



# Life

with your Charleston  
Bending Brace



Scoliosis Management and the ...

# Charleston Bending Brace



Just  
the  
Facts

*Many young people who learn that they have scoliosis feel concerned about the nature of this condition and how it might affect their lives. Often, they find comfort in learning that they aren't alone; over two and a half million Americans today have been diagnosed with this very treatable condition. This brochure offers straightforward answers to some of the most frequently asked questions about scoliosis from patients, their parents and their friends. It also explains how the nighttime-only Charleston Bending Brace can improve this condition and how the orthotist can help patients best benefit from the brace. It probably won't cover everybody's personal questions and concerns. That's why it's best to speak with an orthotist (brace maker) and the doctor who prescribed the Charleston Bending Brace.*

*Prepared by the Charleston Bending Brace  
Research and Education Foundation*

## What is Scoliosis?

Scoliosis is a condition marked by an abnormally curved spine. We don't understand why, but girls are seven times more likely than boys to have this condition. Since we don't know what causes scoliosis in most patients, it is called "idiopathic," or of unknown cause. An x-ray can determine whether the curve is from side to side or "lateral," which means on one side. Lateral curves, which range from very mild to more severe, may resemble the letter "S" or a long letter "C".

Some young people know about scoliosis from the book "Deanie" by Judy Blume, a popular author for teens. "Patty's Last Dance," from the Sleepy Valley Twins series, and "The Bravest Thing" by Donna Napoli also address scoliosis.

## Why Bracing?

For decades, scoliosis has been managed with braces, also known as "orthoses," usually worn throughout a child's or adolescent's growth period until they reach skeletal maturity. They then begin a gradual weaning process. Traditional scoliosis treatment, which requires wearing a brace 23 hours daily, has proven very successful.



The Charleston Bending Brace, a more recent development in scoliosis management, provides another alternative for successful treatment in some patients.

## What are the Benefits of the Charleston Bending Brace?

Unlike most braces used to treat scoliosis, the Charleston Bending Brace offers a major advantage. Patients wear this nocturnal (nighttime) orthosis only eight to ten hours at night; they therefore may participate in normal daytime activities, including sports. Many physicians and orthotists report that nighttime-only wear makes the brace especially acceptable to patients and parents. They also have observed frequently that children and adolescents enjoy major psychological benefits when they can participate fully in daytime activities, unrestricted by a bulky brace.

## How Does the Charleston Bending Brace Work?

The Charleston Bending Brace introduces bending forces at certain specific locations on the patient's spine.



Since bone grows in response to stresses placed on it, these forces over time alter growth rates of the vertebrae. The image of a crooked young tree pulled and pushed by poles and wires as it grows may help explain this concept. After years of such “bracing,” the tree begins to grow straight on its own. Likewise, the orthotist designs this brace to create a mirror image of the spinal curve(s) of the person with scoliosis. The brace may, for example, work to “unbend” a patient’s left lumbar curve by creating a right lumbar curve. Spinal flexibility helps determine the degree of success achieved by the Charleston Bending Brace in unbending the curve(s).

## Why is the Charleston Bending Brace Worn Only at Night?

Studies indicate that children and adolescents grow in response to the levels of Human Growth Hormone (HGH) in their bodies. The same studies indicate that HGH levels peak at night. Most growing happens therefore at night, during sleep. The Charleston Bending Brace works on the principle that if the spine can be bent to change how it grows at the time of day when most growing occurs, the direction of the spinal curve can be successfully changed as well.

## How Long Must the Charleston Bending Brace be Worn?

It's critical to wear the Charleston Bending Brace eight to ten hours each night, seven nights a week, until the patient's skeleton reaches maturity. A doctor can determine from x-rays when an adolescent is approaching skeletal maturity.

## What Determines if the Charleston Bending Brace Has Worked?

Bracing is considered successful when the doctor determines that the curve at skeletal maturity has not progressed beyond the degree when bracing began. Or, there has been a slight increase in degrees and/or surgery has been avoided.

