

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Effects of mobile application dexterity fine motor skills on hand dexterity and grip strength in chronic stroke patients

#### Protocol summary

##### Study aim

To determine the effects of mobile application, dexterity fine motor skills on hand dexterity and grip strength in chronic stroke patients.

##### Design

Randomized controlled trial

##### Settings and conduct

• Jinnah Hospital Lahore(JHL) • Ittefaq trust hospital Lahore

##### Participants/Inclusion and exclusion criteria

Inclusion criteria Age: 40 to 60 years both male and female • Six months to 2 years post stroke • Participants must be able to open and close their fingers (even only 2 cm of movement) • Before stroke there must be fully functional hand • Normal or intact vision where as exclusion criteria is • Neurological disorders other than stroke for example multiple sclerosis or Parkinson disease. • Upper extremities acute orthopedic conditions. • Any cardiopulmonary complications • Medically unstable patients.

##### Intervention groups

Conventional hand therapy group: The control group received conventional hand function rehabilitation therapy including, strengthening exercises which consist of palm down wrist flexion exercise, dexterity( shifting exercise) and fine motor skills(nine peg hole exercise) this protocol is given for 30-60 minutes session with 10 minutes of rest duration, 3 times per week for one month. Dexterity App therapy Group: The experimental group received an additional mobile application therapy including , dexterity fine motor skills, bowling game, scribble game and peglight game in addition to the conventional therapy for hand function. This protocol is given for 30-60 minutes session with 10 minutes of rest duration, 3 times per week for one month.

##### Main outcome variables

• The Nine Hole Peg Test (NHPT) • Fugl-Meyer Motor assessment (FMA) • The Box & Block Test (BBT) • hand dynamometer

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20221104056391N1**

Registration date: **2022-11-29, 1401/09/08**

Registration timing: **registered\_while\_recruiting**

Last update: **2022-11-29, 1401/09/08**

Update count: **0**

##### Registration date

2022-11-29, 1401/09/08

##### Registrant information

##### Name

Maida Mushtaq

##### Name of organization / entity

University of management and technology Lahore  
Pakistan

##### Country

Pakistan

##### Phone

+92 306 4738063

##### Email address

maida.mushtaq@umt.edu.pk

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2021-12-02, 1400/09/11

##### Expected recruitment end date

2022-06-06, 1401/03/16

##### Actual recruitment start date

2022-08-02, 1401/05/11

##### Actual recruitment end date

2023-01-02, 1401/10/12

##### Trial completion date

2023-01-02, 1401/10/12

## Scientific title

Effects of mobile application dexterity fine motor skills on hand dexterity and grip strength in chronic stroke patients

## Public title

Effects of mobile application dexterity fine motor skills on hand dexterity and grip strength in chronic stroke patients

## Purpose

Treatment

## Inclusion/Exclusion criteria

### Inclusion criteria:

Age: 40 to 60 years both male and female Six months to 2 years post stroke Participants must be able to open and close their fingers (even only 2 cm of movement) Before stroke there must be fully functional hand Normal or intact vision

### Exclusion criteria:

Neurological disorders other than stroke for example multiple sclerosis or Parkinson disease. Upper extremities acute orthopedic conditions Any cardiopulmonary complications Medically unstable patients

## Age

From **40 years** old to **60 years** old

## Gender

Both

## Phase

N/A

## Groups that have been masked

- Participant

## Sample size

Target sample size: **22**

Actual sample size reached: **22**

## Randomization (investigator's opinion)

Randomized

## Randomization description

Allocation of patients in both groups will be done through simple random sampling and via lottery method

## Blinding (investigator's opinion)

Single blinded

## Blinding description

This study is single blinded and participants will not be aware of the group allocation.

## Placebo

Not used

## Assignment

Other

## Other design features

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

Name of ethics committee

Research and ethics committee

#### Street address

Raiwind road lahore

#### City

Lahore

#### Postal code

55150

#### Approval date

2021-12-29, 1400/10/08

#### Ethics committee reference number

REC/RCR&AHS/21/0255

## Health conditions studied

### 1

#### Description of health condition studied

STROKE PATIENTS WITH UPPER LIMB IMPAIRMENT OF FINE MOTOR SKILLS AND DEXTERITY

#### ICD-10 code

#### ICD-10 code description

## Primary outcomes

### 1

#### Description

FINE MOTOR SKILLS AND DEXTERITY

#### Timepoint

4 WEEKS AFTER INTERVENTION

#### Method of measurement

FUGL MEYER ASSESMENT SCALE, BOX AND BLOCK TEST, NINE PEGHOLE TEST

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Intervention group: This group received an additional mobile application therapy including , dexterity fine motor skills, bowling game, scribble game and peglight game in addition to the conventional therapy for hand function. This protocol is given for 30-60 minutes session with 10 minutes of rest duration, 3 times per week for one month. All the activities were performed in sitting position After four weeks outcome is documented via specified tools including FMA, NHPT, BBT, and grip strength (through dynamometer)

#### Category

Rehabilitation

### 2

#### Description

Control group: The control group received conventional hand function rehabilitation therapy including, strengthening exercises which consist of palm down

wrist flexion exercise, dexterity( shifting exercise) and fine motor skills(nine peg hole exercise) this protocol is given for 30-60 minutes session with 10 minutes of rest duration, 3 times per week for one month. All the activities were performed in sitting position After four weeks outcome was documented via specified tools including FMA, NHPT, BBT, and grip strength (through dynamometer)

**Category**

Rehabilitation

**Recruitment centers**

1

**Recruitment center**

**Name of recruitment center**

JINNAH HOSPITAL LAHORE

**Full name of responsible person**

MAIDA MUSHTAQ

**Street address**

raiwind road lahore

**City**

lahore

**Postal code**

55150

**Phone**

+92 306 4738063

**Email**

maida.mushtaq@umt.edu.pk

**Sponsors / Funding sources**

1

**Sponsor**

**Name of organization / entity**

University of management and technology lahore

**Full name of responsible person**

Maida Mushtaq

**Street address**

Raiwind road lahore

**City**

Lahore

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**Email**

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**Grant name**

**Grant code / Reference number**

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

No

**Title of funding source**

Abc

**Proportion provided by this source**

1

**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**

University of management and technology lahore

**Full name of responsible person**

Maida Mushtaq

**Position**

Demonstrator

**Latest degree**

Master

**Other areas of specialty/work**

Rehabilitation management

**Street address**

Raiwind road lahore

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Punjab

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**Phone**

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**Email**

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**Person responsible for scientific inquiries**

**Contact**

**Name of organization / entity**

University of management and technology lahore

**Full name of responsible person**

Maida Mushtaq

**Position**

Demonstrator

**Latest degree**

Master

**Other areas of specialty/work**

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## Person responsible for updating data

### Contact

**Name of organization / entity**

University of management and technology lahore

**Full name of responsible person**

Maida Mushtaq

**Position**

Demonstrator

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

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**Postal code**

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**Email**

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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**

due to confidentiality

**Study Protocol**

Yes - There is 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**

Yes - There is a plan to make this available

**Clinical Study Report**

Yes - There is 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

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

effects of mobile application dexterity fine motor skills on hand dexterity and grip strength in chronic stroke patients

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

1/1/2023

**To whom data/document is available**

only academics

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

only academics

**From where data/document is obtainable**

maida.mushtaq@umt.edu.pk

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

google drive request

**Comments**