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Cover image: Robert Schleip, PhD, Certified Advanced Rolfer™, in his fascia research lab at Ulm University, Germany. Photo credit: fascialnet.com. Note: This photo was also used in the article “Cell Biology Meets Rolfing” in the academic journal *Science* 2007(318):1234-1235 (see www.fasciacongress.org/318.1234.Grimm.pdf).

While Roling® structural integration (SI) has been around for the better part of fifty years, the fact is its foundation was based on an intuition and not scientific evidence. As a biochemist, Dr. Rolf knew that the flash of insight that inspired her life's work would not stand up in the courtroom of science, at least not the way a scientist would usually prove a theorem in his or her laboratory. "I don't know why it works," she told Rosemary Feitis, "I only know that it works. I only invent these explanatory rationalizations later" (Rolf 1978, 27).

As the work developed from the 1950s, Rolf seems to have had two preoccupations. First, who would carry on her work? Second, how could she prove that it worked to the scientific community? This dual quest for legitimacy was a preoccupation until her death. When she presented her "Postural Dynamics" to a group of chiropractors in Kansas City in the 1950s, the class also did metabolic readings to confirm health benefits (Johnson 2006). Unfortunately, her presentations to the chiropractors and osteopaths in the 1950s proved to be a dead end, and she was left little alternative but to create a new school and a new profession.

Ron Kirkby's (1975) landmark article "The Probable Reality Behind Structural Integration: How Gravity Supports the Body" was an exegesis of how SI was based on tensegrity concepts, and from our vantage point forty years later stands out as an accurate explanation of why and how SI works. Please, however, note the word "probable" in the title, not an easy sell by any means if you had to convince the common layman, never mind an educated scientist, of the efficacy of our work. What was lacking still, bemoaned Kirkby, were mathematical analysis and measurements of the fascial networks of the body. In 1977, UCLA professor Valerie Hunt published her study of the benefits of SI, which was later looked upon askance due her use of questionable scientific methods. Even with the death of Rolf in 1979, various explorations and conceptual articulations within SI continued, such as consideration of craniosacral rhythm, development of the external/internal typologies, evolution of the Advanced Training program, and the development of the Principles of Intervention. (Much of the credit for various of these endeavors is due to Roling instructors Jan Sultan, Jeff Maitland, and Michael Salvesson.) This indicated progress within the SI community. However, the epistemological problem of explaining how SI worked to the larger community of the specialist, the educated layman, and especially prospective clients lingered. Much of the conversation between practitioner and client harkened back to Rolf's words about knowing it works, but not why.

This all changed in the new millennium as a number of practitioners within the SI community – among them Certified Advanced Rolfers™ Robert Schleip, PhD and Tom Findley MD, PhD, both already doing scientific research related to fascia – organized the first Fascia Research Congress (FRC) in 2004, which produced an explosion in information concerning fascia and dynamically changed the relationship between SI and the scientific and academic community. While not directly confirming the validity of SI, the basic components of Rolf's vision – the plasticity of fascia, tensegrity (now referred to as biotensegrity), and the efficacy of manual therapy – were now validated by scientists. Perhaps more importantly, SI practitioners were no longer alone on Planet Fascia. There were many other busy explorers, researchers, clinicians, and practitioners from all over the world now alongside. These new relationships marked, I believe, a new alignment with the scientific community and a new stage of maturation in the evolution of SI. No longer an outlier, SI had provided, with its sponsorship of the first FRC, a powerful impetus for research into a neglected but critical component of human health, fascia. This new partnership between clinical research and manual therapeutics was bolstered and reinforced by each succeeding FRC. A signpost of this new development was an increasing number of SI practitioners who entered the ranks of the scientific community doing research and publishing articles of scientific value. The articles in this issue are a commentary on and an affirmation of this new stage in SI's development.

As the explosion of information concerning fascia begins to seep down into the general culture, the public will become acquainted with new fascia-oriented therapies such as Fascial Stretch Therapy™ or the MELT® Method. Other modalities such as yoga, pilates, gyrotonics, and training programs will likely claim to be 'fascia-oriented', whether they truly are or not. The present moment offers the SI community a unique opportunity to fulfill one of the missions that Rolf set out for the Rolf Institute®, to educate the public, even if it is only one client at a time. But, offering laurels of old will no longer do. While this new integration with the scientific community offers a higher validation of our work and a more confident engagement with our clients, we too will have to immerse ourselves in this new world. What once may have seemed to be our private bailiwick is no longer, and there will be more and many competing modalities in this new world of fascial fitness. The old Chinese saying about crisis and opportunity applies. And if crisis is an invitation, the Rolfer/Scientists in this issue of *Structural Integration: The Journal of the Rolf Institute®* and associated Rolfers in the research community have accepted it. I applaud and congratulate them.

Szaja Charles Gottlieb
Research Editor

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Ask the Faculty

Considerations in Research

Q: *Research is one of the missions of the Rolf Institute® of Structural Integration (RISI). How do you either pursue this yourself or feel it can be taught and be beneficial to the training of Rolfers™ and our field?*

A: RISI includes research in its mission statement. While we frequently think about research as being something that we, as practitioners, only read about, there are ways in which we contribute to research through our own practices. In 2004 I wrote an article for this Journal, "Overview of Research Designs for Rolfing Structural Integration" (Allen 2004), which is an overview of research concepts and designs that can be used by practitioners.

Over the past ten years, RISI USA has required that students write a case study of one of their clients in the clinical phase of the training (Phase III). The project was originally carried over from the ABR (Brazilian Association of Rolfing) by Pedro Prado. (See sidebar with resource information on page 5.) It includes a format for considering the structural, functional, and psychobiological aspects of the client, the sessions, and the Rolfing® Structural Integration (SI) series. This project encourages student practitioners to organize their thinking about their client in regard to seeing, working, and planning for the sessions. It also develops a structure for discussing a case with another professional or for supervision.

When I am teaching, I use the case study throughout the two phases of Rolfing training to help both the student and myself see what areas of taxonomy, strategies, and tactics they are most comfortable with and which are more challenging. I typically do them after each cycle within the Ten Series: the superficial sessions, the core hours, and the integration sessions. In this way, students have the opportunity to reflect on the course of the Series to date, evaluate what has been working and what has not resonated with the client, and formulate a plan for the next section of the Series. After writing up a case study for a client, one student told me he "felt sorry for [his] other client," because the process of organizing his thinking and taking the time to make a plan for the next stage of work was so enlightening for him.

Of course, the reasons that make the case-study project valuable for students while they are still in class at RISI make it equally valuable for Rolfers in their own practices. The exercise of recording, synthesizing, and writing about our experience with a client and taking this experience forward helps us grow as practitioners. When we have documentation of individual process and then groups of process, we create a library of clinical experience from which we can glean indications of trends. These trends may be habits of our own practice (for better or for worse), or may correlate with certain outcomes of the Rolfing series. In this way we grow as both practitioners and as a profession.

Duffy Allen
Rolfing Instructor
Rolf Movement® Practitioner

A: Reading the question, I initially balk at the term 'research' and look to the mission statement for clarification. It says "To promote programs of research in Rolfing Structural Integration." When I realize to my surprise that 'research' is not specifically designated as 'scientific' research, I feel more accessibility to respond. I consider fields like the arts and humanities, where so much of their meaningfulness does not lend itself well to scientific objectification. Of course, a grasp of the physical sciences is fundamental to our work and requires ongoing pursuit. Encouraging continued reading in the development of the pertinent scientific fields is a career-long endeavor.

I personally treasure that Rolfing SI is not a strictly scientific field and am drawn toward research in the psychobiological arena. The critical thought and time I've invested here has been pertinent and personally rewarding. I consider the concurrent self-referencing within the context of the practitioner/client relationship as research very worthy of pursuit.

Reviewing and reflecting via session notes is a simple, accessible way to cultivate this

awareness in an ongoing process over time. It's of great value to me when the client's process is allowed to come forth and I as practitioner remain engaged without the imposition of my bias in the moment. And I like to emphasize this in my teaching. Assigning client records during training is intended to afford students the opportunity to review and personally reflect on their sessions. Maintaining client records is not only a good professional habit; objective note-taking also opens the process of subjective self-reflection.

With this in mind I come back to the original question. To promote development in the non-objectified field of relationships, I teach record-keeping as a technique to enhance students' personal and professional development.

Sally Klemm
Advanced Rolfing Instructor
Rolfing Instructor
Rolf Movement Practitioner

A: Back when I was chair of the RISI Research Committee, the mission assigned to me by Michael Salvesson was to repair the relationship with former committee members Francis Wenger and Thomas Findley so that research into Rolfing SI could move forward. I am not sure I was able to accomplish much. But it was interesting to hear what people conceived of as 'research'. Wenger was still thinking in terms of computer-aided topography, to measure the contours of the body before and after Rolfing sessions. Findley and Robert Schleip and others went on to help create the Fascia Research Congress, which has been a great success in promoting the importance of fascia. We need to appreciate that in 2007 the realization of that dream was an enormous step, and it continues to be a vital legacy of Dr. Rolf.

But do an apparent changed shape of the body or the miraculous ideas discovered by the fascia researchers constitute a path that will validate our work? It's not clear that it does. It will help the world in other ways, and it's good to learn more about how body posture and fascia can be influenced.

The real prize would be to show that the Rolf 'products' induce lasting change in the motor patterns of human beings. Posture is the expression of motor patterns. It's not a re-alignment of the physical stuff. The re-alignment fantasy is not so helpful to show

the efficacy of our work. How could we more effectively show the lasting changes we claim?

The most likely pathway is by aligning ourselves with researchers already studying motor-pattern change: folks using EMG, motion-capture technology, video analysis, and so on. This type of study requires expensive equipment and skilled staff, so it's not so practical to do it in-house at RISI. The likely alliance would happen as a result of research work that people like Eric Jacobson or Russell Stolzoff are engaging with, or in some new situation that falls in our lap as a result of networking.

For my money, it's worth reflecting on the brilliant moment in which Jeffrey Maitland and John Cottingham, two of 'our guys', demonstrated clinical significance of holistic change in the work Cottingham did at the Christie Clinic. Cottingham had worked closely with the guru of polyvagal theory, Stephen Porges, who invented the vagal tone meter. Cottingham, out of his own pocket, purchased the device and used it alongside standard physical therapy (PT) measurements. He showed that when the sessions became holistic – when the whole client's system was considered and treated for shifts in pre-movement as an example – not only did client symptoms and PT parameters make stable change, but there was an accompanying integrative improvement in respiratory sinus arrhythmia, what is now called heart rate variability, as measured by the vagal tone meter. This single case study (Cottingham and Maitland 1997), published in *Journal of Orthopedic and Sports Physical Therapy*, to me represents the most impressive research into the profundity of a holistic approach to SI that I have seen, and done by Rolfers. For convenience, their article from 1997 is posted on the Resources in Movement website:

<http://resourcesinmovement.com/wp-content/uploads/2014/09/Cottingham-3-Paradigm-Treatment-JOSPT-1997.pdf>

As I contemplate the question about where research exists in my practice and in my teaching, it is this: to convey to clients and students the unfulfilled need to re-frame the meaning of research around the issues that are fundamental to changes in posture – how can we observe and make reproducible the small shifts that have larger implications in people's lives, that integrate, that lead

to better motor patterns? By asking these questions over and over and inviting others to contemplate them, I feel we will someday achieve the kind of synergy that Cottingham, Maitland, and Porges were able to realize.

**Kevin Frank
Certified Advanced Rolfer
Rolf Movement Instructor**

A: I know that Dr. Rolf was very interested in scientific validation, and was always looking for ways to prove that her work worked. The big problem in studying a holistic system like Rolfing SI is that you have to take it apart and study it segmentally. Of course, we would have simple blood chemistry profiles, and range-of-motion studies for the gross physical body, but how do you validate that someone feels his feet on the ground, or that he is internally better balanced?

For my part, I am a clinical empiricist. That means that I study technique that works for most of my clients to produce the result of felt ease of movement and increased vitality. Like Rolf's 'Recipe', I am interested in predictability of outcome, and the actions that reliably produce those outcomes. Rolf insisted that Rolfing sessions were both education and manipulation. This combination, in the hands of a skilled practitioner, delivers the ease, vitality, and resolution of historic adaptation that make up the real value and impact of the work. I love research to the extent that it supports my being able to claim that what I do is working by some external measure.

**Jan Sultan
Advanced Rolfing Instructor**

A: So, as far as research is concerned, I personally feel more like Odysseus than Einstein. What I mean is that, in my experience, our professional field offers incredible possibilities to explore, challenge, and improve ourselves. In this sense I feel I'm an explorer, and a researcher, as I'm providing space for questioning, wandering, studying, experiencing, and being at peace with silence, or with doubts, or not knowing.

In my experience, curiosity is a great motivator in our field. And curiosity is a propellant for research. In teaching I want to nourish this attitude in my students:

curiosity, willingness to develop as human beings besides – or even before – building professional competence. I have to say that I also carry this same attitude, in a different shape, when I work with clients.

Further, I think scientific research is crucial, especially in our Western culture, for the development of our work and our school. All the incredible work and discoveries we are seeing from some scientists and researchers shed light for us, helping us to know from a different, objective, viewpoint what we experience – evidence-based – in our work.

Research in different fields (fascia, biology, the nervous system, psychology, etc.) deepens our understanding of the wisdom of the Rolfing educational process – the language through which with we interact with our clients. Through research, we gain insight into the unspoken bases that allow our work to be so effective and why the process through the Ten Series has such logic and potential. Through this we gain more trust and confidence as practitioners. Understanding more about how the Rolfing process works frees our capacity to be creative in interacting with our clients, finding ways to be more in tune with their levels of availability. It's not about applying a technique but about using a vision in a way that matches the client's capacity to understand, feel, and integrate the information we give in sessions.

A solid base provides more freedom and options. 'Evidence-based' wisdom and scientific knowledge together build a more multidimensional capacity from which we can grow and communicate, and where any of us can contribute. And we all do, at the level that best matches our preference.

**Rita Geirola
Rolfing Instructor
Rolf Movement Instructor**

A: I introduced a questionnaire to one of my later classes in a European Rolfing Association Modular Unit 3. This questionnaire was based on the NAPER questionnaire from ABR, examining clients' 'status' before and after a ten-session series. It had been translated into German with some changes regarding questions, which examine the cultural background of clients. The intention in working with this questionnaire was:

- Anamnesis – collecting all ‘data’ that could be relevant for the sessions.
- Examining the therapeutic relationship, how we were creating an atmosphere of trust, cooperation, openness, and compassion.
- Providing a base for strategizing and accomplishing single sessions and the whole series.
- Determining the individual goals of the clients.
- Examining the results at the end of the series.

Unfortunately, we didn’t have the time to finish the evaluation during that phase of training, so I have the data but not the analysis. Nevertheless I’m convinced that the introduction of questionnaires should be part of the curriculum in order to give options for lines of inquiry.

The class spent time practicing interviews with each other before their first contact with models. The main goals of this were 1) finding balance between collecting ‘objective data’ and creating an empathic setting for the client, and 2) sharpening students’ awareness for reflecting on the process through the whole series.

For the future I’m very interested in how we as teachers can learn methods for scientific inquiry, and how we can include this in our curriculum and our teaching.

Jörg Ahrend-Löns
Rolfing Instructor
Rolf Movement Practitioner

A: The most basic skill that we can teach our students and members about the science of our work is how to ‘read’ research and be able to intelligently know if it is legitimate, or even how to judge its validity. As chair of the Research Committee for many years while on the Board of Directors, I tried to bring in half-day workshops on research literacy. They did not work, as the presenters were not oriented to our field in the way we needed the work to go.

RISI founded the Ida P. Rolf Research Foundation, which is the place for larger funding for the SI field. Within our school, however, we still have the obligation, due to our mission statement, to teach a basic understanding of research; how to read it and, if interested, how to begin creating

valid research. Rich Ennis, the Research Committee chair over the past few years, has created a beautiful way to understand the hierarchy of the various levels of research (see his article on page 9). Thanks to Pedro Prado, we also have students do case studies in Phase III, which teaches them at a very basic level the beginning of how to think critically and analyze what we are doing. The ‘art’ of Rolfing SI is not lost in teaching critical thinking and analyzing.

Future projects will include identifying the curiosity of new students and helping them formulate ways to begin basic research in our practices. Helen James, a long-time member of our community, kept track of something like 700 clients, recording data on the range of motion of their necks.

Our community has scientific minds and we need them. Educating certain clients about the scientific validity of our work has its place. The Research Committee is one of the best-functioning committees I have served on in our organization. If you have skills to contribute, consider joining us.

Valerie Berg
Rolfing Instructor

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For Rolfers™ interested in engaging research further, please read Pedro Prado’s (2006) document, *Documentation for Clinical Practice and Research: Guide for Students, Practitioners and Instructors*, which will guide you further in case-study methodology. It is available at The Ida P. Rolf Library of Structural Integration, <http://pedroprado.com.br>.

Rolf Movement®

Faculty Perspectives

Research: A Tool for Inspiration

By Rebecca Carli-Mills, MFA, Certified Advanced Rolfer™, Rolf Movement Instructor

Honestly, there is a lot of ‘just figuring it out’. When it comes down to it, being a successful Rolfer and Rolf Movement practitioner involves active curiosity, self-motivation, perseverance, love of learning, and appreciation for the natural world. The tools learned in the Rolf Institute® of Structural Integration (RISI) Basic, Advanced, and Movement trainings are designed to unfold over a lifetime – and they will if they are nurtured by the curiosity that should come from practicing the art. I learned this idea very early in my training and felt both excited and challenged by it. I was thrilled that I had discovered something that seemed so unique – the antithesis of a paint-by-numbers, connect-the-dots approach. In my new professional community, no one was interested in dumbing down something that was profound. My teachers were willing to answer difficult questions by saying, “I don’t know, but stay engaged with the question – the answer may come.” So, my colleagues and I kept asking, looking, and following. This led us to some wonderful places for study with extraordinary people – it also took us to some uncomfortable places where we were challenged by our edges. Everything was not programmed, codified, or simplified – we had to grapple with the complexity of what it means to practice Rolwing® Structural Integration (SI) and Rolf Movement Integration – to enhance people’s structure, coordination, perception, and expression such that they find more ease, efficiency, and grace in living within our earth’s gravitational field. “This is the gospel of Rolwing: When the body gets working appropriately, the force of gravity can flow through. Then, spontaneously, the body heals itself” (Rolf 1978, 31). What does that statement really mean? I am still asking the question.

For personal inspiration purposes, it doesn’t matter whether you engage with research informally – at the homegrown read, ask, record, and share level – or whether you engage at the gold-standard scientific-

method level. What matters is that your engagement fuels you, the practitioner, to become excited every morning – to approach every session as an opportunity for discovery. Thirty years ago, Peter Melchior said to me, “Rebecca, if you wake up one day with the thought that you are going to have to rub someone’s smelly feet, then it’s time to take a workshop.” Similarly, when I heard the majestic Stacy Mills give a presentation, “The Care and Feeding of Rolfers,” it wasn’t about nutrition – it was about inspiration. Fueling your research efforts will fuel your livelihood and our profession.

How to go about it? For some of us, the first step is to get over feeling intimidated. I live and work ten minutes from the National Institutes of Health (NIH), one of the world’s foremost medical research centers. It is made up of twenty-seven different institutes, each with its own specific research agenda, often focusing on particular body systems. It feels like a behemoth ivory tower of top-shelf, scientific-method, gold-standard research that sets the bar of acceptability. I hear myself say, “If one is not doing that level of research, then why bother to engage at all?”

“Why bother?” – Where did this discouraging idea come from?

The answer is that the idea was born during the 1600s, with the advent of modern Western society. Sir Isaac Newton made groundbreaking discoveries that have great relevance to everything in the physical world, especially Rolwing SI: i.e., the Law of Universal Gravitation and the Laws of Motion. Additionally, Newton is credited with developing the scientific method. By 1859, Charles Darwin solidified the scientific method as the established practice in scientific discovery. By 1887, my neighbor, NIH, was established, along with other research institutions worldwide. Before Newton, most Westerners held a worldview called anthropocentrism, in which people were considered to be central to the universe. After Newton’s discoveries,

the universe was viewed ‘as it is’, regardless of humanity’s existence. This led to the development of the notion that people’s opinions and viewpoints – perceptions – were not relevant to scientific exploration. An ironclad bond was created between the scientific method and truth; the goal became to establish truth not through human experience, but through the scientific method. So, that which met the criteria of the scientific method held more value and legitimacy than that which did not. The philosopher, Alexander Koyré explained this sentiment:

... Modern science ... united and unified the universe ... But ... it did this by substituting for our world of quality and sense perception, the world in which we live, and love, and die, another world ... the world of quantity ... a world in which though there is a place for everything, there is no place for man. Thus the world of science – the real world – became estranged and utterly divorced from the world of life (Watts 2010/2013, 39-40).

To some extent, these sentiments continue to operate today, and create some strange bedfellows, especially in fields like psychology, sociology, somatics, and SI that overlap medical science but may not be entirely comfortable eliminating the validity of perception. Psychology is one of the fields where the push to make the subjective, objective has led to some quirky developments and difficulties. There is a long list of gadgets designed and applied in the name of generating verifiable universal proof of psychological states through physiological measurement. Debate continues over the findings of the 2015 report of The Reproducibility Project, which reran 100 psychology experiments and found that over 60% of them could not be replicated. Some assert that the issue is only one of statistical methodology. Maybe so. Nonetheless, any field that studies the human experience – which changes depending on individual culture and context, is readily influenced by exposure and awareness, and is heavily affected by perception – is a precarious environment for insistence on universal reproducibility. What if the efficaciousness and individualization of the intervention are interdependent? What does this have to do with Rolfers and research?

The 2015 Fourth International Fascia Research Congress (FRC) offered an outstanding journey to the land where scientific research methods meet hot topics in fascia inquiry relevant to SI, such as: sensory aspects of fascia, evidence for myofascial connectivity, embryology and genetics of fascia, to name only a few. The pre-conference workshop, "Understanding Research Fundamentals for the Congress and Beyond," delivered clear guidelines for increasing one's literacy in interpreting and conducting research by laying out levels of evidence in research methods. Certified Advanced Rolfer Eric Jacobson, PhD, MPH, joined with three colleagues to establish viable paths for realistic engagement with research. (This excellent presentation can be viewed at <https://frc.conferencevod.com/index.php/pre-conference>.) The presentation included an illustration of the 'hierarchy of evidence' as a pyramid with gold-standard randomized controlled double-blind study, systematic review, and meta-analysis at the top and case study, case report, and expert opinion at the bottom. The hierarchy was arranged on the basis of eliminating risk of bias, confounds, and variables by design, resulting in increased reliability in conclusions validated by statistics for the purpose of consistent universal application. Because of the education, expense, personnel, and lab conditions required, the top level of research seems best conducted in affiliation with an academic or research institution. Receiving top-tier scientific validation for how the fascia mobilization aspect of SI works would be a 'dream come true' for our profession, and with several recently published studies, along with the relatively new scientific interest in fascia, this may become a reality.

However, Rolwing SI is not solely based on a series of therapeutic fascia-mobilization techniques. "An effective human being is a whole that is greater than the sum of its parts" (Rolf n.d.). We incorporate ideas such as holism, embodiment, integration, and education – all of which involve perception. "This is an important concept: that practitioners are integrating something; we are not restoring something. This puts us in a different class from all other therapists that I know of. It takes us out of the domain designated by the word 'therapy', and puts us in the domain designated by the word 'education'" (Rolf 1978, 40). Inherent in the concepts of holism, embodiment, integration, and education is

perception. Perception is the human process of organizing, identifying, and interpreting sensory information in order to represent and understand our environment. By skillfully addressing our client's perception, we can positively influence the integration of our hands-on techniques including fascia mobilization, such that ease and efficiency in coordinative patterns, including posture, are available and maintained over time. What happens if we consider perception to be of vital importance to successful Rolwing outcomes? What if perception is key in successfully alleviating back pain? What if success is dependent on individualizing the intervention to meet the client's perceptual style and experience? What if the perception of the practitioner influences the effectiveness of the intervention? Does that make our work less valid?

At the Congress, I attended a presentation by Jan Wilke, Department of Sports Medicine, Goethe University, Frankfurt, titled: "Remote effects of lower limb stretching: evidence for myofascial connectivity?" Wilke, along with three colleagues, sought to evaluate the remote effects of lower limb stretching on cervical range of motion (ROM) by investigating the superficial back line (SBL) as designated by Thomas Myers: a myofascial meridian consisting of plantar fascia, gastrocnemius, hamstrings, and erector spinae (Wilke et al. 2014). The intervention group, consisting of thirteen healthy subjects, "performed three consecutive thirty-second bouts of static stretching for the gastrocnemius muscle and hamstrings respectively" (Wilke et al. 2015). ROM in cervical flexion and extension was assessed in this group and in a control group using an ultrasonic 3D movement analysis system. The conclusion based on analysis of variance and post hoc testing revealed improvements of cervical ROM when lower extremity stretching is performed, indicating existence of strain transfer along the course of the myofascial meridian. The purpose of Wilke's (2015) study was to validate the concept of fascia connectivity; it concluded with "further randomized controlled studies on conditions, factors and magnitude of tensile transmission are warranted."

Of course, potential validation of fascia connectivity as shown in this pilot study is exciting. However, I found that I was even more excited by the possibilities inherent in the variables – interventions that would partially rely on perception. What would

happen if the subject actively increased proprioception and tonus through the support leg and foot in order to differentiate the function of the stabilization side from the mobilization or stretch side? If the subject feels secure in a sensation of home base (stabilizing side), so that he is free to expand into the world (mobilizing or stretch side), does cervical flexibility increase? Or, what would happen if the subject initiated the stretch from both ends of the muscle chain by imagining that his ischial tuberosity reaches behind while his heel reaches forward – performed with the intention of both ends actively reaching into the surrounding space? Does cueing this sense of bi-directional stretch in the SBL increase cervical ROM? Or what if the subject were given the task of staying present in his peripheral vision, soft focus, seeing and sensing his surroundings throughout the stretch? Would the stretch of the SBL, along with a shift away from a set visual focus, bring increased ROM to the cervical spine? In any of the above scenarios, does increasing sensation in the legs offer ease by reducing habitual cervical guarding or tensional holdings? In an evolutionary or developmental sense, once our legs come underneath our center of gravity to actively support our body, our neck and head are free to float upright, thus allowing a wider visual field to fully scan the environment for signals. When there is insufficient structural or coordinative activation in the legs, there may be a secondary holding in the cervical structures as compensation. We can address it through the fasciae of the SBL, but what happens when we also consider it within a broader context of coordination and perception?

Since the conference, I have experimented with each of these ideas (and a few more) with my clients who have cervical ROM issues. I made treatment notes documenting the kind of suggested intervention and how they embodied it over time: did the client continue to perform the stretch? Did s/he incorporate the suggested perception? Did s/he develop or alter it? Did it spill over into other activities? Was there a lasting effect on cervical ROM? Were other aspects of his/her alignment and coordination affected? How did I determine which intervention suited each client? This line of inquiry, mainly relying on subjects' perception of task, self-reporting, multiple variables, and my interpretation, may not be the stuff of gold-standard scientific method, but it has kept me vitally engaged in exploration and learning for several months.

For me, what was wonderful about Wilke's research presentation was the fact that I was flooded with curiosity and inspiration. How could the subject 'live' in the exercise, becoming more present. How could it ignite new patterns of coordination in his/her whole body? What would inspire my client to add the exercise to his/her resources for well-being? This active engagement with the topic led me to relevant PubMed searches, interaction with mentors and colleagues, inquiry with related somatic disciplines, and client interactions supporting ongoing engagement, education, and embodiment. Perhaps with the addition of standardized tools for measurement and reporting, this documentation could form the basis of a case report or case series.

The value of case reports was evident in the presentation given by Ruth Werner BCTMB at the FRC pre-conference workshop on research literacy (available for viewing at <https://frc.conferencevod.com/index.php/pre-conference>). A case report is defined as an article that describes and interprets an individual case, often written in the form of a detailed story. While they are considered as occupying a low level in the hierarchy-of-evidence pyramid, they often are where new issues and ideas emerge. A good case report is clear about the importance of the observation reported. If multiple case reports show similar findings, the next step might be a case study to determine if there is a relationship between the relevant variables. In the grand scheme of things, our entire field is a new and emerging idea, often incorporating novel concepts and interventions that are not mainstream to address mainstream problems, such as low back pain. In the *Journal of Medical Case Reports*, the world's first international PubMed-listed medical journal devoted to publishing case reports from all clinical disciplines, Richard Rison MD (2013) wrote:

Case reports are a time-honored tradition in the medical profession. From Hippocrates (460 B.C. to 370 B.C.), and even arguably further back since the papyrus records of ancient Egyptian medicine (c. 1600 B.C.) to modern day, physicians of all specialties have described interesting cases involving all specialties. Published case reports provide essential information for optimal patient care because they can describe important scientific observations that are missed or

undetected in clinical trials, and provide individual clinical insights thus expanding our knowledge base. The publication of case reports has indeed become a standard lexicon of the medical literature. Examples abound.

A well-designed and well-written case report may provide an avenue for the wider field of health professionals to learn about our work. Werner encourages all of us to write case reports and enter them into the MTF Case Report Contest! Writing a case report can streamline and refine treatment strategies and protocols. Reading case reports often inspires new ideas and connections; those written specifically by and for Rolfers are especially beneficial to us. Information on the specifics of writing case reports by Werner and others can be found in a free five-part webinar series at <http://tinyurl.com/case-report-webinars>.

By all means, if you have the professional credentials, institutional connections, and funding sources to participate in gold-standard scientific-method research, please do. Fascia is a hot topic – jump in! If not, jump in anyway; there are many other valid and productive ways to participate. Join the Fascia Research Society – its website (<https://fasciaresearchsociety.org>) includes presentations from past conferences and announcements about future events. Visit the Research section of the RISI website (www.rolf.org) to find information about project development, grants and funding, lists of peer-reviewed references, and summaries of the most current clinical studies. Peruse the Ida P. Rolf Research Foundation website (<http://rolfresearchfoundation.org>) for resources and a series of articles about clinical research design by Dr. Thomas Findley.

Visit websites such as PubMed, ScienceDirect, Medline, Elsevier, and Google Scholar to access large databases referencing international abstracts and articles. Subscribe or gain access to publications from Elsevier such as the *Journal of Bodywork and Movement Therapies*, *Human Movement Science*, or *Manual Therapy*. The *International Journal of Therapeutic Massage & Bodywork* and the *International Body Psychotherapy Journal* are available online. Some organizations, such as the American Physical Therapy Association, allow a non-member to create an account providing access to abstracts.

Design a case study, leading to a case report. Share your report in this Journal, the *IASI Yearbook*, and other journals. Create a group with colleagues for the purpose of sharing case reports. Start a Rolfing book club! Create an ongoing digital or paper journal with articles, quotes, ideas, images, and drawings – your personal research collection. Become familiar with local academic and research institution libraries, laboratories, departments, and public lectures for rich opportunities to interact with research topics and form alliances. Take a course for non-credit. One of my favorites was a college course that combined anatomy, drawing, movement, and Irene Dowd's "Spirals"TM. Why not?

These suggestions are just a beginning – choose one of your interests, start, and the process will unfold. The important thing is to start with a question and follow your enthusiasm. Whether it leads to the *Eureka!* moment or deeper conversations with colleagues, it will feed your practice and soul.

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Should We Believe What We Read?

What to Consider When Evaluating Clinical Research Publications

By Richard Ennis, MS, Certified Advanced Rolfer, Chair RISI Board of Directors

Introduction

Scientific research can be a great way to understand our world. Scientific exploration starts with careful, hopefully unbiased, observations. As Rolfers, we are observing our clients before and after our interventions. The outcome might be a visible structural change or some sensory adaptation, such as a reduction in pain or improved comfort. We may believe that the observed change is due to our intervention, but just because two events happen at the same time does not mean one caused the other to happen. We need our clinical observations to be confirmed through valid experimental studies before we can claim a relationship exists between our fascial interventions and the client change.

The first step is this observation of a single case, which can only be considered a description of variables at play. To find trends that generalize to the general population, many clients need to be observed empirically, with valid data collection methods. Data from many clients collected as a cross section of a single point in time or data from a subset of many subjects presenting with a specific characteristic (like lumbar pain) would give more power to claim a relationship between fascial intervention and client outcome. Then predictions can be made about client outcomes, experimental designs can be applied to the Ten Series, and specific hypothesis testing is possible. The scientific method applied to the work of structural integration (SI) can reveal specific interactions that happen in our offices every day. The purpose of this article is to empower Rolfers to be discerning consumers of empirical research, to discriminate how the design of a clinical study will have inherent strengths and weaknesses.

We know that not everything published is perfect or true. In fact, there are websites such as retractionwatch.com that spotlight bad research. Ivan Oransky, co-founder of Retraction Watch, estimates that of the

two to three million articles published each year, 500-600 are retracted. While that is a relatively small number, it is still important and can have major implications. For a high-profile example, a study linking vaccines and autism that was published in *The Lancet* in 1998 was retracted in 2010 after it was found that the study design was seriously flawed (Wakefield et al. 1998).

Only a very small fraction of retracted publications are due to fraud. There are many other studies that don't hold up to scrutiny either because they are poorly designed, are found not to be repeatable, or are published in 'predatory journals' that don't really have good quality-control mechanisms, such as an expert peer-review system. Even when articles are peer reviewed, it is often difficult even for the experts to identify flaws in a study because of researcher bias, funding complexities, population unknowns, or the isolated nature of specialized research.

A contemporary limitation to published research is the 'desk-drawer phenomenon'. The desk-drawer phenomenon applies to when the result does not show significant differences between treatment groups (research participants who received the experimental manipulation) and the control group (research participants who did not have any intervention), which is called a null result. The researchers often will not publish this data when this information may in fact be valuable, so it gets put away in the desk drawer even though the absence of a relationship between two variables is still important information.

Each type of study design applied by researchers has errors built into the system; although they are supposed to report these flaws in the paper, they can fail to mention any number of biases. For example, while a study may describe the results as an accurate reflection of the general population, the participants might have only come from a limited representation of the population – such as all participants

were eighteen-year-old university students, all participants were upper-middle-class Caucasian men, or all participants lived in rural Arizona. It is important to look at who the participants were in any study because that will determine how much can be generalized about the results. Studies may be 'under-powered' such that the results are statistically invalid. When participants stop their involvement before the study is over, their data is usually discarded, and the dropout rate should be mentioned by the researcher. This is called the 'discontinuation rate'. The reason people drop out during a study is significant, and their missing data points can skew study results. Everything pertaining to how that data is handled can greatly alter the study interpretation, especially the selection of participants.

Researcher bias may influence how data is evaluated and interpreted, and funding sources can have an unconscious influence on the researcher's logic, so we should check to see what funding sources were used to execute the research. Corporate funding of studies is always concerning in that the study design itself can be prospectively influenced by the funding mechanism. National research boards have the best reliability for neutral funding streams, based on the merit of the academic and the topic. An independent researcher will often execute clinical studies for pharmaceutical corporations, with specific 'firewalls' set up between the research decisions and the corporation. Nevertheless, funding influence, or even the perception of influence, is hard to dispel.

Rolfers are constantly scanning their subjects to determine where an intervention will be most effective. This might be due to a static postural observation, an observed movement pattern, or some characteristic that a subject perceives such as pain, tightness, or other more abstract feelings. It is then incumbent on us when we perform an intervention to observe the changes. This can be an informed observation based on the research we read. So, while an initial observation on one subject might be interesting, it lacks empirical strength. But if we find a peer-reviewed article about that variable of interest that has been evaluated with a large group of participants, we can use this evidence and apply it to our practice. Ideally, we would benefit from large studies with control group and treatment group comparisons of fascial interventions to understand

the deeper context of what we see in our offices. For this reason, it is important that the SI community critically examine our observations and those contained in published data to ascertain that we use this information appropriately.

With all the information available on the Internet, publicly available databases, and self-publishing, we have without a doubt more information than ever before available at our fingertips. As Rolfers we have to sort through all this information and have a critical mind to find accurate information. Many of us read the title of a published article – or perhaps a newspaper article referencing a recent publication – and have the urge to post the findings to our peers without scrutinizing how the conclusions were reached. Is the data really supportive to that conclusion? Could there be stronger information on which to decide? Is there bias in the experimental design? Here are some reliable steps to thinking analytically about research, to help you weed out less reliable conclusions.

Why Peer-Reviewed Journals?

The first step to finding good research is seeking it in peer-reviewed journals. A peer-reviewed publication is, by definition, a journal that subjects each submitted article to evaluation by one or more knowledgeable individuals (peers). Typically, corrections and suggestions are given before these articles are refined enough for publication. Science relies heavily on critical peer reviews. While that doesn't fully guarantee the quality of the study data, it does give public confidence that the experts put their reputations on the line when they state the information can be trusted as reliable. This evaluation process can be credited with screening out submitted manuscripts with serious design flaws, yet we also must have a critical eye when reading peer-reviewed studies because bias and error can still exist.

Empiricism and Scientific Inquiry

As Rolfers, or any person interested in how the world works, we need to develop our sensory experience of the world without pre-interpretation. This requires that we observe and reflect on sensory observations as pure information, without judgment, and we must put aside preconceived ideas dictating our understanding of the world around us. The same sensory information

is available to all of us, and with normal sensory capacity, a group of people observing a specific phenomenon will share similar descriptions. This process of relying on sensory phenomenon to understand our world is the foundation of empiricism. It is this concept of empiricism, combined with scientific methodology, that gives the basis for our current understanding of the world.

In our Rolfing® SI practices, we will make observations about our clients, collect data about their life experience, and we are tempted to generalize from one client to all clients who present in a similar way. For instance, we may observe that someone has better balance after completing the Ten Series. To be thorough, we would need to observe many clients and compare them to people who did not receive any SI work. If we compare the variable of balance in subjects who have completed the Ten Series compared to the general public, we may indeed find that the SI subjects have better balance. This is termed a correlation approach, where one variable is observed with a control group (here it would be those who did not have the SI intervention) and an experimental group (here, it would be those who had the full Ten Series). It is important to note that a correlation does not, in itself, prove a causative relationship. A correlational study cannot claim that one variable caused the other to change since there may be other factors at work.

It is complex to determine a causative effect in clinical studies. If I do this specific fascial intervention, or a full Ten Series, will a predictable outcome be consistently observed? First, the method of observation must be valid and reliable. Like Dr. Rolf did with her photographic evidence, measuring angle of change in the vertical and horizontal orientation of the body can be one way of consistently evaluating change or no change. Experimental design requires strict controls of factors that are not being measured, like room conditions, time of day of intervention, trauma history, and socioeconomic factors to name a few. In a true experiment, participants should be randomly assigned to either the control group or the experimental group. This process where we influence a variable directly with a consistent intervention and compare that outcome with the group that had no intervention forms the basis of experimental methodology.

The past few years have been an exciting time for Rolfing SI research. There have

been several publications assessing the therapeutic effect of SI for specific conditions, including cerebral palsy (Hansen et al. 2012; Hansen et al. 2014); fibromyalgia (Stal et al. 2015, Stal and Teixeria 2014); and, more recently, the first randomized trial to assess SI as adjunct therapy to outpatient rehabilitation for chronic non-specific low back pain (Jacobson et al. 2015). The Rolf Institute® of Structural Integration (RISI) website contains a listing of many peer-reviewed articles related to Rolfing SI on the Research page in the Visitors section.

Conceptualizing Clinical Research Design as a Hierarchy of Evidence

Considering that different study designs will yield different quality levels of evidence, with varying degrees of potential bias, let's go through the varying strengths and weaknesses of common types of clinical studies. There has been significant discussion over the past twenty-five years regarding how to grade the different trial designs. Thus, many working groups have now published varying preferred hierarchies when evaluating clinical-trial designs since this concept was first introduced in 1992 (Guyatt et al. 1992). It should be noted that there is still debate about exact ordering of this hierarchy (Oxman 2004), and whether randomized controlled trials (RCTs) are truly superior to some observational study designs (Concato et al. 2000).

Nevertheless, I present here (see Figure 1) a research hierarchy for the types of clinical study designs to assist us as Rolfers to have an awareness and context of observational designs compared to experimental designs, which is a process where researchers start to develop hypotheses and then to test those hypotheses. The goal of most clinical research is to be able to reliably predict client outcomes. As you can see, the bottom layer of the research hierarchy pyramid is the initial uncontrolled, observational study design of reporting on a single case: one data point described with great detail. Next are cross-sectional studies, also a type of observational study with more participants. These observational designs describe trends between variables. This begins the process of generating hypotheses about the relationship between variables of interest.

Once variable relationships have been replicated, researchers are then interested in testing their hypotheses. A case-controlled

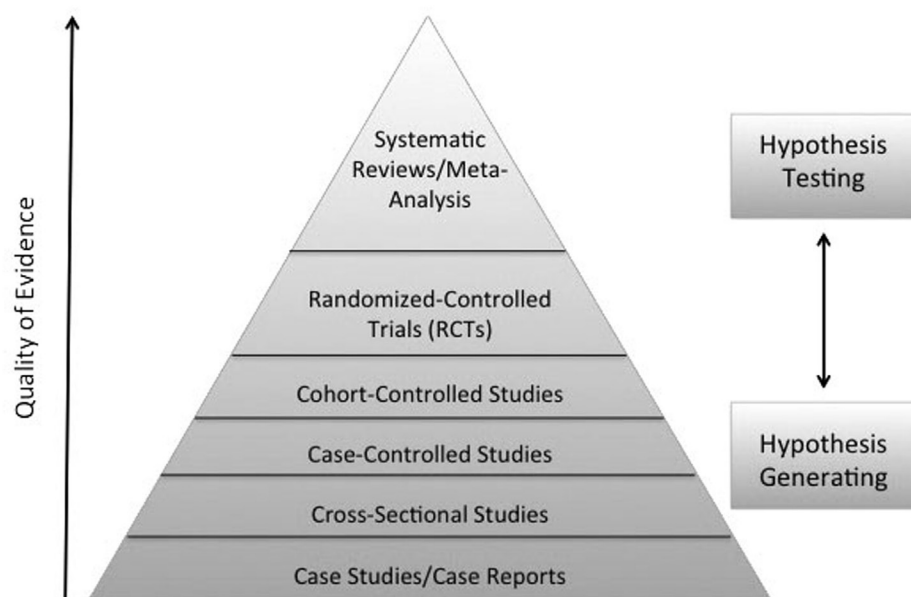


Figure 1: Hierarchy of evidence for the types of clinical study designs found in peer-reviewed publications.

study is the first step in testing predictions. The researcher assembles a group of people who present with the variable of interest, such as suboccipital pain. The research assembles another group of people with similar demographics without the variable of interest. Data collection for both groups involves their past information, looking for the difference in their collective histories that might explain the symptom development.

Next, in cohort-controlled studies, the researcher assembles a large group of participants and does regular observations of their health over a long period of time. Some people in the group will develop the variable of interest, like chronic foot pain, and some will not. Then the researcher will look at what was different between the participants who developed symptoms and participants who did not.

Finally, randomized-controlled trials (RCTs) may include placebo treatment groups (participants who think they are getting the intervention but in actuality are not) and are considered by many to be the gold standard for clinical trial design (Concato et al. 2000; Stolberg et al. 2004). There is ongoing evaluation and discussion of the hierarchy of research design and its ordering (Oxman 2004). Above the RCTs in the hierarchy are systematic reviews or meta-analysis (Greenland and O'Rourke 2008; Walker et al. 2008). A meta-analysis combines data from multiple studies on the same topic to effectively increase the size of

the database, yielding the strongest strength of the evidence.

The strength of clinical information improves as we move up the research hierarchy pyramid from initial observations on single cases to complex randomized controlled clinical studies and data sets involved in meta-analyses. The quality of the evidence starts broad, at the bottom layer, where a single phenomenon is described in significant detail. The evidence specificity becomes more refined as we move up the design pyramid. RCTs test predictions about the variables of interest and at the meta-analysis level there is a wealth of information where detailed theories can be described from the large data sets. All levels are useful to a researcher/practitioner. This is really the evolution of knowledge, discovered by the scientific method. It is important to differentiate the claims that can be made from each of these research designs since they do not all carry the same weight in their conclusions.

In our offices, it is very similar to the ground level of the pyramid, with initial observations on single subjects often being the starting point to researching new techniques or new applications. For instance, a client who presents with chronic plantar fasciitis and who receives three Rolwing sessions may be able to stand for longer periods of time and walk longer distances. Is this related to the Rolwing SI sessions or something else? While the observation is interesting, and in fact there

may be a relationship, it is impossible to have any real predictability for future cases based on a single case study.

Studying an SI intervention in a RCT design might enroll sixty people or more with chronic plantar fasciitis, representatives of all ages of people, all heritages, all socioeconomic backgrounds, and equal number of males and females. Then the participants would be randomly assigned to either the treatment group, who will get the Rolwing sessions, or control group, who will get sessions of something unrelated. The best situation is when the group assignment is unknown to the researcher so the researcher is 'blind' to which participant is in which group. The researcher will analyze the data blind to group assignment, then un-blind as a last step to reveal true trends based on treatment. This removes researcher bias in the process.

Theory development happens as experimental research projects are published from several academic groups and when the collective results consistently converge to describe the same relationship between variables. These detailed discussions about causal relationships are often discussed in meta-analysis articles. The authors pool data sets from many studies looking at the same variables. This is the peak of the clinical research hierarchy. Even meta-analyses are not without their own inherent biases such as study data selection and the desk-drawer problem described earlier. So let's go through each design type in detail so that a critical reader can read peer-reviewed publications and spot possible error or bias.

Case Study / Case Reports

Case studies and case reports are often used interchangeably, and generally refer to the study of a specific attribute of interest. The case may be one person or a group of participants with the same symptomology. Long histories are often reported about the case and there may be before and after an intervention described. The strength of this design is it often informs about interesting specific cases that might not be found in a larger study with many participants. It can also be the initial basis of interest for designing more complex studies. However, just because a change might be observed after a treatment, this cannot be generalized to every person who presents the same.

So, for instance, we may do a case study on a group of individuals and their response to

Rolfing SI after hip replacement surgery. The study may examine a variety of variables, such as mobility, pain levels, recovery times, or other measures of well-being affected by the surgery. Writing case studies / case reports is already a part of the basic Rolfing training at RISI, and it is important to introduce students to the concepts of critically evaluating the intervention and the resultant observations. Reading more complex clinical research design is a part of putting our office observations into context.

Importantly, many adverse events are first reported in case studies, and these anecdotal observations are considered key initial steps leading to new scientific understanding. Case studies give us an avenue to share our own clinical experiences, and some clients are so unique that their particular process can give us unique understanding. Many of our Rolfing colleagues have already given us rich descriptions of cases, and there is an extensive listing of SI-related case studies/reports available online at The Ida P. Rolf Library of Structural Integration (www.pedroprado.com.br) maintained by Pedro Prado. Indeed, as SI practitioners, we are continually making case observations on our clients that often help us determine what interventions best integrate our clients.

Cross-Sectional Studies

Cross-sectional studies fall into the category of observational studies. The data is collected at one point in time, hence the term cross-section. The data is often used to describe risks within a given population. For instance, we might collect pain data on all subjects who have received Rolfing SI within the past year. This would give us a pain database – a descriptive slice, if you will, of the population of subjects recently having undergone Rolfing sessions. Cross-sectional studies use measures to turn variables into reliable numbers and provide statistical information about linear trends, such as prevalence information and certain risk measurements.

Cross-sectional studies are popular in peer-reviewed publications because they are the easiest to execute and the researcher only needs to interact with the participants once. This ease is its limitation since the data reflects the state of the participants at only one point in time. For instance, we often see clients who look better one year after completing a Ten Series. Just one meeting, one data point, is not enough to describe a person's experience. The cross-sectional study is essentially a single snapshot in time.

Sometimes the questions in the cross-sectional study are about things that happened in the participant's past. This brings in recall bias, another limitation in observational studies. Recall bias reflects that subjects will have a selective memory for their past events, like all the times a person with neck pain had whiplash traumas. The compounding injuries are fresher in the person's mind because of the neck pain, while someone without chronic neck pain may forget whiplash events more easily.

Case-Control Studies

Case-control studies are often used in epidemiological studies. It is a type of observational study in which the researcher looks at a large group of people who all share one type of symptomology. The researchers can compare them to an appropriate control group without the attribute and then look for what exposure differences between the two groups exist that might then be related to the condition. Hypothetically, one could look at subjects with plantar fasciitis and a control group of subjects without plantar fasciitis. One could then gather information on the two groups with regards to activities to find whether the prevalence of plantar fasciitis can be correlated with exposure to some earlier specific activity. Case-control studies are sometimes used to identify unknown factors, previously undescribed, that may contribute to a condition. Again, this is correlative information and just because variables vary together it does not say one variable is causing the other to change.

Cohort-Control Studies

A cohort is a group of subjects who have some shared characteristic or event within the context of some timeframe. For example, a cohort might be a group of subjects exposed to some risk factor, say playing football between the ages of fifteen and twenty-five. In cohort-controlled studies, a cohort is compared to a control group with similar demographics but not the same risk factors. The key aspect of this study design is that the groups are defined first and then data is collected over time as a longitudinal study. This helps to determine if there is a difference between the two groups in, say, chronic knee pain.

Cohort studies may also be prospective or retrospectively designed. In this example, a prospective design would look at subjects who played football and then follow them

to determine if they develop chronic knee pain at a different rate than the control group. In a retrospective analysis, one cohort might have knee pain and then be asked whether they played football. The retrospective study design incorporates the possibility for recall bias. As with all study designs, cohort studies have the potential for bias, including the criteria for selection of the cohort and the control cohort.

Note that case-control studies will look at some known symptom incidence and then try to determine causal factors, whereas cohort-control studies look at an already suspected factor, such as football participation, and then determine the risk of developing the attribute (chronic knee pain).

Randomized Controlled Trials

RCTs are generally considered the gold standard in clinical-study design. The key strength is that the subjects are randomly assigned to a treatment group or a control group. Since the subjects are randomly assigned, this minimizes bias between subgroups, assuming the study is of sufficient size.

In this design, subjects are screened to see if they meet defined entry criteria relevant to the study design, such as age, ethnicity, medical condition, and background events. Once a group all with the same condition of interest has been assembled, they are then randomly assigned to one of the treatment or control groups. In a blind RCT study, the subjects are randomly assigned so that researchers are unaware of what treatment the participants are receiving when the data is being recorded. A double-blind study, mostly found in pharmacological research, is when the subjects are not aware whether they are receiving the active drug or an inert drug.

Despite being a strong research design, RCTs bias can still be introduced when the study is not of sufficient size or the randomization process resulted in different characteristics for the subgroups. There may also be different dropout rates between groups. Data can then be analyzed using the 'as-treated' analysis approach, which analyzes subjects based on the treatments they received. The data can also be analyzed using what's termed 'intent to treat' analysis. Intent to treat analyzes all subjects based on their randomization, regardless of whether they received or adhered to the treatment plan.

It is complex designing an appropriate control treatment for a study evaluating SI. Often, complementary-health RCTs compare modalities with the same outcome measures. The clients will be randomly placed with various interventions as a comparison study, including what might be the current accepted 'standard-of-care' modality for the symptoms of interest. Randomized trials can also be designed as add-on designs to determine if adding a treatment, say Rolwing SI, to some other treatment modality will yield better results (Stal et al. 2015; Jacobson et al. 2015).

Meta-Analysis as a Systematic Review of RCTs

A meta-analysis is at the top of the study-design hierarchy pyramid along with RCTs. The meta-analysis combines and analyzes data from multiple RCTs to increase the data pool around a given treatment, intervention, or risk factor (Greenland and O'Rourke 2008; Walker et al. 2008). This improves the statistical power, maximizing the statistical predictability of treatment interventions causing change in measured variables and minimizing bias by the researchers wanting to see specific outcomes. As with any study design, bias may also be introduced in meta-analysis through bias in the original individual studies, or by which studies are selected to be included in the meta-analysis. The desk-drawer problem can make the meta-analysis data set incomplete. Since the studies with null results are often not published, some data is not included in the full picture of the phenomenon.

Cultivating a Critical Eye for Research Publications

Now that we know some basic differences in clinical-study designs we can understand that the outcomes from these studies can be conceived to fall in a hierarchy based on 'strength of evidence'. To summarize, at the bottom of the hierarchy would be individual case studies, which have more limited predictive value. This information is characterized as low-strength evidence, or conversely, high bias. At the other end of the hierarchy are RCTs and meta-analysis, which are considered high-strength evidence with low bias.

Another way to characterize the progression in the hierarchy is often based on the order with which research data is generated. Initial research observations are typically from case reports or small clinical trials.

This is considered hypothesis-generating evidence, whereby the researcher sees some early observation and develops a hypothesis around that observation. Higher-level study designs, including RCTs, are then considered hypothesis-testing study designs in that their goal is to determine the validity of the hypothesis.

When you look at the conclusions of a published study, be sure you know what type of study design was employed. Also, make a note whether it was a peer-reviewed publication. Not that a peer review guarantees the results and conclusions, but at least it has gone through screening. By understanding the type of study design, where that falls on the hierarchy of evidence, and if the publication is peer-reviewed, the reader can better assess the validity of the information.

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Research Basics: Definitions, Methods, and Where to Begin

By Heather L. Corwin, PhD, MFA, Certified Rolfer™

If we knew what it was we were doing, it would not be called research, would it?

Albert Einstein

Introduction

When entering the research arena, the language and meanings can be dizzying. I recall being a young assistant professor (without a PhD) and having a tenured faculty member who had a PhD scoff at me after he asked, “Are you planning on presenting a qualitative or quantitative study?” and I replied, “What’s the difference?” Well, after earning my PhD, I now understand the vast and never-ending difficulties that surround *research* and all it implies. In this article, I will attempt to share with you names and definitions of basic research as well as suggest some possible research strategies that might be used to research bodywork.

Where does research begin? Often, research starts with a thorough understanding of the current landscape of the focus of your study. For example, since we are Rolfer® Structural Integration (SI) practitioners, knowing any relevant studies already conducted is important before launching into a research study. The process of gathering information on previously published study findings is called a *literature review*. This process also insures your idea has not already been studied so you are not wasting your time. This process may also reveal some leaders in the industry. Another point of the literature review is to comprehensively encapsulate the seminal work done, any gaps in the literature, and what you hope to contribute to the field. Reading articles about the subject can also help inspire you when formulating your own study.

An important element to keep in mind at this point is what you would like to study and who has cleared a path for your work. Most of the articles that would be useful are in peer-reviewed journals that have been published. As a layperson, I was not aware of the difference between a magazine like *Massage & Bodywork* and a professional publication like *The Journal of Bodywork*

and *Movement Therapies*. The first is a trade publication, the second is a scholarly journal. Arguments on which to base your literature review for your study would require citations from the scholarly journal world rather than blogs, trade publications, or websites. Scholarly journals adhere to rigorous standards, usually require an *institutional review board* (IRB) to oversee a study, and have competition when choosing who is published. So now that we know where to look to discover information about the areas we plan on studying, let us look at the study itself.

A study requires a leader. The head of a research study is a *principal investigator* or PI. The PI is in charge of the study, how the study is arranged, the execution of the study, and safeguarding the participants and data involved with the study. In other words, the boss. If someone else is working on the study who is not in charge but has primary responsibilities, he is often called a *co-investigator*. In the following, let us look at the elements often associated with studies that require people as participants, known as *human subjects*.

From caring comes courage.

