Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

The effects of Acute High Intensity Interval and Isometric Handgrip training on Some of hemodynamic Factors in Women With hypertention

Protocol summary

Study aim

The effects of Acute High Intensity Interval and Isometric Handgrip training on Some of hemodynamic Factors in Women With hypertention

Design

A randomized clinical trial study, single-blind, Parallel, 45 participants randomized to 2 intervention groups and a control group through web-based randomization.

Settings and conduct

Participants were equally divided into three groups of aerobic, isometric handgrip and control. This is a blind study that evaluators are about blind intervention. This study is performed in Al-Zahra Cardiovascular Hospital in Shiraz. Individuals in each group perform their desired exercise session and respond to hemodynamic factors (systolic blood pressure, diastolic blood pressure, moderate blood pressure, heart rate, myocardial oxygen cost) Women with high blood pressure in 8 times (before exercise, immediately . At the end of the exercise, 60,45,30,15,10,5 minutes of recovery period) were measured.

Participants/Inclusion and exclusion criteria

1-women with 35-55 years 2-premenopausal 3-regularly menstruating 4-free of any chronic, cardiovascular, metabolic, renal or respiratory disease 5-No physical and functional limitations 6-non-smokers 7-the Patient with high blood pressre (pre to stage 1 hypertension)

Intervention groups

3 groups: 1-high intensity interval training group: four intervals 4-minute with 85-95% of HR peak with 3 minutes of active rest between intervals of approximately 70% HR peak in one session 2-isometric handgrip exercise group: four isometric handgrip contractions 2minute with non-dominant hand in 30% intensity of maximum voluntary contraction with a 2-minute break between contractions in one session 3-control group: did not perform any specific exercise.

Main outcome variables

Systolic blood pressure, diastolic blood pressure,Mean arterial pressure, heart rate,Rate Pressure Product

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20191123045478N2**
Registration date: **2020-12-30, 1399/10/10**
Registration timing: **retrospective**

Last update: **2020-12-30, 1399/10/10**
Update count: **0**

Registration date

2020-12-30, 1399/10/10

Registrant information

Name

Elham Shakoor

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 71 3613 4630

Email address

eli_shakoor@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-04-21, 1398/02/01

Expected recruitment end date

2019-08-11, 1398/05/20

Actual recruitment start date

2019-05-22, 1398/03/01

Actual recruitment end date

2019-09-16, 1398/06/25

Trial completion date

2019-11-14, 1398/08/23

Scientific title
The effects of Acute High Intensity Interval and Isometric Handgrip training on Some of hemodynamic Factors in Women With hypertention

Public title
The effects of Acute High Intensity Interval and Isometric Handgrip training on high blood pressure

Purpose
Basic scienece

Inclusion/Exclusion criteria

Inclusion criteria:
the Patient with high blood pressre (pre to stage 1 hypertension) premenopausal regularly menstruating free of any chronic, cardiovascular, metabolic, renal or respiratory disease No physical and functional limitations non-smokers

Exclusion criteria:
use of any medications that may affect blood pressure and cardiovascular responses regular exercise within the last six months history of myocardial infarction and angioplasty pregnancy abnormalities of ECG, echo, and stress test

Age
From **33 years** old to **55 years** old

Gender
Female

Phase
N/A

Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **45**
Actual sample size reached: **45**

Randomization (investigator's opinion)
Randomized

Randomization description
Participants will be randomized into one of three groups (Two intervention and one control) using an online randomization system (randomizer.org). A member of the research team who is not involved in the selection of samples will determine the randomization sequence using a computer program. Participants will be notified of their group allocation with a sealed envelope.

Blinding (investigator's opinion)
Single blinded

Blinding description
In this study, the outcome assessor is blind to the groups' randomization and interventions receiving by participants. in this way, during the evaluation before and after the intervention protocol, they do not make mistakes in their judgments in favor of a specific therapeutic intervention.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethical Committee of Shiraz University of Medical Science

Street address
5th Floor, Central building of Shiraz University of Medical Sciences, Zand St., Shiraz, Iran

City
Shiraz

Province
Fars

Postal code
71348-14336

Approval date
2019-02-27, 1397/12/08

Ethics committee reference number
IR.SUMS.REHAB.REC.1398.001

Health conditions studied

1

Description of health condition studied
blood-pressure

ICD-10 code
R03

ICD-10 code description
Abnormal blood-pressure reading, without diagnosis

2

Description of health condition studied
aerobic exercise

ICD-10 code
Y93.A3

ICD-10 code description
Activity, aerobic and step exercise

Primary outcomes

1

Description
Systolic blood pressure

Timepoint
In eight times : before training, 0 (immediately after training), 5, 10, 15, 30, 45, 60 minutes after recovery period

Method of measurement
Digital sphygmomanometer

2

Description

diastolic blood pressure

Timepoint

In eight times : before training, 0 (immediately after training), 5, 10, 15, 30, 45, 60 minutes after recovery period

Method of measurement

Digital sphygmomanometer

3

Description

Mean arterial pressure

Timepoint

In eight times : before training, 0 (immediately after training), 5, 10, 15, 30, 45, 60 minutes after recovery period

Method of measurement

Digital sphygmomanometer

Secondary outcomes

1

Description

Heart rate

Timepoint

In eight times : before training, 0 (immediately after training), 5, 10, 15, 30, 45, 60 minutes after recovery period

Method of measurement

sphygmomanometer

Intervention groups

1

Description

Control group without exercise or Intervention: Participants in this group will have no exercise during the study

Category

N/A

2

Description

Intervention group1 high intensity interval Aerobic training: Participants do aerobic exercise for one session . The duration of each session is 40 minutes, including pre-workout warm-up, aerobic exercise program, and post-workout cooling.

Category

Treatment - Other

3

Description

Intervention group 2 isometric handgrip training: Participants do isometric handgrip exercise for one session . The duration of each session is 40 minutes, including pre-workout warm-up, aerobic exercise program, and post-workout cooling.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Al-Zahra Heart Hospital, Shiraz

Full name of responsible person

Dr. Payman Izadpanah

Street address

Sibooye Blvd

City

Shiraz

Province

Fars

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71649-54937

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hfcmanager@sums.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shiraz University

Full name of responsible person

Dr seyed mojtaba zebarjad

Street address

Shiraz University, Eram Square

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71946-84334

Phone

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mojtabazebarjad@shirazu.ac.ir

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Shiraz 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

Shiraz University

Full name of responsible person

Mohsen Salesi

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Sport science

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Person responsible for scientific inquiries

Contact

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Position

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Latest degree

Ph.D.

Other areas of specialty/work

Sports science

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Person responsible for updating data

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Latest degree

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Other areas of specialty/work

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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

There is no more information

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