Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

The effect of eight weeks comprehensive corrective exercises on alignment, postural control and movement patterns in men with sway back posture

Protocol summary

Study aim
The purpose of this study is to investigate The effect of eight weeks comprehensive corrective exercises on alignment, postural control and movement patterns in men with sway back posture.

Design
Interventional study, 40 subjects, control groups and an exercise group, not blinded, simple random sampling through lottery and in a blinded manner.

Settings and conduct
The place of initial screening and additional evaluation and corrective exercises that will be performed by the exercise group, will be at the corrective exercises center in Tehran's 12th district. posture and postural control and movement patterns for all 40 subjects will be done by the motion analysis device at the Sport Sciences Research Institute. (not blinded)

Participants/Inclusion and exclusion criteria
Inclusion criteria 1. Having sway angle greater than 10-degree exclusion criteria 2. Having a history of bone and joint diseases

Intervention groups
1.The exercise group will perform comprehensive corrective exercises program (designed to improve the condition of individuals with sway back posture) 2.The control group will continue their daily lives and no intervention will be made on this group

Main outcome variables
1. Posture 2. Postural control and movement patterns in the sagittal and frontal planes

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20231228060555N1**
Registration date: **2024-06-02, 1403/03/13**
Registration timing: **prospective**

Last update: **2024-06-02, 1403/03/13**
Update count: **0**

Registration date
2024-06-02, 1403/03/13

Registrant information

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Amir Salehi Saheb

Name of organization / entity
Tehran university

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2024-06-08, 1403/03/19

Expected recruitment end date
2024-08-25, 1403/06/04

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The effect of eight weeks comprehensive corrective exercises on alignment, postural control and movement patterns in men with sway back posture

Public title
The effect of comprehensive corrective exercises on sway back posture

Purpose
Supportive

Inclusion/Exclusion criteria

Inclusion criteria:
1. Having a greater than 10-degree range of motion and simultaneously a higher standard deviation of the kyphosis angle than the population average. 2. Having a forward tilt greater than or equal to 12 degrees in the pelvis. 3. Age range of 13 to 18 years (adolescent high school students). 4. Male gender. 5. Completion of an informed consent form by the student's guardian to participate in the study. 6. BMI range of 18 to 25. 7. Equal size of lower limbs in the leg length assessment using the Mégí method. 8. Having a normal angle in the head and neck bones relative to the thigh bones (anteversion and retroversion) in diagnosis using the Craig's test by Yodding and colleagues, which can lead to pathological changes or forced changes.

Exclusion criteria:
1. Participation in regular physical activity other than school sports activities. 2. Having a history of diseases that require special precautions, such as cardiovascular, respiratory, spinal stenosis, spondylolisthesis, epilepsy, severe anemia, metabolic and endocrine diseases such as diabetes and severe thyroid insufficiency based on parental questioning (self-disclosure). 3. Having a history of bone and joint problems and diseases such as rheumatoid arthritis and hip and spinal column diseases, previous fractures and surgeries in the spine, hips, shoulder girdle, and lower limbs based on parental questioning before entering the study (self-disclosure). 4. Having clear bone misalignments such as tibiovarum based on the examiner's observation. 5. Having High Arched foot and paranthetical knee abnormalities in the individual's posture, which may have been formed based on forced strategies rather than compensatory ones. For example, due to a change in the normal angle of the head and neck bone of the thigh compared to the condyles of the thigh. 6. Having scoliosis greater than 10 degrees in different parts of the spine in the forward bending test (Adam's test and measurement by scoliometer), which requires precautions beyond the exercise protocol of the present study.

Age
From **13 years** old to **18 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **40**

Randomization (investigator's opinion)
Randomized

Randomization description
Considering that we need two groups with equal volume of 20 idividual, we will use the limited randomization method. For this purpose, web randomization (random.org website) will be used. First, by using the list randomizer menu, the web program will assign a non-repeating integer number between 1 and 40 to each of the written names, and each individual in the research will be known by a number. Then, using the random sequence generator menu, two random columns of 20 random numbers including non-repeating integers between 1 and 40 will be generated. By using the list randomizer menu again, one of the two columns will be selected as the control group and the other column as the training group. All these operations will be done by a third person who is not involved in the research, and its content will remain hidden until after the pre-test is completed. By using the web tool, without human intervention to generate a random sequence and assign participants to the experimental group and the control group, as well as not informing the main researcher about the random sequence until after the pre-test, it can be ensured that the concealment of the random allocation It has also been done properly.

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features
The sway back posture is a very unfavorable situation in which most of the joints of the body are out of the ideal alignment, so it is difficult to manage such a position in which all the joints of the body are out of the correct biomechanical alignment. This condition is associated with back pain and neck pain, especially in adolescent boys, who may suffer from it at some point. The current research includes a comprehensive exercise protocol designed by the researcher based on the background of the research to improve the alignment of the whole body to measure its effect on the improvement of the physical condition of these adolescent boys with sway back posture (who are not currently in pain).

