

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### Effects of Proprioceptive Neuromuscular Facilitation Technique on Scapular Dyskinesia in Patients with Subacute Stroke

#### Protocol summary

##### Study aim

To see the effects of PNF Hold Relax technique on scapular dyskinesia in patients with subacute stroke and to compare the effects of D1 and D2 flexion patterns of proprioceptive neuromuscular facilitation on pain, range of motion, disability and scapular asymmetry in patients with subacute stroke

##### Design

Randomized Clinical Design was used. Both group taking same conservative treatment, with patterns of movement was changed in both groups. As "D1 flexion pattern" to one group and "D2 flexion pattern" to other group. Using "chit and draw" method as patient came according to chit treatment given to patient. Total 43 patient taking treatment, in which group A had 22 patient and group B had 21 patient.

##### Settings and conduct

Ibn-e-Siena Hospital & Research Institute, Multan.

##### Participants/Inclusion and exclusion criteria

Both male and female genders; age range between 40-60 years; stage of stroke attack with onset at least 5 months; patients developing unilateral scapular dyskinesia due to stroke assessed by lateral scapular slide test with type 1 scapular dyskinesia prominent infero-medial border of scapula. Exclusion criteria: patients with neurological deficit of the upper extremity; patients with any surgery of the upper extremity, active infections, hypermobility, calcification of the soft tissues, fragile skin patients with musculoskeletal injuries as upper limb fractures, dislocation, joint instability or any soft tissue injuries on affected side; other illnesses such supraspinatus, bicep tendinitis, fibromyalgia, frozen shoulder and arthritis that produced discomfort in the upper extremities; severe depression or other post-stroke symptoms.

##### Intervention groups

There were two groups, Intervention group 1 was named D1 flexion group and Intervention group 2 named D2 flexion group.

#### Main outcome variables

Shoulder ROM, Visual analogue scale; disability index

#### General information

##### Reason for update

Trail completed

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20230706058687N1**

Registration date: **2023-10-10, 1402/07/18**

Registration timing: **prospective**

Last update: **2023-12-05, 1402/09/14**

Update count: **6**

##### Registration date

2023-10-10, 1402/07/18

##### Registrant information

###### Name

Rafia Abdul Rehman

###### Name of organization / entity

The university of Faisalabad

###### Country

Pakistan

###### Phone

+92 307 7136100

###### Email address

2021-ms-pt-031@tuf.edu.pk

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2023-09-19, 1402/06/28

##### Expected recruitment end date

2023-10-19, 1402/07/27

##### Actual recruitment start date

2023-10-11, 1402/07/19

**Actual recruitment end date**

2023-11-30, 1402/09/09

**Trial completion date**

2023-11-30, 1402/09/09

**Scientific title**

Effects of Proprioceptive Neuromuscular Facilitation Technique on Scapular Dyskinesia in Patients with Subacute Stroke

**Public title**

Effects of Proprioceptive Neuromuscular Facilitation Technique on Scapular Dyskinesia in Patients with Subacute Stroke

**Purpose**

Education/Guidance

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

Patients developing unilateral scapular dyskinesia due to stroke assessed by lateral scapular slide test Type 1 scapular dyskinesia prominent infero-medial border of scapula The 40-60 years of age, included both Male and Female Stroke with onset at least 05 months

**Exclusion criteria:**

Neurological deficit of the upper extremity Any surgery of upper extremity Active Infections, Hyper mobility, Calcification of the soft tissues, fragile skin Other illnesses such supraspinatus, bicep tendinitis, fibromyalgia, frozen shoulder and arthritis that produced discomfort in the upper extremities, etc Severe depression or other post-stroke symptoms, etc

**Age**

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

**Gender**

Both

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **46**

Actual sample size reached: **43**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

Consecutive allocation through lottery method a number of chits was first placed in a container. In this course chits were drawn randomly out of the container and according to chit subject was allocated to that group and treated.

**Blinding (investigator's opinion)**

Not blinded

**Blinding description****Placebo**

Not used

**Assignment**

Parallel

**Other design features**

Purposive Sampling Technique

**Secondary Ids**

empty

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

Ethics Committee of the University of Faisalabad

**Street address**

No.P-11,Zeenat Block;Muslim Town1; Faisalabad, Pakistan

**City**

Faisalabad

**Postal code**

14496-14535

**Approval date**

2023-03-24, 1402/01/04

**Ethics committee reference number**

TUF/DR/SA/MSPP/2023/250

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

Sub-acute stage of stroke ( 3weeks to 6months)

**ICD-10 code**

I60-I69

**ICD-10 code description**

Cerebrovascular diseases

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

Visual Analogous Scale (VAS) was used instrument for assessing the characteristics of pain that a patient is experiencing

**Timepoint**

1, 2, 4 week

**Method of measurement**

This is gold stander test having 0-10 measurement for mild, moderate, severe pain

