

# Fall prevention interventions in primary care to reduce fractures and falls in people aged 70 years and over: the PreFIT three-arm cluster RCT

Julie Bruce,<sup>1</sup> Anower Hossain,<sup>1,2</sup> Ranjit Lall,<sup>1</sup>  
Emma J Withers,<sup>1</sup> Susanne Finnegan,<sup>1</sup>  
Martin Underwood,<sup>1</sup> Chen Ji,<sup>1</sup> Chris Bojke,<sup>3</sup>  
Roberta Longo,<sup>3</sup> Claire Hulme,<sup>4</sup> Susie Hennings,<sup>1</sup>  
Ray Sheridan,<sup>5</sup> Katharine Westacott,<sup>6</sup>  
Shvaita Ralhan,<sup>7</sup> Finbarr Martin,<sup>8</sup> John Davison,<sup>9</sup>  
Fiona Shaw,<sup>9</sup> Dawn A Skelton,<sup>10</sup> Jonathan Treml,<sup>11</sup>  
Keith Willett<sup>12</sup> and Sarah E Lamb<sup>1,4,13\*</sup> on behalf of  
PreFIT Study Group

<sup>1</sup>Warwick Clinical Trials Unit, Division of Health Sciences, University of Warwick, Coventry, UK

<sup>2</sup>Institute of Statistical Research and Training, University of Dhaka, Dhaka, Bangladesh

<sup>3</sup>Leeds Institute of Health Sciences, University of Leeds, Leeds, UK

<sup>4</sup>College of Medicine and Health, University of Exeter, Exeter, UK

<sup>5</sup>General Medicine/Care of the Elderly, Royal Devon and Exeter Hospital, Royal Devon and Exeter NHS Foundation Trust, Exeter, UK

<sup>6</sup>Elderly Care Department, Warwick Hospital, South Warwickshire NHS Foundation Trust, Warwick, UK

<sup>7</sup>Gerontology Department, John Radcliffe Hospital, Oxford University Hospitals NHS Foundation Trust, Oxford, UK

<sup>8</sup>St Thomas' Hospital, Guy's and St Thomas' NHS Foundation Trust, London, UK

<sup>9</sup>Falls and Syncope Service, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

<sup>10</sup>Centre for Living, School of Health and Life Sciences, Glasgow Caledonian University, Glasgow, UK

<sup>11</sup>Geriatric Medicine, Queen Elizabeth Hospital Birmingham, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

<sup>12</sup>Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK

<sup>13</sup>Centre for Statistics in Medicine, Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences, University of Oxford, Oxford, UK

\*Corresponding author [s.e.lamb@exeter.ac.uk](mailto:s.e.lamb@exeter.ac.uk)

**Declared competing interests of authors:** Julie Bruce is chief investigator or co-investigator on multiple current research grants from the UK National Institute for Health Research (NIHR). Julie Bruce reports consultancy fees from Medtronic plc (Medtronic plc, Dublin, Ireland). Julie Bruce has received travel expenses for speaking at conferences from the professional organisations hosting the conferences. Julie Bruce is supported by NIHR Research Capability Funding via University Hospitals Coventry and Warwickshire. Martin Underwood was chairperson of the National Institute for Health and Care Excellence Accreditation Advisory Committee until March 2017, for which he received a fee. He is chief investigator or co-investigator on multiple previous and current research grants from NIHR and Arthritis Research UK and is a co-investigator on grants funded by the Australian National Health and Medical Research Council. He is a NIHR senior investigator. He has received travel expenses for speaking at conferences from the professional organisations hosting the conferences. He is a director and shareholder of Clinvivo Ltd (Kent, UK), which provides electronic data collection for health services research. He is part of an academic partnership with Serco Ltd (Hart, UK), which is related to return-to-work initiatives. He is a co-investigator on a study receiving support in kind from Orthospace Ltd (Caesarea, Israel). He has accepted an honorarium from Carta (Palo Alto, CA, USA). He is co-investigator on two NIHR-funded research projects receiving additional support from Stryker Ltd (Kalamazoo, MI, USA). He has accepted an honorarium from the Confederation for Advanced Research Training in Africa (CARTA). He is an editor of the NIHR journal series and a member of the NIHR Journals Library Editorial Group (2016–20), for which he receives a fee. Chris Bojke was a member of the NIHR Health Services and Delivery Research (HSDR) Board (2018–present). Roberto Longo was a NIHR HSDR Associate Member (2017–18). Claire Hulme reports being a member of the Health Technology Assessment (HTA) Commissioning Board (2013–17). Dawn A Skelton reports personal fees from Later Life Training Ltd (Killin, UK) during the conduct of the study. She is currently co-investigator on a NIHR HTA grant [ELECTRIC (ELECTric Tibial nerve stimulation to Reduce Incontinence in Care Homes), ongoing]. She has received grants from the NIHR Collaborations for Leadership in Applied Health Research and Care [PhISICAL (PHysical activity Implementation Study In Community-dwelling AduLts)], grants from the NIHR Public Health Research programme [REACT (REtirement into ACTION), ongoing; VIOLET (Visually Impaired OLder people's Exercise programme for falls prevenTion), finished] and grants from the Medical Research Council/NIHR Methodology programme (finished) during the conduct of this study. Sarah E Lamb reports grants from the NIHR HTA programme during the conduct of the study, and was a member of the following: HTA Additional Capacity Funding Board (2012–15), HTA Clinical Trials Board (2010–15), HTA End of Life Care and Add-on Studies Board (2015), HTA Funding Boards Policy Group (formerly the Clinical Studies Group) (2010–15), HTA Post-Board Funding Teleconference (2010–15), HTA Maternal, Neonatal and Child Health Methods Group (2013–15), HTA Primary Care Themed Call Board (2013–14), HTA Prioritisation Group (2012–15) and the NIHR Clinical Trials Unit Standing Advisory Committee (2012–16).

