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Treatment of Chronic Lower Back Pain with Lumbar Extension and Whole-Body Vibration Exercise: A Randomized Controlled Trial

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Abstract

Study Design.

A randomized controlled trial with a 6-month follow-up period was conducted.

Objective.

To compare lumbar extension exercise and whole-body vibration exercise for chronic lower back pain.

Summary of Background Data.

Chronic lower back pain involves muscular as well as connective and neural systems. Different types of physiotherapy are applied for its treatment. Industrial vibration is regarded as a risk factor. Recently, vibration exercise has been developed as a new type of physiotherapy. It is thought to activate muscles *via* reflexes.

Methods.

In this study, 60 patients with chronic lower back pain devoid of “specific” spine diseases, who had a mean age of 51.7 years and a pain history of 13.1 years, practiced either isodynamic

lumbar extension or vibration exercise for 3 months. Outcome measures were lumbar extension torque, pain sensation (visual analog scale), and pain-related disability (pain disability index).

Results.

A significant and comparable reduction in pain sensation and pain-related disability was observed in both groups. Lumbar extension torque increased significantly in the vibration exercise group (30.1 Nm/kg), but significantly more in the lumbar extension group (+59.2 Nm/kg; SEM 10.2; $P < 0.05$). No correlation was found between gain in lumbar torque and pain relief or pain-related disability ($P > 0.2$).

Conclusions.

The current data indicate that poor lumbar muscle force probably is not the exclusive cause of chronic lower back pain. Different types of exercise therapy tend to yield comparable results. Interestingly, well-controlled vibration may be the cure rather than the cause of lower back pain.

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