

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

27 Jul 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)

##### Phone

+98 56 3243 0715

##### Email address

arashkhaledi666@gmail.com

##### 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**  
Tehran  
**Province**  
Tehran  
**Postal code**  
13117- 14398  
**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

#### **Street address**

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

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## Sponsors / Funding sources

### 1

#### Sponsor

**Name of organization / entity**

University of Tehran

**Full name of responsible person**

Mehdi Fakoorsaghieh

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16 Azar St., 16 Azar Street, Revolution Square,  
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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

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## Person responsible for scientific inquiries

**Contact****Name of organization / entity**

University of Tehran

**Full name of responsible person**

Hooman Minoonejad

**Position**

Associate professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Physiotherapy

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between 15th and 16th St., North Kargar st., Tehran,  
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## Person responsible for general inquiries

**Contact****Name of organization / entity**

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**Full name of responsible person**

Arash Khaledi

**Position**

Postdoctoral researcher

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Sport Medicine

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Faculty of Physical Education and Sport Sciences,  
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Islamic Republic

**City**

## Person responsible for updating data

**Contact****Name of organization / entity**

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**Full name of responsible person**

Arash Khaledi

**Position**

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**Latest degree**

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Specialist in sports pathology and corrective  
exercises

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<https://scholar.google.com/citations?user=9apCoWwAAA&hl=en>

## 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**