

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 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		Ethics committee reference number IR.AJUMS.REC.1396.617	
Public title The effect of plyometric exercises on endocrine function and bone metabolism indices		Health conditions studied	
Purpose Prevention		1	
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		Description of health condition studied Endocrine function and metabolism	
		ICD-10 code .	
		ICD-10 code description .	
Age From 20 years old to 30 years old		Primary outcomes	
Gender Female		1	
		Description Under-carboxylated osteocalcin	
Phase N/A		Timepoint Before and 48 hours after the 4-week intervention period	
Groups that have been masked <i>No information</i>		Method of measurement Biochemical kits	
Sample size Target sample size: 60		2	
Randomization (investigator's opinion) Randomized		Description Insulin	
Randomization description ...		Timepoint Before and 48 hours after the 4-week intervention period	
Blinding (investigator's opinion) Not blinded		Method of measurement Biochemical kits	
Blinding description		3	
Placebo Not used		Description Glucose	
Assignment Parallel		Timepoint Before and 48 hours after the 4-week intervention period	
Other design features		Method of measurement Biochemical kits	
Secondary Ids empty		Secondary outcomes	
Ethics committees		1	
1		Description Alkaline phosphatase	
Ethics committee Name of ethics committee Ethics committee of Ahvaz Jundishapur University of Medical Sciences		Timepoint Before and 48 hours after the intervention	
Street address Golestan		Method of measurement Biochemical kit	
City Ahvaz		2	
Province Khouzestan		Description lipid profile	
Postal code ...		Timepoint Before and 48 hours after the intervention period	
Approval date 2017-11-20, 1396/08/29		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

Street address

Golestan Blvd

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Province

Khouzestan

Postal code

...

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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

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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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Person responsible for updating data

Contact

Name of organization / entity
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fatemeh fakhri
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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

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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