

# The Too-Good-To-Be-True Machine:

## *Integrating The Low Level Cold Laser Into Rolfing®*

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For about a year I have been taking classes in how to use the Erchonia PL5 low emission cold laser and experimenting with it in my practice. The results I am seeing are intriguing, arresting, and many times downright amazing. Later on in this report I will do my best to briefly explain the science behind low-emission laser therapy and why it works. But first I want to share with you some of its applications and the kind of results I am seeing with my clients.

Let me begin with an application that is of immediate interest and use to Rolfers in their day-to-day practices. As you know, many of the problems that our clients bring to us, whether poor posture or pain and dysfunction, often involve weakness in several key muscles. Even though you do your best work, the weak muscles often remain weak and continue to interfere with achieving the goals of structural integration. It doesn't matter whether you release joint, fascial, membranous, cranial, organ fixations, whether you introduce better balance and alignment, whether you establish the midline or the mid-tide, whether you do a great piece of movement work, or whether you use a percussor to release recalcitrant restrictions that are ordinarily difficult to perceive, at the end of the session the weak muscles are still weak. As a result, they continue to contribute to your client's pain and lack of integration.

A reasonable solution would be to determine precisely which muscles are weak, and then give your client homework in the form of strengthening exercises. This ap-

proach sometimes works, but most of the time it is no more successful than manipulation or the other approaches mentioned above. The reason these approaches remain unsuccessful is because they do not address the underlying neurological problem. To speak metaphorically, the circuit breakers of the nerve/muscle complex have been tripped. Regardless of what caused this physiological dysfunction and regardless of what kind of exercise program you give your client the weak muscles will not regain or sustain their normal strength until the relevant nerve/muscle complex is turned back on. And this is what the laser can accomplish, typically within 30-60 seconds.

The treatment consists of determining which myotomes are affected and laserling the appropriate nerve roots. Testing for muscle strength is different than applied kinesiology and is relatively easy to perform. For information on how this sort of testing is performed see Stanley Hoppenfeld's *Orthopaedic Neurology: A Diagnostic Guide to Neurologic Levels* or Kendall and McCreary's third edition of *Muscles: Testing and Function*. David Walther's book, *Applied Kinesiology*, is also very useful, because the chapter on strength testing also includes the organs, neurolymphatic points, neurovascular points, and meridians that are associated with the myotomes.<sup>1</sup> As it turns out, sometimes it is necessary to laser these associated points to completely turn the muscle back on.

Let's suppose, for example, that you find that the left deltoid is weak. In order to allow the laser to address the affected area more effectively you challenge the weak

deltoid by strength-testing it again. Challenging the muscle this way activates the involved neural pathways. You program in the appropriate frequencies and then laser nerve roots C5-6 for 30 to 60 seconds. You then test the muscle again. If it tests strong, you are finished. If it hasn't turned fully back on, then you laser the left cerebellum and the right cortex. If that doesn't completely do the job, then you test for and laser appropriate impingement sites. If the muscle still hasn't turned back on, then you laser the associated organ, which in the case of the deltoid is the lung. Sometimes there are emotional issues, nutritional issues, or toxins and heavy metals that are interfering with turning the muscle back on and the laser can be used to affect all such problems as well. But in many cases just laserling the nerve roots is sufficient to bring the muscle back on line. If appropriate, you can also release the deltoid by directly laserling it.

Since the practice of Rolfing offers no direct method for evaluating and strengthening weak muscles, this approach has proven an invaluable addition to treating many forms of pain as well as bolstering the goals of Rolfing. Just imagine how powerful and efficient your work in the fifth session of the traditional ten series could become if you could turn on a chronically weak psoas in a matter of 30 to 60 seconds.

Just recently a client who had received eight or so sessions returned for a few more sessions. He was still suffering from chronic hip pain and his structure was still not very well aligned. He was very strong and possessed of a dense musculature. Even though he was quite strong, when I checked all the myotomes of the pelvis and legs, I discovered a number of weak muscles on the left side, some of which included the psoas, tensor fasciae latae, and glutei maximus, medius, and minimus. I dialed in the appropriate frequencies, challenged each weak muscle, and then lasered the appropriate nerve roots. They all turned back on with ease. The remainder of his session looked like standard Rolfing. To my great surprise, when he stood up he was straighter and taller than I had ever seen him, and for the first time his torso was longer and finally balanced over and supported by his legs. His hip pain had also disappeared. Although he retained the wonderful structural change and strength, his hip pain returned in a week's time. However, subsequent Rolfing sessions reduced his pain by eighty percent.

One of my clients is an elderly woman who returns to Scottsdale every winter. She has received thirty or more sessions from me and has responded very well to her Rolwing. She recently began complaining of balance problems. To demonstrate her problem she showed me how she could not stand on one leg without losing her balance. Since she told me about her difficulty at the end of our session, I had very little time left to do anything significant – or so I thought. On a whim I performed a three to four minute laser protocol for the brain. She was immediately able to stand on one leg without falling over.

When she returned a week later she was excited to show me how she was not only able to stand on one leg, but that now she could also abduct the other leg without losing her balance. Encouraged, I used the laser more extensively during her session. I worked with the brain, brain stem, cerebellum, and the affected cranial nerves. From the laser treatment alone, she got a ninety percent improvement. I ended her session with some fairly standard Rolwing back and neck work. To my surprise, she got the best length through her torso, especially through her upper back and neck, that I had seen in thirty sessions. She held onto all the changes we achieved in that session. To the delight of my clients and myself I have successfully used the laser to resolve problems with vertigo and balance in a number of cases.

Finding new and helpful ways to use the laser in conjunction with Rolwing seems to be endless. A client was just getting over pneumonia and suffering from typical rib pain. I was not able to get her ribs stabilized using my usual techniques, which included visceral manipulation. I programmed in the appropriate frequencies and lasered her lungs for a few minutes. Her pain diminished by eighty percent. I then used techniques for releasing rib joint fixations that we teach in the Advanced Rolwing class (some of which are described in Chapter Nine of my book, *Spinal Manipulation Made Simple*<sup>2</sup>). Her ribs released easily. The pain completely disappeared and did not return.

Another application that has proven itself over and over again is using the laser to determine precisely where an impingement site is. For example, consider carpal tunnel syndrome, in which there can be eight possible nerve entrapment sites. Unfortunately, the tests I learned for determining these

sites are not very reliable. But with the laser you can precisely and quickly find the involved sites and effectively treat them in a matter of minutes.

Here is how it works. You instruct your client to put the tips of his little finger and thumb together and do his best not to let you pull them apart. If any of the eight entrapment sites is involved, your client will not be able to adequately resist your attempt to pull his fingers apart. If you find this weakness, program in the appropriate frequencies and laser each impingement site. If a site is involved, within three to five seconds your client will be strong enough to resist your pulling his fingers apart. Once located in this manner, you continue to laser the impingement site for another three minutes or until your client remains strong. As is often the case, you may only get partial strength back. If that happens, it usually means you are dealing with a double crush neuropathy and there are more sites involved. You repeat the process until all entrapment sites are treated. Then you very specifically release the tissues and joints involved, using the kind of techniques that are taught in the Advanced Rolwing class. If you simultaneously laser the area you are Rolwing, you can greatly increase the efficiency and effectiveness of your work. In general, I have found that lasering the area you are Rolwing always enhances the effectiveness of your manipulation. Adding the laser to my work has given me the ability to easily and quickly fix almost all pre-surgical cases of carpal tunnel syndrome that I have seen.

I have also had great success in using the laser at the end of a Rolwing session when a client is experiencing trouble with integrating the work they just received into movement. As every Rolfer knows, tracking is often the best and most effective solution. But many times the laser is just as effective. You program in frequencies for the brain, brain stem, cerebellum, and nerves. As your client strolls around the room you follow behind and laser from head to tail bone. Within minutes you will often see a remarkable change in gait. You can also use this method to effectively change aberrant gait patterns before you begin a Rolwing session.

I have successfully used the laser to get rid of edema, bloating, bruising, and ear infections. I have been able to ease the pain and dysfunction of TMJ by working with cranial nerve five, and I have quickly released

severely restricted craniums with the laser. I have also used the laser to great effect on scars, especially those that don't easily yield to standard Rolwing such as the kind that form around bone after back surgery. The laser is also a very effective way to assist clients with their stretching. With the added energy of the laser, they are able to stretch further and faster. I have had great results with many other difficulties, as well. But before I bring this list of applications to a close, I want to report on a peculiar problem the laser surprisingly helped me solve.

A client came to me complaining of pain around his right sternoclavicular joint and an unsightly bump in the same area which his doctor diagnosed as torn cartilage. He wanted to be free of both the pain and the bump. But none of the many therapists he had seen had accomplished either. Getting rid of his pain was easy once I released the strain patterns in his pleural sacs and freed the right fixed SC joint. But after unsuccessfully trying what I knew to reduce his bump, I informed him that I probably couldn't accomplish the cosmetic result he was looking for. During his second session I got the idea to combine the laser with Rolwing and the percussor. None of these techniques by themselves had been effective in reducing his lump. Hoping for the best, but not really believing much would happen, I programmed in the appropriate frequencies, shone the laser on the bump, placed the pad of my thumb over the bump, placed the percussor over my thumb, and went to work. I was completely flabbergasted – the bump melted away under my thumb in a matter of ten seconds.

## II

The Erchonia low level laser is the first FDA-approved laser for treating pain and increasing range of motion on the market. It has been found to be extremely beneficial for enhancing and accelerating wound healing and reducing acute inflammation. Research also suggests that a high quality laser like the Erchonia can regenerate damaged nerve tissue if used 90 minutes a day. The research has been done and more has been planned. "With over 200 clinical studies – many of which are double-blind, placebo-controlled – and in excess of 2000 published articles on LLLT (low level laser therapy), this innovative new technology has a well-documented research and application history. Having grown far beyond its

distant Institutional Review Board (IRB) and experimental treatment status, LLLT is now being considered a therapy of choice for difficult pain management challenges such as fibromyalgia and myofascial pain.<sup>3</sup>

Its positive effects are many and well-researched. For example, research demonstrates that the laser affects the mitochondria, thereby enhancing the production and synthesis of ATP. It also optimizes oxygenation and phagocytosis, increases the tensile strength of healed tissue, reduces swelling, increases blood flow, increases lymphatic activity, reduces inflammation, increases cellular metabolism and repair, promotes collagen formation, and much more. Many practitioners and their clients also attest to its amazing power.

But how does it work? If you are like most people when you first see a demonstration of the laser you might find yourself thinking, "How is this possible? All you are doing is shining a blinking red light on clients and they are getting quick and often amazing results." To answer that question properly you would have to investigate the fascinating interface between biology and quantum mechanics – a huge undertaking, by the way, and one that I am only going to sketch in the broadest of strokes here.

Before I had ever heard of low level laser therapy, I had read Mae-Wan Ho's superb book, *The Rainbow and the Worm: The Physics of Organisms*.<sup>4</sup> Her articulation of the theory that living bodies are liquid crystals organized around a central vertical axis was a revelation to me. It gave voice to my experience as a Rolfer that the body is one unified seamless self-sensing "substance" that was capable of intelligently responding as an orchestrated coherent whole to appropriate, but often minimal, interventions by organizing itself around its midline. Amazingly, Ho has also found a way to take pictures of the living crystalline continuum.

I was never able to find a satisfactory word for that unified self-sensing coherent whole that I was reluctantly calling the one-substance until I read Ho's book and realized that what I was feeling was the inherent movement of a self-correcting liquid crystal always striving to integrate itself around its midline. This midline is not the line of gravity, but a manifestation of the core midline function – the fundamental organizing principle of the body discovered by William Sutherland and Randolph Stone, and

cultivated in many forms of oriental meditation.<sup>5</sup> The line of gravity is an abstraction imposed on the body from the outside whereas the core midline is a dimension of the body itself. What Dr. Rolf called the core of the body may well have been this primordial midline. She may have been attracted to what she called the line of gravity as a less-than-perfect surrogate for this midline because it may have seemed more "objective" and less "metaphysical," and hence, more acceptable to the public. In any case, after I discovered the laser, I realized that Ho's book contained the science needed to understand how the laser works.

Then I read James Oschman's two wonderful books and discovered a great deal of insight into the scientific basis of energy medicine and more of the science necessary to understand how the laser works.<sup>6</sup> Many Rolfers are familiar with Oschman's work, especially those who were fortunate to have him as a teacher when he taught for the Rolf Institute. Since Oschman's investigations into what he calls the living matrix were originally inspired by his experience of Rolfing, his books are written in the kind of detail that makes immediate sense to Rolfers and other therapists.

Both Ho and Oschman also make interesting and suggestive remarks about the nature of consciousness. Most scientific investigations into the nature of consciousness overlook the fact that scientific third person accounts of consciousness do not capture critical features of consciousness that are rendered more appropriately in first person accounts. Accordingly, I would add to their discussion a more detailed elaboration of why the distinction between a first person and third person ontology is so crucial to any investigation into the nature of consciousness. A related and very critical point that should also figure into our understanding of consciousness is Merleau-Ponty's<sup>7</sup> often overlooked concept of corporeal reflexivity (the capacity for self-sensing). Self-sensing is not a capacity unique to those organisms with a nervous system, but it is intrinsic to all life. Since what we recognize in ourselves as consciousness is an evolutionary elaboration of the self-sensing common to all living creatures, consciousness cannot be fully comprehended by investigating the brain and nervous system alone. It must also include what Oschman calls the living matrix and perineural system and what Ho calls the living crystalline continuum. It is also ab-

solutely crucial that we recognize that self-sensing cannot be comprehended in the third person ontology of mechanistic science. Since I have dealt with these issues elsewhere,<sup>8</sup> I won't go into any more detail here. In any case, no matter what your philosophical predilections are, these three books should be must reading for every Rolfer regardless of whether they are interested in laser therapy or not.

Stated in its simplest form the cold laser is a bio-modulator. If the body is doing too much of something or not enough of something else, then the laser will up-regulate or down-regulate it accordingly. It accomplishes this regulation by entraining the targeted area of the body back to normal frequency. The concept of entrainment comes from physics and should be very familiar to Rolfers, especially those who have studied with Oschman. Oschman defines entrainment as a "situation in which two rhythms that have nearly the same frequency become coupled to each other so that both have the same rhythm...For example, a number of pendulum clocks mounted on the same wall will eventually entrain, so that all the pendulums swing in precise synchrony. For this to happen, the pendulums must have about the same period, which is determined by their length. What couples the pendulums are vibrations (elastic or sound waves) conducted through the structure of the wall."<sup>9</sup>

To understand how the laser entrains the body back to normal function you have to appreciate that the liquid crystalline nature of the body is a miraculously orchestrated form of coherent energy that is organized around a midline. The idea that the body produces coherent laser-like oscillations was first predicted by Herbert Fröhlich in the late 1960's. His predictions were later confirmed.<sup>10</sup> The discovery that the liquid crystalline nature of the body produces coherent laser-like energy accounts for how all aspects of any living creature can communicate with itself almost at the speed of light without or independently of a nervous system. In quantum theory, coherence is a complex and multilayered technical concept that has specialized meaning beyond ordinary usage. To understand it completely we would have to explore the paradoxical view that light is simultaneously wave-like and particle-like. Unfortunately, an articulation of the wave-particle duality is well beyond the scope of this article.

In order to keep the discussion simple, let's begin by looking at the nature of the laser. To say that laser light is coherent means that it is a beam of photons that have the same frequency, phase, and direction. Incoherent light is the kind of diffuse, scattered light that comes from the sun or a light bulb. Incoherent light becomes less intense as it travels further from its source whereas coherent light can travel great distances without spreading out and losing its intensity.

Especially with respect to living creatures, coherence always means wholeness. Coherent energy is stored energy that can be mobilized to do work whereas incoherent energy spreads out in all directions and cancels itself out. Biological organization is coherent: every aspect of the whole, from the micro to macro levels, functions autonomously, but at the same time every level is coupled together, in communication with, and perfectly in step with every other level.

Ho warns us not to think of coherence as uniformity where every level is doing the same thing. Rather she suggests we imagine biological organization as a huge jazz superorchestra where new parts are continuously and spontaneously being made up and improvised, where each individual player enjoys complete freedom of expression, but where everybody remains perfectly in step and in tune with the whole.<sup>11</sup> In biological organization the individual players, whether an individual organ, cell, tissue type, or system, have individual frequencies that all combine to create a *harmonious collective frequency* that is an integrated, unified whole. If these frequencies are disturbed and the body is incapable of entraining them back to normal, then disorder, dysfunction, and disease occur.

Thus Fröhlich writes, "An assembly of cells, as in a tissue or organ, will have certain collective frequencies that regulate important processes, such as cell division. Normally these control frequencies will be very stable. If, for some reason, a cell shifts its frequency, entraining signals from neighboring cells will tend to reinstall the correct frequency. However, if a sufficient number of cells get out-of-step, the strength of the systems's collective vibrations can decrease to the point where stability is lost. Loss of coherence can lead to disease or disorder."<sup>12</sup>

If I may be permitted a slight digression at this point, I want to revisit our concepts of integration and the line of gravity in light

of the above attenuated discussion of coherence. I have been saying for years that we need to investigate biology for a more complete and useful understanding of the nature of integration. As has been pointed out on many occasions, understanding integration according to how well a body approximates the line of gravity falsely presupposes that the body is equally dense throughout like a stack of blocks. Thus, it is not really possible to align the body along the line of gravity.

Furthermore, the block model forces you to see the body as a nonliving object that is being passively acted upon by gravity. This way of thinking completely occludes the spectacular nature of biological organization and integration and entirely misses the fact that living organisms are self-sensing, self-organizing, and always orthotropically responding to gravity. They are never merely passively acted upon by gravity in the way a stack of blocks is. This way of thinking also leads practitioners to attempt to force every body into the same structural mold and miss how each structure is struggling to realize its own unique morphological imperative.

The line of gravity may be a useful way to begin understanding how our bodies relate to gravity, but in the end it is a beguiling, but rather poor surrogate for the primordial core organizing midline. Paying attention to how a morphological type appropriates gravity by always striving to organize itself around its midline is structurally and functionally more potent than making it measure up to an external norm such as the line of gravity. The primordial core midline function is closer to the true line of integration because it is an intimate and perceivable part of the very organization of the body itself. Unlike the line of gravity, which has no intrinsic perceivable organizing referent in the body and functions like an external abstract standard to which the body is supposed to conform, the core midline is inherent to the body and, as a result, a reality you can get your hands on. Since the primordial midline is at the very heart of how the body is organized in gravity, it is the very substance of Rolfing itself – essential to the vision of Rolfing and to what Rolfers should always be attempting to modify and kindle.

Since I have criticized this way of thinking in some detail and provided alternative ways of understanding integration in other

articles, I don't want to go into much more detail in this one.<sup>13</sup> But notice that here in the interface between quantum theory and biology we find a way of understanding biological organization and integration that is far richer and more productive than viewing the body according to how well it measures up to the line of gravity and that supports some of the new directions we are taking with respect to the idea of integration.

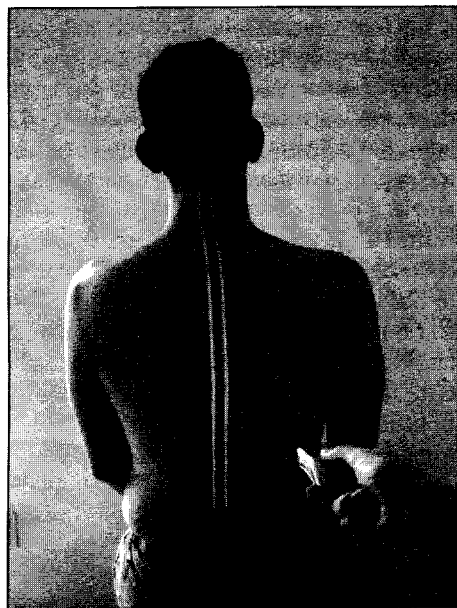
That being said, let's return to the question of how the laser works. Given the above discussion of coherence, we can state the answer simply: the laser restores balance, harmony, and order by entraining the out-of-step frequencies back to their proper oscillations. The laser is actually integrative in its effects. You simply program in the appropriate frequencies, laser the affected areas, and the body is entrained back to coherence, and hence, normal functioning.

Let's look at the workings of the laser in a little more detail. Research demonstrates that a wavelength of 633-635 nanometers is the frequency of a healthy cell and optimal for healing (one nanometer is one billionth of a meter). The Erchonia laser is a precision instrument with high quality diodes that delivers a line-generated beam at a constant wavelength of 635 nanometers and at a power level of less than one milliwatt. Hot lasers which are used to cut or cauterize tissue have an output of one watt or above. Cold lasers have no thermal effect on tissue. The ability of the Erchonia laser to maintain a constant 635 is absolutely critical, because if the band width varies by as little as five percent, it can result in cellular destruction. The Erchonia laser varies



by only two nanometers. Unlike many lasers on the market, the Erchonia laser precisely stimulates healing without overwhelming the cells or tissues' ability to function properly.

The Erchonia PL5 has four channels and generates two parallel lines of laser light. The four channels give you the ability to treat four different areas of the body at once and the line-generated beam is versatile enough to target small areas such as a nerve root or large areas such as an entire muscle or even the patient's entire body. But the Erchonia laser also allows you to program in specific frequency oscillations that have been found to affect various tissues and organs. The oscillations that resonate with the targeted areas of the body are achieved by turning the light on and off at very specific and precise rates. The number of frequencies you can program is almost limitless and includes all of the known Rife frequencies.



### III

I had the great good fortune of learning about the Erchonia laser from Dr. John Brimhall, D.C., one of the key researchers who helped develop the laser into the kind of multi-faceted, versatile instrument it is today and who originated, along with Dr. Richard Amy, D.C., the many creative and effective protocols for its use. Dr. Brimhall came to me for Roling. During our sessions he informed me about the Brimhall Wellness Seminars he teaches around the country. He also gave me a number of tapes

of his beginning seminar so I could see in more detail what he taught.

I was immediately intrigued and impressed by his brilliant ways of working and decided to experience his work. Since Dr. Brimhall has retired from private practice to teach his holistic system, I made my appointments with his very capable son, Dr. Brett Brimhall, D.C. The more I saw and experienced his work, the more I wanted to know. So I began signing up for seminars and learning about the laser. The first tool I bought was a percussor. The percussor was invented by Dr. Robert Fulford,<sup>14</sup> a remarkable osteopath. I learned in the Brimhall seminars how Dr. Fulford recommended using it. I immediately began experimenting with it and achieving great results. By the way, the percussor I bought was re-designed by Dr. Brimhall, and manufactured by Erchonia. It is probably the best on the market.

I continued to take seminars, receive the Brimhall ten-step approach to wellness, and experience the wonderful effects of the laser. It didn't take long to realize that the laser would allow me to be not only more efficient and effective in my work, but also to achieve therapeutic effects for my clients that are typically well beyond the purview of Roling. I soon bought a laser and learned how to use it.

I am still learning new ways to apply the laser to enhance my Roling sessions and I am still taking classes in the Brimhall method. My clients continue to be amazed and delighted by the results. What I have shared in this article about the science and therapeutic applications of the Erchonia laser just scratches the surface of this powerful new approach and technology. If you want more information, you can search the web under Brimhall Wellness Seminars, Brimhall Wellness Center, and Erchonia.com. □

### NOTES

1. Stanley Hoppenfeld, *Orthopaedic Neurology: A Diagnostic Guide to Neurologic Levels* (New York: Lippincott, Williams, and Wilkins, 1997); Kendall and McCreary, *Muscles: Testing and Function*, third edition (New York: Williams and Wilkins, 1983); David S. Walther, *Applied Kinesiology: Synopsis* (Pueblo, Colorado: Systems DC, 1988).
2. Jeffrey Maitland, *Spinal Manipulation Made Simple: A Manual of Soft Tissue Techniques* (Berkeley: North Atlantic Books, 1995).
3. Richard Martin, "Laser Accelerated Inflammation/Pain Reduction and Healing," *Practical Pain Management*, (Vol. 3, Issue 6, Nov/Dec 2003), pp. 20-25.
4. Mae-Wan Ho, *The Rainbow and the Worm: The Physics of Organisms*, second edition (New Jersey: World Scientific Publishing Co., 1998).
5. For a fascinating discussion of the nature of midlines and their organizing function see especially the second volume of Franklyn Sills' two volume work, *Craniosacral Biodynamics* (Berkeley: North Atlantic Books, 2001 and 2004). For the sake of clarity I should point out that even though Mae-Wan Ho does not mention Sutherland's discovery, she clearly articulates the organizing function of the midline. She says, for example, "some global orienting field is indeed responsible for polarizing liquid crystalline phase alignment, and hence, in determining the major body axis." (*The Rainbow and the Worm*, p.166) An example of a structure whose center acts as an organizing axis or core is the well-known doughnut-shaped torus.
6. James L. Oschman, *Energy Medicine: The Scientific Basis* (Edinburgh: Churchill Livingstone, 2000) and *Energy Medicine in Therapeutics and Human Performance* (Philadelphia: Butterworth Heinmann, 2003).
7. See M. Merleau-Ponty, *The Phenomenology of Perception*, (Evanston: Northwestern University Press, 1964), and *The Visible and The Invisible*, (Evanston: Northwestern University Press, 1968). For a wonderfully rich and provocative discussion of Merleau-Ponty's stunning contribution to the nature of human embodiment and the overcoming of mind/body dualism see M.C. Dillion's *Merleau-Ponty's Ontology*, second edition (Evanston: Northwestern University Press, 1988).
8. For an elaboration of these points see for example my following two articles: "Radical Somatics and Philosophical Counsel-

ing," *Rolf Lines* (Vol. XXVII, No. 2, Spring 1999), pp.29-40; and "Perception and the Cognitive Theory of Life: or How Did Matter Become Conscious of Itself," *Rolf Lines* (Vol. XXVII, No. 4, Fall 1999) pp. 5-13. Also relevant is an article I co-authored with John Cottingham, "Integrating Manual and Movement Therapy with Philosophical Counseling for Treatment of a Patient with "Myotrophic Lateral Sclerosis: A Case Study that Explores the Principles of Holistic Intervention," *Alternative Therapies In Health and Medicine* (Vol 6, No. 2, March 2000), and my book, *Spacious Body: Explorations in Somatic Ontology* (Berkeley: North Atlantic Books,1995).

9. James L. Oschman, *Energy Medicine: The Scientific Basis* (Edinburgh: Churchill Livingstone, 2000), p. 96.

10. Fröhlich's investigations are discussed in some detail in Ho and in both of Oschman's books.

11. Mae-Wan Ho, *The Rainbow and the Worm: The Physics of Organisms*, second edition (New Jersey: World Scientific Publishing Co., 1998), p. 210.

12. James L. Oschman, *Energy Medicine: The Scientific Basis* (Edinburgh: Churchill Livingstone, 2000), p. 210.

13. See for example my following two articles: "Moving Toward Our Evolutionary Potential," *Rolf Lines* (Vol XXIV, No. 2, May 1996), pp. 5-23; and "Orthotropism and the Unbinding of Morphological Potential," *Rolf Lines* (Vol. XXIX, No. 1, Winter 2001), pp. 15-23.

14. See for example, Zachery Comeaux, Robert Fulford, D.O., and the Philosopher Physician, (Seattle: Eastland Press, 2002).