Clinical Trial Protocol
Iranian Registry of Clinical Trials

07 Nov 2026

Evaluation Trans-cranial low-level laser therapy effect on implicit motor learning in the healthy older adults

Protocol summary

Study aim
Evaluation Trans-cranial low-level laser therapy effect on implicit motor learning in the older adults
Design
Randomized (random block method), without placebo control. The sample size of this study is 60 individuals: divided into 2 groups of 30 people.
Settings and conduct
The effect of Trans-cranial low-level laser therapy on motor learning in the healthy older adults. Neuromuscular Rehabilitation Research Center Semnan University of Medical Sciences.
Participants/Inclusion and exclusion criteria
Inclusion criteria: elderly people with the age range of 60 to 80 years; The dominant hand of people is the right hand side. Exclusion criteria: free blood sugar above 400 or below 60; cardiovascular disease; mental illness; pregnancy; smoking; memory disorders with a score of less than 21 through Mini–Mental State Examination (MMSE).
Intervention groups
Control group: Only for comparison with intervention group, no treatment is performed. Intervention group: 30 elderly people will receive an infrared laser with a wavelength of 1064 nanometers in accordance with the low-power laser treatment instruction. The laser will be continuously applied at 3.4W and with a density of 60 J / cm2 on the inner right forehead to the outer right forehead for 8 minutes.
Main outcome variables
Motor learning.

General information

Reason for update
Acronym
IRCT registration information
IRCT registration number: **IRCT20151228025732N36**
Registration date: **2018-09-09, 1397/06/18**
Registration timing: **registered_while_recruiting**

Last update: **2018-09-09, 1397/06/18**
Update count: **0**
Registration date
2018-09-09, 1397/06/18

Registrant information
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Recruitment status
Recruitment complete
Funding source

Expected recruitment start date
2018-03-14, 1396/12/23
Expected recruitment end date
2018-09-13, 1397/06/22
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title
Evaluation Trans-cranial low-level laser therapy effect on implicit motor learning in the healthy older adults

Public title
The effect of Trans-cranial low-level laser therapy on implicit motor learning in the healthy older adults

Purpose
Health service research
Inclusion/Exclusion criteria
Inclusion criteria:
Elderly people with the age range of 60 to 80 years The dominant hand of people is the right hand side.
Exclusion criteria:
Free blood sugar above 400 or below 60 Cardiovascular disease Mental illness Pregnancy Smoking Memory disorders with a score of less than 21 through Mini–Mental State Examination (MMSE)
Age
From **60 years** old to **80 years** old
Gender
Both

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **60**
Randomization (investigator's opinion)
Randomized
Randomization description
Block randomization; Individual; Random Number Tables. Randomized permutation blocks (block 2). Using Excel software to generate random number tables.
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
Ethics committee of Semnan University of Medical Sciences
Street address
Semnan University of Medical Sciences, Basij Blvd, Semnan
City
Semnan
Province
Semnan
Postal code
3514799442
Approval date
2018-03-14, 1396/12/23
Ethics committee reference number
IR.SEMUMS.REC.1396.265

Health conditions studied

1

Description of health condition studied
Movement disorder
ICD-10 code
F82
ICD-10 code description
Specific developmental disorder of motor function

Primary outcomes

1

Description
Motor learning
Timepoint
Before and 48 hours after the intervention
Method of measurement
The Color Matching Test (CMT) software will record and measure the time of the homework.

Secondary outcomes

empty

Intervention groups

1

Description
Control group: Only for comparison with intervention group, no treatment is performed.
Category
Diagnosis

2

Description
Intervention group: 30 elderly people will receive an infrared laser with a wavelength of 1064 nanometers in accordance with the low-power laser treatment instruction. The laser will be continuously applied at 3.4W and with a density of 60 J / cm2 on the inner right forehead to the outer right forehead for 8 minutes.
Category
Behavior

Recruitment centers

1

Recruitment center
Name of recruitment center
Neuromuscular Rehabilitation Research Center
Full name of responsible person
Rozita Hedayati
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Sponsors / Funding sources

1

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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
Semnan University of Medical Sciences
Proportion provided by this source
100
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
Semnan University of Medical Sciences
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Position
Associate professor
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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
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
No - There is not a plan to make this available
Analytic Code
No - There is not a plan to make this available
Data Dictionary
No - There is not a plan to make this available
Title and more details about the data/document
-
When the data will become available and for how long
-
To whom data/document is available
Only available to scholars working in academic institutions.
Under which criteria data/document could be used
In case of relevant studies.
From where data/document is obtainable
Rozita Hedayati. Neuromuscular Rehabilitation Research Center, Ghods Blvd. +98 912 331 1988
What processes are involved for a request to access data/document
-
Comments