Clinical Trial Protocol
Iranian Registry of Clinical Trials

12 Jun 2026

Effect of eight weeks resistance training in land and water on lipid profile change and the blood mononuclear cells PPAR-α and ABCG8 gene expression in middle-aged women after Coronary Artery Bypass Grafting

Protocol summary

Study aim

Regarding the relationship between reverse cholesterol transport and cardiovascular diseases, the positive effect of physical activities on key factors affecting this process the current study is aimed at examining PPAR α gene expression in peripheral blood mononuclear cells (PBMNCs) in middle-aged women having had CABG, after 8 weeks of aquatic and dryland resistance training programs.

Design

In this research, thirty cardiac patient volunteer (aged 43-56 years) who meet the inclusion criteria will be selected for this study from the entire population.

Settings and conduct

This research is carried out as per-test and post-test. Middle-aged women with cardiovascular disease that refer to Shafa Hospital in Kerman will includes. Fasting blood samples will take from all participants 48 hours both before the beginning and after the last training session. PPARα and ABCG8 relative gene expression will identify by Real-Time PCR method from PBMN cells.

Participants/Inclusion and exclusion criteria

Patients were included in the study if they had undergone coronary artery bypass 3 months before the study and were relatively fit to carry out the exercises and . Patients were excluded from this study if they had unstable angina, decompensated heart failure, myocardial infarction , problematic ventricular arrhythmias

Intervention groups

Following a random screening, the participants were divided into control group , the aquatic resistance training group and dryland resistance training group .Exercise training protocol includes eight weeks of resistance training (3 days a week / 60 minutes per session) and consisted of warm-up (10 minutes), main activity (30 to 40 minutes) and cooling down (10 minutes) . In this period control group will have no physical activity except doing things everyday life.

Main outcome variables

Improve physical function, improve mental and social status of patients

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180113038343N1**
Registration date: **2018-02-19, 1396/11/30**
Registration timing: **registered_while_recruiting**

Last update: **2018-02-19, 1396/11/30**
Update count: **0**

Registration date

2018-02-19, 1396/11/30

Registrant information

Name

Leili Zeiaadini Dashtkhaki

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 34 3244 5365

Email address

lzeiaadini@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-01-25, 1396/11/05

Expected recruitment end date

2018-03-20, 1396/12/29

Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Effect of eight weeks resistance training in land and water on lipid profile change and the blood mononuclear cells PPAR-α and ABCG8 gene expression in middle-aged women after Coronary Artery Bypass Grafting

Public title
Effect of resistance training in cardiac rehabilitation
Purpose
Supportive
Inclusion/Exclusion criteria
Inclusion criteria:
Patients were included in the study if they had already had coronary bypass, had a homogeneous level of the disease, and had undergone coronary artery bypass in 3 months ago Patients were relatively fit to carry out the exercises
Exclusion criteria:
Patients were excluded from this study if they had unstable angina, decompensated heart failure,, Myocardial infarction within the last month and problematic ventricular arrhythmias Any other limitations examined by the doctor in period of training
Age
From **43 years** old to **56 years** old
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
Following a random screening, the participants were divided into control group (CON) (n = 10), the aquatic resistance training group (ART) (n = 10) and dryland resistance training group (DRT) (n = 10). The randomization method will be random numbers. Considering that, numbers 0 -10 for the control group, numbers 10 -20 for dryland resistance training and numbers 20-30 for aquatic resistance training. The researcher starts on one of the numbers and moves in the preset direction, then records the number and specifies the relevant group.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Physical Education and Sport Science Research Center
Street address
No.3 , 5 Miremad Ave
City
Tehran
Province
Tehran
Postal code
1587958711
Approval date
2017-08-06, 1396/05/15
Ethics committee reference number
IR.SSRI.REC.1396.142

