

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

27 Jun 2026

### The Effects of Pilates Exercises on the Balance and Anticipatory and Co-contraction of Selected Lower-Limb Muscles in the Elderly with a History of Falling

#### Protocol summary

##### Study aim

The timing and recruitment patterns of the lower-limb muscles change in the elderly. The aim of this study was to investigate the effects of Pilates exercises on the balance and co-contraction of selected lower-limb muscles in elderly.

##### Design

The sample consists of 22 elderly women which are divided into two groups of control (N=10 ) and intervention (N=12 ).

##### Settings and conduct

All the research steps are done in Shahid Haghiri Zavareh Stadium. Subjects who have inclusion criteria get a doctor's approval for exercise. The written informed consent was obtained from all subjects prior to the measurements. Balance tests and the electrical activity of the selected lower-limb muscles before and after the exercises were measured. The experimental group participated in training protocols of Pilates exercise for eight-week.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria were as follows: female range 60–80 years, no regular participation in a regular aerobic exercise program, having a history of a fall in the past year, and having a doctor's approval for exercise. The study exclusion criteria were specified as follows: having a postural disorder based on New York's criteria, having a history of previous lower limb surgery within the previous year, having a history of specific diseases or other diseases (e.g., neuromuscular disease, osteoarthritis, severe spinal deformity, paralysis, infections, tumors, severe vision or hearing impairment)

##### Intervention groups

Experimental group performed 8 weeks of the Pilates exercises  
Control Group: Common Activity

##### Main outcome variables

Pilates exercise can effect on Balance: Anticipatory and

cocontraction of selected lower-limb muscles in elderly.

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20200613047758N1**

Registration date: **2020-07-07, 1399/04/17**

Registration timing: **retrospective**

Last update: **2020-07-07, 1399/04/17**

Update count: **0**

##### Registration date

2020-07-07, 1399/04/17

##### Registrant information

##### Name

Najmeh Noghani Ardestani

##### Name of organization / entity

Allameh Tabataba'i University

##### Country

Iran (Islamic Republic of)

##### Phone

+98 21 6615 2471

##### Email address

najmenoghani@yahoo.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2018-09-24, 1397/07/02

##### Expected recruitment end date

2019-09-22, 1398/06/31

##### Actual recruitment start date

2019-04-03, 1398/01/14

##### Actual recruitment end date

2019-06-04, 1398/03/14  
**Trial completion date**  
2019-06-04, 1398/03/14  
**Scientific title**  
The Effects of Pilates Exercises on the Balance and Anticipatory and Co-contraction of Selected Lower-Limb Muscles in the Elderly with a History of Falling

**Public title**  
The Effects of Pilates Exercises on the Balance and Anticipatory on Co-contraction of Selected Lower-Limb Muscles in the Elderly with a History of Falling

**Purpose**  
Prevention

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

Female range 60–80 years having no regular participation in a regular exercise program history of a fall in the past year having a doctor's approval for exercise

**Exclusion criteria:**

having a postural disorder based on New York's criteria having a history of previous lower limb surgery within the previous year having a history of specific diseases or other diseases (e.g., neuromuscular disease, osteoarthritis, severe spinal deformity, paralysis, infections, tumors, severe vision or hearing impairment)

**Age**

From **60 years** old to **80 years** old

**Gender**

Female

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **20**

Actual sample size reached: **22**

**Randomization (investigator's opinion)**

Not 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**

University of social welfare and rehabilitation

sciencess.

**Street address**

kodakyar Ave., daneshjo Blvd.,Evin

**City**

Tehran

**Province**

Tehran

**Postal code**

1985713871

**Approval date**

2018-09-24, 1397/07/02

**Ethics committee reference number**

IR.USWR.REC.1397.092

**Health conditions studied**

**1**

**Description of health condition studied**

falling

**ICD-10 code**

**ICD-10 code description**

**Primary outcomes**

**1**

**Description**

The Effects of Pilates Exercises on the Balance in the Elderly with a History of Falling

**Timepoint**

It was measured before the intervention as well as after the intervention(after 8 week)

