



A Parent's Guide to the Providence Nocturnal Scoliosis® Orthosis and Adolescent Idiopathic Scoliosis (AIS).



Spinal
Technology

Spinal.Tech/Scoliosis



Letter to Parents and Caregivers

At Spinal Technology, we understand that a scoliosis diagnosis for your child can be overwhelming. Rest assured, it's natural to feel worried. Many hours of online research or talking to your medical provider can be like drinking from a firehose—you want the best options for your child and don't know where to begin.

As a trusted leader in the orthotics and prosthetics industry, we're known as the Scoliosis Specialists. Since 1991, Spinal Technology has been fabricating custom spinal orthoses to improve patients' lives. We are the global leader specializing in custom options to help many spinal conditions.

We are the exclusive manufacturer of the Providence Nocturnal Scoliosis® Orthosis, and we also fabricate a number of full-time scoliosis brace styles. Medical experts around the world depend on our expertise for the assessment of patient curvature, the blueprinting of X-rays, the design of each orthosis, and the X-ray evaluation of patients in-brace.

At Spinal Technology, we believe that sharing our knowledge and absorbing that of others is the most effective way to advance the treatment and care of all patients. We have created a comprehensive guide for parents and caregivers to start at the beginning of what scoliosis means and end up with resources for your family that can help guide you through this scoliosis journey.

Spinal.Tech/ScoliosisAwareness

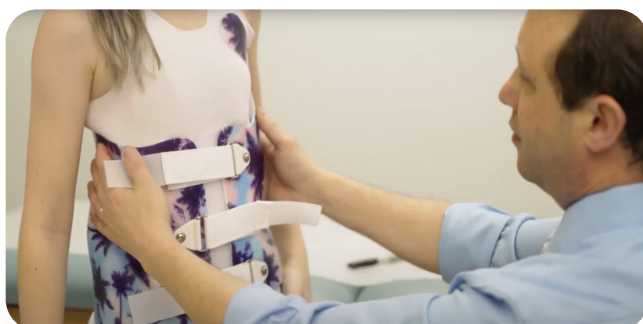
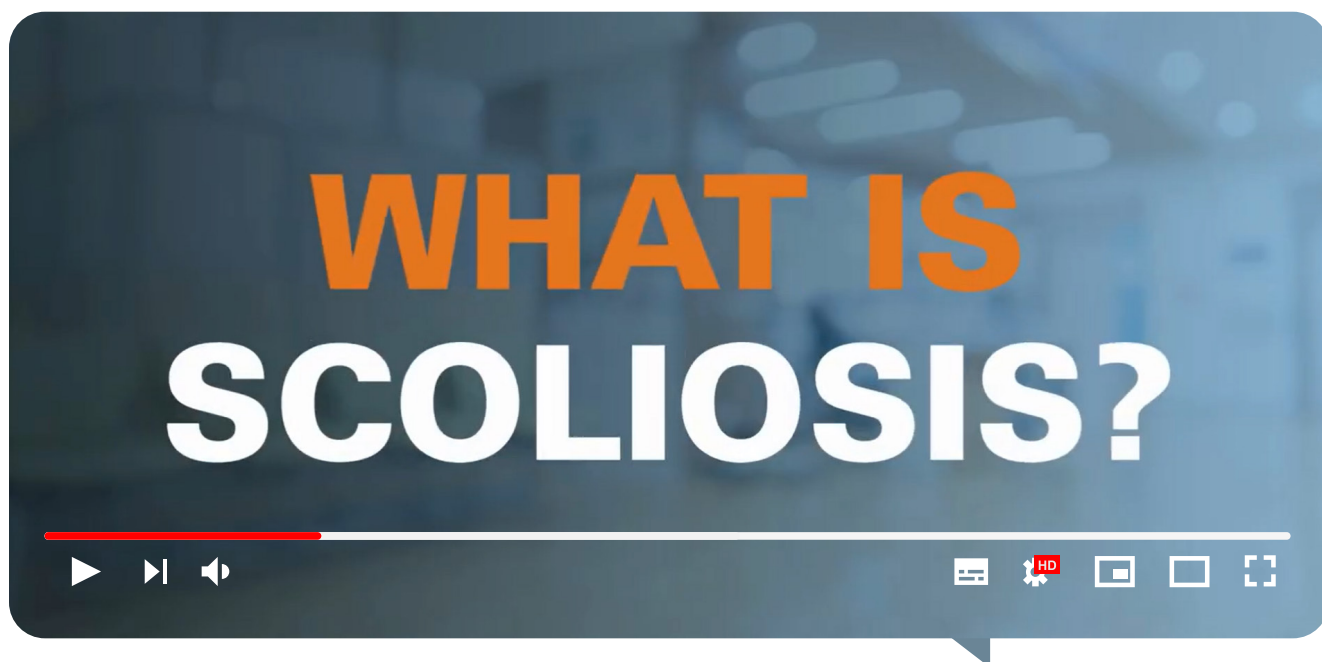


Table of Contents

Understanding Adolescent Idiopathic Scoliosis (AIS)	4
Symptoms of AIS.	5
Treatment Options for AIS	5
The Providence Nocturnal Scoliosis® Orthosis	7
What the Research Says	8
Results/Conclusions	9
Compliance	10
Scoliosis Resources.	11
Glossary (<u>Definitions to Terms Underlined</u>)	12
Works Cited	14



Watch our explanation videos on YouTube.



Scan the QR code.

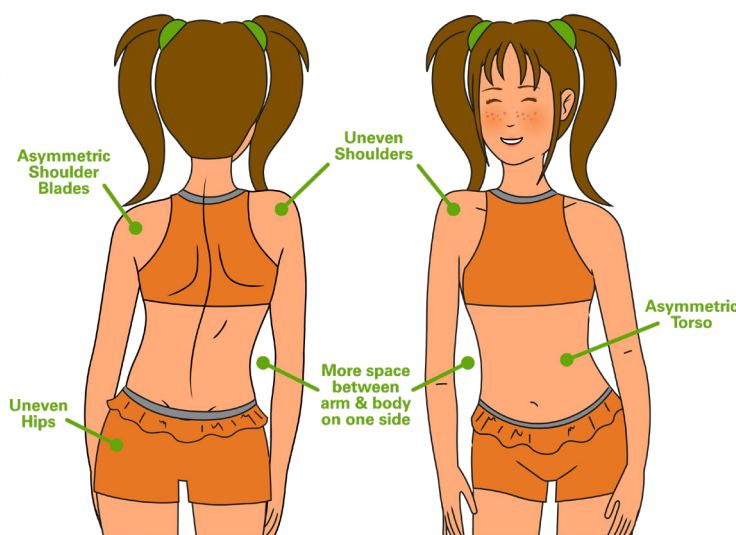
Understanding Adolescent Idiopathic Scoliosis

As a parent, learning that your child has **scoliosis** can feel overwhelming. **Adolescent idiopathic scoliosis** (AIS) is a condition where the spine develops a curve, most commonly between ages 10 and 18. While this can be concerning, early detection and the right treatment plan can help your child manage their scoliosis effectively. **You are not alone**—many families face this diagnosis with the guidance of medical professionals and proven treatment options.

How Is Scoliosis Diagnosed?

Scoliosis is often first noticed during a routine health screening, which is typically conducted at schools or during regular checkups. One of the most common ways to assess spinal curvature is through the **Adams Forward Bend Test**.

- During this simple test, your child will be asked to stand with their feet together, place their hands in front of them, and slowly bend forward at the waist while keeping their knees straight.
- This allows the provider to observe the back for any signs of unevenness in the shoulders, ribs, or hips, which could indicate scoliosis.
- According to Boston Children's Hospital (2020), one key indicator is a raised "rib hump" on one side of the back, suggesting that the spine may be curving abnormally.
- If any signs of scoliosis are found, your doctor may recommend an X-ray to get a clearer picture of your child's spine.
- The X-ray will measure the curvature's degree using the **Cobb angle**—a key factor in determining whether scoliosis is present and how best to manage it. Generally, a curve more significant than 5–7 degrees is considered scoliosis.



What Happens After a Scoliosis Screening?

- If scoliosis is suspected, your child's doctor will take a complete medical history, including asking about any family history of scoliosis. They will also conduct a physical examination to better understand how the spine is curving and assess any impact on posture or movement.
- A spinal X-ray (**radiograph**) will provide a more detailed look at the shape and direction of the curve. Scoliosis can develop in different parts of the spine—including the thoracic (upper back), lumbar (lower back), or cervical (neck) regions—and may curve in a "C" or "S" shape. These details help doctors determine the best course for your child's treatment.
- At Spinal Technology, we understand that scoliosis can feel overwhelming for parents and children alike. However, early detection and the proper treatment can make a significant difference. Working closely with your child's medical team makes you feel confident in finding a solution supporting their spinal health and overall well-being.

What Is AIS?

Adolescent idiopathic scoliosis (AIS) is the most common type of scoliosis, accounting for 80% of cases. It occurs when the spine curves sideways and rotates. While the exact cause is unknown, it often progresses rapidly during growth spurts. The goal of treatment is to monitor or slow the progression of the curve, ensuring the best possible outcome for your child's spinal health.

Symptoms of AIS

Scoliosis symptoms vary based on the degree of the spinal curve:

- **Mild scoliosis (10–25 degrees):** This condition often goes unnoticed and is typically found during a school or doctor's screening.
- **Moderate scoliosis (26–40 degrees):** This may cause noticeable unevenness in the shoulders, waist, or back and mild discomfort.
- **Severe scoliosis (over 40 degrees):** This can lead to more visible spinal curvature, rib prominence, and in some cases, breathing difficulties or discomfort.

Early detection allows for more treatment options and may reduce the need for surgery.

Treatment Options for AIS

When it comes to treating adolescent idiopathic scoliosis, every child's journey is unique. The right approach depends on the severity of the curve, how much your child is still growing, and their overall health.

Mild cases: If your child has a slight spinal curve, their doctor may recommend regular checkups to monitor any changes as they grow. Many children with mild scoliosis don't need treatment beyond observation.

Moderate cases: When the curve is more pronounced, bracing is often the best way to help prevent it from worsening. A well-fitted brace can gently guide the spine while allowing children to stay active and comfortable.

Severe cases: A doctor may discuss surgical options in some situations, particularly when the curve is significant and continues to progress. However, surgery is only considered when necessary, and bracing is often the first course of action.

For many families, bracing is an effective and non-invasive way to manage scoliosis. Nighttime bracing has become a preferred option because it provides strong spinal correction while only being worn during sleep. Children can go about their day without the added stress of wearing a brace at school or during activities. Many parents find that nighttime bracing offers peace of mind, knowing their child is getting effective treatment in a way that feels less disruptive to their daily lives.

We're the Scoliosis Specialists™

Scan below to learn more about each scoliosis orthosis.

**Providence Nocturnal
Scoliosis® Brace**



**Boston (Style)
Scoliosis Brace**



**3D SCT Boston (Style)
Scoliosis Brace**



**SCT 3D Chêneau
(Style) Scoliosis Brace**



Kyphologic Brace



Kyphosis Brace



The Providence Nocturnal Scoliosis® Orthosis

The Providence Nocturnal Scoliosis® **Orthosis** was developed at Rhode Island Hospital by a team of experts, including **orthotist** Barry McCoy and orthopedic surgeon Dr. Charles D'Amato. Unlike traditional braces, this specialized **nighttime brace** is worn only when sleeping, allowing for significant spinal correction without interfering with daily activities.

This **hyper-corrective** brace is designed to gently guide the spine into better alignment at night when **human growth hormone** levels peak and the body is most responsive to treatment. With a rate of 98–115% **in-brace correction**, it is a highly effective alternative to **full-time bracing**.

Spinal Technology defines the objective of the Providence Nocturnal Scoliosis® Orthosis as moving the **apices** of scoliotic curves to the midline or beyond the midline via the application of controlled **direct**, **lateral**, and **de-rotational forces** on the spine.

Why Nighttime Bracing?

- Traditional **scoliosis braces** are worn most of the day, which can be challenging for active children and teens.
- The Providence Nocturnal Scoliosis® Orthosis eliminates this concern by working while your child sleeps. It applies gentle, corrective pressure to realign the spine, supporting natural growth and development.
- Because it's worn only at night, it helps reduce the emotional and social challenges of daytime bracing—making it easier for children to stick with their treatment plan.

Who Can Benefit?