Lao Tzu

Human-Subjects Research

When conducting research with human beings, there are a variety of safeguards in place that evolved as a result of historical abuse of power including war crimes and inhumane treatment of distinct populations. These safeguards are multiplied several times over if the study invites individuals under the age of eighteen to participate. Consequently, it is advisable to conduct your first study with adults in order to avoid the many levels of safeguards necessary for working with minors. (Working with children in studies is a whole other article.) Regardless of age requirements in the population your study requires, conducting research when not affiliated with a teaching institution that has an IRB is difficult. If you do not have an ethical review of your study and how this study is to be carried

out, your findings will lack *rigor and standards*. In other words, an IRB oversees the researcher as a governing body to insure the safety of participants and the efficacy of the study. Plus, publishing the findings of the research without an IRB is extremely difficult because the rigors and safeguards supported by an IRB will not apply. An independent researcher can contract an independent IRB firm for a fee. However, it would be preferable to find colleagues who are affiliated with a university or college to be co-investigators thereby avoiding such fees, as well as the added benefit of having collaborators. As a Rolfer SI practitioner, you may find more support within the research realm including grant applications at www.rolf.org/research-intro.php. Now let us look at research design.

Quantitative and Qualitative Research

Let’s begin with the difference between *quantitative* and *qualitative* research methods. Burns and Grove define quantitative research as “a formal, objective, systematic process in which numerical data are used to obtain information about the world. This research method is used to describe variables, to examine relationships among variables, [and] to determine cause-and-effect interactions between variables” (Burns and Grove 2005, 23). Another way of saying this is that an *instrument* is used to measure effects on all participants. “Quantitative research is the systematic, empirical investigation of observable phenomena via statistical, mathematical or computational techniques” (Given 2008). The measurements can then be examined using a variety of analyses (e.g., comparing before and after intervention, looking at gender, regressions, etc.). Thankfully, there are computer programs to execute the necessary analysis, so a researcher does *not* have to be amazing at math, she simply has to be able to identify the type of analysis most useful to apply to the data that is collected in light of the area being scrutinized. In order for a quantitative study to be rigorous, the results need to have *statistical power*, which means the study has enough participants to be generalizable to a larger population. Power usually requires a large number of people to participate. If power is not reached, the study can be a pilot study to determine the need for a larger study.

In contrast to needing a large number of participants in quantitative research,

qualitative studies usually require eight to twelve participants. The purpose of qualitative research is to determine hypotheses or insights to a problem through exploration of underlying motivations or opinion without imposing the researchers' opinion. Qualitative research primarily consists of interviews that occur in person, online (e.g., Skype), or, less often, through a written questionnaire. The interviews are then transcribed to mine the data (find the words or phrases) to create meaning. This process of finding meaning is broken down into themes and coding that will reveal the findings of the study (this is also known as *phenomenological analysis*). The researcher is looking at the parts of interviews to determine if any topics stick out or create a more refined or alternative aspect of larger themes. Though qualitative research can stand on its own, sometimes this process is used to determine directions to pursue in quantitative research. In the next section, we will examine what you need to consider to develop your study.

Necessary Steps for Any Study

Now let's look at what you would need to create for any research study. Here is a list of necessary documents and/or elements to create or address prior to submitting for approval from an IRB when working with human subjects (for both quantitative and qualitative research):

1. Identify research question or what you want to examine.
2. Collaborative Institutional Training Initiative (CITI) human subjects training certification (<http://humansubjects.energy.gov/doi-resources/citi.htm>); please note this document is required for professors and those working within federal jurisdiction (PIs who are working under a federal grant or federal auspices), but is not required of laypeople.
3. Decide research method and analysis.
4. Determine valid and reliable instrument to measure the identified item and/or list of questions to be asked to participants.
5. Recruitment letter.
6. Informed consent.
7. Safe and protected place to store data for a minimum of three years (to maintain confidentiality and protect data).

Now let's look at the steps necessary to formulate and prepare to conduct a study. Here is an example of a quantitative approach a Rolfer might use to examine if Roling SI has an impact on anxiety. First, I would have to identify the problem I would like to examine – can Roling SI change anxiety levels? The research purpose and research question might look like this: "The purpose of this study is to examine the effects of Roling SI on clients who are identified with high levels of anxiety. Does Roling SI decrease levels of anxiety?" The parts to the question include two types of *variables*. "A variable is an object, event, idea, feeling, time period, or any other type of category you are trying to measure" (https://nces.ed.gov/nceskids/help/user_guide/graph/variables.asp). An *independent variable* remains unchanged by anything that is outside of it (e.g., age, gender) and focuses on causes or the reason for any variation in the findings. The *dependent variable* in this study example is anxiety level, which is the measurement I am looking at to determine if the intervention (Roling SI) has any impact. So now I have a research question. I then figure out how I'm going to formulate the study to best answer this research question.

The exploration I undertake to determine the execution of the study includes:

- What can I look at to most efficiently answer my question? Should I look at anxiety levels over time or through one intervention/Roling SI session? Should I be the singular Rolfer or should I involve other Rolfers? Do participants need to be new to Roling SI to control for lasting effects or should that be another group? Etc.
- Since I'm going to be looking at impacts of Roling SI, how can I best utilize participants? What are the activities I want participants to do? Are participants to experience Roling SI once or several times? How many tests should a participant take to determine anxiety levels? With these questions, what is the best way to avoid attrition? Etc.
- What are the potential difficulties for participants in regards to participation? Are they going to be my clients or someone else's? Do the participants have to be first-time clients? Do the participants have to identify as high anxiety? If the participants have high anxiety, how do I safeguard their participation in regards

to psychological well-being? What are the risks of participation? Etc.

With so much possible *attrition* (leaving the study before its conclusion) of participants over time, I would choose to limit the visit for the potential participant to *one* session. The advantage to one session as opposed to ten sessions is the fact that people will drop out of the study for a variety of reasons, just as many people do not complete their Ten Series. Here, I am sacrificing the possibility of more data across time (duration and multiple sessions with each participant) for data across a wider span of people/ participants (more people can participate because we're only looking at one session). Plus, if I am the only Rolfer performing the Roling SI in the sessions, my time is limited. Added to that, if the person is *self-selected* to participate (they sought out Roling SI, you didn't *randomly* invite a cross section of society to participate), your study is already not as rigorous as it could be if the sample (of participants) is random. After I have decided on a structure for my study, I then run the numbers and find the *power* or number of participants necessary to make the sample size of my study generalizable to the public at large. In the following paragraph, we'll look at how to find an *instrument* to measure the dependent variable (the focus of the study: anxiety).

When looking for an instrument to be used for measuring, be sure to examine how often and effectively the instrument has been used. What's important when choosing an instrument is to insure it is *reliable and valid*, which means it has been proven to measure what it's designed to measure consistently over time in more than one study. If an instrument has been published, that can imply validity, but not always reliability. Some people do create an instrument, but doing so is incredibly difficult and requires a very large number of participants to become reliable and valid. When beginning research, I urge you to use available instruments rather than creating one. In the beginning of conducting research, focus on efficiency and on learning how to conduct research, because the rigors involved in research are demanding enough.

For our Roling SI study, I look for an instrument to measure anxiety to qualify my participants as people who identify as having more than average anxiety. This instrument will be used to measure anxiety *before and after* the Roling SI

session. Because I'm familiar with anxiety measurements, I would most likely use the Beck's inventory (a reliable and valid instrument). After deciding which instrument to use, I then get permission to use the instrument. This process may be as simple as getting permission on the website with the instrument being free. However, you may have to pay for use of the instrument as well as pay to have the data run by a statistician after data collection – and any variety of situations between these two examples.

Then, you create your *participant recruitment letter*, which outlines your study, what a participant is required to do, criteria to participate, exclusion criteria, any potential risk that may result in participating in the study, and how to contact you, the researcher. This letter is then followed up with or accompanied by an *informed consent*, which is the agreement between you and the participant restating much of what is said in the recruitment letter and including how the identity of the participant will be protected (anonymous vs. confidential).

When all of these documents are complete and you have formulated your study, you apply to an IRB for permission to execute your study. The IRB will address any discrepancies, typos, information gaps, or flaws in your approach. This process may take a number of repeat applications with amendments to the study and/or materials in order to comply with the rigors of the IRB. Each IRB is different in its turnaround time in considering proposals. Most IRBs will have a clearly defined length of time between each submission. After getting approval to work with human subjects from an IRB, the recruiting of participants begins!

In your IRB proposal, you will have clearly outlined how you plan to recruit participants. This may be as simple as inviting anyone who contacts you for a Roling SI session to join the study, or posting a flyer in your waiting room, or *snowball sampling* (asking people who ask people, posting on Facebook so others post and share, etc.). There are many ways to advertise and find your participant pool. Staying with the example study of anxiety and Roling SI, contacting local therapists whose expertise is anxiety disorders is a sound and practical choice. Any centers that have groups where people who identify as anxious might also be strategic. In your study plan, you will have identified what the risk to the participant is as well

as the possible value. If Roling SI is shown to decrease anxiety after just one session, there is value in that. However, a researcher cannot make declarations based on what she hopes to find. A reasonable benefit could be reduction of the cost of a Roling SI session if the client participates in the study. Incentive for participation in a study is common practice and should not be dismissed when looking at the larger picture of the study as a whole. If a researcher is not able to entice participation, there will be no study. Next we will look at how to articulate the weaknesses in the study to clearly demonstrate awareness of imperfections in the process.

The area in the study that admits the flaws in the executed research process is called *limitations*. This is the moment of truth where the researcher names every element that was not controlled for or ideal in the research. For example, in our proposed study, we would not have a truly random sample. The people who participate may have identifiable characteristics like disposable income that may not be generalizable to the larger population. Another challenge is only looking at one Roling SI session, which may not accurately represent the impacts of long-term Roling SI work over time with people who identify as having medium or high anxiety. Additionally, if only one Roling SI practitioner is applying the intervention, that could be a confounding factor (a variable that interacts and correlates with the dependent and independent variables, which may affect the outcome). The beauty of research does not live so much in the purity of the model used, it relies on the integrity of the researcher to name all the moving parts that would or could impact the outcome(s) of the study. Hold on to this idea. By naming the challenges faced, the researcher heads off critical dismissal by acknowledging the limitations. By admitting these, the researcher is then free to move on to the discussion section of the study.

The *discussion* area of the study is the section in which the researcher is able to extrapolate meaning from the information the data produces. Deductions can be made here by the researcher so long as the data supports the conclusions. In this section, the researcher is able to share ideas inspired by the data. If no correlation is found between the intervention and any impacting results, like a decrease in anxiety after one Roling SI session, a researcher could talk about how future studies that look at a series

may be useful to determine if a number of Roling SI sessions do impact anxiety in clients. If factors like age and gender are used, there may be factors that separate those who are impacted by Roling SI sessions and those who are not. This is where demographic information can be useful if the study is looking at correlational relationships. A *correlation* is found when one variable is increased or decreased by another variable; here there is an implied relationship. This section ends with the researcher suggesting future research based on the findings in the study.

The beginning is the most important part of the work.

Plato

Conclusion

The world of research can be a polarizing and intimidating place, but by identifying what you want to examine, you can contribute and make sense of our world. There are many books and resources that are useful for beginning research. I urge you to start with what excites you and evolve that into a question to answer as simply as possible. From there, a researcher is unstoppable!

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Building the Research Base with the Rolfing® ‘Recipe’ for Reproducibility

By Karen S. Price, Certified Advanced Rolfer™ and Marie Terrill, Certified Rolfer

Introduction by Marie Terrill

Karen Price has been a Rolfer since 1979 and specializes in working with children, including children with spastic cerebral palsy (CP). CP is a neurological motor disorder. Some types of CP originate with an hypoxic injury (lack of oxygen) to the brain, either in the womb or shortly after birth. Although the original insult to the brain has been described as non-progressive, CP is developmentally progressive in that as the child develops, there is an increasing burden of neurodevelopmental disability with increasing motor severity. Although there are no cures for CP, new and effective therapeutic approaches are needed. Self-described as a ‘closet-scientist’, Karen recently had the opportunity to work with a research team led by Heidi M. Feldman, MD, PhD, Medical Director of Developmental-Behavioral Pediatrics at the School of Medicine at Stanford University, looking at the effects and benefits of Rolfing Structural Integration (SI) for children with spastic CP. The project took six years to complete and culminated in three seminal publications. The last one was published in 2015 in the journal *Frontiers in Pediatrics*. This research is discussed in a second interview with Karen on page 29.

How Karen connected with Dr. Feldman and came into research after thirty years with a private practice and no formal training as a scientist is an incredible story. There are many lessons to be gleaned by the Rolfing community from Karen’s experience. Specifically, Karen offered several pieces of practical advice for Rolfers who want to do research, but are unsure where to start. Here are the items listed below, and a more comprehensive discussion follows:

1. Become ‘integrally informed’
2. Discover what you’re interested in: what is it about the Rolfing work that keeps you interested and engaged?



Karen Price



Marie Terrill

3. After you discover what you’re interested in, find your research partners through these interests, and make sure they receive some Rolfing sessions themselves!
4. Develop a study design, collect some pilot data, and plan on doing some *pro bono* work
5. Do the Recipe for reproducibility!

Marie Terrill: What do you mean when you say Rolfers should be ‘integrally informed’ and how will this help on the path to research?

Karen Price: As Rolfers, we are approaching the body structurally. Physical therapy, occupational therapy, indeed most medicine is approaching the body through function. In contrast, Rolfing SI structurally enables clients to move (function) in a way as close to normal as possible. Movement sculpts the brain. And specifically with CP, it’s not as though these kids are just laying in a crib and their brains sculpt on their own. Since CP is a movement disorder, their original movement starts out even more disorganized than non-CP children. For example, when you watch babies move, they all show movement that is relatively the same, developmentally normal movement. That kind of movement is what stimulates, sculpts, and prunes the brain. When we work on the body, we bring it as close as possible to its anatomical position, and that invites appropriate movement. Organizing the structure organizes the functioning in many ways.

What I rediscovered working with a lot of kids with CP is the main tenet of Rolfing SI: that we’re balancing the body in gravity. In order to walk, we need to be balanced in and with gravity. Say you’ve got a child with a left-side hemiplegia (spasticity on one side), meaning mainly the right side of the brain is affected: with standard therapeutic approaches for this condition, the child will only have his affected (left) leg worked on. But a lot of times, if the right leg is not supporting him, in Rolfing terms, he’s never going to walk. He literally doesn’t have a leg to stand on.

MT: So you’re talking about having an integrated perspective of a client, and not just focusing on one area or one part, even with a client who has gross structural and functional discrepancies across sides?

