

BACK-on-LINE™

Personalised digital Spine Health Management System
to support people with low back pain at work



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Current models of LBP management



Stratification
based



Resources
follow the
most disabled



Prognosis of
recovery is
poor



LBP chronicity
develops over
time



EARLY
interventions
recommended

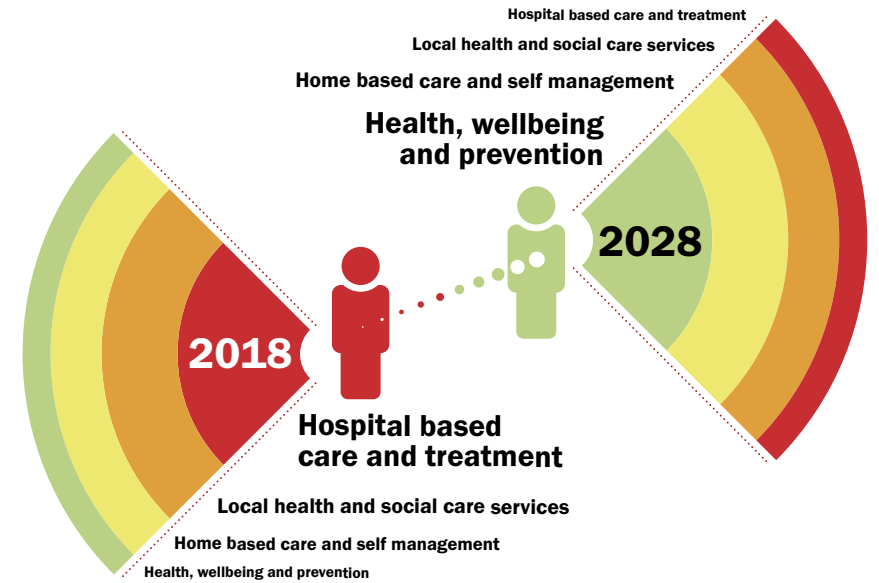


BACK-on-LINETM
let us help you to help yourself



Digital Health Interventions Opportunities

- Clinical guidelines (NICE)
- Policy commitments
 - Healthier Wales
- Strategy
 - Prudent Healthcare
 - NHS digital participation programme (UK)
 - Digital inclusion guide for HC & Informed Health and Care (Digital Health and Social Care Strategy, Wales)
- Funding



Digital Health interventions Challenges

- Information-dense, not considering individual circumstances
- Behaviour change theories under-utilised
- Exercise and physical activity “how’s” under-represented
- User/stakeholder involvement low

Evidence for DHI to support for LBP self-management weak (Nichol et al 2017)

Evidence for DHI to change behaviour moderate to small (Berry et al 2018)



What is BACK-on-LINE™?

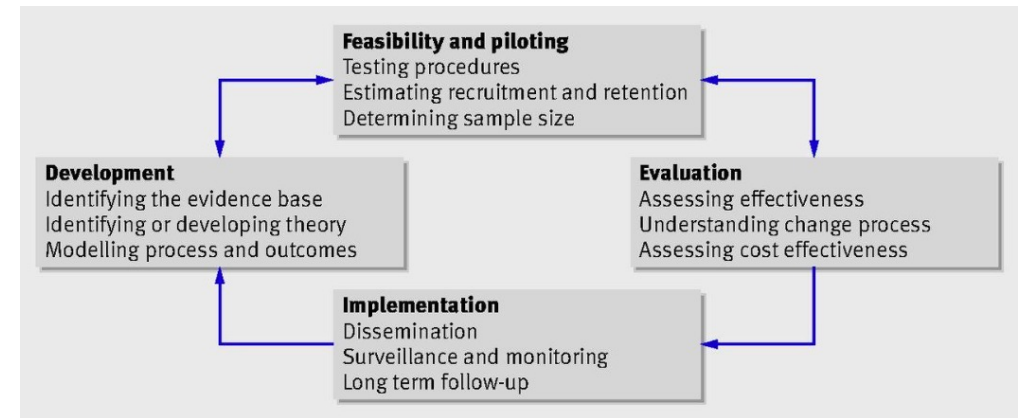
Personalised Digital Spine Health Management System in 5 STEPS:

