

A COMPARATIVE ANALYSIS OF VARIOUS NON-INVASIVE TREATMENT METHODS  
FOR ADULTS WITH MILD SCOLIOSIS

BY

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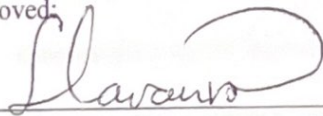
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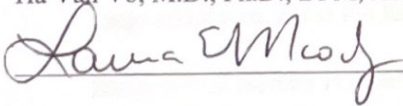
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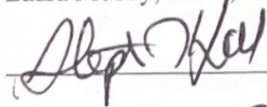
Date 3/28/2023

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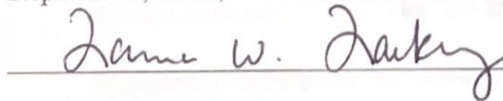
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## ABSTRACT

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A COMPARATIVE ANALYSIS OF VARIOUS NON-INVASIVE TREATMENT METHODS  
FOR ADULTS WITH MILD SCOLIOSIS

Under the direction of Ha Van Vo, M.D., Ph.D., DPM

### Abstract

Scoliosis is a lateral curvature of the spine that can have many underlying causes. Patients with scoliosis suffer from uneven shoulders and hips, muscle imbalance in the back, gait abnormalities and in more severe cases, rotation of the spine. Currently the method of treating adult scoliosis is surgery, steroid use, or physical therapy. Surgery severely limits the patients' range of motion and is not necessary in mild cases. Steroid use can lead to muscle degeneration and physical therapy is beneficial, but can be harmful if not conducted by a specialist. This research provided additional treatment methods for adults with scoliosis that is mild enough to not need severe medical interventions. This study consisted of 20 patients split into three different treatment groups. The first group underwent TENS (transcutaneous electrical nerve stimulation) machine use that should relax the muscles and relieve pain paired with stretching. The second group completed physical therapy at home that will stretch the muscles. The third group wore a common soft scoliosis brace that provides comfort but does not correct the muscle imbalance. The treatment groups were compared using a variety of testing including range of motion, electromyography, and measuring the degree of curvature. Though there was no statistical difference between the results of the three treatment groups, group one improved more patients overall than the other groups. For degree of curvature, group 1 improved all 7 patients

with the average improvement of 58%, while groups 2 and 3 only improved 5 patients with an average improvement of 33.8% and 49.8% respectively. In the range of motion symmetry patients in Group one experienced an average of 18% improvement patients in Group two experienced 10% and 30% improvement. For the EMG testing the percentage of improvement cannot be calculated but more patients in group one and two were trending towards more symmetrical when looking at the flexion relaxation position while more patients in group 3 we're trending towards more symmetrical when looking at the posture position. The general trends show that each patient's symptoms of scoliosis are heading towards improvement no matter the group. All the patients felt more comfort after the study period and now have various inexpensive treatment options for their mild scoliosis.