

# Clinical effectiveness and cost-effectiveness of physiotherapy and occupational therapy versus no therapy in mild to moderate Parkinson's disease: a large pragmatic randomised controlled trial (PD REHAB)

Carl E Clarke,<sup>1,2\*</sup> Smitaa Patel,<sup>3</sup> Natalie Ives,<sup>3</sup>  
Caroline E Rick,<sup>3</sup> Rebecca Woolley,<sup>3</sup> Keith Wheatley,<sup>4</sup>  
Marion F Walker,<sup>5</sup> Shihua Zhu,<sup>6</sup> Rebecca Kandiyali,<sup>7</sup>  
Guiqing Yao<sup>7</sup> and Catherine M Sackley<sup>8,9</sup>  
on behalf of the PD REHAB Collaborative Group

<sup>1</sup>Institute for Applied Health Research, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK

<sup>2</sup>Department of Neurology, Sandwell and West Birmingham Hospitals NHS Trust, City Hospital, Birmingham, UK

<sup>3</sup>Birmingham Clinical Trials Unit, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK

<sup>4</sup>Cancer Research UK Clinical Trials Unit, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK

<sup>5</sup>Rehabilitation and Ageing, Queen's Medical Centre, University of Nottingham, Nottingham, UK

<sup>6</sup>Primary Care Clinical Sciences, College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK

<sup>7</sup>Primary Care and Population Sciences, Faculty of Medicine, University of Southampton, Southampton, UK

<sup>8</sup>University of East Anglia, Norwich, UK

<sup>9</sup>Academic Department of Physiotherapy, Faculty of Life Sciences and Medicine, King's College London, London, UK

\*Corresponding author

**Declared competing interests of authors:** Marion F Walker declares a consultancy with Allergan on long-term problems after stroke.

Published August 2016

DOI: 10.3310/hta20630

## Plain English summary

### **The PD REHAB trial**

Health Technology Assessment 2016; Vol. 20: No. 63

DOI: 10.3310/hta20630

NIHR Journals Library [www.journalslibrary.nihr.ac.uk](http://www.journalslibrary.nihr.ac.uk)

## Plain English summary

**P**arkinson's disease (PD) is a degenerative condition of the brain of uncertain cause that mainly affects older people. Shaking is a distinctive feature of the disease, but slowness, poverty of movement and stiffness interfere with everyday life. Drug treatment helps with only some aspects of the condition, so other therapies are considered.

Physiotherapy (PT) promotes and maintains mobility and activity by treating physical problems with task-related practice. Core work areas are gait, balance, posture and transfers. Occupational therapy (OT) addresses personal rehabilitation goals through activity and participation, helping patients to remain independent and to reduce carer strain. When delivered at home, OT includes equipment provision and environmental adaptations to facilitate independence.

There is not enough evidence of the value of PT and OT in PD, so we performed the PD REHAB trial to assess the benefits of both therapies.

In total, 762 patients with mild to moderate PD and limitations in activities of daily living (ADL) from 38 neurology/geriatric medicine outpatient clinics across the UK were randomised to either both therapies or no therapy. Patients reported no meaningful benefit of therapy at 3, 9 and 15 months after joining the trial in ADL or quality of life. Economic evaluation showed a small increase in costs for a small gain in quality-adjusted life-years, but these results were uncertain.

We conclude that NHS low-dose, patient-centred, goal-directed PT and OT do not produce immediate or long-term improvements in ADL or quality of life in mild to moderate PD.



ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 4.058

*Health Technology Assessment* is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the ISI Science Citation Index.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) ([www.publicationethics.org/](http://www.publicationethics.org/)).

Editorial contact: [nhredit@southampton.ac.uk](mailto:nhredit@southampton.ac.uk)

The full HTA archive is freely available to view online at [www.journalslibrary.nihr.ac.uk/hta](http://www.journalslibrary.nihr.ac.uk/hta). Print-on-demand copies can be purchased from the report pages of the NIHR Journals Library website: [www.journalslibrary.nihr.ac.uk](http://www.journalslibrary.nihr.ac.uk)

## Criteria for inclusion in the *Health Technology Assessment* journal

Reports are published in *Health Technology Assessment* (HTA) if (1) they have resulted from work for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

## HTA programme

The HTA programme, part of the National Institute for Health Research (NIHR), was set up in 1993. It produces high-quality research information on the effectiveness, costs and broader impact of health technologies for those who use, manage and provide care in the NHS. 'Health technologies' are broadly defined as all interventions used to promote health, prevent and treat disease, and improve rehabilitation and long-term care.

