

ORAL PRESENTATION**Open Access**

Cobb angle outcomes for adults scoliosis patients receiving a multimodal neuromuscular re-education based treatment: 18-27 month follow-up

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Introduction

Scoliosis tends to progress slowly but steadily throughout adulthood. Therefore, the purpose of this study was to retrospectively evaluate the results of an exercise-based therapy program in its ability to alter the natural progression of adult scoliosis at least 18 months after the treatment was concluded.

Materials and methods

A retrospective chart review was conducted at two spine clinics in Michigan, USA. Each clinic uses the same multimodal spinal rehabilitation program to treat patients with scoliosis. Charts were used if 1) the patient was an adult at the beginning of treatment, 2) the patient completed his/her prescribed treatment program, and 3) the patient had a documented follow-up visit at least 18 months after treatment conclusion. Radiographs were digitized and measured via computer.

Results

A total of 41 patients fit the inclusion criteria for the study. Of these, the average beginning primary Cobb angle was 44 degrees \pm 7. Patients received the same rehabilitation program for an average of 6 months. At the end of active treatment, stabilization of primary scoliosis curvature was achieved in 33% of cases (\pm 5 degrees of original measurement), while correction (defined as $>$ 5 degrees of improvement) was achieved in 62% of cases. Only 5% of all cases did not receive a therapeutic benefit at the conclusion of treatment.

However, at follow-up, 90% of corrections were at least maintained, with 6% demonstrating additional correction. Almost 81% of stabilized patients remained that way. All values achieved statistical significance ($P < .05$).

Discussion

There is very little published data showing the ability of a non-surgical, non-bracing, exercise-based therapy to provide a corrective benefit for scoliosis patients, especially in the long-term. This data is among the first to demonstrate a sustained radiographic benefit well after treatment had been ceased. However, it is important to state that all of these patients were instructed, upon release from care, to continue to perform home maintenance exercises. This study failed to collect this information. This may have shown which patients were the most compliant, thus demonstrating how the sustained performance of home care may have affected the collective and individual results. Future studies by this author will include home journals for patients to record their compliance levels, which can then be statistically analyzed. Also, because these patient charts were pulled from two clinics by the author, the study design cannot exclude examiner bias in the selection process. However, care was taken to select patients based upon demographic data only, so that as many files could be included as possible.

Conclusion

After completion of a multimodal, neuromuscular re-education based treatment, a cohort of 41 adult scoliosis

patients received a statistically significant improvement immediately following the conclusion of treatment. These results were largely maintained 18-27 months later.

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