

What is the effect of low back pain self-management interventions including exercise components and does tailoring exercises to person's needs matter?

A systematic review with meta-analysis

Akushla PS Rathnayake^{1,2}, V Sparkes^{1,2}, L Sheeran^{1,2}

1-School of Healthcare Sciences, Cardiff University, Cardiff, UK

2-Biomechanics and Bioengineering Research Centre Versus Arthritis, Cardiff University

Objective: To determine the effects of self-management interventions (SMIs) including an exercise component on low back pain (LBP) and disability and to determine whether SMIs with tailored exercises (TEs) have superior outcomes compared to SMIs with general exercises (GEs).

Methods: An electronic systematic search of randomized controlled trials (RCTs) was performed in 5 electronic databases. RCTs comparing SMIs with exercise component to control interventions (mix of usual care, waiting list and spinal manipulation.) Data were extracted at 3 follow-up points (short-term, intermediate and long-term) and meta-analyses were performed. Reviewed RCTs were divided into subgroups based on whether the SMI exercise component was tailored to person's need or generic. A subgroup meta-analysis was performed at short-term follow-up to assess whether the SMIs with TEs have superior outcomes compared to SMIs with GEs.

Results: 12 original RCTs were included in the review (six including SMI with TEs) and were of moderate quality. The pooled results revealed the effect sizes (ESs) of -0.26, -0.32 and -0.21 for short, intermediate and long-term pain intensity, respectively and -0.26, -0.22 and -0.21 for short-term, intermediate, and long-term disability, respectively (negative value indicates a mean difference in favour of SMIs), indicating moderate but significant reduction in pain and disability compared to the control intervention. Subgroup meta-analysis at the short term follow up revealed that SMIs with TEs had ES of -0.19 (p=0.004) for pain and -0.20 (p=0.002) for disability compared to SMIs with GEs demonstrating positive but not significant improvement in pain (ES -0.48, p=0.09) and disability (ES -0.45, p=0.10).

Conclusions: There is moderate quality evidence for SMIs with an exercise component to have moderate but significant positive effect on pain and disability in people with LBP. The subgroup analysis revealed that SMIs with exercises tailored to person's needs are superior in reducing pain and disability related to LBP. These results indicate the importance of developing tailored exercise solutions supporting self-management to improve its effect on pain and disability in LBP patients.