

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### The effect of carbohydrate meals with high or low glycemic index on blood glucose concentration following prolonged strenuous exercise

#### Protocol summary

##### Summary

Background: The glycemic index (GI) is a system for the classification of carbohydrate-containing foods that is based on their blood-glucose-raising potential. In addition, Carbohydrate ingestion following prolonged strenuous exercise attenuates the suppression of immune system by maintaining plasma glucose concentration and minimizing stress hormone and inflammatory cytokines responses that is the most important factor in reduction of inflammation in paralyzed athletes. Purpose: The purpose of this study was to determine the effect of pre-exercise high carbohydrate meals with high or low glycemic index on glucose profile pre, immediately post and 1 hour after subsequent endurance exercise. Method: in a semi-empirical double-blind trial, 12 male athletes was purposefully selected to be titled triable and then divided in 2 groups of high (HGI=94) and low glycemic index (LGI=40), in amount of 1 gram per kilogram of body weight. Afterwards, they performed two 90-min running on a treadmill at 70% VO<sub>2</sub>max for 2 hours Within 7 days. Blood samples were collected before, immediately after and 1 hour after run for measure of blood glucose concentrations.

#### General information

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT201201048617N1**  
Registration date: **2012-01-16, 1390/10/26**  
Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2012-01-16, 1390/10/26

#### Registrant information

##### Name

Seyyed javad Zaolhagh

##### Name of organization / entity

Islamic Azad University, Shahrood Branch, Physical Education Faculty, Shahrood, Iran

##### Country

Iran (Islamic Republic of)

##### Phone

+98 51 1869 9335

##### Email address

javadzia@gmail.com

#### Recruitment status

##### Recruitment complete

#### Funding source

Tehran University

#### Expected recruitment start date

2008-12-21, 1387/10/01

#### Expected recruitment end date

2009-01-20, 1387/11/01

#### Actual recruitment start date

empty

#### Actual recruitment end date

empty

#### Trial completion date

empty

#### Scientific title

The effect of carbohydrate meals with high or low glycemic index on blood glucose concentration following prolonged strenuous exercise

#### Public title

Effect of glycemic index on immune system after endurance training

#### Purpose

Basic scienece

#### Inclusion/Exclusion criteria

Inclusion criteria: having athletic background; not having inflamatory deseases; age between 20 to 25 years; body

fat percentage 9-14%; vo2max 4-5 and BMI between 19.5 to 25. Exclusion criterion: unsuccessful training test condition

### Age

From **20 years** old to **25 years** old

### Gender

Male

### Phase

1

### Groups that have been masked

*No information*

### Sample size

Target sample size: **12**

### Randomization (investigator's opinion)

Randomized

### Randomization description

### Blinding (investigator's opinion)

Double blinded

### Blinding description

### Placebo

Not used

### Assignment

Parallel

### Other design features

12 subjects selected and divided to 2 group randomly

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Tehran University

##### Street address

iran-tehran-amirabad15th-physical education faculty  
of university of tehran

##### City

Tehran

##### Postal code

##### Approval date

2008-06-01, 1387/03/12

##### Ethics committee reference number

26972/6/3

## Health conditions studied

### 1

#### Description of health condition studied

effect of glycemic index regimen on immune system after  
sterneus endurance exercise

#### ICD-10 code

#### ICD-10 code description

## Primary outcomes

### 1

#### Description

Blood glucose

#### Timepoint

Before, immediately after and 1 hour after intervention

#### Method of measurement

Labratory test

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

Glycemic index regimn

#### Category

Treatment - Other

### 2

#### Description

Endurance exercise with 70 percent of maximal heart  
rate in 90minutes

#### Category

Treatment - Other

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Tehran University dormitory

##### Full name of responsible person

Seyed Javad Zeiaolhagh

##### Street address

No 54.1, Sadaf 11 alley, Sadaf blv., Mashad

##### City

Mashad

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Tehran University of

##### Full name of responsible person

Mrs. Mohammadi

##### Street address

Amir abad 15th str., Tehran, Iran

##### City

Tehran

#### Grant name

#### Grant code / Reference number

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

Yes

**Title of funding source**  
Tehran University of  
**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**  
Islamic Azad University, Shahrood branches  
**Full name of responsible person**  
S. Javad Ziaolhagh  
**Position**  
Faculty Member  
**Other areas of specialty/work**  
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## Person responsible for scientific inquiries

### Contact

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PhD candidate  
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## Person responsible for updating data

### Contact

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## 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*