



Preliminary evidence that neuromuscular education reduces low back pain and improves coordination of automatic postural adjustments

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Abstract:

INTRODUCTION

Abnormal motor coordination is associated with low back pain (Rudy et al., 1995; Hodges & Richardson, 1996).

It has been hypothesized that:

- 1 back pain is associated with underlying motor control deficits and
- 2 these deficits cause and perpetuate the pain.

Alternatively, abnormal motor coordination could result from the pain itself, for example, in splinting to avoid pain. In this pilot study, we characterized the motor coordination of a single subject with unilateral left back pain before and after lessons in the Alexander Technique, a form of proprioceptive neuromuscular education reported to reduce back pain as well as thoracic stiffness (Austin and Ausubel, 1992) and to increase balance (Dennis, 1999).

We used two different tasks to characterize coordination: support surface translations and one-legged balance.

Testing over several months prior to lessons revealed consistent abnormalities (large lateral asymmetries) in standing spinal curvature, automatic postural responses and balance. After lessons, these abnormalities were largely absent, balance improved and the subject's pain was greatly reduced. These improvements suggest that, in some cases, back pain can be caused or perpetuated by poor motor control, and that methods in proprioceptive awareness and education, like the Alexander Technique, can be effective in improving motor control and reducing back pain.

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