Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

The effects of TRX Suspension Training on sarcopenic neuromuscular markers and functional abilities in elderlies with sarcopenia

Protocol summary

Study aim

The aim of this study was to investigate the effect of eight weeks of TRX Suspension Training (TST) on serum levels of neuromuscular growth factors and functional indices in elderly men with sarcopenia.

Design

In this research, a semi-experimental design was used (two groups in the form of a pretest and a post-test). As a result of the coronavirus pandemic, some participants refused to participate in the training protocol. Therefore, those who were willing to participate in the exercise program were assigned to the training group.

Settings and conduct

Before starting the protocol participants were trained how to do the exercises. The training programs included 8 weeks, three sessions per week, about 60 min per session including warm up and cool down. Due to the coronavirus pandemic exercises were done outdoors. Serum concentrations of muscle growth markers, anthropometric and body composition indices, and functional tests were evaluated at baseline and after 8 weeks.

Participants/Inclusion and exclusion criteria

Inclusion criteria included: 1- age more than 65 years; 2- handgrip strength lower than 32Kg, and SMM/height2 lower than 9.2 kg/m2; 3- being sedentary for at least 1 year (didn’t have more than 1h exercise per week) Exclusion criteria included: 1- cardiovascular or pulmonary diseases, diabetes, Joint and muscle problems, and Mental and cognitive disorders; 2- involvement in any extra exercise training programs; 3- not interested in continuing or changing in personal life schedule.

Intervention groups

Participants in the Control group were asked to continue their routine lifestyle. The training group executed the TRX Suspension Training for 8 weeks.

Main outcome variables

Myostatin levels; Follistatin levels; GDF-15 levels; CAF levels; Handgrip strength; Gait speed; Time up and go (TUG); Chair stand speed; Standing balance.

General information

Reason for update

Acronym

TRX (Total Body Resistance Exercise)

IRCT registration information

IRCT registration number: **IRCT20230727058944N1**
Registration date: **2023-09-20, 1402/06/29**
Registration timing: **retrospective**

Last update: **2023-09-20, 1402/06/29**
Update count: **0**

Registration date

2023-09-20, 1402/06/29

Registrant information

Name

Sohrab Rezaei

Name of organization / entity

Allameh Tabataba'i University

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-07-22, 1399/05/01

Expected recruitment end date

2020-08-15, 1399/05/25

Actual recruitment start date

2020-07-22, 1399/05/01

Actual recruitment end date
2020-08-15, 1399/05/25
Trial completion date
2020-10-26, 1399/08/05

Scientific title
The effects of TRX Suspension Training on sarcopenic neuromuscular markers and functional abilities in elderlies with sarcopenia

Public title
Effect of exercise training on sarcopenia in elderlies
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Age more than 65 years Handgrip strength lower than 32Kg SMM/height2 lower than 9.2 kg/m2 Being sedentary for at least 1 year (didn't have more than 1h exercise per week)
Exclusion criteria:
Cardiovascular or pulmonary diseases, diabetes, Joint and muscle problems, and Mental and cognitive disorders Involvement in any extra exercise training programs Not interested to continue or change in personal life schedule
Age
From **65 years** old
Gender
Male

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **30**
Actual sample size reached: **23**
Randomization (investigator's opinion)
Not randomized
Randomization description
Blinding (investigator's opinion)
Not blinded
Blinding description
Placebo
Not used
Assignment
Other
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committees of Allameh Tabataba'i University
Street address
Floor 13, Block A, Ministry of Health & Medical Education Headquarters, Between Zarafashan & South Falamak, Qods Town, Tehran, Iran.
City
Tehran
Province
Tehran
Postal code
1489684511
Approval date
2020-01-15, 1398/10/25
Ethics committee reference number
IR.ATU.REC.1399.023

Health conditions studied

1

Description of health condition studied
With aging, there is an inevitable progressive loss of muscle mass and strength called sarcopenia that is associated with the risk of impairment in physical ability which could lead to consequences such as falls, fall-related injuries, hospitalizations, and even mortality.
ICD-10 code
M62.5
ICD-10 code description
Muscle wasting and atrophy, not elsewhere classified

Primary outcomes

1

Description
Myostatin levels
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
Collection of venous blood samples with a syringe and laboratory assessments

2

Description
Follistatin levels
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
Collection of venous blood samples with a syringe and laboratory assessments

3

Description
GDF-15 levels
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
Collection of venous blood samples with a syringe and laboratory assessments

4

Description
CAF levels
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
Collection of venous blood samples with a syringe and laboratory assessments

Secondary outcomes

1

Description
Handgrip strength
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
Jamar hand dynamometer (USA) with five handle positions and the second position was used for all participants.

2

Description
Gait speed
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
Walking speed of participants was assessed using a stopwatch.

3

Description
Time Up and Go (TUG)
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
TUG test was assessed using a stopwatch.

4

Description
Chair stand speed
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
chair stand test was assessed using a stopwatch.

5

Description
Standing balance
Timepoint
24 hours before intervention and 48 hours after intervention
Method of measurement
The standing balance test was assessed using a stopwatch.

Intervention groups

1

Description
Intervention group: TRX training group: Participants were trained for 8 weeks, three sessions per week, and about 60 min per session.
Category
Treatment - Devices

2

Description
Control group: Participants in the Control group were asked to continue their routine lifestyle.
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Saraye Zargande
Full name of responsible person
Mohamad Nilforooshzadeh
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Allameh Tabataba'i University
Full name of responsible person
Research Vice President of Allameh Tabatabai University
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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
Allameh Tabataba'i University

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
Allameh Tabataba'i University
Full name of responsible person
Rasoul Eslami
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
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

All data is shareable after de-identifying individuals.

When the data will become available and for how long

starting 6 months after publication

To whom data/document is available

The data will be available to researchers working in academic and scientific institutions and people who work in businesses.

Under which criteria data/document could be used

Any use and analysis of data must be done in coordination with the researcher of this project.

From where data/document is obtainable

Applicants can send their requests to receive data to sohrabrezaei8968@gmail.com.

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

After sending the request, the person's profile and purpose for receiving the data will be asked, and the documents will be sent after confirmation.

Comments