

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Comparing the effects of task-oriented circuit training (TOCT) and dynamic neuromuscular stabilization training (DNS) on balance, motor function, trunk control, and quality of life in people with Parkinson's disease: A randomized clinical trial

Protocol summary

Study aim

The aim of the present study was to determine the effectiveness of two training protocols, DNS and TOCT, in Parkinson's disease.

Design

A simple randomized, non-blinded, parallel-group, controlled clinical trial conducted on 30 patients.

Settings and conduct

The current study is conducted on Parkinson's patients at Hazrat Rasool Akram Hospital for 6 weeks, 3 sessions per week, each session lasting 60 minutes.

Participants/Inclusion and exclusion criteria

1. Diagnosis of Parkinson's disease with gait disturbance
2. Age 55 to 75 years
3. Being in stage 3 of the disease according to the Hoenn and Yahr scale
4. Not dependent on assistive devices
5. No history of stroke, peripheral neuropathy
6. Normal range of body mass index (18-25.5)
7. Completion of the informed consent form

Intervention groups

The research design will consist of three groups (two training groups and one control group) participating in 3 training sessions per week for 6 weeks. Dynamic neuromuscular stabilization training group: 5 minutes of warm-up, 50 minutes of core training (with varied movement patterns and breathing control), and 5 minutes of cool-down. Rest between sets: 60 to 150 seconds. Task-based circuit training group: 60 minutes of training at workstations related to daily activities (balance, walking, reaching for objects). This design will be implemented with a pre-test and post-test method.

Main outcome variables

Balance; motor function; trunk control; quality of life

General information

Reason for update

Acronym

TOCT-DNS-PD

IRCT registration information

IRCT registration number: **IRCT20251110067946N1**

Registration date: **2026-06-03, 1405/03/13**

Registration timing: **registered_while_recruiting**

Last update: **2026-06-03, 1405/03/13**

Update count: **0**

Registration date

2026-06-03, 1405/03/13

Registrant information

Name

Marziyeh Ardeshiri lordejani

Name of organization / entity

Shahid Beheshti University Faculty of Sports and Health Sciences

Country

Iran (Islamic Republic of)

Phone

+98 21 2990 5847

Email address

ma.ardeshirilordejan@mail.sbu.ac.ir

Recruitment status

recruiting

Funding source

Expected recruitment start date

2026-05-11, 1405/02/21

Expected recruitment end date

2026-06-29, 1405/04/08

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparing the effects of task-oriented circuit training (TOCT) and dynamic neuromuscular stabilization training (DNS) on balance, motor function, trunk control, and quality of life in people with Parkinson's disease: A randomized clinical trial

Public title

Comparison of Two Types of Exercise Training on Balance, Motor Performance, Trunk Control, and Quality of Life in Patients with Parkinson's Disease

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Diagnosis of Parkinson's disease based on official clinical diagnostic criteria, accompanied by gait impairment. Age range: 55 to 75 years. Hoehn and Yahr stage III of Parkinson's disease. Independence from assistive devices, with the ability to walk without using a cane or walker. Absence of stroke, peripheral neuropathy, and other serious diseases that could affect the study outcomes. Normal body mass index (BMI) ranging from 18.5 to 25. Completion of the informed consent form and willingness to participate in the study.

Exclusion criteria:

Absence from more than three sessions of the scheduled training program. Withdrawal of consent or unwillingness to continue participation in the study. Exacerbation of Parkinson's disease symptoms.

Age

From **55 years** old to **75 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **30**

Randomization (investigator's opinion)

Randomized

Randomization description

Participants who met the inclusion criteria were randomly assigned to one of three groups: TOCT, DNS, or control. Randomization was performed using a simple allocation method, with individual participants as the unit of randomization. To maintain allocation concealment, sealed and coded paper envelopes were used. Each envelope contained the group assignment and was opened sequentially according to the order of participant enrollment to prevent prior allocation.

