

The Science of Structural Integration: A Rationale for Research

Ben Hanawalt



Ben Hanawalt has proudly served the structural integration community as a Guild Certified Advanced Practitioner and an avid researcher into Dr. Rolf's method. During the past year Ben has had the opportunity to spend time with several teachers-advisors-scientists who have enhanced his further commitment to our field. Ben has long been inspired by the Taoist tradition of internal martial arts as a method of self-actualization. He continues to use Dr. Rolf's method to search out the principles of integrated movement and to distill ancient wisdom into a practical modern context. Ben lives and works in Bozeman, Montana with his partner-Rolfer™ and their two cats. Ben can be contacted at Ben.Hanawalt@gmail.com.

Introduction

This article reviews scientific research that has been done on structural integration (SI) as well as ongoing research and ideas for the future. I want to share what I believe is invaluable information, as well as provide stepping stones for those seekers who wish to delve further. To prepare for this article, I had the remarkable opportunity to interview some of the leading researchers in the field of structural integration. Short questions led to lengthy conversations. I have done my best to distill the essence of what these teachers, scientists, and practitioners wished to share with the community.

A Revolutionary Idea

A revolutionary idea develops first as an intuitive perception in the mind of its pioneer, its innovator. At this point in its life, Rolfing® is particularly an art form perceived as a whole, embodying a total idea, a total expression . . . But like so many ideas, the idea of integration has progressed to a level where it is being examined and analyzed and fitted into words suitable for the current idiom. In other words, the idea progresses from an art expression into a scientific understanding and thorough analysis. Do I think Scientific Analysis is the answer to all problems? Certainly not! I think synthesis integration is a far higher form, but science is not all that bad. For one thing: It permits and encourages replication, and before a method can be taught, replication must be possible.

(Rolf, 1976a, p. 9)

You might say that the first chapter of the science of structural integration began in a chemistry laboratory at the Rockefeller Institute in 1918. Though Dr. Rolf was not directly studying SI at the time, her work in the lab certainly influenced the

development of her method. In the second chapter of her book (1989), Dr. Rolf uses the chemical compound of salt as an example to demonstrate a basic premise of SI: namely that *structure is behavior*. She wrote, "Chemists examine the material settling out from their solutions under a microscope . . . [and they ask:] Do all the emergent forms present one pattern? . . . 'Random' forms are not accepted as those of the 'pure' substance." Later on the page, she continues: "In its most elemental physical aspect, the human body differs little from other aggregation of matter, even the inorganic" (p. 31).

Throughout the rest of her lifetime, Dr. Rolf continued to speak of random bodies and the process of organizing human potential. In the intervening years, she created a series of ten sessions that became known as the Recipe, a method for realizing the goal of reestablishing the natural alignment of human beings for vitality and well-being. This format made it possible to replicate the method she pioneered.

Our exploration into SI research begins with Valerie Hunt who conducted one of the first formal research projects using the ten-session Recipe and equipment that was cutting edge for the time period.

From Art to Scientific Analysis

Valerie Hunt was the former director of the Movement Behavior Laboratory at the University of California at Los Angeles (UCLA). She was a physical therapist and a dance instructor at UCLA. Watching how her students' performance progressed dramatically as they progressed through the process of Rolfing, she became interested in the modality. In the early 1970s, Valerie Hunt began to conduct

the first studies of Dr. Rolf's theory of the structural integration of human structures. Following is an excerpt of a talk she gave to the Rolf Institute® that was published in *Rolf Lines* (1994).

I want to tell you just a little bit about the beginning of my original research in Rolfing, since many of you are too young to have known Ida Rolf. I was a professor at UCLA. Some of my students were being Rolfed, and they came in and told me these wild things about Rolfing and asked me to explain it, and I said, "I can't." I'm a physical therapist and a physiologist, and when I first heard about it there was no explanation in my vocabulary to explain Rolfing. So Dr. Rolf came to town and I decided I would go listen to her. And I listened, and I came up with information that said, "This is an ultimate possibility;" I know the tremendous extent of connective tissue in the body and there must be something good about this. So I continued to evaluate my dance students who performed better than I had ever seen them perform before. Finally I talked to Dr. Rolf, and she arranged for me to get a sizeable research grant to handle Rolfing. Many of you have read this report; it was written in 1979; it is available at the Rolf Institute.

Of course many things have gone on since then. But I became friends with Dr. Rolf, and she said: "I'm going to Rolf you." I said, "Not until I have finished the research. I don't want to be contaminated one way or the other." So I finished the research and I was Rolfed by the master, Ida Pauline Rolf. It was a very interesting experience. She had hands three times the size of mine and she could cover the entire body with just a few moves. When I finally had finished the report, she read it. We met, and she said, "You know, what you have come up with will be the future of Rolfing." This had to do with an understanding of the energy field of the human being, and how this tied in with the manipulative techniques that you [practitioners] use. Many of you have moved into this area.

Dr. Hunt's research, *A Study of Structural Integration from Neuromuscular, Energy Field, and Emotional Approaches*, included two groups: an experimental group who received structural integration sessions over a five week period and a control group. In the research report, the authors wrote:

We believe the findings of this study of Rolfing by muscular, energy field, and emotional approaches are not happenstances or simply highly related gestaltic factors. While the underlying truths which account for these findings are not known, the brain activity, feeling states, and electrical fields of muscle and aura embody synchronicity . . . the principal investigator envisions that Rolfing, like coherent light, uncovers and taps into the perfect body hologram and assists subjects to gain access to a primary body reality. At this level of interpretation, Rolfing makes a contribution to human evolution. (Hunt, Massey, Weinberg, Bruyere, & Hahn, 1977)

Six mechanistic studies plus six more clinical structural integration studies (1974–2009) were summarized in Eric Jacobson's article, "Structural Integration, an Alternative Method of Manual Therapy and Sensorimotor Education" published in *The Journal of Alternative and Complementary Medicine* (2011).

The Path of Maturation

Before we can get a mature system (by that I mean a system which is sufficiently grown up and stable that it is not changing several times a year), before we can reach that happy goal, we need to understand more about the structures [that] are giving us our results. And this means scientific research and the kind of people who deal with such ideas. Fortunately, we have a goodly number of such qualified people among our Rolfers.

(Rolf, 1976a, p. 11)

I believe Dr. Rolf would be proud to know that through the years many talented practitioners have dedicated themselves to this task of scientific research. This summer, I was given the wonderful opportunity to speak with some of these "qualified people." I had hoped to interview Valerie Hunt as well, only to learn that she had passed away early in the spring. The following section includes portions of interviews I conducted with practitioners to learn more about current research on structural integration. I chose to share not only information about what is happening in terms of clinical research, but also, in some ways, the research projects that shed light on what can best be described as cutting-edge practice.

The Language of Science—Eric Jacobson

Eric Jacobson kindly volunteered his time to speak with me about the value of clinical research. Eric is a Certified Advanced Rolfer™ and lecturer at Harvard Medical School's Department of Global Health and Social Medicine. In addition to the article he published about structural integration listed in the sidebar, he recently conducted a clinical trial of SI for chronic low back pain at Harvard Medical School. Our interview began with Eric's explanation of how he got involved in research.

EJ: I worked for about ten years with a group that studied the placebo response (Kaptchuk et al., 2008), using sham acupuncture as a model. There had been a revival of clinical research on the placebo response, looking more closely at what factors contribute to how strong an effect it is in different situations, and what aspects

of an illness it can modify. In the last study that I worked on, we showed that the richness of the interaction between the patient and physician had a significant effect on reports of pain intensity and frequency and on satisfaction with care. Basically, the richer and warmer the interaction, the greater improvement on all those dimensions.

BH: *What are some of the challenges you encountered in your back pain research?*

EJ: I received a grant from the National Institutes of Health (NIH) to study Rolfing for chronic low back pain in 2009 . . . It took five years to complete that study. It takes a long time to do these things. It took us two years to screen 126 candidates for the study. We had very little money because the kind of grant I got from the NIH is a training grant. We had about \$125,000. It sounds like a lot of money, but it's not to do a clinical trial. Clinical trials are generally a couple of million. So we had as many subjects as we could afford, basically. Actually, more than we could afford, given [that] we have run out of money. Last year we ran a crowdfunding campaign to raise money to complete the analysis of our data. The Ida P. Rolf Research Foundation very generously hosted it on their website.