The journal is indexed in NHS Evidence via its abstracts included in MEDLINE and its Technology Assessment Reports inform National Institute for Health and Care Excellence (NICE) guidance. HTA research is also an important source of evidence for National Screening Committee (NSC) policy decisions.

For more information about the HTA programme please visit the website: <http://www.nets.nihr.ac.uk/programmes/hta>

## This report

The research reported in this issue of the journal was funded by the HTA programme as project number 07/01/07. The contractual start date was in January 2009. The draft report began editorial review in April 2014 and was accepted for publication in February 2015. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health.

© Queen's Printer and Controller of HMSO 2016. This work was produced by Clarke *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health. This issue may be freely reproduced for the purposes of private research and study and extracts (or indeed, the full report) may be included in professional journals provided that suitable acknowledgement is made and the reproduction is not associated with any form of advertising. Applications for commercial reproduction should be addressed to: NIHR Journals Library, National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park, Southampton SO16 7NS, UK.

Published by the NIHR Journals Library ([www.journalslibrary.nihr.ac.uk](http://www.journalslibrary.nihr.ac.uk)), produced by Prepress Projects Ltd, Perth, Scotland ([www.prepress-projects.co.uk](http://www.prepress-projects.co.uk)).

## **Health Technology Assessment Editor-in-Chief**

**Professor Hywel Williams** Director, HTA Programme, UK and Foundation Professor and Co-Director of the Centre of Evidence-Based Dermatology, University of Nottingham, UK

## **NIHR Journals Library Editor-in-Chief**

**Professor Tom Walley** Director, NIHR Evaluation, Trials and Studies and Director of the EME Programme, UK

## **NIHR Journals Library Editors**

**Professor Ken Stein** Chair of HTA Editorial Board and Professor of Public Health, University of Exeter Medical School, UK

**Professor Andree Le May** Chair of NIHR Journals Library Editorial Group (EME, HS&DR, PGfAR, PHR journals)

**Dr Martin Ashton-Key** Consultant in Public Health Medicine/Consultant Advisor, NETSCC, UK

**Professor Matthias Beck** Chair in Public Sector Management and Subject Leader (Management Group), Queen's University Management School, Queen's University Belfast, UK

**Professor Aileen Clarke** Professor of Public Health and Health Services Research, Warwick Medical School, University of Warwick, UK

**Dr Tessa Crilly** Director, Crystal Blue Consulting Ltd, UK

**Dr Eugenia Cronin** Senior Scientific Advisor, Wessex Institute, UK

**Ms Tara Lamont** Scientific Advisor, NETSCC, UK

**Professor Elaine McColl** Director, Newcastle Clinical Trials Unit, Institute of Health and Society, Newcastle University, UK

**Professor William McGuire** Professor of Child Health, Hull York Medical School, University of York, UK

**Professor Geoffrey Meads** Professor of Health Sciences Research, Health and Wellbeing Research and Development Group, University of Winchester, UK

**Professor John Norrie** Health Services Research Unit, University of Aberdeen, UK

**Professor John Powell** Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK

**Professor James Raftery** Professor of Health Technology Assessment, Wessex Institute, Faculty of Medicine, University of Southampton, UK

**Dr Rob Riemsma** Reviews Manager, Kleijnen Systematic Reviews Ltd, UK

**Professor Helen Roberts** Professor of Child Health Research, UCL Institute of Child Health, UK

**Professor Jonathan Ross** Professor of Sexual Health and HIV, University Hospital Birmingham, UK

**Professor Helen Snooks** Professor of Health Services Research, Institute of Life Science, College of Medicine, Swansea University, UK

**Professor Jim Thornton** Professor of Obstetrics and Gynaecology, Faculty of Medicine and Health Sciences, University of Nottingham, UK

**Professor Martin Underwood** Director, Warwick Clinical Trials Unit, Warwick Medical School, University of Warwick, UK

Please visit the website for a list of members of the NIHR Journals Library Board:  
[www.journalslibrary.nihr.ac.uk/about/editors](http://www.journalslibrary.nihr.ac.uk/about/editors)

**Editorial contact:** [nihredit@southampton.ac.uk](mailto:nihredit@southampton.ac.uk)