



Accurate Clinic

2401 Veterans Memorial Blvd. Suite 16
Kenner, LA 70062 - 4799
Phone: 504.472.6130 Fax: 504.472.6128

www.AccurateClinic.com

Scheuermann's Disease of the Thoracic and Lumbar Spine

By: Paul C. McAfee, MD

Scheuermann's disease, or Scheuermann's kyphosis, is a condition in which the normal roundback in the upper spine (called a kyphosis) is increased. Most people with Scheuermann's disease will have an increased roundback (e.g. a hunch back or hump back) but no pain.

Scheuermann also described changes that occur in the disc spaces of the lumbar spine that can lead to back pain. This is really another condition, called juvenile disc disorder, but is often confused with Scheuermann's kyphosis and is sometimes called Lumbar Scheuermann's disease. To avoid confusion, the preferred terminology is now:

- Juvenile disc disorder (or juvenile discogenic disorder) the condition of adolescent degenerative disc disease (Lumbar or low back)
- Scheuermann's disease (or kyphosis) the condition of adolescent kyphosis (Thoracic or upper back)

Whereas thoracic Scheuermann's is not usually associated with pain, lumbar Scheuermann's is often symptomatic.

Juvenile Disc Disorder

Lumbar Scheuermann's disease or Juvenile disc disorder (or juvenile discogenic disorder) represents a condition where the endplates of the disc spaces are not strong enough to withstand the pressures generated within the disc spaces. This leads to disc herniations into the vertebral bodies (called Schmorl's nodes) and causes back pain at an early age.

Juvenile disc disorder is not as common as Scheuermann's kyphosis and is not associated with deformity of the spine. Patients with juvenile disc disorder usually have lower back pain that is made worse with bending forward and activity, and feels better with rest.

This condition is very much like degenerative disc disease in the adult population, but the degeneration starts at a much earlier age, and usually involves most of the discs of the lumbar spine (as opposed to only one or two discs typically involved in degenerative disc disease).

Treatments for juvenile disc disorder

Conservative treatments may include one or a combination of the following:

Medications

Chiropractic or osteopathic manipulations

Epidural injections

TENS units

Physical therapy (exercises, stretching)

It is important to note that adolescents who have back pain due to juvenile disc disorder do not need to have their activities medically restricted. In fact, physical activity is encouraged as it can help keep the back strong and healthy. In general, adolescents who are inactive have a higher rate of back pain as they become deconditioned and weaker.

There is no conclusive evidence that activity accelerates the disc degeneration, so adolescents with this diagnosis should be allowed to participate in athletics as their pain allows. A well-balanced exercise program of daily hamstring stretching, strength training, and aerobic conditioning is best.

Because the degeneration typically occurs in multiple discs, any attempt to fuse one or more levels of the lumbar spine will place a lot more pressure on the already weakened other levels. Fusing the whole spine



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leads to only more pain as the spine is basically meant to move, and attempts at fusing the whole lumbar spine are rarely successful in reducing pain.

However, surgery to remove a disc herniation that is compressing a nerve is reasonable, as a decompression surgery (e.g. microdiscectomy) can relieve pain but does not change the natural biomechanics of the spine.

Vocationally, patients with a lot of back pain and evidence of juvenile disc disorder on their imaging studies should be counseled to not consider a heavy manual labor job. Even though manual labor may not accelerate the degeneration, if they use their back for a living but are prone to bouts of low back pain, then they may have a lot of difficulty performing their jobs satisfactorily. In general, people are able to perform a more sedentary job whether or not low back pain is present.

Scheuermann's kyphosis

This condition (also called Scheuermann's disease) occurs when the front of the upper spine does not grow as fast as the back of the spine, so that the vertebrae become wedge-shaped, with the narrow part of the wedge in front. The wedge-shape of the vertebra creates an increase in the amount of normal kyphosis (front angulation of the thoracic spine).

The cause of Scheuermann's disease is unknown, but is thought to be due to a growth abnormality of the vertebral body. The growth plate anteriorly (in the front) stops growing but the posterior part of the growth plate continues to grow. This is due to a condition known as osteochondrosis.

