

# Home-based trunk intervention training to improve rigidity and functionality in people with Parkinson's disease

<b>Submission date</b>	<b>Recruitment status</b>	<input checked="" type="checkbox"/> Prospectively registered
02/07/2025	No longer recruiting	<input type="checkbox"/> Protocol
<b>Registration date</b>	<b>Overall study status</b>	<input type="checkbox"/> Statistical analysis plan
08/07/2025	Ongoing	<input type="checkbox"/> Results
<b>Last Edited</b>	<b>Condition category</b>	<input type="checkbox"/> Individual participant data
03/07/2025	Nervous System Diseases	<input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Parkinson's disease is a progressive neurodegenerative disorder that causes a wide range of debilitating motor and non-motor symptoms. Dopaminergic medication is the first management tool used to control and alleviate symptoms. However, medication only leads to partial improvements in symptoms, and its effectiveness decreases throughout the disease cycle. As a result, people with Parkinson's disease suffer from worsening functionality, subsequently affecting independence and quality of life. Previous research into exercise referral and physiotherapy showed that exercise can improve Parkinsonian symptoms and functionality. The trunk is responsible for about 50% of body mass and is essential to balance and gait performance, allowing individuals to perform activities of daily living in a safe manner. However, when the trunk is impaired by Parkinsonian symptoms, such as axial rigidity, an increased fall risk occurs, and the quality of life of those involved is hampered. As such, targeted, accessible exercise programmes need to be investigated to see their impact on axial rigidity and its subsequent impact on functionality. The aim of this study is to investigate the effects of a trunk-targeted home-based exercise programme on axial rigidity and functionality in people with Parkinson's disease.

### Who can participate?

People with Parkinson's disease aged 40-80 years who fit all the inclusion/exclusion criteria stated

### What does the study involve?

Participants will be initially screened online for eligibility. They will then visit the lab on five occasions over a 24-week period. They will be allocated into one of two groups, one where they will follow a 12-week trunk-specific home-based exercise programme, or one where they will follow a 12-week general exercise programme. Throughout the 12-week period, participants will be called weekly to track adherence to the programme and answer any questions they have.

Week 0: Initial Screening

Week 1: Questionnaires, functional assessments, 3D motion capture (baseline)

Week 4: Questionnaires, functional assessments, 3D motion capture

Week 8: Questionnaires, functional assessments, 3D motion capture

Week 12: Questionnaires, functional assessments, 3D motion capture

Week 24: Questionnaires, functional assessments, 3D motion capture (retention visit)

**What are the possible benefits and risks of participating?**

There are no direct benefits of participating. Participants will be provided with reasonable expenses for their time.

There is a mild risk of muscle soreness due to the exercise involved in the study. However, this will likely be as a result of delayed-onset muscle soreness (DOMS) and should 'wear off' within 48 hours. Participants are promoted to take breaks at any point they wish throughout the exercise. Warm-ups and cool-downs are utilised in the programme to minimise the small risk of muscle/joint injuries. Participants are screened for readiness to exercise and thus the risk of cardiac emergencies are minimised. Participants are encouraged to always exercise in a wide, open, well-ventilated and clean environment to reduce the risk of trips/slips/falls, and always with a member of the house present. During on-site testing, a first-aid trained individual will be on hand if necessary.

**Where is the study run from?**

University of Kent (UK)

**When is the study starting and how long is it expected to run for?**

April 2025 to June 2026

**Who is funding the study?**

University of Kent (UK)

**Who is the main contact?**

Lewis Ball, lrb33@kent.ac.uk

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

Mr Lewis Ball

### Contact details

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

**ClinicalTrials.gov (NCT)**

Nil known

**Protocol serial number**

UoK SERS REAG Ref No. 20\_2025

## Study information

**Scientific Title**

Home-based trunk intervention training to improve axial rigidity and functionality during activities of daily living in people with Parkinson's disease: a randomised clinical trial

