

# 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

###### Name

Ahmadreza Nematollahi

###### Name of organization / entity

Shiraz University of Medical Sciences

###### Country

Iran (Islamic Republic of)

###### Phone

+98 71162715512

###### Email address

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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**

Shiraz University of Medical Sciences

##### **Full name of responsible person**

Nematollahi Ahmadreza

##### **Position**

PhD student

##### **Other areas of specialty/work**

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## Person responsible for scientific inquiries

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## Person responsible for updating data

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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*