1. **SELF-SCREEN** to decide whether person needs to see a doctor
2. **SELF-ASSESSMENT** pain, personal, work impact
3. **FEEDBACK** on LBP type, physical activity score, sedentary score
4. **PERSONALISED INTERVENTION MODULES** with job-specific guidance
5. **EVALUATION** re-assessment and feedback



BACK-on-LINE™ development

- Sequential iterative mixed methods design
- With NHS workforce as ‘informed expert’ users & delivery partners
- Following development phase of the Complex Intervention Development MRC Framework (Craig 2008, Farquhar 2013)



BACK-on-LINE™ self-assessment development

Objective 1: Establish suitable LBP classification self-assessment to guide early self-management

- e-Delphi expert consensus study (n=28)

Objective 2

Design/produce BOL self-assessment prototype

- Content Development and 1st iteration design production

Objective 3

Evaluate readability/acceptability

- Flesch Reading Ease, Plain English Campaign, Interviews and Focus Groups (n=12)

Objective 4

Establish reliability/validity

- Internal consistency, test re-test reliability, construct validity testing (n=33)

Objective 5

Establish measurement properties

- ROC curves

BACK-on-LINE™ intervention development

Objective 1:

Develop BOL self-assessment digital platform

- 2nd generation design production

Objective 2:

Evaluate acceptability, usability, potential usefulness

- Survey (TAMs), telephone interviews (n=11)

Objective 3:

Develop 2 Interventions modules

- Iterative rapid prototyping approach with NHS service provides and users providing feedback on each iteration

Objective 4:

Evaluate feasibility, acceptability and potential benefit

- Longitudinal single arm pre and post study design (n=600)



Behaviour change model underpinning BACK-on-LINE™

- Self-efficacy
- Social Cognitive theory
- Behaviour Change Framework (Motivation, Capability)

Overall Aim

- To provide a high quality and bespoke support, guidance and practical help to workers with early onset LBP
- Use work as means of recovery
- Help people to understand their back pain
- Provide practical guidance to enhance physical conditioning
- Build spine resilience
- Manage LBP in work setting better
- Gain control over their symptoms
 - Improve
 - Self-belief in managing their symptoms

BACK-on-LINE™

- 4 parts:

1. What is BACK-on-LINE™
2. Is BACK-on-LINE™ for me?
3. BACK-on-LINE™ self-assessment
4. Get your BACK-on-LINE™ score



What is BACK-on-LINE™?

New to BACK-on-LINE™? Please take the *Introduction* module.



Is BACK-on-LINE™ for me?

Check your eligibility to become a BACK-on-LINE™ user.



BACK-on-LINE™ self-assessment

Take the BACK-on-LINE™ self-assessment to find out what may be contributing to your back problem.



Get your BACK-on-LINE™ score!