## Will Scoliosis Curves Worsen Without the Brace?

There are five categories of curves and curve combinations. Each category has its own risk for progression. Since much remains today that we don't understand about idiopathic scoliosis, we do know that some curves will progress in spite of brace treatment. With proper treatment, however, bracing frequently halts curve

progression. Sometimes, in mild cases of scoliosis, a doctor may determine that a minor curve has not progressed enough to justify prescribing an orthosis.

## Will the Charleston Bending Brace Prevent My Curve from Getting Worse?

Medical studies conducted in recent decades show the Charleston Bending Brace to be highly effective in managing certain kinds of scoliosis. In many curves, especially single curves under  $35^\circ$  either in the thorax (chest) or lumbar areas (between the pelvis and ribs), the rate of progression with this brace has been as low as that of any of the 23-hour bracing systems. In severe cases, however, 23-hours of brace wear may be indicated either by another brace protocol or a combination of day brace wear and a Charleston Bending Brace at night. Research on the brace continues today.

## What Takes Place during Visits to the Orthotist and Doctor?

On the first visit, the orthotist gives a complete explanation about how the Charleston Bending Brace works and how it is tailored to the patient's spinal curve(s). Also, the orthotist should

encourage the patient and family to pose questions. Next he/she evaluates the patient's x-rays and casts the patient's body with plaster of paris to create a mold for use in fabricating the brace. The casting process takes approximately 45 minutes. In some cases, only measurements are necessary.

About two weeks later, the patient returns for a fitting of the Charleston Bending Brace, a procedure that takes approximately one hour. The orthotist will then trim and adjust the brace to ensure the best possible function and comfort. A snug fit is the most effective. The orthotist also will draw lines on the straps of the brace to help the patient remember how tightly to wear it. Shortly afterwards, the patient will receive the brace along with instructions on its use and wear.

Upon receiving the brace, the patient next visits the doctor for an x-ray of his/her spine in the brace. The x-ray should display a dramatic decrease in the curve(s), indicating that the brace works properly. Once the doctor approves x-ray results, the patient may start wearing the brace that night.

Thirty days later, and every three or four months thereafter, the patient will return to the orthotist for further evaluation. About every four months, it is necessary to see the doctor, who will evaluate the status of the scoliosis. For convenience, these visits may be scheduled on the same day.



## Will the Charleston Bending Brace be Difficult to Put On at First?

The Charleston Bending Brace should not be worn too tight at first. It's best to allow a ten-day adjustment period, wearing the brace loose for the first few days and gradually tightening the straps each night. By the time patients reach the lines drawn by the orthotist on the straps, they usually feel reasonably comfortable in just a short time.

## What is the Best Way to apply my Charleston Bending Brace?

Once a patient becomes familiar with the brace, it's not too difficult to follow these steps:

- 1. Apply the brace** either lying down or standing up. Most wearers prefer to lie down, but it is equally acceptable to apply it while standing.
- 2. Lie Down** to fasten the straps. Make them a little snug, but don't tighten them yet.
- 3. Wiggle** around inside the orthosis to be sure that it feels in the right place. Then



begin to bend your body in those places where you feel the brace pushing. For example, if it is pushing on the left side of your waist, move your waist to the right as if you are trying to move away from the pressure on your left. If the top of the Charleston Bending Brace seems as if it's trying to bend you to the right, then bend your upper body to the right. Moving your body in the direction that the brace pushes, makes you more comfortable and the brace more effective.

**4. Tighten the straps, starting always from the bottom up.** Tighten the bottom strap a little, the middle strap a little and then the upper strap a little. Then, return to the bottom strap and start all over again, and again and again, until you have tightened the straps to the lines drawn by the orthotist. It is very important to tighten the straps gradually and slowly. It may take as long as 30 minutes each night to arrive at the lines drawn on the strap. The goal is to tighten the Charleston Bending Brace to a point of maximum effectiveness, comfortably.