In clinical research, whatever condition you are studying, there is a set of measured outcomes that are standard for that condition. In the study I just finished for chronic low back pain, the standard outcomes are patient-rated pain and disability. For whatever disorder you are working with, you have to find what the recommended outcomes are in the literature.

We know so little about how structural integration works . . . I wanted to do some biomechanics measures. Nobody has really figured out how to look at a standing body and measure its verticality in a reliable way. How do you know that what you are seeing isn't just how the person stands that day? In the field of biomechanics research, one of the things they look at is balance with a plate on the floor that measures shifts in weight. It's complicated, because what you get from the plate is how the center of gravity is moving. And then you can derive different parameters from that: like how fast it is moving, the area it's moving over. There are some parameters that are worse for people

with low back pain. We had people stand on a force plate, two-footed, eyes closed; and then [on] one foot; on each foot with eyes open, because those with low back pain were reported to perform more poorly (Luoto et al., 1998; Mientjies & Frank, 1999).

One of the things Rolfers look at is counterrotation of the thorax and pelvis during walking. There is research that counterrotation doesn't happen as much in people with chronic low back pain, and when it does happen, it is more asymmetric compared to people without back pain (Lamoth, Meijer, Daffertshofer, Wuisman, & Beek, 2006). So we measured that. These are just examples of things that can be measured biomechanically. So much of the art of Rolfing is looking at a standing or walking person, and seeing a whole lot about [his] biomechanics, but the challenge is to find a way to measure that, and to measure it reliably.

It's very difficult. In a biomechanics lab, they do what they call optokinetic studies where they put little dots on a person's body. Then they have multiple video cameras that watch the dots. And they have the humungous software that assembles wire frame models of the people as they are moving. They have that. But if you are looking for change, the people you are studying are going to come in another time, and you have to get those dots on exactly the same spots! Or what if you are measuring them at a different time of day, and they are tired? So it is very hard to be sure that what you are measuring is a long-term property of that individual's biomechanics. I am just saying this to point out the challenge of it.

BH: *Why did you choose to study chronic low back pain?*

EJ: Low back pain is a major health care expense in the U.S. for both primary care and disability. It's the number one cause of years lived with disability in the U.S. (Murray et al., 2014). Direct costs in the US were estimated at \$90 billion in 1998, and disability-related indirect costs have been estimated between \$7 to \$28 billion (Dagenais, Caro, & Haldeman, 2008). Internationally, it's the fifth leading cause of disability in high income countries (World Health Organization). That is one reason I picked it. It has been studied a lot.

It is known that there are certain psychological traits that go along with [back pain]. There is an idea called *pain catastrophizing*, which is when some people feel pain, they get very alarmed about it. They believe it means something awful, and then the fact that they're anxious about it makes the pain worse. This is sort of a reliable personality trait. We can measure it. There are questionnaires for it. And of course it is higher in cases of low back pain. I think everyone has that to some degree, but there is more in general in that population (Quartana, Campbell, & Edwards, 2009).

Another thing is fear of movement: *kinesiophobia*. Many people with chronic low back pain try to avoid moving in ways that will twinge their backs. So they develop these chronic tensions, "bracing" to try and hold themselves in certain postures, and that, of course, makes it worse, because they get more rigid, less flexible. I am putting these out just as psychological dimensions of musculoskeletal pains. This could be neck pain, shoulder pain; it doesn't matter. The same phenomenon happens (Leeuw et al., 2007). So it is a whole other realm of research—how what a person thinks and [how he] acts emotionally contributes to the problem.

The last thing that I don't know a whole lot about (but I have a great mentor in), is blood biomarkers. There is a tremendous amount of science now on blood biomarkers of stress response, immune status, metabolic activity, and anabolic activity (which is the production of tissue). All these things can be measured with blood biomarkers. We found two studies that suggested that people with chronic low back pain have blood biomarkers that are different from people without pain (Hasselhorn, Thoerell, & Vingård, 2001; Schell, Theorell, Hasson, Arnetz, & Saraste, 2008). They are the kinds of things you would expect. They were more stressed. Their immune systems were a bit more inflamed. They had a little bit lower anabolic metabolism, which means they weren't producing new tissue as well. So in our study we took blood samples, froze them, and are measuring those markers.

