

Clinical Trial Protocol

Iranian Registry of Clinical Trials

22 Jul 2026

Growth hormone, insulin-like growth factor 1, testosterone and cortisol responses to single bout of agility ladder exercise in water polo athletes

Protocol summary

Study aim

Investigating the acute response of growth hormone, testosterone, insulin-like growth factor-1, cortisol and testosterone/cortisol ratio following an agility ladder exercise session in male water polo athletes.

Design

Single-blind, parallel-group, randomized controlled trial

Settings and conduct

The participants received their intervention based on the group name. The training place was Azadi Complex in Tehran. Blood samples were taken from all participants before and after the exercise, as well as 24 and 48 hours after the exercise. At the beginning of the research, a code was assigned to each subject and in all subsequent steps, the code was used instead of their name.

Participants/Inclusion and exclusion criteria

Inclusion criteria included water polo male athletes in Tehran Azadi Sport Complex, 19-22 year old. The exclusion criteria including having blood disease, infection, allergic conditions, and use of drug, supplements or tobacco.

Intervention groups

Control group: The participants in this group warmed up at the beginning of the agility ladder exercise session, did not exercise during the session, and did cool down at the end of the session. Experimental group: This group participant will perform an agility ladder exercise session after warm up (about 40 minutes) and then performed cooling down.

Main outcome variables

Growth hormone, insulin-like growth factor 1, testosterone and cortisol

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200409047006N1**

Registration date: **2020-04-18, 1399/01/30**

Registration timing: **retrospective**

Last update: **2020-04-18, 1399/01/30**

Update count: **0**

Registration date

2020-04-18, 1399/01/30

Registrant information

Name

Saleh Rahmati-Ahmadabad

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 21 7628 1010

Email address

salehrahmati@pardisiau.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2018-11-26, 1397/09/05

Expected recruitment end date

2018-12-03, 1397/09/12

Actual recruitment start date

2018-11-28, 1397/09/07

Actual recruitment end date

2018-12-06, 1397/09/15

Trial completion date

2019-03-09, 1397/12/18

Scientific title

Growth hormone, insulin-like growth factor 1, testosterone and cortisol responses to single bout of agility ladder exercise in water polo athletes

Public title

Hormonal responses to single bout of agility ladder

exercise

Purpose
Basic science

Inclusion/Exclusion criteria
Inclusion criteria:
 Water polo athletes of Tehran Azadi Sport Complex Age limitation (19- 22 years old) Male
Exclusion criteria:
 Having blood disease Having infection Having allergic conditions Use of drug Use of supplements Use of tobacco

Age
From **19 years** old to **22 years** old

Gender
Male

Phase
N/A

Groups that have been masked

- Care provider
- Investigator
- Outcome assessor
- Data analyser
- Data and Safety Monitoring Board

Sample size
 Target sample size: **30**
 Actual sample size reached: **30**

Randomization (investigator's opinion)
Randomized

Randomization description
 Computerization was performed using a computer and a simple randomization method. The method used by the computer was that the computer selects random numbers between 0.5 and 1. Numbers less than 0.5 were in the control group and numbers greater than 0.5 were in the intervention group. Therefore, 30 subjects were randomly divided into two groups.

Blinding (investigator's opinion)
Single blinded

Blinding description
 The participants were identified using the codes instead of their actual names. A third party was asked to classify the participants randomly, using the (labelled) codes. Study groups had codes instead of names. The laboratory was uninformed from name of groups and only used the codes. Groups codes were used for statistical analysis.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids
empty

Ethics committees

1

Ethics committee
Name of ethics committee
 Ethics committee of Islamic Azad University, Gachsaran Branch
Street address
 Gachsaran Branch, Islamic Azad University, Kohgiluyeh and Boyer-Ahmad Province, Iran.
City
 Gachsaran
Province
 Fars
Postal code
 7581863876
Approval date
 2020-04-12, 1399/01/24
Ethics committee reference number
 IR.IAU.IAUG.REC.1399.007

Health conditions studied

1

Description of health condition studied
 Agility ladder exercise
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
 Blood growth hormone concentration
Timepoint
 Before and after exercise, and 24 and 48 hours after exercise session.
Method of measurement
 ELISA kit

2

Description
 Blood testosterone hormone concentration
Timepoint
 Before and after exercise, and 24 and 48 hours after exercise session.
Method of measurement
 ELISA kit

3

Description
 Blood cortisol hormone concentration
Timepoint
 Before and after exercise, and 24 and 48 hours after exercise session.
Method of measurement
 ELISA kit

4

Description

Blood insulin-like growth factor-1 hormone concentration

Timepoint

Before and after exercise, and 24 and 48 hours after exercise session.

Method of measurement

ELISA kit

Secondary outcomes

empty

Intervention groups

1

Description

Control group: There are 15 participants in this group. The participants in this group warmed up at the beginning of the agility ladder exercise session, did not exercise during the session, and performed cool down at the end of the session.

Category

N/A

2

Description

Experimental group: There are 15 participants in this group. This group participants performed an agility ladder exercise session after warm up (about 40 minutes) and then performed cool down.

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Azadi Sport Complex

Full name of responsible person

Ghodratollah Seif

Street address

Karaj highway, Tehran, IR Iran

City

Tehran

Province

Tehran

Postal code

1484813111

Phone

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Email

info@azadisportcomplex.com

Web page address

http://www.azadisportcomplex.com/contact_info/

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Islamic Azad University

Full name of responsible person

Ali Niazi PhD

Street address

Sohanak, Cental Tehran Branch, Islamic Azad University

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Email

ali.niazi@gmail.com

Web page address

<http://iauctb.ac.ir/fa>

Grant name

Islamic Azad University, Central Tehran Branch

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

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

Islamic Azad University

Full name of responsible person

Saleh Rahmati-Ahmadabad

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Physiology

Street address

Department of Physical Education, Pardis Branch, Islamic Azad University, Tehran Province, Bumeheh

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Latest degree

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Person responsible for updating data

Contact

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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

Not applicable

Title and more details about the data/document

The data of the dependent research variables can be
published as code and without name of the participants.

When the data will become available and for how long

They will be available after article submission.

To whom data/document is available

Researchers

Under which criteria data/document could be used

Data is available for re-analysis by researchers

From where data/document is obtainable

Corresponding author. Dr. Saleh Rahmati-Ahmadabad.
Department of Physical Education, Pardis Branch, Islamic
Azad University, Pardis, Iran

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

Send the request by email to the corresponding author.

Comments