

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

11 Sep 2026

### The effect of eight weeks of corrective exercises in water on balance, pain, muscular endurance, upper limb motion range, men with upper crossed syndrome

#### Protocol summary

##### Study aim

The main purpose of this study was The effect of 8 week corrective exercises in water on balance, pain, muscle endurance, upper limb range of motion in male with upper crossed syndrome

##### Design

In this study, 34 students with upper crossed syndrome participated. The participants were randomly divided into intervention and control groups.

##### Settings and conduct

Rehabilitation in water at certain times were performed three times a week for eight weeks at the pool of the University of Bu Ali Sina in Hamedan. One day after the end of the training period, the assessment and post-test measurements were performed for both experimental and control groups in a pre-test in Rehabilitation Laboratory, University of Bo Ali Sina, Hamedan.

##### Participants/Inclusion and exclusion criteria

Participants in this study should have a forward head larger than 46 degrees and a round shoulder larger than 52 degrees, kyphosis greater than 42 degrees, and pain in the neck region. Participants in this study should not have a history of sports athletics, professional sports club membership, fracture history, surgery or joint diseases, water allergies, respiratory problems, or cardiovascular disease, and history of migraine headaches.

##### Intervention groups

The control group does not do any exercises. The intervention group performs three sessions per week of comprehensive corrective exercises.

##### Main outcome variables

Reduced head forwards, reduced round shoulder, decreased kyphosis, reduced pain, increased neck muscle endurance, increased the range of motion head and shoulders, increased the static and dynamic equilibrium

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20170615034554N2**

Registration date: **2018-05-07, 1397/02/17**

Registration timing: **retrospective**

Last update: **2018-05-07, 1397/02/17**

Update count: **0**

##### Registration date

2018-05-07, 1397/02/17

##### Registrant information

##### Name

Hossein Ahmadi

##### Name of organization / entity

The University of Tehran

##### Country

Iran (Islamic Republic of)

##### Phone

+98 918 721 3655

##### Email address

h.ahmadi@phe.basu.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2017-01-18, 1395/10/29

##### Expected recruitment end date

2017-02-02, 1395/11/14

##### Actual recruitment start date

2017-01-18, 1395/10/29

##### Actual recruitment end date

2017-02-02, 1395/11/14

##### Trial completion date

empty

**Scientific title**  
The effect of eight weeks of corrective exercises in water on balance, pain, muscular endurance, upper limb motion range, men with upper crossed syndrome

**Public title**  
Hydrotherapy for the correction of upper crossed syndrome

**Purpose**  
Treatment

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
Forward head larger than 46 degrees Round shoulder greater than 52 degrees Kyphosis greater than 42 degrees Pain  
**Exclusion criteria:**  
fracture history surgery or joint diseases visual disturbances With glasses water allergy respiratory problems cardiovascular disease history of migraine headaches

**Age**  
From **18 years** old to **30 years** old

**Gender**  
Male

**Phase**  
2

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

**Sample size**  
Target sample size: **34**  
Actual sample size reached: **30**

**Randomization (investigator's opinion)**  
Randomized

**Randomization description**  
Using random number method: According to the list of people entering the lab, people from the top down were the first 17 people for the control group and the 17 others in the experimental group.

**Blinding (investigator's opinion)**  
Not blinded

**Blinding description**  
**Placebo**  
Not used

**Assignment**  
Parallel

**Other design features**  
Release of trigger points in water

## Secondary Ids

empty

## Ethics committees

### 1

**Ethics committee**  
**Name of ethics committee**  
Ethics committee of Hamedan University of Medical Sciences

**Street address**  
Shahid Fahmidah, University of Medical Sciences and Health Services, Hamadan  
**City**  
Hamedan  
**Province**  
Hamadan  
**Postal code**  
65178-38695  
**Approval date**  
2017-01-14, 1395/10/25  
**Ethics committee reference number**  
IR.UMSHA.REC.1395.470

## Health conditions studied

### 1

**Description of health condition studied**  
Deforming dorsopathy, unspecified  
**ICD-10 code**  
M43.9  
**ICD-10 code description**  
Deforming dorsopathy, unspecified

