European Spine Journal
https://doi.org/10.1007/s00586-025-09674-3

CORRESPONDENCE

The ELEVATE-LBP consortium: exercise & evidence to lead effective vital action in translating excellence for low back pain prevention

Liba Sheeran[1] · Suzanne McIlroy[2,3] · Arnold Y. L. Wong[4] · David B. Anderson[5] · Dino Samartzis[6] · Liedewij Bogaert[7] · Bruno Domokos[8] · Christoph Spang[8] · Maryse Fortin[9] · Paul W. Hodges[10] · Mario Bizzini[11] · Jiří Dvořák[12]

Received: 2 December 2025 / Revised: 5 December 2025 / Accepted: 8 December 2025

Low back pain (LBP) remains the leading cause of years lived with disability worldwide, and its impact is projected to rise by 2050 [1, 2]. Exercise interventions have been shown to be effective in both primary prevention, by reducing the risk of first-onset LBP, and secondary prevention, by limiting recurrence and progression [3].

Existing programs vary widely in their purpose, content and delivery [4], highlighting the need for an evidence-based and consensus-driven protocol. As an example, the structured GLA:D Back program (Good Life with osteoarthritis in Denmark) has demonstrated benefits for managing existing LBP [5], but its focus remains on rehabilitation rather than prevention. Although there are exercise frameworks to prevent musculoskeletal pain, such as FIFA 11+, that illustrate the value of well-defined, structured exercise models for preventing musculoskeletal injuries in sports populations [6–8], their transferability to the prevention of LBP and prevention to home or workplace settings remains unclear. Current evidence suggests that long-term benefits of exercise for preventing LBP diminish over time, possibly due to reduced patient adherence [9]. Factors such as patient motivation and adherence, efficient delivery models, and minimal out-of-pocket costs should be prioritized to improve the implementation and equity of access to preventive exercise programs [10].

To address these gaps, an international group of clinicians and researchers within the International Society for the Study of the Lumbar Spine (ISSLS) have established the ELEVATE-LBP (*E*xercise & Evidence to *L*ead *E*ffective *V*ital *A*ction in *T*ranslating *E*xcellence for *L*ow *B*ack *P*ain prevention) Consortium. Its overarching goal is to define and validate a consensus-based set of exercise recommendations for primary and secondary prevention of LBP, informed by scientific evidence, expert clinical practice, and digital-health innovation.

Recognizing the global shift toward "precision" digital rehabilitation [11], the consortium will explore how remote motion tracking, smartphone-based monitoring, and telecoaching can enhance exercise delivery and adherence monitoring. These technologies enable objective measurement of movement quality and patient-reported outcomes, while adaptive feedback can personalize exercise progression and improve engagement. Integrating a digital platform capable of providing real-time feedback and remote supervision may help sustain adherence, reduce access barriers and support scalable implementation across clinical, workplace and community settings.

Vision

The consortium envisions a harmonized international framework that:

1. Identifies exercise modalities with proven or plausible effects for prevention of LBP;
2. Builds expert consensus on effective exercise types, intensity, frequency and progression, as well as methods for supported self-management;
3. Embeds features and behavioral strategies, including education, to improve adherence and self-efficacy;
4. Establishes definitions of successful endpoints and outcome measures; and.
5. Leverages digital platforms and other deployment models to scale evaluation and implementation internationally, ensuring equitable access for all communities and enabling impact monitoring across varied settings.

Extended author information available on the last page of the article

Published online: 09 January 2026

Methodological framework

The Consortium's initial project is to develop the "11 + LBP" platform, inspired by the success of FIFA 11+, a structured exercise program shown to prevent musculoskeletal injuries in sports settings [6–8]. The platform will provide evidence-based exercises targeting the prevention and management of LBP, delivered and monitored through a digital application supported by artificial intelligence. To accomplish this, the consortium has adopted a multi-stage modified Delphi and translational development process, underpinned by the principles of the UK Medical Research Council (MRC) Framework for Developing and Evaluation Complex Interventions [12]. This approach recognizes that preventive exercise interventions for LBP are complex, context-dependent, and require iterative development and refinement informed by stakeholder input and real-world testing. While the phases are set out in full below, only the development, feasibility and early-stage evaluation activities fall within the consortium's initial scope. A definitive randomized controlled trial (RCT) and wider implementation activities would be planned only after these phases, and only if feasibility findings support progression.

Development phase

This phase will synthesize existing systematic reviews and primary studies to identify exercise components, behavioral strategies, mechanisms of action, and contextual factors associated with successful prevention of LBP. A modified Delphi process with multidisciplinary experts, (clinicians, researchers and patients) will then be used to build consensus on exercise type, dosage, and delivery methods and implementation considerations. Alongside this, a program theory and logic model will be developed to describe how and why preventive exercise interventions are expected to work, the conditions required for success, and the uncertainties that must be addressed in feasibility work.

