Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

The effect of 8 weeks of circular training on serum levels of Brain-Derived Neurotrophic Factor and Nerve Growth Factor in elderly women

Protocol summary

Study aim
Determining the effect of eight weeks of circuit training on the serum levels of BDNF and NGF in elderly female

Design
A semi-experimental trial will be conducted, with a control group and an experimental group randomly divided into two groups.

Settings and conduct
Before the commencement of the training program, comprehensive documentation of the subjects' blood samples, body measurements, balance, and muscular and cardiovascular endurance will be conducted. Following this, the subjects will be provided with the necessary consent forms. Subsequently, they will be allocated into either the experimental or control groups. A follow-up blood draw will occur 48 hours after the last training session, followed by performance tests. The training plan will involve circuit sessions occurring 2 to 3 times per week for eight weeks. In the meantime, the control group will continue their usual daily activities. Undergo parallel blood tests alongside the experimental group. It is important to note that this research will be carried out in Tabriz city.

Participants/Inclusion and exclusion criteria
1. Age range 60 to 70 2. Not taking medicine and supplements 3. Not having a specific disease 4. Not having skeletal disease 5. Not having an underlying disease 6. The possibility of performing the desired sports activity (which must be approved by the doctor)

Intervention groups
Our intervention group will engage in circuit training for eight weeks, while the control group will maintain their regular routines during this period.

Main outcome variables
Brain-derived neurotrophic factor Nerve growth factor

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20240108060648N1**
Registration date: **2024-02-12, 1402/11/23**
Registration timing: **prospective**

Last update: **2024-02-12, 1402/11/23**
Update count: **0**

Registration date
2024-02-12, 1402/11/23

Registrant information

Name
Fatemeh Baharavar

Name of organization / entity
The univercity of tabriz

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2024-03-04, 1402/12/14

Expected recruitment end date
2024-04-26, 1403/02/07

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The effect of 8 weeks of circular training on serum levels of Brain-Derived Neurotrophic Factor and Nerve Growth

Factor in elderly women

Public title
effect of circuit training in side effects of aging
Purpose
Prevention
Inclusion/Exclusion criteria
Inclusion criteria:
Age range 60 to 70 Not taking medicine and supplements Not having a specific disease The doctor must approve the desired sports activity.
Exclusion criteria:
Having an underlying disease Having skeletal disease
Age
From **60 years** old to **70 years** old
Gender
Female

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **30**
Randomization (investigator's opinion)
Randomized
Randomization description
The sealed envelope method will be used. In this way, random numbers will be placed inside sealed envelopes. The patient's number will be written on each envelope, and the patient's names will be listed in order. Finally, envelopes will be opened and patients with an even number will be assigned to the training group, while those with an odd number will be assigned to the control group.
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Parallel
Other design features
The participants will be divided into two groups: a control group and a training group. The effect of the independent variable will be compared between the two groups, one with intervention and one without.

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
ethic committee university of Tabriz
Street address
No. 77, babaee2 Ave, Parvaz
City
Tabriz
Province
East Azarbaijan
Postal code
5167769811
Approval date
2023-08-19, 1402/05/28
Ethics committee reference number
IR.TABRIZU.REC.1402.063

Health conditions studied

1

Description of health condition studied
aging
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Plasma nerve growth factor level in the elderly
Timepoint
Before and 48 hours after doing exercise
Method of measurement
Nerve growth factor concentration will be measured by blood sampling and by ELISA method and using kits with a sensitivity of 8.7 pg/ml, Promega brand, catalog number 7631G.

2

Description
Brain-derived neurotrophic factor will be assessed in the elderly population.
Timepoint
before and 48 hours after doing the exercise
Method of measurement
The serum concentration of brain-derived neurotrophic factor will be measured by blood sampling and by ELISA using kits with a sensitivity of 15.6 pg/ml, Promega brand, catalog number 7611G.

Secondary outcomes

1

Description
Quality of life
Timepoint
It will be done two times, once before the protocol and once 48 hours after the completion of the protocol
Method of measurement
The World Health Organization's quality of life questionnaire will be used to measure the quality of life.

2

Description
People's physical fitness will be measured. Balance

factors, cardiovascular endurance, muscle endurance, and body composition will be assessed to determine their effectiveness.

Timepoint

It will occur twice, once before the protocol and once 48 hours later.

Method of measurement

Functional tests for physical fitness: (stork tests to measure balance, 250-meter test to measure cardio-respiratory endurance, two minutes of walking to measure muscle endurance) and for body composition, the body mass index formula, which is weight divided by the square of height, will be used.

Intervention groups

1

Description

Intervention group: They will engage in circuit training 2 or 3 times a week (2 times initially and up to 3 times later) for eight weeks. Then, they will do stretching exercises for the major muscle groups and rotational movements. At the end of the workout, a 10-minute cool-down session was performed, involving stretching exercises. The exercises included standing on the toes, lifting the side of the thigh, opening the knee, bending the knee behind the chair, standing stomach movement (folding the leg towards the stomach or hip flexion), lateral flexion of the spine, Incline Dumbbell Curl, hip extension behind the chair, squat in front of the chair, push up next to the wall, walking, front chest pull-up, or horizontal arm pull-up movement.

Category

Prevention

2

Description

Control group: This group will not do any intervention.

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Tabriz university

Full name of responsible person

Fatemeh Baharavar

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

The university of Tabriz

Full name of responsible person

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Grant name

Grant code / Reference number

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

Yes

Title of funding source

The university of Tabriz

Proportion provided by this source

100

Public or private sector

Private

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 Tabriz

Full name of responsible person

Fatemeh Baharavar

Position

PHD student and teacher

Latest degree

Master

Other areas of specialty/work

exorcise physiology

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Person responsible for scientific inquiries

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Person responsible for updating data

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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
Yes - There is a plan to make this available
Title and more details about the data/document
I will share the data with other researchers after completing the study with the participants while ensuring privacy.
When the data will become available and for how long
After printing and finishing the research, I will provide the data to the researchers.
To whom data/document is available
Researchers and people who use data for scientific advancement.
Under which criteria data/document could be used
I will make it available to researchers to improve science. The data should be used anonymously and should not be misused.
From where data/document is obtainable
Refer to the email of the responsible author.
What processes are involved for a request to access data/document
At first, it should be requested from the University of Tabriz and the supervisor, and then the responsible author will provide them to the researchers.
Comments