## *Is There an Adjustment or Break-in Period for the Charleston Bending Brace?*

Yes. You have ten days to reach the lines drawn on the straps. Take your time and wear the brace loosely at first to accustom yourself to sleeping all night

while wearing it. After a few nights, begin to tighten the brace a little. Each night afterwards, continue to tighten the straps a little more than you did the night before.

Remember, the goal is to stretch the muscles and tendons of your spine slowly, gradually and comfortably. Recall how tight and uncomfortable the brace felt when you first went to the doctor's office for an x-ray in the brace? After the adjustment period, it will no longer feel that way if you follow the instructions.

## How Does the Patient Sleep in the Charleston Bending Brace?

A tight-fitting shirt worn underneath the Charleston Bending Brace, especially a long sleeveless cotton T-shirt that fits snugly and has no seams, makes a good choice. A shirt bought a little too small provides a snug fit. Garments that wrinkle or have thick seams may irritate the skin.

A firm mattress that is turned often is best for sleeping. A soft mattress may be firmed inexpensively with a full-size piece of 3" x 8" plywood placed between the mattress and box spring. Sleeping on the back or stomach is the most comfortable position.



It is usual to awaken in the morning a little damp with perspiration. For a refreshing effect, patients who don't normally shower in the morning may wipe their bodies with rubbing alcohol to remove skin oils and perspiration. The same cloth and rubbing alcohol can be used to clean the inside of the brace.

## What is the Minimum Time to Wear the Charleston Bending Brace at Night?

The Charleston Bending Brace is expected to be worn during hours of sleep; optimal results are based on a minimum of eight hours, seven nights weekly. If the patient sleeps longer, it is anticipated the brace would be worn longer, understanding that optimum results happen when worn a minimum of eight hours. If the patient occasionally attends a sleepover, the brace may be left home for that one night only.

Sometimes, patients start to feel impatient or negative about having to wear the Charleston Bending Brace seven nights a week. An effective way to place this feeling in better perspective is to consider the much greater inconvenience if they had to wear a 23-hour brace instead.



## Does the Patient Have Any Other Responsibilities Between Visits to the Orthotist and Doctor?

If at any time the patient experiences problems with the brace, such as pain, rapid growth or an inability to wear it as directed, it is critical to call the orthotist immediately. It also is important to keep track of measurements, height and weight. Should they change; the orthotist will determine if a brace adjustment is necessary. Rate of growth also determines if and when it is necessary to replace your Charleston Bending Brace. Most children and adolescents wear their braces for a year or longer before outgrowing it.



Only one opportunity arises in a lifetime to arrest the progress of scoliosis. This is the time when a young person is growing. That's why regular visits to the orthotist, who can make necessary adjustments in a timely manner, is extremely important.

Patients who follow instructions on wearing the Charleston Bending Brace have every reason to relax. They are doing the very best possible to control their scoliosis so that they will reach skeletal maturity with minimal progression of their curves.

*Purpose:*

To manage the progression of scoliosis by bending the spine at certain specific locations identified by the doctor and the orthotist

*Nightly wearing time:*

Minimum of eight hours. Ten or more hours is most beneficial.

## The Charleston Bending Brace **Key**

*Prognosis:*

Proven equally effective as most 23-hour bracing systems, especially with curves less than 35°

*Duration of Time*

Until a doctor's interpretation of x-rays determines that a patient has reached full skeletal maturity.

*for Wearing Brace:*

*Distinguishing*

Worn only  
at night while  
sleeping

*Characteristic:*

*Most comfortable*

back or  
stomach

*sleeping positions in brace:*

# Facts

*Follow-up Doctor Visits:*

Every  
four months  
average

*Visits to Orthotist*

30 days  
average for first  
visit, three to  
four months  
subsequently

*after Fitting of Brace:*