Feasibility and piloting phase

Working with digital and health partners, the consortium will co-design and prototype a digital delivery and monitoring platform. Feasibility pilots across clinical, workplace, and community settings will assess acceptability, usability, adherence, engagement, data-capture fidelity, and contextual barriers and enablers. Building on these pilots, this phase will also include a feasibility RCT to test recruitment pathways, randomization procedures, adherence to the intervention, data completeness, follow-up processes, overall trial logistics and preliminary effectiveness. The purpose of this feasibility RCT is to determine whether a definitive evaluation is warranted, what its optimal design should be, and whether any remaining uncertainties can be resolved before progressing.

Evaluation phase

If feasibility findings support progression, the next step would be a definitive evaluation in a pragmatic, multicenter RCT designed to test effectiveness under real-world conditions. This definitive RCT would include outcome measures, sample size informed by feasibility data, and procedures refined during earlier phases. This full-scale evaluation will be planned subsequently and does not form part of the consortium's initial scope.

Implementation phase

If evidence supports the effectiveness of the program, the final phase will involve developing an implementation strategy for integration into real-world settings across workplace and community settings and digital-first care models. Particular focus will be placed on understanding context–intervention interaction, scalability and sustainability, promoting equity and access, and identifying conditions required for wider adoption.

Interest holder consultation and dissemination

Engagement with all relevant interest holders (e.g., individuals at risk of LBP, health care providers, funders, insurers, policy makers) will continue throughout all phases to ensure relevance, equity and scalability across diverse settings. The consortium's methods will align with the A Consensus-based Checklist for Reporting Delphi Studies (ACCORD) [13], the Conducting and REporting of DElphi Studies (CREDES) guidance [14], and EQUATOR Network standards for transparent consensus reporting [15].

To support this program of work, the consortium will use established consultation mechanisms within the ISSLS. Initial engagement will occur at the ISSLS Annual Meeting, followed by opportunities for wider input through ISSLS-hosted webinars, podcasts, working groups, and online feedback platforms. These channels will enable members to comment on emerging findings and help refine the consensus framework. Consultation summaries and updates will be shared via ISSLS communication pathways to maintain transparency. The ELEVATE-LBP Consortium remains independent and intends to also partner with various organizations worldwide that have an interest in LBP to refine its approach and to facilitate global engagement and impact. A

future website is envisioned to ensure transparency and to provide a sustained channel for communication as the consortium's work evolves.

We invite the *European Spine Journal* readership to contribute perspectives and expertise. Insights from clinicians, researchers, digital health partners, policymakers, and patient representatives will be essential to co-develop shared evidence-based approaches and guide the next stages of the '11 + LBP platform" for the primary and secondary prevention of LBP. We warmly welcome collaboration from the wider spine and rehabilitation community as the ELEVATE-LBP Consortium advances this international effort to strengthen the primary and secondary prevention of LBP.

Author contributions All authors contributed to the drafting and/or editing of this manuscript. The first draft of the manuscript was written by Liba Sheeran and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Data availability No datasets were generated or analysed during the current study.

Declarations

Competing interests The authors declare no competing interests.

