

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The effect of combining scapula stabilization exercises and correcting respiratory pattern on muscle activity, alignment and scapular movement pattern in adolescent girls with upper cross syndrome

#### Protocol summary

##### Study aim

Determining the effect of combining of scapula stabilization exercises and correcting respiratory pattern on muscle activity, alignment and scapular movement pattern in adolescent girls with UCS

##### Design

Clinical trial with two comparison groups, parallel groups, double-blind, randomized

##### Settings and conduct

This study will be conducted in a double-blind manner. The desired tests will be taken in the sports rehabilitation laboratory of Basu by specialists in this field, then the intervention will take place in the gym of Razan city

##### Participants/Inclusion and exclusion criteria

Entry criteria: 1-Adolescents between the ages of 11-18. 2-People with FHP greater than 44 degrees, rounded shoulders greater than 49 degree and kyphosis greater than 42 degrees. 3-The subjects participate voluntarily and complete the consent form. Exclusion criteria: 1-Failure to complete the corrective exercise program or non-desire to continue the exercise program. 2-Having any abnormality related to the pelvic & lower limbs. 3-Having pathological symptoms, history of fracture, surgery or joint diseases in the spine, shoulder & pelvic girdle. 4-Having any physical activity outside of the corrective exercises program that affects the result of current research

##### Intervention groups

Stability exercises group: this corrective exercises will last for 8 weeks, each week 3 sessions about 1 hour. Equipment such as dumbbells, stretch pilates, etc will be used. The rehabilitation exercises protocol of the present study includes increasing recognition and recalling the activity of weakened muscles and relaxing another group of muscles. Combined exercises group: Protocol of exercises, in addition to the exercises of stability group, it will include

the modification of the subjects' breathing pattern to the diaphragmatic breathing pattern.

##### Main outcome variables

Muscle dysfunction/Deformation related to shoulder girdle

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20221215056827N1**

Registration date: **2022-12-27, 1401/10/06**

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

Last update: **2022-12-27, 1401/10/06**

Update count: **0**

##### Registration date

2022-12-27, 1401/10/06

##### Registrant information

##### Name

Maryam Nemati

##### Name of organization / entity

Bu Ali Sina University

##### Country

Iran (Islamic Republic of)

##### Phone

+98 81 3838 1423

##### Email address

m.nemati@phe.basu.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2022-12-26, 1401/10/05

##### Expected recruitment end date

2023-01-05, 1401/10/15

**Actual recruitment start date**  
empty

**Actual recruitment end date**  
empty

**Trial completion date**  
empty

**Scientific title**  
The effect of combining scapula stabilization exercises and correcting respiratory pattern on muscle activity, alignment and scapular movement pattern in adolescent girls with upper cross syndrome

**Public title**  
Comparing the effectiveness of stability and combined exercises (stability-respiratory) on adolescents with Upper Cross Syndrome

**Purpose**  
Treatment

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
Teenagers who are between 11-18 years old People with Forward head greater than 44 degrees, rounded shoulders greater than 49 degrees, and kyphosis angle greater than 42 degrees The subjects participate voluntarily and complete the consent form  
**Exclusion criteria:**  
Failure to complete the corrective exercise program or non-desire to continue the exercise program Having any abnormality related to the pelvic and lower limbs Having pathological symptoms, history of fracture, surgery or joint diseases in the spine, shoulder belt and pelvic girdle Having any physical activity outside of the corrective exercises program that affects the results of the present research

**Age**  
From **11 years** old to **18 years** old

**Gender**  
Female

**Phase**  
N/A

**Groups that have been masked**

- Participant
- Outcome assessor

**Sample size**  
Target sample size: **44**

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

**Randomization description**  
Randomization takes place based on Random Number Generator software and is based on the concealment of allocation by the SNOSE method Double groups will be assigned. Split randomization Tests are done in two stages. First, each of the subjects with Using a lottery, choose a number between 1-30. Then using Random number generator software between Numbers 1-30, fifteen random numbers are chosen and according to the numbers Produced and selected numbers of subjects in two groups be.

**Blinding (investigator's opinion)**

Double blinded

**Blinding description**  
In this study, from outcome assessors (laboratory technicians) were asked to take the desired tests from the clients. these people will be unaware From the purpose of the research, the allocation of study groups and the reason for their presence in The laboratory and only they evaluate the variables and register Pay their observations. The blinding of the participants will be done in such a way that each of the groups will do their own exercises and in order to achieve the blinding, the members of the two groups will present in the gym on two different days to receive the exercises.

**Placebo**  
Not used

**Assignment**  
Parallel

**Other design features**

**Secondary Ids**  
empty

**Ethics committees**

**1**

**Ethics committee**

**Name of ethics committee**  
Ethical Committee of Bu Ali Sina University

**Street address**  
Bu Ali Sina University, Abu Taleb Street, Modares Quarter, Hamedan

**City**  
Hamedan

**Province**  
Hamadan

**Postal code**  
3869565178

**Approval date**  
2022-03-08, 1400/12/17

**Ethics committee reference number**  
IR.BASU.REC.1401.024

## Health conditions studied

**1**

**Description of health condition studied**  
Upper Cross Syndrome deformity

**ICD-10 code**

**ICD-10 code description**

## Primary outcomes

**1**

**Description**  
Electromyography activity of the scapular stabilizing muscles / forward head / rounded shoulder / kyphosis / scapular movement pattern

**Timepoint**

Before the start of the intervention, one day after the end of the intervention

#### **Method of measurement**

Electromyography device, Kinovea software, flexible ruler, shoulder dyskinesia evaluation form

## **Secondary outcomes**

### **1**

#### **Description**

Muscle dysfunction

#### **Timepoint**

Before and After Intervention

#### **Method of measurement**

Surface electromyography machine Data Log p3 X8 model

## **Intervention groups**

### **1**

#### **Description**

Stabilization exercises group: the desired corrective exercises will last for 8 weeks and each week will be 3 sessions about 1-hour time. Equipment such as dumbbells, stretch pilates, etc will be used to perform the exercises. The rehabilitation exercises protocol of the present study includes increasing recognition and recalling the activity of weakened muscles and relaxing another group of muscles. In the next stages, when the recognition and calling of the muscles is formed, exercises will be performed at more advanced levels using equipment.

#### **Category**

Rehabilitation

### **2**

#### **Description**

combined exercises (stability-respiratory) group: the exercises in this group will be for 8 weeks and 3 sessions of 1 hour each week, equipment such as dumbbells, stretch pilates, balloons, etc will be used to perform the exercises. Protocol of rehabilitation exercises In this group, in addition to the exercises of the stability group, it will include the modification of the subjects' breathing pattern to the diaphragmatic breathing pattern.

#### **Category**

Rehabilitation

## **Recruitment centers**

### **1**

#### **Recruitment center**

##### **Name of recruitment center**

General Department of Education of Hamadan Province

##### **Full name of responsible person**

Maryam Nemati

##### **Street address**

Bu Ali Sina University, Abu Taleb Street, Modares Quarter, Hamedan

##### **City**

hamedan

##### **Province**

Hamadan

##### **Postal code**

3869565178

##### **Phone**

+98 81 3838 1423

##### **Email**

m.nemati@phe.basu.ac.ir

## **Sponsors / Funding sources**

### **1**

#### **Sponsor**

##### **Name of organization / entity**

Bu Ali Sina University

##### **Full name of responsible person**

Farzaneh Saki

##### **Street address**

Bu Ali Sina University, Abu Taleb Street, Modares Quarter, Hamedan

##### **City**

Hamedan

##### **Province**

Hamadan

##### **Postal code**

3869565178

##### **Phone**

+98 81 3838 1423

##### **Email**

f.sport2008@gmail.com

#### **Grant name**

#### **Grant code / Reference number**

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

Yes

#### **Title of funding source**

Bu Ali Sina 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**

Bu Ali Sina University

##### **Full name of responsible person**

Maryam Nemati

##### **Position**

Student  
**Latest degree**  
Bachelor  
**Other areas of specialty/work**  
Sport Rehabilitation  
**Street address**  
Bu Ali Sina University, Abu Taleb Street, Modares  
Quarter, Hamedan  
**City**  
Hamedan  
**Province**  
Hamadan  
**Postal code**  
3869565178  
**Phone**  
+98 81 3838 1423  
**Email**  
m.nemti@phe.basu.ac.ir

## Person responsible for scientific inquiries

**Contact**  
**Name of organization / entity**  
Bu Ali Sina University  
**Full name of responsible person**  
Maryam Nemati  
**Position**  
Student  
**Latest degree**  
Bachelor  
**Other areas of specialty/work**  
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## Person responsible for updating data

**Contact**  
**Name of organization / entity**  
Bu Ali Sina University  
**Full name of responsible person**  
Maryam Nemati  
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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**  
Undecided - It is not yet known if there will be a plan to make this available