

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 Jul 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

Postal code

55150

Phone

+92 306 4738063

Email

Maida.mushtaq@umt.edu.pk

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

City

Lahore

Province

Punjab

Postal code

55150

Phone

+92 306 4738063

Email

Maida.mushtaq@umt.edu.pk

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

Rehabilitation management

Street address

Raiwind road lahore

City

Lahore

Province

Punjab

Postal code

55150

Phone

+92 306 4738063

Email

Maida.mushtaq@umt.edu.pk

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

Street address

Raiwind road lahore

City

Lahore

Province

Punjab

Postal code

55150

Phone

+92 306 4738063

Email

Maida.mushtaq@umt.edu.pk

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