

Clinical Trial Protocol

Iranian Registry of Clinical Trials

18 Jul 2026

The effect of high-intensity interval training(HIIT) and quercetin supplementation on oxidative stress, level of concentric pathologic hypertrophy and cardiac function in patients with hypertension and CAD after PCI.

Protocol summary

Study aim

the effect of high-intensity interval training(HIIT) and quercetin supplementation on oxidative stress and level of concentric pathologic hypertrophy in patients with hypertension and CAD after PCI.

Design

A concealed, randomized, blinded, sham controlled clinical trial with a parallel group

Settings and conduct

In this semi experimental randomized, placebo-controlled and double-blind study, 36 men with hypertension and CAD after PCI aged 40-60 years, randomly divided into 3 groups of HIIT+quercetin(n=12), HIIT+placebo(n=12) and quercetin(n=12) were followed for 8 weeks of HIIT (30 seconds of activity and 30 seconds of rest) and quercetin consumption (250 mgr of quercetin supplement or placebo pills daily). Echocardiography was used to investigate morphological factors such as PWD and LVEDd. The TAC and MDA were measured by ELISA method. Data were analyzed using paired-sample T-test and ANOVA.

Participants/Inclusion and exclusion criteria

men with hypertension and CAD after PCI

Intervention groups

HIIT+quercetin(n=12), HIIT+placebo(n=12) and quercetin

Main outcome variables

MDA , TAC ,EF, LVEDd, PWD

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20160927030023N3**

Registration date: **2020-02-20, 1398/12/01**

Registration timing: **retrospective**

Last update: **2020-02-20, 1398/12/01**

Update count: **0**

Registration date

2020-02-20, 1398/12/01

Registrant information

Name

Khalilullah Moonikh

Name of organization / entity

Rajai Teacher Training University

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-12-22, 1397/10/01

Expected recruitment end date

2019-03-21, 1398/01/01

Actual recruitment start date

2018-12-22, 1397/10/01

Actual recruitment end date

2019-03-21, 1398/01/01

Trial completion date

2019-09-29, 1398/07/07

Scientific title

The effect of high-intensity interval training(HIIT) and quercetin supplementation on oxidative stress, level of concentric pathologic hypertrophy and cardiac function

in patients with hypertension and CAD after PCI.

Public title

The effect of high-intensity interval training(HIIT) and quercetin supplementation on oxidative stress, level of concentric pathologic hypertrophy and cardiac function

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

At least 2 and up to 4 weeks after angioplasty (drug stent only), Male 40-60 years old Systolic hypertension (SBP <130 mmHg <130) Mild to moderate congenital cardiac hypertrophy

Exclusion criteria:

Patients' non-adherence to exercise protocol Exercise outside the rehabilitation center Non-compliance with supplement use (less than 80% or less than 1 day) Changing health and abnormal change of medication People who have a history of kidney failure, heart attack or heart valve surgery, have aortic stenosis, dilated cardiomyopathy, and EF below 30%, are in frequent practice of PVC or AF. Leaving practice sessions over 1 week or more than 3 dispersed sessions

Age

From **40 years** old to **60 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: **36**

Actual sample size reached: **36**

Randomization (investigator's opinion)

Randomized

Randomization description

In this research simple randomization method is used. The participants will be divided into 3 groups of 12 people. For this purpose, from 1 to 3 each number is written 12 numbers on the paper and participants are asked to assign a number to each of them and group them according to their number.

Blinding (investigator's opinion)

Double blinded

Blinding description

Prior to the study, supplement and placebo cans were marked by a person other than the researcher to inform the researcher and subjects of the type of capsules received. Supplement and placebo were administered under the same supervision.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Sport Sciences Research Institute of IRAN

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NO 3, 5th alley, Miremad Ave, Tehran

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1587958711

Approval date

2019-03-19, 1397/12/28

Ethics committee reference number

IR.SSRI.REC.1397.373

Health conditions studied

1

Description of health condition studied

Hypertension

ICD-10 code

I10

ICD-10 code description

Essential (primary) hypertension

2

Description of health condition studied

CAD

ICD-10 code

I25.1

ICD-10 code description

Atherosclerotic heart disease of native coronary artery

Primary outcomes

1

Description

MDA

Timepoint

Before and after 8 weeks

Method of measurement

Elisa

2

Description

TAC

Timepoint

Before and after 8 weeks

Method of measurement

Elisa

3

Description

LVEDd

Timepoint

Before and after 8 weeks

Method of measurement

Eco cardiography

4

Description

PWDd

Timepoint

Before and after 8 weeks

Method of measurement

Eco cardiography

5

Description

EF

Timepoint

Before and after 8 weeks

Method of measurement

Eco cardiography

Secondary outcomes

1

Description

Systolic blood pressure

Timepoint

Before and after 8 weeks

Method of measurement

Manometer

2

Description

Diastolic blood pressure

Timepoint

Before and after 8 weeks

Method of measurement

Manometer

Intervention groups

1

Description

Intervention group: 250 mg doses of 1 capsules of quercetin+ HIIT for 8 weeks

Category

Rehabilitation

2

Description

Control group: 2 + placebo control group resistance

training for 8 weeks

Category

Rehabilitation

3

Description

Intervention group: Quercetin supplement group, 1 capsule 250 mg daily quercetin

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Bahman Hospital Heart Rehabilitation Center

Full name of responsible person

Khalil Mamoodi

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shahid Rajaei Teacher Training University

Full name of responsible person

Majid Kashef

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Grant name

Research Credits

Grant code / Reference number

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

Yes
Title of funding source
Shahid Rajaei Teacher Training 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
Rajai Teacher Training University
Full name of responsible person
Khalil Ullah Moonikh
Position
PhD student
Latest degree
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Other areas of specialty/work
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Sharing plan

Deidentified Individual Participant Data Set (IPD)

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

Study Protocol

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

Statistical Analysis Plan

Not applicable

Informed Consent Form

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

Clinical Study Report

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

Analytic Code

Not applicable

Data Dictionary

Not applicable