

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Effects of virtual reality training versus traditional balance training on balance and fall risk in people with multiple sclerosis

#### Protocol summary

##### Summary

The purpose of this double-blinded, randomized controlled trial study is to compare the effect of virtual reality training versus traditional balance training on balance and fall risk in people with multiple sclerosis. Inclusion criterias include: ability to stand and walk independently, maximum score of 53 on BBS, EDSS below 5/5 and MMSE more than 24. Persons are ineligible for the study if they have an exacerbation of symptoms due to relapse within 3 months of the baseline measurement and any musculoskeletal or neurological conditions except MS limiting balance or gait. Forty patients with MS will be assigned randomly in virtual reality training or traditional balance training (control) group. Participants will receive 45 minutes training session, 3 times per week for 6 weeks. The participants in the traditional balance training group will receive common balance activities while participants in virtual reality training group will practice balance activities using Kinect. Outcome measures for assessing Various aspects of balance and risk of fall are force plate, Timed Up and Go, 10 meter Walk gait speed, Berg Balance Scale, Activities Specific Balance Confidence and Fall Efficacy Scale International. All measures will be collected at baseline and at the end of training.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT2017110737286N1**  
Registration date: **2017-11-17, 1396/08/26**  
Registration timing: **prospective**

Last update:

Update count: **0**

##### Registration date

2017-11-17, 1396/08/26

#### Registrant information

##### Name

Farshad Molhemi

##### Name of organization / entity

Musculoskeletal Rehabilitation Research Center,  
Ahvaz Jundishapur University of Medical Sciences

##### Country

Iran (Islamic Republic of)

##### Phone

+98 61 3374 3101

##### Email address

molhemi.f@ajums.ac.ir

#### Recruitment status

##### Recruitment complete

#### Funding source

Ahvaz Jundishapur University of Medical Science

#### Expected recruitment start date

2017-12-06, 1396/09/15

#### Expected recruitment end date

2018-12-06, 1397/09/15

#### Actual recruitment start date

empty

#### Actual recruitment end date

empty

#### Trial completion date

empty

#### Scientific title

Effects of virtual reality training versus traditional balance training on balance and fall risk in people with multiple sclerosis

#### Public title

Effect of two types of exercises on balance performance in patients with multiple sclerosis

#### Purpose

Treatment

#### Inclusion/Exclusion criteria

Inclusion criteria: A definite diagnosis of MS, relapsing-remitting or secondary progressive types, as diagnosed

by a neurologist; Ability to stand independently; Ages between 18-64 years; Ability to walk independently; Maximum score of 53 on the Berg Balance Scale; MMSE more than 24; EDSS below 5/5 Exclusion criteria: Experiencing an exacerbation of symptoms due to relapse within 3 months of the baseline measurement; Any musculoskeletal or neurological conditions except MS limiting balance or gait; Uncorrected Auditory or visual impairment; Pregnancy; Involving in the other planned treatment; Using drugs which affecting balance or gait.

**Age**

From **18 years** old to **64 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **40**

**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**

Ahvaz Jundishapur University of Medical Science

**Street address**

Ground floor, Vice Chancellor for Research and Technology, Ahvaz Jundishapur University of Medical Science

**City**

Ahvaz

**Postal code**

6135715794

**Approval date**

2017-10-28, 1396/08/06

**Ethics committee reference number**

IR.AJUMS.REC.1396.558

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

Multiple Sclerosis

**ICD-10 code**

G35

**ICD-10 code description**

Multiple sclerosis

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

Static balance

**Timepoint**

Before and after intervention

**Method of measurement**

Force plate

**2****Description**

Dynamic balance

**Timepoint**

Before and after intervention

**Method of measurement**

Time Up and Go Test, 10 meter walk test

**3****Description**

Functional balance

**Timepoint**

Before and after intervention

**Method of measurement**

Berg balance scale

**4****Description**

Balance Confidence

**Timepoint**

Before and after intervention

**Method of measurement**

Activities Specific Balance Confidence

**5****Description**

Fear of falling

**Timepoint**

Before and after intervention

**Method of measurement**

Fall efficacy scale international

**Secondary outcomes**

empty

**Intervention groups**

## 1

### Description

Control group: Perform traditional Balance exercises; Participants received 45-minute individualized (1 trainer to 1 participant) training sessions, 3 times a week for 6 weeks.

### Category

Rehabilitation

## 2

### Description

Intervention group: Perform Balance exercises using Kinect; Participants received 45-minute individualized (1 trainer to 1 participant) training sessions, 3 times a week for 6 weeks.

### Category

Rehabilitation

## Recruitment centers

## 1

### Recruitment center

#### Name of recruitment center

Musculoskeletal Rehabilitation Research Center

#### Full name of responsible person

Zahra Najarzadeh

#### Street address

Musculoskeletal Rehabilitation Research Center,  
School of Rehabilitation Sciences, Ahvaz Jundishapur  
University of Medical Sciences,

#### City

Ahvaz

## Sponsors / Funding sources

## 1

### Sponsor

#### Name of organization / entity

Ahvaz Jundishapur University of Medical Science

#### Full name of responsible person

Dr. Mohamad Badvi

#### Street address

Ground floor, Vice Chancellor for Research and  
Technology, Ahvaz Jundishapur University of Medical  
Science

#### City

Ahvaz

### Grant name

### Grant code / Reference number

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

Yes

### Title of funding source

Ahvaz Jundishapur University of Medical Science

### 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

Musculoskeletal Rehabilitation Research Center,  
Ahvaz Jundishapur University of Medical Sciences, Ah

#### Full name of responsible person

Farshad Molhemi

#### Position

MSc Student of Physical Therapy

#### Other areas of specialty/work

#### Street address

Musculoskeletal Rehabilitation Research Center,  
School of Rehabilitation Sciences, Ahvaz Jundishapur  
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#### Postal code

#### Phone

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f.molhemi@yahoo.com

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## Person responsible for scientific inquiries

### Contact

#### Name of organization / entity

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Ahvaz Jundishapur University of Medical Sciences, Ah

#### Full name of responsible person

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#### Position

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## Person responsible for updating data

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**Full name of responsible person**

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**Position**

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

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University of Medical Sciences

**City**

Ahvaz

**Postal code****Phone**

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**Fax****Email****Web page address****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*