

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The changes of interleukin-17, interferon- $\gamma$ and hs-CRP concentrations of athletes following a single session of exercise in cold and natural conditions.

#### Protocol summary

##### Summary

Introduction: Exercise and stressor environments could lead to some immune changes in human body. The aim of this study was to explore the changes of interleukin 17, interferon- $\gamma$  and hs-CRP concentrations of athletes after a single session of exercise in cold and natural conditions. Materials and methods: This study was a randomized clinical trial of a single blind. Ten young male athletes ran on a treadmill for 1h at %60 VO<sub>2</sub>max in conditions of natural and cold. The interleukin 17, interferon- $\gamma$ , hs-CRP and cortisol concentrations measured before, immediately after exercise and two hours after (during recovery) and body temperature, pressure scale and athletes' consummated water during exercise. In order to analyze the data, Repeated Measure and Bonferroni tests and Paired T tests were utilized at the significant level of  $p < 0.05$ . Inclusion criteria included; having a history of at least 3 years of continuous and 8 hours per week of exercise endurance; maximal oxygen consumption 50 ml kg min; the absence of any disease of the immune system; vascular Kvrnr and infection in the past month; such as influenza; to colds; respiratory infections Hungarian; or symptoms such as fever; sore throat; runny nose; cough and other infectious diseases. The use of doping substances such as vitamins; dietary supplements; herbs or medications that affect the immune system are effective; Smoking and alcohol 48 hours before the test; Participate in heavy exercise; exposure to adverse environmental conditions; temperature; disease and viral infection during the plan period; were exclusion criteria.

#### General information

##### Acronym

Not have

##### IRCT registration information

IRCT registration number: **IRCT201111297255N3**

Registration date: **2011-12-07, 1390/09/16**

Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2011-12-07, 1390/09/16

##### Registrant information

###### Name

Sadegh Satarifard

###### Name of organization / entity

Tehran University

###### Country

Iran (Islamic Republic of)

###### Phone

+98 21 8863 3866

###### Email address

satarifard@ut.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

Investigator

##### Expected recruitment start date

2011-05-10, 1390/02/20

##### Expected recruitment end date

2011-06-19, 1390/03/29

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

The changes of interleukin-17, interferon- $\gamma$  and hs-CRP

concentrations of athletes following a single session of exercise in cold and natural conditions.

**Public title**

Exercise and immune change

**Purpose**

Basic science

**Inclusion/Exclusion criteria**

Inclusion criteria included; having a history of at least 3 years of continuous and 8 hours per week of exercise endurance; maximal oxygen consumption 50 ml kg min; the absence of any disease of the immune system; vascular Kvrnr and infection in the past month; such as influenza; to colds; respiratory infections Hungarian; or symptoms such as fever; sore throat; runny nose; cough and other infectious diseases. The use of doping substances such as vitamins; dietary supplements; herbs or medications that affect the immune system are effective; Smoking and alcohol 48 hours before the test; Participate in heavy exercise; exposure to adverse environmental conditions; temperature; disease and viral infection during the plan period; were exclusion criteria.

**Age**

From **20 years** old to **30 years** old

**Gender**

Male

**Phase**

2-3

**Groups that have been masked**

*No information*

**Sample size**

Target sample size: **10**

**Randomization (investigator's opinion)**

N/A

**Randomization description****Blinding (investigator's opinion)**

Single blinded

**Blinding description****Placebo**

Not used

**Assignment**

Parallel

**Other design features****Secondary Ids**

empty

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

Ethics committee of Tehran University, Department of Physical Education

**Street address**

Department of Physical Education of Tehran University, Kargshmary Street, Tehran

**City**

Tehran

**Postal code**

13117-14398

**Approval date**

2011-05-04, 1390/02/14

**Ethics committee reference number**

28

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

Not Patient- Healthy subjects, young athletes

**ICD-10 code****ICD-10 code description****Primary outcomes****1****Description**

interleukin-17 Concentration

**Timepoint**

Before, immediately after and 2 h after exercise

**Method of measurement**

Using ELISA Kit

**2****Description**

CRP concentration

**Timepoint**

Before, immediately after and 2 h after exercise

**Method of measurement**

Using ELISA Kit

**3****Description**

IFN- $\gamma$

**Timepoint**

Before, immediately after and 2 h after exercise

**Method of measurement**

Using ELISA Kit

**Secondary outcomes****1****Description**

Not have

**Timepoint**

Not have

**Method of measurement**

Not have

**Intervention groups****1****Description**

One hour of exercise (running on a treadmill) with 60% of

vo2max, in normal environment(4°c)

**Category**

Other

**2**

**Description**

One hour of exercise (running on a treadmill) with 60% of vo2max, in normal environment(22°c)

**Category**

Other

**Recruitment centers**

**1**

**Recruitment center**

**Name of recruitment center**

Yasuj

**Full name of responsible person**

Satarifard Sadegh

**Street address**

Tehran University School of Physical Education,  
Kargrshmary Street, Tehran

**City**

Tehran

**Sponsors / Funding sources**

**1**

**Sponsor**

**Name of organization / entity**

Investigator

**Full name of responsible person**

Satarifard Sadegh

**Street address**

Tehran University School of Physical Education,  
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**City**

Tehran

**Grant name**

**Grant code / Reference number**

**Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Investigator

**Proportion provided by this source**

100

**Public or private sector**

empty

**Domestic or foreign origin**

empty

**Category of foreign source of funding**

empty

**Country of origin**

**Type of organization providing the funding**

empty

**Person responsible for general inquiries**

**Contact**

**Name of organization / entity**

Tehran University

**Full name of responsible person**

Satarifard Sadegh

**Position**

MSc student

**Other areas of specialty/work**

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**Web page address****Sharing plan****Deidentified Individual Participant Data Set (IPD)**

*empty*

**Study Protocol**

*empty*

**Statistical Analysis Plan**

*empty*

**Informed Consent Form**

*empty*

**Clinical Study Report**

*empty*

**Analytic Code**

*empty*

**Data Dictionary**

*empty*