Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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)

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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
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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
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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
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

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
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Person responsible for updating data

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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
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