water immersion. Cold water immersion: A small pool filled with water of 24°C and the water temperature was maintained between22- 24 °C

throughout immersion test. Participants immersed up to the neck for 10 minutes. (tem=32-34 °C, humidity=50%)

Category

Other

3**Description**

intervention(cold shower group): conducted 45 minutes tread mill running test after 10 min of warm up+2 min of cold shower. The subjects stood under showers for 2 minutes. Water temperature was gradually reduced from 30- 32°C to18- 20°C (4°C / 30 seconds). (tem=32-34 °C, humidity=50%)

Category

Other

Recruitment centers**1****Recruitment center****Name of recruitment center**

Mouood Soccer Club

Full name of responsible person

Vahid Davoody

Street address

Mouood Soccer Club, No. 3240 Iman Street, Phase 3, Ggolshahr, Zanjan, Iran

City

Zanjan

2**Recruitment center****Name of recruitment center**

Setaregan Soccer Club

Full name of responsible person

Amir Mehry

Street address

Setaregan Soccer Club, No. 4007 Toulue Sharghi Street, Phase 3, Gholshahr, Zanjan, Iran

City

Zanjan

Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

University of Zanjan, Vice chancellor for research

Full name of responsible person

Abolfazl Jalilvand

Street address

Research and technology Vic-presidency, University of Zanjan, University Blvd., Zanjan, I. R. Iran

City

Zanjan

Grant name**Grant code / Reference number****Is the source of funding the same sponsor****organization/entity?**

Yes

Title of funding source

University of Zanjan, Vice chancellor for research

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

empty

Person responsible for general inquiries**Contact****Name of organization / entity**

University of Zanjan

Full name of responsible person

Ahmad Azad

Position

PhD

Other areas of specialty/work**Street address**

Department of Physical Education, Social Sciences Building, University of Zanjan, Zanjan, Iran

City

Zanjan

Postal code**Phone**

+98 24 3344 2484

Fax**Email**

azad@znu.ac.ir

Web page address**Person responsible for scientific inquiries****Contact****Name of organization / entity**

University of Zanjan

Full name of responsible person

Ahmad Azad

Position

PhD

Other areas of specialty/work**Street address**

Department of Physical Education, Social Sciences Building, University of Zanjan, Zanjan, Iran

City

Zanjan

Postal code**Phone**

+98 24 3344 2484

Fax**Email**

azad@znu.ac.ir

Web page address

Person responsible for updating data

Contact

Name of organization / entity

University of Zanjan

Full name of responsible person

Ahmad Azad

Position

PhD

Other areas of specialty/work**Street address**

Department of Physical Education, Social Sciences

Building, University of Zanjan, Zanjan, Iran

City

Zanjan

Postal code**Phone**

+98 24 3344 2484

Fax**Email**

azad@znu.ac.ir

Web page address

Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty