

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

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Email address

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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

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Bu Ali Sina University

Full name of responsible person

Farzaneh Saki

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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

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
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Person responsible for scientific inquiries

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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

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