

Clinical Trial Protocol

Iranian Registry of Clinical Trials

09 Jul 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

Name

Tahereh Rahimi

Name of organization / entity

The University of Kharazmi

Country

Iran (Islamic Republic of)

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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 Gait

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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No. 42, 4th Arghavan, Andisheh Town

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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

Other areas of specialty/work

Sport Medicine

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Latest degree

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Other areas of specialty/work

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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