Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

The Effect of Multisensory Integration training and Resistance training on Balance, Spatiotemporal Parameters of Gait and Functional Independence in Older Adults

Protocol summary

Study aim
Comparing the effectiveness of multisensory integration exercises and resistance exercises with body weight on balance, spatio-temporal parameters of gait and functional independence of the elderly

Design
The study is a clinical trial, single-blind, randomized, dividing participants into three groups: multisensory integration training, resistance training, and control group, each with 20 participants.

Settings and conduct
A blinded study will be conducted in Tehran's Shahid Kashori sports complex, dividing participants into three groups: multisensory integration, resistance training, and control. The study aims to explain the importance of exercise in improving old age quality of life through 8 weeks of training sessions.

Participants/Inclusion and exclusion criteria
Inclusion Criteria: Minimum age of 60 and maximum age of 75 Exclusion Criteria: Presence of neurological disorders Presence of orthopedic impairments in the lower extremities

Intervention groups
1. Multisensory integration training:for 8 weeks and three days per week. 2. Resistance training: for 8 weeks and three days per week. 3. Control group: without any training

Main outcome variables
Functional Independence, Spatiotemporal Parameters, Balance, Resistance training, Older Adults, Multisensory Integration

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20231227060541N1**
Registration date: **2024-01-10, 1402/10/20**
Registration timing: **registered_while_recruiting**

Last update: **2024-01-10, 1402/10/20**
Update count: **0**

Registration date
2024-01-10, 1402/10/20

Registrant information

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Tahereh Rahimi

Name of organization / entity
The University of Kharazmi

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2024-01-10, 1402/10/20

Expected recruitment end date
2024-03-10, 1402/12/20

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The Effect of Multisensory Integration training and Resistance training on Balance, Spatiotemporal

Parameters of Gait and Functional Independence in Older Adults

Public title
The Effect of Multisensory training and Resistance training on Balance and Gait in Older Adults
Purpose
Health service research
Inclusion/Exclusion criteria
Inclusion criteria:
Minimum age of 60 and maximum age of 75 Ability to independently walk a distance of 10 meters without the need for assistive devices. Achieving a score of 24 or higher on the Mental Status Examination (MMSE).
Exclusion criteria:
Severe visual and hearing impairments Presence of neurological disorders Presence of orthopedic impairments in the lower extremities Pre-existing cardiovascular and respiratory diseases.
Age
From **60 years** old to **75 years** old
Gender
Male

Phase
N/A
Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **60**
Randomization (investigator's opinion)
Randomized
Randomization description
Simple randomization individually with the help of the web program (randomizer.org), they are assigned to two intervention groups and one control group. A member of the research team not involved in the selection of samples will determine the sequence of random allocation using a computer program. Randomly sequenced opaque sealed envelopes will be used to conceal the allocation.
Blinding (investigator's opinion)
Single blinded
Blinding description
In this study, the outcome evaluator is blind, and does not know the type of intervention during the evaluation before and after the protocol period.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Kharazmi University
Street address
Elkhebal St., South Muftah
City
Tehran
Province
Tehran
Postal code
14911-15719
Approval date
2023-11-28, 1402/09/07
Ethics committee reference number
IR.KHU.REC.1402.085

Health conditions studied

1

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

2

Description of health condition studied
Spatiotemporal Parameters of Gai
ICD-10 code
ICD-10 code description

3

Description of health condition studied
Functional Independence
ICD-10 code
ICD-10 code description

4

Description of health condition studied
Multisensory Integration training
ICD-10 code
ICD-10 code description

5

Description of health condition studied
Resistance training
ICD-10 code
ICD-10 code description

Primary outcomes

1

Description
Gait analysis
Timepoint
Before the start of the training period and after the completion of the training period
Method of measurement

2D imaging for gait assessment

Secondary outcomes

1

Description
Static balance
Timepoint
Before the start of the training period and after the training period
Method of measurement
Sharpened Romberg Test

2

Description
Dynamic balance
Timepoint
Before the start of the training period and after the training period
Method of measurement
Timed Get Up & Go

3

Description
Functional Independence
Timepoint
Before the start of the training period and after the training period
Method of measurement
Activities of daily living, Instrumental activities of daily living

Intervention groups

1

Description
Intervention group 1: multi-sensory integration training program selected from the fall-proof program and includes the combination of different sensory training methods from visual, bodily and vestibular senses. The intervention time will be for 8 weeks, 3 sessions per week for 25 minutes, including 5 minutes of warm-up, 15 minutes of main exercise and 5 minutes of cooling down, and the exercises will be adjusted according to the ability of people and performed individually.
Category
Rehabilitation

2

Description
Intervention group:The resistance training protocol with body weight will be performed for 8 weeks and 3 sessions per week under the supervision of a physical fitness coach. Before performing the exercise program in each session, the participants performed a warm-up phase for 5 to 10 minutes with walking and two slow and active stretching movements. Also, the cooling phase was done for 5 minutes by walking and passive stretching movements.
Category
Rehabilitation

3

Description
Control group: Without intervention. During this period, the control group is asked to do their daily routines and not participate in special exercises
Category
Rehabilitation

Recruitment centers

1

Recruitment center
Name of recruitment center
Shahid Kishori sports complex of Tehran
Full name of responsible person
Tahereh Rahimi
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Kharazmi University of Tehran
Full name of responsible person
Dr. Mohammad Delnawaz
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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
Kharazmi University of Tehran
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
The University of Kharazmi
Full name of responsible person
Tahereh Rahimi
Position
Student
Latest degree
Master
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Sport Medicine
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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
Undecided - It is not yet known if there will be a plan to make this available
Informed Consent Form
Undecided - It is not yet known if there will be a plan to make this available
Clinical Study Report
Undecided - It is not yet known if there will be a plan to make this available
Analytic Code
Undecided - It is not yet known if there will be a plan to make this available
Data Dictionary
Undecided - It is not yet known if there will be a plan to make this available