

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Investigating and comparing the effect of therapeutic exercise using Nintendo Wii and conventional physiotherapy on the risk of falling in patients with stroke

Protocol summary

Study aim

Determining and comparing the effect of therapeutic exercise using Nintendo Wii and conventional physiotherapy treatment on the risk of falling in stroke patients

Design

A clinical trial with a control group, with parallel groups, double-blind and randomized, which is performed on 42 patients.

Settings and conduct

The intervention of the control group will be done in Kashani Hospital and the intervention of the test group will be done in Isfahan Faculty of Rehabilitation Sciences. The control group will receive conventional physiotherapy and the experimental group will receive conventional physiotherapy and Nintendo exercise for 12 sessions. The results are evaluated by an evaluator who is blind to the groups. The data analyst is also blind to each group.

Participants/Inclusion and exclusion criteria

Inclusion Criteria: - Age 40 to 80 years - Having a suitable cognitive state - The ability to maintain a standing position without the use of aids for 30 seconds
Exclusion Criteria: - Vision, hearing and vestibular disorders - Presence of other neurological disorders such as Parkinson's, neuropathy, epilepsy and seizures... - The presence of orthopedic disorders such as contracture, severe deformities, etc.

Intervention groups

Control and experimental groups: According to previous studies, conventional physical therapy includes range of motion and stretching exercises for the lower limbs, weight lifting on the affected side, and walking parallel to the front and back, which are performed for 30 minutes in each session. In addition to conventional treatment, the intervention group is treated with 30 minutes of Wii Fit game in the same session and after a 5-minute break.

All games are played while standing on the balance board of the device without the use of aids.

Main outcome variables

Assessments include fall risk and range of stability using a posturography device.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200101045970N9**

Registration date: **2024-05-25, 1403/03/05**

Registration timing: **registered_while_recruiting**

Last update: **2024-05-25, 1403/03/05**

Update count: **0**

Registration date

2024-05-25, 1403/03/05

Registrant information

Name

Ehsan Ghasemi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 31 3669 3089

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2024-04-20, 1403/02/01

Expected recruitment end date

2024-09-20, 1403/06/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Investigating and comparing the effect of therapeutic exercise using Nintendo Wii and conventional physiotherapy on the risk of falling in patients with stroke

Public title

Investigating the effect of Nintendo Wii game on the risk of falling in stroke patients

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Having a suitable cognitive status (MMSE<24) based on the Persian version of the Mini Mental Status Exam
Ability to maintain a standing position without the use of assistive devices for 30 seconds

Exclusion criteria:

Visual or hearing impairments
History of heart attack or high-risk disease
Presence of other neurological disorders such as Parkinson's, neuropathy, epilepsy and seizures
Presence of orthopedic disorders
The presence of severe pain in the lower limb based on the pain VAS scale between 75 and 100 mm
Taking drugs that affect balance function.
Participation in other physical therapy interventions

Age

From **18 years** old to **85 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **42**

Randomization (investigator's opinion)

Randomized

Randomization description

In this study, after checking the entry and exit criteria, patients are randomly divided into one of two test and control groups. In this study, after consultation with a statistician, it was decided to use the random block method. Using the website <https://www.sealedenvelope.com/simple-randomiser/v1/lits>, the statistician designed 21 blocks of 2 people, considering that we had 2 groups, using the resulting table and considering We have identified the test group with the letter A and the control group with the letter B. The patients are equally placed in each group according to the order in the table. A person who divides patients into two groups based on this table is unaware of the study.

Blinding (investigator's opinion)

Double blinded

Blinding description

Evaluation is done by a person who is unaware of the groups. The data analyst is also unaware of the groups.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

University of Isfahan medical Sciences

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Hezar Jrib

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8174673461

Approval date

2024-04-16, 1403/01/28

Ethics committee reference number

IR.MUI.NUREMA.REC.1403.010

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

stroke

ICD-10 code

G46

ICD-10 code description

Vascular syndromes of brain in cerebrovascular diseases

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

Range of stability

Timepoint

The evaluation of the participants in the study plan will be done before the start of the intervention, after the end of the physiotherapy program and after one month of the treatment program in the rehabilitation faculty of Isfahan University of Medical Sciences.

Method of measurement

Synapsys Posturography System is used.

2

Description

Fear of Falling

Timepoint

The evaluation of the participants in the study plan will be done before the start of the intervention, after the end of the physiotherapy program and after one month of the treatment program in the rehabilitation faculty of Isfahan University of Medical Sciences.

Method of measurement

Synapsys Posturography System is used.

Secondary outcomes

1

Description

Dynamic balance

Timepoint

The evaluation of the participants in the study plan will be done before the start of the intervention, after the end of the physiotherapy program and after one month of the treatment program in the rehabilitation faculty of Isfahan University of Medical Sciences.

Method of measurement

The Timed Up and Go (TUG) test is used to evaluate the dynamic balance.

2

Description

Quality of Life

Timepoint

The evaluation of the participants in the study plan will be done before the start of the intervention, after the end of the physiotherapy program and after one month of the treatment program in the rehabilitation faculty of Isfahan University of Medical Sciences.

Method of measurement

To evaluate the quality of life, the Stroke Specific Quality of Life Scale questionnaire will be used, the validity and reliability of the Persian version of which has already been proven.

Intervention groups

1

Description

Intervention group: Conventional physiotherapy, according to previous studies, includes range of motion and stretching exercises related to the lower limb, weight bearing on the involved side, and walking in parallel to the front and back, which are performed for 30 minutes in each session. In addition to conventional treatment, the intervention group is treated with 30 minutes of Wii Fit game in the same session and after a 5-minute break. All games are played while standing on the balance board of the device without the use of aids. The patient plays games under the supervision of a physiotherapist to increase safety. 5 types of games are

considered, three games are played in each session. In the first 6 sessions, 3 games of slalom skiing, rope walking and sliding penguin are performed, and in the next 6 sessions, table tilt and balance bubble games replace slalom skiing and walking on the rope. The patient rests for 5 minutes between each game.

Category

Rehabilitation

2

Description

Control group: Conventional physiotherapy, according to previous studies, includes range of motion and stretching exercises related to the lower limb, weight bearing on the involved side, and walking in parallel to the front and back, which are performed for 30 minutes in each session.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Kashani Hospital

Full name of responsible person

Dr. Iman Adibi

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2

Recruitment center

Name of recruitment center

Al-Zahra Hospital (S)

Full name of responsible person

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Esfahan University of Medical Sciences

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Dr. Gholamreza Askari

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Grant name

Grant code / Reference number

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

Yes

Title of funding source

Esfahan University of Medical Sciences

Proportion provided by this source
100

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
Academic

Person responsible for general inquiries

Contact

Name of organization / entity
Esfahan University of Medical Sciences

Full name of responsible person
Dr. Ehsan Ghasemi

Position
Assistant Professor

Latest degree
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Other areas of specialty/work
Physiotherapy

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

Because of confidentiality

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available