Clinical Trial Protocol
Iranian Registry of Clinical Trials

19 Sep 2026

The effect of 10 weeks of weightlifting training with added respiratory dead space volume on angiogenic factors in young weightlifters

Protocol summary

Study aim
Determining the effect of 10 weeks of weightlifting training with added respiratory dead space volume on angiogenic factors in young weightlifters

Design
Clinical trial with 2 parallel, non-blind, randomized groups of 20 patients

Settings and conduct
The subjects performed their sports activities for 10 weeks in the weightlifting hall under the supervision of experienced performers and trainers, which includes a program of warming up, weightlifting movements and cooling down in the assembly for a maximum of one hour and fifty minutes. Exercises are done three to five days a week. The mask and tube exercise group should use their mask and tube throughout the practice of the main movements, except for warm-up and cooling, to increase the dead breathing space.

Participants/Inclusion and exclusion criteria
Beginner weightlifter with at least six months of experience in weightlifting exercises; Age range 18 to 25 years; Body mass index between 19 and 25; Body fat percentage 12-15%; No history of chronic disease (diabetes, hypertension, chronic lung disease, etc.); No history of smoking for at least the last six months; Without musculoskeletal injury or complication; No use of medications and specific weight loss programs and diets; No use of energizers and anabolic steroids in the last three months

Intervention groups
1- Special weightlifting training (snatch- clean and jerk) with the use of oxygen mask during the training on which the ventilator tube with a diameter of 2.5 cm and a length of 204 cm is closed to provide 1000 ml of dead space. 2- Special weightlifting training (snatch- clean and jerk) without using a mask and tube

Main outcome variables
the level of angiogenic factors; blood lactate level; Blood carbon dioxide partial pressure

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20220626055276N1**
Registration date: **2022-09-27, 1401/07/05**
Registration timing: **prospective**

Last update: **2022-09-27, 1401/07/05**
Update count: **0**

Registration date
2022-09-27, 1401/07/05

Registrant information

Name
Ebrahim Banitalebi
Name of organization / entity
University of Shahrekord
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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2022-10-22, 1401/07/30

Expected recruitment end date
2023-03-20, 1401/12/29

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The effect of 10 weeks of weightlifting training with added respiratory dead space volume on angiogenic factors in young weightlifters

Public title
The Effect of Weightlifting Training with Adding Respiratory Dead Space on angiogenesis
Purpose
Other
Inclusion/Exclusion criteria
Inclusion criteria:
Weightlifter boys 18 to 25 years old Have a body mass index between 19 to 25 with a body fat percentage of 12 to 15% Have a history of weightlifting training for at least six months
Exclusion criteria:
History of chronic disease (no diabetes, Blood pressure, chronic lung disease, etc.) History of smoking for at least the last six months Musculoskeletal injury or complication Use of medications and weight loss program or special diet The use of energizers or anabolic steroids even in therapeutic discussions before starting
Age
From **18 years** old to **25 years** old
Gender
Male

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **20**
Randomization (investigator's opinion)
Randomized
Randomization description
First, a list of subjects is prepared according to the inclusion criteria and available sampling, after determining the sample size with G power software, 20 people are selected by simple random method and random digits table. First, each person in the list is given a two-digit code, and then randomly, blindfolded and using a finger, we start from a point in the table of random numbers in the direction of the row or column, and we choose a number that is actually the code of a person from the list. which is chosen as a sample and we place them equally in two groups so that the first code is placed in the first group and the second code is placed in the second group and we continue in the same way until reaching the desired sample size.
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
Research Ethics committees of Shahrekord University
Street address
Faculty of Literature and Human Sciences, Shahrekord University, Rahbar Boulevard
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Shahrekord
Province
Chahar-Mahal-va-Bakhtiari
Postal code
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Approval date
2022-05-31, 1401/03/10
Ethics committee reference number
IR.SKU.REC.1401.016

Health conditions studied

1

Description of health condition studied
Angiogenesis in male weightlifters
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Serum concentration of vascular endothelial growth factor
Timepoint
Before and immediately after the first session - before and immediately after the last session - 48 hours after the last session
Method of measurement
It is done by taking blood and measuring with diagnostic kits. Its unit is pg/ml

2

Description
Serum concentration of Hypoxia-inducible factor
Timepoint
Before and immediately after the first session - before and immediately after the last session - 48 hours after the last session
Method of measurement
It is done by taking blood and measuring with diagnostic kits. Its unit is pg/ml

Secondary outcomes

1

Description
Serum concentration of nitric oxide factor
Timepoint
Before and immediately after the first session - before and immediately after the last session - 48 hours after the last session
Method of measurement
It is done by taking blood and measuring with diagnostic kits. Its unit is µmol/l

2

Description
Serum lactate concentration
Timepoint
Before and immediately after the first session - before and immediately after the last session - 48 hours after the last session
Method of measurement
It is done by taking blood and measuring with diagnostic kits. Its unit is mg/dl

3

Description
Blood carbon dioxide partial pressure
Timepoint
Before and immediately after the first session - before and immediately after the last session - 48 hours after the last session
Method of measurement
It is done by drawing blood with a sterile syringe containing heparin anticoagulant and using an Arterial blood gas measuring device. Its unit is mm[Hg].

4

Description
Blood bicarbonate level
Timepoint
Before and immediately after the first session - before and immediately after the last session - 48 hours after the last session
Method of measurement
It is done by drawing blood with a sterile syringe containing heparin anticoagulant and using an Arterial blood gas measuring device. Its unit is meq/L.

Intervention groups

1

Description
Intervention group: Intervention group: exercise group with mask and tube. Using an oxygen mask with a ventilator tube 2.5 cm in diameter and 204 cm long to provide 1000 ml of dead space is used by this group during weightlifting exercises.
Category
Other

2

Description
Control group: exercise group without mask and tube. This group will do their weightlifting exercises without using masks and tubes.
Category
Other

Recruitment centers

1

Recruitment center
Name of recruitment center
Shahrekord University
Full name of responsible person
Ebrahim Banitalebi
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Research and Technology Vice-Chancellor of Shahrekord University
Full name of responsible person
Ahmad Keyvani
Street address
Research and Technology Vice-Chancellor, Central Library Building, Shahrekord University, Rahbar Blvd., Shahrekord
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Email
research@sku.ac.ir
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source

Research and Technology Vice-Chancellor of Shahrekord 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
The University of Shahrekord

Full name of responsible person
Samira Nasiri

Position
Ph.D. Candidate

Latest degree
Master

Other areas of specialty/work
Exercise physiology

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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
Each person's data alone is useless.

Study Protocol
Undecided - It is not yet known if there will be 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
Not applicable

Title and more details about the data/document
Results for the main outcomes will be shared.

When the data will become available and for how long
6 months after printing the results

To whom data/document is available
Academic researchers

Under which criteria data/document could be used
After access, people only have the right to use the study

protocol

From where data/document is obtainable

Samira Nasiri will respond via email.
Sa_nasiri@ymail.com

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

The request will be answered after receiving the request and stating the reasons for needing the data within a maximum period of one month

Comments