

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 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

City

Rasht

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4419865615

Phone

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Email

solomonansari@yahoo.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Islamic Azad University

Full name of responsible person

Alireza Seidavi

Street address

Islamic Azad University of Rasht Branch, Lakan Blv

City

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Postal code

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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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Person responsible for scientific inquiries**Contact****Name of organization / entity**

Islamic Azad University

Full name of responsible person

Soleyman Ansari Kolachahi

Position

Non faculty specialist

Latest degree

Specialist

Other areas of specialty/work

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Person responsible for updating data**Contact****Name of organization / entity**

Islamic Azad University

Full name of responsible person

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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