

CHANGES IN MOTOR CONTROL IMPAIRMENT, PAIN AND PHYSICAL PERFORMANCE FOLLOWING A CONVENTIONAL LOW BACK REHABILITATION PROGRAM

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STUDY DESIGN

Controlled, prospective study of a 3-6 weeks low back rehabilitation program.

OBJECTIVES

Motor control impairment is associated with low back pain (LBP). This study compared changes in motor control of the lumbar spine, pain and physical performance between LBP individuals undergoing a conventional Gaylord Hospital rehabilitation program and LBP individuals not undergoing therapy.

METHODS

Ten LBP patients undergoing rehabilitation and 5 control LBP patients not undergoing therapy were tested twice. The first set of tests took place prior to beginning rehabilitation treatment. The second set was done after completing the treatment or after an equivalent time for the control group (3-6 weeks). The tests of pain and physical function consisted of a 10 cm visual analogue pain scale, Roland disability questionnaire, 5 min walk, and Sorensen fatigue test. Motor control of the lumbar spine was quantified with muscle response latencies to sudden trunk loading and with the center of pressure (CoP) path length measured with a force plate during balance control in unstable sitting test. Results before and after the treatment/equivalent time were compared in both groups using repeated measures ANOVA.

RESULTS

The perception of pain and disability as well as the physical function improved among the patients participating in rehabilitation program. However, there were no significant improvements in their motor control function. In control LBP patients, all of the measures remained approximately the same.

Table 1: Average (SD) measures of disability, pain, physical function (5 min walk) and motor control impairment (muscle response latency to sudden trunk loading and center of pressure (CoP) path length in unstable sitting test). (*p<0.05).

Measures	LBP Patients Undergoing Therapy		LBP Patients with no Therapy	
	Before	After	Before	After
Roland Disability (Out of 24 items)	10.5 (5.6)	8.2 (5.6)	4.4 (3.8)	3.0 (2.8)
Visual Analogue Pain Scale (cm)	4.1 (2.3)	2.1 (2.2)	1.8 (2.3)	2.6 (3.1)
5 min walk (m)	328 (107)	401 (49)*	431 (58)	426 (64)
Muscle Response Latency (ms)	62 (24)	68 (23)	65 (28)	66 (24)
CoP Path in Unstable Sitting (mm/s)	14 (1)	15 (3)	15 (3)	16 (4)