The Providence Nocturnal Scoliosis® Orthosis is most effective for children and teens with AIS, but it may also help:

Patients with <u>juvenile scoliosis</u>	Individuals with neuromuscular conditions	Children and teens who struggle with full-time bracing due to a higher body mass index (BMI)
---	---	--

The brace is designed to correct curvatures up to the upper back (T6 Level), with optional extensions for higher curves.

Proven Results

Numerous studies highlight the effectiveness of nighttime bracing, including the Providence Nocturnal Scoliosis® Orthosis. Research shows that children who wear their brace as prescribed experience significant spinal correction, often reducing the need for more invasive treatments.

A Comfortable and Effective Solution

For parents seeking a clinically proven and less disruptive way to manage scoliosis, the Providence Nocturnal Scoliosis® Orthosis offers an approach that supports spinal health while allowing children to maintain their confidence and daily routines. With a strong track record of success, this **nighttime brace** is a trusted option in scoliosis care.

The Effectiveness of the Providence Nocturnal Scoliosis® Orthosis

Learning that your child has adolescent idiopathic scoliosis can be daunting. You may be exploring treatment options that are both effective and manageable for your child's lifestyle. Research has shown that nighttime bracing, particularly with the Providence Nocturnal Scoliosis® Orthosis, can be a valuable option for treating scoliosis.

How the Providence Nocturnal Scoliosis® Works

Unlike traditional **full-time braces**, the Providence Nocturnal Scoliosis® Orthosis is designed to be worn only at night. This means your child can go about their school day, participate in activities, and spend time with friends without the visibility of a brace. Research studies have demonstrated that this nighttime brace can effectively help stabilize and, in many cases, improve adolescent spinal curvature.

What the Research Says

Multiple studies have examined the effectiveness of the Providence Nocturnal Scoliosis® Orthosis in treating scoliosis.

A study published in Spine Magazine (2001) assessed the effectiveness of this brace for patients with varying degrees of spinal curvature. The results showed:

For curves between 20 and 24 degrees, treatment success was 81%	For curves between 25 and 34 degrees, treatment success was 71%	For more severe curves between 35 and 42 degrees, treatment success was 63%
--	--	--

These findings suggest that nighttime bracing can effectively manage scoliosis in patients with even more significant curvatures.

A separate study published in the European Spine Journal (2019) followed 124 patients with scoliosis, all with Cobb angles greater than 20 degrees. The study found that:

- **89% of patients had successful treatment outcomes**
- **For patients with curves between 20 and 29 degrees, success was 88%**
- **For those with curves between 30 and 39 degrees, success was 93%**
- **Even for those with 40–45 degree curves, 77% responded well to treatment.**

These results are comparable to full-time braces, showing that nighttime bracing can be a practical and less intrusive alternative for many patients.

Another study, which focused on adolescent girls with idiopathic scoliosis (D'Amato, 2001), found:

- **74% of patients saw no significant progression of their curves**
- **Success rates were incredibly high for lumbar (94%) and thoracolumbar (93%) curves**
- **Even for double curves, which can be more challenging to treat, the success rate was 65%**

Why This Matters for Your Child

One of the biggest challenges for children and teens with scoliosis is the impact of bracing on their confidence and daily routine. The Providence Nocturnal Scoliosis® Orthosis is designed to be worn only at night, eliminating the visibility of a daytime brace while still delivering effective results.

Since scoliosis tends to progress more in younger patients with significant curves, early intervention can make a meaningful difference in long-term outcomes. This brace can help reduce the need for more invasive treatments, such as surgery, by addressing scoliosis before it worsens.



A Solution That Fits Your Family's Needs

Every child's scoliosis journey is unique, but research supports the Providence Nocturnal Scoliosis® Orthosis as an effective, well-tolerated treatment option. This brace allows children and teens to maintain their social lives, physical activities, and confidence while receiving the care they need.

If you're exploring bracing options, talk to your child's doctor about whether the Providence Nocturnal Scoliosis® Orthosis could be the right fit. With proven results and a more flexible approach to treatment, this nighttime brace may provide the balance of effectiveness and comfort your family seeks.

