

Deadlift training for patients with mechanical low back pain

A comparison of the effects of a high-load lifting exercise and individualized low-load motor control exercises

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Akademisk avhandling

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Abstract

Disability due to low back pain is common. While evidence exist that exercise is effective in reducing pain and disability, it is still largely undetermined which kind of exercises that are most effective. The overall aim of this thesis was to evaluate and compare the effects of a high-load lifting exercise and individualized low-load motor control exercises for patients with nociceptive mechanical low back pain. A secondary aim was to evaluate which patients benefit from training with a high-load lifting exercise.

All four papers in this thesis were based on a randomized controlled trial including 70 participants with nociceptive mechanical low back pain as their dominating pain pattern. Participants were randomized into training with either a high-load lifting exercise (HLL), the deadlift, (n=35) or individualized low-load motor control exercises (LMC) (n=35). Both interventions included aspects of pain education. All participants were offered twelve sessions during an eight week period. The effects of the interventions were evaluated directly after and twelve months after the end of the intervention period. Outcome measures were pain intensity, activity, disability, physical performance, lumbo-pelvic alignment and lumbar multifidus muscle thickness.

There was a significant between-group effect in favour of the LMC intervention regarding improvements in activity, movement control tests and some tests of trunk muscle endurance. For pain intensity there were no significant differences between groups. A majority of participants in both intervention groups showed clinically meaningful improvements from baseline to two and twelve month follow-up regarding pain intensity and activity. There were no significant differences between HLL and LMC regarding the effect on lumbo-pelvic alignment or lumbar multifidus thickness. The participants who benefit the most from the HLL intervention were those with a low pain intensity and high performance in the Biering-Sørensen test at baseline.

The results of this thesis showed that the HLL intervention was not more effective than the LMC intervention. The LMC was in fact more effective in improving activity, performance in movement control tests and some tests of trunk muscle endurance, compared to the HLL intervention. The results imply that the deadlift, when combined with education, could be considered as an exercise to produce clinically relevant improvements on pain intensity in patients who prefer a high-load exercise. However, before considering deadlift training, the results suggest that pain intensity and performance in the Biering-Sørensen test should be evaluated.

Keywords

Low back pain; Motor control; Deadlift; Randomized controlled trial; Pain, Disability, Activity, Physical performance, Muscle thickness, Radiography

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