Clinical Trial Protocol
Iranian Registry of Clinical Trials

17 Sep 2026

The effect of high-intensity interval training on apelin-dependent mechanism in treated hypertension elderly man

Protocol summary

Summary

The purpose of this study will be investigation of the effect of high-intensity interval training on mechanism of reduce blood pressure induced apelin in treated hypertension elderly people. The study design will be based on non blinding. Forty five patients will be equally divided and randomized into three groups including high intensity interval training 1 and 2 and control. Inclusion criteria: will be treated hypertension elderly men; no any participant to regular exercise training for 1 year and exclusion criteria: body mass index >28; cardiovascular disease; liver and kidney disease; mental disease; functional limitation(such as osteoarthritis) and cessation of drug use during the study. Protocol of high-intensity interval training number one: including 6 intervals that each interval will be 1.5 minutes at 85-90 % HR reserve and 2 minutes active interval at 50-55%. Other high-intensity interval training including 3 intervals that each interval will be 3.5 minutes at 85-90 % HR reserve and 3.5 minutes active interval at 50-55% that undertaken for 6 weeks. Indicators of nitrate/nitrite, apelin, systolic and diastolic blood pressure will be measured before and after 6 week exercise training.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016092823002N3**
Registration date: **2016-10-24, 1395/08/03**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2016-10-24, 1395/08/03

Registrant information

Name

Alireza Ghardashi Afousi

Name of organization / entity

University of Tehran

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Vice President of Research of Tehran University (Faculty of Physical Education and Sport Science)

Expected recruitment start date

2016-05-21, 1395/03/01

Expected recruitment end date

2016-08-22, 1395/06/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of high-intensity interval training on apelin-dependent mechanism in treated hypertension elderly man

Public title

Interval exercise training and the mechanism of reduced blood pressure

Purpose

Treatment

Inclusion/Exclusion criteria

Including criteria: treated hypertension elderly men; no any participant to regular exercise training for 1 year and exclusion criteria will be: body mass index >28;

cardiovascular disease; liver and kidney disease; mental disease; functional limitation(such as osteoarthritis) and cessation of drug use during the study.

Age

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

Gender

Both

Phase

3

Groups that have been masked

No information

Sample size

Target sample size: **45**

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

Ethic committee of Tehran university (Faculty of Physical Education and Sport Science)

Street address

Faculty of Physical Education and Sport Science, Above the Intersection Jalal Al-e Ahmad, North Karegar Avenue, Islamic Revolution Square

City

Tehran

Postal code

Approval date

2016-05-30, 1395/03/10

Ethics committee reference number

IR.UT.1395.198

Health conditions studied

1

Description of health condition studied

Hypertension

ICD-10 code

I10, I11,

ICD-10 code description

Hypertensive diseases

Primary outcomes

1

Description

Apelin

Timepoint

Before and after 6 week of intervention

Method of measurement

ELISA

2

Description

Nitrate/nitrite

Timepoint

Before and after 6 week of intervention

Method of measurement

ELISA

3

Description

VO2 peak

Timepoint

Before and after 6 week of intervention

Method of measurement

Gas analyser

4

Description

Resting heart rate

Timepoint

Before and after 6 week of intervention

Method of measurement

Polar beat heart rate

5

Description

Systolic and diastolic blood pressure

Timepoint

Before and after 6 week of intervention (rest, exercise, recovery)

Method of measurement

sphygmomanometer

6

Description

Fat percent

Timepoint

Before and after 6 week of intervention

Method of measurement

Caliper- Jackson and Pollock’s Equation

7

Description

Endothelin-1

Timepoint

Before and after 6 week of intervention

Method of measurement
ELISA

8

Description
Maximal heart rate
Timepoint
Before and after 6 week of intervention
Method of measurement
Polar beat heart rate

9

Description
Recovery heart rate
Timepoint
Before and after 6 week of intervention (1,2,3 minutes recovery)
Method of measurement
Polar beat heart rate

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group 1: 6 interval (1.5 minutes at 85-90 % HR reserve with 2 minutes active interval at 50-55 % HR reserve)
Category
Rehabilitation

2

Description
Intervention group 2: 3 interval (3.5 minutes at 85-90% HR reserve with 3.5 minutes at 50-55% HR reserve)
Category
Rehabilitation

3

Description
Control group: normal condition without any exercise
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Ayatalah Ashrafi isfahani hospital
Full name of responsible person
Narges Alsadat Zahed
Street address
Ayatalah Ashrafi Isfahani hospital, Molavi Crossroads, Molavi Square
City
Tehran

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Vice President of Research (Faculty of Physical Education and Sport Science)
Full name of responsible person
Alireza Ghardashi
Street address
Faculty of Physical Education and Sport Science, Above the Intersection Jalal Al-e Ahmad, North Karegar Avenue, Islamic Revolution Square.
City
Tehran
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Vice President of Research (Faculty of Physical Education and Sport Science)
Proportion provided by this source
100
Public or private sector
empty
Domestic or foreign origin
empty
Category of foreign source of funding
empty
Country of origin
Type of organization providing the funding
empty

Person responsible for general inquiries

Contact
Name of organization / entity
University of Tehran
Full name of responsible person
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Position
PhD
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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty

Study Protocol
empty

Statistical Analysis Plan
empty

Informed Consent Form
empty

Clinical Study Report
empty

Analytic Code
empty

Data Dictionary
empty