There is even a blood biomarker that causes connective tissue to fibroticise [become fibrotic]. One of my mentors, Helene Langevin, published a hypothesis of low back pain that proposes a cycle from injury to catastrophizing to bracing and then, once there is inflammation, this immune factor tells the connective to fibroticize and it becomes thicker (Langevin & Sherman, 2007). And that [biomarker] is something we have measured, too. We haven't gotten the results yet, so we don't know if we found anything. I am just using this to point out all the dimensions that we investigated. We are slowly getting that data analyzed and we will eventually get it published.

BH: *How does this research help our profession?*

EJ: When I was in the placebo research group . . . I saw the power that scientific research has in the medical world. The reason that acupuncturists are all over the place—in hospitals and clinics—is because of published research on the effects of acupuncture, specifically on pain. Once you can show that there is a positive effect on some condition, the therapy becomes adoptable by hospitals and clinics. Then it can be applied to other things. Absent that kind of evidence, it is not admissible. That is why getting some good research published is one key to professionalizing. The other key is lobbying for licensure. The third key is academic programs. Otherwise, we are just, not to denigrate beauticians or plumbers, but we are just a trade school.

The New England College of Acupuncture was founded in 1972; that is the same year the Rolf Institute was founded. The acupuncturists now have their own licensure in most states. They have their own academic degrees. There are PhD programs in acupuncture. And look where Rolfing is. It's entirely a matter of political will. There is no reason on earth that Rolfing can't be in the same place. It just takes work and the decision of whether that is where you want to go. Acupuncturists organized a national network and lobbied state by state to get licensure. There is no reason why structural integration cannot do that, too.

(personal communication, October 8, 2014)

"It is important to understand the language of science, and to understand the standards, so that when we talk about it, those people who do understand don't think that we are ridiculous. There is a whole world out there that understands the language of science, and we need to be able to use it. I would love it if there was a research literacy course as part of every SI training."

Eric Jacobson (personal communication, October 8, 2014)

While Eric is applying himself to clinical research, I also had the opportunity to speak with Stefan Dennenmoser who is taking a look at what exactly is happening when we place our hands on a body. In a 1976 class, Dr. Rolf spoke of thixotropy and the mystery of how the tissue can be felt to change:

Possibly it means—this is the simplest way to express it—the gel [is changing to] sol. Possibly this is what it means [when the tissue changes]. This is what I've taught that it means, but this is a nonsense teaching really. Because, what does it make into sol? Does it make the wall of the blood vessel sol? This is absurd!

So, all of this is part of the great vast unknown, which requires more than simply trained practitioners to solve it. It requires a whole research background, a research understanding . . . who is going to do it? I don't know. I'm hoping that somebody will come out of the blue who is peculiarly well fitted for this kind of a job.

(Rolf, 1976b)

From Qualitative to Quantitative—Stefan Dennenmoser

Stefan Dennenmoser is a Certified Advanced Rolfer and part of the Fascial Research Group at Ulm University in Germany. He is currently working on his thesis paper on the effect of structural integration on soft tissue. He described his work in an email; following is an excerpt.

SD: Many people from all directions and disciplines like Ida Rolf's work, even the esoteric people. But Rolfing is more than energy. It's something you can measure and quantify; indeed, you can prove the effects in a scientific way.

We all had (and still have) our own models [of] why Rolfing SI works and how this is happening. Some of these have to be re-examined. For example, Ida Rolf talked about the melting of the tissue when we put pressure on a spot of hard fascia. We always thought it's the breaking up of collagen fibers, the so-called thixotropic-effect. Then the physicists stated, "It's

not possible to put so much weight on a body to break up protein-bridges." So the model was definitely wrong, but the effect was still palpable. Now, maybe a year ago, the Stecco-group came up with another idea: It's not the fibers, but the ground substance with its own viscosity (which depends on the length of the hyaluronic-acid-chains) that is changing when pressure is applied (Pavan, Stecco, Stern, & Stecco, 2014). So it's not the fibers, but the bound water of the connective tissue that changes and gives us the feeling of the thixotropic effect. That's really exciting, because a model that had been disproved brought up an even better explanation!

In my own research, I worked with sonoelastography (a special kind of ultrasound-device) that conventionally is used for the detection of cancer, because it can measure the density or elasticity of human tissue, and the cancerous parts are always harder than the rest. My goal was to show the effect of a short manual treatment of the lumbar fascia and to differentiate if the softening—that indeed was happening—was more in the fascial or in the muscular part of the back.