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Research Ethics Committee of Sport Sciences Research Institute

Street address
5th St, Mir emad St, Motahari Avn

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tehran

Province
Tehran

Postal code
1587958711

Approval date
2022-10-22, 1401/07/30
Ethics committee reference number
IR.SSRC.REC.1402.297

Health conditions studied

1

Description of health condition studied
sway back posture
ICD-10 code
ICD-10 code description
پوسچر پشت تابدار که موضوع مطالعه تحقیق پیش رو می باشد یک بیماری نیست ولی ممکن است در آینده موجب آسیب رساندن به بدن و بروز درد گردد. لذا در این تحقیق محقق قصد دارد اثر تمرینات اصلاحی جامع را که تمریناتی ورزشی می باشند بر بهبود این پوسچر بسنجد تا از بروز در

Primary outcomes

1

Description
posture (sway angle).
Timepoint
Once in the pre-test and once after doing eight weeks of corrective exercises in the post-test
Method of measurement
Using a 3D motion analysis device (10 motion analysis cameras from Analysis Motion company, Raptor E model) made in the United States, which is equipped with Cortex software for 3D analysis.

2

Description
2.postural control during bilateral arm elevation (Flexion of the arms)
Timepoint
Once in the pre-test and once after doing eight weeks of corrective exercises in the post-test
Method of measurement
Using a 3D motion analysis device (10 motion analysis cameras from Analysis Motion company, Raptor E model) made in the United States, which is equipped with Cortex software for 3D analysis.

3

Description
3.movement patterns during trunk lateral bending
Timepoint
Once in the pre-test and once after doing eight weeks of corrective exercises in the post-test
Method of measurement
Using a 3D motion analysis device (10 motion analysis cameras from Analysis Motion company, Raptor E model) made in the United States, which is equipped with Cortex software for 3D analysis.

Secondary outcomes

empty

Intervention groups

1

Description
The intervention group will include 20 subjects who will participate in the comprehensive corrective exercise program for eight weeks and three days a week. This will be include the following: a five-minute warm-up (in the form of low-to-moderate intensity running) at the beginning of the training and a five-minute cool-down in the form of low-to-moderate intensity running at the end of the training. The time of corrective exercises is between 40 and 60 minutes, including seven exercises (two stretching and five resistance exercises) with different levels. Exercise one: Form of exercise: lying supine on the back without bearing weight on the bed and foam roll, observing the principle of centrality and neutral position in all joints. Type of exercise: passive stretching of glenohumeral Joint extensors, especially latissimus dorsi and teres major, stretching of internal rotators, horizontal adductors and glenohumeral joint protractors according to past research suggestions. Exercise two: Form of the exercise: lying supine without bearing weight passively in four levels of the exercise and standing with weight bearing in two levels of the exercise actively, observing the principle of centrality and neutral position in all joints. Type of exercise: passive and active stretching of the iliopsoas and iliotibial band muscles, hamstrings, hip external rotators and ankle plantar flexor muscles, in order to restore the correct movement to the hip, knee and ankle joints based on theoretical foundations and past research. Exercise three: Form of exercise: lying supine without bearing weight. Type of exercise: resistance training to activate the deep muscles of the abdomen, pelvis and neck and practice correct breathing based on the suggestions of kolar and Chaitow. Exercise four. Forms of exercise: standing. in level A with minimum weight bearing and in level B of exercise with maximum challenge and weight bearing, observing the principle of centrality and neutral position in all joints. Type of exercise: resistance exercise that will be done to increase the level of neuromuscular tolerance, especially with more focus on the deep muscles of the abdomen, spine stabilizers and gluteus maximus and gluteus medius, which according to past research reports, these target muscles had great weakness. Exercise five: Form of exercise: prone lying on the ball with weight bearing. Type of exercise: this resistance exercise will be done to increase the level of neuromuscular endurance by increasing training challenges, improving proprioception and coordination of superficial and deep muscles. Exercise six: exercise Form: sitting on the steps. Type of exercise: resistance exercise that will be done to restore proper alignment to the back and lumbar region based on Brugger's cogwheel mechanism. Exercise seven: Standing squat. Type of exercise: resistance training to increase the level of neuromuscular tolerance by

increasing training challenges, improving proprioception and coordination of superficial and deep muscles, improving movement programs and improving the movement system. Due to the direct supervision of the examiner and the leveling of the exercises based on the difficulty and gradual progress and the non-illness of the subjects, the exercises are safe and it is expected that there will be no injury or harm to the individuals.

Category

Prevention

2

Description

The control group will include 20 subjects who will not participate in corrective exercises and will continue their daily routine during the eight weeks that the experimental group will perform corrective exercises.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

corrective exercise Center in Education, District 12 of Tehran

Full name of responsible person

Amir Salehi Saheb

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Sport Sciences Research Institute

Full name of responsible person

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Web page address

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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

Sport Sciences Research Institute

Proportion provided by this source

30

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

Contact

Name of organization / entity

University of Tehran

Full name of responsible person

Amir Salehi Saheb

Position

teacher

Latest degree

Master

Other areas of specialty/work

corrective exercise specialist

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Position

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Latest degree
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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
Yes - There is a plan to make this available
Data Dictionary
Yes - There is a plan to make this available
Title and more details about the data/document
All potential data will be shared after de-identifying individuals.
When the data will become available and for how long
24 months after the results are published
To whom data/document is available
Only for researchers working in academic institutions who send their request via email
Under which criteria data/document could be used
For use in future research and with the condition of referencing
From where data/document is obtainable
By sending an email to Amir Salehi via email address salehiiamirr@gmail.com
What processes are involved for a request to access data/document
The person must provide proof that he works in an academic institution. and explain in a precise and specific way what kind of research he will use these data for. Therefore, he should send his documents and request via email. Within a maximum of 3 months, the desired request will be reviewed and the desired documents will be sent to the researcher via email.
Comments