

# Lisbon intensive falls trampoline training for Parkinson's: The LIFTT Program

<b>Submission date</b> 09/02/2022	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 23/02/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 18/01/2024	<b>Condition category</b> Nervous System Diseases	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Parkinson's disease (PD) is a condition in which parts of the brain become progressively damaged over many years. The 3 main symptoms of Parkinson's disease are: involuntary shaking of particular parts of the body (tremor); slow movement; stiff and inflexible muscles. People with Parkinson's disease are twice as likely to fall as the healthy older population, leading to debilitating effects on fear of future falls, balance confidence, activity levels and quality of life.

Research suggests that people with PD benefit from combined balance and mental exercise. We will develop a randomized clinical trial that aims to estimate the effectiveness of the Lisbon Intensive Falls Trampoline Training (LIFTT) program in addition to usual care on symptoms of PD and daily life.

### Who can participate?

Adults over 18 years, diagnosed with Parkinson's disease, who can walk independently and currently able to tolerate a minimum of 1 hour of exercise

### What does the study involve?

Participants will be randomly allocated to an intervention group (IG) (30 participants) receiving balance motor-cognitive trampoline training or a control group (CG) (30 participants) whose participants will continue to receive their usual care from their medical physician and/or the community services. Controls will be offered the intervention after ending their participation.

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

Participants will benefit in overall health from participating in an exercise based intervention. The LIFTT program was considered to be safe and well received by the participants in pilot studies, so no severe risks are anticipated due to high supervision via clinical experts.

### Where is the study run from?

Egas Moniz – Cooperativa de Ensino Superior, CRL (Portugal)

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

January 2022 to December 2023

Who is funding the study?  
Egas Moniz – Cooperativa de Ensino Superior, CRL (Portugal)

Who is the main contact?  
Prof. Catarina Godinho, [cgcgodinho@gmail.com](mailto:cgcgodinho@gmail.com)

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Prof Catarina Godinho

**ORCID ID**  
<https://orcid.org/0000-0003-2304-3129>

**Contact details**  
Campus Universitário  
Quinta da Granja Monte de Caparica  
Almada  
Portugal  
2829 - 511 Caparica  
+351 910077492  
[cgodinho@egasmoniz.edu.pt](mailto:cgodinho@egasmoniz.edu.pt)

## Additional identifiers

**Clinical Trials Information System (CTIS)**  
Nil known

**ClinicalTrials.gov (NCT)**  
Nil known

**Protocol serial number**  
EXPL/SAU-SER/0761/2021

## Study information

**Scientific Title**  
Lisbon Intensive Trampoline Training for people with Parkinson's for balance and Falls Prevention: LIFTT Program

**Acronym**  
LIFTT

**Study objectives**  
1. The LIFT program protocol is feasible to people with Parkinson Disease.  
2. The LIFTT program is effective for improving balance, reducing fear of falling, falls frequency

and severity and also to improve clinical impairments, gait, physical capacity, and cognition in people with mild or moderate Parkinson Disease.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 27/01/2022, Ethics Committee of Egas Moniz - Cooperativa de Ensino Superior, C.R.L. (Campus Universitário, Quinta da Granja, Monte de Caparica, 2829 - 511 Caparica, Portugal; no telephone number provided; iuem@egasmoniz.edu.pt), ref: 1052/2022

### **Study design**

Multicenter interventional randomized controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Prevention

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

Parkinson's disease

### **Interventions**

Participant recruitment:

People with Parkinson's Disease (PD) will be recruited from the Portuguese Parkinson Disease Association (APDPK) and from the Movement Disorders Outpatient Clinic, Department of Neurology, from Hospital Garcia de Orta (MDOC-HGO) by the Senior Physiotherapist Specialist and the Neurologist, respectively.

Screening:

Informed consent will be obtained from participants before any study related proceedings. The participants will have a general information intake where data on demographics, clinical manifestations and disease management, comorbidities and past medical conditions, and usage of healthcare resources will be obtained using a structured questionnaire. A brief clinical assessment of postural instability and risk of falling (MDS-UDPRS Part III item 3.12) will also be performed by the recruiting researchers.

### **Participants Assessments**

Assessments will take place in a private room of the community trampolines place in Lisbon in the week before (T0), after 8 weeks training protocol (T1) and 3 months after the ending of the program (T2), with the same protocol. The researchers who will perform these assessments will be blind for group intervention.

All participants will be assessed in ON medication phase with the following specific clinical scales and tests that will have their order randomized:

- a) Balance (Mini-BEST Test);
- b) Fear of falling (Falls Efficacy Scale - FES-I).
- c) Clinical impairments (The Movement Disorder Society Unified Parkinson Disease Rating Scale - MDS-UPDRS);
- d) Frequency and severity of falls (falls weekly registry);
- e) Gait (Motor and Cognitive Timed Up Go - TUG);

f) Physical capacity (6 min walking distance test - 6MWD);  
g) Cognition (Montreal Cognitive Assessment - MoCA), and;  
h) Quality of life (Parkinson Disease Questionnaire – PDQ8);  
i) Nonlinear gait and balance analysis: Participants will be asked to walk on a treadmill for 10 min at their preferred walking speed. Stride intervals will be determined from an accelerometer placed at their ankles, and nonlinear features will be extracted from the signals as measures of adaptability of the locomotor system. Moreover, their static balance will be tested in both eyes opened and closed conditions. They will be asked to remain quiet for 2 min, so a sufficient amount of data will be collected for nonlinear features extraction.  
At the end of T0 assessment, an online software will be used to generate the randomization plan for the intervention group (IG) or control group (CG).

