Effect of stabilization training on multifidus muscle cross-sectional area among young elite cricketers with low back pain.

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STUDY DESIGN: A single-blinded, pretreatment-posttreatment assessment. OBJECTIVES: To investigate, using ultrasound imaging, the cross-sectional area (CSA) of the lumbar multifidus muscle at 4 vertebral levels (L2, L3, L4, L5) in elite cricketers with and without low back pain (LBP) and (2) to document the effect of a staged stabilization training program on multifidus muscle CSA. BACKGROUND: Despite high fitness levels and often intensive strength training programs, athletes still suffer LBP. The incidence of LBP among Australian cricketers is 8% and as high as 14% among fast bowlers. Previous researchers have found that the multifidus muscle contributes to segmental stability of the lumbopelvic region; however, the CSA of this muscle has not been previously assessed in elite cricketers. METHODS AND MEASURES: CSAs of the multifidus muscles were assessed at rest on the left and right sides for 4 vertebral levels at the start and completion of a 13-week cricket training camp. Participants who reported current or previous LBP were placed in a rehabilitation group. The stabilization program involved voluntary contraction of the multifidus, transversus abdominis, and pelvic floor muscles, with real-time feedback from rehabilitative ultrasound imaging (RUSI), progressed from non-weight-bearing to weight-bearing positions and movement training. Pain scores (using a visual analogue scale) were also collected from those with LBP. RESULTS: The CSAs of the multifidus muscles at the L5 vertebral level increased for the 7 cricketers with LBP who received the stabilization training, compared with the 14 cricketers without LBP who did not receive rehabilitation (P = .004). In addition, the amount of muscle asymmetry among those with LBP significantly decreased (P = .029) and became comparable to cricketers without LBP. These effects were not evident for the L2, L3, and L4 vertebral levels. There was also a 50% decrease in the mean reported pain level among the cricketers with LBP. CONCLUSION: Multifidus muscle atrophy can exist in highly active, elite athletes with LBP. Specific retraining resulted in an improvement in multifidus muscle CSA and this was concomitant with a decrease in pain. LEVEL OF EVIDENCE: Therapy, level 2b.

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