

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

The Effects of an eight weeks selective corrective exercises program on the worker's productivity with the upper crossed syndrome - a randomized controlled trial

Protocol summary

Study aim

The Effects of an eight weeks selective corrective exercises program on the worker's productivity with the upper crossed syndrome

Design

Clinical trial with control group, with parallel groups, double-blind, randomized, on 48 participants. Lottery was used for randomization.

Settings and conduct

50 employees of a company in Arak participated in this study according to the entry criteria. Subjects were randomly divided into experimental and control groups by lottery. The experimental group participated in training for 8 weeks. The control group had their usual life routine. Occupational productivity and UCS were evaluated at the beginning and after the completion of the intervention in the subjects. The evaluations were carried out at the Arak University laboratory in the Markazi province.

Participants/Inclusion and exclusion criteria

Inclusion criteria included forward head less than 46 degrees, rounded shoulders more than 52 degrees, kyphosis more than 42 degrees, informed consent of the participants, age range of 20-55 years, and non-pregnancy of female participants. Exclusion criteria included recent surgical interventions on the head, neck, shoulder or spine of the participants and people with physical limitations or severe disabilities.

Intervention groups

These exercises were based on established protocols for UCS modification and were designed for muscle groups involved in the syndrome, such as the forward head, rounded shoulder, and kyphosis. The intervention program was carried out for eight weeks with three weekly sessions. Each training session lasted approximately 50 minutes. The exercises were done under the supervision of trained trainers and under the

supervision. A standard warm-up and cool-down routine was performed at the beginning and end of each session, respectively. The control group did not receive any specific intervention.

Main outcome variables

Work productivity

General information

Reason for update

Acronym

UCS

IRCT registration information

IRCT registration number: **IRCT20181228042157N1**

Registration date: **2023-09-02, 1402/06/11**

Registration timing: **retrospective**

Last update: **2023-09-02, 1402/06/11**

Update count: **0**

Registration date

2023-09-02, 1402/06/11

Registrant information

Name

Zeinab Mondalizadeh

Name of organization / entity

Arak University

Country

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-07-18, 1398/04/27
Expected recruitment end date
2020-01-17, 1398/10/27
Actual recruitment start date
2019-07-18, 1398/04/27
Actual recruitment end date
2020-01-19, 1398/10/29
Trial completion date
2020-01-19, 1398/10/29

Scientific title
The Effects of an eight weeks selective corrective exercises program on the worker's productivity with the upper crossed syndrome - a randomized controlled trial

Public title
The Effects of an eight weeks selective corrective exercises program on the worker's productivity with the upper crossed syndrome - a randomized controlled trial

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Forward head less than 46 ° Round shoulder greater than 52 ° Kyphosis greater than 42 ° Informed consent of the participants Age requirement between 20 and 55 years
Absence of pregnancy in female participants

Exclusion criteria:

Participants who had undergone recent surgical interventions on the head, neck, shoulders, or spine that may have interfered with the exercise program or affected the study results were excluded. Individuals with severe physical limitations or disabilities that prevent them from participating in an exercise program or performing required corrective exercises do not meet the inclusion criteria.

Age

From **20 years** old to **55 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **50**

Actual sample size reached: **48**

Randomization (investigator's opinion)

Randomized

Randomization description

To ensure the unbiased allocation of participants, the randomization process was done by lottery. Participants who met the inclusion criteria were placed in two intervention groups or control groups. Allocation concealment was implemented using sequentially numbered, opaque, and sealed envelopes. Each envelope contained a sheet showing the group assignment. Before the study, all envelopes were prepared and sealed by an independent researcher who was not involved in participant recruitment or data

collection. After obtaining informed consent, participants were enrolled in the study and envelopes were opened sequentially to determine group assignment. Participants were then informed about their assigned group. The procedure was conducted by a researcher who was not involved in the recruitment or assessment of participants.

