

Clinical Trial Protocol

Iranian Registry of Clinical Trials

20 Sep 2026

The effect of cognitive training on behavioral and electrophysiological indices of attention networks functions following to mental fatigue

Protocol summary

Study aim

Determining the effect of cognitive training on behavioral and electrophysiologic indices of network functions is due to mental fatigue.

Design

Semi-experimental research with control and experimental group assigned to two groups

Settings and conduct

The test sessions were performed in the laboratory of the Institute of Cognitive Sciences and Brain Sciences and the training sessions in the laboratory of the faculty of Sports science of Shahid Beheshti University. Our study included a familiarization session and two experiment sessions in pretest and post-test. The first experiment was the attention networks test (ANT) and the second experiment was attention networks test along with mental fatigue that has been created through the Stroop test after one hour. All participants carried out ANT concurrently with the recording of the brain activity (EEG). Immediately after completing the Stroop test, concurrent with the recording of the brain activity (EEG), they performed ANT in the condition of mental fatigue. The participants assigned to the training group underwent 10 sessions of cognitive training across a period of 3-4 weeks. Each session lasted 60 min. Cognitive training concluded Working memory, signal detection, sustain attention, vigilance, different attention. The control group did not receive cognitive training. After the cognitive training, both groups participated in two sessions without mental fatigue and with mental fatigue following the pre-test.

Participants/Inclusion and exclusion criteria

Professional athlete without a history of taking antidepressants, mental illnesses and drug use, alcohol

Intervention groups

Cognitive training group with mental fatigue, Control group with mental fatigue

Main outcome variables

Behavioral Indicators (Reaction Time and Accuracy) and

Electrophysiological Indicators (Event-Related Potentials)
Attention Networks

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20130615013672N2**

Registration date: **2019-03-17, 1397/12/26**

Registration timing: **retrospective**

Last update: **2019-03-17, 1397/12/26**

Update count: **0**

Registration date

2019-03-17, 1397/12/26

Registrant information

Name

Sahar Mohammadzadeh

Name of organization / entity

Shahid Beheshti University

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2017-11-22, 1396/09/01

Expected recruitment end date

2018-02-19, 1396/11/30

Actual recruitment start date

2017-11-22, 1396/09/01

Actual recruitment end date

2018-02-19, 1396/11/30
Trial completion date
 2018-02-19, 1396/11/30

Scientific title
 The effect of cognitive training on behavioral and electrophysiological indices of attention networks functions following to mental fatigue

Public title
 The effect of cognitive training on attention networks functions following to mental fatigue

Purpose
 Other

Inclusion/Exclusion criteria
Inclusion criteria:
 the Athletes with a minimum of five years of professional activity
Exclusion criteria:
 Doing computer games more than an hour per day Not having enough night's sleep having vision and hearing problems taking psychoactive drugs having a stroke

Age
 From **18 years** old to **30 years** old

Gender
 Both

Phase
 N/A

Groups that have been masked
No information

Sample size
 Target sample size: **28**
 Actual sample size reached: **20**

Randomization (investigator's opinion)
 Not randomized

Randomization description

Blinding (investigator's opinion)
 Not blinded

Blinding description

Placebo
 Not used

Assignment
 Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
 Bioethics Committee of Shahid Beheshti University
Street address
 Shahid Beheshti University, Bolvard Daneshjou, velenjak,
City
 Tehran
Province

Tehran
Postal code
 ۱۹۸۳۹۶۹۴۱۱
Approval date
 2017-10-07, 1396/07/15
Ethics committee reference number
 96.1021 SBU.ICBS

2

Ethics committee
Name of ethics committee
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Health conditions studied

1

Description of health condition studied
 mental fatigue and attention networks
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
 attention networks test (behavioral and electrophysiological of indices)

Timepoint
 Pre-test from 13-17 pm in the first session and 48 hours after the second session and four weeks after the intervention. Cognitive and post-test exercises in two sessions with 48 hours interval between the third and fourth sessions.

Method of measurement
 E-prime software for measuring behavioral indices and electroencephalogram system to measure electrophysiological indices of attention testing networks.

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: Cognitive training include training of visual working memory, vigilance, problem solving, signal identification

Category

N/A

2

Description

Control group: Without any cognitive training

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Laboratory of the Institute of Cognitive Sciences and Brain, University of Shahid Beheshti

Full name of responsible person

Sajjad Farrashi

Street address

Institute of Cognitive and Brain Sciences, University of shahid beheshti, boulevard of Daneshjou, Velenjak

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Recruitment center

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Full name of responsible person

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Recruitment center

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The University of Shahid Beheshti

Full name of responsible person

Alireza Farsi

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a_farsi@sbu.ac.ir

Grant name

Grant code / Reference number

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

Yes

Title of funding source

The University of Shahid Beheshti

Proportion provided by this source

50

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

The University of Shahid Beheshti

Full name of responsible person

Sahar Mohammadzadeh

Position

PhD Candidate

Latest degree

Master

Other areas of specialty/work

Attention Networks, Mental Fatigue, Cognitive Training

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Person responsible for scientific inquiries

Contact

Name of organization / entity

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Full name of responsible person

Alireza Farsi

Position

Associate Professor

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Ph.D.

Other areas of specialty/work

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Person responsible for updating data

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Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

Contains confidential information

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Not applicable

Analytic Code

No - There is not a plan to make this available

Data Dictionary

Not applicable

Title and more details about the data/document

Consent form

When the data will become available and for how long

2019

To whom data/document is available

With the consent of the SBU

Under which criteria data/document could be used

Observe copyright

From where data/document is obtainable

sahar mohammadzadeh

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

I do not have information yet

Comments