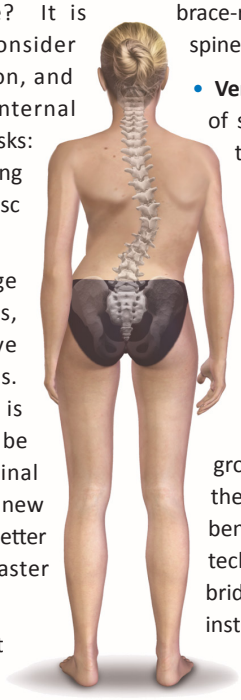
New treatment options correct spinal curves through a minimally invasive approach

When should a person consider scoliosis surgery to straighten a curve? It is a difficult decision. Issues to consider include deformity, pain, function, and the effect of the scoliosis on internal organs. Waiting too long carries risks: progression of the curve, loss of lung function and progressive lumbar disc degeneration.



Younger patients, even with large deformities, have flexible spines, recover quickly and can have dramatic correction of the scoliosis. As a person gets older the spine is less flexible and the recovery can be more significant. Advances in spinal deformity surgery have produced new instrumentation, new techniques, better results, quicker recovery and a faster return to activity.

Most juvenile and adolescent idiopathic (genetic) scoliosis can be treated with observation and bracing. Patients who are candidates for brace treatment have been the beneficiary of recent Level One data asserting the effectiveness of bracing in controlling scoliosis up to 50% of the time. However, in patients in which bracing is not effective, or when the curve was discovered later, other options are now available.

There are two new minimally invasive procedures that do not involve fusion, and can be used to treat patients with progressive brace-resistant scoliosis. Both access the spine through tiny incisions near the ribs:

- **Vertebral Body Stapling** uses a series of staples on one side of the vertebrae to correct scoliosis like braces on teeth.
- **Vertebral Body Tethering** uses a cable attached to one side of the vertebrae to correct and then control the curve.

Both techniques work on one side of the curve to prevent it from worsening during the adolescent growth spurt. Sometimes it may be the only surgery needed. A second benefit of both minimally invasive techniques is that they don't burn any bridges and more traditional corrective instrumentation can be used later on if necessary.

In patients who progress to large curves, minimally invasive surgery is sometimes an option. Dr. Matthew Geck at Texas Spine & Scoliosis Center is one of the developers of **"mini scoliosis surgery."**

The current 4th generation pedicle screw surgery, used to correct a large spinal curve, can involve a 12 to 24-inch long incision. While this surgery is effective, the recovery period is significant.

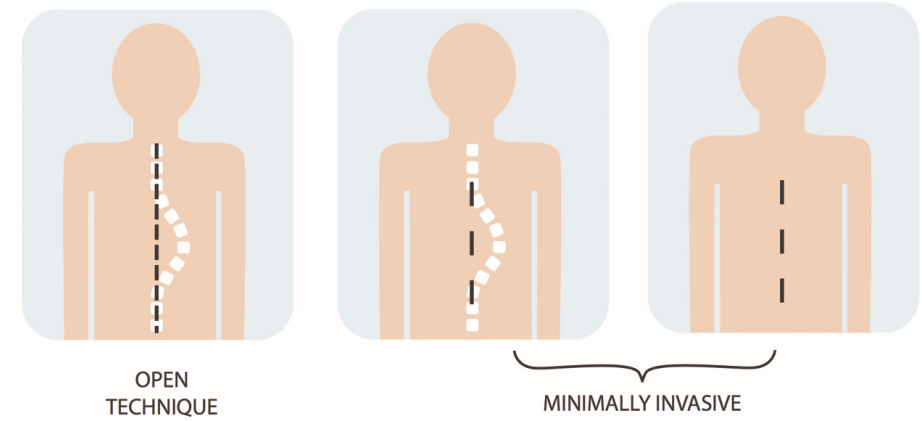
Conversely, with mini scoliosis surgery, Dr. Geck is able to use special instruments and work through three smaller incisions to straighten the spine with very little muscle and tissue disruption. The benefit to the patient is significant:

- The shorter incisions involve less blood loss and no need for outside blood.
- The shorter incisions have less disruption to muscles and tissues and subsequently the patient has a less painful and quicker recovery.
- The patient has less risk of complications and the patient has less time in the hospital.

Adults with scoliosis frequently need consultation with a scoliosis specialist as well. Some have progressive scoliosis that is becoming painful, affecting their lungs, or damaging their lumbar discs.

