# Clinical Trial Protocol
# Iranian Registry of Clinical Trials

06 Jul 2026

## The effect of 12 weeks of resistance training with different muscle tensions on mir-92, mir-204, mir-214, mir-233 and sclerostin in elderly women

## Protocol summary


**Study aim**

Determining the effect of 12 weeks of resistance training with different muscle tensions on mir-92, mir-204, mir-214, mir-233 and sclerostin in elderly women.

**Design**

The statistical sample of this research will be 45 healthy elderly women with an age range of 60 to 65 years living in Khorram Abad city. According to the initial estimate, 45 people will be randomly divided into three resistance groups 1 (15 people), resistance group 2 (15 people) and control (15 people). Then the experimental group will perform resistance exercises for 12 weeks and 3 sessions per week according to the protocol.

**Settings and conduct**

After obtaining the necessary permits from various authorities including the University of Medical Sciences and the ethics committee and coordinating with orthopedic specialists, then the research samples will be referred to the parks and the retirement organization, and the statistical sample of this research is 45 healthy elderly women with a range of 60 to 65 years old residents of Khorram Abad will form.

**Participants/Inclusion and exclusion criteria**

Participants must be residents of Khorram Abad city, be menopausal, not have any sports activities in the last six months

**Intervention groups**

The resistance training protocol in the first group is in the form of three periods of 12 repetitions with 75% of a maximum repetition and with two-minute rests between periods, with a duration of one second of muscle tension (one second of flexion and one second of extension) and in the second group in the form of three The three-repetition period was performed with 50% of a maximum repetition and with two-minute rests between periods, with a duration of six seconds of muscle tension (six seconds of flexion and six seconds of extension). The control group does not do any sports during this time.

**Main outcome variables**

microRNA (214), microRNA (232), microRNA (92), sclerostin


## General information

**Reason for update**

**Acronym**

**IRCT registration information**

IRCT registration number: **IRCT20230828059290N2**
Registration date: **2023-09-12, 1402/06/21**
Registration timing: **prospective**

Last update: **2023-09-12, 1402/06/21**
Update count: **0**

**Registration date**

2023-09-12, 1402/06/21

**Registrant information**


**Name**

Fazlollah Fathollahi

**Name of organization / entity**

**Country**

Iran (Islamic Republic of)

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**Recruitment status**

**Recruitment complete**

**Funding source**

**Expected recruitment start date**

2023-09-23, 1402/07/01

**Expected recruitment end date**

2023-12-22, 1402/10/01

**Actual recruitment start date**

empty

**Actual recruitment end date**

empty

**Trial completion date**

empty

**Scientific title**

The effect of 12 weeks of resistance training with different muscle tensions on mir-92, mir-204, mir-214, mir-233 and sclerostin in elderly women

**Public title**

The effect of sports activity on bones

**Purpose**

Prevention

**Inclusion/Exclusion criteria**

**Inclusion criteria:**

No surgery Not having any heart disease Not smoking and drinking alcohol Not having a physical problem such as orthopedic and brain-nervous problems that prevent exercise. Blood pressure > 110/180 as a criterion for exiting the study process Menopause Age range in the specified age range of 45 to 65

**Exclusion criteria:**

Lack of continuous exercise before starting the training program Inability to exercise

**Age**

From **45 years** old to **65 years** old

**Gender**

Female

**Phase**

N/A

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **15**

**Randomization (investigator's opinion)**

Randomized

**Randomization description**

It is block randomization. In order to perform block randomization, a specific code is assigned to each of the people under study (66 people). Then, blocks with a volume of 6 people, which have 3 exclusive codes, are defined. Two A codes, two B codes, and two C codes are identified. Each of these three codes represent each of the groups under study. From the combination and sequence of these codes in blocks of 6, different blocks are created. Then, using Stata software version 17 and using the command code egen block, blocks of 6 are selected by simple random method with placement. 11 blocks are selected using simple random placement method.

**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**

Research Ethics Committees of Lorestan University of Medical Sciences

**Street address**

km 4, Borujerd Road, Vice-Chancellor of Research and Technology, Lorestan University of Medical Sciences

**City**

Khorram Abad

**Province**

Lorestan

**Postal code**

418326599877

**Approval date**

2023-08-09, 1402/05/18

**Ethics committee reference number**

IR.LUMS.REC.1402.170

## Health conditions studied

### 1

**Description of health condition studied**

The subject of study is not a disease

**ICD-10 code**

**ICD-10 code description**

ICD-10

## Primary outcomes

### 1

**Description**

Increased serum sclerostin levels

**Timepoint**

48 hours before and after the last training session

**Method of measurement**

blood test

### 2

**Description**

decreased serum mir-92 levels

**Timepoint**

48 hours before and after the last training session

**Method of measurement**

blood test

### 3

**Description**

Increased serum mir-214 levels

**Timepoint**

48 hours before and after the last training session

**Method of measurement**
blood test

**4**

**Description**
decreased serum mir-233 levels
**Timepoint**
48 hours before and after the last training session
**Method of measurement**
blood test

## Secondary outcomes

**1**

**Description**
noblood pressure
**Timepoint**
48 hours before and after the implementation of the research protocol
**Method of measurement**
nothrough a blood pressure monitor

## Intervention groups

**1**

**Description**
Intervention group: Intervention group: In this research, according to the training protocol, there are two intervention groups. In the first group, the resistance training protocol is in the form of three periods of 12 repetitions with 75% of a maximum repetition and with two-minute rests between periods, with a duration of one second of muscle tension. (one second of flexion and one second of extension) and in the second group in the form of three periods of three repetitions with 50% of a maximum repetition and with two-minute rests between periods, with a duration of six seconds of muscle tension (six seconds of flexion and six seconds of extension). Was performed.
**Category**
Diagnosis

**2**

**Description**
Control group: Control group: In this research, there is a control group and they will not do any regular physical activity or exercise during the implementation of the protocol.
**Category**
N/A

## Recruitment centers

**1**

**Recruitment center**
**Name of recruitment center**
Shahid Rahimi Hospital
**Full name of responsible person**
F azlollah Fathollahi
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## Sponsors / Funding sources

**1**

**Sponsor**
**Name of organization / entity**
Khoram-Abad University of Medical Sciences
**Full name of responsible person**
Bahram Rasoulian
**Street address**
Kilometer 4 of Borujerd Road, Vice-Chancellor of Research and Technology of Lorestan University of Medical Sciences
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research@lums.ac.ir
**Grant name**
**Grant code / Reference number**
**Is the source of funding the same sponsor organization/entity?**
Yes
**Title of funding source**
Khoram-Abad University of Medical Sciences
**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**
Khoram-Abad University of Medical Sciences
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Fazlollah Fathollahi Shoorabeh
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Assistant Professor
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## Person responsible for updating data

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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**
Undecided - It is not yet known if there will be 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**
Undecided - It is not yet known if there will be a plan to make this available
**Title and more details about the data/document**
The information is confidential and the results will be published as an article
**When the data will become available and for how long**
It does not have a specific yield
**To whom data/document is available**
Only the research team is allowed to access the data
**Under which criteria data/document could be used**
It is for the purpose of analyzing information.
**From where data/document is obtainable**
The documents are only available to the research team
**What processes are involved for a request to access data/document**
The documents are only available to the research team
**Comments**