

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

17 Jun 2026

### Comparison of motor-cognitive dual task training and virtual reality based training effects on the anticipatory postural adjustments in older adults

#### Protocol summary

##### Summary

The main purpose of this study is to find which type of treatment (cognitive-motor intervention or virtual reality method) is more effective to improve the postural control of older adults. It is estimated 20 healthy older adults are sufficient for this study. The inclusion criteria for healthy older adults are the following: Age  $\geq$  65 years old, be free from any severe cardiopulmonary disease, neurological disorder, musculoskeletal impairment or any history of falls in the prior 6 months. Subjects are excluded from either group if had any dizziness, fatigue, vigorous physical activity or stress before testing. After baseline evaluation, subjects are randomly allocated to one of the two groups: (1) cognitive-motor dual-task training, (2) virtual reality based training. Cognitive-motor dual-task training is balance training while simultaneously engaging in a secondary cognitive task. Virtual reality based training is balance training in a virtual environment using programs of Wii fit. Participants in these groups are attended 12-16 sessions, 3 sessions per week, and 60 minutes per session. The outcome measurements take place at 3 time points: (1) before initiation of intervention (baseline), (2) after completion of training, (3) 8 weeks after completion of training. The outcome measurements are displacement and velocity of center of pressure, CNV peak amplitude, CNV peak time, amplitude of Late CNV, time to activity onset of muscles, and functional tests.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT2015052022341N2**

Registration date: **2015-05-26, 1394/03/05**

Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2015-05-26, 1394/03/05

##### Registrant information

###### Name

Roya Khanmohammadi

###### Name of organization / entity

Tehran University of Medical Sciences

###### Country

Iran (Islamic Republic of)

###### Phone

+98 21 7768 5088

###### Email address

rkhanmohammadi@razi.tums.ac.ir

##### Recruitment status

###### Recruitment complete

##### Funding source

Tehran University of Medical Sciences

##### Expected recruitment start date

2013-08-23, 1392/06/01

##### Expected recruitment end date

2015-05-26, 1394/03/05

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

Comparison of motor-cognitive dual task training and virtual reality based training effects on the anticipatory postural adjustments in older adults

##### Public title

Comparison of motor-cognitive dual task training and

virtual reality based training effects on the anticipatory postural adjustments in older adults

#### **Purpose**

Treatment

#### **Inclusion/Exclusion criteria**

Inclusion criteria: Age  $\geq$  65 years old; BBS score  $>40$ ; TUG score  $\leq 20$ ; ABC score  $\geq 50\%$ ; MMSE score  $\geq 24$ ; HADS- depress subscale score  $\leq 7$ ; Have no severe cardiopulmonary disease, neurological disorder, and musculoskeletal impairment; Have no history of falls in the prior 6 months. Exclusion criteria: had vigorous physical activity before testing; had dizziness, fatigue, and stress during testing

#### **Age**

From **65 years** old

#### **Gender**

Both

#### **Phase**

N/A

#### **Groups that have been masked**

*No information*

#### **Sample size**

Target sample size: **20**

#### **Randomization (investigator's opinion)**

Randomized

#### **Randomization description**

#### **Blinding (investigator's opinion)**

Single blinded

#### **Blinding description**

#### **Placebo**

Not used

#### **Assignment**

Parallel

#### **Other design features**

### **Secondary Ids**

empty

### **Ethics committees**

#### 1

##### **Ethics committee**

###### **Name of ethics committee**

Research Ethics Committee of Tehran University of Medical Sciences

###### **Street address**

Central Organization of Tehran University of Medical Sciences, Qods St., Keshavarz Blvd.

###### **City**

Tehran

###### **Postal code**

##### **Approval date**

2013-08-03, 1392/05/12

##### **Ethics committee reference number**

92-D-130-888

### **Health conditions studied**

#### 1

##### **Description of health condition studied**

elderly

##### **ICD-10 code**

R54, G31.1

##### **ICD-10 code description**

senility NOS, Senile degeneration of brain, not elsewhere classified

### **Primary outcomes**

#### 1

##### **Description**

Displacement of center of pressure

##### **Timepoint**

before training, after completion of training, 8 weeks after completion of training

##### **Method of measurement**

force plate

#### 2

##### **Description**

Velocity of center of pressure

##### **Timepoint**

before training, after completion of training, 8 weeks after completion of training

##### **Method of measurement**

force plate

#### 3

##### **Description**

CNV Peak amplitude

##### **Timepoint**

before training, after completion of training, 8 weeks after completion of training

##### **Method of measurement**

Micrommed

#### 4

##### **Description**

CNV Peak time

##### **Timepoint**

before training, after completion of training, 8 weeks after completion of training

##### **Method of measurement**

Micrommed

#### 5

##### **Description**

Time to activity onset of muscles

##### **Timepoint**

before training, after completion of training, 8 weeks after completion of training

##### **Method of measurement**

Biometrics DataLog

## 6

### **Description**

amplitude of Late CNV

### **Timepoint**

before training, after completion of training, 8 weeks  
after completion of training

### **Method of measurement**

Micrommed

## 7

### **Description**

BBC score

### **Timepoint**

before training, after completion of training, 8 weeks  
after completion of training

### **Method of measurement**

Questionnaire

## 8

### **Description**

TUG time

### **Timepoint**

before training, after completion of training, 8 weeks  
after completion of training

### **Method of measurement**

Timmer

## 9

### **Description**

ABC score

### **Timepoint**

before training, after completion of training, 8 weeks  
after completion of training

### **Method of measurement**

Questionnaire

## 10

### **Description**

TMT (A,B) score

### **Timepoint**

before training, after completion of training, 8 weeks  
after completion of training

### **Method of measurement**

Questionnaire and timmer

## **Secondary outcomes**

empty

## **Intervention groups**

## 1

### **Description**

Balance training in a virtual environment using programs of Wii fit. Participants in this group are attended 12-16 sessions, 3 sessions per week, and 60 minutes per session.

## **Category**

Behavior

## 2

### **Description**

Balance training while simultaneously engaging in a secondary cognitive task. Participants in this group are attended 12-16 sessions, 3 sessions per week, and 60 minutes per session.

## **Category**

Behavior

## **Recruitment centers**

## 1

### **Recruitment center**

#### **Name of recruitment center**

Rehabilitation Faculty

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

Roya Khanmohammadi

#### **Street address**

Tehran- Enghelab Street- Piche Shemiran-  
Rehabilitation Faculty- Physical Therapy Department

#### **City**

Tehran

## **Sponsors / Funding sources**

## 1

### **Sponsor**

#### **Name of organization / entity**

Tehran University of Medical Sciences Vice chancellor  
for research

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

Dr. Akbar Fotouhi (Research Deputy of Tehran  
University of Medical Sciences)

#### **Street address**

Central Organization of Tehran University of Medical  
Sciences, Qods St., Keshavarz Blvd.

#### **City**

Tehran

#### **Grant name**

#### **Grant code / Reference number**

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

Yes

#### **Title of funding source**

Tehran University of Medical Sciences Vice chancellor for  
research

#### **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**

Rehabilitation Faculty- Tehran University of Medical Sciences

**Full name of responsible person**

Roya Khanmohammadi

**Position**

Phd student

**Other areas of specialty/work****Street address**

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## Person responsible for updating data

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## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**

Rehabilitation Faculty- Tehran University of Medical Sciences

**Full name of responsible person**

Dr. Saeed Talebian

**Position**

Professor

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**City**

Tehran

**Postal code****Phone**

## 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