Scheuermann's disease does not spread and is not really a "disease" but a condition that can arise during growth. It is more common in males and appears in adolescents usually towards the end of their growth spurt.

The wedging of vertebrae in Scheuermann's kyphosis is most common in the thoracic spine (upper back), with the apex of the curve typically between the T7 and T9 levels of the spine. Although less common, Scheuermann's kyphosis may also occur in the junction between the thoracic and lumbar spine (thoracolumbar spine) or in the lumbar spine (lower back).

If the roundback deformity is severe, patients are more likely to have discomfort or pain along with the deformity as they age.

Diagnosis and Treatment of Scheuermann's Disease

The normal curvature of the thoracic spine is between 20 and 50 degrees. A curvature of more than 50 degrees, where the spine has three contiguous vertebral bodies that have wedging of 5 degrees or more, constitutes Scheuermann's disease.

Postural roundback in adolescents is most often caused by posture and not by structural changes to the spine. Postural roundback can be easily distinguished from Scheuermann's kyphosis by the fact that the deformity goes away when the patient lies down. Typically, patients with true Scheuermann's kyphosis need to sleep on two or three pillows at night to stay comfortable because their deformity remains when they lie down.

Most patients with Scheuermann's also have a mild scoliosis (when the spine curves to the side). These mild scoliosis curves rarely require treatment. As with scoliosis, an X-ray is used to confirm a diagnosis of Scheuermann's disease.

Treatment options for Scheuermann's disease

Treatment of Scheuermann's disease is indicated to relieve pain, to correct an unacceptable cosmetic



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deformity, and to prevent potential progression or worsening of the curve. Treatment will vary depending on the size of the curve, the flexibility of the curve, the patient's age and the patient's preferences.

For adults with Scheuermann's kyphosis, the treatment is usually observation, anti-inflammatory drugs or reconstructive surgery, depending on the severity of the symptoms.

For patients with more than one year of growth left, the kyphosis can be partially reversed by wearing a brace (e.g. a Milwaukee brace). The brace can improve the curve during the growing years by restoring height to the front of the vertebral body and sometimes can reduce pain if present. Depending on the severity and progression of the curve, patients may be prescribed a brace for one to two years.

For patients who are already skeletally mature, bracing is not an effective treatment.

An exercise program, including specific strengthening and hamstring stretching exercises, may be recommended in conjunction with bracing. While exercise won't correct the deformity, it can be helpful in alleviating back pain and fatigue.

In general, in a skeletally mature patient, Scheuermann's kyphosis is not progressive. This is different from adolescent scoliosis, which can continue to progress (if the deformity is more than 50 degrees) going into adulthood.

Surgery for Scheuermann's disease

Surgery is **rarely needed** for Scheuermann's disease. It may be considered for patients with severe deformities (e.g. more than 70 degrees for thoracic kyphosis), if neurological deficits are present, and occasionally if pain is present with the deformity. The goal of the surgery is mostly to reduce the deformity, although some feel it can lessen pain if present (See Figure 2).

Because Scheuermann's disease usually occurs in the thoracic spine, which has almost no motion, a fusion in this area does not affect the normal motion of the spine and typically does not lead to pain later in life. Most of the motion in the spine is in the lumbar spine, and it is usually not necessary to fuse this area. This is important to avoid overstressing the other lumbar spinal segments and causing early breakdown at adjacent levels.

Surgery will typically include:

A front thoracotomy (approach through the chest) to release the tissues, remove the discs, and place bone graft in the spaces to fuse the thoracic spine. During the same surgery, the spine is then approached from the back and instrumentation (such as rods, bars, wires, or screws, which hold the spine straight during the fusion process) is put in place.

After surgery, provided the fusion is successful, all of the affected segments will be fused into one continuous bone that will not progress into kyphosis.

<http://www.spine-health.com/conditions/scoliosis/scheuermann%E2%80%99s-disease-thoracic-and-lumbar-spine>
http://www.wheelsonline.com/ortho/scheuermanns_kyphosis