KP: Yes, with many of these children, I was working the other, non-affected side of the body. When that part became more integrated, then they had something to work with. Then they could jump; then they could run. Otherwise, they’re trying to do the best they can, but they can’t do it.

Our approach of working the whole body in Rolfing SI is a global approach. Rolfing SI was conceived at the ‘level of relativity’. Ida Rolf talked a lot about Korzybski’s ‘levels of knowing’. The basic idea here, and this is an example of being integrally informed, is that there are five levels of knowing. The first level is knowing through superstition. That’s self-explanatory, but let’s just imagine

I say, "It's cold out." Then you come along and you say, "Well, is it really cold out? Let's measure." So, the second level is measurement. You go measure it, and you say, "Yes, it's zero degrees, it's cold out." The third level is cause-and-effect: what measurable event is happening to cause the cold? This is where the medical world and the research world get stuck, in chasing cause and effect.

MT: Yes, it can be a very linear way of thinking.

KP: Ida Rolf was an amazing thinker. She was so far ahead of her time. Rolfing SI is conceived at the fourth level, the level of relativity: how does this all *relate*? How do the parts of the body relate to each other? How do we relate to the larger field of gravity? We need to move research into the level of relativity, which is going to include the subjective as well as the objective dimension. We are whole people; we're not just a statistic.

The fifth level is synchronicity, which is really the level where Rolfers can exist while working. During a Rolfing session itself, I think all of us have experienced synchronicity at some point. For example, you don't know why you suddenly move to another part of the body. The client says, "I was just feeling that in my shoulder," and you were on his shoulder before he ever said anything. That's really the level we always already function at, only we can't quite maintain it, or we don't know we're functioning there.

Another tremendous resource for Rolfers with regards to becoming integrally informed is the work of Ken Wilber. I strongly recommend becoming familiar with what he calls the Integral Approach.

Any research about Rolfing SI really has to be conceived in terms of relativity. I think this is the point: we're not looking for causes. When you look at the whole body of a child with CP, or of any person, what is that whole body, that whole body/mind saying to you? What's being communicated? For example, a lot of the kids that came to see me were outwardly cooperative because they'd been going to therapy their whole lives and were used to it. But a lot of them were burned out on therapy. They already could tell, even little ones, that it wasn't doing any good. They hated going. They'd come in, they're way too young for eye-rolling, but you know . . .

MT: You can feel it.

KP: Yes. They were communicating verbally and non-verbally that they did not want to be there. For my part, as the [practitioner], I have to be very aware of how I'm approaching them to get them to cooperate with me. To show them, "This is going to be fun. This is going to be cool. You're really going to like it. We're going to have a great time. You're going to see benefits right away. It's not going to hurt. You don't have to do anything. You can just play and hang out." I have to be communicating all of this to them, with my whole person, generally non-verbally, to get their cooperation.

We see this with adults. Somebody comes in, and maybe it's a partner of someone you work with, and he doesn't really want to be there, but his partner has insisted, and he's sceptical, asking, "What are you going to do for me?" Or people who are so invested in their story that they are coming to you for further validation that there's nothing that can be done to help them. You see that. You see that right away. We've all seen that. What do you do? As Dr. Rolf said, "Just roll up your sleeves and get to work."

This whole thing, this whole dimension, this whole relativity, moving beyond cause and effect, is something that we as Rolfers can really contribute to the field of research to integrate across disciplines, including medicine and research.

MT: Yes. I agree with you. I think that this is also an incredibly important point for Rolfers, and really for researchers in the entire scientific community. I see this so much. What question you ask shapes the response that you get, which in turn shapes a worldview. If you ask about cause and effect, then the interpretation of the results will be in the domain of cause and effect, since that is what you are anticipating. The interpretation of what you already were anticipating, what you already 'knew', then feeds back into your worldview, and you continue to see the world as made up of cause and effect.

It's like the questions that are being asked in a scientific community, more than actually telling us more about the world, are actually telling us about our collective mindset, and how we perceive the world. What you can learn about us right now in this age in the scientific community is that we conceive of the world in a cause-and-effect relationship with itself. If this is how we see the world,

then how can we shift our worldview, and move more into relativity – what you're talking about – which is not about this *versus* that, structure versus function, nature versus nurture, but rather that they're inseparable, influencing one another synchronistically? If you work with one, you're inherently working with the other.

This is such a great point you make of being integrally informed as we follow a potential path to research. If we try to offer Rolfing SI to the scientific community as something important to measure, and the scientific community comes back and says, "Great. Let's measure cause and effect," then whoa, look at all of the potential that we're going to miss.

KP: Right. Yes, that's absolutely true. You said it beautifully. Finally, one last thing about this is that if we continue to stay in the level of quantification of cause and effect in research, this also inevitably cuts up a human being into just one level as well.

MT: Your next point for Rolfers is to know what you want to study and why.

KP: Yes. So my example is: I love working with children. It's my thing. I'm good at it. It's fun. I enjoy it. As I've gotten older, it's a little easier on my body. I've been drawn to it since 1978 from my experience auditing a Ten Series with a child, and then the first child I worked with as a Rolfer, where I witnessed dramatic changes.

MT: Perhaps another way to describe it is discovering what you're interested in. We were all drawn to Rolfing SI for some initial reason, and then through doing the work, we discover what we're actually interested in and what our strengths are through the process.

KP: Right, if you discover that you enjoy working with the low back and relieving back pain, then go find a physical therapist [to network with for research]. If you are drawn to working with depression then try to connect with a psychologist or psychotherapist.

MT: So, moving onto your next piece of advice, which is to find your research partners through your interest. Can you describe how you connected with Dr. Feldman?

KP: Yes, to start with, Dr. Feldman is a pediatrician. She's an MD and PhD, and she specializes in children with disabilities. She's on several boards and consults with

the California Children's Services Program. But she doesn't have a background in Roling SI. Feldman and I crossed paths because she received Roling sessions from my husband, Jim Price. Jim was trained by Rolf in the late 1960s and was the first Rolfer around this area. Feldman was referred to him from another client. She had had a longstanding back problem. She'd tried acupuncture, chiropractic and, since she's also a yoga teacher, used yoga to help her back. But no one could give her more than temporary relief. After she worked with Jim, he completely resolved her back problem and it has not returned.

We knew Feldman was a pediatrician, but not [that she was] such a 'heavy hitter', so to speak, being a professor at Stanford and with all that she does. I said to Jim, "Tell her about my work with children," because I wanted more MDs to know what Roling SI can do for children. After finishing the Ten Series with Jim, the three of us had a meeting and we talked about Roling work for children. I showed her a picture from [the monograph] *The Promise of Roling Children* of a little girl with CP and how her legs changed from the Roling work. Heidi looked at that and said, "Let's do a study." I said, "Great!"

MT: Wow. So from there, you slowly gathered your team. Can you talk more about who the team was comprised of?

KP: At first it was just Alexis Hansen (a first-year med student at Stanford at the time), Heidi, and myself. We did an initial pilot study to gather data and presented a poster together at a medical conference (the poster can be seen on my website). This then led to our small initial team getting a large grant from the Gerber Foundation to fund a much bigger study and be able to have a more comprehensive team. Because Heidi and Alexis were at Stanford, we had many resources to help us.

MT: And who else was part of the team?

KP: We were able to recruit a professor and doctor of pediatric physical therapy from University of California, San Francisco to do the assessments; a very well-known pediatric physiatrist from Oakland Children's Hospital; a pediatrician doing her fellowship in Heidi's lab; as well as a wonderful research assistant who really held it all together. We were seven fantastic and dedicated women.

MT: It's really exciting that you've done this. How you came across Dr. Feldman is really amazing, and apparently we all need to go and give Roling sessions to doctors who are affiliated with medical schools that have access to grant-writers and funding!

KP: Exactly!

MT: That's really a great strategy so that they can experience it themselves. That's the power of Roling SI. Once you have that experience of the changes that it can bring about in your own body, then you start to get excited about the potential that it could have for others.

KP: Right. That's the way I've run my whole practice. We never really advertised or anything. It's just: do your work; do your work to the best of your ability and let that speak for itself.

MT: That's really beautiful. I love it that you had already been [practicing] Roling SI for thirty years before this opportunity came along. To me, that's great. Exactly illustrates what you just said. Do your work and who knows what's going to happen. All of which is a nice lead-in to your next piece of advice for Rolfers interested in research, which is: expect to do some *pro bono* work in the beginning, particularly while you are gathering preliminary data – and that this attitude will bring a whole host of benefits to your practice!

KP: Yes, I think this is really important: do your initial projects *pro bono*. Don't worry about getting paid. If you make [getting paid] the focus, then it becomes a big stumbling block, because the truth is you're probably not going to get paid. Yes, we all need to work and earn a living . . . but you know what? We all can make time in our schedules. Both the personal and professional benefits are enormous.

MT: Set it aside, know that you're not going to get paid, and do it.

KP: Right. Just do it. First of all, you'll get the greatest number of subjects possible, because people will respond positively: "Okay, I don't have to pay for it, I'll go try it." The first study I did about ninety sessions *pro bono*. I gave Roling sessions to all eight children in the study, plus we had another child that was a case study who didn't finish the Series, and a few other free sessions for the children that we didn't accept. The second study I did, we also had five children, aged four to seven that I, as well as everyone on the team, worked with

pro bono. They ended up not using the data. That was another fifty sessions.

Now, this doesn't mean your entire practice is free. Maybe you're adding three to five more sessions a week that are *pro bono*. That's it. And the project will have a discrete timeline, so for a while you're very busy. But the returns that you get make it all worth it. There is a huge opportunity for creativity; you're free to think and work outside the box. You're learning. It shows your commitment to the work, which leads to a full practice. Finally, it brings many blessings that you will continue to discover throughout your career and your life. Look at it like doing an internship. Internships are common these days, to gain experience to get a job. During your 'internship' you are gathering preliminary data and can then go out and find a grant, which leads to getting paid. And you also learn what works and what doesn't for the study design so you don't waste time later on.

MT: I like how you're making the connection between internships and doing a preliminary study as a Rolfer. You're learning; you're gathering data. I just have to say this for the benefit of our readers, that in terms of funding, no project is going to get funded just for an idea if there isn't enough promising preliminary data. What you say is good advice.

KP: Finally, the last thing I'd say to Rolfers interested in research is to do the Recipe so the study can be reproduced. The Recipe is our strength for scientific reproducibility.

MT: Yes, the ability to reproduce a study is essential. If a study is not repeatable and reproducible it is not considered science.

KP: That was actually something written in all of our papers; that one of the reasons Roling SI was chosen as a modality in the study was because of the ten-session series, and that the sessions are repeatable. Other therapeutic modalities don't necessarily have this; for example, even acupuncture doesn't always have a protocol. Same thing with chiropractic, physical therapy, even yoga therapy. The progression of a session and the progression of the sessions within the Roling Ten Series are well-defined.

MT: Karen, thank you so much for your time. It has been such a pleasure to get to know you a little bit throughout this interview. You are an inspiration.

KP: Thank you, my pleasure.

Karen S. Price graduated with honors from Northwestern University in 1974. After receiving Rolfing SI in 1977, she began her Rolfing training in 1978 and graduated from The Rolf Institute® of Structural Integration in 1979. She received her advanced Rolfing certification in 1988. She is a long-term meditator and a Registered Yoga Teacher (RYT-200). Karen has maintained a private practice in the same location in Palo Alto, California for thirty-seven years, specializing in work with

women and children. For more information on Karen, please see the bio on her website rolfingchildren.com.

Marie Terrill is Certified Rolfer and Certified Structural Integrator^{CM} with a small private practice in Eugene, Oregon. She is also Secretary of the Rolf Institute® Research Committee. Marie studied molecular biology at The Evergreen State College and has ten years of experience in the field of functional

neuroscience, with a specific focus on epilepsy and epilepsy research. Additionally, Marie has an ongoing interest in the therapeutic aspects of movement, dance, and yoga, all of which she incorporates into her Rolfing practice. She has been a dedicated yoga practitioner since 2006 after sustaining a major injury, with a practice most recently fed by teachers in the field of Yoga Therapy and from the Iyengar tradition. Her website is www.mindbodyrolfing.com.

Researching of the Art and Science of Rolfing® SI

By Valerie Berg, Rolfing Instructor, Rolf Movement® Practitioner

We are all observers. Rolfers™ are taught to ‘see’, to open our focus and observe all aspects of a client’s way of being in gravity. We approach our clients with questions in our minds: “What would happen if. . .?” We take this inquiry into our sessions. Through trial and error, the ever-evolving methods developed by seasoned colleagues, and the tried-and-true effects of the ‘Recipe’, we gain experience that affords us the ability to predict certain outcomes.

We educate our clients with movement and functional input. We find articles and research to share with clients who wish to understand the reasoning behind the efficacy of Rolfing Structural Integration (SI). We explain the anatomy and function of fascia based on what we have learned and continue to study. We dazzle them with the beauty of the latest research on fascial connections and relationships.

Dr. Rolf was a scientist. She was concerned that the public image of Rolfing SI be linked to science in order to be taken seriously by the scientific and medical communities. She made research one of the missions of the Rolf Institute® of Structural Integration (RISI). Acupuncture and massage therapy programs already include a research component (making them eligible to apply for grants). However, RISI is still working to engage faculty and students in the relevance that research plays in our practice and profession.

Why is this so? Some of us recoil at the idea of research. Perhaps we believe it’s not how our minds operate. Maybe we prefer

to think of what we do as magical, more ethereal, mysterious. And while the effects of our work do sometimes seem magical, Rolf’s legacy is not well served by this resistance to the scientific method.

Research in the RISI Curriculum

Research literacy is a place to begin. The RISI faculty and Board of Directors believe we should elevate the standard of understanding and discussion about relevant research in our field. Online resources boast a myriad of claims in the name of ‘new studies’. But how many of us are educated to assess the legitimacy of the research that is out there? Four years ago, RISI offered half-day workshops in research literacy. Unfortunately, these were not taught in ways oriented to our work. The inclusion of research in our basic certification must be relevant to the clinical work we do to be accessible and applicable to new RISI students. To this end, the Research Committee will offer an online research literacy course for Rolfers interested in creating solid research.

