Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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
Ther 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; tunk 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: **2026-09-05, 1405/06/14**
Update count: **1**

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

Registrant information

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Name of organization / entity
Shahid Beheshti University Faculty of Sports and Health Sciences

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Recruitment status
Recruitment complete

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 : وظیفه‌محوربیماران - 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
Parisa Nejati
Street address
Tehran – Sattarkhan – Niayesh St. – Corner of Mansouri St. – Hazrat Rasoul Akram Hospital
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Vice President for Research, Shahid Beheshti University
Full name of responsible person
Amir Hossein Barati
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Shahid Beheshti University, Shahid Shahryari Square, Evin, Tehran
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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

Amirhossein Barati

Position

Associate Professor

Latest degree

Specialist

Other areas of specialty/work

Sport Medicine

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Person responsible for updating data

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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

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