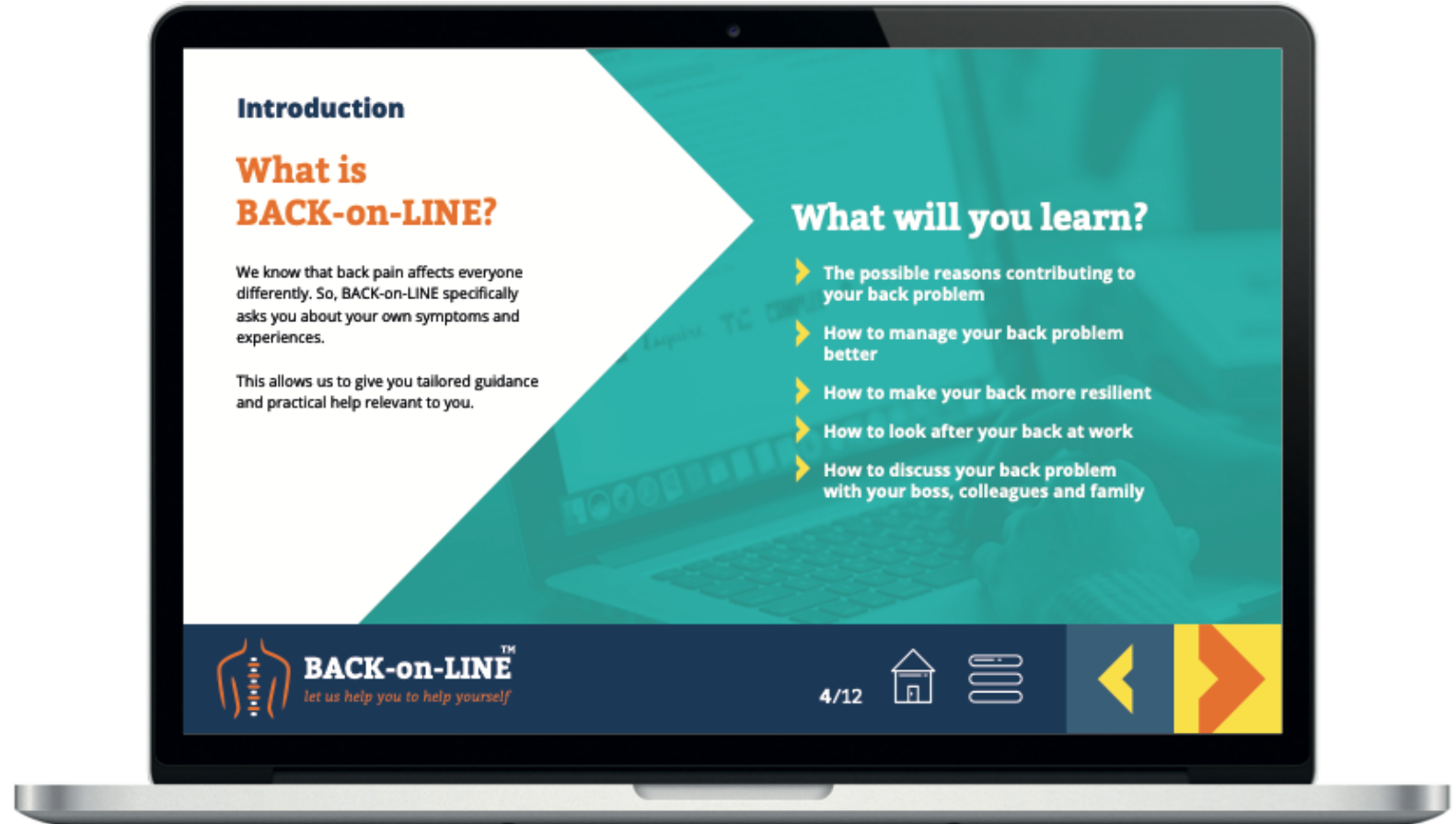
View your BACK-on-LINE™ score and get tailored help for your back problem.

1. What is BACK-on-LINE™?

Introduction module

BC techniques used:

- Shape knowledge
- Self-belief
- Associations
- Covert learning



Impact of back pain

- Associations

en



Introduction

Which job do you think carries the greatest risk of getting back pain?

That's right - People **working in healthcare** are more likely to get bad back than construction workers or miners!

Nurses are most affected, with 77% reporting to have significant back pain at some point in their working life.



you think get back pain at some point in their life?

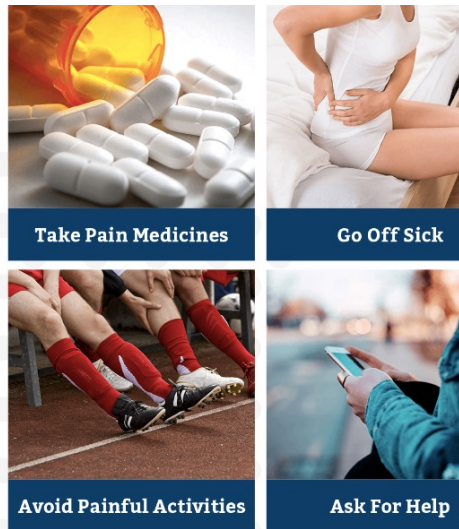
That's right - **8 out of 10** of us will experience back pain at some point in our lives.



Getting Your Mind Fit for Work

Which of the following strategies might you use to manage your back pain?

