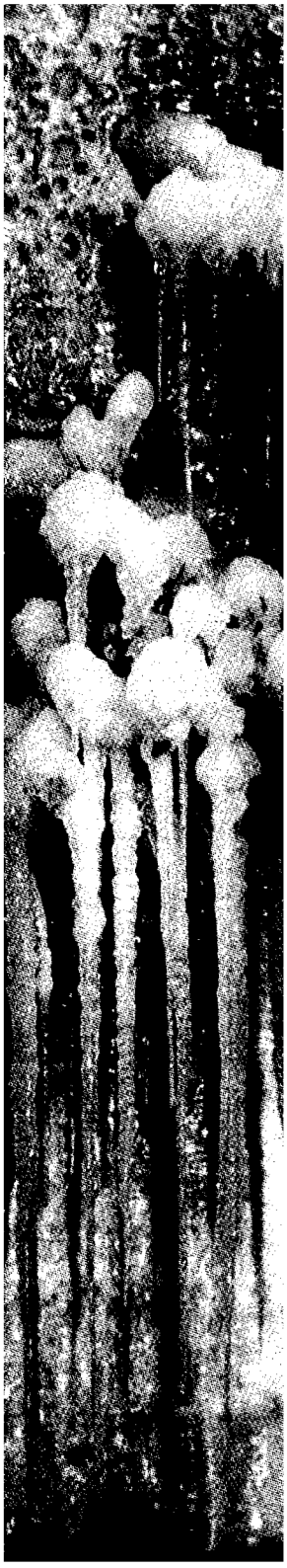
Explorations



ROLFING AND STRABISMUS

An Investigation of Postural Problems Related To Seeing

Barry Beckett

"Seeing is touching from a distance."

—Dr. Ida P. Rolf

"Being the product of conditioning and being free to change do not war with each other. Both are true. They coexist, grow together in an upward spiral, and the growth of one furthers the growth of the other. The more cogently we prove ourselves to have been shaped by causes, the more opportunities we create for change. The more we change, the more possible it becomes to see how determined we were in that which we have just ceased to be."

—Alan Wheelis,
How People Change

Learning To See

One fine day, less than a year after all the raz-a-mataz of being born, I sat quietly listening to my mother in conversation with a neighbor, probably trying to make some sense out of it, when, unknown to me and all by itself, my left eye began looking in the opposite direction to the right. This caused quite a stir. I soon began to meet many new faces in dark unfamiliar rooms. Bright lights blinded me as fingers waved and snapped before my eyes.

I broke my first pair of glasses on the first day of wearing them, Everything looked bigger and seemed nearer as I crashed into the table just above eye level. I was two years old, diagnosed as being hypermetropic; farsighted, with convergent strabismus; a squint, cross eyes.

My second pair of glasses soon became a part of my face, making deep red marks on my nose and round the backs of my ears. At night, walking home half asleep in the rain from a movie with my family, I gazed in wonder at the teeming microscopic rainbow shapes swimming on my wet lenses. Another movie.

Binocular[3] vision can be disturbed by large differences in the refractive error between the two eyes. Correction of these differences requires a difference in magnification between the two spectacle lenses, which brings with it the characteristic symptom of a disturbance in spatial perception (quite seperate from three dimensional loss) where floors appear to slope and horizontal objects appear tilted when wearing the spectacles. This typically is the root cause of the clumsiness associated with kids who wear glasses.

As I reached three years old, my parents primed me for the imminent eye operation. Even though I felt fine, a lot of fuss was being made about me. I was always the first to spot my father at the end of our street but I would knock over an unseen glass of juice on the table. A squinting klutz with glasses that the doctor would make "better", as I learned later, with a knife.

But neither the knife nor the exercises (stick the tail on the donkey) would ultimately alter the course of a posture moving away from "normal". Postural problems resulting from strabismus related head tilt (side-bend, rotation) and cervical vertebrae extension were hardly known to pediatricians in 1951. And what is not defined and named is generally not noticed.

They were also unaware that operations for strabismus are only cosmetically effective by making the eyes appear straight. Received wisdom at the time (1951) stated that the problem started with the eyes; a medial/lateral rectus muscle imbalance. But convergent excess[2] was later demonstrated to be a central abnormality of the accomodation convergence coupling in the visual cortex, and not a peripheral dysfunction of the eye muscles. Also, the part of the cortex normally used for creating three dimensions has already been adapted for suppression of double vision (diplopia). Unless[1] the first two requisites of straight eyes and similar retinal images are present before the third year of life, true binocular vision does not develop.

During normal fetal development, at about the fourth month, the neural interconnections between left and right visual cortex begin a process of reduction, so that when the baby is born only about ten per-

cent of the original interconnections are still intact. Recent theory[14] suggests that strabismus is the result of too many neural interconnections between left and right of the visual cortex, which creates a confusion of dominance. In normal vision, one eye dominates as both eyes fixate on the same point. Peripheral vision is perceived from the retina outside of the central focus area of the macula lutea.

In convergent strabismus the dominant eye fixates on a near object while the other subordinate eye moves medially in order that the same object image does not fall on the foveas (central focus point) of both eyes, and the entire retina is suppressed in the visual cortex to perceive peripheral vision only. It is strange indeed that strabismic people in general do not see double images (unless they wish to), while normal subjects with temporary squint caused by trauma or illness see with a distressing double vision.

The Operation and Beyond

After the operation, by resection (shortening) of the two lateral rectus muscles, the squint was diminished somewhat, creating a more normal look in the eyes. A new third pair of spectacles were fitted.

As time went on the little lad often screwed up his eyes, tilted the head to the left, now to the right, and rotated the head to the left and to the right. It became a habitual pattern and a recognizable part of his developing personality. Often reproached for his clumsiness and for not looking directly at adults when spoken to, it also appeared to be at times an expression of defiance, indifference or carelessness as one eye was more efficient for nearsight and the other for farsight, and as a result of the squint, the eyes did not fixate on the same point. To prevent double vision, the visual cortex had to compromise by alternating the suppression of the image from the left eye and then the right eye, for near or far, left or right fixation. This was aided by rotation and side bending of the head, to allow the dominate eye to focus from the central axis of the body while the other eye viewed the peripheral visual field.

It may be useful for Rolfers to understand this "Cyclopse Syndrome"[15] where the one fixating eye is moved to the perceived central axis of the body to gain a central visual field. When a client sidebends and rotates their head to bring one eye closer to the midline, they may be displaying a primary compensation for visual asymmetry rather than a compensation for rotations and sidebending further down the spine. Ask "Which is your dominant eye?" If they know, check it with the head position and opthalmic history.

In strabismic children, then, an abnormal head posture[4] is often adopted to enable a limited area of binocular vision, and to maintain single vision. Persistence[5] of abnormal head postures for many years may cause secondary skeletal abnormalities, e.g. scoliosis.

In a recent study[6] of the walking patterns of strabismic children between the ages of 4 and 10, 60% showed abnormal results in gait and/or postural sway. They walked with an abnormally short single support as if they had difficulties in keeping dynamic equilibrium. The results indicate a "visuomotor disturbance in the children of occular motility and motor systems for locomotor posture".

Another study[7] showed 30 out of 47 strabismic children to have abnormal head position.

Ill fitting spectacles which slide down a small boy's nose can also lead to hyperextension of the cervical spine, locking the atlanto-occipital joint as the head is tilted back in the attempt to see through the optical center of the spectacle lens. This shortens the muscles, and eventually all the connective tissue at the back of the neck and upper back.

The vertebral arteries, passing through the foraminae of the transverse processes of the upper six cervical vertebrae

may be subject to bending and kinking, especially if the head is sidebent and rotated, reducing blood supply and oxygen to the brain with a resultant loss of concentration span, headaches, restlessness, etc.

As the scalenes shorten, breathing is affected as they pull the first and second ribs up at the back, allowing them to drop in front, along with the sternum. Some or all of these structures may be sent into an aberrant functional pattern in the attempt to see more clearly. In time these patterns can become structural.

As 2% of the caucasian population are strabismic[11], (mysteriously much lower in the Afro/Asian world population) and 4% have no stereoscopic vision, difficulties that certain clients/patients present in coordination and posture will be attributable to an early history of strabismus

For some, contact lenses can make a remarkable difference to head position, as they provide a wider peripheral field of vision, the eyes have unlimited motilty, they always see through the optical center of the lens, and they no longer have to look through the narrow "window" of spectacle lenses. Knowing a sympathic eye doctor to refer clients to can help the ongoing structural work.

What Happened To The Little Lad?

He survived of course, and grew upwards, skinny and fast on his feet up to the age of seven. Never could catch a ball. The alternating head tilt and hyperextended neck became patterned into the system and may even have contributed to the slight scoliosis.

What might have made him strabismic? Almost all studies of strabismus indicate birth difficulties.

"Occasionally[8] we see strabismus associated with early neorological damage which is normally attributed to maternal hypoxia, infection or bleeding during pregnacy or labor."

"From[9] our own clinical observations, we believe that etiology of early strabismus is predominantly perinatal complications that selectively damage structures controlling fusion capacity of the oculomotor coordination system."

"We frequently found perinatal problems related to deficient oxygen administration in the history of patients with infantile strabismus"[10]

There is no consensus on the cause of strabismus. Birth difficulties are indicated in most medical descriptions yet it occurs in families and appears to be congenital.

After unearthing evidence of the connection between perinatal conditions and strabismus, I found this, which exactly describes my own condition:

"Strabismus may be truly congenital. A special variety of concomitant strabismus is the alternating type in which one eye may fix, and the switch over to the other eye occurs spontaneously and frequently. As each eye is at some time in use, the other being temporarily suppressed, the individual vision, when tested is found to be good on both sides ... and *in some cases there is a history of obstetric difficulty."*[12] [My italics]

About Toby

Photos of Toby before and after session seven apppear on page 261 of *THE INTEGRATION OF HUMAN STRUCTURE*. The "before" profile photo clearly demonstrates a hyperextended neck with a left head rotation, with shoulders, neck and chin forward. The "after" profile demonstrates the body line closer to the gravity Line, being more centered through the head, neck and abdomen. It looks relaxed.

The full face photos reveal something extra. The "before" photo shows a child with convergent strabismus. His right dominant eye fixates (focuses) while the left finds its natural axis. The rotation and tilt appear to be an attempt to see with some degree of binocular-coordination and single vision.

The "after" photo shows a better balanced head, as the left eye fixates (on the camera?) and the right eye is drawn medially to a different axis.

In the full length photographs on pages 278/9, the "cross eyes" can again be clearly seen. Dr. Rolf writes, "He runs continuously rather than walks, because in the act of running, he is able to balance on his toes, the only part of his foot that he can control."

While Toby's strabismus is not mentioned in the text, his abnormal "gait and sway" revealed in the photographs brought about by the "extreme pelvic rotation" would seem to be a nice example of the aboves reference to strabismic children, "they walked with an abnormally short single support as if they had difficulties in keeping dynamic equilibrium". Since writing the majority of this article, I have been able to discuss the case of Toby with Jim Asher (a faculty teacher) and Jan Davis (a Rolfer and medical doctor), both of whom were present during the sessions. Although not stated in the book, Toby was a child with mild cerebral palsy. The similarity between Dr. Rolf's description of him and the above quoted description of young strabismic children published in *Strabismus II* may be even more poignant. Could the similar symptoms of strabismic children and mild CP have an underlying similar pathology? How do strabismic children overcome their difficulties? And what assistance and understandings can we, as Rolfers, offer them?