

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Comparing The Effect Of Cold Water Immersion And Contrast Water Therapy On Recovery Indices After A Soccer Match In Adolescent Male Soccer Players

#### Protocol summary

##### Study aim

The aim of this study is to compare the effects of cold water immersion and contrast water therapy on recovery indices in adolescent male football players following a football match

##### Design

The trial has two parallel intervention groups. After playing a friendly football game (including all players), the subjects will be divided into cold water immersion (players of one team) and contrast water therapy (players of the opposite team) groups in parallel.

##### Settings and conduct

This study will be conducted with the aim of improving recovery and athletic performance, reducing delayed onset muscle soreness, and preventing injury and overreaching in football players. After checking the eligibility, subject will engage in friendly football match and then they will undergo recovery process which includes cold water immersion (15 degrees) and contrast water therapy (15 and 38 degrees) in Opal hydrotherapy and rehabilitation complex. The dependent variables will be monitored and evaluated before the match and at one, 24 and 48 hours after the recovery protocol.

##### Participants/Inclusion and exclusion criteria

Male adolescent football players aged 15 to 18 years, with no medical contraindications to participating in exercise training and sport, who have engaged in regular exercise training for at least one year, are in good health, with no history of chronic disease or any clinical conditions that could impair athletic performance, will be selected. The exclusion criteria: having any musculoskeletal problem or injury or fear of water or heart and hemodynamic conditions.

##### Intervention groups

The intervention groups include two groups: cold water immersion and contrast water therapy, who will implement the specified protocol

#### Main outcome variables

Delayed onset muscle soreness, static lower body strength, lower body muscular power, flexibility, and speed.

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20200408046997N4**

Registration date: **2024-11-28, 1403/09/08**

Registration timing: **registered\_while\_recruiting**

Last update: **2024-11-28, 1403/09/08**

Update count: **0**

##### Registration date

2024-11-28, 1403/09/08

##### Registrant information

##### Name

Ali Samadi

##### Name of organization / entity

##### Country

Iran (Islamic Republic of)

##### Phone

+98 21 5121 2456

##### Email address

a.samadi@shahed.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2024-11-28, 1403/09/08

##### Expected recruitment end date

2024-12-10, 1403/09/20

##### Actual recruitment start date

empty

**Actual recruitment end date**  
empty

**Trial completion date**  
empty

**Scientific title**  
Comparing The Effect Of Cold Water Immersion And Contrast Water Therapy On Recovery Indices After A Soccer Match In Adolescent Male Soccer Players

**Public title**  
Effects of cold ware immersion and contrast hydrotherapy on the recovery of teenage soccer players

**Purpose**  
Other

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
Adolescent boys aged 15 to 18 No medical contraindication for engaging in exercise and training Regular participation in sports trainings for at least one year  
**Exclusion criteria:**  
Using any kind of supplement or medicine which can affect muscular pain and soreness Having any kind of musculoskeletal pain or damage at the beginning of the study

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

**Gender**  
Male

**Phase**  
N/A

**Groups that have been masked**  
*No information*

**Sample size**  
Target sample size: **22**

**Randomization (investigator's opinion)**  
Not 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 Shahed University  
**Street address**  
Shahed university, opposite to the Holy shrine of

Imam Khomeini, Khalij Fars Expressway  
**City**  
Tehran  
**Province**  
Tehran  
**Postal code**  
3319118651  
**Approval date**  
2024-02-07, 1402/11/18  
**Ethics committee reference number**  
IR.SHAHED.REC.1403.065

## Health conditions studied

### 1

**Description of health condition studied**  
Recovery indices of teenage football players  
**ICD-10 code**  
**ICD-10 code description**

## Primary outcomes

### 1

**Description**  
Delayed Onset Muscle Soreness (DOMS)  
**Timepoint**  
Before and after  
**Method of measurement**  
Visual Analogue Scale (VAS)

### 2

**Description**  
static lower body strength  
**Timepoint**  
Before and after  
**Method of measurement**  
Dynamometer

### 3

**Description**  
lower body muscular power  
**Timepoint**  
Before and after  
**Method of measurement**  
Countermovement Jump

### 4

**Description**  
Flexibility  
**Timepoint**  
Before and after  
**Method of measurement**  
Sit and Reach Test

### 5

**Description**

Sprint  
**Timepoint**  
Before and after  
**Method of measurement**  
Chronometer

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

First intervention group: First, pre-test measurements will be conducted on all subjects, which include delayed onset muscle soreness, lower body strength, flexibility, lower body static strength, and speed. Then, the subjects will play a friendly soccer match in the form of two teams in compliance with all FIFA standards in two 45-minute halves with a 15-minute break between the halves. After the competition, the subjects will be divided into two groups of cold-water immersion and contrast water therapy to implement recovery protocols. The cold-water immersion group will completely immerse in 15°C water without moving for 15 minutes from the neck to the soles of the feet. After that, the post-test measurements will be performed in the same conditions as the pre-test in 1, 24 and 48 hours after the recovery protocol.

#### Category

Rehabilitation

### 2

#### Description

Intervention group: After the completion of the match, the other half of the subject will receive the contrast water therapy intervention. The intervention includes immersion in hot water, 38°C, for 2 minutes and then immersion in cold water, 15°C, for two minutes alternatively and the process will be repeated 4 times with 1 min rest in between. After that, the post-test measurements will be performed in the same conditions as the pre-test in 1, 24 and 48 hours after the recovery protocol.

#### Category

Rehabilitation

## Recruitment centers

### 1

#### Recruitment center

**Name of recruitment center**  
Opal Hydrotherapy and Rehabilitation Complex  
**Full name of responsible person**  
Mahdi Soltanian  
**Street address**  
Fajr Blvd  
**City**  
Semnan

**Province**  
Semnan  
**Postal code**  
3561854593  
**Phone**  
+98 919 132 4146  
**Email**  
alirezabelghadr78@gmail.com

## Sponsors / Funding sources

### 1

#### Sponsor

**Name of organization / entity**  
Shahed University  
**Full name of responsible person**  
Shahriar Bijani  
**Street address**  
Shahed University, opposite the Holy shrine of Imam Khomeini, Persian Gulf Expressway, Tehran, Iran  
**City**  
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Tehran  
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15875-5794  
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**Email**  
info@shahed.ac.ir

#### Grant name

#### Grant code / Reference number

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

Yes

#### Title of funding source

Shahed University

#### 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**  
Shahed University  
**Full name of responsible person**  
Alireza Belghadr  
**Position**  
MSc student  
**Latest degree**

Bachelor

**Other areas of specialty/work**

Exercise Physiology

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**Person responsible for scientific inquiries**

**Contact**

**Name of organization / entity**

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**Full name of responsible person**

Ali Samadi

**Position**

Associate professor

**Latest degree**

Ph.D.

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**Person responsible for updating data**

**Contact**

**Name of organization / entity**

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**Full name of responsible person**

Ali Samadi

**Position**

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**Latest degree**

Ph.D.

**Other areas of specialty/work**

Exercise Physiology

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**Email**

a.samadi@shahed.ac.ir

**Sharing plan**

**Deidentified Individual Participant Data Set (IPD)**

No - There is not a plan to make this available

**Justification/reason for indecision/not sharing IPD**

No further information.

**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**

No - There is not a plan to make this available

**Clinical Study Report**

Not applicable

**Analytic Code**

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

**Data Dictionary**

Not applicable