**2****Description**

The patients shoulder's range of motion were measured

**Timepoint**

1, 2, 4 week

**Method of measurement**

Flexion, Extension, Abduction, Internal Rotation, and External Rotation measured by using goniometer

**Secondary outcomes**

## 1

### Description

Shoulder Pain and Disability evaluates pain as well as the other upper extremity functional activities shoulder pain and disability index had high reliability and validity values

### Timepoint

1, 2, 4 week

### Method of measurement

Shoulder Pain and Disability Index was measured it

## Intervention groups

## 1

### Description

Patients of group 1 after the baseline treatment were receiving scapular hold-relax technique applied in upper limb D1 flexion pattern. The antagonistic pattern in Diagonal 1 is flexion-adduction-external rotation that included 2 sets of 20 repetitions were performed with a 20 second rest period between the sets. Patient was lie on unaffected side while therapist was stand in line of desired motion. First therapist was give preparatory instructions to patients. In this exercise, the therapist's proximal hand grasps the patient's upper arm on the anteromedial surface, exerting resistance in the opposite direction of the movement. Simultaneously, the distal hand holds the patient's hand with the fingers positioned on the ulnar side and the thumb on the radial side, allowing the patient's wrist to flex towards the radial side. This particular hand positioning technique was referred to as the lumbrical grip. The total time for baseline treatment and D1 flexion exercise was at least 50 minutes.

### Category

Rehabilitation

## 2

### Description

Patients of group 2 after the baseline treatment were receiving scapular hold-relax technique applied in upper limb D2 flexion pattern. The antagonistic pattern in Diagonal 2 is flexion abduction-external rotation that included 2 sets of 20 repetitions was performed with 20 second rest period between sets. Patient was lie on unaffected side as therapist makes desired motion while standing in line. First therapist was give preparatory instructions to patients. The patient's hand's dorsal-radial surface held in the therapist's distal hand. In order to provide pressure in the opposite direction of movement, the proximal hand grasps the anterior-lateral surface of the upper arm from below. The total time for baseline treatment and D2 flexion exercise was at least 50 minutes.

### Category

Rehabilitation

## Recruitment centers

## 1

### Recruitment center

#### Name of recruitment center

Ibn-e-Siena Hospital & Research Institute, Multan

#### Full name of responsible person

Prof.Dr.Sajid Rashid, PT

#### Street address

6HC8+P2H, Northern Bypass, Block A Model Town, Multan, Punjab

#### City

Multan

#### Postal code

60650

#### Phone

+92 300 6309825

#### Fax

+92 61 6782872

#### Email

sajid.rashid@mcpm.edu.pk

## Sponsors / Funding sources

## 1

### Sponsor

#### Name of organization / entity

The University of Faisalabad

#### Full name of responsible person

Rafia Abdul Rehman

#### Street address

Chungi No #6 Itfaq Colony Rajpoot Street House No16 Boasan Road Multan

#### City

Multan

#### Postal code

60700

#### Phone

+92 307 7136100

#### Email

rafiarehman096@gmail.com

#### Grant name

No

#### Grant code / Reference number

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

No

#### Title of funding source

Self funding

#### 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 Faisalabad

**Full name of responsible person**

Rafia Abdul Rehman

**Position**

Student

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

**Street address**

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Boasan Road Multan

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**Province**

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## Person responsible for scientific inquiries

### Contact

**Name of organization / entity**

Multan College of Physiotherapy, Multan

**Full name of responsible person**

Prof. Dr. Sajid Rashid, PT

**Position**

Physiotherapist

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Physiotherapy

**Street address**

6HC8+P2H, Northern Bypass, Block A Model Town,  
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sajid.rashid@mcpm.edu.pk

## Person responsible for updating data

### Contact

**Name of organization / entity**

The University of Faisalabad

**Full name of responsible person**

Rafia Abdul Rehman

**Position**

Student

**Latest degree**

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**Other areas of specialty/work**

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+92 307 7136100

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rafiarehman096@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**

Yes - There is a plan to make this available

**Analytic Code**

Yes - There is a plan to make this available

**Data Dictionary**

Yes - There is a plan to make this available

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

Effects of Proprioceptive Neuromuscular Facilitation  
Technique on Scapular Dyskinesia in Patients with  
Subacute Stroke

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

Data will be available for other people almost 6 months  
after the completion of study

**To whom data/document is available**

Data will be available for other people almost 6 months  
after the completion of study

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

The data/document could be used by communicating  
with the principle investigator Rafia Abdul Rehman; email  
rafiarehman096@gmail.com

**From where data/document is obtainable**

Rafia Abdul Rehman; Gmail rafiarehman096@gmail.com

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

The data/document could be used by communicating  
with the principle investigator Rafia Abdul Rehman;  
Gmail rafiarehman096@gmail.com

**Comments**

NO