

Clinical Trial Protocol

Iranian Registry of Clinical Trials

04 Aug 2026

Comparison of clinical and functional effects of static stretching and functional stretching exercises in lower limb muscles of patients with Multiple Sclerosis

Protocol summary

Study aim

Comparison of clinical and functional effects of static stretching and functional stretching exercises in lower limb muscles of patients with Multiple Sclerosis

Design

Randomized, single blinded trial with parallel group design of 22 patients with Multiple sclerosis allocated randomly into two static stretching and functional stretching exercises group

Settings and conduct

Pre and post assessments in each group are as follows: ROM assessment, pain intensity, spasticity and functional tests (TUG, T25FWT). For patients in static stretching group; hamstring, quadriceps, hip adductors and plantar flexors muscles will be stretched statically by therapist. For patients in functional stretching group; hamstring, quadriceps, hip adductors and plantar flexors will be stretched by patients actively with guidance of therapist. In both group each stretch will be kept for 30 sec and repeated 3 times with 15 sec rests. In both group after stretching, active or active assisted movements in the same direction of stretching will be done with 5 repetition.

Participants/Inclusion and exclusion criteria

Inclusion criteria: to have multiple sclerosis disease confirmed by specialist; to have spasticity with limb stiffness or contractures of muscles or soft tissue in lower extremity; being able to walk min 25 foot with/without assistive devices. Exclusion criteria: to use wheelchair; to use anti spasticity drugs.

Intervention groups

Intervention group 1: Static stretching exercises
Intervention group 2: Functional stretching exercises

Main outcome variables

pain, range of motion, spasticity, functional tests

General information

Reason for update

end of study

Acronym

IRCT registration information

IRCT registration number: **IRCT20190702044079N1**

Registration date: **2019-08-29, 1398/06/07**

Registration timing: **prospective**

Last update: **2020-01-19, 1398/10/29**

Update count: **1**

Registration date

2019-08-29, 1398/06/07

Registrant information

Name

Merziye ergul

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 4424 1362

Email address

merziyeergul@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-09-01, 1398/06/10

Expected recruitment end date

2019-12-29, 1398/10/08

Actual recruitment start date

2019-09-01, 1398/06/10

Actual recruitment end date

2019-12-01, 1398/09/10

Trial completion date

2019-12-01, 1398/09/10

Scientific title

Comparison of clinical and functional effects of static stretching and functional stretching exercises in lower limb muscles of patients with Multiple Sclerosis

Public title

Effects of stretching exercises in patients with Multiple Sclerosis

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Multiple sclerosis confirmed by specialist to have spasticity with limb stiffness or contractures of muscles or soft tissue in lower extremity being able to walk min 25 foot with/without assistive devices

Exclusion criteria:

to use wheelchair to use anti spasticity drugs

Age

From **18 years** old to **65 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: **22**

Actual sample size reached: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization by random allocation rule through lottery:for this study,for a total study size of 22;11 paper for static stretching group and 11 paper for functional stretching group will be put in a lottery pocket.Then for each patient one paper will be drawn randomly from pocket and patients will be randomly allocated into static and functional stretching groups.

Blinding (investigator's opinion)

Single blinded

Blinding description

Each individual will be involved in a trial separately,will be assessed separately and will be treated separately.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of University of Social Welfare and Rehabilitation Sciences

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Kodekeyar dead end, Daneshjo Blvd, Evin

City

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Province

Tehran

Postal code

۱۹۸۵۷۱۳۸۳۴

Approval date

2019-06-26, 1398/04/05

Ethics committee reference number

IR.USWR.REC.1398.051

Health conditions studied

1

Description of health condition studied

multiple sclerosis

ICD-10 code

G35

ICD-10 code description

Multiple sclerosis

Primary outcomes

1

Description

spasticity

Timepoint

in the begining and end of the study

Method of measurement

modified modified ashworth scale

2

Description

function

Timepoint

in the begining and end of the study

Method of measurement

Timed Up and Go test and Timed 25 Foot Walk test

3

Description

active range of motion

Timepoint

in the begining and end of the study

Method of measurement

with goniometer

4

Description

pain

Timepoint

in the begining and end of the study

Method of measurement

Visual analog scale

Secondary outcomes

empty

Intervention groups**1****Description**

Intervention group:static stretching exercises will be applied 3 times in a week totally for 4 weeks.Hamistring,quadriceps,adductors and plantar flexors will be streched by researcher bilaterally.Each stretch will be kept for 30 seconds and repeated for 3 times.

Category

Rehabilitation

2**Description**

Intervention group:functional stretching exercises will be done 3 times in a week totally for 4 weeks.Hamistring,quadriceps,adductors and plantar flexors will be streched by patient with guidance of reseacher.Each stretch will be kept for 30 seconds and repeated for 3 times.

Category

Rehabilitation

Recruitment centers**1****Recruitment center****Name of recruitment center**

Iran MS society

Full name of responsible person

Abolghasem najafi

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**

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Full name of responsible person

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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

vice chancellery for research and technology of USWR

Proportion provided by this source

100

Public or private sector

Public

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 social welfare and rehabilitation sciences

Full name of responsible person

Merziye Ergul

Position

Master student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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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

There is no additional information.

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

No - There is not a plan to make this available

Clinical Study Report

No - There is not 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