

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

A Comparison of the effects of balance, dual task and multisensory training programs on postural control and executive functions in elderly with balance impairments

Protocol summary

Summary

This is a prospective randomized double-blind controlled trial of the effects of three types of exercises on balance performance and executive function of elderly people. Inclusion criteria are age between 60 to 75 years; a score between 45 - 52 on the Berg Balance Scale and exclusion criteria are score lower than 8 on the Geriatric Depression Scale; score lower than 24 on the Mini-Mental State Examination. 45 Eligible elderly people are randomly assigned to receive one of the three exercise regimens. The three balance exercise regimens are as follows: (1) Postural Stability Exercises, (2) Multi Sensory Exercises, and (3) Dual-Task Exercises. The Postural Stability group will serve as controls and include balance training in seated, standing and moving task situations. The MSE is similar to PSE but with manipulation of sensory systems which contribute to balance control (i.e. somatosensory, visual and vestibular systems). For the Dual-Task exercises, participants require to perform postural and cognitive tasks simultaneously. After the initial assessment, the participants enroll in the exercise program according to their assigned treatment. The program consists of four-week training (three times per week), with each session lasting about one hour. The main outcome measure of this study is the score on Berg balance scale and postural sway (Force plate in 8 situation) for balance assessment, gait speed, reaction time and Executive function. The post-intervention assessments are conducted at the end of four-week program.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2014040817178N1**
Registration date: **2014-08-03, 1393/05/12**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2014-08-03, 1393/05/12

Registrant information

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Ahmadreza Nematollahi

Name of organization / entity

Shiraz University of Medical Sciences

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Recruitment status

Recruitment complete

Funding source

Shiraz University of Medical Sciences

Expected recruitment start date

2013-09-30, 1392/07/08

Expected recruitment end date

2014-07-31, 1393/05/09

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

A Comparison of the effects of balance, dual task and multisensory training programs on postural control and executive functions in elderly with balance impairments

Public title

Exercise Effect on Balance and Executive Function

Purpose

Supportive

Inclusion/Exclusion criteria

inclusion criteria: age between 60 to 75 years; a score between 45 - 52 (out of 56) on the Berg Balance Scale; ability to walk independently for 15 m; no significant auditory and visual impairments and receiving no balance training in the last three months. exclusion criteria: score lower than 8 (out of 15) on the Geriatric Depression Scale (GDS); score lower than 24 (out of 30) on the Mini-Mental State Examination (MMSE); 3 times falling during test; severe musculoskeletal, cardiovascular or neurologic condition.

Age

From **32 years** old to **17 years** old

Gender

Both

Phase

4

Groups that have been masked

No information

Sample size

Target sample size: **45**

Randomization (investigator's opinion)

Randomized

Randomization description**Blinding (investigator's opinion)**

Double blinded

Blinding description**Placebo**

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Shiraz University of Medical Sciences

Street address

Zand Avenue

City

Shiraz

Postal code**Approval date**

2013-10-08, 1392/07/16

Ethics committee reference number

92-6717

Health conditions studied**1****Description of health condition studied**

elderly

ICD-10 code

R54

ICD-10 code description

Senility:Incl.:Old age;Senescence without mention of Psychosis. Senile: Asthenia; Debility

Primary outcomes**1****Description**

Berg balance scale

Timepoint

before and after training

Method of measurement

physical therapist(by evaluation14 item balance test and scoring)

Secondary outcomes**1****Description**

fulletron advance balance test

Timepoint

before and after training

Method of measurement

physical therapist(by evaluation 10 item balance test and scoring)

2**Description**

gait speed

Timepoint

before and after training

Method of measurement

stopwatch

3**Description**

Reaction time

Timepoint

before and after training

Method of measurement

software

4**Description**

Executive function

Timepoint

before and after training

Method of measurement

software

5

Description

FESI,SF36

Timepoint

before and after training

Method of measurement

questanaire

6

Description

Postural sway measurement

Timepoint

before and after training

Method of measurement

Force plate

Intervention groups

1

Description

Control group: Balance training, like ball exercise(3 times per week for 4 week)

Category

Rehabilitation

2

Description

Multi Sensory Exercises: are similar to Balane Exercises but with manipulation of sensory systems which contribute to balance control (i.e. somatosensory, visual and vestibular systems) i.e. Sitting on a balance ball with closed eyes (manipulating visual input).

Category

Rehabilitation

3

Description

Dual-Task Exercises: postural and cognitive tasks perform simultaneously. For instance, participants had to add numbers or count backwards by 3 during narrow-base walking.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Shiraz Jahandidegan nursing homes

Full name of responsible person

Street address

Kholdbarin Park

City

shiraz

2

Recruitment center

Name of recruitment center

Shiraz School of Rehabilitation Sciences

Full name of responsible person

Nematollahi Ahmadreza ; Kamali Fahimeh

Street address

Abiverdi1 Avenue

City

Shiraz

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shiraz University of Medical Sciences

Full name of responsible person

Nematollahi Ahmadreza

Street address

Zand avenue

City

Shiraz

Grant name

Grant code / Reference number

92-6717

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

Yes

Title of funding source

Shiraz University of Medical Sciences

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

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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