

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Comparison of the effect of static and dynamic corrective exercises on alignment, pain, and quality of life in people with upper cross syndrome

Protocol summary

Study aim

Comparison of two static and dynamic exercise methods on alignment, pain and quality of life of patients with upper cross syndrome.

Design

This study is a randomized controlled trial with a parallel group design. Sample size will be determined using G*Power software. Following sample size calculation, 45 participants will be randomly allocated to three groups of 15. One group will serve as the control group, while the other two will be experimental groups. Block randomization will be used to allocate participants to groups using the "Research Randomizer" software.

Settings and conduct

After selecting the subjects and confirming the presence of upper cross syndrome by a specialist doctor, these people will be referred to the Red Crescent Comprehensive Center (department of corrective exercises) located in Vanak Square, Tehran, to receive the necessary therapeutic exercises.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: Diagnosis of upper crossed syndrome
Ability to perform exercise
No use of pain medication
Absence of acute underlying medical conditions (neurological, respiratory, vascular, metabolic) or sensory impairments (visual, auditory)
No concurrent participation in other exercise programs
Exclusion Criteria: No history of spinal surgery, injury, or disease
Absence of significant (more than 2 cm) leg length discrepancy
No psychiatric disorders (such as depression)
No history of joint replacement
No concurrent physical therapy

Intervention groups

Static exercises group, dynamic exercises group and control group

Main outcome variables

body alignment (kyphosis angle, forward head angle and forward shoulder angle); Pain and quality of life

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180727040609N3**

Registration date: **2024-08-10, 1403/05/20**

Registration timing: **prospective**

Last update: **2024-08-10, 1403/05/20**

Update count: **0**

Registration date

2024-08-10, 1403/05/20

Registrant information

Name

Arash Khaledi

Name of organization / entity

University of Tehran

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2024-10-06, 1403/07/15

Expected recruitment end date

2024-12-05, 1403/09/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
Comparison of the effect of static and dynamic corrective exercises on alignment, pain, and quality of life in people with upper cross syndrome

Public title
Comparison of two static and dynamic training methods to improve upper cross syndrome

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
People with upper cross syndrome
Absence of any history of spine surgery
Absence of pathological records (disease) of the spine
Absence of orthopedic and neurological injuries
Absence of structural or functional shortness of more than 2 cm in one of the lower limbs
Exclusion criteria:
Observing any pathological symptoms
History of fracture
History of surgery
Joint diseases
Absence of any damage in the cervical spine, back and shoulder girdle

Age
No age limit

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **45**
More than 1 sample in each individual
Number of samples in each individual: **45**
Three groups including two experimental groups and one control group (15 people for each group)

Randomization (investigator's opinion)
Randomized

Randomization description
In this research, researchers employed block randomization to divide patients into three distinct groups. This method involves partitioning patients into smaller subgroups called blocks, followed by random assignment to the primary research groups (static exercises, dynamic exercises, and control). The primary objective of this approach is to ensure balance among groups and minimize the influence of confounding variables on the research outcomes. Methodology: 1. Patient Numbering: Each patient is assigned a unique identification number. 2. Web-Based Software Utilization: To streamline the randomization process, a specialized web application named "Research Randomizer" is utilized. This software employs random algorithms to automatically allocate patients to groups. 3. Block Division: Patients are divided into 8 blocks: 7 blocks of 6 individuals each and 1 block of 3. This division aims to maintain balance among groups within each block. 4. Group Assignment: Within each block, patients are sequentially assigned to groups A, B, and C. This sequence is randomly determined by the web application. 5. Formation of Primary Groups: Ultimately, patients from all blocks are combined to form three primary groups of 15 individuals each: the static exercise

group, the dynamic exercise group, and the control group.

