



Brace Treatment Is Effective for Scoliosis

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The effectiveness of brace treatment for scoliosis was controversial until recently. Brace treatment had not been proven to prevent progression of the scoliotic curve.¹ There had been no standardized study of this issue, and there were no significant differences among the types of braces used.¹

The unwillingness of children to wear braces raised concern, especially among physicians, about whether brace treatment was being properly performed. Modern technology was adopted to address this concern. A sensor embedded in braces permitted observation of how long children wore them.

A multicenter study called BraIST (Bracing in Adolescent Idiopathic Scoliosis Trial) was conducted in North America.² Children were assigned to 1 of 2 groups. The first group included children who were conservatively treated (ie, observed). The second group included children who wore a brace with a thermal sensor. However, also included were children who chose conservative treatment or brace treatment. The study was stopped once 276 patients had been entered because a significant difference was observed between the 2 groups. Brace treatment was significantly more effective than observation (success rate, 72% vs 48%, respectively; $P=.00821$).³

Currently, it is clear that brace treatment is more effective than observation regarding progression of the scoliotic curve.³ But when should brace treatment be prescribed? Two major

groups, sharing some members, have addressed this question. One of these groups is the Non-Operative Management Committee of the Scoliosis Research Society (SRS). The other is the international Society on Scoliosis Orthopaedic and Rehabilitation Treatment (SOSORT). According to the SRS, the indications for brace treatment include age older than 10 years, Risser score between 0 and 2, Cobb angle between 25° and 40°, no prior treatment, and, if female, either premenarchal or less than 1 year postmenarchal period.¹ Although no age criterion has been established by SOSORT, Cobb angle greater than 20°±5° is required. Also, SOSORT recommends that physicians provide braces they are most familiar with and prepared to manage, as there are no differences among types of braces, and that braces be worn for at least 18 hours at the beginning of treatment.¹

Considering the rate of curvature and the maturity of the child, brace treatment could be full-time (20 to 24 hours), part-time (12 to 20 hours), or at night (8 to 12 hours) for a rigid brace and full-time for a soft brace.¹

Although braces are similar, it is difficult to control upper thoracic curvature. Issues with patient compliance limit the use of the Milwaukee brace, which is designed to control the upper thoracic curve.⁴ Cheneau, Lyon, and Boston braces or modifications could be applied for lumbar, thoracolumbar, and lower thoracic curvatures.⁵ The thoracolumbar lordotic intervention brace designed by van Loon et al⁶ is new. It applies lordotic force only in the thoracolumbar region and does not apply correction force in the coronal plane. This brace is showing promising results.⁶

As part of follow-up, patients are examined radiologically every 3 months, or more frequently during a growth spurt.¹ During this period, children are encouraged to participate in sports,

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and specific exercises are begun.¹ Once stabilization has been achieved, brace treatment is gradually stopped.¹

CONCLUSION

Patient noncompliance is the main reason brace treatment fails. Brace treatment is effective for mild to moderate curvatures.

REFERENCES

1. Negrini S, Aulisa AG, Aulisa L, et al. 2011 SOSORT guidelines: orthopaedic and rehabilitation treatment of idiopathic scoliosis during growth. *Scoliosis*. 2012; 7(1):3. doi: 10.1186/1748-7161-7-3.
2. Weinstein SL, Dolan LA, Wright JG, Dobbs MB. Design of the Bracing in Adolescent Idiopathic Scoliosis Trial (BrAIST). *Spine (Phila Pa 1976)*. 2013; 38(21):1832-1841.
3. Weinstein SL, Dolan LA, Wright JG, Dobbs MB. Effects of bracing in adolescents with idiopathic scoliosis. *N Engl J Med*. 2013; 369(16):1512-1521. doi: 10.1056/NEJMoa1307337.
4. Lonstein JE, Winter RB. The Milwaukee brace for the treatment of adolescent idiopathic scoliosis: a review of one thousand and twenty patients. *J Bone Joint Surg Am*. 1994; 76(8):1207-1221.
5. Zaina F, De Mauroy JC, Grivas T, et al. Bracing for scoliosis in 2014: state of the art. *Eur J Phys Rehabil Med*. 2014; 50(1):93-110.
6. van Loon PJ, Roukens M, Kuit JDJ, Thunnissen FB. A new brace treatment similar for adolescent scoliosis and kyphosis based on restoration of thoracolumbar lordosis: radiological and subjective clinical results after at least one year of treatment. *Scoliosis*. 2012; 7(1):19. doi: 10.1186/1748-7161-7-19.