

# Improving the understanding and management of back pain in older adults: the BOOST research programme including RCT and OPAL cohort

Esther Williamson,<sup>1,2</sup> Maria T Sanchez-Santos,<sup>1</sup>  
Ioana R Marian,<sup>1</sup> Mandy Maredza,<sup>3</sup> Cynthia Srikesavan,<sup>1</sup>  
Angela Garrett,<sup>1</sup> Alana Morris,<sup>1</sup> Graham Boniface,<sup>1</sup>  
Susan J Dutton,<sup>1</sup> Frances Griffiths,<sup>3</sup> Gary S Collins,<sup>1</sup>  
Stavros Petrou,<sup>1</sup> Julie Bruce,<sup>3</sup> Jeremy Fairbank,<sup>1</sup>  
Zara Hansen,<sup>1</sup> Karen Barker,<sup>4</sup> Charles Hutchinson,<sup>3</sup>  
Christian Mallen,<sup>5</sup> Lesley Ward,<sup>1</sup> Richard Gagen,<sup>1</sup>  
Judith Fitch,<sup>6</sup> David P French<sup>7</sup> and Sarah E Lamb<sup>2\*</sup>

<sup>1</sup>University of Oxford, Oxford, UK

<sup>2</sup>University of Exeter, Exeter, UK

<sup>3</sup>University of Warwick, Warwick, UK

<sup>4</sup>Oxford University Hospitals NHS Trust, Oxford, UK

<sup>5</sup>Keele University, Keele, UK

<sup>6</sup>Patient and Public Involvement Representative

<sup>7</sup>University of Manchester, Manchester, UK

\*Corresponding author [S.E.Lamb@exeter.ac.uk](mailto:S.E.Lamb@exeter.ac.uk)

## Disclosure of interests

**Full disclosure of interests:** Completed ICMJE forms for all authors, including all related interests, are available in the toolkit on the NIHR Journals Library report publication page at <https://doi.org/10.3310/LKWX3424>.

**Primary conflict of interest:** Esther Williamson is supported by the National Institute for Health and Care Research (NIHR) Oxford and Thames Valley Applied Research Collaboration (ARC). Julie Bruce is co-investigator on current research grants from the NIHR (NIHR202618, HTA 17/129/02, HTA NIHR128311, NIHR132046, HTA 10/42/02, NIHR132871 – HTA 20/38, NIHR131407 – HTA 19/160), grants from the British Heart Foundation (PG/19/22/34203) and Diabetes UK (17/0005690) and is supported by the NIHR Research Capability Funding via University Hospitals Coventry and Warwickshire NHS Trust. Jeremy Fairbank is the copyright holder for the Oswestry Disability Index. He has received research funding from the Back to Back Charity. He has been on the Data Monitoring Committee of the FORVAD Trial evaluating surgical approaches to cervical disc herniation. He is a Trustee and board member of two spine-related charities (British Scoliosis Research Foundation and BackCare). He has worked as an expert instructed by both claimant and defendant solicitors in negligence and personal injury cases. He has had membership of the following: Health Technology Assessment (HTA) Prioritisation Committee B: Inside Hospital Care from 2015 to February 2019 and HTA Interventional

