The Efficacy and Safety of a Powered, Handheld Spinal Mobilization Instrument in the Treatment of Patients with Chronic Back Pain

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Background: Manual therapy of the vertebrae and spine has been a treatment for back and spinal syndromes dating to the ancient Greeks. For over 45 years, one group of manual treatment techniques, Spinal Joint Mobilization (SJM), to restore function and normal joint mechanics, has been embraced by mainstream physical therapy to treat back and spinal pain and dysfunction. In addition, studies demonstrate SJM is an effective means to treat vertebral impairments and sciatica. Furthermore, since the first publication of the Guide to Physical Therapy Practice, the American Physical Therapy Association (APTA) recommends mobilization for patients with neck pain, back pain, spasm, degenerative disc disease, sciatica (or other spinal nerve root compression), scoliosis, or back sprain and strain. Techniques of SJM include applying forces with the fingers and hands in combination with various dynamic body movements. Some of their techniques, all requiring specialized training include techniques by Maitland, Kaltenborn, Paris and Cyriax. These techniques are difficult to perform, and even experienced therapists suffer extreme finger, hand and wrist discomfort and injury and leads to underutilization of this valuable technique.

Purpose: To demonstrate our experience with the use of the first FDA cleared, handheld, power assisted, spinal mobilization device (ASMI) as an alternative to the manual SJM techniques taught to and painfully performed by physical therapist today. Method: We studied five subjects with Chronic Back Pain defined as pain of greater than 90 days that were referred for physical therapy by their physicians. Prior to treatment patients completed the Visual Analogue Scale (VAS) for Pain, the Oswestry Disability Questionnaire, Roland Morris Disability Questionnaire (RMDQ) and the Hannover Activities of Daily Living (ADL) Questionnaire. Patients with an Oswestry Disability Index (ODI) greater than 20% were entered into a 4 week course of treatment with the ASMI. Patients underwent a thorough PT evaluation prior to treatment and received 2 treatments per week for 4 weeks. Repeat questionnaires were administered at the midpoint and following completion of therapy. Analysis and Results: All five subjects reported improvement on the VAS with more than half of the subjects demonstrating a greater than 66% improvement. In addition, 93% of ROM scores showed improvement and 80% of the subjects demonstrated ODI improvement with the greatest improvements at 93% and 62.5%. Similarly, more than half of our subjects demonstrated improvements on the RMDQ and the Hannover ADL and notably, some subjects demonstrated improvements greater than 90%. Subjects reported improvements in lifting, sitting without discomfort and standing discomfort. Finally, subjects also reported using fewer OTC pain relievers and slept better at night. Conclusion and Clinical Relevance: We find the treatment results with the ASMI encouraging. The patient questionnaire results and our subject assessments demonstrate dramatic improvement trends and suggest clinical efficacy. We look forward to further study and initiation of control group trials to further demonstrate the efficacy of this new and exciting technology. These preliminary results suggest nothing short of a possible revolution for the field of Physical Therapy. For the first time in the United States, physical therapists who experience pain and discomfort performing SJM manually, and as a result may underutilize this valuable technique, have a power assisted device to deliver safe and effective SJM therapy and successful outcomes for their patients.
References:


2. Kisner Colby "Therapeutic Exercise -Foundations and techniques" Chapter 5 –peripheral joint mobilization. FA Davis Co. p 147. 1990,


