

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Effects of Sensory Retraining on Recovery of the Hemiplegic Upper Limb in Stroke Patients (A Single-System Design)

Protocol summary

Summary

Objectives: The sensory deficit is one of the most frequent consequences of stroke. These deficits may have negative impacts on recovery of the upper extremity in these patients but frequently are ignored and most rehabilitative interventions in stroke patients are focused on motor recovery. The aim of the present study is to investigate the effects of sensory retraining on the sensorimotor recovery of the hemiplegic upper extremity in chronic stroke patients. Design: A Single-System (A-B) study Setting and Conduct: Five chronic stroke patients will be recruited. These patients will be assessed in the baseline phase until reaching a stable pattern in changes. Then the treatment phase will begin and they will be delivered a sensory retraining program for six weeks. During this phase, they will be assessed on three days intervals, too. Participants Including Major Eligibility Criteria: Chronic stroke patients who have only one experience of stroke; are unable to detect normal sensory threshold at least in one of median, ulnar or radial innervated areas; have no history of other neurological or orthopedic conditions; are in stage 4 or higher according to Brunnstrom's recovery stages; have ability to transfer at least one block of Box and Block test will be included. Intervention: Based on sensory retraining principles and according to each participant's abilities, the intervention will begin with detection and localization of constant and moving touch and will be continued by more complex tasks, such as graphesthesia and stereognosis. Main Outcome Measures: Upper extremity function (Fugl-Meyer Assessment and Motricity Index) and hand dexterity (Box and Block Test)

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017082617301N4**

Registration date: **2017-09-17, 1396/06/26**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2017-09-17, 1396/06/26

Registrant information

Name

Akram Azad

Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

Iran University of Medical sciences

Expected recruitment start date

2010-12-06, 1389/09/15

Expected recruitment end date

2011-07-15, 1390/04/24

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effects of Sensory Retraining on Recovery of the Hemiplegic Upper Limb in Stroke Patients (A Single-System Design)

Public title

Effect of Sensory Retraining in Chronic Stroke Patients

Purpose

Treatment

Inclusion/Exclusion criteria

Major inclusion criteria: having only one experience of stroke (at least 6 months ago); inability to detect normal sensory threshold (monofilament 2/31) at least in one of median, ulnar or radial innervated areas; no history of other neurological or orthopedic conditions; stage 4 or higher according to Brunnstrom's stages; ability to transfer at least one block of Box and Block test; Major exclusion criteria: Participants were excluded if they have inappropriate collaboration with the program.

Age

From **24 years** old to **64 years** old

Gender

Both

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **5**

Randomization (investigator's opinion)

N/A

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Single

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Iran University of Medical Sciences

Street address

School of Rehabilitation, Shahid Shahnazari Street, Madar Square, Mirdamad Blvd, Tehran

City

Tehran

Postal code

Approval date

2010-11-02, 1389/08/11

Ethics committee reference number

165

Health conditions studied

1

Description of health condition studied

Stroke

ICD-10 code

I64

ICD-10 code description

Stroke, not specified as haemorrhage or infarction

Primary outcomes

1

Description

Hand Dexterity

Timepoint

On three days interval

Method of measurement

Box and Block Test

2

Description

Motor function

Timepoint

On three days interval

Method of measurement

Fugl-Meyer assessment and Motoricity Index

Secondary outcomes

1

Description

sensory function

Timepoint

On three days interval

Method of measurement

Semmes-Weinstein Monofilaments

Intervention groups

1

Description

This will be a single subject study with an intervention group without a control group. intervention will be include noninvasive sensory stimulation with the aim of improving the individuals ability to detect tactile and proprioceptive stimulation.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Shafayahyaeian Hospital

Full name of responsible person

Dr Azad

Street address

Mojahedin Street, Shohada Square, Tehran

City

Tehran

2**Recruitment center****Name of recruitment center**

Shahid Jalayipour Complex Rehabilitation Center

Full name of responsible person

Dr Azad

Street address

Next to Akbarabadi Hospital, Atashneshani Street,
Mowlavi Street, Tehran

City

Tehran

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

Vice Chancellor for Research, Iran university of
medical sciences

Full name of responsible person

Dr Azad

Street address

School of Rehabilitation, Shahid Shahnazari Street,
Madar Square, Mirdamad Blvd, Tehran

City

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Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

Title of funding source

Vice Chancellor for Research, Iran 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**

Iran university of medical Sciences

Full name of responsible person

Dr Azad

Position

Associate professor

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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