Clinical Trial Protocol
Iranian Registry of Clinical Trials

18 Nov 2026

Effect of eight weeks of square stepping training on fall risk factors in elderly men: a clinical trial study

Protocol summary

Study aim

The effect of performing eight weeks of square stepping exercises on the electrical activity of selected muscles and the risk of falling in elderly men.

Design

Clinical trial with control group,with parallel groups, double-blind,randomized, on 30 samples.It was used to randomize the sealed envelopes.

Settings and conduct

1.30 elderly people aged60-75 years were selected from the society according to the entry criteria and divided into two groups of15 people for square stepping exercises and control.2.Measurements related to the pre-test were carried out in Shahid Beheshti University laboratory.3.The exercise group performed the protocol of the square stepping exercise program for 8 weeks,3sessions a week and each session lasted 60 to70 minutes in the gym, and in parallel,the control group was asked to do any regular exercise and intervention during this period.refrained from sports and only engaged in daily activities,and in the last stage,measurements related to the post-test were performed and the results were reviewed and evaluated.

Participants/Inclusion and exclusion criteria

1. Elderly in the age range of 60 to 75 years; 2. Not being prohibited from medical activity (especially severe imbalance and dementia problems) under the supervision of a doctor; 3. Lack of regular sports activity in the last 6 months; 4. Not having a physical and cognitive prohibition to do exercises; 5. Completing the informed consent form and 6. Willingness to participate in research

Intervention groups

Two groups of15 people square stepping and control exercises.

Main outcome variables

Evaluation of the exercise program and its effects on the risk of falls in the elderly and the electrical activity of related muscles.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230124057206N1**
Registration date: **2024-03-04, 1402/12/14**
Registration timing: **registered_while_recruiting**

Last update: **2024-03-04, 1402/12/14**
Update count: **0**

Registration date

2024-03-04, 1402/12/14

Registrant information

Name

Mohammad javad Nezhadmohammadi

Name of organization / entity

Shahid beheshti un

Country

Iran (Islamic Republic of)

Phone

+98 21 1111 1111

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2024-01-06, 1402/10/16

Expected recruitment end date

2024-03-19, 1402/12/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title
Effect of eight weeks of square stepping training on fall risk factors in elderly men: a clinical trial study

Public title
The effect of 8-week implementation of a balance exercise program called square stepping on the risk factors of falling in elderly men

Purpose
Prevention

Inclusion/Exclusion criteria

Inclusion criteria:
Elderly in the age range of 60 to 75 years not prohibiting medical activity (especially severe imbalance and dementia problems) under the supervision of a doctor Lack of regular sports activity in the last 6 months Not having a physical and cognitive prohibition to do exercises Completing the informed consent form Willingness to participate in research

Exclusion criteria:

Age
From **60 years** old to **75 years** old

Gender
Male

Phase
N/A

Groups that have been masked

- Participant
- Care provider
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size
Target sample size: **30**

Randomization (investigator's opinion)
Randomized

Randomization description
The samples are selected by simple randomization method. In this randomization method, all the samples have an equal chance to be selected, for this purpose, the samples are placed in the list of the statistical population prepared for this purpose, and a number is assigned to each of them, then the numbers are written on pieces of paper. It is written and folded and placed in a container, then it is removed by a third party as grains and it repeats until we reach the desired number.

Blinding (investigator's opinion)
Double blinded

Blinding description
It is explained to the participants what program they are participating in and for what purpose, but how the results of this study will be reviewed and who the other research groups are and what program they may follow. It is not said to do. The clinical caregiver is the only clinical caregiver, there is no need to fully explain the conditions and the participants and the way of their intervention to him. The same goes for the rest of the roles.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
کارگروه اخلاق در پژوهش پژوهشگاه علوم ورزشی

Street address
No. 3, Fifth Alley, Mir Emad St, Shahid Motahari St,Tehran

City
tehran

Province
Tehran

Postal code
1587958711

Approval date
2023-12-20, 1402/09/29

Ethics committee reference number
IR.SSRC.REC.1402.278

Health conditions studied

1

Description of health condition studied
fall risk

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description
fall risk

Timepoint
Before and eight weeks after the intervention

Method of measurement
Biodex device fall risk test

2

Description
Electromyography of selected muscles

Timepoint
Before and eight weeks after the intervention

Method of measurement
Megawin brand electromyography device

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: square stepping exercise, this exercise program consists of walking on a pre-made grid of squares, which can be drawn either on the floor or on a portable thin mat. This grid is divided into 40 squares of 25x25, so the dimensions of the grid are 100x250. Stepping patterns are leveled in the exercise booklet. First, the pattern selected by the instructor is performed, then the participants perform the same algorithm to master. The participants must move from the beginning of the grid and according to the stepping pattern towards the end of the grid. Then, leaving the network, they would go back to the starting point from the right side of it and repeat the patterns.After people have mastered the training pattern, we ask them to raise their heels so that they do not touch the square lines. The pattern is repeated even individually. Then the next pattern is explained. In general, 196 training patterns have been designed based on the level of difficulty and progress in 8 categories (beginner 1 and 2, intermediate 1, 2 and 3 and advanced 1, 2 and 3). This training program lasts 8 weeks, three days a week and each session lasts 60 to 70 minutes. At the beginning of the exercise, about 15 minutes of warming up, then 40 minutes spent on exercise, and then about 15 minutes for cooling down are considered.

Category
Prevention

2

Description
Control group: performing daily activities in parallel, this group is asked to refrain from any regular exercise and sports intervention during this period of eight weeks and only engage in daily activities.

Category
N/A

Recruitment centers

1

Recruitment center

Name of recruitment center
vaght-e-zendegi center of Comprehensive services daily taking care of elderly

Full name of responsible person
zohreh ashouri

Street address
South Dibaji St., in front of Gerkani, the center of vaght-e-zendegi

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Province
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Phone
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Email
m.nezhadmohammadi@mail.sbu.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
shahid beheshty University

Full name of responsible person
seiiedeh mehri hamidi sangdehi

Street address
daneshjoo blvd, velenjak, tehran

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1983969411

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pr-office@sbu.ir

Grant name

Grant code / Reference number

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

Title of funding source
shahid beheshty University

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
shahid beheshty University

Full name of responsible person
mohammadjavad nezhadmohammadi

Position
student

Latest degree
Bachelor

Other areas of specialty/work
Sport Medicine

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Person responsible for scientific inquiries

Contact
Name of organization / entity
shahid beheshti university of tehran
Full name of responsible person
zareei mostafa
Position
Associate professor
Latest degree
Ph.D.
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Person responsible for updating data

Contact
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Full name of responsible person
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Latest degree
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Other areas of specialty/work
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m.nezhadmohammadi.sbu.ac@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not 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
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available
Title and more details about the data/document
The data file without the name and information of the person, the raw sample of the informed consent form, the clinical study report is given in the text of the thesis.
When the data will become available and for how long
After the defense of the thesis, up to six months after that
To whom data/document is available
All people
Under which criteria data/document could be used
Any tampering with the data and misuse and plagiarism of them without mentioning the source is not allowed.
From where data/document is obtainable
data bases
What processes are involved for a request to access data/document
serch on data bases
Comments