

A Rationale for Chiropractic Management of Idiopathic Scoliosis

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When does idiopathic scoliosis become classified as idiopathic scoliosis? Some authorities feel that a scoliosis is not truly pathological until the curve reaches 20 degrees and the patient demonstrates a rib hump, indicating a curve fixed in rotation and lateral flexion. Others concede that the scoliosis becomes classified as pathological when the curve reaches a measurable 15 degrees on an anterior/posterior, full-spine radiograph. The curve in the zero to 20 degree range is in what I refer to as the "Scoliosis No Man's Land."

Certain segments of the profession feel that the proper course of action should be to follow the allopathic model and place the child demonstrating a small rib hump and a curve of less than 20 degrees into an observational category. Others favor early treatment. Current research into the etiology of idiopathic scoliosis has identified a possible mechanism for the production of idiopathic scoliosis which involves the relationship between the spinal canal, the spinal cord, and the exiting thoracic nerve roots. Through studies of scoliotic spines, it has been noted that the spinal cord is displaced towards the concave side of the curve and does not rotate with the vertebrae. Greater stresses affect the nerves exiting from the convex side of the curve due to the fact that the distance from the cord to the intervertebral foramina (IVF) is longer for the nerves exiting from the convex side of the IVF, and the course of the nerves through the convex side of the IVFs are more angular. It is postulated that the nerves exiting from the convex side of the curve may be subjected to tractional injuries and entrapment at the IVF.¹

Sunderland states that the damaging effects are increased to nerve roots when, upon entry into the IVF, they are angulated across the upper or lower margin of the IVF.² Thus, chronic irritation and trauma originating in this way may involve the nerve in a friction fibrosis in the IVF which will constrict the nerves, interfere with the nerve's blood supply, and form adhesions which fix the nerve in the IVF, so that further traction will cause deformation of the exiting nerve roots. The existence of a segmental neurological lesion in idiopathic scoliosis is supported by the work of Trontelj.³ His study of spinal stretch reflexes in the superficial and deep paraspinal muscles of idiopathic scoliosis patients revealed the presence of asymmetrical responses to stretch in the paraspinal muscles, which were greater on the convex side and were more pronounced in the deep paraspinal muscle groups.

It is possible that a disturbance at the segmental level could disrupt the incoming flow of proprioceptive information necessary for the maintenance of proper spinal alignment and may be a key in the development and progression of adolescent idiopathic scoliosis. It is conceivable that chiropractic spinal manipulation in the early stages of development of idiopathic scoliosis (between 0-20 degrees) may be of great benefit to the patient. Manipulative procedures specifically addressing the reduction of rotation and lateral flexion may prove to be a viable preventative measure for the prevention of the tractional nerve root lesions previously mentioned. Therefore, it is this author's opinion that the child with idiopathic scoliosis should be treated early in the course of the condition in order to forestall the production of nerve root lesions to the roots exiting on the

convex side of the curve, which could result in curve progression.

References

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3. Trontelj, J.V., et al. "Segmental Neurophysiological Mechanisms in Scoliosis." JBJS 1979; 61-B(4).

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