

Exercise- and strategy-based physiotherapy-delivered intervention for preventing repeat falls in people with Parkinson's: the PDSAFE RCT

Ann Ashburn,^{1*} Ruth Pickering,² Emma McIntosh,³ Sophia Hulbert,¹ Lynn Rochester,⁴ Helen C Roberts,² Alice Nieuwboer,⁵ Dorit Kunkel,¹ Victoria A Goodwin,⁶ Sarah E Lamb,⁷ Claire Ballinger⁸ and Kim Chivers Seymour¹ on behalf of the PDSAFE Collaborative Group

¹Faculty of Health Science, University of Southampton, Southampton, UK

²Faculty of Medicine, University of Southampton, Southampton, UK

³Health Economics and Health Technology Assessment, Institute of Health & Wellbeing, University of Glasgow, Glasgow, UK

⁴Institute of Neuroscience, Newcastle University, Newcastle upon Tyne, UK

⁵Department of Rehabilitation Sciences, Katholieke Universiteit Leuven, Leuven, Belgium

⁶Medical School, University of Exeter, Exeter, UK

⁷Oxford Clinical Trials Research Unit, University of Oxford Medical Sciences Division, Oxford, UK

⁸Wessex Public Involvement Network (PIN), University of Southampton, Southampton General Hospital, Southampton, UK

*Corresponding author a.m.ashburn@soton.ac.uk

Declared competing interests of authors: Lynn Rochester reports grants from Newcastle University during the conduct of the study and grants from Parkinson's UK, the European Union Marie Curie Training Network, the Medical Research Council, the Engineering and Physical Sciences Research Council, the Wellcome Trust and the Stroke Association, outside the submitted work. Claire Ballinger is a member of the Primary Care Community and Preventive Interventions Health Technology Assessment (HTA) group and the associated Methods group. Victoria A Goodwin reports grants from the National Institute for Health Research (NIHR) during the conduct of the study (as a co-applicant), that is the NIHR HTA-funded trial (15/43/07) home-based exercise intervention for older people with frailty as extended rehabilitation following acute illness or injury, (ISRCTN13927531). Sarah E Lamb reports grants from the NIHR HTA programme during the conduct of this study. Furthermore, she was a member of the HTA Additional Capacity Funding Board, HTA End of Life Care and Add-on Studies, HTA Prioritisation Group and HTA Trauma Board during this study.

Disclaimer: This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

Published July 2019

DOI: 10.3310/hta23360

Plain English summary

The PDSAFE RCT

Health Technology Assessment 2019; Vol. 23: No. 36

DOI: 10.3310/hta23360

NIHR Journals Library www.journalslibrary.nihr.ac.uk

Plain English summary

People with Parkinson's disease fall often. Falls are scary and make moving about harder. The PDSAFE trial tested a new 'home physiotherapy' programme for reducing falls. People with Parkinson's disease were allocated to one of two groups by chance: they either received the PDSAFE exercises or just normal care. The costs were looked at and people were asked for their views of the PDSAFE exercises.

To take part, people had to have Parkinson's disease, live in their own home, be able to walk, have had at least one fall in the previous year and pass a memory test. PDSAFE was taught by physiotherapists and included exercises and fall avoidance strategies. Everyone had to record falls on a monthly calendar, and balance, strength and walking were tested.

To our knowledge, this was the largest falls trial looking at people with Parkinson's disease in the world: 541 people took part. The number of falls an individual reported differed a lot between people. When all people with Parkinson's disease in the trial were considered, the physiotherapy programme did not reduce falls in the first 6 months. However, it was found that some people had fewer falls after taking part in the exercises, whereas others did not. Those with more severe Parkinson's disease (i.e. problems with movement, memory and freezing of gait) fell more often after the PDSAFE intervention, even though their balance and confidence improved. Those with good memory, moderate disease and two or three falls in the previous year reacted well to PDSAFE and had fewer falls. It was found that PDSAFE reduced near-falls (about to fall but managed to save themselves) and improved balance and confidence. The physiotherapists and those who took part liked the programme and felt that it helped, but it was expensive to run.

In conclusion, a falls prevention programme should be based on each person's needs and a different treatment should be used for those with more severe Parkinson's disease.

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.819

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

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

Editorial contact: journals.library@nhr.ac.uk

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

This report

The research reported in this issue of the journal was funded by the HTA programme as project number 10/57/21. The contractual start date was in May 2013. The draft report began editorial review in November 2017 and was accepted for publication in September 2018. 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 and Social Care. 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 and Social Care.

© Queen's Printer and Controller of HMSO 2019. This work was produced by Ashburn *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. 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.nhr.ac.uk), produced by Prepress Projects Ltd, Perth, Scotland (www.prepress-projects.co.uk).

NIHR Journals Library Editor-in-Chief

Professor Ken Stein Professor of Public Health, University of Exeter Medical School, UK

NIHR Journals Library Editors

Professor John Powell Chair of HTA and EME Editorial Board and Editor-in-Chief of HTA and EME journals. Consultant Clinical Adviser, National Institute for Health and Care Excellence (NICE), UK, and Honorary Professor, University of Manchester, and Senior Clinical Researcher and Associate Professor, Nuffield Department of Primary Care Health Sciences, University of Oxford, UK

Professor Andrée Le May Chair of NIHR Journals Library Editorial Group (HS&DR, PGfAR, PHR journals) and Editor-in-Chief of HS&DR, PGfAR, PHR journals

Professor Matthias Beck Professor of Management, Cork University Business School, Department of Management and Marketing, University College Cork, Ireland

Dr Tessa Crilly Director, Crystal Blue Consulting Ltd, UK

Dr Eugenia Cronin Senior Scientific Advisor, Wessex Institute, UK

Dr Peter Davidson Consultant Advisor, Wessex Institute, University of Southampton, UK

Ms Tara Lamont Director, NIHR Dissemination Centre, UK

Dr Catriona McDaid Senior Research Fellow, York Trials Unit, Department of Health Sciences, University of York, UK

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

Professor Geoffrey Meads Professor of Wellbeing Research, University of Winchester, UK

Professor John Norrie Chair in Medical Statistics, University of Edinburgh, 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 Great Ormond Street 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 Ken Stein Professor of Public Health, University of Exeter Medical School, UK

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

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

Please visit the website for a list of editors: www.journalslibrary.nihr.ac.uk/about/editors

Editorial contact: journals.library@nihr.ac.uk