## Primary outcomes

### 1

**Description**  
forward Head abnormalities greater than 46 degrees  
**Timepoint**  
Before the intervention and 8 weeks later  
**Method of measurement**  
Marketing and photography from the upper body of the subjects

### 2

**Description**  
Round shoulder abnormalities larger than 52 degrees  
**Timepoint**  
Before the intervention and 8 weeks later  
**Method of measurement**  
Marketing and photography from the upper body of the subjects

### 3

**Description**  
Kyphosis abnormalities greater than 42  
**Timepoint**  
Before the intervention and 8 weeks later  
**Method of measurement**  
Flexible Curve Ruler

### 4

**Description**  
Balance  
**Timepoint**  
Before the intervention and 8 weeks later

**Method of measurement**

Biodex Balance System

**5****Description**

Endurance

**Timepoint**

Before the intervention and 8 weeks later

**Method of measurement**

Deep Neck Flexor Endurance Test

**6****Description**

pain

**Timepoint**

Before the intervention and 8 weeks later

**Method of measurement**

visual analog scale

**7****Description**

Neck range of motion

**Timepoint**

Before the intervention and 8 weeks later

**Method of measurement**

Inclinometer

**8****Description**

Shoulders range of motion

**Timepoint**

Before the intervention and 8 weeks later

**Method of measurement**

Inclinometer

**Secondary outcomes**

empty

**Intervention groups****1****Description**

Intervention group: Hydrotherapy 8 weeks, 3 times a week, 60-80-min sessions, in three steps: First stage: Normalization of peripheral structures inclusive (release of trigger points with massage in water and myofascial release muscles with foam roller). Second stage: Restore muscle balance inclusive (stretching and strengthening exercise). Third stage: Sensorimotor Training inclusive (Integrate exercise).

**Category**

Rehabilitation

**2****Description**

Control group: The control group did not receive any

intervention.

**Category**

Rehabilitation

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

University Of Bu Ali Sina Hamedan

**Full name of responsible person**

Hossein Ahmadi

**Street address**

Chaharbagh Martyr Mostafa Ahmadi Roshan, Bu-Ali Sina University, Hamadan

**City**

Hamedan

**Province**

Hamadan

**Postal code**

38695-65178

**Phone**

+98 81 3838 1601

**Email**

hossin198811@gmail.com

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

The University of Bu-Ali Sina

**Full name of responsible person**

Ali Yalfani

**Street address**

Chaharbagh Martyr Mostafa Ahmadi Roshan, Bu-Ali Sina University, Hamadan

**City**

Hamedan

**Province**

Hamadan

**Postal code**

38695 -65178

**Phone**

+98 81 3838 1422

**Fax**

+98 81 3838 1423

**Email**

hossin198811@gmail.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 Bu-Ali Sina

**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

8174784986

**Phone**

+98 81 3838 1422

**Fax****Email**

hossin198811@gmail.com

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

The University of Bu Ali Sina

**Full name of responsible person**

Hossein Ahmadi

**Position**

Masters Student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Corrective Exercises

**Street address**

No. 76, Deadend Ershad., Nastoh Street.

**City**

Esfahan

**Province**

Isfahan

**Postal code**

8174784986

**Phone**

+98 81 3838 1422

**Fax**

+98 81 3838 1423

**Email**

hossin198811@gmail.com

**Web page address****Person responsible for updating data****Contact****Name of organization / entity**

The University of Bu Ali Sina

**Full name of responsible person**

Hossein Ahmadi

**Position**

Masters Student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Corrective Exercises

**Street address**

No, 76., Deadend Ershad., Nastoh Street.

**City**

Esfahan

**Province**

Isfahan

**Postal code**

8174784986

**Phone**

+98 81 3838 1422

**Fax**

+98 81 3838 1423

**Email**

hossin198811@gmail.com

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

The University of Bu Ali Sina

**Full name of responsible person**

Hossein Ahmadi

**Position**

Masters Student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Corrective Exercises

**Street address**

No, 76., Deadend Ershad., Nastoh Street.

**City**

Esfahan

**Province**

Isfahan

**Postal code****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**

Not applicable