**Acronym**

HBPD

**Study objectives**

To investigate the effect of a 12-week home-based trunk-specific exercise programme on axial rigidity and functionality

**Ethics approval required**

Ethics approval required

**Ethics approval(s)**

approved 27/06/2025, Sport, Exercise and Rehabilitation Sciences Research Ethics and Advisory Group (REAG) (University of Kent, Chipperfield Building, Canterbury, CT2 7PE, United Kingdom; +44 (0)1227 816943; k.taylor-399@kent.ac.uk), ref: 20\_2025

**Study design**

Single-centre interventional single-blinded randomized controlled trial

**Primary study design**

Interventional

**Study type(s)**

Quality of life

**Health condition(s) or problem(s) studied**

Parkinson's disease

**Interventions**

1. Trunk-targeted exercise programme
2. General exercise programme

Treatments will be administered using a single-blind matched-pairs design. Participants will undergo either trunk-targeted exercise training 3x a week over a 12-week period.

**Intervention Type**

Other

**Primary outcome(s)**

Axial rigidity measured using 3D motion capture at baseline, 4, 8, 12 and 24 weeks

**Key secondary outcome(s)**

1. Gait kinematics measured using 3D motion capture at baseline, 4, 8, 12 and 24 weeks
2. Functionality measured using Timed-Up and Go (TUG), Functional Reach Test (FRT), Berg Balance Scale (BBS) and Five-Times Sit to Stand Test (FTSST) at baseline, 4, 8, 12 and 24 weeks
3. Postural balance during 30-second quiet stand using 3D motion capture at baseline, 4, 8, 12 and 24 weeks

**Completion date**

01/06/2026

## Eligibility

**Key inclusion criteria**

1. Clinically diagnosed with idiopathic Parkinson's disease
2. Classified between stage I-IV on Hoehn and Yahr (H&Y) classification scale during the clinical 'ON' state
3. Able to understand simple motor commands and of adequate cognition (screened using the Montreal Cognitive Assessment [MoCA])
4. Able to walk 10 m without assistance
5. Regular use of and no change in antiparkinsonian medication in the last month
6. Aged 40-80 years

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

40 years

**Upper age limit**

80 years

**Sex**

All

**Key exclusion criteria**

1. Previously had deep-brain stimulation (DBS) surgery.
2. Presented with comorbidities that may affect movement patterns.
3. Presented with comorbidities that may affect their capacity to exercise.
4. Changed their medication type and/or dosage throughout the duration of the study.
5. Score poorly on the Falls Risk Assessment Tool (FRAT) and Falls Efficacy Scale - International (FES-I) assessment for fall risk.

6. Score poorly on the MoCA.
7. Investigator's determination of unsuitability for trial participation.

**Date of first enrolment**

01/09/2025

**Date of final enrolment**

01/01/2026

## Locations

**Countries of recruitment**

United Kingdom

England

**Study participating centre**

**University of Kent**  
Chipperfield Building  
Park Wood Road  
Canterbury  
United Kingdom  
CT2 7PE

## Sponsor information

**Organisation**

University of Kent

**ROR**

<https://ror.org/00xkeyj56>

## Funder(s)

**Funder type**

University/education

**Funder Name**

University of Kent

**Alternative Name(s)**

The University of Kent

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

United Kingdom

## Results and Publications

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study will be available upon request from Lewis Ball (lrb33@kent.ac.uk) or Dr Jake Bowd (J.Bowd@kent.ac.uk) following completion and publication of study results, using de-identification of participant data. Data may be used for secondary analysis or meta-analyses and/or part of other relevant and legitimate scientific sources. All data will be fully anonymised so that participant information will be impossible to identify.

Researchers will ask for information regarding the use of any data and a clear proposal outlined to ensure data sharing is correct. This will form a data-sharing agreement where necessary which clearly details the criteria for data access and conditions for research use.

**IPD sharing plan summary**

Available on request

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes