Clinical Trial Protocol
Iranian Registry of Clinical Trials

02 Nov 2026

Comparison of the effect of a resistance training course with and without blood flow restriction on the plasma level of some blood enzymatic and inflammation indicators and body composition of beginner bodybuilders

Protocol summary

Study aim

Comparison of the effect of a resistance training course with and without blood flow restriction on the plasma level of some blood enzymatic and inflammation indicators and body composition of beginner bodybuilders

Design

The sample size in this study was 40 people who were randomly divided into 2 groups of resistance training with limited blood flow and traditional resistance training group. After performing resistance exercises with limited blood flow and traditional, blood samples are taken from all samples in two groups in the laboratory and some biochemical factors of blood in the serum of the subjects are analyzed.

Settings and conduct

Both the traditional resistance training group and the resistance training group with limited blood flow, three sessions per week and 90 minutes of low-intensity training are performed, which will be closed during the tourniquet exercises on the upper part of the body of the resistance training group with limited blood flow.

Participants/Inclusion and exclusion criteria

Inclusion criteria: age (19 to 29 years), gender (male) Exclusion criteria: 1) no history of cardiorespiratory, musculoskeletal, neurological, hormonal or orthopedic disorders, 2) no change in daily diet during the study, and 3) no ingestion of androgenic and energetic supplements in the past 1 months.

Intervention groups

Traditional resistance training group (n = 20) and resistance training group with limited blood flow (n = 20)

Main outcome variables

Hematological indicators of blood (white and red blood cells, neutrophils, lymphocytes, monocytes, eosinophils, hemoglobin, hematocrit, platelets), muscle enzymes (creatine phosphokinase, lactate dehydrogenase), liver enzymes vasopressin, aspartate, aspartate, aspartate C, interleukin-6, testosterone, cortisol and growth hormone. And some factors of physical fitness (strength and body composition), basal metabolic rate

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20180503039517N6**
Registration date: **2021-01-16, 1399/10/27**
Registration timing: **registered_while_recruiting**

Last update: **2021-01-16, 1399/10/27**
Update count: **0**

Registration date

2021-01-16, 1399/10/27

Registrant information

Name

Soleyman Ansari Kolachahi

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 13 3375 2906

Email address

solomonansari@phd.iaurasht.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

1399-11-15, 781/01/-855

Expected recruitment end date

2021-02-18, 1399/11/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of the effect of a resistance training course with and without blood flow restriction on the plasma level of some blood enzymatic and inflammation indicators and body composition of beginner bodybuilders

Public title

Comparison of the effect of a resistance training course with and without blood flow restriction on the plasma level of some blood enzymatic and inflammation indicators and body composition of beginner bodybuilders

Purpose

Other

Inclusion/Exclusion criteria

Inclusion criteria:

Age (19-29 years) Gender (male) A maximum of 3 months involving resistance exercise

Exclusion criteria:

smoking Having cardiorespiratory, musculoskeletal, neurological, hormonal or orthopedic disorders No ingestion of androgenic and energetic supplements in the past 1 months

Age

From **19 years** old to **29 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **40**

Randomization (investigator's opinion)

Randomized

Randomization description

40 male bodybuilders will be selected by available sampling method. Through lottery (participants' names were written on paper and will be divided into experimental and control groups through random lottery)

Blinding (investigator's opinion)

Double blinded

Blinding description

In this research, participants are unaware of the group assigned to themselves and other participants. A separate workout hour is considered for each intervention group. The person in charge of collecting data and the processor are also unaware of the type of intervention and the people involved in the research groups.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

The ethics committee of Islamic Azad University, Rasht Branch

Street address

Islamic Azad University, Rasht Branch, Lakan Blv

City

Rasht

Province

Guilan

Postal code

۴۱۴۷۶۵۴۹۱۹

Approval date

2020-04-23, 1399/02/04

Ethics committee reference number

IR.IAU.RASHT.REC.1399.033

Health conditions studied

1

Description of health condition studied

The use of Katsu in bodybuilding exercises and its effect on blood biochemical factors

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Levels of muscle enzymes (CK, LDH)

Timepoint

48 hours before and after the exercise intervention

Method of measurement

For 12 hours, fasting will be performed as a sample of arm venous blood with the help of a 5 ml syringe, sitting on a chair.

2

Description

Inflammatory markers (C-reactive protein, interleukin-6)

Timepoint

48 hours before and after the exercise intervention

Method of measurement

For 12 hours, fasting will be performed as a sample of arm venous blood with the help of a 5 ml syringe, sitting on a chair.

3

Description
Hematological indicators of blood (white and red blood cells and platelets)
Timepoint
48 hours before and after the exercise intervention
Method of measurement
For 12 hours, fasting will be performed as a sample of arm venous blood with the help of a 5 ml syringe, sitting on a chair.

4

Description
Some factors of physical fitness (strength, body composition)
Timepoint
48 hours before and after the exercise intervention
Method of measurement
For 12 hours, fasting will be performed as a sample of arm venous blood with the help of a 5 ml syringe, sitting on a chair.

5

Description
Growth hormones, cortisol, testosterone
Timepoint
48 hours before and after the exercise intervention
Method of measurement
For 12 hours, fasting will be performed as a sample of arm venous blood with the help of a 5 ml syringe, sitting on a chair.

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: The resistance training group will train with Katsu, three sessions per week and 90 minutes per session. The method of doing the exercises is that at the beginning of each session, warm-up is done for 10 minutes with soft running and stretching movements. Next, the main exercises are performed with low intensity, ie with an intensity of 25 to 30% 1RM, which is closed on the upper part of the limb during the tourniquet exercises. The desired pressure for the tourniquet is set at 100 mm Hg, which, according to research, reduces blood flow by half.
Category
Other

2

Description
Control group: Including traditional resistance exercises with an intensity of 70 to 75% 1RM for 90 minutes and for each rest period between sets 1 minute and between movement 2 minutes, warm-up 10 minutes and cooling 5 minutes was considered. Forearm exercises with dumbbells (pair of hands), lath, back of thighs, front of thighs, leg with machine, foot press, foot splint, squat with barbell, back of arm with demil (pair of hands), barbell head from front and back (Smith) , Forearm with barbell, dumbbell forearm sitting single-handed. Each is in 10 sets of 10 repetitions
Category
Other

Recruitment centers

1

Recruitment center
Name of recruitment center
باشگاه ورزشی چگینی قزوین
Full name of responsible person
Shahram Gholamrezaei
Street address
Qazvin - Danesh Alley - Chegini Club
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Islamic Azad University
Full name of responsible person
Alireza Seidavi
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Islamic Azad University of Rasht Branch, Lakan Blv
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Islamic Azad University

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
Academic

Person responsible for general inquiries

Contact
Name of organization / entity
Islamic Azad University
Full name of responsible person
Soleyman Ansari Kolachahi
Position
Non faculty doctor
Latest degree
Specialist
Other areas of specialty/work
Sport Medicine
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Latest degree
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Person responsible for updating data

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Specialist
Other areas of specialty/work
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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
There is no further information
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
Yes - There is 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
No - There is not a plan to make this available
Title and more details about the data/document
Raw and processed data
When the data will become available and for how long
Start of access period from 1401
To whom data/document is available
Academic researchers, research colleagues and participants
Under which criteria data/document could be used
Use research results and data in future meta-analysis research
From where data/document is obtainable

Corresponding Author

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

Request the researcher via email

Comments