**Method of measurement**

Berg Balance Test, Time Up and Go Test

**2**

**Description**

The Effects of Pilates Exercises on the Anticipatory Performance of Selected Lower-Limb Muscles in the Elderly with a History of Falling

**Timepoint**

It was measured before the intervention as well as after the intervention(after 8 week)

**Method of measurement**

Recording of electrical muscle activity was performed by 16-channel Electromyography device, manufactured by Baya med Iran Company

**3**

**Description**

The Effects of Pilates Exercises on Co-contraction of Selected Lower-Limb Muscles in the Elderly with a History of Falling

**Timepoint**

It was measured before the intervention as well as after the intervention(after 8 week)

**Method of measurement**

Recording of electrical muscle activity was performed by 16-channel Electromyography device, manufactured by

Baya med Iran Company

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Intervention group: Training protocol to novice and intermediate levels is obtained from an updated version of the Brazilian Protocol of Pérez et al. (2014). The first week session was designed to get beginners acquainted with the principles of Pilates, according to the principles of Pilates' technique. Then 7-week was designed to prepare the elderly for performing intermediate level Pilates exercises that elderly can do.

#### Category

Prevention

### 2

#### Description

Control group: A group as a controller who engages in normal activities and does not receive any training protocol

#### Category

Prevention

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Shahid Haghiri Zavareh Jym

##### Full name of responsible person

Najmeh Noghani Ardestani

##### Street address

Shohada Ave, Naeen Road

##### City

Zavareh

##### Province

Isfahan

##### Postal code

8441875151

##### Phone

+98 31 5437 2700

##### Email

najmenoghani@yahoo.com

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Allameh Tabataba'i University

##### Full name of responsible person

Jalal Dehghani Firouzabadi

#### Street address

Bolvar-e-Gharbi-e-Stadium-e-Azadi Tehran, Tehran Province

#### City

Tehran

#### Province

Tehran

#### Postal code

148743411

#### Phone

+98 21 4839 4121

#### Email

Najmenoghani@yahoo.com

#### Grant name

#### Grant code / Reference number

#### Is the source of funding the same sponsor organization/entity?

Yes

#### Title of funding source

Allameh Tabataba'i University

#### Proportion provided by this source

1

#### 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

Persons

## Person responsible for general inquiries

#### Contact

##### Name of organization / entity

Allameh Tabataba'i University

##### Full name of responsible person

Najmeh Noghani Ardestani

##### Position

Master of Science

##### Latest degree

Master

##### Other areas of specialty/work

corrective exercise & Sport injury

##### Street address

Floor 1, No 4, Shabnam Ave, Khanabadi Ave, Mortazavi Street next to the Jeyhoon

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## Person responsible for scientific

## **inquiries**

### **Contact**

**Name of organization / entity**

Allameh Tabataba'i University

**Full name of responsible person**

Dr. Farideh Babakhani

**Position**

Associate professor

**Latest degree**

Ph.D.

**Other areas of specialty/work**

corrective exercise & Sport injury

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## **Person responsible for updating data**

### **Contact**

**Name of organization / entity**

Allameh Tabataba'i University

**Full name of responsible person**

Najmeh Noghani Ardestani

**Position**

Master of Science

**Latest degree**

Master

### **Other areas of specialty/work**

Others

**Street address**

Floor 1, No 4, Shabnam Ave, Khanabadi Ave,  
Mortazavi Street next to the Jeyhoon

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**Province**

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**Postal code**

1354984111

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**Email**

Najmenoghani@yahoo.com

## **Sharing plan**

### **Deidentified Individual Participant Data Set (IPD)**

Undecided - It is not yet known if there will be a plan to make this available

### **Study Protocol**

Undecided - It is not yet known if there will be a plan to make this available

### **Statistical Analysis Plan**

Undecided - It is not yet known if there will be a plan to make this available

### **Informed Consent Form**

Undecided - It is not yet known if there will be a plan to make this available

### **Clinical Study Report**

Undecided - It is not yet known if there will be a plan to make this available

### **Analytic Code**

Undecided - It is not yet known if there will be a plan to make this available

### **Data Dictionary**

Undecided - It is not yet known if there will be a plan to make this available