Most students come to RISI motivated by some aspect of the work that changed their life. What if they could pursue that interest and passion in a way that educated the world on the effects of our work? What if we could capture and nurture that interest from the beginning? Paula Stal (who has published research on Rolfing SI and fibromyalgia) and I will be helping RISI faculty create ways to harness the inherent curiosity of beginning students.

Advanced Rolfing Instructor Pedro Prado introduced the case study into our curriculum. Prado (2016) notes:

I believe science is a communitarian effort and not solely the result of one well-intended mind. We need to develop a community that thinks scientifically and that communicates [its] thinking. As an instructor, I try to include case studies in all classes and give brief orientation to the students. As students see the results of systematic thinking around their clinical work in class, they get ‘enlightened’ (if this is not too strong a word . . .) and encouraged to continue investigating, thinking, and sharing.

The case study required in Phase III of the basic Rolfing training teaches students how to think about the Ten Series and understand each client’s response to the work. Students are taught to assess, reflect, work, and re-assess. Throughout Phase III they develop observational skills and clinical strategies. They utilize SOAP notes (subjective, objective, assessment, and plan) for each session of the Series and the three movement sessions. They then write their case into a paper for presentation to the group. Following the presentation of the paper, I have had small student groups come together to discuss each others’ case studies. Before-and-after client photos are included for the group to analyze. Students evaluate practitioner-client progress.

This is beginning science: observing and ‘measuring’ according to a given standard. As research goes, the case study is a ‘soft’ design. Richard Ennis [(2016), whose article appears on page 9] notes, “The strength of this design is it often informs about interesting specific cases that might not be found in a larger study with many participants. It can also be the initial basis

of interest for designing more complex studies. However, just because a change might be observed after a treatment, this cannot be generalized to every person who presents the same."

Case studies encourage students to think holistically – to consider context, to regard their clients within a psychobiological milieu (insofar as this can be known) – and to determine and justify the Principles of Intervention and the taxonomies that apply to each client.

Supporting Research

The nature of Rolwing SI – a holistic approach to psychostructural well-being – makes it challenging to study. What are we trying to measure? How does it differ from the effects of, for instance, massage? How do we control for variables? Which ones? What are the ethical implications? How do we organize a meaningful number of subjects within a consistent, controlled environment?

We have competent research scientists within our membership who have already begun this work (Eric Jacobsen, Tom Findley, Stephen Evanko, Karen Price, to mention a few). Meaningful, outcome-based research is being conducted through the Ida P. Rolf Research Foundation, such as a study of the effects of Rolwing SI on chronic low back

pain (see <http://rolfresearchfoundation.org/fund-structural-integration-back-pain-study>).

RISI has an active Research Committee that tracks peer-reviewed research. The committee reviews research proposals and solicits donations to support meritorious research projects. The Board of Directors recently approved a scholarship fund (created by the Research Committee) for students who will do research once they have finished our training. Our newly revised website provides assistance for creating research projects. The Committee solicits and evaluates research proposals from experienced and new investigators for potential financial support from RISI, and members of the Committee are available for consultation as a prospective investigator prepares his/her project ideas for grant/funding application. The RISI website provides guidelines and outlines the process for grant application submission, acceptance, review, and approval.

Conclusion

Within the magical, transformational work we all experience in the privacy of our practices we witness outcomes that are repeated with different clients. Aspects of the work that deeply interest us could easily be transformed into a paper, a study, and even a research project. The art of Rolwing SI

does not have to exclude science, and vice versa. Hopefully, we can all begin to utilize our inherent curiosity and observations to further our work in the world.

Valerie Berg was certified as a Rolfer in 1988 and has been a member of the Rolf Institute faculty since 2003. She did her Rolf Movement training with Hubert Godard and Rebecca Carli-Mills and her Advanced Training with Jeff Maitland. She has been practicing in Albuquerque, New Mexico for twenty-nine years with a side step to Guatemala for five years. She also travels to San Diego and sees clients there. Valerie is particularly interested in the structural aging that occurs in the body – what she calls ‘non-essential patterns of aging’ – and teaches workshops on this subject. Another focus is teaching the depth and layers of the Ten Series.

Bibliography

- Ennis, R. 2016 Jun. "Should We Believe What We Read?: What to Consider When Evaluating Clinical Research Publications." *Structural Integration: The Journal of the Rolf Institute*® 44(2):9-13.
- Prado, P. 2016. Private email communication.

Research as a Communitarian and Bottom-up Process

By Pedro Prado, PhD, Advanced Rolwing® Instructor, Rolf Movement® Instructor

Introduction – Some Considerations

Rolwing Structural Integration (SI) is the "Philosophy, Science and Art of integrating the human body structure in space/time and gravity" (Maitland and Sultan 1992). Ida Rolf gave us this gift that we have been using and teaching for over fifty years now, yet how much do we know about it? How have we developed the 'science' part of it? In our practices, we see each day empirical evidence of its value. Still, in terms of furthering the evolution of Rolwing SI, establishing a solid basis for its validity with reliable arguments that communicate

its value to society, we are still just crawling forward.

Rolf and her first followers (Julian Silverman, Valerie Hunt) rolled up their sleeves and launched research projects, back in the early 70s. This was followed by a series of research initiatives (Robert Weinberg, Stephen Porges, James Oschmann, John Cottingham, among others) toward showing the value of Rolwing SI and the conditions in which it best happens, which, in turn, suggested more areas to investigate. We continue to need more research efforts, and we all remain eager for more palpable results that will validate our work to a larger audience..

I joined this research venture in 1980, early in the cultural transition from a Cartesian social mindset to new alternative approaches. We are still caught between these, in the clash of new paradigms with established modes of thinking. Rolwing SI definitely belongs to the 'alternative' model, which has its own 'package': a worldview of what we do that organizes our thinking and a methodology that we know to provide astounding results. Investigating and understanding a multidimensional phenomenon poses methodological challenges. It is my view that as we work from the 'new' paradigm of holism, we must create a research methodology that embraces this perspective, so that in understanding the Science of what we do we also improve our Art. No wonder we have produced little research in the past fifty years.

Science is a collective event. To generate a significant body of research, we need an educated group of practitioners holding a scientific attitude. While we may work individually or collaboratively, the results of our efforts, be they clinical, intellectual, or experimental, need to be available for others to leverage in their own studies to serve Rolfing SI and the community as a whole.

The task is thus:

- generate communities to support research efforts
- foster a scientific attitude in Rolfing students and practitioners
- find a methodology
- honor the theoretical paradigm
- communicate our results

I believe these complex elements can be woven into an intricate web that will provide the ground for our evolution. Below I will investigate some of these aspects in more detail and consider other topics relevant to our inquiry.

Developing Communities That Foster Research

I'd like to share an example of community building for research from Brazil, as I believe it provides useful elements for consideration. The organization known as NAPER [The Center for Treatment, Research and Education in Rolfing (SI)] is a branch of the ABR [Brazilian Association of Rolfing (SI)] and is composed of a nucleus of Rolfers™ with a common goal of combining study, Rolfing practice, and research.¹ Over fifty Rolfers have passed through the program, which has been stable and continuous since 1998.

Clients in the program are not the individual Rolfer's clients; rather, they came to the Institution – ABR/NAPER – to become clients in the NAPER program. Based on need, we generated a set of forms to establish records on each client that would be available in future, whether for clinical use or for research purposes.

- Initial Interview: This form tells us what we need and want to know about the client.
- Rolfer's Report: This form gives the practitioner's experience.
- Client's Report: This form gives the client's experience of the process.

The exercise of building these questionnaires was a piece of research in itself. We were studying and learning as we analyzed the results of the questions and asked ourselves questions like, Did they bring in the information we wanted? Should we rephrase a question? In this process, we discussed cases, organized the questionnaires, and built a databank with the results of the answers. We now have over 1500 client records in this databank.

The NAPER group is lively. Members meet, study, work, and discuss cases and individual research projects. Our research format is case studies, and the methodology applied is 'action research' (Thiollent 2005), which comes from the field of social sciences, in which we learn as we investigate. A phenomenological stance grounds the description of the experiences of both Rolfer and client.

NAPER's forms have been translated into English and were presented to the Rolf Institute® of Structural Integration (RISI) faculty in 2006 and at an annual meeting of the International Association of Structural Integrators (IASI) in 2007. They have been used in cultures other than Brazil, as well as in classroom settings. We have also developed shorter versions for simplified use.

We hope our efforts and documentation serve as stimulus for our community to build a common language for talking about our work. A useful reference from our endeavor is *Documentation for Clinical Practice and Research: Guide for Students, Practitioners and Instructors* (Prado 2009). Our work is alive to further elaboration; continuous updates are made periodically, with input from the NAPER group.

Thus, NAPER is a collective effort, produced by some and available to many – as a base to which to add their data, and as a reference tool to use in generating their own research.² As more participate, collective experience gets utilized. This is research, this is community building, and this is ground off of which individuals can leverage their own research projects.

Fostering a Scientific Attitude and Research Study in RISI Classes

My fellow Rolfing instructors Valerie Berg and Duffy Allen and I insisted on adding research with the case-study method into the clinical-practice work done in Phase

III of the basic Rolfing training. In a class I co-taught with Allen in 2004, we taught this as a scientific method and reinforced this attitude throughout class instruction.³ As a research project, each student would choose one of his clients and organize a case study to present to the whole class. We supervised the initial interviews and followed up with supervised presentations after sessions three, seven, and ten of the Ten Series. We found that this practice encouraged students to observe with greater detail; to organize and understand the different systems and techniques used; and to learn the care and analytical restraint needed for this methodology as they explored their understanding of their cases, dealt with questions that arose, and observed their results. This pilot project brought great classroom results, so it was expanded to all phases of our training in Brazil with a growing level of complexity, and eventually elements were formally added to the RISI U.S. curriculum.

Having taught in all levels of our Rolfing curriculum, from Phase I to Advanced Training, and having used this procedure in all layers of our teaching, I can say that students' level of reflection increases as they get further along in their education and have more experience. I'm therefore now lobbying that we create post-advanced classes with specialization in different perspectives on the work. My belief is that this would continue to raise the level of inquiry in our community and our level of expertise in generating competent researchers.

By using the case-study method in classrooms we bring science to our educational program, we continue to develop a common language using universal protocols, we stimulate students' curiosity, form their scientific attitude, and allow and encourage individual talents to further pursue more sophisticated research.

Academic Studies

Turning to another project we have underway in Brazil, I'd like to look at how the dialogue between our Rolfing community and society at large benefits from more integration of our work into academia. With this in mind, ABR developed, and I am coordinating, a post-graduate specialization course (equivalent to a master's degree program) in partnership with Uniitalo, a major university in São Paulo. The degree program requires the student to write an academic paper in the form of a case study.

I have supervised more than thirty papers generated through this program.⁴ These Rolfers, with scientific methodology, have explored many directions of our work: the themes are as varied as one may imagine, showing the richness of our pursuit. Some of the papers derive from structural analysis, others from a more functional point of view, others from a psychobiological perspective, and yet others reflect energetic approaches. Often they combine perspectives and try to observe and consider two or three perspectives simultaneously. The holistic stance, the multidimensional nature of our vision of the human being, is present – if not in the quantitative data, then in the discussion of the case, weaving elements in a search for a way to explain what we observe.

Some students turned out to be natural researchers in the academic world, developing master's and PhD papers.⁵ Again, the vision is that if we train the right mindset, we can do research at many levels, from elaborating a case study to research that has more complex and controlled methodology and involves more subjects.

My Personal Journey with Research

Personally I've always been very interested in exploring the psychobiological perspective of Rolfing SI, and did both my master's (in 1982) and PhD (in 2006) theses around this theme. In my master's thesis I explored how Ida Rolf's perspective could help work with posture in body-oriented psychotherapy. It was a theoretical piece that helped expand the theories of Wilhelm Reich and discriminate Rolfing SI from this, defining a space where Rolfing SI could be seen as a psychological methodology.⁶

In my PhD thesis I wanted to explore experimentally the presence of the psychobiological domain in Rolfing practice. I used the NAPER databank compilation of answers from 715 NAPER clients and 160 classroom client reports from Brazil and the United States to analyze quantitatively as well as qualitatively the presence of the psychobiological dimension of Rolfing SI in client responses. This was a big project and the thesis ended up having more than 200 tables and charts and over 500 pages of data that went through analysis of pain, quality of life, emotional changes, and an immense quantity of testimonials from both Rolfers and clients that showed the presence of the psychobiological domain from both the client's and Rolfers' perspective.⁷

I learned a lot through this process, and all of the Rolfers involved in the building of the questionnaires also gained a scientific 'attitude'. We were building the questions as they were observing their efficiency and clinical phenomena – an example of 'action research'. And of course we were simultaneously building a community, teaching a scientific stance, generating material that can be used for other research, focusing on a specific theme, and opening up the psychobiological domain for future research to happen.

The Ida P. Rolf Library of Structural Integration (accessed at either www.iprlibrary.com or <http://pedroprado.com.br>), a virtual library that houses all of these papers and more, was yet another development, a sub-product of my PhD thesis. As a result of my need to find material about Rolfing SI, I collected all issues of the main periodicals in the field of SI, past and present (*Bulletin of Structural Integration*, *RolfLines*, *Structural Integration: The Journal of the Rolf Institute*[®], *IASI Yearbook*, *Notes on Structural Integration*), as well as all academic papers available at the time. Many issues were missing, so work had to be done to try to complete the collections. Then, with RISI's initial financial support, I converted them into an electronic format and organized a databank with a search mechanism. My initial thought was to build the collection as a support for future researchers, but it has ended up being a resource for the whole SI community. It is now being reformulated to reach the general public, leveraging science as a communitarian product. *"Just one bird does not a summer make."*

From Small to Big

I see Rolfers entering research in a staged process. We can do small things in the classroom, like using validated scales with controlled application, developing interest and skills that can later lead to more academic research projects. The continuum could go like this:

- opening students' minds to scientific reasoning
- training how to observe, how to relate observations to results, how to think
- engaging case studies in the classroom
- encouraging faculty and membership to build task-oriented clinical and research communities

- teaching and academically framing writing about our experiences with clients
- writing, sharing, and proposing theses for research projects with more rigorous controls

All of these aspects are 'science', and all of it can be done by any one of us. Whether as part of our training or at an academic level, we work with many different layers that are all congruent with science and of general value. It's a matter of framing what you do, and then growing in it. You don't need a billion dollars to think and research; there are simple ways we can engage, and these may lead to larger projects using validated criteria.

