Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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
Saaed 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

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Person responsible for updating data

Contact
Name of organization / entity
Guilan University
Full name of responsible person
Saeed Yousefi Babadi
Position
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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