

Clinical Trial Protocol

Iranian Registry of Clinical Trials

24 Jun 2026

Comparison of the effect of traditional plyometric exercises with plyometric exercise with limited blood flow on the pancreatic- bone loop and biochemical markers of bone metabolism in inactive girls

Protocol summary

Study aim

Evaluation of endocrine function and bone metabolism of inactive girls after physical activity

Design

A clinical trial with a control group, with parallel, randomized groups on 60 people will be performed for 4 weeks. A simple randomization method was used.

Settings and conduct

Participants will perform plyometric exercises with different intensities (low, medium and high) and low intensity+ blood flow restriction for 4 weeks (3 sessions per week) at Shahid Chamran University of Ahvaz. The training program consisted 10 minutes of warm-up, main training exercises and 10 minutes of cool down. The main training program consisted of four jump movements including deep jump (three sets of six repetitions), step jump (three sets of six repetitions), forward jump (two sets of eight repetitions) and side-to-side jump.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Being between 20 and 30 years old, having physical and mental health, having a low level of activity Exclusion criteria: Consumption of drugs, alcohol, smoking, osteopenia and osteoporosis , arthritis, diseases such as diabetes, thyroid, blood pressure, heart,

Intervention groups

1: High intensity training 2: Medium intensity 3: Low intensity 4: Low intensity + restriction of blood flow 5: Control

Main outcome variables

Undercarboxylated osteocalcin, Insulin, Glucose,

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20181211041921N2**

Registration date: **2020-11-07, 1399/08/17**

Registration timing: **retrospective**

Last update: **2020-11-07, 1399/08/17**

Update count: **0**

Registration date

2020-11-07, 1399/08/17

Registrant information

Name

fatemeh fakhri

Name of organization / entity

Shahid Chamran University of Ahvaz

Country

Iran (Islamic Republic of)

Phone

+98 61 3333 0019

Email address

fakhri.fatemeh@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-10-10, 1399/07/19

Expected recruitment end date

2020-10-30, 1399/08/09

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the effect of traditional plyometric exercises with plyometric exercise with limited blood

flow on the pancreatic- bone loop and biochemical markers of bone metabolism in inactive girls

Public title

The effect of plyometric exercises on endocrine function and bone metabolism indices

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria:

Being between 20 and 30 years old, having physical and mental health having a low level of activity

Exclusion criteria:

Consumption of drugs, alcohol, smoking, osteopenia and osteoporosis and its resulting bone fractures, arthritis, diseases such as diabetes, thyroid, blood pressure, heart, respiratory diseases and menstrual irregularities

Age

From **20 years** old to **30 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **60**

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

Ethics committee of Ahvaz Jundishapur University of Medical Sciences

Street address

Golestan

City

Ahvaz

Province

Khuzestan

Postal code

...

Approval date

2017-11-20, 1396/08/29

Ethics committee reference number

IR.AJUMS.REC.1396.617

Health conditions studied

1

Description of health condition studied

Endocrine function and metabolism

ICD-10 code

.

ICD-10 code description

.

Primary outcomes

1

Description

Under-carboxylated osteocalcin

Timepoint

Before and 48 hours after the 4-week intervention period

Method of measurement

Biochemical kits

2

Description

Insulin

Timepoint

Before and 48 hours after the 4-week intervention period

Method of measurement

Biochemical kits

3

Description

Glucose

Timepoint

Before and 48 hours after the 4-week intervention period

Method of measurement

Biochemical kits

Secondary outcomes

1

Description

Alkaline phosphatase

Timepoint

Before and 48 hours after the intervention

Method of measurement

Biochemical kit

2

Description

lipid profile

Timepoint

Before and 48 hours after the intervention period

Method of measurement

Biochemical kit

Intervention groups

1

Description

Intervention group 1: High intensity training- Participants will perform high intensity plyometric exercises for 4 weeks and 3 sessions per week in the gym of Shahid Chamran University.

Category

Prevention

2

Description

Intervention group 2: Medium intensity training- Participants will perform moderate intensity plyometric exercises for 4 weeks and 3 sessions per week in the gym of Shahid Chamran University.-

Category

Prevention

3

Description

Intervention group 3: Low intensity training. Participants will perform low intensity plyometric exercises for 4 weeks and 3 sessions per week in the gym of Shahid Chamran University.

Category

Prevention

4

Description

Intervention group 4: Low-intensity exercise with limited blood flow. A pneumatic air pressure cuff will be closed on the upper part of both subjects' legs during the exercise and the person will perform his exercises with low intensity.

Category

Prevention

5

Description

Control group: Control. Participants will not have any regular physical activity.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Shahid Chamran University of Ahvaz

Full name of responsible person

Dr. Akram Ahangarpour

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...

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Email

akramahangarpour@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Ahvaz University of Medical Sciences

Full name of responsible person

Dr. Hajiye Shahbazyan

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0000000000

Phone

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diabets_center@yahoo.com

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Ahvaz 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

Ahvaz University of Medical Sciences

Full name of responsible person

Prof. Akram Ahngarpour

Position

Professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiology
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Person responsible for scientific inquiries

Contact
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Ahvaz University of Medical Sciences
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Person responsible for updating data

Contact
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
....
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
No - There is not a plan to make this available
Analytic Code
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available