

■ A Prospective Study of Centralization of Lumbar and Referred Pain

A Predictor of Symptomatic Discs and Anular Competence

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Study Design. The presence or absence of rapidly centralizing, peripheralizing, or abolishing low back and radiating pain, as identified during a McKenzie mechanical lumbar assessment of patients with chronic lumbar pain, was compared prospectively with discographic pain provocation and anular competency.

Objectives. To evaluate any relation between the responses of centralization and peripheralization with discographic findings.

Summary of Background Data. Centralization of referred pain has been reported as a very common occurrence during McKenzie assessment and treatment. Patients whose pain centralizes have been shown to achieve superior treatment outcomes. A dynamic internal disc model has been hypothesized as an underlying mechanism for centralization that has not been studied previously.

Methods. Patients with chronically disabling low back pain who were referred for discography underwent preliminary blinded McKenzie clinical assessment and were categorized into three groups by their pain response. Patterns, or lack thereof, of pain response were then compared with blinded discographic pain provocation and anular findings.

Results. During the McKenzie assessment, the referred pain of 50% centralized with 74% having positive discograms, of which 91% had an intact anulus. The pain of 25% peripheralized only (would not centralize); 69% of these had positive discograms, but only 54% had an intact anulus. The distal pain of 25% did not respond at all, and only 12.5% of these had positive discograms.

Conclusion. The McKenzie assessment process reliably differentiated discogenic from nondiscogenic pain ($P < 0.001$) as well as competent from an incompetent anulus ($P < 0.042$) in symptomatic discs and was superior to magnetic resonance imaging in distinguishing

painful from nonpainful discs. [Key words: anulus, centralization, directional preference, discography, McKenzie, peripheralization] *Spine* 1997;22:1115-1122

The Quebec Task Force Report stated: "There is so much variability in making a diagnosis that this initial step (i.e. clinical assessment) routinely introduces inaccuracies which are then further confounded with each succeeding step in care," adding that the resulting terminology used for diagnosis "is the fundamental source of error. Faced with uncertainty, physicians become inventive."^{3,2} Confusion further increases with the belief by far too many patients, providers, and payors that high-tech imaging, by providing anatomic detail, is the standard for establishing a diagnosis. However, the high rates of false positive^{4,14} and false negative^{16,38} findings speak to the inadequacies of these studies in identifying the pain-generating lesion in the majority of cases.^{3,32}

Sources of pain commonly refer laterally in the low back, into the buttock, down the leg, and into the foot. Pain confined to the back, buttock, or thigh generates nearly as many theories of origin as the diversity of health care providers who treat these conditions. Once pain has "peripheralized" to the distal leg and foot, however, diagnostic opinion across all health disciplines converges, and intervertebral disc herniation is commonly concluded.

■ Centralization and Directional Preference

A clinical phenomenon known as "centralization," first described by McKenzie,²⁰ occurs commonly^{6,7,8,9,12,18} during the mechanical assessment of patients with low back pain, using repeated end-range lumbar test movements. The most distal extent of the referred or radicular pain, even if the pain has only spread as far as the lateral back, rapidly recedes toward and/or to the lumbar midline (Figure 1). Midline pain can also rapidly abolish under these same testing circumstances, by a single direction of repeated end-range movements.

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