

Scoliosis Resource Packet

Information regarding the treatment of scoliosis can be overwhelming and at times confusing. At Washington Orthotics and Prosthetics, we hope to provide you with the most recent and relevant information regarding bracing as a treatment for scoliosis. In addition, we want to feel like a partner for you and your child, in providing support and resources that can improve your experience in dealing with scoliosis and our treatment. We hope the following information, with links to outside resources, will better prepare you and your child and answer any questions you have regarding scoliosis and its treatment.

General Information about Scoliosis:

Idiopathic adolescent scoliosis is a condition about which medical science knows a great deal but for which we do not understand the cause. We know that this is a relatively common problem among adolescents, and occurs four or five times as frequently in girls as in boys. We know that a scoliotic curve tends to increase (or progress) as a young person goes through adolescence and usually stops progressing when the patient reaches skeletal maturity. We know that some curves will progress rapidly and require treatment (bracing or in severe cases, surgery) while others will progress slowly or not at all and thus require no treatment. Unfortunately it is not possible to tell at the time of diagnosis which curves will behave which way.

We do know, however, that certain curves seem to be at greater risk for progression than others. Specifically, the younger the patient is at the time of diagnosis and the more severe the curve in degrees, the greater the risk that a curve will progress. Therefore we worry little about a 15 degree curve in a fifteen year old who has been having menses for two or three years, but worry more about the same 15 degree curve in an eleven year old who has not yet started menstruating. The only way to know for sure how a given curve will behave is to observe it over time with repeated examinations or X-rays. Most typically these exams will take place every six months but we may recommend more or less time between visits depending on our degree of concern about a curve.

Scoliosis can be detected by looking for a deformity of the back or an asymmetry of the trunk. The easiest method, however, is to observe the back while the patient bends forward, the so called "forward bending test." Most scoliotic curves are associated with some degree of rotation of the spine. With the forward bending test we are looking for evidence of this rotation in the form of side to side tilting or a rib hump. This tilt or hump can be measured with a scoliometer.

Unfortunately the scoliometer reading and the rib hump size do not correlate very accurately with curve severity and sometimes an X-ray is needed for measurement. On an X-ray scoliosis is measured by the Cobb method which measures the angle formed between the borders of the uppermost and lowermost vertebra involved in the curve.

By consensus of the orthopedic community, treatment is usually considered for progressive curves that

approach thirty degrees. Surgical correction of curves is not generally considered an option for curves less than 45 degrees.

To summarize, if curve is:

less than 25 degrees	observe
more than 25 degrees	brace if skeletally immature
	observe if skeletally mature
45 degrees or more	Surgery

Provided by Nicholas Rajacich, M.D.

Our Approach: Use the best available evidence

While bracing has been used to treat scoliosis for a number of years, quality research studies that show the outcomes of bracing for scoliosis are limited. At Washington O&P, we regularly review the evidence and use it to guide our treatment. One of the more recent outcomes of research shows a significant relationship between brace wear compliance and halting the progression of scoliosis curves.^{1,2,3} With compliance being such an important aspect of successful bracing, we include a variety of tools to accomplish maximum brace wear with the goal of the achieving the best possible results from your brace.

Some of our strategies include the use of nighttime only bracing whenever possible. Nighttime braces include the Providence Nocturnal Brace and the Charleston Bending Brace (CBB.org). These braces have both been clinically proven to have increased compliance compared to full time braces.⁴ In addition to using different types of braces, we try to improve compliance by empowering our patients with resources to help support them through scoliosis treatment, fostering ownership of brace wear through the use of journals, and seeing the patient for regular adjustments of the brace.

One challenge in monitoring compliance has always been the reliance on self-reporting of hours worn in brace. We recently adopted the use of i-button thermal monitoring within our braces to allow us to track brace wear through the hours of the day. This non-invasive system can be installed in the brace and tracks temperature every 15 minutes to help show when the brace is being worn and when it's not. This optional tool can assist our patients in identifying problems associated with brace wear and has been clinically proven to increase compliance.⁵

At Washington O&P, we use a variety of tools to help our patients achieve brace compliance targets. These range from simple low tech solutions, like providing brace wear logs, to higher tech tools, like in brace wear monitors. We provide these tools free of charge, as part of our complete package, designed to provide the most effective bracing treatment possible.

Types of Braces:

Along with your provider, we attempt to find a brace best suited for your child's curve type and one that has the best chance of controlling curve progression.

