

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

27 Jul 2026

### effects of virtual rehabilitation on upper extremity motor learning in hemiplegic cerebral palsy

#### Protocol summary

##### Study aim

To investigate the effects of virtual rehabilitation on upper extremity motor learning in patients with hemiplegic cerebral palsy

##### Design

A single blinded randomized controlled trial and Purposive sampling technique is used. The sample size was twenty five enrolled between May 2022 to July 2022

##### Settings and conduct

Patients were taken from Allied hospital Faisalabad and Madina teaching hospital Faisalabad. Group A patients received regular physiotherapy and virtual rehabilitation while Group B patients received physiotherapy sessions. Only the researcher knew which group received regular therapy and other received virtual therapy

##### Participants/Inclusion and exclusion criteria

- Patients between 5 to 10 years old
- Diagnosed as hemiplegic cerebral palsy Both genders will include
- Patients with visual impairments and auditory problem
- Patients with severe spasticity (Modified Ashworth spasticity score of 4) were excluded from the study
- patients with Psychological illness
- patients Suffered from uncontrolled seizures

##### Intervention groups

Patients in the intervention group will be given through regular physiotherapy as well as virtual rehabilitation. The UE VR training sessions will be 2 times each week for 8 weeks (2 months). For training, non-Immersion Microsoft Xbox Kinect will be used. In Intervention sessions each child will participate in a total of 16 sessions of 40 min each. In control group patients will underwent routine physiotherapy program. The protocol includes passive stretching and strengthening exercises. Each exercise will takes place for 20 minutes 10 repetitions, twice a week, for 8 weeks.

##### Main outcome variables

To improve the motor functions of upper extremity To improve range of motion to increase muscle strength and decrease limited activity To improve reaching ability and

grasping function

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20220616055192N1**

Registration date: **2022-09-11, 1401/06/20**

Registration timing: **retrospective**

Last update: **2022-09-11, 1401/06/20**

Update count: **0**

##### Registration date

2022-09-11, 1401/06/20

##### Registrant information

##### Name

Fizza Hussain

##### Name of organization / entity

The University of Faisalabad

##### Country

Pakistan

##### Phone

+92 41 8750971

##### Email address

mspp-fa20-007@tuf.edu.pk

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2022-05-01, 1401/02/11

##### Expected recruitment end date

2022-07-30, 1401/05/08

##### Actual recruitment start date

2022-05-01, 1401/02/11

##### Actual recruitment end date

2022-07-30, 1401/05/08

**Trial completion date**

2022-08-01, 1401/05/10

**Scientific title**

effects of virtual rehabilitation on upper extremity motor learning in hemiplegic cerebral palsy

**Public title**

effects of virtual rehabilitation on upper extremity motor learning in hemiplegic cerebral palsy

**Purpose**

Treatment

**Inclusion/Exclusion criteria****Inclusion criteria:**

Patients between 5 to 10 years old Diagnosed as hemiplegic cerebral palsy Both genders will include Being able to cooperate and being motivated will include in the study Patients who are able to understand and clearly follow verbal instructions and command that include in training and evaluation. Patients with Gross Motor Function Classification Scale level 1, 2 and 3 will include

**Exclusion criteria:**

Patients with visual impairments and auditory problem Patients with severe spasticity (Modified Ashworth spasticity score of 4) excluded from the study Patients with Psychological illness Participants Suffered from uncontrolled seizures Patients injected with Botulinum toxin injections within past three months were excluded Patients having prior surgery for spasticity within past 3 months were excluded from study

**Age**

From **5 years** old to **10 years** old

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

- Participant

**Sample size**

Target sample size: **25**

Actual sample size reached: **25**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

The method used for randomization was simple randomization. The randomization unit was done on an individual basis. A computer software randomized tool is used.

**Blinding (investigator's opinion)**

Single blinded

**Blinding description**

the participants will be unaware in which group they will be allocated after meeting the inclusion criteria an informed consent will be taken from them by physiotherapist.

