

Clinical Trial Protocol

Iranian Registry of Clinical Trials

20 Jun 2026

Comparison of Three Methods of Corrective Exercise Interventions on Sway Back Posture in Young Adults: A Randomized Controlled Trial

Protocol summary

Summary

The purpose of this study was to introduce and compare of effectiveness of three methods of corrective exercise program on spinal posture of healthy individuals 18-25 years old with SBP. Design of study is prospective, randomized controlled design with parallel group. The study was conducted in the Bu ali Sina University Sport Medicine and Corrective Exercise laboratory. One hundred five participants (mean age 20.9 ± 2.1 years) with SBP ($\geq 10^\circ$) were enrolled in the study for 12 weeks. Participants were randomly assigned to an intervention group 1 (n=35) intervention group 2 (35) or control group (n=35). Intervention group 1 received traditional corrective exercises program that only includes the upper quarter exercises. The intervention group 2 received comprehensive exercise program which in addition to stretching and strengthening exercises of upper quarter included a core region exercises. The third group was the control group that did not receive any correction program. Correction exercise programs of groups were conducted for duration of 12 weeks, 3 sessions per week and the 40 to 80 minutes in each session. During this period the control group did their daily activities. Primary outcome is change in sway angle of sway angle measured using a digitized side-view photograph. Secondary outcomes include forward head angle measured using a digitized side-view photograph, Kyphosis index and lordosis index measured using a flexicurve ruler and inclinometer, secondary pelvis tilt angle measured using a Scorpion inclinometer and postural stability measured using a Zebris plantar pressure.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017011431942N1**

Registration date: **2017-02-22, 1395/12/04**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2017-02-22, 1395/12/04

Registrant information

Name

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Name of organization / entity

Shahrood University of Technology

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Recruitment status

Recruitment complete

Funding source

Investigator

Expected recruitment start date

2013-09-21, 1392/06/30

Expected recruitment end date

2015-03-22, 1394/01/02

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of Three Methods of Corrective Exercise Interventions on Sway Back Posture in Young Adults: A Randomized Controlled Trial

Public title

Corrective Exercise Interventions of Sway Back Posture

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: Sway back posture equal to or greater than 10 degrees; age range from 18 to 25 years; complete of written consent. Exclusion criteria: Pathological symptoms related to neurological disorders; history of fracture; heart disease; diabetes; history of the championship; member of sports teams; employment; lack of complete training session; lack of interest to pursue the program.

Age

From **18 years** old to **25 years** old

Gender

Both

Phase

1

Groups that have been masked

No information

Sample size

Target sample size: **70**

Randomization (investigator's opinion)

Randomized

Randomization description

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

Hamedan University of Medical Sciences

Street address

Daneshgah-e-Bu Ali Sina, Hamedan, Hamadan Province

City

Hamedan

Postal code

65178

Approval date

2014-11-25, 1393/09/04

Ethics committee reference number

4132/9/35/16/پ

Health conditions studied

1

Description of health condition studied

Sway Back Posture

ICD-10 code

M40.2

ICD-10 code description

Other and unspecified kyphosis

Primary outcomes

1

Description

Sway Angle

Timepoint

Before of start of intervention and end of intervention and 12 weak after end of intervention

Method of measurement

Using Adobe AutoCAD 2010 to calculate the sway angle (SA)

Secondary outcomes

1

Description

Kyphosis and lordosis index and angle

Timepoint

Before of start of intervention, end of intervention and 12 weak after end of intervention

Method of measurement

Using a 61-cm long flexicurve ruler and dual inclinometer

2

Description

Forward head angle

Timepoint

Before of start of intervention, end of intervention and 12 weak after end of intervention

Method of measurement

Using Adobe AutoCAD 2010

3

Description

Pelvic tilt angle

Timepoint

Before of start of intervention, end of intervention and 12 weak after end of intervention

Method of measurement

Using a inclinometer

4

Description

Postural sway

Timepoint

Before of start of intervention and end of intervention

Method of measurement

Using a force distribution measurement (FDM)

Intervention groups

1

Description

The intervention group 1 received a 12-week routine stretching and strengthening exercise program comprised of three 60-80-min sessions per week. The training program only included upper quarter exercises. Strengthening exercises targeted the periscapular muscles, thoracic spine extensor muscles, neck flexor muscles but not lumbopelvic muscles. Participants performed three sets of 10 repetitions of all strengthening exercises. The stretching portion of the intervention aimed at increasing the flexibility of the pectoralis muscles, cervical neck extensors and hamstring muscles. Each subject first warmed up with light aerobic activity and general stretching exercises for five minutes. After these exercises, participants cooled down with general stretching exercises and slow walking for five minutes.

Category

Other

2

Description

The intervention group 2 received a 12-week comprehensive stretching and strengthening exercise program comprised of three 60-80-min sessions per week. Strengthening exercises targeted the periscapular muscles, thoracic spine extensor muscles, neck flexor muscles and lumbopelvic muscles. Participants performed three sets of 10 repetitions of all strengthening exercises. The stretching portion of the intervention aimed at increasing the flexibility of the pectoralis muscles, cervical neck extensors and hamstring muscles. Each subject first warmed up with light aerobic activity and general stretching exercises for five minutes. After these exercises, participants cooled down with general stretching exercises and slow walking for five minutes.

Category

Other

3

Description

Control group: no revived intervention. Only to continue their daily activities.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Bu-Ali Sina University

Full name of responsible person

Dr ali yalfani

Street address

District 2, Mofateh Squaren, Hamedan, Hamadan Province

City

Hamadan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Investigator

Full name of responsible person

Aynollah Naderi

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Shahrood University of Technology, Shahroud, Semnan Province

City

Shahroud

Grant name

-

Grant code / Reference number

-

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

Yes

Title of funding source

Investigator

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Buali Sina University

Full name of responsible person

Dr Ali Yalfani

Position

Dean of the Faculty of Physical Education and Sport Sciences of Bu Ali Sina University/Associate

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty