

## Misconceptions About Scoliosis

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Scoliosis is from the Greek word σκολίσις [*skoliosis*] which means “crookedness”. According to Taber’s Cyclopedic Medical Dictionary, 18<sup>th</sup> ed. [F.A. Davis Co.: Philadelphia, PA, 1997; p.1727], scoliosis is a lateral curvature of the spine. It usually consists of two curves: a primary abnormal curve, and a compensatory curve in the opposite direction. Some chiropractors tend to use the term “scoliosis” to describe the presence of any, if even slight, lateral curvature of the spine. However, such a loose definition is a common misconception. Peter Fysh, author of “Scoliosis and the Child’s Spine” [*Dynamic Chiropractic*. 1994 Oct; 21 (12)] offers a more specific definition of scoliosis: “[an] abnormal curvature of the spine greater than 10 degrees in the sideways or coronal plane.” This lateral curvature is measured by a Cobb angle. Typically, the spine looks more like an “S” or “C” than a straight line, and many cases include a rotational component. Often, the patient’s shoulders and/or waist appear uneven.

Dennis Woggon, D.C. of Scoliosis Correction Seminars – C.L.E.A.R. Institute describes several categories of scoliosis which are based on age of onset. Infantile scoliosis occurs before the age of 3. Juvenile scoliosis describes prepuberty which ranges from ages 4 – 12 for girls, and ages 4– 14 for boys. Adolescent scoliosis occurs from puberty to maturity. Finally, adult scoliosis occurs after maturity. Scoliosis is prevalent in 4.5% of the general population.

Although the cause of scoliosis remains unknown, there are contributing factors universal to scoliosis. Ahn [et al] of the New Hampshire Spine Institute [“The etiology of Adolescent Idiopathic Scoliosis” *The American Journal of Orthopedics* 2002 Jul;31 (7): 387-95] studied scoliosis patients and contributing factors: genetics, growth hormone secretion, connective tissue structure, vestibular dysfunction, melatonin secretion, and platelet microstructure. Ahn [et al] found that brain stem or equilibrium abnormality may exist in scoliosis patients leading to proprioceptive mechanism defects that affect vestibular function and joint proprioception. They also found stimulation of the leg and tibial nerve was abnormal. Pathologies associated with scoliosis also included neurohormonal disorders, and genetic connective tissue disorders. Further, **above 30 degrees** EMG amplitudes were higher on the convex side. Abnormal changes include bone deformity, neurological, biochemical, and neuromuscular changes, as well as decreased serum melatonin levels. Finally, cerebral asymmetry was found in addition to defects of the motor brain cortex. Changes in muscle appeared to be *secondary* to the CNS disorder. Therefore, Ahn [et al] concluded that idiopathic scoliosis results from dysfunction in the CNS. Mental defect and epilepsy are the commonest findings associated with scoliosis.

Woggon considers scoliosis “a dis-ease of the neuro-muscular skeletal system. As Spinal Experts, the Chiropractic profession should take the lead in the correction and stabilization of the Scoliotic patient.” The medical correction methods that patients often turn to are surgery and braces, yet results are seldom positive. Paul Harrington, known

for inventing the surgery that implants metal rods in scoliotic spines, stated in 1963, "metal does not cure the disease of scoliosis, which is a condition involving much more than the spinal column". Research states, "the initial average loss of spinal correction post-surgery is 3.2 degrees in the first year and 6.5 after two years with continued loss of 1.0 degrees per year throughout life." Furthermore, it is the exception, not the standard, that a Herrington rod candidate has 100 percent correction. The average pre-operative curve for scoliosis is 72 degrees while the average post operative curve still remains an unimpressive 44 degrees. Scoliosis surgery will only reduce the curve by 50%, and then it will worsen. Scoliosis surgery does nothing for the rib hump. The only indication for surgical intervention is that the deformity is deemed unacceptable by the patient and family. Thoracic curves have a much worse prognosis than thoracolumbar curves.

As for bracing, Woggon and Lawrence conclude that 44 percent of bracing attempts are considered failures because they do *not* cease scoliosis progression. Additionally, many patients feel that bracing handicaps their lifestyles while others feel that it leaves psychological scars. Upper-middle-class school children wore the brace for not much more than 10% of the prescribed time. Less than 30 degrees of Cobb angle did not indicate significant differences between braced and un-braced patients.

Floman of Hadassah University Hospital conducted a study on six cases of scoliosis and found that 100 percent of the cases had restriction on cervical flexion and were unable to touch their chin to their chest wall ["Thoracic Scoliosis and restricted neck motion: a new syndrome?" European Spine Journal (1998) 7: 155-57]. Patients were only able to flex between 30 to 40 degrees, whereas 65 degrees of cervical flexion is considered normal. During flexion, all patients complained of mild thoracic pain. The patients in the cases ranged in ages from 13 to 17 years old and their scoliosis Cobb angles varied from 10 to 40 degrees. There were no spinal abnormalities on the x-rays nor the MRI's.

The spinous processes of scoliosis rotate into the concave, rather than the biomechanically expected convex angle. According to Woggon, this rotation "decreases adverse mechanical tension on the spinal cord, and [it] is aggravated by adjusting on the 'high side of the rainbow.' Unfortunately, Chiropractic manipulation frequently makes the condition worse by mobilizing fixated, compensated vertebra. Adjusting on the "high side of the rainbow" [in scoliosis] is contraindicated."

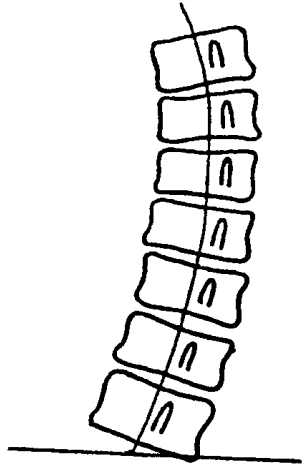


Figure A. Scoliosis SP rotation into concavity

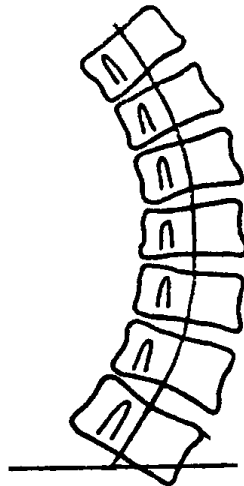


Figure B. Incorrect depiction of scoliosis SP rotation into the convexity

Woggon and Lawrence found that 90 percent of the time, scoliosis patients present with a standard posture which includes forward head posture, right head tilt, right high shoulder, right thoracic Cobb angle, left lumbo-dorsal Cobb angle, right posterior and left anterior hips seated, and opposite hip displacement while standing. Additionally, patients exhibit abnormal subluxation patterns and abnormal spinal biomechanics. Active scoliosis usually presents with forward head posture and loss of cervical lordosis. Patients also have an occiput and atlas extension malposition (which is ultimately a posterior occiput). Woggon concludes that the biomechanical abnormalities have “a subluxation effect on the proprioceptive spinocerebellar loop resulting in dysponesis in spinal growth torsion (idiopathic scoliosis).”

Forward head posture and loss of cervical lordosis always precedes scoliosis. Therefore, before the A-P dimension of scoliosis can be corrected, the cervical lordosis must be re-established first. Changing this abnormal position is possible by re-training the nervous system. A retrospective case series, “Scoliosis treatment using a combination of manipulative and rehabilitative therapy” by Mark Morningstar, Dennis Woggon and Gary Lawrence, was published in BMC Musculoskeletal Disorders on September 14, 2004. 19 patients with scoliosis ranging from 15 to 52 degree Cobb angles were monitored. After 4 to 6 weeks, patients exhibited an average reduction of 62% or 17 degree Cobb angles. 8 of the 19 patients were no longer classified as scoliotic.

These results were achieved when specific chiropractic adjustments were provided along with rehabilitative procedures which included specific spinal isometric exercises, proprioceptive neuromuscular re-education, cervical and lumbar lordosis restoration, muscle and ligament rehab and vibration therapy. Because the scoliotic spine compresses and rotates three-dimensionally, it must be tractioned and de-rotated in order to correct. A vibrating platform and a Vibrating Scoliosis Traction Chair were used to accomplish correction. The patient was seated on the chair which was then placed on the vibrating platform. Braces were used to pull the Cobb angles into the proper alignment. The patient’s spine was then tractioned while going through dynamic motion. The vibratory effect overrides the body’s proprioceptive defenses. This therapy is done once a day for

20 minutes, compared to wearing a scoliosis brace for 23 hours. Contrary to medical misinformation, scoliosis correction is *not* age dependant and it does *not* stop at osseous maturity. In their clinic, Woggon and Lawrence have worked with patients ranging in ages from 4 to 73 years old.

For more information on effective and predictable scoliosis correction through chiropractic care, visit <http://www.clear-institute.com>. To learn more about Palmer Florida's scoliosis mentoring program, e-mail [scoliosis.support@hotmail.com](mailto:scoliosis.support@hotmail.com).