Clinical Trial Protocol
Iranian Registry of Clinical Trials

11 Jul 2026

The Effects of 8 Weeks of Circuit Resistance Training on Some Inflammatory and Endothelial Markers in Pre-hypertensive Obese Women

Protocol summary

Study aim
The aim of this study is to investigate the effects of eight weeks circuit resistance training on some inflammatory and endothelial markers in pre-hypertensive obese women

Design
The study have1 control and 1 intervention group, on 24 pre-hypertension women, Randomization is done by lottery using the list of volunteer's names.

Settings and conduct
Gym bodybuilding, private section, Kermanshah

Participants/Inclusion and exclusion criteria
The subjects must be obese. and pre-hypertensive. They must have no diseases or skeletal problem. They dont use any medicine or diets.

Intervention groups
Circuit resistance training group, Control group

Main outcome variables
Anthropometric variables (body mass index, waist-to-hip ratio, body fat percentage, weight); Blood pressure variables (systolic and diastolic blood pressure); Insulin Resistance Variable; Inflammatory variables (interleukin-1 beta, tumor necrosis factor alpha); Endothelial-related variables (endothelial-1 and nitric oxide).

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20210824052279N1**
Registration date: **2021-08-31, 1400/06/09**
Registration timing: **prospective**

Last update: **2021-08-31, 1400/06/09**
Update count: **0**

Registration date
2021-08-31, 1400/06/09

Registrant information

Name
Hengameh Moradian

Name of organization / entity

Country
Iran (Islamic Republic of)

Phone
+98 83 3721 2165

Email address
hengameh.moradiyan@gmail.com

Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2021-09-01, 1400/06/10

Expected recruitment end date
2021-11-01, 1400/08/10

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The Effects of 8 Weeks of Circuit Resistance Training on Some Inflammatory and Endothelial Markers in Pre-hypertensive Obese Women

Public title
The Effects of 8 Weeks of Circuit Resistance Training on Some Inflammatory and Endothelial Markers in Pre-hypertensive Obese Women

Purpose
Supportive

Inclusion/Exclusion criteria

Inclusion criteria:
They should be obese (BMI>,30). Their blood pressure

must be about 120-139 and 80-89 mmHg.

Exclusion criteria:

Subjects have any special disease or skeletal problems. They use weight loss medication or diet.

Age

From **40 years** old to **50 years** old

Gender

Female

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

The researcher gives a special code or number to each member of the community. He then writes down the number of each of them on a small piece of paper or cardboard; then puts them into a box or container and mixes them. Then he takes out the cards one by one, writes down their number, and continues to do so until he chooses 24 numbers. When the number of samples is completed. The same method is used to determine the control and intervention groups. In this way, a number from 1 to 24 is assigned to participants, then writes on cards and puts in a bag. The first 12 numbers that are took out of the bag is assigned to the control group and the next 12 numbers to intervention group.

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 The Institute of Physical Education

Street address

Sharyati street

City

Kermanshah

Province

Kermanshah

Postal code

6713986161

Approval date

2021-07-18, 1400/04/27

Ethics committee reference number

IR.SSRC.REC.1400.069

Health conditions studied

1

Description of health condition studied

pre-hypertension

ICD-10 code

I10

ICD-10 code description

Essential (primary) hypertension

Primary outcomes

1

Description

blood pressure

Timepoint

48 hours before and after intervention

Method of measurement

Barometer, Beurer, Germany

2

Description

Anthropometric profiles

Timepoint

48 hours before and after intervention

Method of measurement

Skinfold Caliper, Harpenden, UK- meter

3

Description

Lipid profiles (Triglyceride, Cholesterol, Low density lipoprotein, High density lipoprotein)

Timepoint

48 hours before and after intervention

Method of measurement

Blood sampling, Pars azmoon kit, Tehran, Iran

4

Description

Insulin resistance

Timepoint

48 hours before and after intervention

Method of measurement

Blood sampling using fasting glucose and insulin, Mercodia kit, Iceland, Sweden.

5

Description

Inflammatory markers (Interleukin-1 beta, Tumor necroes alpha)

Timepoint

48 hours before and after intervention

Method of measurement

Blood sampling, KPG company

6

Description
Endothelial markers (Endothelin-1 , Nitric oxide)
Timepoint
48 hours before and after intervention
Method of measurement
Blood sampling, Zellbio kit, Germany

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: CRT group will perform circuit resistance training for 8 weeks which according to the recommendations of the American Heart Association will be 40% 1RM for upper body and 60% 1RM for lower body movements.The training protocol is for 8 weeks, 3 sessions per week and each session is 50 to 60 minutes (15 minutes of warm-up, 30 minutes of weight training, 10 minutes of cooling). Resistance movements performs in the form of 3 circles and 9 stations, including four upper body movements (chest press, lat pull down, seated cable row, biceps cable curl) and three lower body movements (leg press, seated leg extension, leg curl), and two core-body movements (crunch and back extension) . The order of performing the movements is such that first the mid-torso movements and then the upper and lower torso movements are performed alternately.
Category
Rehabilitation

2

Description
Control group: All measurements will be performed like the intervention group 48 hours before and after the intervention, except that they will not have physical training during 8 weeks.
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Recall Notice
Full name of responsible person
Hengameh Moradian
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University
Full name of responsible person
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University
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
Islamic Azad University
Full name of responsible person
Hengameh Moradian
Position
PH.D student
Latest degree
Master
Other areas of specialty/work
Exercise physiology
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Person responsible for updating data

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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
Yes - There is a plan to make this available
Statistical Analysis Plan
Not applicable
Informed Consent Form
Yes - There is a plan to make this available
Clinical Study Report
Yes - There is 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
Title and more details about the data/document
Total potential data can be shared after people are identifiable
When the data will become available and for how long
Start access period after printing results
To whom data/document is available
public
Under which criteria data/document could be used
Using the considered training intensity
From where data/document is obtainable
hengameh.moradiyan@gmail.com
What processes are involved for a request to access data/document
Respond as soon as possible
Comments