

Scoliosis

► Eriksen K. Correction of Juvenile Idiopathic Scoliosis After Primary Upper Cervical Care: A Case Study. *Chiropr Res J*, 1996; 3(3):25-33.

ABSTRACT A nine year old male presented in our office with a chief complaint of juvenile idiopathic scoliosis and intermittent back pain.

. . . Surface EMG: Full spine surface EMG showed marked asymmetries in the paraspinal muscle activity.

X-ray analysis following the Grostic Procedure showed that the atlas was misaligned. Manual line drawing analysis of the AP 14 × 17 X-ray, utilizing the Cobb method, measured a right rotatory thoracic scoliosis of 17.0 degrees and a left lumbar rotatory scoliosis of 12.5 degrees.

The patient was managed with upper cervical care utilizing the Grostic Procedure of adjusting by hand. Over the five months and ten days of care the patient was checked on 13 visits and required an upper cervical adjustment on five of these visits. The leg length inequality, and the posture and palpatory findings balanced (cleared) immediately after the first upper cervical adjustment. Post adjustment paraspinal surface EMG showed that the paraspinal muscle activity was more balanced. Post treatment X-ray taken on the 13th visit revealed the thoracic curve to be reduced to 0° and the lumbar curve was measured at 3.0° which represents an 88% overall reduction in the scoliosis after the five months of chiropractic care. (abstract abridged) ■

The term scoliosis is derived from the Greek word "skolios" meaning twisted or crooked and describes deviation of the spine in the coronal plane greater than 10°. Scolioses have been described as being either structural or functional in nature. A structural scoliosis is one that remains in a curved contour during forward flexion. A functional scoliosis tends to improve during forward flexion. Lateral flexion should improve a functional curve, whereas, the same movement will have no effect on the shape of a structural scoliosis. The etiology of 80% of structural scoliosis is idiopathic, which means there is no known cause. (1)

Spinal Curves, particularly double curvatures (2), can increase as children go through preadolescence and adolescent growth spurts. An increase in the scoliotic curve(s) of five degrees over a three month period is considered a rapid advancement in scoliosis. The potential for a rapid increase in scoliosis makes it critical for patients with juvenile or adolescent idiopathic scoliosis to be closely monitored. In a study by Goldberg, et. al. (3), scoliosis subjects perceived themselves to be less healthy than other persons the same age. They also had a poorer perception of body image and had more physician visits and days ill than control subjects; this underscores the significance of this spinal deformity and the importance of the

scoliosis being reduced as early as possible. Back pain and premature degenerative joint disease are also related to scoliotic deformities.

Corrective spinal surgery is usually only indicated in patients whose curves have advanced to over 40°.

In contrast to previous findings, Noonan, et. al., did not find that the brace was effective at preventing the progression of scoliosis in children. In their study of 85 immature patients, the scoliosis was seen to increase and average of 4° during the period in which the brace was used.

The efficacy of surface electrical stimulation for the treatment of scoliosis was studied by Swank who found that spinal curve progression was greater than 5° in 48% and greater than 10° in 35% of the patients in follow-up exams from six months to six years (5). The long-term benefits of spinal surgery for scoliosis correction are also debatable (6-12).

The vertex cervical view revealed atlas rotation measuring 9-1/4° anterior on the left.

In addition to the manual analysis of the Cobb Angle, both sets of X-rays were sent for analysis to an outside diagnostic facility (Imaging Diagnostics, Columbia, South Carolina) where they were scanned and analyzed with a computer-aided X-ray analysis system.

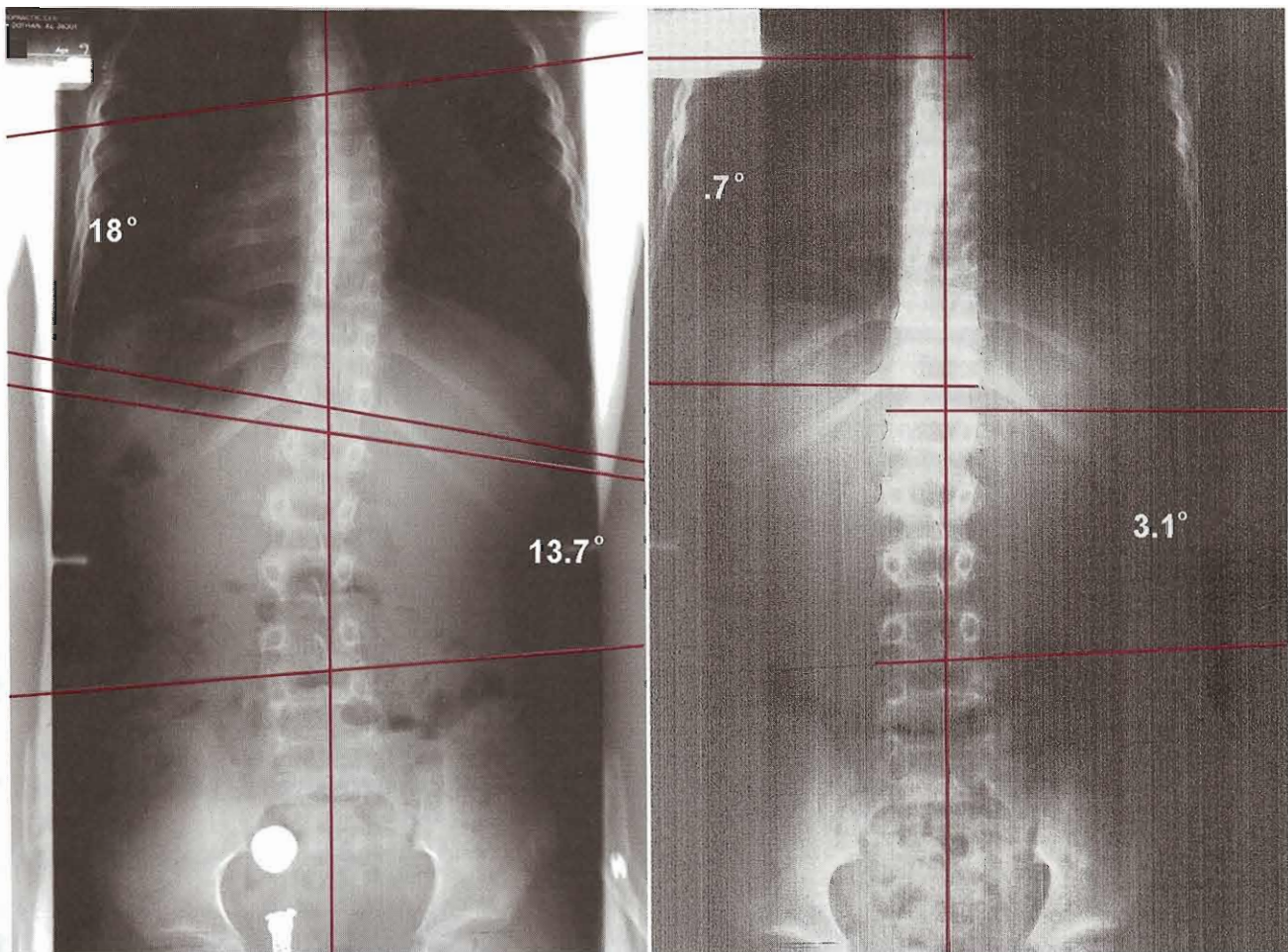
According to the digital analysis, the thoracic curve was reduced from 19.6° to 0.7°, and the lumbar curve was reduced from 13.7° to 3.1° on the final film (see figures 2 and 3). This data reveals an 88% reduction of the double rotatory scoliosis.

Care was taken to position the patient properly for the X-ray, no significant pelvic rotation is evident on either the initial or final film, and the patient had been previously diagnosed by an orthopedist.

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► Editorial Comment

The story behind this case is quite interesting. The mother was taking the child to an orthopedic surgeon, who, according to her, stated that nothing could be done for his scoliosis other than observation. He felt that the curvatures would likely increase as the child went through his growth spurt. The mother was very concerned with this approach and asked about the possibility of chiropractic care. Apparently, the medical doctor responded in a very denigrating manner. Since the father had been helped with a severe lower back condition by the author, the boy was brought in for chiropractic care. During the course of care the mother took her son back to the orthopedist for evaluation of a previously fractured clavicle. On this visit she asked him to check her son's spine. She stated that after the doctor examined his spine, he responded in astonishment as to



▶ **FIGURE 10-10** Scoliosis correction after Grostic upper cervical care.

the improvement in the child's spinal curvatures. The mother did not tell the medical doctor about the chiropractic care for fear of another outburst. Six years later the patient was brought back into the office. He had recently been injured in a three-wheeler accident, which had rendered him unconscious and fractured his scapula. It had been over five years since his last adjustment, yet the X-ray revealed a thoracic curvature of 4.7° and a lumbar curve of 3.8°. This shows that 74% of the original 88% correction was maintained even though chiropractic care had not been provided to the patient.

On a clinical note, the chiropractor must determine how a patient may have been previously diagnosed with scoliosis. It is typical medical procedure to X-ray patients' thoracolumbar spines in the supine position, since the primary purpose is for pathological evaluation, as opposed to biomechanical assessment. However, this radiographic protocol has been shown to reduce the actual Cobb measurement by 9° in 287 girls with idiopathic scoliosis (Torell G, Nachemson A, Haderspeck-Grib K, Schultz A. Standing and Supine Cobb Measures in Girls with Idiopathic Scoliosis. *Spine*, 1985; 10[5]:425-427). The precise assessment and treatment of children with

scoliosis is potentially crucial in influencing their health as adults. Schwab et al. (Adult Scoliosis: A Health Assessment Analysis by SF-36. *Spine*, 2003; 28[6]:602-606) studied the effect that scoliosis (>10°) has on an adult's self-perception of health. The Short Form-36 (SF-36) questionnaire was used along with the subjects' radiographic data. The mean age of the participants was 63 years, and their SF-36 data was compared to the United States general and ages 55-64 populations, as well as with patients who have hypertension and low back pain. The results showed that the adult scoliotic patients averaged scores much lower than the normal values for both the general U.S. population in all eight categories and the U.S. population for ages 55-64 in seven out of eight categories of the SF-36 questionnaire. Additionally, this study's patients showed lower scores compared to norms for patients with comorbid conditions of low back pain with hypertension in seven out of eight categories. The authors state, "*It is our conclusion that adult scoliosis is becoming a medical condition of significant impact, affecting the fastest growing section of our society to a previously unrecognized degree.*"

► **Basu KS, Blankenship NK. Chiropractic and Scoliosis: A Case Study. *Chiropr Res J*, 1999; 6(2):71-76.**

ABSTRACT The objective of this study is to determine the effectiveness of upper cervical side-posture, toggle-recoil chiropractic care in reducing abnormal curvatures in the cervical and lumbar spine. The subject is a 19-year-old female who presented with severe posterior cervical pain two days following a rear end automobile collision. Case management of the patient entailed location and correction of the atlas (C1) subluxation using paraspinal surface thermography, atlas fossa temperature measurements, posture-constant pre- and post-adjustment spinographs and specifically vectored adjustments. Thermography was the sole criterion determining the need for an adjustment. The patient was monitored throughout this study and received two additional adjustments.

Measurements of atlas rotation, C2-C4 A-P curvature, odontoid, C2 spinous, atlas plane line, upper angle, lower angle, lumbar lordosis, cervical flexion, cervical extension, right cervical lateral flexion, and left and right cervical rotation improved following adjustment. The cervical curvature decreased while the sacral base angle and left cervical lateral flexion remained unchanged. ■

We analyzed the spinographs using the Palmer, Grostic, and Gonstead methods (13,15) and then measured the spinal distortion in the cervical and lumbar areas (Table 1).

The patient rested in the side-posture position for 15 minutes and in the supine position for an additional hour following the adjustment. Post-adjustment cervical thermography indicated a reversal of the upper cervical break reading along with a reversal of atlas fossa differential measurements. A post-adjustment nasium spinograph was taken for comparative analysis.

Over the next 15 weeks, the patient was checked (13 times) for the presence of subluxation and received two additional adjustments.

At no time did the patient receive an "adjustment" or manipulation at any place other than the atlas.

We performed a physical exam six weeks following the first adjustment and took x-rays of the neutral lateral cervical and nasium spinographic views. A final exam was conducted four-and-one-half weeks later. Comparative spinography, including the A-P open mouth, neutral lateral cervical, nasium, base posterior, A-P lumbopelvic, and lateral lumbopelvic views, was performed.

The intermediate exam, performed after approximately six weeks of care, demonstrated a normal pupil response bilaterally.

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Knee Pain

► **Brown M, Vaillancourt P. Case Report: Upper Cervical Adjusting for Knee Pain. *Chiropr Res J*, 1993; 2(4):6-9.**

Following is a case study of a patient suffering from chronic knee pain after dislocating his knee playing football in 1968. The patient was adjusted using The Grostic Technique, a method of Upper Cervical Analysis and atlas adjusting. Adjusting atlas only, the patient was relieved from his chronic knee pain.

The adjustments were delivered using a Laney instrument. He was adjusted a total of 7 times over a period of 6 months.

Range of Motion in the affected knee flexion changed from an average of 100 degrees before the study to an average of 135 degrees by the end of the study.

By the end of the study, all orthopedic tests the patient had previously tested positive to, had turned negative. Specifically, the Bounce Home test changed from a constant positive on the affected knee before the study, to a constant negative by the end of the study.

The patient could predict with accuracy whether or not his atlas would be found to be in adjustment or not based on symptomatology in his knee.

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► **Editorial Comment**

The average physician will not understand how an upper cervical subluxation can cause a painful knee condition; however, a chiropractor who understands the ramifications of the subluxation is aware that this complex can have an impact throughout the body. Restoring postural balance to the human frame helps to improve aberrant joint loading and consequent wear and tear and irritation. Neurological dysfunction directly to the knee articulation is another plausible mechanism by which knee pain can manifest and possibly respond to chiropractic care.

A study from the University of Calgary (Salo PT, Hogervorst T, Seerattan RA, Rucker D, Bray RC. Selective Joint Denervation Promotes Knee Osteoarthritis in the Aging Rat. *J Orthop Res*, 2002; 20[6]:1256-1264) found that denervating the knees of 16 rats led to an acceleration of osteoarthritis in these joints. The authors explain this finding as a loss of afferentation resulting in aberrant joint loading either by disturbing neuromuscular joint control or by inducing joint laxity after neurogenic loss of tissue homeostasis. One can speculate whether this mechanism plays a role in other dysfunctional or arthritic joints.

Neo et al. (Cervical Disc Herniation Causing Localized Ipsilateral Popliteal Pain. *J Orthop Sci*, 2002;