

Esther Gokhale has been called the Michael Pollan of posture, but perhaps a comparison to nutrition pioneer Weston Price would be more accurate. Weston Price was a dentist who conducted ethnographic nutritional studies across diverse cultures, synthesizing dietary principles held in common by cultures that were not ailed by modern diseases. Gokhale looked to native people, ancient Greeks and young children to synthesize what kinesthetic principles led to their ease of movement and back health.

Gokhale, a Harvard and Princeton-trained biochemist (as well as an acupuncturist), suffered from back pain in her 20s. She was awake every two hours, walking around her neighborhood in a vain attempt to relieve the agonizing pain she was in due to an L5/S1 disc herniation. Because she was nursing, pain medications were not an option. Although Gokhale had back surgery for the herniated disc, her sciatic pain returned a couple of years later and the doctors recommended a second surgery. Gokhale, instead, studied at the Aplomb Institute in Paris, took anatomy and anthropology courses at Stanford, and travelled all around the world; observing, interviewing, photographing and filming people in countries where back pain is virtually unknown. Gokhale also looked to babies, ancient statues and photographs from the past to better understand the blueprint of our skeletal structure, the laws of nature that are being ignored and leading to back pain.

Back pain is rampant in this country. It affects around 80% of individuals, and is the second leading symptom of physician visits. It is the leading cause of work-related disability. The direct and indirect treatment cost of back pain is estimated at around 100 billion dollars annually. Many reasons for back pain have been posited, including excessive sitting and standing. But Gokhale's research makes most of these theories fall flat, as she has observed and photographed weavers, basket makers, potters and others who spend their days engaging in activities which require them to sit and stand for many hours. Gokhale asserts that the back problems in modern industrialized society are directly related to poor posture.

Good posture, however, is probably not what you think it is. According to the Gokhale Method, what most people do when attempting to "stand up straight" is not good posture, as putting your chin up and chest out (for example) leads to exaggerated spinal curves. Trying to stand straight (usually with a retroverted pelvis) often leads to a ping pong match between a tense and upright posture and a slumped and relaxed posture. We're going for a relaxed and upright posture, so that it can be maintained. Only with proper (anteverted) pelvic position can your bones stack properly,

allowing you to relax your muscles and improving both circulation and the health of tissues around the spine.

Proper posture is standing with your tailbone back and ribcage forward, shoulders slightly behind the body. Your pelvis is tipped forward and sacrum angled back. The lower border of your rib cage is flush with the abdominal contour. There is a soft angle at the groin between the front of the torso and legs (permitting the femoral arteries, veins and nerves to function at full capacity). Whether standing, bending, sleeping, sitting or walking, you are using your muscles and sparing your discs. You breathe into your chest and spine, improving the rib cage, massaging and mildly lengthening the spine and stimulating good circulation. Athletes take note: Proper posture and movement makes you less prone to injuries and joint degeneration, in addition to enlarging your rib cage--leading to greater lung capacity.

## The J-Spine

Many lumbar support cushions, cervical pillows, TLSO body casts and even modern clothing and furniture accentuate an excessive curvature in the lower lumbar and cervical spine, flattening the lumbo-sacral curve. This leads to a distorted and compressed spinal column. In her book and classes, Gokhale compares medical textbooks from the past and present. A 1911 diagram of the spine shows a gentle curve, with elongated lumbar and thoracic spinal contours. In contrast, a similar diagram in a 1990 medical book shows increased curvature in both the lumbar and thoracic spine. Numerous factors are likely responsible for the cultural drift-- the influence of the fashion industry, how children are carried and held, modern furniture and a disruption of a kinesthetic tradition between generations included among them.

What Gokhale calls the J-spine is a far cry from S-curve touted by chiropractors or the tucked pelvis recommended by yoga practitioners, but is anthropologically informed and positions one's body weight evenly over the heels. And although it is not commonly accepted amongst chiropractic circles, medical literature indicates that reducing spinal curvature reduces pain and alleviates compression. Patients with more upper lumbar curvature and less lower lumbar curvature have more pain. The converse is also true. Gokhale teaches people how to stand with an anteverted pelvis and with a significant and pronounced angle in the lumbo sacral arch (L5/S1.) The shoulders are positioned posteriorly relative to the torso. The arms are externally rotated, angling to the back of the torso, with externally rotated thumbs facing forward. The chin is angled down, elongating the cervical

spine. The feet point out at an angle of 10-15 degrees.

One need only turn to evolutionary biology to understand why the L5/S1 curvature is important. When we evolved from being quadrupedal to bipedal, the L5-S1 disc became wedge shaped. Anteverting the pelvis preserves the wedge-shaped space accommodating the disc. Tucking the pelvis, on the other hand, forces a wedge-shaped disc back into a cylindrical space. This causes the L5/S1 disc to bulge, herniate or sequestrate due to pressure it puts on the anterior part of the disc, wearing out its fibrous exterior.

According to Gokhale's research, a tucked pelvis can also compress the pelvic organs into an unnaturally small space, compromising their shape, orientation and function and possibly contributing to irritable bowel syndrome, constipation, prostate issues in men and fertility issues in women. When the pelvis is tucked, the pubic bone doesn't support the pelvic organs. This leaves all the work to the pubo-coccygeal muscle instead, likely predisposing women for organ prolapse and urinary incontinence. Also, since the hamstring muscle attaches to ischial tuberosities (sitz bones), a retroverted pelvis shortens the hamstring muscles, thereby increasing susceptibility to injury.

In addition to teaching us how to stand, one can also use Gokhale's wisdom (synthesized from village Africans, Tahitians, Cambodian Bodhisattva figures, Greek statues and children) to learn how to sit properly. Gokhale teaches two types of sitting--stretchsitting and stacksitting. Most people alternate between hunching (compressing the discs and leading to spinal degeneration) and swaying (which also compresses the discs but, as an added bonus, compromises circulation as well). Pulling the shoulders too far back stresses the rhomboids, and hunching the shoulders too far forward compromises the brachial plexus. Stretchsitting instead, therefore, is particularly cogent. It is basically a subtle but effective form of therapeutic traction, lengthening the long muscles of the back, and decompressing the discs. The neck, too, is lengthened and aligned, preventing cervical disc and nerve damage. (Stacksitting simply involves sitting with a well-positioned anteverted pelvis.)

Probably my favorite exercise was glidewalking. Most people (myself included) come into the Gokhale Method Foundations course with a gait that underuses the gluteal and leg muscles. Therefore, your back is twisting, swaying or hunching as it jerks with each step. This is quite jarring to the weight-bearing joints in the body--knees, hips, spine. Instead, the butt and legs should contract strongly, propelling the body forward, sparing the back.

Glidewalking strengthens the glutes which supports pelvic anteversion, stretches the psoas during the push-off, strengthening the foot muscles. The swing phase of walking restores healthy joint space between the head of the femur and acetabulum. But my favorite part of the walk is the resting position, especially one version in which the back heel is raised with all muscles relaxed. This occasional rest phase, incidentally, is what gives native women carrying baskets or clay pots on their heads such a graceful, cerebral gait.

Walking was difficult. I have in the past tried to simply put my hands on my quads, hopefully activating the power of reciprocal inhibition. That never quite seemed to do the trick, as my overdeveloped quads still did most of the walking. Gokhale's method uses the psoas and glutes, which is difficult with a tucked pelvis. (Incidentally, it is the gluteus medius, not the gluteus maxiums, that most people underuse.) And I don't think I would've learned how to leave my back heel on the floor without Gokhale practically stepping on the back of my shoes as I walked, grasping my Achilles tendon with her toes.

Walking incorrectly contributes to overused joints and underused muscles. Instead of strong muscles and joints we get weak buttock and leg muscles and worn joints. Glidewalking, on the other hand, propels the body forward smoothly, sparing the joints and strengthening the muscles. Proper posture is not limited to simple everyday activities but also to athletics, of course. Photographs in Gokhale's book and slideshow feature Kenyans and Olympians running with an upright torso and anteverted pelvis--whether leaning forward or not, anteverting the pelvis increases the contribution of the glutes to our stride.

It is also great for bone health. As I learned in college from a little old lady who wouldn't let me carry her groceries for her, weight bearing bones need a healthy level of stress to prevent osteoporosis. Standing with the main weight bearing bones vertically aligned over the heels is a good start. Walking properly is the next step. If weight bearing bones are not stressed they do not remain strong, as calcium leaches from the bones or is inadequately deposited, leading to osteopenia or osteoporosis. Letting the correct bones bear weight provides the healthy stress that keeps bones strong. (Stress on wrong parts due to misalignment, on the other hand), can lead to arthritic changes such as bone spurs (ostophytes). And putting one's weight to far forward to the middle or front of their foot (instead of the heels) stresses the bones and leads to bunions, sesamoid bone fractures and

plantar fasciitis.

Knee problems are also a symptom of incorrect posture and movement. Many athletes report that their knees rotate inward while squatting. This is correlated with the pronation of foot and underuse of buttock muscles, making the knee joint more prone to injury. Rotating the knees outward is also no picnic and increases chance of torn ligaments, frayed menisci and arthritic changes in knee. And locking the knees, as I learned in high school marching band, inhibits good circulation (though thankfully none of us passed out).

Unlike books of back exercises and videos on back safety shown at workplaces nationwide, Gokhale teaches participants hip hinging—a particular form of bending from the knees which increases one's reach and improves arm and buttock position, whether you are outwrestling someone much stronger (like Gokhale's son did) or are gathering water chestnuts for seven to nine hours a day Burkina Faso (like the women Gokhale photographed, who incidentally have no complaints of back pain). This particular exercise is far more challenging than one would think, and Esther warned us not to try lifting anything until we had perfect form (sound familiar?)

Another mistake in walking is parking the hips forward. This leads to numerous problems. Specifically, it can misalign the head of the femur in the hip socket (acetabulum); tensing muscles that bridge the area, reducing the natural gap between the ball and socket, resulting in bone-to-bone contact which can lead to arthritic changes or worse. Hip misalignment can also occlude femoral arteries, veins and nerves, affecting circulation to and from the legs and feet. My lifelong problem with cold feet and slowly healing leg injuries, explained instantly.

Gokhale also teaches one to protect the “inner corset,” or set of muscles around the torso that helps lengthen and stabilize the spine. I always wondered why simple Russian twists (with or without a medicine ball) hurt my back. If the spine is compressed, twisting it can damage it—but activating the inner corset (isolating the internal and external obliques and abdominal transversus muscles from rectus abdominus) protects it—allowing you to lengthen and support your spine without distorting it, periodically stretching your erector spinae muscles.

Gokhale synthesized the information from years of study into an award-winning book, *8 Steps to a Pain-Free back*, to teach others how to re-

establish their body's structural integrity through healthy posture and movement, regaining pain-free living. Although Gokhale's book is informative (I was particularly drawn to the beautiful photographs from different cultures), some people need gentle hands-on guidance to help with specific postural issues or body types. I was thrilled when Gokhale came to my town. The personal attention from a well-trained eye (who was able to quickly comment on very specific postural issues with pinpoint accuracy) was just what I needed.

The idea of establishing a baseline for health, pain-free posture and movement in just 9 hours, without expensive equipment or continual treatments, seems like a dream come true. Although those with particularly difficult cases might need additional interventions, before/after pictures and our own experiences show that habits can be changed fairly quickly. The three day intensive, comprised of two 1.5 hour lessons a day for three days, included a visual component (with an informative slide show), discussion, lecture and an extensive kinesthetic component,, with gentle hands-on guidance.

To order Esther's book or register for a a Gokhale Method Foundations course in your town, check out <http://egwellness.com/>