Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

Effectiveness of virtual rehabilitation versus therapeutic exercises in the balance training of lower limb among post-stroke patients

Protocol summary

Study aim
To check the effects of virtual rehabilitation versus therapeutic exercises in improving the balance of the lower limb of post-stroke patients.

Design
Randomized Control Trial

Settings and conduct
Physiotherapy Department of Abdullah Hospital Lalamusa

Participants/Inclusion and exclusion criteria
Inclusion Criteria: • Age: 35 – 55 years. • Potential participants with 3 months post-stroke lower limb movement difficulties. • Ability to stand up with or without assistive devices • Patients with stable vital signs Exclusion Criteria: • Subjects with severe hypertension. • Lower limb amputation. • Patients with a history of Deep venous thrombosis or Pulmonary embolism. • Auditory or visual dysfunction. • If the patient has severe receptive or expressive aphasia that affects the ability to communicate with or give consent. • Significant cognitive impairment such as the ability to follow two-level commands.

Intervention groups
Experimental group played video games using X-box and Kinect connected to the laptop. This group performed training for 35-40 minutes, 3 days/week for a total of 6 weeks times duration. The repetitions will increase according to the performance of the patient. Games were started from the basic level and the level was increased according to the patient's performance. The training was done under the supervision of a trained physiotherapist to avoid any hazards.

Main outcome variables
Balance

General information

Reason for update

Acronym

RCT

IRCT registration information
IRCT registration number: **IRCT20201021049094N2**
Registration date: **2022-12-10, 1401/09/19**
Registration timing: **retrospective**

Last update: **2022-12-10, 1401/09/19**
Update count: **0**

Registration date
2022-12-10, 1401/09/19

Registrant information

Name
Raheela Kousar
Name of organization / entity
The University of Lahore
Country
Pakistan
Phone
+92 53 3589155
Email address
raheelasaleem10@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2022-08-19, 1401/05/28

Expected recruitment end date
2022-10-26, 1401/08/04

Actual recruitment start date
2022-08-19, 1401/05/28

Actual recruitment end date
2022-10-25, 1401/08/03

Trial completion date
2022-12-06, 1401/09/15

Scientific title
Effectiveness of virtual rehabilitation versus therapeutic exercises in the balance training of lower limb among

post-stroke patients

Public title
Effectiveness of virtual rehabilitation versus therapeutic exercises in the balance training of lower limb among post-stroke patients
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Age: 35 – 55 years. Potential participants with 3 months post-stroke lower limb movement difficulties. Ability to stand up with or without assistive devices and patients with stable vital signs.
Exclusion criteria:
Exclusion Criteria: Subjects with severe hypertension. Patients with a history of Deep venous thrombosis or Pulmonary embolism Lower limb amputation Auditory or visual dysfunction If the patient has severe receptive or expressive aphasia that affects the ability to communicate with or give consent Significant cognitive impairment such as the ability to follow two-level commands
Age
From **35 years** old to **55 years** old
Gender
Both

Phase
N/A
Groups that have been masked

- Participant

Sample size
Target sample size: **30**
Actual sample size reached: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
Randomization by lottery method. Allocation concealment through a sealed envelope. In a bowl, we put closed slips of groups A and B. Participants fulfilling inclusion criteria randomly picked up groups and then allocated them through a sealed envelope.
Blinding (investigator's opinion)
Single blinded
Blinding description
Patient was not aware of the group treatment
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
University of Lahore, Gujrat Campus
Street address
University of Lahore, Gujrat campus near chenab river
City
Gujrat
Postal code
50700
Approval date
2022-08-18, 1401/05/27
Ethics committee reference number
REC/GRT/22/AHS-92

Health conditions studied

1

Description of health condition studied
Stroke: Stroke is a disease of the central nervous system produced by obstruction of the cerebral blood flow due to the occlusion (ischemic stroke) or rupture (hemorrhagic stroke) of a cerebral blood vessel. Afferent and efferent neural pathways are affected, and motor, sensitive and cognitive capabilities become impaired as a result of brain cortex injury. Motor and cognitive damage reduce their functional potential and independence.
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Balance
Timepoint
Before intervention, Mid intervention and After intervention
Method of measurement
Berg Balance Scale

Secondary outcomes

1

Description
Range of Motion
Timepoint
Before intervention, Mid intervention and after intervention
Method of measurement
Through Goniometer

Intervention groups

1

Description
Intervention group: They group played video games using X-box and Kinect connected to the laptop. This group performed training for 35-40 minutes, 3 days/week

for a total of 6 weeks times duration. The repetitions will increase according to the performance of the patient. Games were started from the basic level and the level was increased according to the patient's performance. The training was done under the supervision of a trained physiotherapist to avoid any hazards.

Category

Rehabilitation

2

Description

Control group: They performed balance exercises such as the tandem walk, heel stand, forward striding, side step, single leg stand, and double leg stand for 35-40 minutes, 3 days/week for a total of 6 weeks times duration. The exercises were done under the supervision of the Physiotherapist.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Abdullah Hospital Lalamusa

Full name of responsible person

Hana Pervaiz

Street address

Main Gt road Lalamusa near railway station.

City

Lalamusa

Postal code

50200

Phone

+92 304 0907209

Email

hanapervaiz7@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The University of Lahore

Full name of responsible person

Hana Pervaiz

Street address

Mohala kaira ward no.1 house no.B-115, Lalamusa Pakistan

City

Lalamusa

Postal code

50200

Phone

+92 304 0907209

Email

hanapervaiz7@gmail.com

Web page address

https://grt.uol.edu.pk/

Grant name

The University of Lahore

Grant code / Reference number

REG/GRT/22/AHS-92

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

No

Title of funding source

Self

Proportion provided by this source

100

Public or private sector

Private

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

The University of Lahore

Full name of responsible person

Hana Pervaiz

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

Street address

Mohala kaira ward no.1 house no.B-115, Lalamusa Pakistan

City

lalamusa

Province

punjab

Postal code

50200

Phone

+92 304 0907209

Email

hanapervaiz7@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity

The university of lahore

Full name of responsible person

hana pervaiz

Position

student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

Street address
Mohala kaira ward no.1 house no.B-115, Lalamusa
Pakistan

City
lalamusa

Province
punjab

Postal code
50200

Phone
+92 304 0907209

Email
hanapervaiz7@gmail.com

Web page address
https://grt.uol.edu.pk/

Person responsible for updating data

Contact

Name of organization / entity
the university of lahore

Full name of responsible person
hana pervaiz

Position
student

Latest degree
Bachelor

Other areas of specialty/work
Physiotherapy

Street address
Mohala kaira ward no.1 house no.B-115, Lalamusa
Pakistan

City
lalamusa

Province
punjab

Postal code
50200

Phone
+92 304 0907209

Email
hanapervaiz7@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Undecided - It is not yet known if there will be a plan to make this available

Study Protocol
Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan
Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report
Undecided - It is not yet known if there will be a plan to make this available

Analytic Code
Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available