Results/Conclusions

The Providence Nocturnal Scoliosis® Orthosis offers a research-backed solution for adolescent idiopathic scoliosis without needing daytime bracing. Worn only at night, it helps correct spinal curves while allowing kids to feel confident and unrestricted during the day.

Studies show its effectiveness in treating moderate to severe scoliosis, including in patients with higher body weights. By providing gentle, targeted correction while your child sleeps, this brace can help slow or stop curve progression.

If you're exploring scoliosis treatment options, talk to your doctor about whether nighttime bracing is right for your child.

Wear Time Success

Studies have shown there is a direct correlation between the hours of brace wear and the rate of correction in scoliosis patients.

Introducing **stWear™** Compliance Monitoring System

We developed the stWear™ Compliance Monitoring System to help doctors, orthotists, parents, and patients share the common goal of compliance. The system includes our online stWear™ portal for physicians and practitioners, a smartphone app for parents, and a compliance monitor with extended battery life and Bluetooth capability.

The stWear™ Compliance Monitoring System can improve patient outcomes by monitoring scoliosis patient compliance and taking the guesswork out of the equation. Through the stWear™ portal, the orthotist has the ability to create weekly or monthly reports that will tell how often, and for how long, the patient is actually wearing the brace. The orthotist and parents both have the opportunity to see the compliance data in real time using the stWear™ app.

- ✓ Share data between physicians, orthotists and parents.
- ✓ Extended battery life.
- ✓ Parents get their own login, and can help monitor their child's success through the app.

Learn more at Spinal.Tech/Compliance



DOWNLOAD APP



Learn More from the Scoliosis Community





HIGGY BEARS

 higgybears.com
 lauren@higgybears.com
 facebook.com/higgybears
 [higgybears](https://instagram.com/higgybears)
 [higgybears](https://tiktok.com/higgybears)







SCOLIOS-

 bracingforscoliosis.org
 info@bracingforscoliosis.org
 facebook.com/scoliosis
 [bracingforscoliosis](https://instagram.com/bracingforscoliosis)
 [bracingforscoliosis](https://tiktok.com/bracingforscoliosis)



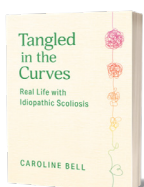
Books



The Silver-Horned Girl

Designed as a conversation starter for facing anxiety, *The Silver-Horned Girl* demonstrates to teens how similarly insecurity affects everyone. Whether they experience a visible difference or one less obvious, no one should have to suffer in silence.

Found on Amazon, Barnes & Noble.
[@thesilverhornedgirl](https://www.instagram.com/thesilverhornedgirl)



Tangled in the Curves

Tangled in the Curves is an honest firsthand account of real life with idiopathic scoliosis that fully captures the scoliosis journey through teenage diagnosis, bracing, surgery, and adulthood. It's also a useful tool that provides easy access to an abundance of practical information: resources, options, research and expertise, tips and tricks, and personal stories from "scoliosis warriors" around the globe.

Found on Amazon, Barnes & Noble.
[@the_scoliosis_book](https://www.instagram.com/the_scoliosis_book)

Other Books

Being Grace: A Story for Children about Scoliosis | Braced | Straight Talk Scoliosis | Deenie | The Emotional Journey of Scoliosis | Growing Up in a Brace

