Clinical Trial Protocol
Iranian Registry of Clinical Trials

26 May 2026

the effect of High intensity circuit training on Oxidative biomarkers, body composition and performance in youth soccer player.

Protocol summary

Study aim

Determination of the effect of high intensity circuit training on serum levels of oxidative biomarkers, body composition and physical performance of male soccer players

Design

The present study is a randomized controlled clinical trial study.

Settings and conduct

In this study, 21 voluntary adolescence soccer player boys, aged 14 to 16 years, in a way available and voluntary were selected and randomly divided into two training groups: and control group. At pre-test and post-test from all subjects had resting blood samples and one hour after maximal aerobic activity. Body composition test with body composition analyzer and functional tests was also performed before onset the training. All exercises were performed at the Khaje Nasir Toosi University Sports Complex. All functional tests, body composition and blood sampling were performed at the Physical Education Laboratory of Tehran University.

Participants/Inclusion and exclusion criteria

1. Youth soccer players 16-14 years old 2. Absence of any illness or physical disorder 3. Experts in soccer (at least 2 years in league competitions) 4. Subjects did not use medication or sport supplements 3 months prior to intervention 5. The gender of the subjects is male 6. Use the same standardized diet 2 days before the pre-test and post-test 7. Full consent of parents and subjects to conduct tests, tests and interventions

Intervention groups

1- training group who trained for 8 weeks, 3 days a week, with 80% of maximal heart rate in the first 4 weeks and 85 to 90% of maximal heart rate in the second four weeks. 2- The control group continued the usual practice of soccer training - the same volume as the training group.

Main outcome variables

8 weeks of High Intensity Circuit training does not cause significant oxidative stress on the soccer teenager's body, while it can have a significant effect on improving sport performance.

General information

Reason for update

Acronym

HICT

IRCT registration information

IRCT registration number: **IRCT20190530043762N1**
Registration date: **2019-09-25, 1398/07/03**
Registration timing: **retrospective**

Last update: **2019-09-25, 1398/07/03**
Update count: **0**

Registration date

2019-09-25, 1398/07/03

Registrant information

Name

Alireza Niknam

Name of organization / entity

Shiraz University

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-12-23, 1397/10/02

Expected recruitment end date

2019-01-01, 1397/10/11

Actual recruitment start date

2018-12-24, 1397/10/03

Actual recruitment end date

2019-01-01, 1397/10/11

Trial completion date

2019-03-18, 1397/12/27

Scientific title

the effect of High intensity circuit training on Oxidative biomarkers, body composition and performance in youth soccer player.

Public title

Effect of high intensity circuit training on athlete performance and health

Purpose

Education/Guidance

Inclusion/Exclusion criteria

Inclusion criteria:

physical health. Estimate of peak height velocity is between 14 to 14.5 years old.

Exclusion criteria:

disease or any physical problem

Age

From **14 years** old to **16 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **22**

More than 1 sample in each individual

Number of samples in each individual: **2**

Take 2×10cc, venous blood samples from each participants (before and after exercise).

Actual sample size reached: **21**

More than 1 sample in each individual

Actual sample size in each individual: **2**

Take 2×10cc, venous blood samples from each participants (before and after exercise).

Randomization (investigator's opinion)

Randomized

Randomization description

Randomization method: Simple randomization Random unit: Individual Randomization Tool: Shuffle Cards Random Sequence Construction Method: The sample selection method will be available in this study and randomly divided into two distinct groups. Prior to the implementation of the research, 22 ،14 to 16 year-old boys were selected after completing the health questionnaire in physical activity and obtaining personal data. The names of the subjects are recorded on individual cards (each subject has a special card). Then all the cards are thrown in the rundle and are thrown well. After each time, a card is pulled out of the ball and placed in the control or intervention according to the even or Odd number. The odd numbers placed in the control group (1) and the even numbers (2) are in the intervention group. Accordingly, the first shuffle place in the control group and the second one in the intervention group. Then completing and registering names in their groups, to hide the process of grouping the subject, through a letter packed with their status in the study and their group will inform the subject. In this letter, the groups are marked with the number and the full description of each group's actions is mentioned. For example, in the closed letter, the first card that out of the ball, are cited the person's activities during the intervention, and the number of his group (group 1).