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

Research Ethics Committee, Shahid Beheshti University

Street address

Office of the Vice-Chancellor for Research, Shahid Beheshti University, Ovin Square, Tehran, Iran

City

Tehran

Province

Tehran

Postal code

1658953571

Approval date

2025-09-06, 1404/06/15

Ethics committee reference number

IR.SBU.REC.1404.149

Health conditions studied

1

Description of health condition studied

Parkinson

ICD-10 code

G20

ICD-10 code description

Parkinson's disease

Primary outcomes

1

Description

Balance

Timepoint

Balance will be assessed at baseline (prior to the intervention) and again following the completion of a six-week training program

Method of measurement

Mini-Balance Evaluation Systems Test

2

Description

Motor Function

Timepoint

Motor Function will be assessed at baseline (prior to the intervention) and again following the completion of a six-week training program

Method of measurement

Timed Up and Go (TUG)

3

Description

Trunk Control

Timepoint

Trunk Control will be assessed at baseline (prior to the intervention) and again following the completion of a six-week training program

Method of measurement

Trunk Impairment Scale (TIS)

4

Description

Quality of Life

Timepoint

Quality of Life will be assessed at baseline (prior to the intervention) and again following the completion of a six-week training program

Method of measurement

Quality of Life questionnaire (PDQ-39)

Secondary outcomes

empty

Intervention groups

1

Description

the first intervention group : dynamic neuromuscular stabilization exercises 3 times per week for 6 weeks , each training session consisted of three main parts : warm - up for 5 min , dynamic muscle - dynamic stabilization for 50 min and chilling for 5 min . sets of rest intervals between sets are between 60 and 150 seconds . the exercises consist of various motor patterns performed in different situations and exercises with the control of breathing are performed .

Category

Rehabilitation

2

Description

the second intervention group : وظیفه محور بیماران - based training program : parkinson " s disease , 3 sessions per week for 6 weeks before starting the training program , 5 min before the start of training program , and in the last 50 minutes , they had their سردکردن in their training program . these include repeating tasks , in order to achieve and maintain the motor learning of these tasks .

Category

Rehabilitation

3

Description

Control group: receive no intervention and continue to live in normal life.

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

Hazrat rasul akram hospital

Full name of responsible person

Marzieh ardeshiri lordejani

Street address

Daneshjo blvd., Shahid Shahryari sq.,Yemen street, Shahid Chamran highway

City

Tehran

Province

Tehran

Postal code

1983969411

Phone

+98 21 2243 1816

Email

ma.ardeshirilordejan@mail.sbu.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice President for Research, Shahid Beheshti University

Full name of responsible person

Amir Hossein Barati

Street address

Shahid Beheshti University, Shahid Shahryari Square, Evin, Tehran

City

Tehran

Province

Tehran

Postal code

1983969411

Phone

+98 21 29901

Email

pr-office@sbu.ac.ir

Web page address

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Vice President for Research, Shahid Beheshti University

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 shahid beheshti
Full name of responsible person
Marziyeh ardeshiri lordejani
Position
student
Latest degree
Bachelor
Other areas of specialty/work
sport injury and corrective actions
Street address
Shahid Beheshti University, Shahid Shahryari Square,
Evin, Tehran
City
Tehran
Province
Tehran
Postal code
1983969411
Phone
+98 913 464 9084
Email
ardeshirineda3@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity
Shahid Beheshti University Faculty of Sports and
Health Sciences
Full name of responsible person
Amir Hossein Barati
Position
Associate professor
Latest degree
Specialist
Other areas of specialty/work
Sports pathology and corrective movements
Street address
Shahid Beheshti University, Shahid Shahryari Square,
Evin, Tehran
City
Tehran
Province
Tehran
Postal code
1983969411

Phone
+98 21 29901
Fax
Email
ahbarati20@gmail.com

Person responsible for updating data

Contact

Name of organization / entity
Shahid Beheshti University Faculty of Sports and
Health Sciences
Full name of responsible person
Marziyeh Ardeshiri lordejani
Position
Student
Latest degree
Bachelor
Other areas of specialty/work
Sports pathology and corrective movements
Street address
Tehran, Shahid Chamran Highway, Yemen St., Shahid
Shahriari Square, Shahid Beheshti University Faculty
of Sports Sciences and Sports Rehabilitation
City
Tehran
Province
Tehran
Postal code
1983969411
Phone
+98 913 464 9084
Fax
Email
ma.ardeshirilordejan@mail.sbu.ac.ir

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
Not applicable
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
Not applicable
Data Dictionary
Not applicable