Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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

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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

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Heran - Northern Kargar St. - above Jalal Al Ahmad Intersection - between 15th and 16th Streets - in front of Tehran University Koi

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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

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Laboratory of Faculty of Physical Education and Sports Sciences, University of Tehran.
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Sponsors / Funding sources

1

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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

Person responsible for general inquiries

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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