Others can have severe degeneration of their scoliosis leading to "collapsing spine syndrome," in which they lose height, stoop forward and develop bone spurs that pinch their spinal nerves.

Finally, previously operated patients may have been map-aligned, perhaps by Harrington or CD rods, and with age can develop "Flatback Syndrome" with terrible back pain and disability. Dr. Geck has extensive experience with all of these scoliosis issues.



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TexasSpineandScoliosis.com

Patient Success Story — Mini Scoliosis Correction

Taylor was diagnosed with scoliosis at age 12 during a school exam. Her parents took her to an orthopedic doctor near their Houston home. While at the appointment, X-rays revealed a 19° spinal curve. The doctor fitted Taylor with a Boston Brace to stop the curve progression.

She didn't let scoliosis interfere with an active life at the time. She continued cheerleading and horseback riding.

Unfortunately, Taylor's curve continued to worsen during bracing — follow-up X-rays revealed a 32° curve. Next, Taylor and her parents were referred to another Houston orthopedic surgeon who talked with them about traditional scoliosis surgical options. Not only had Taylor's spinal curve worsened to 53°, but she was also experiencing back pain so severe at times it would cause her to fall to the ground.

Taylor and her parents understood that traditional scoliosis surgery involved a single long incision that would cut into muscles from the shoulder blades to the waist.

Taylor's parents began researching other scoliosis treatments and learned of "Mini Scoliosis Surgery," which involves three small incisions instead of one long incision. The new Mini Scoliosis Surgery results in less scarring, less muscle dissection and less blood loss.

The family was happy to learn that one of the first surgeons in the nation to do this surgery was Dr. Matthew Geck, a fellowship-trained scoliosis and spine surgeon in Austin.

Dr. Geck talked with Taylor about the Mini Scoliosis Surgery procedure. He noted that because the incisions are so much smaller than traditional scoliosis surgery, it would minimize the disruption to muscles and ligaments. This would allow Taylor to get back to her normal activities in about three months.

Taylor and her parents made the decision to move forward with the surgery. Dr. Geck performed the minimally invasive procedure and it was successful in correcting her spinal curve.

Her straighter spine also gave Taylor new found self-confidence. "Three months after surgery she had cheerleader tryouts," says her mom. "She didn't know if she would be able to make the varsity team again, and she did."

Her confidence and perfect posture was displayed when she competed in the Miss Texas Teen USA pageant. She has also started modeling.

Today, she is not limited in activity at all. Taylor is looking ahead to college and her future — with new found confidence.

Before Mini Scoliosis Surgery, Taylor's thoracic curve had progressed to 53° (left). After surgery, her curve was corrected to 16° (right) with only three small scars. Taylor was back to full activity — including cheerleading, modeling and horseback riding within a few months.

Physician Profile

MATTHEW GECK, MD

Board-certified Orthopedic Surgeon
Dual Fellowship-Trained Spine Surgeon
Co Chief Texas Spine and Scoliosis
Chief of Scoliosis and Complex Spine

Dr. Geck is a board certified orthopedic surgeon, and is dual (adult and pediatric) fellowship-trained in spine surgery. His spine practice focuses exclusively on scoliosis and complex spine surgery, and over the last 15 years is referred complex scoliosis cases from across the country. His practice addresses adult and pediatric scoliosis, kyphosis and other complex spinal problems. He specializes in minimally invasive scoliosis surgery, complex scoliosis reconstruction and revision surgery for failed spine surgeries and flatback syndrome. He has performed more than 2,500 scoliosis surgeries and more than 100 "mini scoliosis" surgeries.

Dr. Geck has a national reputation for research on patient safety, quality, surgical improvement, innovative scoliosis techniques and spinal cord compression surgery. He has over 20 published papers and book chapters and over 50 abstracts presented at national academic meetings. He is an assistant professor at the University of Texas Dell Medical School. He is a fellow in the Scoliosis Research Society, Cervical Spine Research Society, American Academy of Orthopedic Surgeons and the American Orthopedic Association.

Dr. Geck is the co-founder and medical director of SpineHope.org, a non profit organization that transforms the lives of children with spinal deformities worldwide. SpineHope.org has performed more than 400 free scoliosis surgeries for underprivileged children from under-resourced countries both on global outreach trips and here in Austin as part of their Hub program. For his efforts in global outreach for complex spine problems Dr. Geck was given the University of Wisconsin's "Forward Under 40 Award" in 2009. Dr. Geck has been named to Becker's Spine Review list of "50 Spine Surgeons Focusing on Scoliosis Development."