Blinding (investigator's opinion)

Double blinded

Blinding description

The outcome assessor was trained to conduct assessments in a standardized manner. Outcome measures were used objectively to reduce subjectivity and bias, which included a standard questionnaire, objective measurement of kyphosis, round shoulder, and forward overturning. The outcome assessor was unaware of which participants belonged to the intervention or control group. The evaluator was asked not to talk to the participants more than the explanations needed to perform the tests and they were not allowed to ask the subjects questions about the study. The analyzer was not aware of the participants' group assignments, and the information of the groups was provided to the analyzer with code 1 and 2 for the groups and a specific code for each participant.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Arak University of Medical Science

Street address

Arak, Basij Square, Arak University of Medical Science

City

Arak

Province

Markazi

Postal code

3819693345

Approval date

2019-04-08, 1398/01/19

Ethics committee reference number

IR.ARAKMU.REC.1398.183

Health conditions studied

1

Description of health condition studied

upper crossed syndrome

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Work productivity

Timepoint

Before the start of the intervention and nine weeks after the intervention

Method of measurement

Work Productivity and Activity Impairment-General Health (WPAI-GH) questionnaire.

Secondary outcomes

1

Description

forward head scale

Timepoint

At the beginning of the study and nine weeks after the study

Method of measurement

Goniometer

2

Description

round shoulder scale

Timepoint

At the beginning of the study and nine weeks after the study

Method of measurement

Goniometer

3

Description

Kyphosis angle

Timepoint

At the beginning of the study and nine weeks after the study

Method of measurement

flexible ruler

Intervention groups

1

Description

Intervention group: In the experimental group, participants received a selective corrective exercise program designed to address musculoskeletal abnormalities associated with upper crossed syndrome (UCS). The training program consisted of stretching, strengthening, and stabilization exercises. The exercises were based on established protocols and recommendations for correcting UCS and were tailored to target specific muscle groups involved in the syndrome, such as the forward head (FH), round

shoulder (RS), and kyphosis (KY). The intervention program was conducted for a duration of eight weeks, with three sessions per week. Each training session lasted approximately 50 minutes. The exercises were performed under the guidance of trained instructors and were supervised by the research team. Standard warm-up and cool-down routines were implemented at the beginning and end of each session, respectively. The program progression involved different phases. The initial phase, lasting two weeks, focused on gradually increasing the duration of exercise holds, ranging from seven sets of 10 seconds hold to 10 sets of 15 seconds hold. In the improvement phase, lasting several weeks, the activities were performed with increasing repetitions, starting from five sets of ten repetitions and progressing to six sets of 15 repetitions. Finally, the maintenance phase, which spanned the last two weeks of the program, with the aim of maintaining the achieved progress, the exercises were performed at a constant level.

Category

Rehabilitation

2

Description

Control group: The control group did not receive any specific corrective exercise program. Participants in this group were instructed to continue with their usual daily activities and work routines without any interventions.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Central Province Electricity Distribution Company

Full name of responsible person

Shahnaz Shahrjerdi

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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**

213883.511

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Central Province Electricity Distribution Company

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**

Industry

Person responsible for general inquiries

Contact**Name of organization / entity**

Arak University

Full name of responsible person

Shahnaz Shahrjerdi

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Sport Medicine

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

More information is not available.

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Not applicable

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

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

Part of the data related to the primary outcome and secondary outcomes can be shared.

When the data will become available and for how long

5 years after the research, it is possible to access the data.

To whom data/document is available

Researchers working in academic institutions as well as

people working in industry can apply for them.

Under which criteria data/document could be used

For the purposes of scientific research and publication, researchers can use the data to perform meta-analysis and systematic reviews, educational purposes, and collaborative research. The terms of use of the data are the competence of the requester. Data is provided to authorized persons who have obtained the necessary ethical and legal approvals. Before accessing the data, the requester must sign a formal agreement specifying the terms and conditions of use. This agreement ensures that the data will be used exclusively for specified research purposes, that confidentiality will be maintained, and that any applicable legal and ethical requirements will be met. The data are usually intended for non-commercial research purposes. Applications for commercial use or for-profit activities may require additional licenses or agreements beyond the scope of this research.

From where data/document is obtainable

Shahnaz Shahrjerdi, Associate Professor, Faculty of Sports Sciences, s-shahrjerdi@araku.ac.ir, 09188620643

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

Data will be provided to them through a request email stating the purpose of the research.

Comments