

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Comparison the effect of combination of whole body vibration training and strength exercise training versus strength exercise training on knee osteoarthritis complications in patient with knee osteoarthritis

Protocol summary

Summary

Objectives: Osteoarthritis (OA) has been considered as one of the widespread diseases, which mostly occurs in knee joint. American College of Rheumatology (ACR) has recommended muscle strengthening protocols for management of knee OA symptoms. Recently it has been advised to use Whole Body Vibration (WBV) for the knee OA treatment. This study has been designed to investigate the effect of combination of WBV training and strengthening exercise on complications of knee OA.

Setting and conduct: Patients with bilateral or unilateral knee OA will be randomly allocated in one of the control (quadriceps strengthening exercise) and experimental (WBV plus quadriceps strengthening exercise) groups.

Participants including major eligibility criteria (patients with mild to moderate knee joint symptoms in tibiofemoral joint according to the ACR scales) will be participated in the study. They will be excluded from the study if there is musculoskeletal, neuromuscular, cardiovascular, diabetic and respiratory diseases, history of lower limb fracture for the last year, history of severe trauma to the lower limbs during last three months.

Intervention: Experimental group perform quadriceps strengthening exercise, plus WBV training 3 times in a week for 8 weeks, while control group performs quadriceps strengthening exercise, 3 times in a week for 8 weeks. Main Outcome measure variables: The torque of quadriceps and hamstring muscles, pain, functional activities and quality of life will be evaluated before and immediately after intervention and also after 4 weeks follow-up.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201206065152N2**

Registration date: **2012-07-16, 1391/04/26**

Registration timing: **prospective**

Last update:

Update count: **0**

Registration date

2012-07-16, 1391/04/26

Registrant information

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Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

Semnan University of Medical Sciences

Expected recruitment start date

2012-09-05, 1391/06/15

Expected recruitment end date

2013-09-06, 1392/06/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison the effect of combination of whole body vibration training and strength exercise training versus

strength exercise training on knee osteoarthritis complications in patient with knee osteoarthritis

Public title
Investigation the effect of combination of whole body vibration training and strength exercise training on the knee osteoarthritis complication

Purpose
Treatment

Inclusion/Exclusion criteria
Included criteria: suffering from chronic osteoarthritis of knee [bilateral and unilateral], with mild to moderate symptoms in tibiofemoral joint; age 35 to 76; to have pain and disability of knee over one month; to have resented lateral and AP radiography image of knee.
Excluded criteria: suffering to disease such as diabetes, musculoskeletal disorder, neuromuscular disorder, cardiovascular disorder, respiratory disease and else; consumption of injection or other aggressive therapies (like surgery) of lower limbs during 3 last months; consumption of drug; to have artificial knee or artificial hip; experience of trauma to knee joint; experience of regular professional physical activity; severe physical disability; disability in walk with or without assistive device.

Age
From **35 years** old to **76 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **32**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
b
Street address
Semnan university of medical sciences
City
semnan

Postal code
Approval date
2012-10-17, 1391/07/26
Ethics committee reference number
91/216810

Health conditions studied

1

Description of health condition studied
Osteoarthritis of knee
ICD-10 code
M17
ICD-10 code description
(Gonarthrosis (arthrosis of knee

Primary outcomes

1

Description
muscle strength, total work, muscle power
Timepoint
before intervention, after intervention
Method of measurement
used from Isokinetic Dynamometer Biodex System

2

Description
pain
Timepoint
before intervention, after intervention
Method of measurement
VAS scale

3

Description
quality of life
Timepoint
before intervention, after intervention
Method of measurement
WOMAC scale

4

Description
functional activity
Timepoint
before intervention, after intervention, 4 weeks after end of intervention
Method of measurement
2 minute walk test, The timed up & go test, Timed 50 foot walk test

Secondary outcomes

empty

Intervention groups

1

Description

group 1: 1)convention electrothrapy 2) 3 set flexion and extension of knee joint for strengthening exercise. in the first set patient train with 60 to 65 percent of 10 RM. in the secondary set patient train with 70 to 75 percent of 10 RM. in the end set patient train with 80 to 85 percent of 10 RM. there is 2 minutes rest time between training sets.

Category

Treatment - Other

2

Description

group 2: 1)convention electrothrapy 2) 3 set flexion and extension of knee joint for strengthening exercise. in the first set patient train with 60 to 65 percent of 10 RM. in the secondary set patient train with 70 to 75 percent of 10 RM. in the end set patient train with 80 to 85 percent of 10 RM. there is 2 minutes rest time between training sets.3) patient stand up on the platform of WBV with her/his legs beside.6 set with 30 second platform oscillate to sagital axes. there is 30 seconds rest time between training sets.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Neuromuscular Rehabilitation Research Center

Full name of responsible person

Amir Hushang Bakhtiary

Street address

Neuromuscular Rehabilitation Research Centre,
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City

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for Research, Semnan University of
Medical Sciences

Full name of responsible person

Dr Raheb Ghorbany

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Semnan University of Medical Sciences, Basij Blv.

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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, Semnan 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

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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