#### Intervention - Training sessions

For the Intervention Group (IG) the LIFTT program will consist of an 8-week program (1-hour individual sessions 3 times a week). Sessions will be led by a physiotherapist specialized in PD and internationally recognized educator of motor and cognitive rehabilitation programs. Support will be given by a MSc student fellow for additional safety.  
The program will include motor and cognitive challenges performed on a trampoline bed. The Control Group (CG) will receive usual care from their medical practitioner and/or the community services. They will be allowed to participate in their usual ongoing rehabilitation programs. After the LIFTT program, the control group will be offered the same balance program.

#### Setting

The site where the program will be delivered in a stress-free environment, a community trampoline fun house (Jumpyard, Inc.) in Lisbon, will show that the program can be easily incorporated into the normal routine and structure of a community setting. Safety vertical belts or suspension support equipment will be used for participants with more severe risks.

#### Withdrawal of participants

Participants will be able to withdraw from the study at any time. No more data will be collected and taken into consideration for statistical purposes regarding the withdrawal subjects.

#### Statistical methods and data analysis

We will perform descriptive statistics of data collected at T0, T1 and T2, to identify differences between the groups (CG and IG), and to evaluate which of these groups will have better results from T0 to T1 and T2.

Descriptive analyses, the assessment of the reliability and the correlational analysis of all variables, will also be conducted.

For achieving the objective mentioned above, we will use a two-way repeated measures ANOVA with an independent variable and a repeated measures factor, i.e., ANOVA, with 2 factors: One within factor (time, pre-post intervention, follow-up) and one between factor (treatment, two groups). The Latent Growth Modelling will be conducted to prove the effectiveness of individual intervention on growth of primary outcomes during the period between T0 and T2.

The sample size for this study was determined based on previous related interventional trials with people with PD. Considering a 0.7 effect size (e.g. for the FES-I outcome), for 80% power and an alpha level of 5%, a sample size of 26 subjects per group will be required. With a dropout rate set at 15%, a final sample of 60 (n=30 per group) was considered as optimal.

#### Intervention Type

Behavioural

#### Primary outcome(s)

1. Change in the Balance Evaluation Systems Test (Mini-BEST Test) at baseline (T0) after 8 weeks training protocol (T1) and 3 months after the ending of the program (T2).
2. Change in the Falls Efficacy Scale (FES-I) at baseline (T0) after 8 weeks training protocol (T1) and 3 months after the ending of the program (T2).

**Key secondary outcome(s)**

1. Clinical impairments measured using the Movement Disorder Society Unified Parkinson Disease Rating Scale (MDS-UPDRS) at baseline (T0) after 8 weeks training protocol (T1) and 3 months after the ending of the program (T2).
2. Frequency and severity of falls measured using a falls weekly registry at T0, T1 and T2.
3. Gait measured using Motor and Cognitive Timed Up Go Test (TUG) at T0, T1 and T2.
4. Physical capacity measured using the 6 min walking distance test (6MWD) at T0, T1 and T2.
5. Cognition measured using the Montreal Cognitive Assessment (MoCA) at T0, T1 and T2.
6. Quality of life measured using the short version of Parkinson Disease Questionnaire (PDQ8) at T0, T1 and T2.
7. Nonlinear gait and balance analysis: For dynamic parameters, participants will walk on a treadmill for 10 min. Stride intervals will be determined from an accelerometer placed at their ankles. The static balance parameters will be tested in both eyes opened and closed conditions. They will be asked to remain quiet for 2 min. These two tests will be applied at T0, T1 and T2.

**Completion date**

30/12/2023

**Eligibility****Key inclusion criteria**

1. Diagnosis of idiopathic Parkinson's disease (Movement Disorder Society Parkinson's Disease criteria)
2. Hoehn and Yahr stages II-IV
3. Age above 18 years
4. Able to walk independently and currently able to tolerate a minimum 1 hour of exercise
5. Able to communicate with the investigator, to understand and comply the study procedures
6. Willing and able to provide written informed consent to participate and understand the right to withdraw his/her consent at any time without prejudice to future medical care

**Participant type(s)**

Patient, Other

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Sex**

All

**Total final enrolment**

52

**Key exclusion criteria**

1. Severe postural instability assessed by MDS-UDPRS Part III item 3.12
2. Severe cognitive difficulties and significant active psychiatric problems that aggravate when exercising

**Date of first enrolment**

01/02/2022

**Date of final enrolment**

31/03/2023

**Locations****Countries of recruitment**

Portugal

**Study participating centre**

**Associação Portuguesa de Doentes de Parkinson (APDPk)**

Rua C ao Bairro da Liberdade loja 21.

Lisbon

Portugal

1070-023 Lisboa

**Study participating centre**

**Hospital Garcia de Orta**

Av. Torrado da Silva

Almada

Portugal

2805-267 Almada

**Sponsor information****Organisation**

Fundação para a Ciência e Tecnologia

**ROR**

<https://ror.org/00snfq58>

**Funder(s)****Funder type**

University/education

## Funder Name

Egas Moniz – Cooperativa de Ensino Superior, CRL

# Results and Publications

## Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study will be published as a supplement to the subsequent results publication and available on request (cgcgodinho@gmail.com)

## IPD sharing plan summary

Available on request, Published as a supplement to the results publication

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Protocol article</a>		08/02/2023	10/02/2023	Yes	No
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes
<a href="#">Protocol file</a>	in Portuguese	10/03/2021	10/02/2022	No	No