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids
empty

Ethics committees
1
Ethics committee
Name of ethics committee
Faculty of Physical Education and Sports Sciences, University of Tehran
Street address
Heran - Northern Kargar St. - above Jalal Al Ahmad Intersection - between 15th and 16th Streets - in front of Tehran University Koi
City
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Approval date
2024-07-08, 1403/04/18
Ethics committee reference number
IR.UT.SPORT.REC.1403.048

Health conditions studied
1
Description of health condition studied
Upper cross syndrome
ICD-10 code
M40.0
ICD-10 code description
Postural kyphosis

Primary outcomes
1
Description
Kyphosis angle.
Timepoint
It is evaluated at the beginning of the research and after 8 weeks, that is, before and after the treatment.
Method of measurement
The kyphosis angle is measured using a flexible ruler.

2

Description

Forward head angle.

Timepoint

It is evaluated at the beginning of the research and after 8 weeks, that is, before and after the treatment.

Method of measurement

The forward angle of the head is done using the photogrammetry method (photographing from the side view).

3

Description

The forward shoulder angle.

Timepoint

It is evaluated at the beginning of the research and after 8 weeks, that is, before and after the treatment.

Method of measurement

The forward shoulder angle is done using the photogrammetric method (side view photography).

4

Description

Quality of Life.

Timepoint

It is evaluated at the beginning of the research and after 8 weeks, that is, before and after the treatment.

Method of measurement

Using Short Form Health Survey questionnaire (SF-36).

5

Description

Pain.

Timepoint

It is evaluated at the beginning of the research and after 8 weeks, that is, before and after the treatment.

Method of measurement

Pain is assessed using a Visual Analogue Scale (VAS).

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Static exercises as an exercise intervention are based on isometric contractions and maintaining a fixed muscle position (in addition to doing simple stretching exercises.). In this treatment protocol, patients perform exercises for eight weeks, three sessions of forty-five to sixty minutes per week under the direct supervision of relevant specialists. The equipment used in this program includes Swiss ball, resistance bands (Traband) and light weights. The number of movements in each session varies from six to twelve and increases during the sessions according to the progress

and adaptation of the patient.

Category

Treatment - Other

2

Description

Intervention group: Dynamic exercises as an effective therapeutic intervention are based on dynamic movements and isotonic contractions (in addition to doing simple stretching exercises.). In this treatment protocol, patients perform exercises for eight weeks, three sessions of forty-five to sixty minutes per week, under the direct supervision of relevant specialists. The equipment used in this program includes Swiss ball, resistance bands (Traband) and light weights. The number of movements in each session varies from six to twelve and increases during the sessions according to the progress and adaptation of the patient. The purpose of this program is to strengthen muscles, improve flexibility, increase muscle strength and coordination, and ultimately improve the physical performance of patients.

Category

Treatment - Other

3

Description

Control group: Do simple stretching exercises.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Laboratory of Faculty of Physical Education and Sports Sciences, University of Tehran.

Full name of responsible person

Hooman Minoonejad

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

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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?**

Yes

Title of funding source

University of Tehran

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

Tehran

Province

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Person responsible for scientific inquiries

Contact**Name of organization / entity**

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Hooman Minoonejad

Position

Associate professor

Latest degree

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Other areas of specialty/work

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Person responsible for general inquiries

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Postdoctoral researcher

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Latest degree

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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

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is 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

All information obtained from this research will be freely available to researchers and interested parties through university databases and authoritative scientific articles.

When the data will become available and for how long

6 to 15 months after the completion of the research project.

To whom data/document is available

All researchers, therapists and specialists.

Under which criteria data/document could be used

With the aim of facilitating the improvement of the level of academic research and improving the treatment of patients by therapists, researchers and specialists.

From where data/document is obtainable

Dr. Arash Khalidi, Faculty of Physical Education, University of Tehran (Tehran - North Kargar St. - above Jalal Al Ahmad Intersection - between 15th and 16th St. - in front of Tehran University Koi). Email: arashkhaledi666@gmail.com

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

As soon as the scientific articles are published, all relevant findings and data that can help to advance research and improve treatment methods will be available to the scientific community.

Comments