Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

The comparison of whole body vibration with frequency of 20 and 40 Hz on the transmissibility to the lower limb's joints and center of pressure sway in the postmenopausal women

Protocol summary

Study aim

Comparison of 20 and 40 Hz of whole body vibration on the center of pressure sway in postmenopausal women

Design

A clinical trial, self control, in 20 postmenopausal women, in five different modes of vibration frequency and amplitude on the whole body vibration plate. The order of the modes is randomly selected by the independent people by the envelopes in the package.

Settings and conduct

Individuals will participate in the training program voluntarily by installing a public call. The place of study is the movement Disorders Lab of Physical therapy, Tarbiat Modares University. To apply the WBV, the Uniphy Elektromedizin GmbH Fit Vibe (Fitvib) vibrating device. The participants will be placed on the WBV plate barefoot with semi-squat and will have one of the following modes: Off vibration (control), 20 Hz and 2 mm, 20 Hz and 4 mm, 40 Hz and 2 mm, 40 Hz and 4 mm. Except for the base position, which is the control, others will be randomly applied. Before and immediately after each of the above modes, the center of pressure sway will be recorded with Kessler force plate and Mars software. Each mode is composed of two 30-second intervals with a 10-second break between them. During vibration, the transmission of the acceleration (transmissibility) is measured at the level of the lower limb joints (Hip, Knee, and Ankle joints).

Participants/Inclusion and exclusion criteria

Inclusion criteria: At least one year after menopause - Ability to walk independently without aids - Exclusion criteria: Osteoporosis - Balance disturbance and fall history - Patient discomfort while working with whole body vibration

Intervention groups

A group of postmenopausal women who receive whole body vibration with frequency of 20 and 40 HZ

Main outcome variables

Transmissibility in hip, knee, ankle COP displacement
COP velocity path length

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20101017004952N11**
Registration date: **2022-03-05, 1400/12/14**
Registration timing: **prospective**

Last update: **2022-03-05, 1400/12/14**
Update count: **0**

Registration date

2022-03-05, 1400/12/14

Registrant information

Name
Giti Torkaman
Name of organization / entity
Tarbiat Modares University
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Iran (Islamic Republic of)
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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-03-06, 1400/12/15

Expected recruitment end date

2022-05-05, 1401/02/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The comparison of whole body vibration with frequency of 20 and 40 Hz on the transmissibility to the lower limb's joints and center of pressure sway in the postmenopausal women

Public title

Effect of two frequencies of whole body vibration and transmissibility to the lower limb's joints in the postmenopausal women

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria:

At least one year after menopause Body mass 25-32 kg/m2 Ability to stand while sitting without aids Ability to walk independently without aids Normal blood pressure and less than 140/90 at rest

Exclusion criteria:

Osteoporosis Balance disturbance and fall history Vestibular disorders History of joint replacement surgery in the lower extremities Neuro-musculoskeletal disorders Cardiovascular problems Use of drugs that upset the balance system Patient discomfort during whole body vibration

Age

From **50 years** old to **70 years** old

Gender

Female

Phase

N/A

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **20**

Randomization (investigator's opinion)

N/A

Randomization description

Blinding (investigator's opinion)

Single blinded

Blinding description

The outcome measures will record and evaluate by a motion analysis system expert who does not know the steps and specifications of the frequency and amplitude of the whole body vibration device.

Placebo

Not used

Assignment

Single

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research ethics commeette of Tarbiat Modares University

Street address

Ale-Ahmad

City

Tehran

Province

Tehran

Postal code

1411713116

Approval date

2019-06-16, 1398/03/26

Ethics committee reference number

IR.MODARES.REC.1398.068

Health conditions studied

1

Description of health condition studied

Balance in postmenopausal women

ICD-10 code

R54

ICD-10 code description

Age-related physical debility

Primary outcomes

1

Description

Center of pressure displacement

Timepoint

Before and after vibration

Method of measurement

Force plate

2

Description

Center of pressure velocity

Timepoint

Before and after of vibration

Method of measurement

Force plate

3

Description

Path length

Timepoint

Before and after vibration

Method of measurement

Force plate

4

Description
Transmissibility in hip joint
Timepoint
Before and after vibration
Method of measurement
Accelerometer

5

Description
Transmissibility in knee joint
Timepoint
Before and after vibration
Method of measurement
Accelerometer

6

Description
Transmissibility in ankle joint
Timepoint
Before and after vibration
Method of measurement
Accelerometer

Secondary outcomes

1

Description
Difficulty score for deafferent modes
Timepoint
10-degree visual analogous scale
Method of measurement
Self report

Intervention groups

1

Description
Intervention group: postmenopausal women. A group of postmenopausal women who receive whole body vibration with frequency of 20 and 40 HZ. The participant will be placed on the WBV plate barefoot with semi-squat and will have one of the following modes: Off vibration (control), 20 Hz and 2 mm, 20 Hz and 4 mm, 40 Hz and 2 mm, 40 Hz and 4 mm. Before and immediately after each of the above modes, the center of pressure sway will be recorded. Each mode is composed of two 30-second intervals with a 10-second break between them. During vibration, the transmission of the acceleration (transmissibility) is measured at the level of the lower limb joints (Hip, Knee, and Ankle joints).
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Physical Therapy Lab, Tarbiat Modares University
Full name of responsible person
Giti Torkaman
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Tarbiat Modares University
Full name of responsible person
Amir Abdolahzadeh
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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
Tarbiat Modares 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
Tarbiat Modares University

Full name of responsible person
Giti Torkaman

Position
Professor

Latest degree
Ph.D.

Other areas of specialty/work
Physiotherapy

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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
The data will be presented in the prepared article after coding the participants. At the request of the reviewers, details of data and statistical methods will be provided.

When the data will become available and for how long
Access since May 2022

To whom data/document is available
Researchers in the field of physiotherapy and other health groups

Under which criteria data/document could be used
Researchers in the field of physiotherapy and other health groups can receive it upon formal request

From where data/document is obtainable
Giti Torkaman, Physical Therapy Department, Tarbiat Modares University

What processes are involved for a request to access data/document
Upon receipt of the request, the data will be shared for up to one month

Comments