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

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Iran (Islamic Republic of)

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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
Street address
Daraei square, Imam Mousa Sadr street
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Central Province Electricity Distribution Company

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