Neuromuscular electrical stimulation training results in enhanced activation of spinal stabilizing muscles during spinal loading and improvements in pain ratings.

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Abstract

Low back pain is associated with dysfunction in recruitment of muscles in the lumbopelvic region. Effective rehabilitation requires preferential activation of deep stabilizing muscle groups yet training these muscles poses challenges in a clinical setting. This study was carried out in order to quantify the response of deep stabilizing muscles (transverses abdominis and deep fibres of multifidus) to a period of training using a novel neuromuscular electrical stimulation (NMES) application in a group of patients with chronic low back pain. Analysis of results revealed clinically and statistically significant improvements in indicators of both muscle groups’ performance, as evidenced by ultrasound evaluation of activation during voluntary activity. These improvements were associated with significant improvements in self reported pain levels, suggesting that NMES has an important role to play in CLBP rehabilitation.