Health conditions studied

1

Description of health condition studied
Rehabilitation with Aquatic and Dryland Resistance Training on Middle-aged Women’s PBMN Cells after Coronary Artery Bypass Grafting
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
PPAR α Gene Expression
Timepoint
At the beginning of the research and 8 weeks after doing intervention
Method of measurement
blood sample

Secondary outcomes

1

Description
ABCG8 gene expression
Timepoint
At the beginning of the research and 8 weeks after doing intervention
Method of measurement
blood sample

2

Description
Lipid profile
Timepoint
At the beginning of the research and 8 weeks after doing intervention
Method of measurement
blood sample

Intervention groups

1

Description
Intervention group:Intervention group 1 will do aquatic resistance training: Aquatic training will take place in a shallow pool (120 cm deep) at a temperature between 28-30oC. Aquatic training exercises (with 60 to 80% of one-repetition maximum for each exercise)will last for 8 weeks (3 sessions per week/ 60 minutes per session) and will be include a warm-up (10 minutes), main activity (30-40 minutes) and cooling down (10 minutes). The main activity consist of 3 sets of upper-body dumbbell exercises including: shoulder shrugs, shoulder horizontal extension, shoulder extension with external rotation, and shoulder press with rotation, and lower body exercises with ankle weights including standing leg curls, supported squats, inner and outer thigh abduction, and sliding backward and forward with partial to full ranges of motion, with 8 repetitions during the first four weeks, and 10 repetitions during the fifth to eighth weeks. The training program of each session will differ from other sessions, and base on the principles of kinesiology, exercise science and hydrodynamics
Category
Rehabilitation

2

Description
Intervention group 2: Dryland resistance training: Dryland training program will be include eight weeks of resistance training (3 days a week / 60 minutes per session) and consist of warm-up (10 minutes), main activity (30 to 40 minutes) and cooling down (10 minutes). The main activity will be 8 resistance sessions. It will be include machine bench press, seated cable row, inner thigh movements, Lat pull down, Pec deck, outer thigh movements, curl-ups, hyper-extension with 2-3 sets of 12-15 repetitions with 60 % of one-repetition maximum. There are 30-second rests between exercises, and 5-minute rests between sets. One-repetition maximum test will repeat at the end of the fourth week to adjust the training protocol to the changes. Based on the results obtain through this test, the training protocol will continue until the end of the eighth week.
Category
Rehabilitation

3

Description
Control group: This group will do no physical activity except everyday life affairs.
Category
Diagnosis

Recruitment centers

1

Recruitment center
Name of recruitment center
Shafa hospital
Full name of responsible person
Leili Zeiaadini Dashtkhaki
Street address
Safa Ave., Parastar Blvd
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Kerman
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Kerman
Postal code
7618751151
Phone
+98 34 3244 5365
Fax
+98 34 3211 5783
Email
shafahospital@kmu.ac.ir

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University of Neyshabur
Full name of responsible person
Mohammad Hossein Hemati
Street address
Pajoohesh Blvd
City
Neyshabur
Province
Razavi Khorasan
Postal code
9319797139
Phone
+98 51 4262 1901
Fax
+98 51 4261 5472
Email
Neyshabur@iau-neyshabur.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University of Neyshabur
Proportion provided by this source
100
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

Other

Person responsible for general inquiries

Contact

Name of organization / entity

Islamic Azad University of Neyshabur

Full name of responsible person

Leili Zeiaadini Dashtkhaki

Position

PHD student

Latest degree

Ph.D.

Other areas of specialty/work

Physiology

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Province

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Person responsible for scientific inquiries

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Full name of responsible person

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Position

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Person responsible for updating data

Contact

Name of organization / entity

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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

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

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

Analytic Code

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

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

Data of PPAR α and ABCG8 Gene Expression and lipid profile will be report

When the data will become available and for how long

From 18 April 2018

To whom data/document is available

University researchers

Under which criteria data/document could be used

Mention reference

From where data/document is obtainable

lzeiaadini@yahoo.com

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

One week

Comments