Full Time Wear (20 hrs/day): The Boston Brace

Considered the "gold standard" of bracing for idiopathic scoliosis, this brace is designed to be worn full time with in brace correction targeted at 50% reduction in curve magnitude.



Night time braces (10 hrs/night): Providence Nocturnal Brace, Charleston Bending Brace

These braces are hyper-corrective and therefore are only worn when sleeping. Because they are worn at night, studies suggest they offer higher compliance than full time braces.

Other Resources:

Support/informational websites:

www.curveygirlsscoliosis.com Curvy Girls is a network of peer-led support groups that reduce the emotional impact of scoliosis by empowering girls through mutual support and acceptance to become leaders, make healthy lifestyle choices, and improve self-esteem.

www.scoliosis.org National Scoliosis Foundation Website

Literature:

There's an "S" on My Back: "S" is for Scoliosis. By Mary Mahony.

Recommended by the National Scoliosis Foundation, this book is written from a fifth grader's point of view and explores the social, physical, and emotional aspects of scoliosis.

"...a book that any child can enjoy, and every patient, family, and caregiver dealing with scoliosis should read." —Joe O'Brien, President, National Scoliosis Foundation

Straight Talk With the Curvey Girls. Theresa E. Mulvaney, Robin Machson Stoltz LCSW, BCD, CASAC

"In Straight Talk with the Curvy Girls, Robin and Terry help to minimize the physical, emotional and financial burdens for scoliosis patients and families, which are often intensified by feelings of being isolated and alone. By sharing their own personal stories, young female patients and their moms give meaningful support to anyone with scoliosis and a powerful message that 'You are not alone.' In my view, this book and the Curvy Girls Support group are very valuable resources for the adolescent scoliosis community." — Joe O'Brien, President, CEO & Patient, National Scoliosis Foundation

Follow up plan:

The follow-up care of each patient is specific to the patient's scoliosis and curve pattern, brace type, as well as his or her ability to return for brace adjustments and follow-up appointments. In general, we prefer the following for patients who live locally:

1. In brace X-ray within two weeks from brace fitting to check brace function.
2. Two Week follow-up of the brace quality. It is important to verify fit and function with in brace x-ray, pad pressure, patient comfort, and correct donning of the brace.
3. Three month follow-up of brace quality. Listen to patient feedback on fit, comfort, and change in height since the fitting.
4. Brace follow-up every three months until a new scoliosis brace is needed.

1. Weinstein, Stuart L., Lori A. Dolan, James G. Wright, and Matthew B. Dobbs. "Effects of Bracing in Adolescents with Idiopathic Scoliosis." *New England Journal of Medicine* 369, no. 16 (October 17, 2013): 1512–21. doi:10.1056/NEJMoa1307337.
2. Aulisa, Angelo G., Marco Giordano, Francesco Falciglia, Emanuele Marzetti, Andrea Poscia, and Vincenzo Guzzanti. "Correlation between Compliance and Brace Treatment in Juvenile and Adolescent Idiopathic Scoliosis: SOSORT 2014 Award Winner." *Scoliosis* 9, no. 1 (2014): 6.
3. Katz, Donald E. "Brace Wear Control of Curve Progression in Adolescent Idiopathic Scoliosis." *The Journal of Bone and Joint Surgery (American)* 92, no. 6 (June 1, 2010): 1343. doi:10.2106/JBJS.I.01142.
4. Wessberg, Per MD, Hedlund Rune, and Nordwall Anders. "Night-Time Providence Bracing Compared to Fulltime Boston Bracing in Adolescent Idiopathic Scoliosis. A Prospective Randomized Study: Sp23." In *Spine Journal Meeting Abstracts*. LWW, 2011. http://journals.lww.com/spinejournalabstracts/Abstract/2011/10001/Night_Time_Providence_Bracing_Compared_to_Fulltime.363.aspx.
5. Miller, Daniel J., Jeanne M. Franzone, Hiroko Matsumoto, Jaime A. Gomez, Javier Avendaño, Joshua E. Hyman, David P. Roye, and Michael G. Vitale. "Electronic Monitoring Improves Brace-Wearing Compliance in Patients With Adolescent Idiopathic Scoliosis: A Randomized Clinical Trial." *Spine* 37, no. 9 (April 2012): 717–21. doi:10.1097/BRS.0b013e31822f4306.

It is our mission to increase compliance by fostering a partnership with patients, parents, and treating physicians. By providing tools, both low tech and high tech, to help identify any issues with brace wear; we can use the most effective treatment options at our disposal to achieve optimal results. If at any point you have questions or concerns, please contact your Orthotist or call to schedule an appointment.

