Scoliosis affects approximately 2% of the population. Electrical muscle stimulation, exercise programs, and manipulation have not been found to be effective treatments for scoliosis. Scoliosis dramatically affects a patient’s self image, their pain levels, and can result in secondary impairments, which if left untreated, can be severe.

The ATM2™, a vertical treatment table, was developed by a physical therapist trained in “Mulligan Technques” (Mobilization with Movement). Clinical evidence has been documented for the efficacy of the ATM2™ when used with patients (pts) who have LBP, hip problems, shoulder problems and cervical problems. The ATM2™ was found to be effective in helping to reverse the curves in a patient with scoliosis who was actually being treated for a thoracic deformity in a recently published case study (JMMPT 2009). The current study was undertaken to determine if the ATM2™ would be effective in treating scoliosis by reversing the curves of subjects with scoliosis who were recruited for the study.

Methods & Materials

Nine subjects (all female) with a diagnosis of scoliosis were recruited from a scoliosis support group. Inclusion criteria were as follows: subjects were between the ages of 12-65 with a diagnosis of scoliosis curve between 20° and 50°. Exclusion criteria were as follows: a previous surgery to correct the curve, current pregnancy, any serious medical co-morbidities, any history of chemotherapy or currently suffering from severe back pain that required medication. Subjects were put on the ATM2 and performed five free movements in several directions. All subjects performed a second round of sessions for a total of 20 treatments. Objective measures utilized in this study included:

- Numeric Pain Rating Scale (NPRS)
- Trunk ROM measurements including flexion (measured fingertips to floor, with measuring tape), extension (measured with measuring tape), side bending (measured with measuring tape), and rotation (measured with goniometer).

Results

Trunk extension and side-bending values were analyzed using a paired t-test. None of the ranges were significant at \( p = 0.05 \). The value for extension was \( p = 0.182 \) and for side-bending: \( p = 0.508 \). Using the Numeric Pain Rating Scale (0=no pain, 10=worst pain), change in pain was not significant at \( p = 0.118 \). Significant changes were found for Cobb angles of three subjects, as measured pre and post intervention X-rays. Cobb angles improved or were unchanged for the 3 subjects. The Minimal Clinically Significant Difference for Cobb angles is ~7 degrees in adolescents (MCSD not available for adults).

Discussion and Conclusions

This study was done to determine if the ATM2™ can treat scoliosis by reversing spinal curvature. The hypothesis for efficacy is that by stabilizing a vertebral curve, then moving into distraction, the apex of the curve would receive mobilization while the active movement from the subject would achieve neuromuscular re-education of the supporting musculature. X-rays taken before and after intervention showed decreases in Cobb angles for all three subjects who were able to provide post treatment X-rays. Before and after photos also show changes in those who began with greater spinal curvatures. Some subjects reported they received comments about improved posture from family and friends. The ATM2™ was shown to be effective in reducing the spinal curves of Cobb angles of these subjects, as well as observationally with pre and post intervention posture pictures. Based on the results of this study, treatment with the ATM2™ positively affects perceived level of health, self image and visible posture correction. Further study is currently ongoing involving additional subjects.