

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

The Effect of 8 Weeks of Ergonomics Education and Corrective Exercises on Upper Crossed Syndrome in Men

Protocol summary

Study aim

Investigate the effect of 8 weeks of ergonomics education and corrective exercises on improving the symptoms of Upper Crossed Syndrome (UCS) in men.

Design

An experimental trial with a control group, parallel design, randomized, conducted on 32 men aged 18–30 with UCS. Sample size was determined using G*Power software, and randomization was performed using statistical software.

Settings and conduct

This study was conducted at a sports club in Quchan on 32 men aged 18–30 with Upper Crossed Syndrome (UCS). Participants were randomly assigned to a corrective exercise group or a control group. Exercises were supervised for 8 weeks (3 sessions/week, 60 minutes each). Participants were blinded, while researchers were aware. Randomization was done using statistical software with group assignments sealed in envelopes. The control group received no intervention.

Participants/Inclusion and exclusion criteria

Age 18–30 years, UCS diagnosis (kyphosis $>42^\circ$, forward head posture $>45^\circ$, forward shoulder posture $>52^\circ$), no history of fractures, surgery, or spinal diseases, absence of lumbar hyperlordosis, non-obese BMI, and no history of athleticism or regular physical activity. The exclusion criteria included: pathological symptoms, such as a history of surgery, fracture, or spinal joint disease, and regular physical activity (21).

Intervention groups

Ergonomics Education Included four one-hour bi-weekly sessions at the gym, covering ergonomics basics, risk factors for musculoskeletal disorders, and proper workplace adjustments. Corrective Exercises Supervised sessions at the gym focused on stretching shortened muscles and strengthening weak ones, conducted over 8 weeks (3 sessions/week, 60 minutes each). Control Group They received no intervention and continued their daily routines.

Main outcome variables

Forward head Rounded shoulders Kyphosis

General information

Reason for update

Acronym

UCS

IRCT registration information

IRCT registration number: **IRCT20110803007211N3**

Registration date: **2024-12-31, 1403/10/11**

Registration timing: **prospective**

Last update: **2024-12-31, 1403/10/11**

Update count: **0**

Registration date

2024-12-31, 1403/10/11

Registrant information

Name

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

05714413512

Email address

mseyedahmadi@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2025-01-14, 1403/10/25

Expected recruitment end date

2025-01-24, 1403/11/05

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of 8 Weeks of Ergonomics Education and Corrective Exercises on Upper Crossed Syndrome in Men

Public title

The Effect of Ergonomics Education and Corrective Exercises on Improving Men's Posture

Purpose

Supportive

Inclusion/Exclusion criteria**Inclusion criteria:**

age range of 18 to 30 years posterior kyphosis greater than 42 degrees forward head posture greater than 45 degrees forward shoulder posture greater than 52 degrees absence of any pathological symptoms such as a history of fracture, surgery, and spinal diseases

Exclusion criteria:

presence of pathological symptoms, such as a history of surgery, fracture, or spinal joint disease regular physical activity

Age

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

Gender

Male

Phase

1

Groups that have been masked

- Participant

Sample size

Target sample size: **32**

Randomization (investigator's opinion)

Randomized

Randomization description

In this study, simple randomization with individual allocation will be used. The random allocation sequence will be generated using statistical software and sealed, numbered envelopes will be prepared to ensure allocation concealment. Participants, after initial assessment and confirmation of inclusion and exclusion criteria, will randomly receive an envelope that will determine their group assignment. This process will be designed to prevent those responsible for enrollment or initial assessments from knowing the group assignments, thereby minimizing the risk of bias.

Blinding (investigator's opinion)

Single blinded

Blinding description

In this study, only the participants will be blinded to the group allocation (intervention or control). Group allocation will be performed by an independent individual who will not be involved in data collection. Participants will not be informed about the type of intervention they will receive, but the researchers will be aware of the group assignments. Outcome assessments will be conducted by independent evaluators who will remain unaware of the group allocation to prevent any potential bias. All ethical principles, including ensuring participants are fully informed about their involvement in the study

and obtaining informed consent, will be strictly adhered to.

