Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 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 protocol, and after completing exercise 1-hour recovery measurements will continued

Participants/Inclusion and exclusion criteria
12 person 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 do4*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 perform8*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)

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+98 26 3460 7926

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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 (above160mmhg) 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 with90٪ vo2peak

session with ergometer cycle
Category
Rehabilitation

3

Description
Control group: no intervention
Category
Other

4

Description
Intervention group: perform a HIIE with100٪ 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
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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
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Mahnaz Hassani Valashjerdi
Position
Student
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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