I worked on a small part of the lumbar fascia for four or five minutes in a "Rolfing-like way." I did a before and after measurement of the elasticity or the hardness of the tissue with the ultrasound, and additional measurements of the water content using an impedance measurement. I was only looking for short-term effects. Some say, "That's not what we want to see in Rolfing." But to find out how long the changes last would be the next step. And from a scientific perspective, it's a hard one! It was hard enough to get some significant changes in the time frame of five minutes.

I already had to make some adaptations: for example using a massage chair because I could get more objective measurements with that. Sometimes I could easily feel the problem is not there in the lumbar region, I should do something in the neck, but I wasn't allowed to, for the assessment had a strict protocol. So I didn't do it. In real life, I would have worked in other places, and the lumbar fascia would have given way. But in this case, no chance! That would be another experiment.

You need this quantitative, detailed work, if you are to do scientific study, and medical people like it that way. They don't listen to how I perceive or see changes. They are counting on numbers. Although it would surely be better to do an examination before and after the ten sessions, that's too complex. You cannot measure that.

I also started with a big idea: to prove that Rolfing changes tissue qualities. I ended up with: There are some changes in elasticity and the water content of the tissue. And it is possible to differentiate whether it is the musculature or the fascia that changes. That's already a big step to distinguish between the two of these.

I have to add: I really learned a lot for my own work because I had some control and feedback from this technical device, i.e., did I really reach into the fascia or not? And sometimes my perception was wrong. When I really thought, "Now the fascia got softer," and I did the measurement, sometimes it wasn't the fascial tissue at all; it was the musculature. Or it was even the musculature below the lumbar fascia, which was really astonishing. It would be a good idea to use this device in the training. You can really see what you are working with.

I have done most of the analyzing, and I have the results already, but I am still busy writing them down. My doctoral advisor always wants me to do it one more time. Do it better. It is a hard way of learning. When I think, "Now I have it perfect," he always finds something to improve. I keep on learning. It really changes my way of looking at things. Probably that is the aim of doing this kind of research: learning to think in this analytical way, not trusting words or phrases or models. If you see a model, you want to look behind it. See the mechanisms. The proven details. Isn't that the way Ida Rolf intended her work to be?

(personal communication, October 8, 2014)

As Stefan suggests, there is great difficulty in singling out any one factor that goes into a successful session of bodywork. Even to supply evidence that the tissues actually change is a great step forward in our understanding. Studying a different facet of the same phenomenon, Robert Schleip has been involved in cutting edge research into the mechanisms that might make that change possible.

A Research Understanding—Robert Schleip

Robert Schleip is a Certified Advanced Rolfer and director of the Fascia Research Group Division of Neurophysiology at Ulm University in Germany. In addition, he, together with Tom Findley and others, helped found the Fascia Research Congress. Robert even has a website that collects research information pertinent to our field: www.fasciaresearch.com.

Through years of research and practice, Robert Schleip can finally speak to the question raised by Dr. Rolf. In the following paragraphs, he shares with us his approach to using these discoveries in his practice.

RS: We now know that specialized fibroblasts, called *fasciocytes*, can produce hyaluronic acid within a few minutes. They apparently do so when stimulated by mechanical shear motion between adjacent tissue layers (Pavan, Stecco, Stern, & Stecco, 2014). Based on this, I am including more shearing motions in my hands-on work, including a slow plowing motion, in which my knuckles, finger, or elbow slide at the slowest possible continuous speed across the skin, trying to create a *plow wave*, which I am slowly pushing in front of me.

The latter part of the plow wave is also based on recent experiments with fibroblasts in cell culture. Here it was shown that these cells sense our mechanical stimulation mostly with their primary *cilia*, i.e., soft hair-like tentacles carried as remnants from the lives of their ancestral single cell organisms in the primordial ocean (Satir, Pedersen, & Christensen, 2010). Apparently, when their cilia are gently pushed sideways via a super-slow fluid shear motion of the semi-liquid ground substance around them, they start to express—four to eight hours later—an enzyme which softens and breaks down excessive collagen in its neighborhood, which means that I tend to use this super-slow, fluid-shear motion as an additional tool when working with tissue adhesions and with scar tissue.

Straight from the laboratory we find new ways of working—or at least, new ways to describe old workings. As you can see, many of the researchers have been inspired by the mystery of what they see in their practice. Karen Price's story is somewhat different in that she was a practitioner recruited by a medical doctor who saw the "promise of Rolfing children."

Commonplace Magic—Karen Price

Karen Price, a Certified Advanced Rolfer, specializes in working with children and babies in her private practice in Palo Alto, California. She is currently involved in clinical research studying structural integration for young children with spastic cerebral palsy at Stanford University School of Medicine and describes her work below.

KP: This study has its roots both with Dr. Rolf's conviction that Rolfing would benefit people with cerebral palsy (CP) and my own experience when I was first training as a Rolfer in 1978.

At the time, I was swimming in a local therapy pool and a group of children with CP came in. I was watching them move. There was one particular boy who was tall and thin. His right side was very spastic with the limbs pulled and curled into his body. This is a very common pattern in CP (called hemiplegia) where one side is affected due to injury to one side of the brain. We caught eyes; he was looking at me, and I was looking at him and I was thinking, "I really want to get my hands on him." I kept thinking how I'd love to do research on Rolfing children with CP to see what this work could do for them.

Thirty years later, Dr. Heidi Feldman, MD, PhD, was Rolfed by my husband, Jim Price, who trained with Dr. Rolf in the late 1960s. [Dr. Feldman] had had a back problem for a long time and not found relief through any conventional or alternative treatments. Jim's work gave her permanent relief. We knew she was a pediatrician, but didn't know her stature at Stanford School of Medicine as a professor of an endowed chair and head of the Department of Developmental and Behavioral Pediatrics. She was a widely acknowledged expert in the field of pediatric disabilities and a frequent keynote speaker at conferences all around the world.

Jim had told Dr. Feldman of my work with children and she was interested in seeing what Rolfing could do for children with disabilities—particularly CP—based on her experience with Rolfing. After her Ten Series, we arranged a meeting. We showed her the photos in the monograph, *Promise of Rolfing Children*, and talked about my experience Rolfing children. She said, "Let's do a study." The next month she was contacted by a first-year medical student, Alexis Hansen, who was interested in

complementary techniques, especially forms of massage, for children and others with disabilities. The three of us started the project in January 2009. Originally it was a small pro bono project that was Alexis's research project the summer after her first year of medical school. All med students at Stanford were required to do a research project at that time. We had eight children who all received a Ten Series. Interested people can view the poster we presented and the article we published (Hansen, Price, & Feldman, 2012) on my website, rolfingchildren.com.

Based on the encouraging results we noticed after our pilot project, we were able to secure a large grant from the Gerber Foundation. This enabled us to enroll 27 children, three-years old and under, to receive a Ten Series. We also studied five additional children, four to seven years old, pro bono. We added two more MDs including a well-known pediatric physiatrist (there are only 44 in the country) from Oakland Children's Hospital. We also had a Doctor of Physical Therapy (DPT) and Professor of Pediatric Physical Therapy at UCSF Medical School complete the assessments. Our team was composed of eight dedicated women from three outstanding institutions.

Dr. Rolf knew that Rolfing would be very effective for children with CP, because with CP the injury is in utero, during delivery, or shortly after birth. It is non-progressive neurologically, but the progression includes continuing contracture in the soft tissue. So Rolfing, with the emphasis on lengthening and organizing soft tissue, is a perfect fit. And she knew this. I have worked with children with autism, developmental delays, and other conditions, as well as able-bodied children. Rolfing is wonderful for all children in too many ways to enumerate in this interview. In my experience, Rolfing for CP is great because the tissues keep tightening. The standard treatments, in addition to PT and OT, are surgery and bracing. Serial casting and botox are getting used more often. There is little if any research to support the efficacy of these treatments. The surgeries involve cutting the Achilles [tendon], the adductors—that sort of thing—to make more room. So we were hoping to show that with the use of Rolfing we could get these kids more mobile,

more functional and hopefully delay or avoid these surgeries.

BH: *How did the children accept the treatments?*

KP: Most of them loved it. In the beginning, many children were wary as they are so used to going to therapists. I could almost see the thought bubble, “Oh no! Here is another adult who is going to make me do stuff.” But once they realized that they didn’t really have to *do* anything but relax and play . . . they started to associate coming to see me with feeling better, and they loved it!

I had one little child from the first study who begged his father to come an hour and a half early. He was five and he understood that he would be there very early, but he didn’t care. He just wanted to sit outside my door for an hour and a half and know that I was right there. For the kids, it was like a love fest. The look in their eyes became intoxicating to me. They were the best clients I have ever had. They were right there with my hands. They often could ask for or communicate where they wanted and needed work. Even the most severely compromised children would visibly open and lengthen right in front of our eyes. Often they would try to do something new, something that had not been available to them before Rolfing.

Children aren’t just small versions of adults. Their world view is dreamlike and magical. They put on a Spiderman costume and they *are* Spiderman. They haven’t developed the rational, analytic mind yet. We forget that about kids. So I take advantage of their world view. To them, the magic of Rolfing is very common place.

We have all experienced the magic of Rolfing; that’s why we got into it. There are easier ways to make a living. Even as we look for the scientific rational explanations for why we get results, we need to include the subtle, subjective, and non-linear. In many ways Rolfing is a paradigm shift. Who remembers Dr. Rolf’s levels of knowing from Korzybski? Superstition, measurement, cause and effect, relationship, and synchronicity. We work with relationship and synchronicity. For many people this is “magic” (meaning not objectively measurable), and if they can’t explain this “magic” in rational cause and effect terms, they can’t see it. Because children are so permeable and plastic physically, emotionally,

and mentally, they are much more open and available to the work.

(personal communication, October 14, 2014)

There are many of us who dream of such a match up—where our personal talents combine with a research team to study the potential of structural integration that will help those whose only other choice might be pharmaceuticals, surgeries, or even less appealing options. Pedro Prado, however, has been exploring how the day-to-day work of practitioners around the globe can contribute to this body of knowledge. He calls this approach bottom-up research.

From Individual Path to Collective Activity— Pedro Prado

Pedro Prado is a Certified Advanced Rolfer and on the faculty of the Rolf Institute of Structural Integration and the Brazilian Rolfing Association®. Pedro’s doctoral thesis, *Exploratory Study of the Psychobiological Dimension of the Rolfing Structural Integration Method: Creation, Development, and Evaluation of Questionnaires*, contributes greatly to the understanding of how individual practitioners can contribute to the collective activity of studying SI (Prado, 2007). The *IASI 2012 Yearbook of Structural Integration* includes an article written by Pedro with case study examples (Prado, 2012).

A part of this ongoing project is known as NAPER (Núcleo de Atendimento, Pesquisa e Estudo em Rolfing, or Center for Practice, Research, and Study of Rolfing). In 1998 a group of Brazilian Rolfers came together with the goal of creating a clinic for structural integration that would function like the professional school clinics at universities and teaching hospitals. The clinic was set up to serve clients who might lack the resources to receive private sessions. Between 1998 and 2010 they served more than 1,000 clients (Prado, 2010). The clinic used questionnaires developed from the World Health Organization Quality of Life Index.

Pedro is currently working to prepare for publication the research that has been gathered over the intervening years. There are many challenges to this; one is that much of research was done in Portuguese. So not only must all the information be typed into a computer, it must also be translated. During our conversation, he described many of the opportunities and challenges he has found in the

educational process and the rewards of participating in the evolution of the science of SI.

PP: There is an option to make Rolfing a graduate program in Brazil. One of the elements we included in the regular teaching is the ability of the students to reflect on the clinical cases that they see. So in every stage, we do require that the students write case studies. In unit one, they do myofascial release and the first therapeutic relationship class, and then by the end of that they write about their experiences and the cases that they worked with.

In unit two, when they exchange sessions among each other (the embodiment phase) the students have clients who are their colleagues. So again, they have the opportunity to report on the clinical assessment that we had using the Recipe, and the movement, the functional aspect of the Recipe that they also worked with (and the therapeutic relationship as well). So they have a fuller scope to report back about the cases that they worked with. Then again, in unit three, where they see clients from the outside, they write another. And this is all supervised during the class.

So the students see the case and strategize the process; then they report on the evolution of the clinical process. After unit three, they can get into the scientific methodology class where they will write a thesis. Since they have been training in writing case studies, they will write from a scientific perspective: stating a problem, a hypothesis, assessment, and development. They end up with an 80-page case study. This is a way in which the students receive a certificate as a post graduate. This is the equivalent of a master's degree, but it's not academic; it's a specialization class. That is how it works here in Brazil.

Having people describe what they do helps the science of Rolfing. Then you end up having reports, and you can talk to several different fields: physical therapists and psychologists and doctors. We accomplish several goals with that. One is training our students at a higher level. First they graduate as Rolfers, then they do another round, so they have more opportunities to learn. Also, this process provides an opportunity for the science of Rolfing to evolve. How else is the world going to understand what structural integration is for?

We need to communicate to the world about the results of our work. I have found that you can go into those mega projects where you need billions of dollars, control groups, mega statistic programs, and this and that. You end up having a research project that covered a minimum aspect of the work. This is top-down research. While in bottom-up research—with simple case studies—you get many people who are engaged. You get a higher level of thinking among our community, more education to the graduates, and you also explore all the corridors of our science.

Our science has such a broad and wide spectrum that it can be talked about from so many perspectives. Do you know what I mean? From the physical perspective and from the psychological perspective and from the experiential perspective, and, and, and! So rich!
(personal communication, September 3, 2014)

Input Creates Overflow

To me, personally, there is a constant and continuous need for "input" in order to feed the springs that give us "overflow." We must know if we are to progress further. We must know more about the structures with which we, as Rolfers, are dealing. What is it we are doing to and with those structures?

(Rolf, 1976a, p. 11)

Top-down research is necessary to the development of the SI, but very expensive. However, there are thousands of sessions being performed every day that could provide very useful information to our field. The challenge of bottom-up research is in compiling that knowledge into an integrated whole. To encourage you even further, I will share some more words from Dr. Rolf:

Now I want to insist on the primacy of this concept: that this [work] has been developed and will continue to be developed, and is developed every time you give an appropriate hour of work through the looking at and the understanding of what you see in that body.

(Rolf, 1976c)

At this point, we have workshops, get-togethers, and published case studies. All of these are important parts of the process for bottom-up research. The NAPER clinic in Brazil is a good example of this type of project. The questionnaires that have been developed are an important step. Pedro imagined an online database to store and organize the information that is being gathered. There is so much

that can be done, and as the old adage says, “Many hands make light work.”

Extending the Limits of Information

It is not necessary that we solve these problems to be fairly good Rolfers. But it is necessary that we solve these problems if we are going to learn more about human personality. It just depends on where we want to fit ourselves. Do we want to be mechanics who are doing a very good mechanical job? Or do we want to extend the limits of information? I think you all know where I stand on this . . .

(Rolf, 1976d)

The reductionist approach of modern science and the holistic principles of structural integration exist in very different paradigms. However, this does not mean that they cannot or should not work together. The researchers I spoke with shared not only the difficulties involved, but also the excitement of exploring new frontiers. The development of SI has always been a path fraught with dichotomies that Dr. Rolf spoke of, with often-contradictory statements and a tacit style of teaching. For example, in class she often lectured, “Just follow the Recipe!” While in another portion of the same class she can be heard saying, just as adamantly:

You'll hear a lot of the word “Recipe” flung around here, meaning that there is a route, there is a map by which you approach this, but I will not be happy if that's all you know about what you're doing!

(Rolf, 1976e)

If you listen long enough to her words, a pattern emerges, and it is not one of internal confusion, but a sense of the mystery that is the process of life. A koan, a question worth looking into. One that takes more than one lifetime. More than one individual. Today, the questions have been left to her heirs. To do our work as practitioners, we must understand the language of the body. To communicate our work as educators, we continue to delve into the prevailing cultural context. To publish our work as a profession, we need to become fluent in the language of science. There is room for all the unique and talented individuals in our community to contribute. So, with a twinkle in my eye, I ask, “What part will you play in the evolution of the science of structural integration?”

This article is dedicated to Valerie Hunt (July 1916–April 2014), the first scientist, besides Dr. Rolf herself, to take an in-depth and comprehensive look into the science of structural integration.

Resources

- Ida P. Rolf Research Library: www.pedroprado.com.br
- Robert Schleip's library including articles and resources: www.somatics.de
- Ulm University's Fascia Research Group: www.fasciaresearch.de
- Eric Jacobson's video regarding the preliminary results from his low back pain research for pain, disability, and adverse events can be viewed at bwhedtech.media.partners.org/programs/integrative/integrative20140508jacobson

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