

Preliminary Report for Outcome Study Of DRS Treatment

George Washington University Study

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It is difficult to identify precisely the origins of lower back pain, because even if the characteristics sometimes point to a given structure, the pain often remains nonspecific. The most common cause of intermittent, episodic injury is thought to be from internal derangement of the intervertebral disc. Several prior studies have documented changes in intradiscal pressures with both position and activity. Increased intradiscal pressures are present with and generally thought to be responsible for disc injury. Exercise programs and ergonomic techniques emphasize the maintenance of a lordosis to maintain lowered intradiscal pressures, even though we are still uncertain that reducing intradiscal pressures prevents injury. Recently a new treatment program has been reported in the literature to successfully treat low back pain by lowering intradiscal pressures using the DRS System.

Dr. C Norman Shealy, world renowned neurosurgeon and pioneer of non surgical pain techniques has developed a medical device that lowers intradiscal pressures, is non invasive, and has high patient compliance. Dr. Nachemson has stated that 85% of the back conditions go undiagnosed and therefore they are difficult to treat. Although a plan of mobilization and treatment may be correct poor outcomes can be attributed to inadequate force, frequency, or degree of motion applied. Even Mckenzie notes that refractory cases may benefit with more frequent cycles to end range movement. Effective mobilization of the disc space leads to a lowering of intradiscal pressures and has been shown to reduce the size and extent of herniations by MRI. Neuroradiographic imaging has also been reported to show early evidence of healing and rehydration of the disc nucleus. Reducing intradiscal pressures should enhance a diffusion of blood and nutrients and promotes faster healing. The action of the device is to mobilize the joint space and through intermittent kinetic action of the lower spinal segments work to direct treatment at individual spinal segments without irritating overlying paraspinal muscles. Reversing the effects of high intradiscal pressure quickly should promote healing, a quicker return to homeostasis, and better long term outcomes than traditional treatments.

Patients complaining of lower back pain from herniated lumbar disc without an extruded segment were the object of our study. We identified 7 men and 6 women with lumbosacral radiculopathy and herniated lumbar discs. Four patients carried additional diagnosis of degenerated lumbar discs. The radiation of pain varied to six different extremity sites. The range of ages was 23 to 67 and all have been through treatment for their back pain. Symptoms were present from four months to four years. Three patients decline to participate. The remaining ten began treatment with the angle and power of distraction according to the DRS protocol. The DRS protocol allows for changes in the angle of distraction and power according to decrease in symptoms. The program includes a physical therapy evaluation consisting of a history, postural analysis, range of motion, neural tissue tension testing, and Mckenzie test movements. Each session is initiated with a review of symptoms, affects of the home exercises program and biomechanics. This is followed with a postural review and movement analysis. Based on these findings, soft tissue and joint mobilization techniques along with the DRS system with adjustments in the procedure based on the evaluation findings. Post-treatment includes ice, electric stimulation, and a review of home exercise program and biomechanics. Treatment times lasted initially (1-3 treatments) for 20 minutes and progressed to 30 minutes of lumbar distraction controlled by positioning and intermittent cycling, which produces the lowering of intradiscal pressures. Patients were initially evaluated by an orthopedic surgeon

for a diagnosis.

Outcomes

Radiculopathy symptoms subsided in the first few treatments. Lumbar range of motion was restored in all patients with a complete relief of pain. The average number of sessions was 4.76. The subsiding of symptoms seemed to directly correlate with the progression of treatment. All patients had final evaluations at which time functional range of motion was restored and resumption of activities of daily living. The patients were re-instructed in biomechanics and modifications we made according to postural changes as outlined in the DRS system protocol.

The investigators of this study are: Peter A. Moskovitz , Private Practitioner, Clinical Professor of Orthopedic Surgery and Neurological Surgery at George Washington University; Vincent Desiderio, Private Practitioner, Clinical Associate Professor of Orthopedic Surgery with Georgetown University; William Laurman, Department of Orthopedics at Georgetown University, Associate Professor of Orthopedic Surgery, and Chief of Spine Surgery. The chief clinical investigator is Ira Silverstein, Physical Therapist in Private Practice in the Washington, D.C. area. His practice primarily deals with spinal dysfunction, work site ergonomics, and sports medicine. He is a regular presenter on these topics in the D.C. area, has a master's in exercise physiology and is a certified athletic trainer.

Discussion

Non invasive methods of treatment by machine have been limited to treating the symptoms of lower back pain related to surrounding spinal soft tissue. Individual practitioners have delivered inconsistent results leading to prolonged treatments and escalating medical costs. The DRS system seems to bridge the gap for the patients. It delivers treatment to the underlying cause of lower back pain, the spinal disc segment. The focus of treatment can be adjusted by the doctor specifically for each patient condition. The effect is consistent, reproducible and easily tolerated by the patient. Also noted should be the positive effect on the patient in having progressive improvement through the sessions. This has a positive effect on the patient in their mental attitude and psychological outlook. The patient is placed in both a custom upper and lower harness, steps up on a platform tabletop and is slowly lowered into a horizontal position. They are then positioned with harnesses, shoulder supports, and knee rests all designed to position the patient as well as the lumbar spine for treatment. Several relaxation features are designed into the system. These parameters are recommended by the patients from previous radiological evaluation during research that revealed the amount of distraction and mobilization at each spinal level with the DRS system.