

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 Jul 2026

The Comparison of the effects of virtual-reality training and traditional balance training on the balance of the elderly: a randomized trial

Protocol summary

Study aim

This study aims to compare the effects of two programs of virtual reality training and traditional balance training on the balance of elderly people.

Design

The present study will be conducted on 36 elders (men and women) who are living in Nursing homes. Participants will be randomly divided into three groups: An intervention group (N=12) that performs virtual reality exercises (VR), another intervention group (N=12) that will receive traditional balance exercises, and a control group (N=12) that would receive no intervention.

Settings and conduct

Each group participated in a 60-minute session, 3 times per week, for 9 weeks. The control group did not receive any intervention. To assess the participants' balance, the balance tests were used on one leg stance (OLS) with open and closed eyes, Functional reach test (FRT), Timed up and go Test (TUG), and Fullerton Advance Balance Scale (FABS).

Participants/Inclusion and exclusion criteria

Inclusion criteria were as follows: 1) Receiving the consent of the elderly to participate in the study; 2) The age range between 60-75 years; 3) Able to stand independently for 90 seconds; 4) Not having a history of lower extremity fractures in the past two years. Participants with: 1) Impaired cognitive status (Mini-Mental State Examination score <24); 2) Serious visual or hearing impairment; or 3) Neurological diseases were excluded from the study.

Intervention groups

Intervention group one (virtual reality training),
Intervention group two (traditional balance training) and control group

Main outcome variables

Balance situation

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20181113041645N1**

Registration date: **2019-01-23, 1397/11/03**

Registration timing: **retrospective**

Last update: **2019-01-23, 1397/11/03**

Update count: **0**

Registration date

2019-01-23, 1397/11/03

Registrant information

Name

Saaed Yousefi Babadi

Name of organization / entity

The University of Guilan

Country

Iran (Islamic Republic of)

Phone

+98 38 3362 7153

Email address

saeed.yoosefi@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-04-09, 1397/01/20

Expected recruitment end date

2018-06-14, 1397/03/24

Actual recruitment start date

2018-04-09, 1397/01/20

Actual recruitment end date

2018-06-14, 1397/03/24

Trial completion date

2018-06-18, 1397/03/28

Scientific title

The Comparison of the effects of virtual-reality training and traditional balance training on the balance of the elderly: a randomized trial

Public title

Effects of virtual-reality training on balance

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Receiving the consent of the elderly to participate in the study
The age range between 60-75 years
Able to stand independently for 90 seconds
Not having a history of lower extremity fractures in the past two years

Exclusion criteria:

Impaired cognitive status (Mini-Mental State Examination score <24)
Serious visual or hearing impairment
Neurological diseases were excluded from the study

Age

From **60 years** old to **75 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **45**

Actual sample size reached: **36**

Randomization (investigator's opinion)

Not randomized

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethic's committee of Guilan University of Medical Sciences

Street address

Guilan_ Rasht _ Namjou Street _ Shahid Siyadati Street, opposite the 17th Shahrivar Hospital

City

Rasht

Province

Guilan

Postal code

41446-66949

Approval date

2018-05-16, 1397/02/26

Ethics committee reference number

IR.GUMS.REC.1397.349

Health conditions studied

1

Description of health condition studied

balance

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Balance is the ability to maintain the body's center of mass over its base of support.

Timepoint

One week before and after carrying out training interventions

Method of measurement

To assess the participants' balance, the balance tests were used on one leg stance (OLS) with open and closed eyes, Functional reach test (FRT), Timed up and go Test (TUG), and Fullerton Advance Balance Scale (FABS).

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: As an alternative to traditional balance training, balance exercises based on virtual reality (VR); that simulates an activity technology, has been proposed to advancement motor learning and transfer to factual world tasks. (Virtual Reality Training) performed training sessions using the Xbox Kinect, which includes Kinect and Console Sensors. The sensor was an infrared camera that diagnosed the position and movements of the player without the need for a specific controller and controlled the various games by the participant.

Category

Rehabilitation

2

Description

Intervention group: traditional balance training), includes training with the reduced Supporting surface, Close eyes, increase speed of movement, and adding proper movements.

Category

Rehabilitation

3

Description

Control group: during this period of the control group were asked to perform routine daily activities and not participate in specific exercises. So from the control group, in order, the effect of exercises and daily activities probabilistic on the participants' balance was used.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Golden years

Full name of responsible person

Mohammad Ali Alian

Street address

Rasht, Valiasr Blvd, Keshavarz alley, Plaque 46

City

Rasht

Province

Guilan

Postal code

4169685349

Phone

+98 13 3375 5832

Email

azitajfallah@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

University of Guilan

Full name of responsible person

Mansoureh Jahantab

Street address

Rasht, Persian Gulf Highway (5 km on Qazvin Road)

City

Rasht

Province

Guilan

Postal code

4199613776

Phone

+98 13 3369 0258

Email

saeed.yoosefi@gmail.com

Grant name

Grant code / Reference number

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

Yes

Title of funding source

University of Guilan

Proportion provided by this source

1

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Other

Person responsible for general inquiries

Contact

Name of organization / entity

University of Guilan

Full name of responsible person

Saeed Yousefi Babadi

Position

MSc Student in Sport Injuries & Corrective Exercises,
Faculty of Physical Education and Sport Scienc

Latest degree

Bachelor

Other areas of specialty/work

Geriatrics

Street address

Rasht, Persian Gulf Highway (5 km on Qazvin Road)

City

Rasht

Province

Guilan

Postal code

4199613776

Phone

+98 38 3362 7153

Email

saeed.yoosefi@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

Guilan University

Full name of responsible person

Saeed Yousefi Babadi

Position

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Email
saeed.yoosefi@gmail.com

Person responsible for updating data

Contact

Name of organization / entity
Guilan University
Full name of responsible person
Saeed Yousefi Babadi
Position
MSc Student in Sport Injuries & Corrective Exercises,
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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

The only part of the information, such as information on the main outcomes or the like, can be shared.

When the data will become available and for how long

Start the access period 6 month after the publication of the research results in a scientific journal

To whom data/document is available

Data will be available to all scientific researchers

Under which criteria data/document could be used

Only to help scientific research and with the written permission of the researcher can be used

From where data/document is obtainable

To receive data/document via email and phone, contact the researcher

What processes are involved for a request to access data/document

Data/document is provided by email to other investigators

Comments