Low-back pain (LBP) is a common, frequently recurring, and progressive condition associated with significant costs to both society and healthcare. LBP remains a challenging condition to diagnose and treat, despite the fact that it among the top 10 reasons for visits to internists and both the most common and the most expensive reason for disability claims in the US. Patients presenting with LBP may have only non-specific symptoms that cannot be readily or conclusively attributed to disease, injury, or spinal abnormality. Initial treatment using conservative non-surgical approaches are considered safe but only moderately effective, while more aggressive approaches carry higher risk.

A non-surgical approach to LBP that has been studied objectively is systematic decompression protocols. Since its market release in 2001, the DRX9000™ for the application of non-surgical spinal decompression has been the subject of several published case reports, a retrospective analysis, and a prospective study. While no large-scale randomized clinical trials have been conducted, the results so far are promising.

**Current Case Presentation**

A 36-year-old female presented at an outpatient facility complaining of LBP of approximately 1.5 to 2 months’ duration following a fall. The patient also reported radiating pain into the lower extremities, which was worse on the right side. She rated the pain as 10 on a 0–10 scale and described it as constant and severe at the time of initial evaluation. The pain increased when walking or sitting for more than 15 minutes and had disrupted her sleep. Decreased motor function and deep tendon reflexes were noted in the lower extremities bilaterally at initial evaluation. Decreased sensation was noted on the right. Magnetic resonance imaging (MRI) of the lumbar spine on November 11, 2007 revealed a central disc protrusion at L5/S1 as well as disc desiccation and facet degeneration.

The patient underwent 22 treatments on the DRX9000 over an approximate 7.5-week period. Treatment began at a maximum decompressive force of 105lb. Final treatment was 140lb at maximum. The decompressive force was raised in increments of 5lb at the discretion of the physician. The angle of treatment force was 10°. Adjunctive treatment included electric stimulation. The patient reported a decrease in pain from 10 to 0 at the end of the treatment protocol. Improvements in range of motion, motor function, and reflexes were noted by the examiner at time of discharge. MRI of the lumbar spine performed on January 25, 2008 revealed no residual herniation at L5/S1 as well as an increase in disc height (see Table 1).

**Previous Case Studies**

Three case studies have been published involving patients with moderate to severe LBP treated in a six- or seven-week course on the DRX9000 system. While the limitations of case studies are well known in terms of providing medical evidence, all three case studies relied on an MRI pre- and post-treatment to provide objective assessment of spinal changes. In each of the three case studies, patients self-reported dramatic improvement in terms of pain, and MRI films recorded physical improvements.

In one case study, a 33-year-old male with persistent LBP showed loss of hydration at L2/L3, L3/L4, and L4/L5 and loss of disc height at L4/L5 and L5/S1; pain level was reported as six 75% of the time. Over six weeks, he received 20 treatments, each lasting 28–35 minutes, using increasing decompression forces along with adjunctive therapies (ice, electrical stimulation, rehabilitative activities). At the end of the course, the patient reported his pain level as 0 and MRI showed an increase in intradiscal signal...
Changing the Way the World Treats Back Pain.

Since its inception, Axiom Worldwide’s DRX9000™ has shown promising anecdotal results in treating back pain associated with herniated discs, degenerative disc disease, sciatica, and facet syndrome. In response to these encouraging results, Axiom Worldwide established an International Medical Advisory Board in April 2006 to provide guidance on Axiom’s current and emerging technologies and their application in treating back pain. In addition, the International Medical Advisory Board is instrumental in developing and implementing short and long term clinical trials.

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on T2-weighted sagittal images at L2/3, L3/4, and L5/S1, which is thought to reflect improved disc morphology.17

In another report, a 31-year-old male with recurrent LBP of about one month's duration rated at 8.5 in terms of pain 85% of the time underwent an MRI before beginning a seven-week course of 27 treatments on the DRX9000 table. The pre-treatment MRI showed left paracentral disc extrusion at L5/S1 compressing and displacing the left S1 nerve root, as well as degenerative disc disease at L4/L5 and L5/S1. His treatment on the DRX9000 began with a maximum force of 80lb, ramping up to a maximum of 100lb at seven weeks. The angle of treatment force ranged from 8 to 15º. He also underwent adjunctive therapy (electrical stimulation, therapeutic exercise, moist heat). At the conclusion of the treatment course, the patient ranked his pain as 3 about 8.9 at the end of treatment of eight weeks with the DRX9000 (p<0.0001). Analgesic use appeared to decrease while activities of daily living improved, but the limitations of an uncontrolled retrospective study make these data suggestive rather than definitive. Patients in this retrospective analysis (n=94) had diagnoses of herniated disc (73%), degenerative disc disease (68%), or both (27%). Such studies may help determine the most suitable candidates for non-surgical decompression therapy.20

Prospective Study
A recent prospective study (n=18) included patients with chronic non-operative LBP of a duration of at least 12 weeks. MRI was used to support a diagnosis of musculoskeletal or mechanical pathology, herniated, bulging or protruding discs, degenerative disc disease, posterior facet syndrome, or sciatica. Candidates for future back surgery were excluded, but prior failed back surgery more than six months earlier was not an exclusion criterion. Patients received 20 treatments over six weeks with distraction force and angle adjusted to accommodate the patient's body size and condition. The median verbal pain intensity score decreased from a baseline value of 7 (range 4–10) to a median of 0 (range 0–7). Sixteen of the 18 patients reported >50% pain reduction from baseline. No patient required an opioid analgesic during or post-treatment.21

Conclusion
LBP is a complex condition that will no doubt continue to require a multiplicity of therapeutic options. The addition of an innovative non-surgical treatment is welcome news, particularly in light of the limitations of more aggressive forms of therapy to treat intractable LBP. Recent published reports on the use of the DRX9000 device to reduce LBP are encouraging, but questions about longer-term efficacy and the profile of the 'ideal candidate' for non-surgical spinal decompression remain. Further studies, in particular larger-scale randomized or comparative studies, are warranted to provide more clinical evidence for the wider use of the DRX9000 system.