



## Letter to the Editor

### Adolescent idiopathic scoliosis treatment using the Pettibon corrective procedures: a case report

To the Editor:

This is an update to a previously published study. We previously reported on a 20-year-old female patient with a 35° thoracolumbar levoscoliosis.<sup>1</sup> Her results after 6 weeks of Pettibon treatment were reported. However, the patient was dismissed from active care and relocated out of state shortly thereafter. Some authors have recently described scoliosis as a lifelong disease process, requiring constant attention as long as asymmetrical gravitational loading exceeds the strength and endurance of the postural muscles.<sup>2</sup> Therefore, when the patient returned to the area for the winter holiday 31 months later, she scheduled a follow-up appointment.

The patient again completed the same outcome measures as she did at baseline and after 6 weeks, including a functional rating index,<sup>3</sup> numerical pain rating scale, balance testing, and radiographic scoliosis assessment. Cobb angle measurements were taken from the superior endplate of the 10th thoracic vertebra and the inferior endplate of the fourth lumbar vertebra. We again chose a sectional view of the thoracolumbar spine to reduce positional distortion as well as maintain consistency.

The Pettibon system combines both manipulative and rehabilitative procedures designed to correct scoliosis through the same sensory, reflexive, somatosensory, and neuromuscular mechanisms that have been shown to be defective in many scoliosis patients.<sup>4,5</sup> Because the patient chose not to visit a new chiropractor at her new address, her only method of spine care was self-administered, using the Pettibon rehabilitative procedures. These procedures are designed to retrain normal posture control involuntarily through stimulation of the vestibulo-ocular system, the cervicocollic and vestibulocollic reflexes, and the somatosensory system. For this patient, these procedures included the use of an anterior adjustable head weight,<sup>4</sup> a

unilateral front and back hip weight, a right shoulder weight, and high-density foam blocks used once daily immediately before bed for 20 minutes. The patient was instructed to wear the external weights while balancing on one foot with eyes alternately opened and closed. This exercise was to be performed for 15 minutes twice daily 2 days per week minimum.

After a total of 31 months after her out of state relocation, her long-term follow-up data were marginally improved. Her functional rating index score further reduced from 7/40 to 3/40, her numerical pain rating scale score improved to 1/10, and her balance test improved from 56 seconds to 138 seconds. On the long-term anteroposterior lumbopelvic radiograph, the Cobb angle from the superior of the 10th thoracic vertebra to the inferior of the fourth lumbar vertebra was reduced from 20° to 17°.

Hawes and O'Brien<sup>2</sup> recently illustrated the concept of the vicious cycle model of scoliosis. Prolonged postural changes cause muscle and ligament adaptations, and asymmetrical spinal loading that exceeds muscular strength and support causes vertebral and disk remodeling. Therefore, when managing the scoliosis patient, it is important for chiropractors to understand that scoliosis is a lifetime disease process in a constant state of flux. That is, the scoliotic curvature is either getting worse or getting better. Even long-term follow-up studies of patients with scoliosis surgery show continued deterioration over time, regardless of the surgical procedure used.<sup>6-8</sup> Furthermore, complication rates<sup>9</sup> and corrosion<sup>10</sup> must be carefully weighed by patients or parents of patients. From this standpoint, conservative treatment options for scoliosis treatment must be explored, including their long-term effects, which have not been largely reported to date. This may be due to conservative scoliosis studies being introduced only relatively recently into the literature. The observations of our patient offer some evidence as to the possible long-term benefits of a conservative scoliosis treatment plan.

Mark W. Morningstar DC  
*Director of Research*  
*Pettibon Institute*  
*Gig Harbor, WA 98335*

*Grand Blanc Spine Center*  
*Grand Blanc, MI 48439*

Megan N. Strauchman DO  
*Medical Director*  
*Grand Blanc Spine Center*  
*Grand Blanc, MI 48439*

## References

1. Morningstar MW, Strauchman MN, Gilmour G. Adolescent idiopathic scoliosis treatment using the Pettibon corrective procedures: a case report. *J Chiropr Med* 2004;3:96-103.
2. Hawes MC, O'Brien JP. The transformation of spinal curvature into spinal deformity: pathological processes and implications for treatment. *Scoliosis* 2006;1:3.
3. Feise RJ, Menke JM. Functional rating index: a new and reliable instrument to measure the magnitude of clinical change in spinal conditions. *Spine* 2001;26:78-87.
4. Saunders ES, Woggon D, Cohen C, Robinson DH. Improvement of cervical lordosis and reduction of forward head posture with anterior head weighting and proprioceptive balancing protocols. *J Vertebr Subluxat Res* 2003;4:1-5.
5. Nault ML, Allard P, Hinse S, et al. Relations between standing stability and body posture parameters in adolescent idiopathic scoliosis. *Spine* 2002;27:1911-7.
6. Helenius I, Remes V, Yrjonen T, et al. Harrington and Cotrel-Dubousset instrumentation in adolescent idiopathic scoliosis. *J Bone Joint Surg* 2003;85-A:2303-9.
7. Padua R, Padua S, Aulisa L, et al. Patient outcomes after Harrington instrumentation for idiopathic scoliosis. *Spine* 2001;26:1268-73.
8. Danielsson AJ, Nachemson AL. Radiologic findings and curve progression 22 years after treatment for adolescent idiopathic scoliosis. *Spine* 2001;26:516-25.
9. Coe JD, Arlet V, Donaldson W, et al. Complications in spinal fusion for adolescent idiopathic scoliosis in the new millennium. A report of the Scoliosis Research Society Morbidity and Mortality Committee. *Spine* 2006;31:345-9.
10. Akazawa T, Minami S, Takahashi K, Kotani T, Hanawa T, Moriya H. Corrosion of spinal implants retrieved from patients with scoliosis. *J Orthop Sci* 2005;10:200-5.