Published May 2021

DOI: 10.3310/hta25340

## Plain English summary

### The PreFIT three-arm cluster RCT

Health Technology Assessment 2021; Vol. 25: No. 34

DOI: 10.3310/hta25340

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

# Plain English summary

## What is the problem?

Falls are a major problem for older people. Current practice is to give people advice leaflets. Another approach is exercise, especially balance and strength training. A third alternative is to invite older people to attend a falls assessment with a health-care professional, either a doctor or a trained nurse. This usually involves a careful check of prescribed tablets, blood pressure, eyesight and other problems that might cause falls.

## What did we do?

We compared three strategies. We recruited 9803 people aged 70–101 years from 63 general practices across England. We randomly allocated practices in clusters into three treatment groups. The participants in one group were given a *Staying Steady* advice leaflet (Age UK. *Staying Steady*. London: Age UK; 2009). Participants in the second group received the same leaflet and were assessed to see if they were at higher risk of falling. Those participants identified as being at higher risk (about 1000 people) were invited to take part in an exercise programme, supported by an exercise therapist. These people did balance and strength training at home for up to 6 months. In the third group, we again identified participants who were at higher risk of falling (about 1000 people) and invited them for a detailed falls assessment with a trained nurse or doctor. This last group of participants were referred for other treatments if any health problems were found. In all groups we counted fractures and falls and measured changes in quality of life, frailty and the cost of the treatments over 18 months of follow-up.

## What did we find out?

We found no difference in the number of fractures over 18 months between the different treatments. The exercise programme reduced falls in the short term but not over the longer term. The exercise programme was cheaper and led to a slightly better overall quality of life.



# Health Technology Assessment

ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.370

*Health Technology Assessment* is indexed in MEDLINE, CINAHL, EMBASE, the Cochrane Library and 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/](http://www.publicationethics.org/)).

Editorial contact: [journals.library@nihr.ac.uk](mailto:journals.library@nihr.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

Health Technology Assessment (HTA) research is undertaken where some evidence already exists to show that a technology can be effective and this needs to be compared to the current standard intervention to see which works best. Research can evaluate any intervention used in the treatment, prevention or diagnosis of disease, provided the study outcomes lead to findings that have the potential to be of direct benefit to NHS patients. Technologies in this context mean any method used to promote health; prevent and treat disease; and improve rehabilitation or long-term care. They are not confined to new drugs and include any intervention used in the treatment, prevention or diagnosis of disease.

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.

## This report

The research reported in this issue of the journal was funded by the HTA programme as project number 08/14/41. The contractual start date was in September 2010. The draft report began editorial review in June 2019 and was accepted for publication in January 2020. 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 2021. This work was produced by Bruce *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.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)).

## 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 Professor of Digital Health Care, 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** Senior Scientific Adviser (Evidence Use), Wessex Institute, University of Southampton, 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** Emeritus Professor of Wellbeing Research, University of Winchester, 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

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

**Editorial contact:** [journals.library@nihr.ac.uk](mailto:journals.library@nihr.ac.uk)