Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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 weak 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 resent 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; sever 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
Osteoarthiritis 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 Rehabilition Research Center
Full name of responsible person
Amir Hushang Bakhtiary
Street address
Neuromuscular Rehabilitation Research Centre, Ghods Avenue
City
Semnan

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.
City
Semnan
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