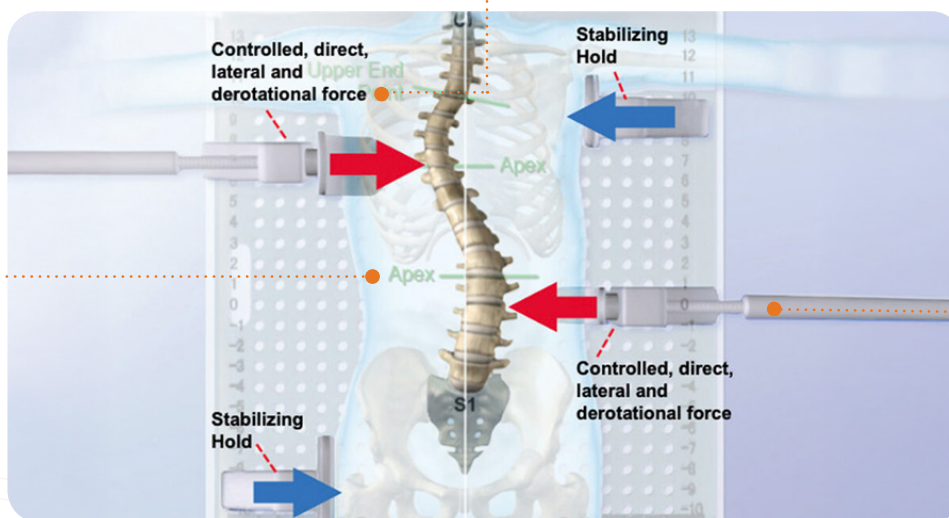
Other Resources

- Follow [#scoliosis](https://twitter.com/scoliosis) related hashtags on social media
- Join Facebook groups like "Higgy Friends" or "Embraced- Scoliosis Bracing Support for Parents"
- Find undershirts to wear under your brace Embraced in Comfort or Higgy Bears
- Learn terminology at Scoliosis Research Society, SRS.org, or Setting Scoliosis Straight
- Find local / online mentors or friend groups at
 - CurvyGirlsScoliosis.com
 - BracingforScoliosis.org
 - HiggyBears.com
- Listen to the Scoli Squad podcast
- Search for more books and blogs about scoliosis
- Talk to your school about your diagnosis and put together a 504 plan

Glossary

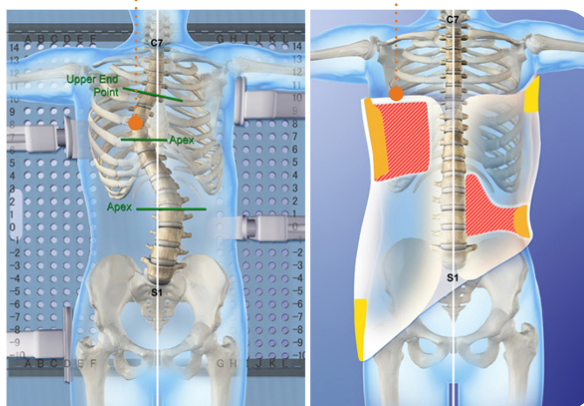
As defined by Scoliosis Research Society (srs.org) and Wikipedia.

- **Adolescent Idiopathic Scoliosis:** A lateral curvature of the spine in children aged 10 to 18. AIS is the most common type of scoliosis, characterized by a spinal curve that develops in otherwise healthy adolescents. There has not been any definitive research to suggest what the specific cause is for those who develop adolescent idiopathic scoliosis.
- **Adams Forward Bend Test:** An evaluation is performed to assess the patient and determine if there is an abnormal curvature to the spine. It also evaluates the symmetry of the hips, ribs, and/or shoulders.
- **Apex/Apices:** The area(s) of greatest curvature or displacement from the midline of the body.
- **Cervical Curve:** A scoliosis curve having its apex at a point between C1 and the C6–C7 disc between the base of the skull (occiput) and the thoracic spine. The normal cervical spine alignment is lordosis.
- **Cobb Angle:** A standard method used to measure the severity of scoliosis by determining the angle between the top and bottom vertebrae of the spinal curve.
- **Compliance:** A patient's adherence to the prescribed brace wear schedule and duration. It's a crucial factor in the effectiveness of bracing, as the brace needs to be worn consistently for the intended period to allow for spinal correction.
- **Coronal Plane:** A vertical plane that divides the body into front (anterior) and back (posterior) halves, and scoliosis is characterized by a deviation of the spine in this plane.
- **De-rotational Force:** Correction in the transverse plane applied from the orthosis.
- **Direct Force:** The corrective pressure exactly to the apex of the curve.
- **Full-Time Brace:** A scoliosis orthosis worn 18–23 hours a day.
- **Human Growth Hormone:** Is a peptide hormone that stimulates growth, cell reproduction, and cell regeneration in humans. It is thus important in human development.
- **Hyper-corrective:** The forces used to counteract the spinal curvature and rotation.
- **In-Brace X-Ray:** An x-ray that is taken while the patient wears their spinal brace.
- **In-Brace Correction:** The spinal curve correction obtained when wearing a spinal orthosis.
- **Juvenile Scoliosis:** Scoliosis developing between the ages of three and ten years.
- **Lateral Force:** Correction in the coronal plane applied from the orthosis.
- **Lumbar Curve:** A scoliosis curve that has its apex at a point between the L1–L2 disc space through the L4–L5 disc space.



