Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

The Effects of Functional Stretching Exercises on the Neural and Mechanical properties of the Spastic Medial Gastrocnemius Muscle in Different Periods in stroke patients.

Protocol summary

Summary

Aim: Investigating the effects of functional stretching exercises on the neural and mechanical properties of the spastic medial gastrocnemius muscle in different periods in stroke patients. Major eligibility criteria: Unilateral brain stroke; Excistance of spasticity in ankle; Ability to walk with or without assistive device; Good cognitive status; Good general health status; Good range of movement in ankle joint; Lack of pain in ankle; Not attending in any sport activities or physiotherapy; Not taking any spasmolitic medicine; No existance of any other neurological disease such as parkinson. Participants: Patients with brain stroke in 2015 that have been admitted as outpatient in physiotherapy clinics. Sample size: Forty patients that will be assigned to two interventional group according to the period of less than 12 nd above 12 months passed from their brain accident. Twenty patients inluding mixed number of patients with less and above 12 months from their brain accident will also be recruited as control group. Intervention: Functional stretching will be applied to both intervention groups. No stretching will be applied to control group. Primary outcomes: The Hmax/Mmax and H reflex delay time will be measured in medial gastrocnemius muscle in all groups using electromyography device at the baseline, after and one month after the intervention. Pennation angle and thickness of the relative muscle will be measured by sonography.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201603084738N5**
Registration date: **2016-05-30, 1395/03/10**
Registration timing: **retrospective**
Last update:
Update count: **0**

Registration date

2016-05-30, 1395/03/10

Registrant information

Name
Khosro Khademi Kalantari
Name of organization / entity
Shahid Beheshti university of medical sciences, Faculty of Rehabilitation
Country
Iran (Islamic Republic of)
Phone
+98 21 7756 1411
Email address
k_khademi@sbmu.ac.ir

Recruitment status

Recruitment complete

Funding source

Shahid Beheshti University of Medical Sciences

Expected recruitment start date

2015-05-31, 1394/03/10

Expected recruitment end date

2016-05-30, 1395/03/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effects of Functional Stretching Exercises on the Neural and Mechanical properties of the Spastic Medial Gastrocnemius Muscle in Different Periods in stroke patients.

Public title
The Effect of Muscular Stretching on Muscle Spasticity After Brain Stroke
Purpose
Treatment
Inclusion/Exclusion criteria
Iinclusion criteria: Unilateral brain stroke; Spascticity in ankle based on the persian version of modified modified Ashworth scale (MMAS.>1); Ability to walk with or without assistive devices ; Adequate mental status with score above 24 according to persian version of Minimental Status Scale ; Adequate general helth ; enough range of motion in ankle joint. Exclusion criteria: Contracture and deformity in ankle joint; Pain in lower limb; articipation in sport activities or physical therapy ; Using anti spasticity medicine; Other neurological diseases such as parkinson.
Age
No age limit
Gender
Both

Phase
2-3
Groups that have been masked
No information
Sample size
Target sample size: **60**
Randomization (investigator's opinion)
Randomized
Randomization description
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Shahid Beheshti University of Medical Sciences
Street address
Building number 2, Shahid Beheshti University of Medical Sciences, Velenjack, next tor Taleghani Hospital
City
Tehran
Postal code
Approval date
2015-12-27, 1394/10/06
Ethics committee reference number
IR.SBMU.REC.1394.133

Health conditions studied

1

Description of health condition studied
Brain stroke
ICD-10 code
I64
ICD-10 code description
Stroke, not specified as haemorrhage or infarction

Primary outcomes

1

Description
H reflex delay
Timepoint
baseline, after and one month after intervention
Method of measurement
EMG

2

Description
Hmax/Mmax ratio
Timepoint
baseline, after and one month after intervention
Method of measurement
EMG

3

Description
fasicle length
Timepoint
baseline, after and one month after intervention
Method of measurement
sonography

4

Description
pennation angle
Timepoint
baseline, after and one month after intervention
Method of measurement
sonography

Secondary outcomes

1

Description
spasticity score
Timepoint
baseline, after and one month after intervention
Method of measurement
MMAS

Intervention groups

1

Description
Dynamic stretching of gastrocnemius muscle will be applied to intervention group with the history of less than 12 months from brain stroke.
Category
Rehabilitation

2

Description
Dynamic stretching of gastrocnemius muscle will be applied to intervention group with the history of more than 12 months from brain stroke.
Category
Rehabilitation

3

Description
No stretch will be applied to control group.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
School of Rehabilitation, Shahid Beheshti University of Medical Sciences
Full name of responsible person
Khosro Khademi Kalantari
Street address
School of Rehabilitation, Opposite to Bou Ali Hospital, Damavand Road, Tehran, Iran
City
Tehran

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Shahid Beheshti University of Medical Sciences
Full name of responsible person
Dr Afshin Zarghi
Street address
Building number 2, Shahid Beheshti University of Medical Sciences, Velenjak, next to Taleghani Hospital
City
Tehran
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Shahid Beheshti University of Medical Sciences
Proportion provided by this source
100
Public or private sector
empty
Domestic or foreign origin
empty
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
empty

Person responsible for general inquiries

Contact
Name of organization / entity
School of Rehabilitation, Shahid Beheshti University of Medical Sciences
Full name of responsible person
Khosro Khademi Kalantari
Position
Professor
Other areas of specialty/work
Street address
School of Rehabilitation, Opposite to Bou Ali Hospital, Damavand Road, Tehran, Iran
City
Tehran
Postal code
Phone
+98 21 7756 1407
Fax
Email
Khosro_khademi@yahoo.co.uk
k_khademi@sbmu.ac.ir
Web page address

Person responsible for scientific inquiries

Contact
Name of organization / entity
school of rehabilitation, Shahid Behshti University of Medical sciences
Full name of responsible person
khosro klhademi kalantari
Position
Professor
Other areas of specialty/work
Street address
Dmavand Road, Opposit to Bou Ali Hospital
City
Tehran
Postal code
Phone
+98 21 7756 1407
Fax
Email
khosro_khademi@yahoo.co.ukk_khademi@sbmu.ac.ir
Web page address

Person responsible for updating data

Contact

Name of organization / entity
School of Rehabilitation, Shahid Beheshti Univesity of Medical Sciences

Full name of responsible person
khosro khademi kalantari

Position
professor

Other areas of specialty/work

Street address
Damavand Road, Opposit to Bou Ali Hospital

City
Tehran

Postal code

Phone
+98 21 7756 1407

Fax

Email
khosro_khademi@yahoo.co.uk

Web page address

Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty

Study Protocol
empty

Statistical Analysis Plan
empty

Informed Consent Form
empty

Clinical Study Report
empty

Analytic Code
empty

Data Dictionary
empty