

Clinical Trial Protocol

Iranian Registry of Clinical Trials

19 Sep 2026

The comparison of treatment using Movement System Impairment method with routine physical therapy in improving pain and function in patents with knee pain: A randomized clinical trial

Protocol summary

Study aim

The comparison of treatment using Movement System Impairment method with routine physical therapy in patents with knee pain

Design

A randomized clinical trial study, dabble-blind, parallel-group, 40 patients with knee pain randomized to one intervention group and one control group through web-based randomization

Settings and conduct

After evaluation by a physician, and inclusion-exclusion criteria, the researcher records the personal information of patients among with the signed consent form. Patients are gathered from clinics affiliated to Tehran University of Medical Sciences. After that, the pain records along with lower extremity functional questionnaire. Then, the alignments of thigh, shank and knee records in different positions of daily activities and the pain adds as well. Then, a syndrome is allocated to each patient based on the findings of researcher. Being categorized to a treatment group by randomization, then the patient receives the special treatments of each group. Exercises of Movement Impairment System group consists of specific exercises of each syndrome while routine physiotherapy group consists of stretching and strengthening exercises. Both groups are evaluated again after 6 weeks and the results are compared by statistical tests.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age between 18-65, Knee pain at least 2 months before enrollment, Pain scale of 30-70 based on a Numeral Rating Scale. Exclusion Criteria: The confirmation of the need for surgery. Systematic, Metabolic, or Neurologic disease (such as radiculopathy) Pregnancy. The need for analgesic or anti-inflammatory drugs during the treatment period

Intervention groups

Treatment with Movement System Impairment method
Treatment with routine physiotherapy method

Main outcome variables

Pain, Function, Knee Alignment

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180627040251N5**

Registration date: **2023-03-30, 1402/01/10**

Registration timing: **registered_while_recruiting**

Last update: **2023-03-30, 1402/01/10**

Update count: **0**

Registration date

2023-03-30, 1402/01/10

Registrant information

Name

Hassan Sadeghi

Name of organization / entity

Kharazmi University

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-03-28, 1402/01/08

Expected recruitment end date

2023-04-28, 1402/02/08

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The comparison of treatment using Movement System Impairment method with routine physical therapy in improving pain and function in patients with knee pain: A randomized clinical trial

Public title

Comparison between MSI and routine physiotherapy treatments in knee pain patients

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

Knee pain at least 2 months before examination Pain between 30-70 based on "Numeral Rating Scale"

Exclusion criteria:

The confirmation of the need for surgery Systematic, Metabolic or Neurologic disease (such as radiculopathy) Pregnancy The need for analgesic or anti-inflammatory drugs during the treatment period

Age

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

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor
- Data analyser

Sample size

Target sample size: **40**

Randomization (investigator's opinion)

Randomized

Randomization description

Participants will be randomized into intervention and one control group using an online randomization system (randomizer.org). A member of the research team who is not involved in the selection of samples will determine the randomization sequence using a computer program. Participants will be notified of their group allocation with a sealed envelope.

Blinding (investigator's opinion)

Double blinded

Blinding description

The patients are aware of the study, but they are not aware of each exercise in each method and only perform each given exercise. Then the patients are evaluated by an examiner while another person teaches the exercises to patients. At the end of study, the patients are again assessed by the same examiner while the examiner is not aware of patient's grouping. Furthermore, the statistician analyzes the data who is not aware of each treatment group's conditions.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

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

Sport Sciences Research Institute (SSRI)

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Approval date

2022-08-22, 1401/05/31

Ethics committee reference number

IR.SSRC.REC.1401.067

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

Knee pain

ICD-10 code

M25.56

ICD-10 code description

Pain in knee

2**Description of health condition studied**

Chronic pain

ICD-10 code

G89.4

ICD-10 code description

Chronic pain syndrome

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

1) Pain score based on Numeral Rating Scale of 0-100. 100 shows the worst pain and 0 is the least amount of pain.

Timepoint

At the start of the study (Before intervention) and 6 weeks after the start of the study (End of study)

Method of measurement

Pain is evaluated by marking on a line which is divided to 100 points.

Secondary outcomes

1

Description

knee alignment

Timepoint

At the start of the study (Before intervention) and 6 weeks after the start of the study (End of study)

Method of measurement

Knee alignment is measured in standing, sitting, walking, standing on one leg, and stairs position.

2

Description

Function based on questionnaire of Knee injury and Osteoarthritis Outcome Score. The score is a percentage score from 0 to 100, 0 representing extreme problems and 100 representing no problems

Timepoint

At the start of the study (Before intervention) and 6 weeks after the start of the study (End of study)

Method of measurement

The function is measured by Knee injury and Osteoarthritis Outcome Score questionnaire.

Intervention groups

1

Description

Intervention group: This group consists of patients with knee pain that are treatable with physiotherapy after initial assessment. In this group, patients are classified based on "Movement System Impairments" (MSI) method. In this system of classification of patients, they are categorized in one of the MSI groups based on the signs and symptoms consisting of pain (primary variable) and function (secondary variable) in different positions (secondary variable). Since each group has a different characteristic in comparison to others, patients are treated based on the group they are categorized in. Treatment consists of strengthening each category. These exercises are prescribed based on the problem in each group. Moreover, the patient will be taught what to be cautious about, what to avoid, and what needs to be done in daily tasks. If there is a desire for the taping of the patellar bone to correct the patellar alignment through the treatment, it will be done, as well. Stretching exercises are another part of the exercises that might be prescribed based on necessity. These exercises are performed for 6 weeks.

Category

Rehabilitation

2

Description

Control group: This group consists of patients with knee pain that have been diagnosed as treatable by physiotherapy while they are not categorized in specific groups. Their treatment is based on routine physiotherapy exercises. The term routine physiotherapy consists of training knee pain through muscle strengthening exercises, stretching, and teaching the positions that the patient should avoid without being in a specific group. All these treatments are taught to all patients. These exercises continue for 6 weeks.

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Faculty of Sport Sciences. Kharazmi University

Full name of responsible person

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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?

Yes

Title of funding source

Kharazmi University

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

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Full name of responsible person

Dr. Hassan Sadeghi

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be 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

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to

make this available
Data Dictionary

Undecided - It is not yet known if there will be a plan to
make this available