

Clinical Trial Protocol

Iranian Registry of Clinical Trials

27 Jul 2026

study effect of whole body vibration on arthrogenic muscle inhibition of quadriceps muscle in knee osteoarthritis patients

Protocol summary

Study aim

Determine the effectiveness of using whole-body vibration training in reducing arthrogenic inhibition, increasing quadriceps muscle strength, improving pain, improving function, improving balance and improving quality of life in patients with knee osteoarthritis

Design

Clinical trials with intervention, placebo and control groups, double-blind, randomized tables were used for randomization.

Settings and conduct

Location: Faculty of Rehabilitation Sciences, Shahid Beheshti University
Blinded: Participants, Analyzer, Variable Tester

Participants/Inclusion and exclusion criteria

Criteria for entering the study: • People with primary osteoarthritis of the knee with grades 2 and 3 based on Kellgren and Lawrence criteria • People with chronic knee pain (having pain in the knee or around the knee most of the time, having pain in the knee in the last year) • Age range 30 to 60 years • no participation in reinforcement sports programs for at least the last 6 months • BMI 22 to 30. • Have at least 10% arthrogenic inhibition in the quadriceps muscle in the affected knee. -
Criteria for not entering the study: • Severe cardiovascular disease that prevents exercise. • Drug use. • Perform total knee arthroplasty or any other surgery on the lower limbs • Existence of pain with intensity above 5 based on a visual scale of pain during the study • History of knee surgery, rheumatic or infectious diseases of the knee and cancer • Secondary osteoarthritis

Intervention groups

the intervention group receives 10 session vibration therapy with specific settings, the placebo group receives 10 session vibration therapy while the device is off and makes no vibration. at the beginning of each session, all three groups including intervention, placebo and control group receives routine knee OA

physiotherapy.

Main outcome variables

arthrogenic muscle inhibition, muscle strength, pain, function, quality of life, balance

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200203046360N1**

Registration date: **2020-05-30, 1399/03/10**

Registration timing: **prospective**

Last update: **2020-05-30, 1399/03/10**

Update count: **0**

Registration date

2020-05-30, 1399/03/10

Registrant information

Name

Mohadeseh Kazemi Fard

Name of organization / entity

Country

Iran (Islamic Republic of)

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+98 21 7756 1721

Email address

m_kazemifard@sbmu.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-06-09, 1399/03/20

Expected recruitment end date

2020-07-10, 1399/04/20

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

study effect of whole body vibration on arthrogenic muscle inhibition of quadriceps muscle in knee osteoarthritis patients

Public title

effect of whole body vibration on muscle inhibition

Purpose

Treatment

Inclusion/Exclusion criteria**Inclusion criteria:**

patients with primary knee osteoarthritis in grade2 or 3 based on kellgren and lawrence criteria patients with chronic knee pain (feeling pain in knee or around of it in most of the time, feeling pain in knee for recent year) age range between 30 and 60 no participant in strengthening program from 6 month ago BMI between 22 and 30 having at least 10% arthrogenic muscle inhibition in quadriceps muscle of affected knee

Exclusion criteria:

severe cardiovascular disease which prevents exercising drug addiction total knee arthroplasty or any other surgery on lower limb pain score more than 5 based on VAS during study knee surgery history , rheumatoid disease or septic knee , cancer secondary osteoarthritis

Age

From **30 years** old to **60 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Outcome assessor
- Data analyser

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

First, when the sampling is done in a simple and accessible way, each sample is given a specific code, then each code is written on a piece of paper and the papers are poured into a container, the number of samples of each group is drawn and The number of papers randomly leaves the container.

Blinding (investigator's opinion)

Double blinded

Blinding description

Keeping participants blind so that patients in the intervention group are visited on even days and the control group is visited on individual days, and each group is unaware of the existence of the other group. Keeping blind variables assessor in such a way that at the time of testing the variables, the assessor is unaware of the type of group therapy and only measured the variables in all participants. Keeping the data analyst

blind so that he is unaware of each patient's treatment group at the time of reviewing and analyzing the data, and each patient is introduced to the analyzer with only one identifier code.

