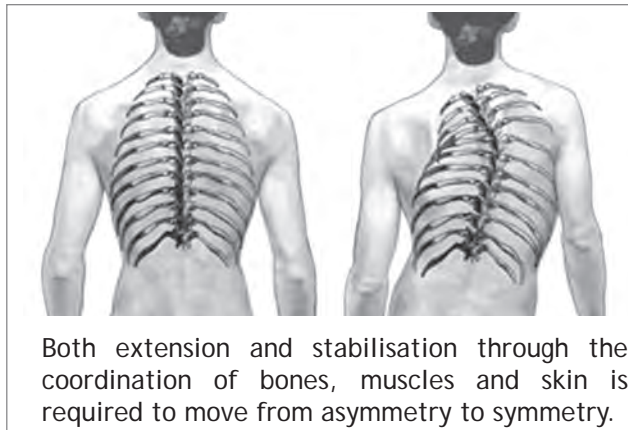


Searching For the Spine: Iyengar Yoga and Scoliosis

-- Marcia Monroe

After years of Guruji's practical teaching, I am beginning to understand Scoliosis and its treatment through Iyengar Yoga. I have learned the necessity for both extension and stabilization, and to achieve them through the coordination of bones, muscles and skin. The intention (*sankalpa*) is to move from asymmetry to symmetry.



Scoliosis is a deviation of the spine with rotation of the vertebrae within the curves. The curvatures of the spine may be observed in three planes: right to left, front to back and rotational; each of these curves can be described as having a C-shape or an S-shape. The most common curvatures are right thoracic, C-shape; left lumbar, C-shape; left or right thoracolumbar, C-shape, and a combination of right thoracic and left lumbar in an S-shape.

Conservative medical treatment for a scoliosis of between 25 and 39 degrees recommends the use of an orthopedic brace and physiotherapy. For scoliosis of about 40 to 45 degrees, surgery is suggested. Rods are then placed on the whole spine or segments of the spine depending on the curvature and techniques used. In some cases surgery is required, but it will always result in some loss of mobility of the spine.

Guruji emphasizes that Scoliosis is a muscular-skeletal disease, a disease of the *annamaya kosha*, the physical body. It must be treated from the physical body through the diligent, awareful practice of *āsana*-s. It is his brilliant observation that when adjusting students with Scoliosis – or when self-correcting -- the bones should act not only as structural support but also as initiators of movement. The bones act like muscles. To act from the bones has been a major learning for me. It is a challenge to feel the structural support of the back body, the differentiation of the ribs and the shoulder and pelvic girdles, and the more obscure spine.



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This experiential approach -- feeling the bones, muscles and skin -- opened up a new world for me in working with my own Scoliosis. For instance, in my convex side, where the ribs are convex and the corresponding external costal muscles, postural muscles and extensors are overly stretched (eccentric contraction), Guruji showed me how to soften the ribs and move from the ribs toward the center, while the intercostals and extensors concentrically contract. The convex-side ribs must move in towards the center, where the apex of the curve has to soften. There is a vertical and horizontal extension from the front, while the middle of the right chest must lift, allowing the convexity to be absorbed.

On the opposite, concave side, the back ribs must learn to feel, to lift and broaden, as the outer layer of each rib and the extensors actively engage and elongate (eccentric contraction) and the lung decompresses. There is

an extra effort to lift, extend and engage the concave-side muscles, ribs and vertebrae to the skin. The biomechanical combination of extension, lateral shifting of the ribs and creating broadness and depth between the front and back body allows for a counter-rotation of the thoracic major curve. These mechanical actions create an imprint to naturally decompress the concave side. The stabilization of both sides of the spine results from activation of the intrinsic muscles.

Guruji's teaching of *āsana* and practical philosophy have been my fundamental guide to addressing Scoliosis, first in myself and then in others.

Addressing Both Sides In All Dimensions

Both sides of the body need to be addressed – and in all dimensions: back, front and side. Where there is a convex shape, there will be a concave area on the opposite side.

Several years ago I was doing *Utthita Trikonasana* to the right when Guruji hit my left side rib and told me to bring it down. This confused me, since that is my concave side and one is told to spread and lift there. It took years of practice and reflection to understand Guruji's teaching. I realized I had only been thinking in two dimensions. I had to also include another dimension -- the de-rotation of the spine with the scoliotic curve.



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The front lower ribs on my left side were protruding. Instead, they had to release -- move in – move back.

The incorrect action was causing more tension on the left lobe of the diaphragm, making my front ribs more convex, creating more asymmetry. Guruji's correction sent me off in a new direction.

The body's movements and interrelationships become clear only with long-term practice and the blessing of a special teacher. I am gradually learning that the skin, muscles, bones and soft tissue have their own currents and intelligence.

Yoga's somatic actions -- the use of the body in space, with mind-body connection -- bring stability, improve alignment and increase proprioception of both sides of the body. Most students with Scoliosis also feel enhanced energy after a practice – sometimes the day after the practice.

When Guruji worked with me directly, I felt tremendous expansiveness and “life” afterwards. What seemed impossible became possible. His ability to perceive the unseen and intervene helped me feel the bones, muscles and skin and connect to something deeper. Guruji created the bridge between the gross and subtle in simple, physical and practical way.

Waking Up the Inner Feeling

The major problem for students with Scoliosis is their inability to feel and understand how the limbs, girdles, trunk and spine organize themselves in space. This increases when the mind is fatigued. The scoliotic body needs an outside eye, or a mirror, to perceive its alignment.

The vestibular nerve is the eighth cranial nerve; it innervates the inner ear and allows us to balance, sense changes in speed and movement, and build our sense of ourselves through the proprioceptors, nerve cells are in the joints, ligaments, tendons and muscles. Proprioception can be learned through yoga practice modified to the scoliotic student. First, we must learn to feel the peripheral body, bringing life to the trunk, differentiating and re-

educating the various body parts. Later we can integrate them as a whole.



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When the mind is unable to turn verbal directions into physical actions, hands are the props which bring direct, proprioceptive learning. The hands of the teacher make adjustments. One's own hands reveal the "mind" of each side of the body as they study differences in contour, texture and shape, discern which side needs to stabilize and which to mobilize, and monitor the breath. The concave side is like a special-needs child, requiring extra focus and support. In this side of the curve, vertebrae and soft tissue are tight; muscles are under-activated and dormant. A teacher can place both hands here to create proprioception for the concave ribs, stimulating breath awareness and opening space. How to touch without creating confusion is an art of deep observation, sensitivity and experience.

A skillful teacher provides individual adjustments and space in which the student can learn and feel, gaining understanding and confidence. As the practitioner learns to sense the inner space and the life force, the mind moves deeper and proprioception increases. The practice is a path of learning about one's embodiment, using effort to improve and effortlessness to surrender. The path will vary according to the age, medical history and experience of the practitioner.

The Yoga Brace, Belts and Pads

The use of braces to retard the progress of spinal curvatures in Scoliosis dates back to Hippocrates. Braces remain the conservative means to restrain

Scoliosis during the growing years. During adolescence, I wore a rigid brace which restricted mobility, constricted my breath and affected my self-esteem. Yet braces can be beneficial when combined with treatment, yoga practice and monitoring of the curve's progression.



Props used with Scoliosis include trunk and spinal belts, pads and wooden wedges. They bring stability to the shoulder blades and trunk; help us learn and feel. They build proprioception, bring a sense of containment and stability while teaching how to restrain the scoliotic zigzags.

Iyengar Yoga props used with Scoliosis include trunk and spinal belts, pads and wooden wedges. Small pads are secured by a belt to restrain the convex bulges of the back, lateral and front ribs, acting somewhat like the traditional brace. They also bring stability to the shoulder blades and trunk. Unlike traditional braces, these props may be used by adults; they also help us learn and feel. Pads, like hands, build proprioception and bring a sense of containment and stability while teaching how to restrain the scoliotic zigzags.

Belts are used to stabilize the shoulder blade, for instance. In right thoracic scoliosis, the right shoulder blade protracts as it moves away from the spine; its lateral angle moves forward, the superior angle lifts, and the inferior angle moves back and out. This creates an internal rotation of the humeral head anteriorly, and a caved-in front chest. Belts can reverse this action, with their counteraction pulling the superior, lateral, and inferior angles so that the center of the shoulder blade maintains contact with the ribs.

Pads go beyond biomechanics, acting as feedback devices in *āsana* and *Prāṇāyāma*. A pad placed on the front chest can build awareness of the concave upper chest and upper lobes of the lungs. The mind learns where

the breath touches -- or does not touch -- on each side, and what adjustments have to be made.

Looking at how I placed my belts, Guruji once told me, "This is not working on the spine." He placed a thick wooden wedge on my convex side (right thoracic), securing it with belts. Then I felt the solidity of the spine as well as the movement of the ribs. The wooden prop gave more information to the bone because it had a similar density. The message reached the vertebrae and offered a specific direction toward the midline.

Once one understands what each of the sides is doing, it becomes clear how props should be placed. A teacher must observe carefully, making sure the supports help the trunk organize itself towards evenness and freedom.

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The Importance of The Feet and Legs

One of the first things I learned in the Pune Medical Classes was the importance of the feet and legs.

Most students with Scoliosis have problems with the arches of the feet, distribution of weight and lack of muscular support. Each foot has its own pattern of weight distribution, indicating what the spine is doing. As a child, my feet were constantly wobbling in my sandals, my mother told me, and my shoes would become worn on one side only. Guruji has made the same observation, correcting the inner rotation of my groin; he has had me shift weight to the inner heel, and lift from there into the knee and groin of the convex side. My shoes still hold the *samskara* of a distorted weight distribution, but in my standing poses I have learned to balance more correctly.

There are many proprioceptors in the ligaments and muscles on the bones of the feet. They act like switches, turning on feelings of groundedness,

lightness, equilibrium and even self-esteem. Continuous practice of the standing postures, one of Gururji's legacies to his students, builds not only somatic strength and stability, but also a neuromuscular connection.

Tadasana, the first standing *āsana* we learn, is also the best to assess and correct asymmetries. Standing facing the wall, beside the wall or back to the wall yields additional information and support. In this way, *Tadasana* provides the most basic and profound learnings about Scoliosis. Indeed it is the hardest posture for us. Learning to distribute the weight evenly on both feet and extend evenly both sides will affect the perception of one's self and of others.

Misalignment in the feet will cause deviation in the muscles of the legs and the position of the head of the femur in the hip socket, spinal discrepancy and poor locomotion. The feet and legs must be carefully addressed in all *āsana-s* for the alignment of the pelvis, sacrum, lumbar and thoraco-lumbar curves. In these curves, one side of the body sends different signals than the other and the brain processes that asymmetric information. When correctly modified, a new awareness will develop, along with new neurological pathways of learning.

The Effect of Scoliosis On the Gait

Years ago in the Medical Class, Dr. Geeta S. Iyengar had me and another student with Scoliosis walk across the room. She guided us to stamp our heels as we lifted the legs. At first I felt uneasy about balance. Geetaji's voice commanded us to lift each leg and place each foot precisely, with the heel touching first. The tone of her voice and the clarity of her words made my gait feel focused and coordinated. The precise placement of the feet and ankles addressed the midline of the leg and foot. The repetition of this walking exercise began to bring symmetry and precision into my gait. As the heel touched the floor, the midline of each foot, shin and leg was addressed; combined with the straightforward gaze, it increased my spatial awareness and my sense of the midline.

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The Vagus Nerve

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The breath and the organic body are affected. So are the sensory organs (*jnānendriya-s*) and the perception of the world – internal and external.

These tilts can also cause misalignment in the Vagus Nerve, the tenth cranial nerve and principal parasympathetic nerve, which runs along either side of the neck. Its fibers wander throughout the thoracic and abdominal cavities

as it innervate the larynx, esophagus, lower pharynx, thoracic and abdominal viscera.

Adjustments which ensure that the Vagus Nerve fibers run in their proper parallel tracks are essential for all practitioners, but especially those with Scoliosis, and especially in inversions. In practice, one should support the head to minimize the tilt of the head, maintaining natural neck curvature and balancing the length of each side of the neck. Props can help. For instance, in *Savasana*, one might place a rolled blanket behind the neck and additional blankets next to the ears to avoid tilting.

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