

Effective Casting for Progressive Early-Onset Scoliosis

INTERVIEW

Peter F. Sturm, MD, *Director, Crawford Spine Center, Cincinnati Children's*

Derotational casting to treat early-onset scoliosis was developed in the 1960s, but only recently have studies offered clear evidence of effectiveness. Peter F. Sturm, MD, who has treated dozens of children with derotational casting, also known as the Mehta technique, discusses how this approach has changed the standard of care for early-onset scoliosis at Cincinnati Children's Hospital Medical Center.

When did you begin performing the Mehta technique?

I trained with Dr. Min H. Mehta about five years ago along with several others now performing the technique in the United States. Since then, I have treated about 70 cases, including more than 20 at Cincinnati Children's.

How effective is derotational casting?

We consider derotational casting to be curative for patients with an idiopathic diagnosis and a moderate curve size (< 60 degrees). For patients with larger curves (> 60 degrees) and / or syndromal diagnoses, casting still frequently results in curve improvement even though surgery may be needed at a later age. Unlike Risser casting, we have experienced no rib deformities while employing the Mehta technique.

Why has this technique begun attracting new attention?

The data is showing that it works. When I was at the Shriners Hospital for Children in Chicago, we were one of three Shriners medical centers to study derotational casting. We published the results from 55 patients in 2009 (*J Pediatr Orthop* 2009;29:581–587). That paper was one of the first with strong outcomes data.

How does Mehta casting compare with other treatments for early-onset scoliosis?

We have known for quite some time that fusing the vertebrae is not a good option for young patients. In a 3-year-old, spine fusion restricts chest growth and can lead to severe pulmonary complications. Growing rods and the vertical expandable prosthetic titanium rib (VEPTR) were developed to allow continued chest growth. However, growing rods can result in auto-fusion and VEPTR can result in chest wall stiffness. Infections, device malfunctions and other complications also can occur. Our goal is to cure moderate cases without these interventions, and to try to delay surgery as long as possible.



Addyson's spine at 7-months-old with a 42 degree curve prior to beginning Mehta casting treatment.



Addyson with her first cast in January 2011. She is still being treated with Mehta casting. There has been a noted decrease in the curvature of her spine.

What makes a child an ideal candidate for Mehta casting?

Casting is most effective in children under age 4 as they proportionally experience the most rapid growth. By age 8, children have their full complement of lung alveoli and we become less concerned with chest growth, although growth-promoting surgery has a place in most children under age 10.

How has this technique changed practice at the Crawford Spine Center at Cincinnati Children's?

Since 2010, we have performed more than 20 cases at the Crawford Spine Center using the Mehta technique. We no longer perform Risser casts, which do not provide the derotational benefit of the Mehta technique. We still use growing rods and VEPTR in cases where casting is not applicable, such as older-onset cases and children with spina bifida.

What's the next step in treating early-onset scoliosis?

We continue to conduct research. Cincinnati Children's belongs to two important study groups — the Growing Spine Study Group and the Chest Wall and Spine Deformity Study Group. We are involved in ongoing studies to compare treatment methods. We also are working to develop a standardized classification system for spine curves in young children.

Watch interviews with the families of young children Dr. Sturm is treating for early onset scoliosis with Mehta casting at www.cincinnatichildrens.org/early-onset-scoliosis



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For questions or referrals call our Spine Nurse Hotline at **513-803-2750**.

For immediate consultations, physician referrals and patient care follow-up, call the Physician Priority Link at **1-888-636-7997**.

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