

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 2026

The Effect of Combined Exercise Training with Resistance Dominant and Coenzyme Q10 Supplementation on Brain-Derived Neurotrophic Factor (BDNF) and Nerve Growth Factor (NGF) in patient with multiple sclerosis

Protocol summary

Study aim

The purpose of this study was to investigate the effect of eight weeks of combined resistance training with supplementation of coenzyme Q10 on serum levels of Brain-Derived Neurotrophic Factor (BDNF) and Nerve Growth Factor (NGF) in patients with multiple sclerosis.

Design

Clinical trial with control group, with parallel groups, no blinded, randomized

Settings and conduct

MS Case Study The place to do that community is Mashhad Twenty eight patients were selected by available sampling method and randomly divided into three experimental groups (complementary exercise training Q10, placebo, placebo, Q10 supplementation) and a control (placebo) group.

Participants/Inclusion and exclusion criteria

2 years old with MS Not doing regular exercise Non-smoking

Intervention groups

Combined exercise + Q10 Supplement group Combined exercise + placebo group Q10 Supplemental group

Main outcome variables

Brain-Derived Neurotrophic Factor (BDNF) and Nerve Growth Factor (NGF)

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20170911036117N2**

Registration date: **2019-08-11, 1398/05/20**

Registration timing: **registered_while_recruiting**

Last update: **2019-08-11, 1398/05/20**

Update count: **0**

Registration date

2019-08-11, 1398/05/20

Registrant information

Name

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 51 4401 2765

Email address

elia_3812@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-08-11, 1398/05/20

Expected recruitment end date

2019-08-16, 1398/05/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of Combined Exercise Training with Resistance Dominant and Coenzyme Q10 Supplementation on Brain-Derived Neurotrophic Factor (BDNF) and Nerve Growth Factor (NGF) in patient with multiple sclerosis

Public title

The effect of training on MS

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

2 years old with MS Not doing regular exercise Non-smoking

Exclusion criteria:

Use of the corticone Expanded Disability Status Scale (EDSS) more than 5 Expanded Disability Status Scale (EDSS) less than 3

Age

From **25 years** old to **45 years** old

Gender

Both

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **28**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple individual random Description: Writing the names of subjects and randomly taking names and placing them in a specified order in four research groups

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Sabzevar University of Medical Sciences

Street address

Asad Abadi Street - Central Office of Medical Sciences

City

sabzevar

Province

Razavi Khorasan

Postal code

9613873119

Approval date

2016-05-30, 1395/03/10

Ethics committee reference number

IR.MEDSAB.REC.1395.29

Health conditions studied

1

Description of health condition studied

multiple sclerosis

ICD-10 code

G35

ICD-10 code description

Multiple sclerosis

Primary outcomes

1

Description

Brain-derived growth factor and Nervous Growth Factor

Timepoint

24 hours before the start and 48 hours after the end of the intervention

Method of measurement

ELISA method and using special kit

Secondary outcomes

1

Description

Brain-derived growth factor and Nervous Growth Factor

Timepoint

24 hours before the start and 48 hours after the end of the intervention

Method of measurement

ELISA method and using special kit

Intervention groups

1

Description

Intervention group: Combined exercise training + supplementation of coenzyme Q10. Intervention of this group will be combined exercise training consist of two sessions of 50% resistance training with a maximum of one repetition and one session of aerobic exercise with 50% maximal oxygen consumption at the start of the study with daily intake of 200 mg Coenzyme Q10 manufactured by Canadian Notary Century for eight weeks.

Category

Lifestyle

2

Description

Intervention group: Combined exercise training + placebo. Intervention of this group will be combined exercise training consist of two sessions of 50% resistance training with a maximum of one repetition and one session of aerobic exercise with 50% maximal oxygen consumption at the start of the study with daily intake of placebo (starch powder) for eight weeks.

Category

Lifestyle

3

Description

Intervention group: supplementation of coenzyme Q10. Intervention of this group will be intake daily of 200 mg Coenzyme Q10 manufactured by Canadian Notary Century for eight weeks.

Category

Treatment - Drugs

4

Description

Control group: placebo. Intervention of this group will be daily intake of placebo (starch powder) for eight weeks.

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center

MS Khorasan Razavi Society

Full name of responsible person

Karim Nikkhah

Street address

50th Street, Ghaem 12, Ahmadabad Street, Mashhad

City

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Province

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9617976487

Phone

+98 51 4441 0104

Fax

Email

hakim@hsu.ac.ir

Web page address

https://msmashhad.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The University of Hakim Sabzevari

Full name of responsible person

Amir Hosein Haghighi

Street address

Hakim Sabzevari University, Towhid City, Sabzevar

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Email

hakim@hsu.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 Hakim Sabzevari

Proportion provided by this source

5

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 Zabol

Full name of responsible person

Javad Nakhzari Khodakheir

Position

Assistant Professor

Latest degree

Ph.D.

Other areas of specialty/work

Exercise Physiology

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No. 25, Shahid Bagheri

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

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

Study Protocol

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

Statistical Analysis Plan

Not applicable

Informed Consent Form

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

Clinical Study Report

Not applicable

Analytic Code

Not applicable

Data Dictionary

Not applicable