Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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°, forward head posture >45°, forward shoulder posture >52°), 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
کمیته اخلاق در پژوهش‌های انسانی پژوهشگاه علوم ورزشی ایران

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

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Tehran

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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
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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
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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