Blinding (investigator's opinion)

Single blinded

Blinding description

Subjects, instructors, and experts evaluating field and biochemical tests are kept blind in this study. In relation to the participant, each subject will be informed about the necessary details of their duties as well as their group number in a closed letter. The letter does not mention the group name and only the group number. However, in order to respect the ethics and rights of the subject, all of the tasks and actions that are to be performed are described. individuals in the control group with code 1 and those in the intervention group with code 2 coding and information on performing tests and interventions for each group are fully explained and described in a separate class for each group. In addition, in order to perform the research plane, 2 coaches were assigned by a closed letter, while explaining all the training and safety issues for each group. Performing blood tests and blood sampling are also performed by technicians and testers who are fully aware of the tests. None of the examiners had any information about the intervention status of the subjects. Therefore, in this study, none of the instructors, subjects, and examiners have any information about the status of the subjects (which group is the intervention group and which one is the control group), although the tasks and all the tests and safety aspects will be describe for them.

Placebo

Not used

Assignment

Single

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee for Research in Faculty of Physical Education and Sport Sciences - University of Te

Street address

between 15th and 16th St,Above Jalal Al Ahmad intersection,North Kargar Street,Tehran

City

tehran

Province

Tehran

Postal code

1439813117

Approval date

2019-03-12, 1397/12/21

Ethics committee reference number

IR.UT.SPORT.REC.1398.014

Health conditions studied

1

Description of health condition studied

effect of exercise training

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Oxidative biomarkers: In this study, we investigated the oxidative variables of serum levels of Sirtuin1, 8-hydroxy-2-deoxy guanosine, hydrogen peroxide and catalase activity.

Timepoint

During 4 stages including: rest before intervention, 1 hour after maximal aerobic exercise, 8 weeks after intervention, and one hour after aerobic activity after 8 weeks.

Method of measurement

ELISA measurement of serum samples

2

Description

Physical performance: In this study, field and laboratory tests of performance measurement were used to evaluate physical performance. Strength, muscle endurance, explosive power, anaerobic power, flexibility, speed, agility and fatigue were evaluated.

Timepoint

Before the 8-week intervention and after the 8-week intervention

Method of measurement

Field Testing Methods: 40m Running Speed Test, Illinois for Agility, Swimming and Sitting for Muscular Endurance, Sargent Jump for Explosive Power and RAST Test for Anaerobic Power and Fatigue, Sit & Brush Test for Flexibility and Laboratory Assay Method Isokinetic strength with biodex machine to evaluate muscle strength

3

Description

Body composition: Includes fat, muscle and pure body mass

Timepoint

Before the 8-week intervention and after the 8-week intervention

Method of measurement

Using an X-contact body composition analyzer from Japan

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: The training group trained for 8 weeks, 3 days a week, with 80% of maximal heart rate in the first 4 weeks and 85 to 90% of maximal heart rate in the second four weeks.

Category

N/A

2

Description

Control group: continued their usual football training with the same volume as the training group

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

FC Setaregan Sorkh pooya iranian

Full name of responsible person

Meysam Keshani

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K.N.Toosi University of Technology Faculty of Aerospace Engineering,Daneshgah Boulevard, Ehsan Street Exit, East Zeynoddin Highway,Tehran, Iran

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tehran university

Full name of responsible person

Abbasali Gaeeni

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Faculty of Physical Education and Sport Sciences, between 15th and 16th St., North Kargar st., Tehran, Islamic Republic of Iran

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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
Tehran university

Proportion provided by this source
1

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
Tehran university

Full name of responsible person
Abbasali Gaeini

Position
Professor

Latest degree
Ph.D.

Other areas of specialty/work
Sport physiology

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Faculty of Physical Education and Sport Sciences, between 15th and 16th St., North Kargar st., Tehran, Islamic Republic of Iran

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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

Not applicable

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Not applicable

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Not applicable

Title and more details about the data/document

All functional , biochemistry, and body composition information of each subject based on individual number can be provided to valid researchers.

When the data will become available and for how long

12 months after publication of research results

To whom data/document is available

Academic researchers

Under which criteria data/document could be used

For the purpose of follow-up or meta-analysis studies

From where data/document is obtainable

University of Tehran, Dr. Abbas Ali Gaeini

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

Documents for teaching at one of the universities approved by the Ministry of Science and Technology of the Islamic Republic of Iran sent to email address: alireza.niknam@yahoo.com. After two days, an email will be sent to the selected researcher to provide a brief report on how to do the research. Subsequently, if the Responsible researcher of this study, Dr. Abbas Ali Gainei agrees, all information required in an Excel file will be provided to the selected researcher while maintaining the confidential information of the subjects including their name, contact number, address and personal information. This process also takes a week.

Comments