Procedures Panel from 2010 to 2015. Keele School of Medicine has received grant funding for Christian Mallen's time not related to this study from NIHR, MRC, AHRC, BMS and Versus Arthritis. David P French has received funding from the NIHR Greater Manchester ARC and Manchester Biomedical Research Centre. He has also been supported by grants from NIHR Programme Grant for Applied Research, European Commission Horizon 2020, NIHR Research for Patient Benefit, Natural Environment Research Council, NIHR Health Services and Delivery Research, Prevent Breast Cancer, MRC/NIHR Methodology Research Programme Manchester University NHS Foundation Trust, Great Sport, Breast Cancer Now, Christie Hospital NHS Trust NIHR Policy Research Programme, Cancer Research UK and BXS GP Limited. He was the Chair of the combined Trial Steering and Data Monitoring and Ethics Committee for the Dunhill Medical Trust funded trial, Motivating Structured walking Activity in people with Intermittent Claudication (MOSAIC) trial (October 2017–July 2021). He was a member of the PHR Research Funding Board from 16 June 2015 to 12 June 2020. Gary S Collins is a member of the NIHR HTA Commissioning Board (2016–20) NIHR DRF Selection Committee (2021 to present). Frances Griffiths has had membership of the following: 2014–17 Medical Research Council Strategic Skills Panel, 2011–16 NIHR Programme Grants for Applied Research Panel, 2012–13 NIHR Health Service and Delivery Research Board and 2009–11 NIHR Service Delivery and Organisation Programme Panel. Sarah E Lamb has had membership of the following: HTA Additional Capacity Funding Board, HTA End of Life Care and Add-on Studies Board, HTA Prioritisation Group Board, HTA Trauma Board, HTA MNCH Methods Group, HTA Primary Care Themed Call board from 17 September 2013 to 18 February 2014, HTA Trauma Themed Call Board from 31 October 2007 to 20 October 2008, NIHR CTU Standing Advisory Committee from 1 July 2012 to 1 July 2016, HTA Projects Remit meeting, HTA Post-Funding Committee from 26 May 2010 to 31 December 2015, HTA Funding Committee Policy Group (formerly CSG) from 1 January 2010 to 31 December 2015, HTA Clinical Evaluation and Trials Committee from 1 January 2010 to 31 December 2015, HTA Programme Oversight Committee and Clinical Trials Units funded by the NIHR.

Published November 2023  
DOI: 10.3310/LKWX3424

## Plain language summary

Improving the understanding and management of back pain in older adults: the BOOST research programme including RCT and OPAL cohort

Programme Grants for Applied Research 2023; Vol. 11: No. 9  
DOI: 10.3310/LKWX3424

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

## Plain language summary

**B**ack pain is a common problem for older people. This research aimed to increase our understanding of back pain in older people and to develop treatments to reduce the burden caused by back pain. The research was arranged in six work packages, and we completed three linked studies.

**Study 1:** We enrolled 5409 older people in a cohort study. Participants answered questions about back pain, their health, mobility, falls and quality of life on enrolment and at 1 and 2 years' follow-up. Back pain was reported by half of the participants, and 20% also reported leg pain. Back pain with/without leg pain is associated with reduced quality of life but also with being frail, falling and having walking problems. After 2 years, 77% of participants still reported being troubled by this pain. We developed a tool to identify when older people were at risk of reduced walking ability and to understand whether back pain was important here. Back and leg pain were not specifically linked to reduced walking, but severe pain was, suggesting that regardless of the type of pain, it needs to be treated. This tool could be used by clinicians and patients to know when they are at risk of reduced walking ability and to seek treatment.

**Study 2:** We developed a group physiotherapy programme (the Better Outcomes for Older people with Spinal Trouble programme) for older people with a back-related condition called neurogenic claudication which results in pain spreading from the back into the legs and difficulties standing and walking. We tested the programme in a randomised controlled trial. The Better Outcomes for Older people with Spinal Trouble programme resulted in long-term improvements in walking, reduced falls, and short-term improvements in pain and disability. It is likely to be good value for the National Health Service.

**Study 3:** We interviewed participants taking part in the Better Outcomes for Older people with Spinal Trouble trial to understand their experiences of the trial and whether the treatments helped. The Better Outcomes for Older people with Spinal Trouble programme was acceptable to participants, and they found it enjoyable.

We are working with patient representatives and clinicians to make the Better Outcomes for Older people with Spinal Trouble programme available in routine care.



