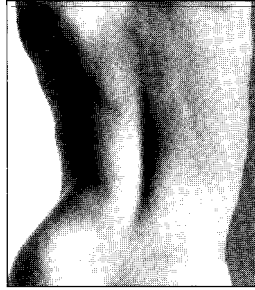


Excerpted by www.easyvigour.net.nz from Mary Pullig-Schatz: Back Care Basics, A Doctor's Gentle Yoga program for Back and Neck Pain Relief. To review and purchase this book, visit http://www.easyvigour.net.nz/pilates/h_reviewschatz.htm



Ten Scoliosis

Sometimes back pain is associated with

abnormal side-to-side curves of the spine, referred to as *scoliosis*. In what is called *true scoliosis*, these curves are caused by abnormal development of the muscles and bones of the spine, and cannot be easily corrected (although yoga postures can relieve pain, prevent the condition from worsening, and sometimes partially reverse it). In *functional scoliosis*, the curves are caused by variables outside of the spine itself, such as asymmetrical work or a short leg that tilts the pelvis to one side: If the imbalances associated with this condition are corrected, the scoliosis will disappear.

Functional Scoliosis

Functional scoliosis can be caused by a variety of factors, including back spasms and real or apparent leg-length differences.

Real leg-length difference. If one leg is longer than the other, the pelvis will tilt to one side. To keep the head level, the body adjusts by curving the spine to balance the pelvic tilt. Diagnosis of this condition requires careful measurements or leg X-rays.

Muscles on the concave side of the curved spine are shortened; on the convex side they are elongated. Those with a true leg-length discrepancy must practice exercises to balance the muscles on either side of the spine, such as the standing poses described in Chapter 7. During daily activities a lift in the shoe of the short leg will also help decrease the imbalance. However, unless the leg-length difference is two or more inches, the exercises

in this book should still be practiced barefoot. When needed (as in Mountain Pose, Figure 6.22, for example), a board can be placed under the foot of the short leg to level the pelvis.

Apparent leg-length difference (functional short leg). Even if the leg bones are of equal length, lateral spinal curvature can result if the joints of legs and feet are not used symmetrically. If one foot flattens, one ankle collapses inward, one knee is straightened too far or incompletely straightened, or one hip joint is slightly flexed, the length of that leg will seem different from the other. The same sorts of imbalances in the muscle and bones of the spine can occur with functional as with real leg-length difference.

Working with functional leg-length discrepancy requires recognizing the misalignment of the feet or legs. Chapters 6 and 7 provide Home Base and Moving On exercises to strengthen the muscles that support the arch to correct flat foot, to stretch the back leg muscles for full straightening of the knee, to balance the muscles that control the knee joint to prevent hyperextension, and to stretch the hip flexors for full extension of the hip.

The key to working with functional leg-length discrepancy is to realize that you do not have to allow the abnormality to continue. At first, correction of the misalignment requires constant attention and awareness. Later, as new habits of movement develop and muscles reset their resting lengths, proper alignment can be maintained more easily.