**Placebo**

Not used

**Assignment**

Other

**Other design features****Secondary Ids**

empty

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

Ethics Committee of The University of Faisalabad

**Street address**

4-km, Sargodha road, University Town, Faisalabad, Pakistan

**City**

Faisalabad

**Postal code**

38000

**Approval date**

2022-04-07, 1401/01/18

**Ethics committee reference number**

TUF/DR/MSPP/332

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

Cerebral palsy is a prevalent neurodevelopmental disorder that ranging from 1.5 to 2.5/1000 births beginning in the early childhood and continues throughout life. It causing the non-progressive disturbance of motor function that influences posture and movement, motor coordination with secondary complications of contractures and bone deformity. These alternations leading to hindrance in independent performance of daily activities

**ICD-10 code**

G80.9

**ICD-10 code description**

Cerebral palsy, unspecified

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

spasticity and impaired range of motion in the upper extremity

**Timepoint**

motor function will be measured at start of treatment sessions and after eight weeks after treatment sessions finished

**Method of measurement**

modified ashworth scale will use

**2****Description**

motor dysfunction in the upper limb

**Timepoint**

motor function will be measured at start of treatment

sessions and after eight weeks after treatment sessions finished

#### Method of measurement

ABILHAND - KIDS and PMAL scale will use

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Intervention group Patients in this group will be given through regular physiotherapy as well as virtual rehabilitation. The Upper extremity Virtual Rehabilitation training sessions will be two times each week for eight weeks (2 months). For training, non-Immersion Microsoft Xbox Kinect will be used. The Xbox-Kinect display place used an infrared camera to detect handlers' physical motions in 3-D space for interactive activities inside the game, eliminating the requirement for the user to carry an interface device. In Intervention sessions each child will participate in a total of sixteen sessions of forty minute each.

#### Category

Rehabilitation

### 2

#### Description

Control group: In this group patients will underwent routine physiotherapy program. The protocol includes passive stretching and strengthening exercises. On the affected side, the therapist will use resistance to strengthen the muscles. Each exercise will takes place for 20 minutes 10 repetitions, twice a week, for 8 weeks

#### Category

Rehabilitation

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Madina Teaching Hospital

##### Full name of responsible person

Brig. Dr. Munir Ahmad

##### Street address

Sargodha Road, University Town, Faisalabad, Pakistan  
Faisalabad

##### City

Faisalabad

##### Postal code

38000

##### Phone

+92 41 8869861

##### Email

info@mth.org.pk

### 2

#### Recruitment center

##### Name of recruitment center

Allied Hospital Faisalabad

##### Full name of responsible person

Rashid Maqbool

##### Street address

Jail Road Adjacent Faisalabad Medical University, near  
Sargodha road Faisalabad, Pakistan

##### City

Faisalabad

##### Postal code

38000

##### Phone

+92 41 9210082

##### Email

info@pmc.edu.pk

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

The university of Faisalabad

##### Full name of responsible person

Dr. M. KHALEEQ-UR-RAHMAN

##### Street address

4 km, Sargodha Road, University Town, Faisalabad,  
Pakistan

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Faisalabad

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##### Phone

+92 41 87509715

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rector@tuf.edu.pk

#### Grant name

#### Grant code / Reference number

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

Yes

#### Title of funding source

The university of Faisalabad

#### 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

Academic

## Person responsible for general inquiries

#### Contact

##### Name of organization / entity

The University of Faisalabad  
**Full name of responsible person**  
Dr. Sidra Majeed  
**Position**  
Associate Professor  
**Latest degree**  
Master  
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Physiotherapy  
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4 km, Sargodha Road, University Town, Faisalabad,  
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## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**  
The University of Faisalabad  
**Full name of responsible person**  
Fizza Hussain  
**Position**  
Student  
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Master  
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drfizzahussain206@gmail.com

## Person responsible for updating data

### Contact

**Name of organization / entity**  
The University of Faisalabad  
**Full name of responsible person**  
Fizza Hussain

**Position**  
Student  
**Latest degree**  
Master  
**Other areas of specialty/work**  
Physiotherapy  
**Street address**  
83 /A Millat Colony No.2 D type colony Faisalabad  
**City**  
Faisalabad  
**Province**  
Punjab  
**Postal code**  
38080  
**Phone**  
+92 304 1676206  
**Email**  
drfizzahussain206@gmail.com

## 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

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

### Title and more details about the data/document

All collected deidentified participant data set for the outcome measures

### When the data will become available and for how long

4 months after publication

### To whom data/document is available

people working in the academic institutions

### Under which criteria data/document could be used

IPD and any additional supporting documents will be provided for research on similar topic and can be obtained by asking through contact person

### From where data/document is obtainable

contact person: Fizza Hussain Mobile No. 923041676206  
email address : drfizzahussain206@gmail.com

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

Data files will be provided after talking to contact person mentioned above

### Comments