

Clinical Trial Protocol

Iranian Registry of Clinical Trials

19 Jun 2026

The effects of different interval exercise protocols on post-exercise hypotension and heart rate variability during recovery in Hypertensive Patients

Protocol summary

Study aim

Investigating and comparing the effect of different protocols of intense interval exercise on post-exercise hypotension and heart rate variability during and after exercise in hypertensive patients

Design

Cross-over, 12 participating, 4 sessions, randomly and with a one-week washout.

Settings and conduct

Subjects will visit the laboratory of Shahid Beheshti University between 8-11 am. After measuring heart rate variability and blood pressure, they will perform one of the four protocols, and after completing exercise 1-hour recovery measurements will continue.

Participants/Inclusion and exclusion criteria

12 persons with evaluated blood pressure (systolic blood pressure between 120 and 140 mmHg and diastolic blood pressure between 80 and 120 mmHg) in the age range between 35-60 years will participate in the research through notification and voluntarily. Exclusion criteria from the study included uncontrolled blood pressure (systolic blood pressure above 160 and diastolic blood pressure above 120 mmHg), history of cardiovascular disease, smoking, participating in vigorous activities more than once a week.

Intervention groups

High volume low intensity session, participants will do 4*4 minute 70% of peak oxygen consumption, each of them is separated by 3 minutes recovery. Low volume high intensity session, participants will perform 10*1 minute bouts with 90% of peak oxygen consumption, each of them separated by a minute recovery. Sie session, after 5 minutes of warm-up, the participants will perform 8*15 second Allout, with 1 min recovery control session, no physical activity will be performed.

Main outcome variables

SBP DBP MBP HRV (LF, HF, LF/HF, SDNN, PNN50)

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230224057519N1**

Registration date: **2023-08-14, 1402/05/23**

Registration timing: **retrospective**

Last update: **2023-08-14, 1402/05/23**

Update count: **0**

Registration date

2023-08-14, 1402/05/23

Registrant information

Name

mahnaz hassani valashjerdi

Name of organization / entity

Shahid beheshti university

Country

Iran (Islamic Republic of)

Phone

+98 26 3460 7926

Email address

m.hassanivalashjerdi@mail.sbu.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-04-04, 1402/01/15

Expected recruitment end date

2023-06-20, 1402/03/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effects of different interval exercise protocols on post-exercise hypotension and heart rate variability during recovery in Hypertensive Patients

Public title

effect of different interval protocols on blood pressure

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Hypertensive patient
Absence of cardiometabolic diseases
Not participating in vigorous activities

Exclusion criteria:

Uncontrolled blood pressure (above 160 mmHg)
normotensive

Age

From **35 years** old to **60 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **12**

More than 1 sample in each individual

Number of samples in each individual: **4**

3 training sessions and one control session with one week washout

Randomization (investigator's opinion)

N/A

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research ethics committees of Shahid Beheshti University

Street address

Daneshjo Blvd

City

Tehran

Province

Tehran

Postal code

1983969411

Approval date

2023-06-18, 1402/03/28

Ethics committee reference number

IR.SBU.REC.1402.062

Health conditions studied

1

Description of health condition studied

hypertension

ICD-10 code

I11

ICD-10 code description

Hypertensive heart disease

Primary outcomes

1

Description

Investigating and comparing the effects of different intense interval exercise protocol on systolic blood pressure in hypertensive patient

Timepoint

Before the intervention and 5, 15, 30, 45, 60 minutes after the activity

Method of measurement

Omron m7 Blood pressure monitor

2

Description

Investigating and comparing the effects of different intense interval exercise protocol on LF in hypertensive patient

Timepoint

Before the intervention and 5, 15, 30, 45, 60 minutes after the activity

Method of measurement

Polar h10

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: perform a HIIE with 70% vo₂peak session with ergometer cycle

Category

Rehabilitation

2

Description

Intervention group: perform a HIIE with 90% vo₂peak

session with ergometer cycle

Category

Rehabilitation

3

Description

Control group: no intervention

Category

Other

4

Description

Intervention group: perform a HIIE with 100% vo2peak session with ergometer cycle

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Shahid Beheshti University

Full name of responsible person

Mahnaz Hassani Valashjerdi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahid Beheshti University

Full name of responsible person

Dr Sajad Ahmadizad

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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

Shahid Beheshti University

Proportion provided by this source

50

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

Shahid Beheshti University

Full name of responsible person

Mahnaz Hassani Valashjerdi

Position

Student

Latest degree

Bachelor

Other areas of specialty/work

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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

Dr Sajad Ahmadizad

Position

Professor

Latest degree

Ph.D.

Other areas of specialty/work

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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

Personal privacy

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

Yes - There is a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Not applicable

Data Dictionary

Not applicable

Title and more details about the data/document

Publish in english journal as an original article

When the data will become available and for how long

Every time

To whom data/document is available

Every one

Under which criteria data/document could be used

Publish in english journal as an original article

From where data/document is obtainable

Search engine

What processes are involved for a request to access data/document

An email request

Comments