Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The effect of adding Global postural reeducation to lumbar - cervical motor control training on posture, proprioception, selected muscle strength, and scapular movement patterns in individuals with upper crossed syndrome

Protocol summary

Study aim
Determining the Effect of Adding Postural Retraining to Lumbar–Cervical Motor Control Exercises on Posture, Proprioception, Selected Muscle Strength, and Scapular Movement Pattern in Individuals with Upper Crossed Syndrome

Design
This study is a single-blind randomized controlled clinical trial with a pretest–posttest design, including two intervention groups and one control group. The outcome assessor will remain blinded to group allocation. The study population consists of male students with Upper Crossed Syndrome (UCS) at Kharazmi University. Participants meeting the inclusion criteria will be selected using purposive sampling.The sample size was estimated using G*Power software (version 3.1.7). The calculation was based on a statistical power of 0.80, a significance level of α = 0.05, and an effect size of 0.26 derived from previous studies.The initial sample size was 39 participants. Allowing for a 15% dropout rate, the final sample size was increased to 45 participants.

Settings and conduct
Kharazmi University

Participants/Inclusion and exclusion criteria
Inclusion Criteria: Male participants with Upper Crossed Syndrome (UCS), forward head angle >44°, rounded shoulder angle >49°, and thoracic kyphosis angle (TKA) >42°.Presence of scapular dyskinesis. BMI 18–25 kg/m² and age 18–28 years. Exclusion Criteria: History of joint disorders involving the spine, shoulder,or pelvis, fracture, or surgery..Participation in exercise programs related to the study during the previous6 months.

Intervention groups
Group Postural Retraining + Lumbar–Cervical Motor Control Exercises. Group Lumbar–Cervical Motor Control Exercises Alone. Control Group

Main outcome variables
Lumbar–Cervical Motor Control Exercises، Global postural reeducation، Posture، Proprioception، Selected Muscle Strength. Scapular Movement Pattern

General information

Reason for update

Acronym
UCS

IRCT registration information
IRCT registration number: **IRCT20180627040251N17**
Registration date: **2026-06-29, 1405/04/08**
Registration timing: **registered_while_recruiting**

Last update: **2026-06-29, 1405/04/08**
Update count: **0**

Registration date
2026-06-29, 1405/04/08

Registrant information

Name
Hassan Sadeghi

Name of organization / entity
Kharazmi University

Country
Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date

2026-06-27, 1405/04/06

Expected recruitment end date

2026-08-28, 1405/06/06

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of adding Global postural reeducation to lumbar - cervical motor control training on posture, proprioception, selected muscle strength, and scapular movement patterns in individuals with upper crossed syndrome

Public title

The effect of adding Global postural reeducation to lumbar - cervical motor control training on posture, proprioception, selected muscle strength, and scapular movement patterns in individuals with upper crossed syndrome

Purpose

Other

Inclusion/Exclusion criteria

Inclusion criteria:

Male participants with Upper Crossed Syndrome (UCS), characterized by a forward head angle greater than 44°, a rounded shoulder angle greater than 49°, and a thoracic kyphosis angle (TKA) greater than 42°.Presence of scapular dyskinesis. Body Mass Index (BMI) within the normal range (18–25 kg/m²) and age between 18 and 28 years.

Exclusion criteria:

Age

From **18 years** old to **28 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **45**

Randomization (investigator's opinion)

Randomized

Randomization description

This study is a **single-blind randomized controlled clinical trial**. The study employs a **pretest–posttest design** with two intervention groups and one control group. In this trial, the outcome assessor will be blinded to group allocation. Participants will be randomly assigned to one of three groups: (1) a **combined lumbar–cervical motor control exercises plus posture retraining group**, (2) a **lumbar–cervical motor control exercises-only group**, and (3) a **control group**. Randomization will be performed using the **Randomizer** software. The randomization sequence will not be disclosed to participants until completion of the baseline assessment. Outcome assessors will remain blinded to group allocation throughout the study. Although participants cannot be blinded to the intervention because of the nature of the treatments, they will not be informed which intervention is considered the primary treatment group.

Blinding (investigator's opinion)

Single blinded

Blinding description

This study is a **single-blind randomized controlled clinical trial**. The study follows a **pretest–posttest design** with two intervention groups and one control group. In this study, the outcome assessor will be blinded to group allocation.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Kharazmi University

Street address

No. 43, Shahid Mofatteh Street, before Enghelab Street, Tehran, Iran

City

tehran

Province

Tehran

Postal code

۱۴۹۱۱-۱۵۷۱۹

Approval date

2026-05-26, 1405/03/05

Ethics committee reference number

IR.KHU.REC.1405.031

Health conditions studied

1

Description of health condition studied

Postural kyphosis

ICD-10 code

M40.0

ICD-10 code description

Postural kyphosis

Primary outcomes

1

Description

Global postural reeducation.to lumbar - cervical motor control training .posture .proprioception .selected muscle

strength. scapular movement patterns

Timepoint

Pre-intervention and post-intervention

Method of measurement

Postural angles: Digital photogrammetry analyzed using Kinovea software.Head proprioception: Laser pointer repositioning test.Scapular movement pattern: Scapular Dyskinesis Test and Lateral Scapular Slide Test (LSST).Muscle strength: Digital hand-held dynamometer.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Postural Retraining + Lumbar–Cervical Motor Control Exercises

Category

Rehabilitation

2

Description

Intervention group: Lumbar–Cervical Motor Control Exercises

Category

Rehabilitation

3

Description

Control group: No exercise intervention.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

دانشگاه خوارزمی

Full name of responsible person

mohammadreza bagheri

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Sponsors / Funding sources

1

Sponsor

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Full name of responsible person

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Grant name

Grant code / Reference number

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

No

Title of funding source

Kharazmi 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

Kharazmi University

Full name of responsible person

Dr. Hassan Sadeghi

Position

Postdoctoral Research

Latest degree

Ph.D.

Other areas of specialty/work

Sport Medicine

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3th floor. Faculty of sport science and Physical Education, Shahid Keshvari Sports Complex, Razan Jonobi, Mirdamad,

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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