Placebo

Used

Assignment

Factorial

Other design features**Secondary Ids**

empty

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

Ethics committee of shahid behshti medical university

Street address

next to Ayatollah Taleghani Hospital, Shahid Arabi St., Yemen St., Shahid Chamran Highway

City

Tehran

Province

Tehran

Postal code

19839-63113

Approval date

2020-01-26, 1398/11/06

Ethics committee reference number

IR.SBMU.RETECH.REC.1398.715

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

knee osteoarthritis

ICD-10 code

M15.0

ICD-10 code description

Primary generalized (osteo)arthritis

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

arthrogenic muscle inhibition of quadriceps

Timepoint

before any intervention, after first session, end of ten session , one month follow up

Method of measurement

quantitative measurement using digital dianamometer

2**Description**

maximal voluntary isometric contraction

Timepoint

before any intervention, after the first session, end of ten-session, one month follow up

Method of measurement

quantitative measurement of muscle strength using digital dynamometer

3**Description**

pain

Timepoint

before any intervention, after the first session, end of ten-session, one month follow up

Method of measurement

using VAS

4**Description**

function

Timepoint

before any intervention, after the first session, end of ten-session, one month follow up

Method of measurement

using 6 minute waking test

5**Description**

balance

Timepoint

before any intervention, after the first session, end of ten-session, one month follow up

Method of measurement

using berg balance scale

6**Description**

quality of life

Timepoint

before any intervention, after the first session, end of ten-session, one month follow up

Method of measurement

using WHO-QOL brief questionnaire

Secondary outcomes

empty

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

Intervention group: whole-body vibration group Vibration frequency: Hz 30/ Vibration amplitude: mm 4 (peak to peak)/ Vibration type: Vertical vibration/ Vibration acceleration: g8.24/ Exercise position: standing, with 30 degrees of flexion, without socks and shoes/ exercise duration: 30 seconds/ Rest duration Between Each Exercise: 60 Seconds/ Number of repetitions in each set:

4 times/ Number of sets: 2 to 4 sets (first, second and third sessions 2 sets / fourth, fifth and sixth sessions 3 sets / seventh, eighth, ninth and tenth sessions 4 sets)/ Rest duration between each set: 5 minutes Routine physiotherapy treatment includes: 20-minute electrical stimulation / 5-minute ultrasound therapy and quadriceps muscle strengthening exercises

Category

Rehabilitation

2**Description**

Intervention group: placebo Use the whole body vibration device for 4 sets of 30 seconds per set and rest for 60 seconds between each set while the device is off and has no vibration. Routine physiotherapy treatment includes: 20-minute electrical stimulation / 5-minute ultrasound therapy and quadriceps muscle strengthening exercises

Category

Rehabilitation

3**Description**

Control group: control Routine physiotherapy treatment includes: 20-minute electrical stimulation / 5-minute ultrasound therapy and quadriceps muscle strengthening exercises

Category

Rehabilitation

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

Rehabilitation faculty of Shahid Behshti Medical science

Full name of responsible person

Mohadeseh Kazemi Fard

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SBMU School of Rehabilitation Sciences, Damavand St, Across from Bu Ali Hospital

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Intl_office@sbmu.ac.ir

Web page address**Sponsors / Funding sources**

1

Sponsor

Name of organization / entity

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Afshin Zarghi

Street address

5th Floor, Bldg No.2 SBUMS, Arabi Ave, Daneshjoo Blvd, Velenjak

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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

Shahid Beheshti University of Medical Sciences

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

Shahid Beheshti University of Medical Sciences

Full name of responsible person

Khosro Khademi-Kalantari

Position

Proffesor

Latest degree

Ph.D.

Other areas of specialty/work

Physiotherapy

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Person responsible for scientific inquiries

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Name of organization / entity

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Full name of responsible person

Khosro Khademi-Kalantari

Position

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Person responsible for updating data

Contact

Name of organization / entity

Shahid Beheshti University of Medical Sciences

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document
may share the main results of the study

When the data will become available and for how long

after the end of the study in1399

To whom data/document is available
for the academic researchers

Under which criteria data/document could be used
analysis results in each group are able to represent as tables and graphs

From where data/document is obtainable
The main presenter, Dr. Khosrow Khademi Kalantari, Professor, Department of Physiotherapy, Faculty of Rehabilitation, Shahid Beheshti University of Medical Sciences

What processes are involved for a request to access data/document
After submitting a written request to the main executor and stating the reason for the data request, if the main executor is approved, the data file will be provided as needed.

Comments