Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Effect of Whole-Body Vibration on Delayed-Onset Muscle Soreness and Recovery of Muscle Function after Eccentric Exercise

Protocol summary

Summary

Objective: To investigate the acute effect of Whole Body Vibration Training (WBVT) on preventing delayed-onset muscle soreness (DOMS). Design: A randomized clinical trial was undertaken. Participants: 32 healthy untrained volunteers were recruited from the university community and assigned randomly into two groups: WBVT (n=15) and control (n=17). Interventions: subjects performed 6 sets of 10 maximal isokinetic (60̊.s-1) eccentric actions of knee extensors with dominant limb on a dynamometer. WBV was performed on a vibratory platform (Power Plate) (35 Hz, 5 mm peak-to-peak amplitude), with knee bent at 100̊ flexion for 60 seconds in the WBVT group before eccentric exercise, while no vibration was applied in the control group. Main outcome measurements: Muscle soreness, thigh circumference and pressure pain threshold (PPT) were recorded at baseline, 1, 2, 3, 4, 7, and 14 days postexercise. Maximal voluntary isometric and isokinetic knee extensor strength were assessed at baseline, immediately after, 1, 2, 7, and 14 days postexercise. Serum creatine kinase (CK) was measured at baseline, 1, 2, and 7 days postexercise.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT138712111722N1**
Registration date: **2009-07-16, 1388/04/25**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2009-07-16, 1388/04/25

Registrant information

Name

Samira Karimpour

Name of organization / entity

Country

Iran (Islamic Republic of)

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hadianrs@sina.tums.ac.ir

Recruitment status

Recruitment complete

Funding source

This study was supported by a grant from the postgraduate Studies and Research Program, Tehran University of Medical Sciences.

Expected recruitment start date

2008-04-06, 1387/01/18

Expected recruitment end date

2008-09-12, 1387/06/22

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of Whole-Body Vibration on Delayed-Onset Muscle Soreness and Recovery of Muscle Function after Eccentric Exercise

Public title

Effect of Vibration on Exercise-induced Muscle Soreness

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: healthy subjects Exclusion criteria: positive history of cardiac disease, peripheral vascular disease, diabetes, epilepsy, neuromuscular disease, asthma, renal failure, total hip arthroplasty, total knee arthroplasty, acute hernia, discopathy, tumor, cardiac

pacemaker, high blood pressure, migraine, participation in strength training program, having injection in a week before intervention, recently implanted pin and plaque

Age
From **19 years** old to **26 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
Deputy of Research, Tehran University of Medical Sciences

Street address
Keshavarz Blvd. Kods street

City
Tehran

Postal code
14167

Approval date
2007-11-13, 1386/08/22

Ethics committee reference number
260/1974

Health conditions studied

1

Description of health condition studied
Delayed onset muscle sorenss

ICD-10 code
M79.9

ICD-10 code description
Soft tissue disorder, unspecified

Primary outcomes

1

Description
serum creatine kinase enzyme

Timepoint
before intervention, on 1, 2, and 7 days post intervention

Method of measurement
blood sample

Secondary outcomes

1

Description
isometric strength of quadriceps muscle

Timepoint
before intervention, on the days 1, 2, 7, and 14 postexercise

Method of measurement
isokinetic dynamometery, Biodex system 3

2

Description
pressure pain threshold

Timepoint
before intervention, on the days 1, 2, 3, 4, 7, and 14 postexercise

Method of measurement
using a specific device instrumented for measuring pressure pain threshold

3

Description
thigh circumferences

Timepoint
before intervention, on the days 1, 2, 3, 4, 7, and 14 postexercise

Method of measurement
tape measure

4

Description
subjective pain (soreness)

Timepoint
before intervention, on the days 1, 2, 3, 4, 7, and 14 postexercise

Method of measurement
Visual Analogue Scale

5

Description
eccentric strength of quadriceps muscle

Timepoint
before intervention, on the days 1, 2, 7, and 14 postexercise

Method of measurement
isokinetic dynamometery, Biodex system 3

Intervention groups

1

Description
Intervention group: intervention was consisted of applying whole body vibration, 35 Hz, 5 mm peak-to-peak amplitude, in standing position with knee bent at 100 flexion for 1 minute, through Power Plate device, before receiving DOMS-inducing eccentric exercise.
Category
Prevention

2

Description
Control group: no intervention
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Biomechanic laboratory of Rehabilitation Faculty
Full name of responsible person
Atefeh Aminian-far
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Rehabilitation Faculty, Pich e Shemiran. Enghelab Street
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Tehran

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Deputy of Education, Tehran university of Medical Sciences
Full name of responsible person
Dr. Hossein Keshavarz
Street address
Keshavarz Blvd, Kods street
City
Tehran
Grant name
Grant code / Reference number
260/1974
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Deputy of Education, Tehran 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
Rehabilitation Faculty
Full name of responsible person
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Person responsible for scientific inquiries

Contact
Name of organization / entity
Rehabilitation Faculty, Brain and Spinal Injury Research center (BASIR), Imam Khomeini Hospital
Full name of responsible person
Dr. Mohammad Reza Hadian
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Professor, Tehran University of Medical Sciences (TUMS), Faculty of Rehabilitation
Other areas of specialty/work
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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