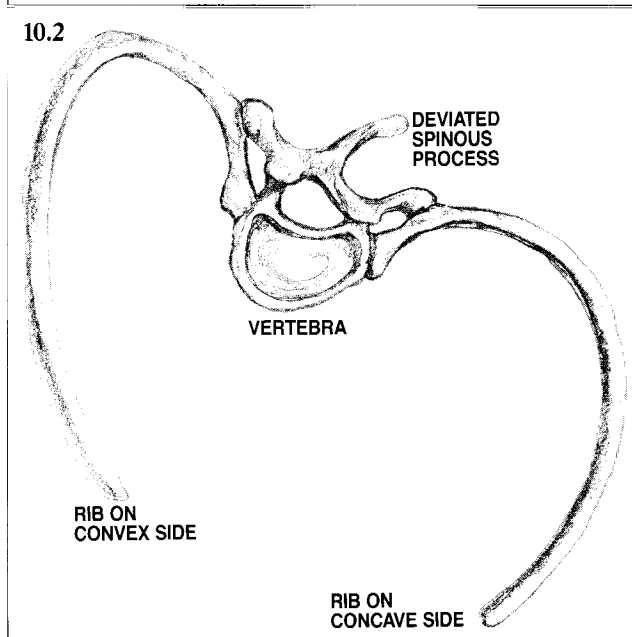
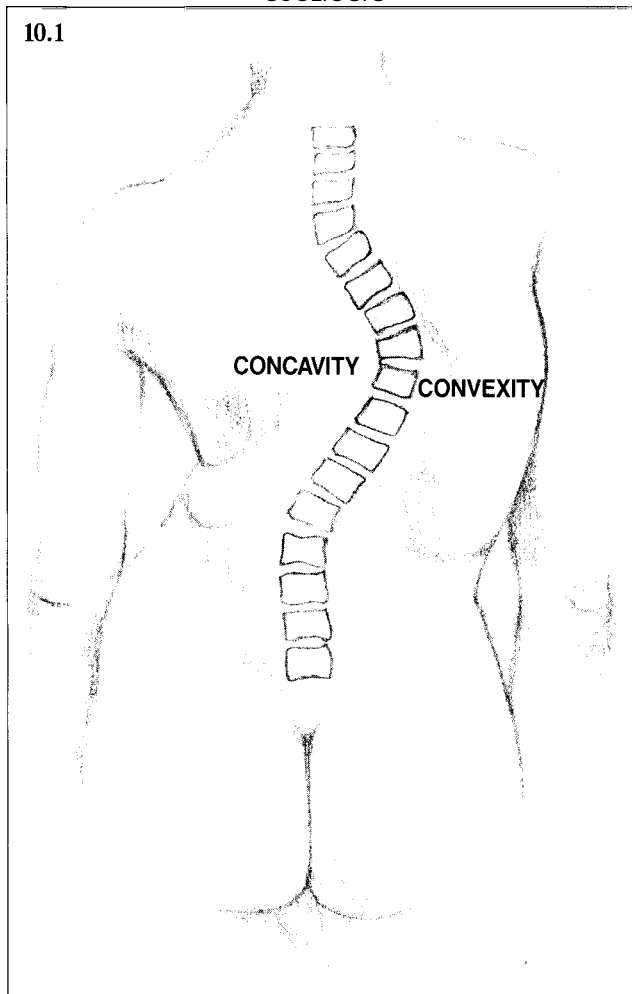
Back spasm scoliosis. So-called back spasm scoliosis occurs when the muscles on one side of the spine go into spasm (prolonged painful contraction) as a result of acute back injury or disc herniation. The muscle contraction on one side of the spine causes the appearance of a curvature, which reverts to normal when the muscles are relaxed. The poses in Chapter 5, "Relaxation Techniques," will help treat back spasms. The Home Base and Moving On poses will help prevent the injuries that lead to back spasm scoliosis.

True Scoliosis

The most common form of true scoliosis is *idiopathic adolescent scoliosis*, which occurs during the growth spurt for unknown reasons. True scoliosis can also result when polio paralyzes the muscles acting on one side of the spine. Or it can be caused by *hemivertebrae*, a condition in which only half of the vertebra develops, resulting in a wedge-shaped vertebra that is of normal or nearly normal thickness on one side and much less-than-normal thickness on the other side.

Regardless of the cause of the scoliosis, the abnormal spinal curves are associated with imbalances in the paraspinal muscles, which run parallel to the spine and act upon it. The muscles on the long aspect (convexity) of the curvature become overstretched and weakened. The muscles on the short aspect (concavity) of the curvature become overworked and tightened (Figure 10.1). This muscle imbalance causes further distortion of the spinal column and an uneven weight distribution over all of the facet joints. The facet joints on the inner aspect of the curve are damaged by chronically working under increased pressure.

SCOLIOSIS



10.1

Scoliosis, Spinal Concavity and Convexity. Adapted with permission from CIBA-Geigy, from drawings by Frank Netter, M.D.
10.2 Rib Asymmetry. Adapted with permission from CIBA

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Geigy, from drawings by Frank Netter, M.D.

In both structural and functional scoliosis, the uneven demands on the facet joints can cause wear-and-tear arthritis and can lead to degeneration of the intervertebral discs.

Practicing Yoga with a Helper

If you have scoliosis, it is best to practice yoga with a helper, although you can also benefit from working alone. Your helper could be a yoga teacher, friend, or family member. If you have a friend with scoliosis, work together. You'll both understand your backs much better if you alternate "doing" and "helping."

People with scoliosis usually have a distorted sense of what constitutes a straight spine. (The body's inner balancing mechanism tells us that we are "straight" when our eyes are level with the horizon. A person with scoliosis will unconsciously distort the whole body in an attempt to level the eyes.) Your helper can tell you when you are actually straightening your spine by providing visual and tactile advice about how your spine should be moving. If you are not experienced in therapeutic yoga and wish to help someone with scoliosis, you should carefully read this chapter and Chapter 4, "Assessing Your Flexibility and Alignment," especially the section on scoliosis.

Although scoliosis is defined as an abnormal lateral (side-to-side) curvature in the spine, there are many variations on this theme. Some people have a single lateral curve. Others have a double curve. Some even have a triple curve. The side-to-side curve is complicated by rotation of part of the spine. It is important for the helper to look carefully at the spine and assess the curves. (It is not necessary to have X-rays to assess the curves, but it does help to wear a bathing suit or a low-backed leotard so your back is visible.) It may be helpful for the helper to use a marking pen to place a dotted line following the spinous processes of the vertebrae. The helper can locate the spinous processes either by sight or by touch, with the practitioner bending forward while seated in a sturdy chair. (The entire spine should be as rounded as possible during this demonstration, to make the spinous processes more prominent.)

Advice to Helpers

If you are helping someone with scoliosis, you will probably notice that your friend's upper back appears rounded. Carefully examine the upper back to see whether this rounded appearance is due to a rounded upper spine or to a rib prominence on one side. In idiopathic adolescent scoliosis (the type of scoliosis that begins in adolescence and usually affects females), the thoracic spine is usually *not* abnormally rounded, but flattened and rotated. (In some cases, the thoracic curve will actually be concave, like the lumbar spine, rather than convex.) The upper back appears rounded because the ribs protrude on one side. When the thoracic vertebrae rotate, the spinous processes move toward one side, and

SCOLIOSIS

the ribs attached to the vertebrae will protrude in back on the other side (Figure 10.2). Not only is the thoracic curve flattened, but so is the lumbar curve. Once you get a better understanding of what is happening in the spine, you will better understand how to guide your friend toward a more normal alignment.

Many people with scoliosis have problems related to the prolonged effects of gravity on a spine that does not distribute weight optimally. Much of the musculoskeletal pain is related to collapse and loss of space around joints and moving parts. For this reason the hanging poses in this chapter give great pain relief. My students with scoliosis all say hanging poses are their favorites.

Another area prone to pain is the shoulder blade that has been displaced upward by the rib prominence. Help the practitioner keep this shoulder blade from riding up and destroying the normal functioning of that shoulder joint.

Yet another vulnerable area is the inner side, or concavity, of the side-to-side spinal curvature. Compression of joints, muscles, and nerves occurs here. Learning to increase space in the concavity can help the student.

Just as the concave (inner) side of the lateral spinal curve can create pain due to collapse, the convex (outer) aspect of this curve can be painful because of overstretching. You can help the practitioner adjust each movement to avoid either overstretching or compression in the area. This is usually a challenging endeavor, but a worthwhile one, as it teaches the person with scoliosis that it is possible to change movement habits and avoid pain.