References

1. GBD Forecasting Collaborators (2024) Burden of disease scenarios for 204 countries and territories, 2022–2050: a forecasting analysis for the global burden of disease study 2021. Lancet 403:2204–2256. https://doi.org/10.1016/S0140-6736(24)00685-8
2. GBD Other Musculoskeletal Disorders Collaborators (2023) Global, regional, and National burden of other musculoskeletal disorders, 1990–2020, and projections to 2050: a systematic analysis of the global burden of disease study 2021. Lancet Rheumatol 5:e670–e682. https://doi.org/10.1016/S2665-9913(23)00232-1
3. Steffens D, Maher CG, Pereira LS, Stevens ML, Oliveira VC, Chapple M, Teixeira-Salmela LF, Hancock MJ (2016) Prevention of low back pain: A systematic review and Meta-analysis. JAMA Intern Med 176:199–208. https://doi.org/10.1001/jamainternmed.2015.7431
4. Hayden JA, Ellis J, Ogilvie R, Malmivaara A, van Tulder MW (2021) Exercise therapy for chronic low back pain. Cochrane Database Syst Rev 9:CD009790. https://doi.org/10.1002/14651858.CD009790.pub2
5. Kjaer P, Kongsted A, Ris I, Abbott A, Rasmussen CDN, Roos EM, Skou ST, Andersen TE, Hartvigsen J (2018) GLA:D((R)) back group-based patient education integrated with exercises to support self-management of back pain - development, theories and scientific evidence. BMC Musculoskelet Disord 19:418. https://doi.org/10.1186/s12891-018-2334-x
6. Bizzini M, Dvorak J (2015) FIFA 11+: an effective programme to prevent football injuries in various player groups worldwide-a narrative review. Br J Sports Med 49:577–579. https://doi.org/10.1136/bjsports-2015-094765
7. Al Attar WSA, Bizzini M, Dvořák J, Pappas E, Alzahrani H, Al Shaman M, Elkins MR (2025) Effectiveness of the FIFA 11 + injury prevention programs in reducing acute lower back injury among soccer players: a systematic review and meta-analysis. Int J Sports Sci Coach 20:2729–2741. https://doi.org/10.1177/17479541251364112
8. Thorborg K, Krommes KK, Esteve E, Clausen MB, Bartels EM, Rathleff MS (2017) Effect of specific exercise-based football injury prevention programmes on the overall injury rate in football: a systematic review and meta-analysis of the FIFA 11 and 11 + programmes. Br J Sports Med 51:562. https://doi.org/10.1136/bjsports-2016-097066
9. Jones MD, Hansford HJ, Bastianon A, Gibbs MT, Gilanyi YL, Foster NE, Dean SG, Ogilvie R, Hayden JA, Wood L (2025) Exercise adherence is associated with improvements in pain intensity and functional limitations in adults with chronic non-specific low back pain: a secondary analysis of a Cochrane review. J Physiother 71:91–99. https://doi.org/10.1016/j.jphys.2025.03.004
10. Carey TS, Freburger JK (2016) Exercise and the prevention of low back pain: ready for implementation. JAMA Intern Med 176:208–209. https://doi.org/10.1001/jamainternmed.2015.7636
11. Samartzis D, Alini M, An HS, Karppinen J, Rajasekaran S, Vialle L, Wang JC, de Kleuver M (2018) Precision Spine Care: A New Era of Discovery, Innovation, and Global Impact. Glob Spine J 8:321–322. https://doi.org/10.1177/2192568218774044
12. Skivington K, Matthews L, Simpson SA, Craig P, Baird J, Blazeby JM, Boyd KA, Craig N, French DP, McIntosh E, Petticrew M, Rycroft-Malone J, White M, Moore L (2021) A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. BMJ 374:n2061. https://doi.org/10.1136/bmj.n2061
13. Gattrell WT, Logullo P, van Zuuren EJ, Price A, Hughes EL, Blazey P, Winchester CC, Tovey D, Goldman K, Hungin AP, Harrison N (2024) ACCORD (ACcurate consensus reporting Document): a reporting guideline for consensus methods in biomedicine developed via a modified Delphi. PLoS Med 21:e1004326. https://doi.org/10.1371/journal.pmed.1004326
14. Jünger S, Payne SA, Brine J, Radbruch L, Brearley SG (2017) Guidance on conducting and reporting DElphi studies (CREDES) in palliative care: recommendations based on a methodological systematic review. Palliat Med 31:684–706. https://doi.org/10.1177/0269216317690685
15. Simera I, Moher D, Hoey J, Schulz KF, Altman DG (2009) The EQUATOR network and reporting guidelines: helping to achieve high standards in reporting health research studies. Maturitas 63:4–6. https://doi.org/10.1016/j.maturitas.2009.03.011

Authors and Affiliations

Liba Sheeran[1] · Suzanne McIlroy[2,3] · Arnold Y. L. Wong[4] · David B. Anderson[5] · Dino Samartzis[6] · Liedewij Bogaert[7] · Bruno Domokos[8] · Christoph Spang[8] · Maryse Fortin[9] · Paul W. Hodges[10] · Mario Bizzini[11] · Jiří Dvořák[12]

✉ Liba Sheeran
liba.sheeran@soton.ac.uk

Suzanne McIlroy
suzanne.mcilroy@nhs.net

Arnold Y. L. Wong
arnold.wong@polyu.edu.hk

David B. Anderson
david.anderson1@sydney.edu.au

Dino Samartzis
dino_samartzis@rush.edu

Liedewij Bogaert
liedewij.bogaert@uzleuven.be

Bruno Domokos
bruno.domokos@uni-wuerzburg.de

Christoph Spang
christoph.spang@spine-research.de

Maryse Fortin
maryse.fortin@concordia.ca

Paul W. Hodges
p.hodges@uq.edu.au

Mario Bizzini
mario.bizzini@kws.ch

Jiří Dvořák
jiri@dvorakmedical.com

[1] School of Health Sciences, University of Southampton, Southampton, UK

[2] Department of Physiotherapy, King's College Hospital, London, UK

[3] Health Psychology Section, IoPPN, King's College London, London, UK

[4] Department of Rehabilitation Sciences, Hong Kong Polytechnic University, Hong Kong, China

[5] Sydney School of Health Sciences, The University of Sydney, Sydney, Australia

[6] Department of Orthopedic Surgery, Rush University Medical Center, Chicago, US

[7] Department of Physical and Rehabilitation Medicine, Universitair Ziekenhuis Leuven, Leuven, Belgium

[8] Department of Sports Science, University of Würzburg, Wurzburg, Germany

[9] Department of Health, Kinesiology & Applied Physiology, Concordia University, Montreal, Canada

[10] Centre for Innovation in Pain and Health Research (CIPHeR), School of Health & Rehabilitation Sciences, University of Queensland, Brisbane, Australia

[11] Human Performance Lab, Schulthess-Klinik, Zurich, Switzerland

[12] Spine Unit, Schulthess-Klinik, Zurich, Switzerland