



## **Current Concepts in the Conservative Management of Lumbar Instability**

Low back pain (LBP) is a common and disabling ailment, but its etiology is often unclear.<sup>1,2,3</sup> In the absence of an organic lesion, instability is now considered a primary mechanism.<sup>1,2</sup> **The International Forum for Primary Care Research has designated the discovery of optimal strategies for treating LBP as one of its highest research priorities.**<sup>4</sup>

The spine depends on muscle activity for stability. When muscular stabilization is inadequate, the risk of injury to the spine is increased.<sup>5</sup> A lack of muscular stabilization at even a single segment can compromise the stability of the entire spine.<sup>6</sup> Motor control deficits (delayed activation, phasic rather than tonic contractions, inappropriate coactivation of superficial and deep muscles) that impair the stabilizing function of the muscles have been widely documented in patients with LBP.<sup>3,5,6,7</sup>

**Rehabilitation of the deep stabilizing muscles, including transversus abdominis, obliquus internus and externus, and multifidus, is crucial to recovery from instability-related LBP.**<sup>3,6</sup> By virtue of its attachments to the thoracolumbar fascia and its role in generating intra-abdominal pressure, the transversus abdominis is of paramount importance in both global and segmental stabilization of the spine.<sup>3,6</sup> The internal and external obliques control loading forces on the spine; multifidus helps to control the movements and position of the lumbar spine and increases intervertebral compression.<sup>3,6</sup>

**Physical therapists are experts in the rehabilitation of motor control deficits.** The rehabilitative process begins with cognitive strategies to enable the patient to activate – and isolate – the deep stabilizing muscles.<sup>6</sup> Once the patient can coordinate and control the muscles, these skills are applied progressively more demanding and complex tasks.<sup>6</sup> **A Pilates-based exercise program** targeting core strength and control may be implemented at this point. Finally, gains in strength and motor control are integrated into functional movements and activities.<sup>6</sup>

Successful conservative management of instability-related LBP must not only address symptoms but also remediate deficits in strength and motor control. **High quality randomized controlled clinical studies have demonstrated that motor control improvements positively affect clinical outcomes.**<sup>4,6</sup> Thus, spinal stabilization exercise – including Pilates stabilization training – is an important part of the rehabilitative process for patients with LBP secondary to instability.

## References

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