Placebo

Not used

Assignment

Single

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

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Street address

No. 3, 5th Alley, Miremad Street, Motahhari Street, Tehran, Iran.

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Tehran

Postal code

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Approval date

2024-11-05, 1403/08/15

Ethics committee reference number

IR.SSRC.REC.1403.071

Health conditions studied**1****Description of health condition studied**

Upper Crossed Syndrome

ICD-10 code

M95.8

ICD-10 code description

Other acquired deformities of musculoskeletal system and connective tissue

Primary outcomes**1****Description**

Upper crossed syndrome (UCS)

Timepoint

At the beginning of the study (before the start of the intervention) and at the end of the study (8 weeks after the intervention)

Method of measurement

Thoracic Kyphosis Angle: The Corrective Exercise Specialist will take measurements to assess the thoracic kyphosis angle. They will use a 50 cm long and 2 cm wide flexible ruler to measure the T2 and T12 vertebrae angle (24, 25). To find the T2 vertebra, the specialist will ask the participant to bend their head, identifying the

spinous process of the T2 vertebra by first locating the C7 spinous process. They will mark the starting point of the kyphosis curve at the T2 vertebra and will use the Hoppenfeld method to determine the T12 vertebra (26). Individuals with a kyphotic angle greater than 46.83 degrees will be classified as having an increased kyphotic deformity. Rounded Shoulder Angle: The rounded shoulder angle (RSA) will be measured from the vertically posterior line to a line connecting the C7 and acromial markers (27). A shoulder angle of more than 52 degrees will be considered an RS deformity (22). Forward Head Angle: The forward head angle (FHA) will be measured from the vertical anterior to a line connecting the tragus and the C7 marker. In this method, an ideal head angle will be considered less than 36 degrees, while an angle of more than 46 degrees will be regarded as an abnormality (22) (Figure 2). The intraday reliability for FHA and RSA will show acceptable within-day reliability (FHA: Intraclass Correlation Coefficient (ICC)(2,1) = 0.92, Standard Error of the Mean (SEM) = 2; RSA ICC(2,1) = 0.89, SEM = 5) based on this sub-sample (28).

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Ergonomics Education** Four one-hour bi-weekly sessions were conducted at the gym by a corrective exercise specialist, covering ergonomics basics, risk factors for musculoskeletal disorders, computer work impacts, prevention methods, and proper workplace adjustments. Corrective Exercises: Supervised gym sessions included a 5-10-minute warm-up, stretching for shortened muscles (chest, hip flexors, upper trapezius, etc.), and strengthening for weak muscles (shoulder stabilizers, deep neck flexors, posterior spine extensors) over 8 weeks.

Category

Rehabilitation

2

Description

Control group: The control group in this study received no intervention and continued with their daily routines.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Corrective Exercise clinic

Full name of responsible person

Karim Khalaghi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Research Deputy of Hakim Nizami Higher Education Institute in Quchan

Full name of responsible person

Dr .Nader Naqshbandi

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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

Educational and Research Affairs, Hakim Nizami Qochan Institute of Higher Education

Proportion provided by this source

100

Public or private sector

Private

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

Hakim Nizami Qochan Institute of Higher Education

Full name of responsible person

Karim Khalaghi

Position

Asistant professor

Latest degree

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Other areas of specialty/work

Sport Medicine

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Sharing plan**Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

Study Protocol

Yes - There is 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

Yes - There is 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

Title and more details about the data/document

Data on the effect of 8 weeks of ergonomics education and corrective exercises on Upper Crossed Syndrome (UCS) in men. Includes posture data (kyphosis, forward head, shoulders), muscle measurements, and questionnaire responses for 32 participants (16 intervention, 16 control) in Excel or SPSS format. Data will be available one week after a formal request and adherence to ethical conditions.

When the data will become available and for how long

The data will be accessible one week after the request is submitted.

To whom data/document is available

All researchers

Under which criteria data/document could be used

Data can be used for scientific and educational purposes while adhering to ethical research principles and maintaining participant confidentiality.

From where data/document is obtainable

For access to the data or documentation of this study, you can contact the corresponding author.

What processes are involved for a request to access data/document

To access the data, contact the corresponding author and submit a formal request outlining the purpose and intended use.

Comments