Clinical Trial Protocol
Iranian Registry of Clinical Trials

19 Jun 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 patents 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)
Street address
No. 3, 5th Alley, Miremad Street, Motahhari Street, Tehran, Iran
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Province
Tehran
Postal code
1587958711
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
Azam Ahmadi
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
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Web page address

https://pess.khu.ac.ir/index.php?sid=42&slc_lang=en

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

Kharazmi University

Full name of responsible person

Dr. Hassan Sadeghi

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Sport Medicine

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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