Click on the strategy you may use to manage your back pain:



Quiz format

- Self-belief
- Covert learning
- Associations

Busting the Myths

Click on the buttons to bust some of the myths about what causes back pain:

Bad Posture

Physical Jobs

Being Overweight

Static Job Toolkit

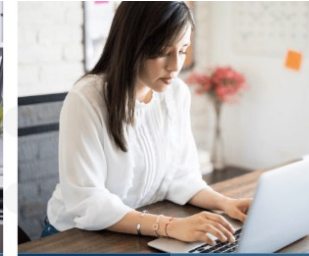
Busting the Myths

Decide if the following positions represent **GOOD** or **BAD** posture:



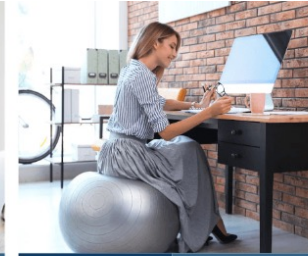
GOOD

BAD



GOOD

BAD



GOOD

BAD



GOOD

BAD



GOOD

BAD



GOOD

BAD

Introduction

Key Facts

Click on the buttons to bust some of the myths about what causes back pain:

Stress

Poor Sleep

Myth Busting

- Associations
- Shaping knowledge

Is BACK-on-LINE™ for me?

Safety Regulation



Your Eligibility



We first need to check whether you are eligible to take part in the study. Please answer the following questions with either Yes or No:

Do you have back problems affecting your job?

- Yes
- No

Are you pregnant or breast feeding?

- Yes
- No

Are you involved in any other back pain research?

- Yes
- No

Are you over the age of 18?

- Yes
- No

Do you have easy and regular access to the internet?

- Yes
- No

Continue

Low Back Pain Self Screen



We would also like to make sure your back pain isn't caused by anything serious (e.g. joint inflammatory disease, infection, tumour, or a nerve compression) that you should see your doctor for. Please answer the following questions with either Yes or No:

Did your back pain start or worsen following a fall?

- Yes
- No

Did your back pain coincide with feeling unwell e.g. fever, chills, night sweats (with no other explanation)?

- Yes
- No

Do you have altered or loss of sensation around your back passage or genitals (noticeable e.g. when wiping after going to the toilet)?

- Yes
- No

Are you experiencing any unexplained widespread weakness in one or both legs or any unexplained trouble walking (e.g. limping, tripping, falling, feeling unsteady on your feet)?

- Yes
- No

Do you have difficulty passing or controlling urine or faeces?

- Yes
- No

Continue

BACK-on-LINE™ self-assessment

- Regulation
- Identity
- Comparison of Outcomes
- Monitoring
- Shaping knowledge
- Scheduled consequences

Get you BACK-on-LINE™ Score!

- Feedback and monitoring
- Identity
- Regulation
- Shaping knowledge
- Natural consequences
- Goals and planning

Get your Spine Fit for Work

- examples

Get you Mind fit for Work

- examples

Physical activity / Sedentary score

Where are we now?

Feedback so far...

Future...

- TfL
- NHS England

- A systematic literature review assessed the effectiveness of existing digital interventions; a survey and secondary data analysis explored beliefs and motives for PA in this population; a design and production phase adopted the intervention mapping approach to develop a prototype website; and a testing phase utilised interviews and a think-aloud approach to explore acceptability and usability with potential users.

Health and wellbeing at work conference

- Present on the development and feasibility of BACK-on-LINE, personalised spine health self-management digital system to help people with back pain to remain in work. Project was funded by Department of Work and Pensions Health Challenge Fund with BACK-on-LINE launched to National Health Service (NHS) workforce across all NHS Wales Health Boards.

profile

- Liba Sheeran is a Chartered Physiotherapist and a Reader at Cardiff University. Her research expertise is developing and evaluation of early digital interventions for people with musculoskeletal disorders (MSDs) with special focus on back pain and overuse lower limb injury in a workplace. Her Health & Care Research Wales Postdoctoral Fellowship explored the utility of wearable sensors and video-tracking for application in work-based ergonomic assessment and exercise feedback. Today, Dr Sheeran will present her work funded by the Department of Work and Pensions Health Challenge Fund on the development of BACK-on-LINE, digital individualised spine health management system helping people with back pain to remain in work.