Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 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 randomize 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 enrolle in the exercise program according to their assign treatment. The program consist 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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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
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shiraz

2

Recruitment center
Name of recruitment center
Shiraz School of Rehabilitation Sciences
Full name of responsible person
Nematollahi Ahmadreza ; Kamali Fahimeh
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Abiverdi1 Avenue
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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

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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