

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 2026

Effect of two high intensity interval training and one moderate continuous training methods on apo B/apo A ratio and ABCA1, ABCG1 expression in CABG patients.

Protocol summary

Study aim

Investigating new HIIT training methods on reverse cholesterol transfer in CABG patients

Design

In this study, patients who are referred to the rehabilitation center of Farshchian Heart Hospital in Hamedan two months after the CABG operation with the recommendation letter of the surgeon and specialist doctor are selected for the second phase of rehabilitation. 30 people are selected and randomly divided into three continuous, 20-second and 60-second intermittent groups. Among the people who do not participate in the exercises, 10 people are randomly selected

Settings and conduct

This study is carried out in the rehabilitation department of Farshchian Heart Hospital in Hamedan under the supervision of a rehabilitation doctor, sports physiologist, physiotherapist, nurse and psychologist. Except the researcher, no one knows about the possible effect of training methods.

Participants/Inclusion and exclusion criteria

Coronary artery bypass surgery patients with an injection fraction higher than 30% and also an initial methadone higher than 5 were the conditions to enter this study.

Intervention groups

1. Control group 2. moderate-intensity continuous training (MIT) 3. high-intensity interval training 20sec (HIIT20sec) 4. high-intensity interval training 60sec(HIIT60sec)

Main outcome variables

The main variables of this study include: ABCA1, ABCG1, apoA, apoB, HDL, which are involved in the reverse transport of castrol.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230529058327N1**

Registration date: **2023-08-03, 1402/05/12**

Registration timing: **retrospective**

Last update: **2023-08-03, 1402/05/12**

Update count: **0**

Registration date

2023-08-03, 1402/05/12

Registrant information

Name

AliReza Ahmadvand

Name of organization / entity

The University of Bu Ali Sina

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-04-21, 1401/02/01

Expected recruitment end date

2022-06-22, 1401/04/01

Actual recruitment start date

2022-04-21, 1401/02/01

Actual recruitment end date

2022-06-22, 1401/04/01

Trial completion date

Scientific title

Effect of two high intensity interval training and one moderate continuous training methods on apo B/apo A ratio and ABCA1, ABCG1 expression in CABG patients.

Public title

Effect of two high intensity interval training and one moderate continuous training methods on apo B/apo A ratio and ABCA1, ABCG1 expression in CABG patients.

Purpose

Supportive

Inclusion/Exclusion criteria**Inclusion criteria:**

Coronary artery bypass grafting patient male At least two months have passed since their surgery.

Exclusion criteria:

Met less than 5 Injection fraction less than 30 blood pressure Arthritis

Age

From **45 years** old to **65 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Care provider
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size

Target sample size: **40**

Actual sample size reached: **40**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple randomization The names of 40 CABG patients who referred to the heart hospital for the second stage of rehabilitation after the operation were written on paper and each person was randomly assigned to one of the four control groups, MIT, HIIT20 and HIIT60.

Blinding (investigator's opinion)

Single blinded

Blinding description

The patient was explained the exercise program, the duration of the exercise, and how to do the activity. Also, the rehabilitation doctor, physiotherapist, nurse and psychologist were aware of the type and method of exercise, but they did not know what exercise method could have a specific effect.

Placebo

Not used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics Committee of Bu Ali Sina University

Street address

Mahdieh

City

Hamedan

Province

Hamadan

Postal code

۳۸۶۹۵-۶۵۱۷۸

Approval date

2021-02-28, 1399/12/10

Ethics committee reference number

IR.BASU.REC.1400.004

Health conditions studied**1****Description of health condition studied**

Coronary artery bypass grafting

ICD-10 code

I25.1

ICD-10 code description

Atherosclerotic heart disease of native coronary artery

Primary outcomes**1****Description**

ATP-binding cassette transporter A1 (ABCA1)

Timepoint

before the start of the first training session and 48 hours after the last training session (Week 8)

Method of measurement

Blood sampling from patients

2**Description**

ATP-binding cassette transporter B1 (ABCG1)

Timepoint

before the start of the first training session and 48 hours after the last training session (Week 8)

Method of measurement

Blood sampling from patients

3**Description**

Apolipoprotein A-1 (apoA-1)

Timepoint

before the start of the first training session and 48 hours after the last training session (Week 8)

Method of measurement

Blood sampling from patients

4

Description

high-density lipoprotein (HDL)

Timepoint

before the start of the first training session and 48 hours after the last training session (Week 8)

Method of measurement

Blood sampling from patients

5

Description

Apolipoprotein B (apoB-1)

Timepoint

before the start of the first training session and 48 hours after the last training session (Week 8)

Method of measurement

Blood sampling from patients

Secondary outcomes

empty

Intervention groups

1

Description

Control group: They did not receive any special training.

Category

Rehabilitation

2

Description

Intervention group 1: moderate-intensity continuous training (MIT). They received continuous aerobic exercises of 60%-80% maximum aerobic power for three sessions a week with three devices: 1. Treadmill 2. Hand ergometer 3. Foot ergometer.

Category

Rehabilitation

3

Description

Intervention group 2: high-intensity interval training (HIIT20 sec).

Category

Rehabilitation

4

Description

Intervention group 3: high-intensity interval training (HIIT60 sec)

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Farshchian Heart Hospital

Full name of responsible person

Lobat Majidi

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Ghaem Square

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Hamedan

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Bu Ali Sina University

Full name of responsible person

Ali Heidarianpour

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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

Bu Ali Sina University

Proportion provided by this source

30

Public or private sector

Private

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**

The University of Bu Ali Sina

Full name of responsible person

AliReza Ahmadvand

Position

PHD Student

Latest degree

Master

Other areas of specialty/work

Sport Medicine

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Latest degree

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Other areas of specialty/work

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Email**Sharing plan****Deidentified Individual Participant Data Set (IPD)**

Yes - There is a plan to make this available

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

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Not applicable

Data Dictionary

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

Title and more details about the data/document

TC,ABCA1, ABCG1,apoA,apoB, HDL, LDL,TG

When the data will become available and for how long

2023

To whom data/document is available

researchers

Under which criteria data/document could be used

The average data of the groups is available.

From where data/document is obtainable

Ali heidarianpour: Heidarian317@gmail.com Ali Reza

Ahmadvand: Alireza.led@gmail.com

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

About a month

Comments