

Clinical Trial Protocol

Iranian Registry of Clinical Trials

17 Sep 2026

The Effects of 8 Weeks of Resistance Training with Creatine Monohydrate Supplementation on Oxidative Stress and Antioxidant Indices in Older Adults

Protocol summary

Study aim

The aim of this study is investigate the effects of an 8-week endurance training along with the consumption of creatine monohydrate on serum levels of 8-hydroxy-2'-deoxyguanosine (8-OHdG), Malondialdehyde (MDA), Glutathione peroxidase (GPX) and Total Antioxidant Capacity (TAC) among the elderly.

Design

The study is a randomized clinical trial with control group double blinded. Forty five old men and women (55-70 years) will be selected through purposive sampling and will randomly be divided into three groups: resistance training + placebo, resistance training + creatine monohydrate and control groups.

Settings and conduct

The present study is experimental which will be done in the form of a pretest-posttest design with a control group. The place of research is in the gym. Three professional coaches will train the subjects and a lab technician will take their blood samples. Blood sample will be analyzed in the lab. The subjects in experimental groups will not know in which group they are. For the placebo- resistance training as much as creatine supplement, Maltodextrin is used as placebo

Participants/Inclusion and exclusion criteria

Inclusion criterion: 55-70 year old people. Non-inclusion criteria: back pain, history of lumbar surgery, cardiovascular disease, taking a medicine which is effective on study outcomes, Metabolic sickness history, Clinical limitations for sports activities

Intervention groups

Intervention groups of resistance training + placebo and resistance training+creatine monohydrate supplement will do resistance training 3 sessions per week for 8 weeks. Control group will not participate in any exercise

Main outcome variables

8-hydroxy-2'-deoxyguanosine (8-OHdG),

Malondialdehyde (MDA), Glutathione peroxidase (GPX), Total Antioxidant Capacity (TAC)

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20201121049453N1**

Registration date: **2021-01-27, 1399/11/08**

Registration timing: **prospective**

Last update: **2021-01-27, 1399/11/08**

Update count: **0**

Registration date

2021-01-27, 1399/11/08

Registrant information

Name

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Name of organization / entity

The University of Kurdistan

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2021-02-19, 1399/12/01

Expected recruitment end date

2021-04-21, 1400/02/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effects of 8 Weeks of Resistance Training with Creatine Monohydrate Supplementation on Oxidative Stress and Antioxidant Indices in Older Adults

Public title

The effect of Resistance Training with Creatine Monohydrate Supplementation on Oxidative Stress and Antioxidant Indices

Purpose

Basic science

Inclusion/Exclusion criteria**Inclusion criteria:**

Age of 55-70 years old

Exclusion criteria:

Back pain History of lumbar surgery Cardiovascular disease Metabolic sickness history Clinical limitations for sports activities

AgeFrom **55 years** old to **70 years** old**Gender**

Both

Phase

N/A

Groups that have been masked

- Participant
- Care provider
- Investigator
- Outcome assessor
- Data analyser

Sample sizeTarget sample size: **45****Randomization (investigator's opinion)**

Randomized

Randomization description

Simple randomization: First each subject will be taken in each groups (A or B) by tossing a coin. Each side of the coin determines the assignment of each subject. Then each group will be named as control or experimental group by tossing a coin.

Blinding (investigator's opinion)

Double blinded

Blinding description

First, the subjects in the experimental group are randomly divided into two groups: resistance training + creatine monohydrate supplement and resistance training + placebo. The subjects will not know in which group they are. Creatine monohydrate and placebo were identical in amount, taste, texture, color, and appearance. The supplement packages were coded so that neither the investigators nor the participants were aware of the contents until completion of the analyses. The supplements were provided by a staff member of research team who did not have any participation in the data acquisition, analyses, and interpretation.

Placebo

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Ethics committee of Kurdistan University

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Pasdaran boulevard

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Approval date

2020-06-06, 1399/03/17

Ethics committee reference number

IR.UOK.REC.1399.010

Health conditions studied**1****Description of health condition studied**

Resistance training

ICD-10 code

Y93.B

ICD-10 code description

Activities involving other muscle strengthening exercises

Primary outcomes**1****Description**

Malondialdehyde (MDA)

Timepoint

Before and after 8 weeks resistance training

Method of measurement

By ELISA method

2**Description**

Glutathione peroxidase (GPX)

Timepoint

Before and after 8 weeks resistance training

Method of measurement

By ELISA method

3

Description

Total antioxidant capacity (TAC)

Timepoint

Before and after 8 weeks resistance training

Method of measurement

By ELISA method

4

Description

8-hydroxy-2'-deoxyguanosine (8-OHdG)

Timepoint

Before and after 8 weeks resistance training

Method of measurement

By ELISA method

Secondary outcomes

1

Description

Muscle strength

Timepoint

Before and after 8 weeks resistance training

Method of measurement

One Repetition maximum

2

Description

Blood Creatinine

Timepoint

Before and after 8 weeks resistance training

Method of measurement

Blood sampling

3

Description

Quality of Life

Timepoint

Before and after 8 weeks resistance training

Method of measurement

Questionnaire (SF-36) Quality of Life

4

Description

Body mass index

Timepoint

Before and after 8 weeks resistance training

Method of measurement

weight(kg)/height(m²)

Intervention groups

1

Description

Intervention group 1: 15 participants as a resistance training + creatine monohydrate supplement group

received 0.1g•kg/day of creatine (under license from Canada, Gene Star Company and approved by the Ministry of Health of Iran) every day for 8 weeks. subjects consumed the supplement as a single dose after training session (similar time in non training days). The supplement packages were coded so that neither the investigators nor the participants were aware of the contents until completion of the analyses. The supplements were provided by a staff member of research team who did not have any participation in the data acquisition, analyses, and interpretation. The training protocol will consist of 3 sets of 10 reps at 75% of 1RM. Resting time between sets and movements were performed for 2 and 3 minutes , respectively. Blood sampling will be performed 48 hours before the start of training and 48 hours after the last training session in the fasting state.

Category

Other

2

Description

Intervention group 2: 15 participants as a resistance training + placebo group did resistance training for 8 weeks. The training was consist of 3 sets of 10 reps at 75% of 1RM. Resting time between sets and movements were performed for 2 and 3 minutes , respectively. Creatine and placebo (Globe Plus 10 DE Maltodextrin, Univar Canada) were identical in amount, taste, texture, color, and appearance. Fasting blood sampling were taken 48 hours before the training and 48 hours after the last training session.

Category

Placebo

3

Description

Control group: 15 participant as control group were asked not to participate in any exercise program and keep on their regular diet during research and report any changes in their life like disease, serious stress

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

University of kurdistan

Full name of responsible person

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Sponsors / Funding sources

1

Sponsor

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Full name of responsible person

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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

University of Kurdistan

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

University of Kurdistan

Full name of responsible person

Ehsan Amiri

Position

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Latest degree

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Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

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

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

All Data

When the data will become available and for how long

6 months after data publication

To whom data/document is available

Student and academic staff

Under which criteria data/document could be used

every analyses is fine for future research

From where data/document is obtainable

researcher

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

By sending email to researcher

Comments