# Programme Grants for Applied Research

ISSN 2050-4322 (Print)

ISSN 2050-4330 (Online)

*Programme Grants for Applied Research* (PGfAR) was launched in 2013 and is indexed by Europe PMC, NCBI Bookshelf, DOAJ, Ulrichsweb™ (ProQuest LLC, Ann Arbor, MI, USA) and Scopus® (Elsevier, Amsterdam, Netherlands).

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@nih.ac.uk](mailto:journals.library@nih.ac.uk)

The full PGfAR archive is freely available to view online at [www.journalslibrary.nih.ac.uk/pgfar](http://www.journalslibrary.nih.ac.uk/pgfar).

## Criteria for inclusion in the *Programme Grants for Applied Research* journal

Reports are published in *Programme Grants for Applied Research* (PGfAR) if (1) they have resulted from work for the PGfAR programme, and (2) they are of a sufficiently high scientific quality as assessed by the reviewers and editors.

## Programme Grants for Applied Research programme

The Programme Grants for Applied Research (PGfAR) programme, part of the National Institute for Health and Care Research (NIHR), was established in 2006 to fund collaborative, multidisciplinary programmes of applied research to solve health and social care challenges. Findings are expected to provide evidence that lead to clear and identifiable patient benefits, in the relatively near future.

PGfAR is researcher led and does not specify topics for research; however, the research must be in an area of priority or need for the NHS and the social care sector of the Department of Health and Social Care, with particular emphasis on health and social care areas that cause significant burden, where other research funders may not be focused, or where insufficient funding is available.

The programme is managed by the NIHR Central Commissioning Facility (CCF) with strategic input from the Programme Director. For more information about the PGfAR programme please visit the website: <https://www.nih.ac.uk/explore-nihr/funding-programmes/programme-grants-for-applied-research.htm>

## This report

The research reported in this issue of the journal was funded by PGfAR as project number PTC-RP-PG-0213-20002. The contractual start date was in April 2015. The final report began editorial review in April 2022 and was accepted for publication in March 2023. As the funder, the PGfAR programme agreed the research questions and study designs in advance with the investigators. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The PGfAR editors and production house have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the final report 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 and Care 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, CCF, PGfAR 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, the PGfAR programme or the Department of Health and Social Care.

Copyright © 2023 *et al.* This work was produced by *et al.* under the terms of a commissioning contract issued by the Secretary of State for Health and Social Care. This is an Open Access publication distributed under the terms of the Creative Commons Attribution CC BY 4.0 licence, which permits unrestricted use, distribution, reproduction and adaptation in any medium and for any purpose provided that it is properly attributed. See: <https://creativecommons.org/licenses/by/4.0/>. For attribution the title, original author(s), the publication source – NIHR Journals Library, and the DOI of the publication must be cited.

Published by the NIHR Journals Library ([www.journalslibrary.nih.ac.uk](http://www.journalslibrary.nih.ac.uk)), produced by Newgen Digitalworks Pvt Ltd, Chennai, India ([www.newgen.co](http://www.newgen.co)).

## NIHR Journals Library Editor-in-Chief

---

**Dr Cat Chatfield** Director of Health Services Research UK

## NIHR Journals Library Editors

---

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

**Dr Peter Davidson** Interim Chair of HTA and EME Editorial Board, Consultant Advisor, School of Healthcare Enterprise and Innovation, University of Southampton, UK

**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** Consultant in Public Health, Delta Public Health Consulting Ltd, UK

**Ms Tara Lamont** Senior Adviser, School of Healthcare Enterprise and Innovation, University of Southampton, UK

**Dr Catriona McDaid** Reader in Trials, 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, School of Healthcare Enterprise and Innovation, University of Southampton, UK

**Dr Rob Riemsma** Consultant Advisor, School of Healthcare Enterprise and Innovation, University of Southampton, UK

**Professor Helen Roberts** Professor of Child Health Research, Child and Adolescent Mental Health, Palliative Care and Paediatrics Unit, Population Policy and Practice Programme, UCL Great Ormond Street Institute of Child Health, London, 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

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)