Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

Comparison of the effects of continuous and short and long-term high interval training on rehabilitation of cardiovascular patients

Protocol summary

Summary

The purpose of this study will be investigation and comparison of different exercise training program on rehabilitation of cardiac disease with coronary artery bypass graft operation (CABG). The study design will be base on double blind. Ninety patient post CABG surgery will be divided equally into three groups: continuous and periodic exercises 1 and 2. Inclusion criteria: left ventricular ejection fraction ≥50%, sinus rhythm and 4-16 week after CABG surgery; Exclusion criteria: peripheral vascular disease, valvular disease, atrial or ventricular premature beats, conduction defects, orthopedic or neurological limitation associated with exercise cessation of drug use during the study. Protocol of continues training (3 session per week, 45 minutes at 70 % reserve heart rate), high intensity interval -1 (5 ×4 minutes at 85-90% reserve heart rate and 3 minute interval at 60-70% reserve heart rate) and high intensity interval -2 (9×2 minutes at 85-90% reserve heart rate and 2 minute interval at 60-70% reserve heart rate) will be undertaken for 6 weeks. Indicators of rest and maximal heart rate, heart rate variability and quality of life will be measured before and after the 6 week training program.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015070123002N1**
Registration date: **2016-01-09, 1394/10/19**
Registration timing: **registered_while_recruiting**

Last update:
Update count: **0**

Registration date

2016-01-09, 1394/10/19

Registrant information

Name
Alireza Ghardashi Afousi
Name of organization / entity
University of Tehran
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Recruitment status

Recruitment complete

Funding source

Investigator

Expected recruitment start date

2015-11-22, 1394/09/01

Expected recruitment end date

2016-02-20, 1394/12/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the effects of continuous and short and long-term high interval training on rehabilitation of cardiovascular patients

Public title

Clinical trial: Comparison of the effects of continuous and short and long-term high interval training on rehabilitation of cardiovascular patients

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: sinus rhythm,left ventricular ejection fraction ≥50% and 4- 16 week after coronary artery

bypass graft surgery; Exclusion criteria: coexisting valvular and/or peripheral vascular diseases, frequent atrial or ventricular premature beats, conduction defects, pericarditis, peripheral neuropathy, orthopedic or neurological limitations, cessation of drug use during the study

Age
No age limit

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **90**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Double blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features
After baseline measurement, using the online randomization (http://www.graphpad.com/quickcalcs/index.cfm) subjects randomized and stratified to 3 groups (high interval intensity training-1, 2 and continuous training)

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethic comitee of Baqiyatallah University of Medical Sciences

Street address
Exercise Physiology Research Center, Research, Baqiyatallah University of Medical Sciences, Alley Nosrati, St Sheikh Bahai, Mulla sadra,Vanak Square, Tehran

City
Tehran

Postal code

Approval date
2015-11-22, 1394/09/01

Ethics committee reference number
IR.BMSU.REC.1394.40

Health conditions studied

1

Description of health condition studied
Cardiovascular disease post coronary artery bypass graft

ICD-10 code
I23

ICD-10 code description
Myocardial infarction specified as acute or with a stated duration of 4 weeks (28 days) or less from onset

Primary outcomes

1

Description
Resting heart rate

Timepoint
Befor and after 6 week

Method of measurement
Polar beat heart rate

2

Description
Ejection fraction

Timepoint
Befor and after 6 week intervention

Method of measurement
2 dimentional echocardiography

3

Description
Maximal heart rate

Timepoint
Befor and after 6 week intervention

Method of measurement
Polar beat heart rate

4

Description
cardiad out put

Timepoint
Befor and after 6 week intervention

Method of measurement
2 dimentional echocardiography

5

Description
Rate product pressure

Timepoint
Befor and after 6 week of intervention

Method of measurement
2 dimentional echocardiography

6

Description
End-systolic diameter

Timepoint
Befor and after 6 week of intervention

Method of measurement
2 dimentional echocardiography

7

Description
End-diastolic diameter
Timepoint
Befor and after 6 week of intervention
Method of measurement
2 dimentional echocardiography

8

Description
Stroke volume
Timepoint
Befor and after 6 week of intervention
Method of measurement
2 dimentional echocardiography

9

Description
Heart rate variability
Timepoint
Befor and after 6 week of intervention
Method of measurement
Cardiac hollter monitoring

10

Description
Quality of life
Timepoint
Befor and after 6 week of intervention
Method of measurement
The World Health Organization Quality of Life Questionnaire

11

Description
Plasma glucose level
Timepoint
Befor and after 6 week of intervention
Method of measurement
Enzymatic

12

Description
Serum triglycerides
Timepoint
Befor and after 6 week intervention
Method of measurement
Photometry

13

Description
Serum cholestrol
Timepoint
Befor and after 6 week of intervention
Method of measurement
Photometry

14

Description
Serum LDL
Timepoint
Befor and after 6 week of intervention
Method of measurement
Photometry

15

Description
Serum HDL
Timepoint
Befor and after 6 week of intervention
Method of measurement
Photometry

16

Description
Blood pressure
Timepoint
Befor and after 6 week of intervention
Method of measurement
Barometer

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group 1: moderate intensity contentious exercise (MICE) consist of 45 minutes at 70 % heart rate reserve, 3 session per week for 6 week. Warm- up and cool- down for patients at the start and end of each training session is at 50-55% heart rate reserve.
Category
Rehabilitation

2

Description
Intervention group 2: high intensity interval training-1 consist of: warm up 5 minutes at 50-55% heart rate reserve, and 5×4 minutes at 85-90% heart rate reserve and 3 minutes active period interval at 60-70% heart rate reserve, and the end of session of training cool down is 5 minutes at 50-55% heart rate reserve.
Category
Rehabilitation

3

Description
Intervention group 3 : high intensity interval training-2

consist of: warm up 5 minutes at 50-55% heart rate reserve, and 9×2 minutes at 85-90% heart rate reserve and 3 minutes active period interval at 60-70% heart rate reserve, and the end of session of training cool down is 5 minutes at 50-55% heart rate reserve.

Category

Rehabilitation

4

Description

Control group: No any exercise training program and maintain daily activities

Category

Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Baqiyatallah University of Medical Sciences

Full name of responsible person

bahram pishgoo MD, Mohammad Taghi Holisaz MD

Street address

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Investigator

Full name of responsible person

Alireza Ghardashi Afousi

Street address

Exercise physiology research center, research, University of Medical Sciences of Baqiyatallah, Alley shahid nosrati, Street Shikh bahaei, Molla sadra, Vanak Square

City

Tehran

Grant name

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Grant code / Reference number

--

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

Yes

Title of funding source

Investigator

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Baqiyatallah University of Medical Sciences

Full name of responsible person

Alireza Ghardashi Afousi

Position

Ph.D condidate

Other areas of specialty/work

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ghardashi.a@ut.ac.ir

Web page address

Person responsible for scientific inquiries

Contact

Name of organization / entity

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Position

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Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty