Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

The Acute and Chronic Effect of Stretching- Birthing Exercise Training on Clinical Outcomes in the First Phase of Cardiac Rehabilitation in Patients Undergoing Coronary Artery Bypass Surgery

Protocol summary

Study aim
The Acute and Chronic Effect of Stretching- Breathing Exercise training on Clinical Outcomes in the First Phase of Cardiac Rehabilitation in Patients Undergoing Coronary Artery Bypass Surgery

Design
In this quasi-experimental study, 50 patients undergoing coronary artery bypass graft surgery will be randomly divided into experimental and control groups.

Settings and conduct
The control and the stretching-breathing group should be hospitalized in Shahid Madani Hospital of Tabriz for at least five days during the implementation of the project. The training group will train twice a day (morning and evening) for five days. According to the American College of Sports Medicine (ACSM), the intensity of training will be less than 13 according to the Borg RPE Scale, and according to the heart rate, the target heart rate will not be more than 30 beats + resting heart rate.

Participants/Inclusion and exclusion criteria
Patients undergoing coronary artery bypass graft surgery Inclusion and non-inclusion conditions: Both men and women, without a history of cardiac surgery and volunteering to participate in the study, non-emergency surgery, hospitalization and use of similar drugs during the study, with a stable hemodynamic status and no arrhythmia and angina and neuromuscular disorders , Cognitive impairment, severe lung disease and kidney disorders

Intervention groups
Experimental group (recipient of stretching-breathing exercises) Control group (recipient of routine hospital intervention)

Main outcome variables
arterial blood of mean oxygen pressure Pao2, mean carbon dioxide pressure PaCo2, mean PH, oxygen saturation Sao2, blood pressure, heart rate, anxiety

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20160523028028N2**
Registration date: **2020-08-19, 1399/05/29**
Registration timing: **registered_while_recruiting**

Last update: **2020-08-19, 1399/05/29**
Update count: **0**

Registration date
2020-08-19, 1399/05/29

Registrant information

Name
Azam Zarneshan

Name of organization / entity
Azarbaijan Shahid Madani University

Country
Iran (Islamic Republic of)

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+98 41 3432 7505

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2020-07-31, 1399/05/10

Expected recruitment end date
2020-10-21, 1399/07/30

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date

empty

Scientific title
The Acute and Chronic Effect of Stretching- Birthing Exercise Training on Clinical Outcomes in the First Phase of Cardiac Rehabilitation in Patients Undergoing Coronary Artery Bypass Surgery

Public title
Stretching- Breathing Exercises and Cardiac Rehabilitation

Purpose
Supportive

Inclusion/Exclusion criteria

Inclusion criteria:
Willingness to participate in the study Non-emergency heart surgery Absence of arrhythmia and angina Stable hemodynamic status

Exclusion criteria:
Having neuromuscular disorders Having cognitive disorders Having severe lung disease Having renal dysfunction Injection fraction less than 35% Have a history of heart surgery

Age
From **40 years** old to **65 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **50**

Randomization (investigator's opinion)
Randomized

Randomization description
Available eligible samples will be randomly assigned to the intervention group (recipient of stretching breathing movements) and the control group (recipient of hospital routine intervention) by assigning a 1: 1 ratio. Random allocation sequence will be done by a non-research person using RAS (Random Allocation Software) and random blocking will be done using two and four blocks for allocation in two groups (intervention group and control group). The allocation will be done based on the sequence generated using matte, closed and identical envelopes numbered from number 1 to the end. The first person to enter the study will be given envelope number 1 and this process will continue until the end.

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
•Ethics committee of Tabriz University of Medical Sciences

Street address
تبریز، خیابان آزادی ، خیابان گلگشت

City
Tabriz

Province
East Azarbaijan

Postal code
5166614766

Approval date
2020-07-27, 1399/05/06

Ethics committee reference number
IR.TBZMED.REC.1399.470

Health conditions studied

1

Description of health condition studied
Patients with coronary artery bypass graft surgery

ICD-10 code
I25.1

ICD-10 code description
Atherosclerotic heart disease of native coronary artery

Primary outcomes

1

Description
Arterial blood oxygenation changes

Timepoint
Before, immediately and five days after the intervention

Method of measurement
Pulse oximetry and evaluation of arterial blood gases using arterial sampling

2

Description
Hemodynamic changes

Timepoint
Before, immediately and five days after the intervention

Method of measurement
Monitoring device

3

Description
Anxiety

Timepoint
Before, immediately, the first day, the second day, the third day, the fourth and the fifth day of operation

Method of measurement
Anxiety assessment was performed by the Spielberger

State-Trait Anxiety Inventory

Secondary outcomes

1

Description
arterial blood of mean oxygen pressure Pao2
Timepoint
Before, immediately, five days later
Method of measurement
Evaluation of arterial blood gases using arterial sampling

2

Description
arterial blood of mean Carbon dioxide pressure PaCo2
Timepoint
Before, immediately, five days later
Method of measurement
arterial blood of mean Carbon dioxide pressure PaCo2

3

Description
arterial blood oxygen saturation Sao2
Timepoint
Before, immediately, five days later
Method of measurement
Pulse oximetry

4

Description
Blood Pressure
Timepoint
Before, immediately, five days later
Method of measurement
Monitoring device

5

Description
Heart Rate
Timepoint
Before, immediately, five days later
Method of measurement
Monitoring device

Intervention groups

1

Description
Intervention group: Intervention group: Performing stretching-breathing exercises for five days, twice a day (morning and evening). The intensity of training will be less than 13 according to the recommendations of the American College of Sports Medicine (ACSM) and the Borg RPE Scale, and according to the heart rate, the target heart rate will be less than, 30 beats + resting heart rate.
Category
Rehabilitation

2

Description
Control group: Recipient of routine hospital intervention
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Shahid Madani Hospital, Tabriz
Full name of responsible person
Leyla Esmealy
Street address
Shahid Madani Hospital, Daneshgah Ave.
City
Tabriz
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Postal code
1557351666
Phone
+98 41 3335 7767
Email
leylaesmealy@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Azarbaijan Shahid Madani University
Full name of responsible person
Ali Ajami
Street address
Azarbaijan Shahid Madani University, 35 Km Tabriz-Maragheh Road
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5375171379
Phone
+98 41 3432 7526
Email
research@azaruniv.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Azarbaijan Shahid Madani 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
Azarbaijan Shahid Madani University

Full name of responsible person
Azam Zarneshan

Position
Associate professor

Latest degree
Ph.D.

Other areas of specialty/work
Sport physiology of cardiovascular and inspiration

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Person responsible for scientific inquiries

Contact

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Person responsible for updating data

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

Informed Consent Form
No - There is not a plan to make this available

Clinical Study Report
No - There is not a plan to make this available

Analytic Code
No - There is not a plan to make this available

Data Dictionary
Not applicable