Right Thoracic Left Lumbar Curve

- **Mild Scoliosis:** Characterized by an abnormal spinal curvature with a Cobb angle between 10 and 25 degrees.
- **Moderate Scoliosis:** A lateral spinal curvature between 26 degrees and 40 degrees.
- **Nighttime Brace:** A scoliosis orthosis worn between 10-12 hours in the evening and while sleeping.
- **Orthosis:** An externally applied device used to modify the structural and functional characteristics of the neuromuscular and skeletal system.
- **Orthotist:** A healthcare professional who specializes in the provision of orthoses and has overall responsibility for orthotics treatment. They are clinicians trained to assess the needs of the user, prescribe treatment, determine the precise technical specifications of orthotic devices, take measurements and images of body segments, prepare a model of the evaluation, fit devices, and evaluate treatment outcomes. In the United States, orthotists work by prescription from a licensed healthcare provider.
- **Radiograph:** A procedure that uses a type of high-energy radiation called x-rays to take pictures of areas inside the body.
- **Risser Sign:** Used to evaluate skeletal and spinal maturity, this sign refers to the crescent-shaped line of bone formation that appears across the top of each side of the pelvis on plain X-ray. Graded on a scale from 0 to 5: 0 indicates much potential growth remains, and 5 indicates skeletal maturity.
0-no evidence of ossification of the apophysis;
1-25% excursion; 2-50% excursion; 3-75% excursion; 4-100% excursion; 5-fusion of the apophysis to the iliac crest.
- **Severe Scoliosis:** This occurs when the lateral abnormal curvature of the spine measured on plain radiographs via the Cobb angle exceeds 40 degrees.
- **Scoliosis:** Lateral deviation of the normal vertical line of the spine, which, when measured by x-ray, is greater than ten degrees. Scoliosis consists of a lateral curvature of the spine, with rotation of the vertebrae within the curve. Rotation of the vertebrae also occurs, which produces the rib cage and flank muscle asymmetry.
- **Scoliosis Brace:** A prescribed medical device made from rigid plastic that is worn to prevent a mild or moderate scoliosis curve from progressing to a more severe curve. It applies pressure to the spine using a three-point pressure system to guide the spine into a straighter position. There are several different types of scoliosis braces.
- **Scoliosis Orthosis:** Clinical term for a scoliosis brace (above), a scoliosis orthosis is an externally applied device used to modify the structural characteristics of the skeletal system.
- **Scoliometer:** A tool used to measure, in degrees, the rotation that is associated with the scoliotic curve.
- **Supine:** Lying face up
- **Thoracic Curve:** Any spinal curvature in which the apex of the curve is between the second and eleventh thoracic vertebrae.



Works Cited

Scoliosis Research Society. Adolescent Idiopathic Scoliosis. (2020).

American Association of Neurological Surgeons. Scoliosis. (2020).

Choudhry, M. N., Ahmad, Z., & Verma, R. (2016). Adolescent Idiopathic Scoliosis. The Open Orthopaedics Journal, 10, 143–154.

U.S. National Library of Medicine. MedlinePlus. Adolescent Idiopathic Scoliosis. (2013).

El-Feky, M., Thuaimer, A., et al. (2020). Cobb Angle. Radiopaedia.

South Florida Scoliosis Center. (2017).

Boston Children's Hospital. Scoliosis Diagnosis & Treatment. (2020).

Spine Magazine, Volume 26, November 2001.

Simony, A., et al. (2019). Providence® Nighttime Bracing: Effective Treatment for Adolescent Idiopathic Scoliosis, Even in Curves Larger Than 35°. Volume 28; Issue 9.

Roland d'Amato, Charles, MD, FRCS(C); Griggs, Sean, MD; McCoy, Barry, MEd, CPO. Nighttime Bracing With the Providence® Brace in Adolescent Girls With Idiopathic Scoliosis. Spine: September 15, 2001 - Volume 26 - Issue 18 - p. 2006-2012.



Spinal
Technology

Spinal.Tech/**Scoliosis**

