

The effect of lumbosacral orthosis on the thickness of deep trunk muscles using ultrasound imaging. A randomized controlled trial in patients with chronic low back pain

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Abstract

Objective This study was conducted to evaluate the changes occurring in the thickness of deep trunk muscles, measured using ultrasound imaging, after four weeks of lumbosacral orthosis (LSO) use in conjunction with routine physical therapy.

Design This parallel-group, randomized, controlled trial was conducted on 44 patients with nonspecific chronic low back pain (CLBP), randomly allocated to the experimental and control groups. Both groups received eight sessions of physical therapy twice per week for four weeks. The experimental group wore non-extensible LSO in addition to undergoing routine physical therapy. The thickness of the transversus abdominis (TrA), obliquus internus (IO) and lumbar multifidus (LM) was measured by ultrasound before and after the four-week intervention.

Results The deep trunk muscles differed in thickness in various test positions. Four weeks of intervention with LSO and routine physical therapy, however, did not change the thickness of the IO, TrA and LM.

Conclusion Wearing LSO for an average of 7.21 hours per day for four weeks in conjunction with routine physical therapy did not affect the thickness of obliquus internus, transversus abdominis and lumbar multifidus.