In the NAPER forms we included a VAS (visual analog scale) for pain. This is a simple, reliable, before-and-after set of questions and pain evaluation on a scale of 1-10. That simple systematic set of questions gives us data for elaborating on pain, then we cross these results with other questions about location, periodicity, duration, etc.

Another example of a simple procedure that can be used is the World's Health Organization Quality of Life scale – WHOQOL-BREF.⁸ This has been validated in more than twenty languages, and the twenty-six questions are easy to apply. We have used this at NAPER, in classroom case studies, and in many of the post-graduate case studies at UNITALO. As a result, we have more than 1000 answers to use for comparative study. The results have been consistent and statistically significant. (I included an analysis of this in my PhD thesis and have written about it in this Journal.⁹) If we collectively engage in a procedures like this (of course, eventually followed up with more specific studies), we will have a good basis to communicate about our work to the larger society, in this case about the way Rolfing SI consistently seems to enhance quality of life.

Such methods are not complicated, but they require communal effort. The procedures are available already, and with some care to methodology we could produce quite a lot, and very quickly. Such a communitarian project would require neither a big budget nor uncommon talent.

Conclusion

Our main challenge in engaging science and research is finding a way to cover the whole phenomenon of Rolfing SI. As

we come from a holistic paradigm, our results need to be observed and described from different perspectives (all different taxonomies) and their interplay. Our community is engaged in considering the mindsets and methodologies that would serve this. This endeavor toward research is part of being able to 'walk our talk'. It's a slow process as most of us – clients, students, practitioners, and instructors alike – still operate most of the time from a Cartesian mindset. Developing a holistic framework for research may involve our own transformation as well.

It's possible to create a community that can carry this forward, beginning with using our educational curriculum to teach about science and research, nurturing the potential researchers among us. The case-study method is a humble start whereby we can slowly bring our observations to clarity. This is already happening in our curriculum and in organizations like NAPER, in specialized courses, and in individual academic writing. This is reality, not a dream.

The next steps are to improve in certain areas:

1. We instructors need to 'buy' the curriculum and really do it. Above all, we need to train ourselves to carry the curriculum forward in a cohesive voice of unison.
2. RISI faculty need to layer into the curriculum information about research at all levels of training.
3. Existing questionnaires and forms such as those used by NAPER can develop another level with more participation and feedback from all.
4. The NAPER databank can grow into a more sophisticated electronic form, capable of receiving data from other Rolfers. To support this, we need training and supervision available to students and practitioners worldwide and the development of instruction manuals.
5. We need to teach case studies in all phases of the curriculum and develop this methodology and practice in both academic and non-academic settings.
6. We need a more clear and consistent curriculum in science that is not dependent on the particular instructor's interest or background.

7. We need to communicate the research results we already have, first to the RISI membership itself, and then direct the best pieces to other publications that have more public visibility.

Personally, I think I have walked my talk. I've produced a lot, I hope to do more, and I hope there are many others to pass the baton to as we move forward as a community. *Research is a communitarian and a bottom-up process.*

Pedro Prado's research focus and signature approach to the clinical practice and teaching of Rolfing SI concern how best to build bridges among the structural, functional, and psychobiological perspectives. A clinical psychologist and former professor of somatic psychology, Pedro has been teaching Rolfing SI for over twenty-five years in in the U.S., Latin America, Europe, Japan, South Africa, and Australia. He is a member of the Advanced Rolfing and Rolf Movement faculties of the Rolf Institute and an Advanced Instructor for the Somatic Experiencing® Trauma Institute. Since he became a Rolfer in 1981, Pedro has established and nurtured practitioner communities of Rolfing SI and Somatic Experiencing in his native Brazil and throughout the world.

Endnotes

1. For background information on NAPER, see Mattoli, P. Jan 2001, "Reflections on the São Paulo Ambulatory Project" in *Rolf Lines* 29(1):5-7; Prado, P. Dec 2010, "The São Paulo Ambulatory Project" in *Rolf Lines* 29(1):8-10 (January 2001); and Prado, P. Dec 2010, "The NAPER Clinic: A Vehicle for Continuing Education and Professional Development in Brazil" in *Structural Integration: The Journal of the Rolf Institute*® 38(2):20-21. These articles are available at The Ida P. Rolf Library of Structural Integration (<http://pedroprado.com.br>)
2. Articles have been published periodically sharing information from the NAPER databank, as listed here:

Mattoli, P. and Bocaletto Y. 2003, "Perfis do núcleo de atendimento, educação e pesquisa em rolfing." *Reunião Annual da Associação Brasileira de Rolfing*. São Paulo: Associação Brasileira de Rolfing.

Bocaletto, Y. 2005 "Avaliações e perfis do núcleo de atendimento e pesquisa em Rolfing." *Congresso Internacional de Psicoterapia de Abordagem Corporal, No. 7, 2005,*

São Paulo: Resumos . . . São Paulo: Universidade Paulista.

Bocalletto, Y. 2007 Dec. "Profiles and Evaluations of Rolfing Clients in the Núcleo de Atendimento, Pesquisa e Educação em Rolfing (NAPER) Brazil. *Structural Integration: The Journal of the Rolf Institute*® 35(4): 26-32.

Baía, R.M. 2012 Feb. "Naper divulga pesquisa de 11 anos de trabalho." *Rolfing Brasil* 12(34):19-22.

3. Allen later published an article to help Rolfers do research, "Overview of Research Designs for Rolfing Structural Integration" in *Structural Integration: The Journal of the Rolf Institute*® 32(4):17-19 (Dec 2004), Vol: 32, pp 17-19. See also Allen, D. and P. Prado, "Co-Laborare" in *Structural Integration: The Journal of the Rolf Institute*® 33(1):25-28 (Mar 2005).

4. All case studies since the 2010 inception of the Uniitalo program are available in pdf format (in Portuguese, with abstracts in English) at the Ida P. Rolf Library of Structural Integration (www.pedroprado.com.br), listed individually by author in the Publications section under the Academic category. They are also available at the ABR's library in São Paulo and in a special collection of postgraduate program papers at Uniitalo. You will find brief comments on some of these papers in the three articles listed below:

Prado, P. 2011 Dec. "The Case Study Method." *Structural Integration: The Journal of the Rolf Institute*® 39(2):33-35, including descriptions of these papers:

Ruggi, A. "The effects of Rolfing SI and its holistic approach on chronic adhesive capsulitis."

Gilioli, A.M. "The effects of Rolfing SI and its holistic approach on chronic low back pain in an elderly client."

Rossi, C. "Rolfing SI as one component of a multidisciplinary approach to the treatment of bipolar disorder."

Bretones, H. "The process of Rolfing SI as a therapeutic relationship between two people."

Bronze, J.H. "Rolfing SI both ameliorates symptoms and enhances quality of life for a client suffering

from the correlated conditions of temporomandibular dysfunction and plantar fasciitis.”

Nascimento, M., “Effects of postural changes and enhanced body awareness from Rolwing SI on the body image and structural and functional organization of a professional acrobatic artist.”

Orlando, M.H. “Rolwing SI as an agent of integration among posture, behavior and quality of life.”

Freitas, M.L. “How perception of the Rolwing® SI line enhances well-being.”

Cintra, M., “Applying by analogy the psychoanalytic concept of autotomy in the practice of Rolwing SI.”

Moretto, M., “The effects of Rolwing SI and its holistic approach on idiopathic low back pain.”

Mattar, M., “Rolwing SI enhances quality of life for a client suffering from cervical and lumbar pain.”

Caspari, M., “The contribution of Rolwing SI to the treatment of temporomandibular disorders.”

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Down the Rabbit Hole

An Interview with Robert Schleip

By Robert Schleip, PhD and Szaja Charles Gottlieb, Certified Advanced Rolfers™

Interviewer's Note: This interview took place late Sunday afternoon in Washington DC on September 20, 2015 at end of the third day of the Fourth International Fascia Research Congress (FRC). I was fortunate to get Robert to agree to this short interview though he had many roles, duties, and demands during the FRC and little time. I want to once more thank the Rolf Institute® Research Committee for the scholarship that enabled me to attend the conference.

Szaja Gottlieb: Robert, we are going to be doing an issue focusing on research and Rolfers who are also scientists, so naturally we wanted to include you. How is that, being a Rolfer and also a scientist?

Robert Schleip: It's not easy but very inspiring.

SG: Is it schizophrenic in a way? How did it happen? As I remember at one time you were just a Rolfer and not in academics at all?

RS: Not exactly. I started studying psychology on an academic level before, then I very quickly climbed to bodywork as a deeper way to treat humans. I then became the first German Rolfer at the very young age of twenty-four, back in 1978.

SG: You also studied The Feldenkrais Method® of somatic education too, yes?

RS: Yes, I also completed the Feldenkrais training and I became a Rolwing® Structural Integration (SI) instructor a few years after that.

SG: For the European Rolwing Association?

RS: For the European Rolwing Association but also teaching in Boulder, Colorado for many years for the Rolf Institute, I enjoyed that very much and learned a lot from it. However, after almost twenty years of teaching I asked for a sabbatical where I could stop teaching to have more time for research. I thought that would be one year.

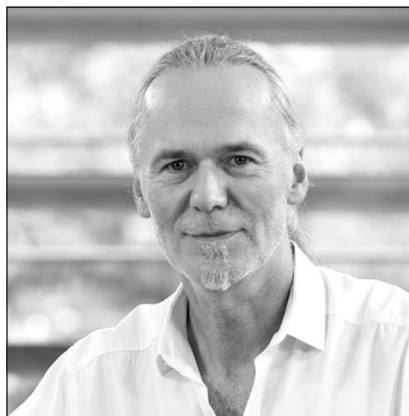
SG: What year was that?

RS: 2004.

SG: And then?

RS: I never came back from that sabbatical. I became so intrigued with research that I never came back from it.

SG: It must have been a strange and unexpected feeling.



Robert Schleip



Szaja Gottlieb

RS: I felt like Alice in Wonderland who was going down to visit the scientists . . .

SG: Down the rabbit hole!

RS: Yes, yes, down the rabbit hole. I actually published in *Structural Integration* in that first year (Klingler, Schleip, and Zorn 2004) and reported about my adventures. I interviewed scientists. I locked myself in scientific libraries and came back to my peers later to tell them what strange findings I had found in that new territory. Now, I spend more time down that rabbit hole than in my original tribe of Rolfers.

SG: I was watching you during the Fascia Research Conference and all the talks and activities that you participated in and I was wondering how you saw yourself. I was thinking, "When he projects his persona is he thinking of himself as a Rolfer or is he now a scientist?"

RS: Yes, sometimes I forget, honestly, but I have to say what when I come back to my Rolwing tribe, I feel like this is my real home. But when I do my scientific work, especially for longer periods of time, weeks and months, I feel like a true scientist trying to unravel the hidden secrets of nature – and I forget where I came from and why I started this journey in the first place.

SG: Is it crazy-making? I mean, science is just a heady experience while Rolwing SI is such a body experience.

RS: No, for me both have their values and respective excitements. It actually seems to fulfill one of my childhood dreams. In my childhood fantasies I would jump in a tunnel in our home garden in Germany and then arrive in Australia on the other side of the planet and then pretend to be an Australian. Then, once in a while, I would jump back to Germany and switch backwards and forwards between these two worlds, always pretending to be completely in one of them. Seems to be a funny idea now!

SG: I have to laugh a bit here. I recently interviewed Michael Salveson, and he told me he had a childhood dream that he could vibrate and transport himself to various locations. Perhaps you guys should talk!

RS: That would be great. Maybe I could learn something about teleportation . . .

SG: So once you got into the scientific area, I imagine your practice started to diminish, or . . . ?

RS: No, I intensified it into two very long days per week, which allowed me to finance the remaining five days and nights of research work. Then I decided to do a PhD, a needed context for my work, not so much for the academic title but for the institutional framework to do laboratory research myself.

SG: You needed to reposition.

RS: Yes, if I wanted to do original measurements with fresh fascial tissues. If I went to the slaughterhouse to get animal tissue early in the morning, they would of course ask me why I needed it. And if you say, "I am a connective-tissue scientist

doing a PhD study,” they say, “Okay, we will help you.” If I had said, “I am a self-financed enthusiastic spiritual scientist wanting to understand the nature of the universe,” they would have been far less cooperative. In comparison, helping a poor doctoral student was more familiar and less threatening to them. Same with other professionals that I needed to cooperate with on that journey,

SG: At this point, are you thinking, “Okay, so here I am and this is where I am going,” or, “Okay, I have done enough of this and now I am going to jump back to Roling practice.”

RS: No, I got totally hooked. When I started this journey I thought I’m doing this project to find out about how the contractile cells and fascia are linked with the sympathetic nervous system. Although I was convinced that such a connection would exist as a simple synaptic connection and that I would find this connection, I eventually I had to admit that I could not.

SG: Must have been disappointing since you were trying to figure out why and how things work.

RS: Yes, I didn’t find what I expected; but then what nature showed me was even more fascinating than what I was originally looking for.

SG: Creative tension driving you forward.

RS: Yes, sometimes we don’t find what we deeply believe in and what we expect, but the tension pushes us forward. Rather than me using science to prove something that I believed . . .

SG: . . . Science used you for its own purposes . . .

RS: I had to lean back, and listen to what science and nature were showing me through measurement data right in front of me, and that turned out to be more interesting. Many of the clinicians in our field are using science to prove something that they already think they know, through their hands, their eyes, or intuition. That was how I started too. But now I have changed my attitude and believe that good scientists do not ‘trust’ their hands or eyes. Instead, they must look, with a questioning mind and a sharp pencil in their hand, at the data and try to understand.

SG: That must be a bit jarring. I am sure you still check your results against what your body experience tells you.

RS: Yes, it’s true, but the most important thing is that any theory that you make up, particularly one you get attached to, you have to be prepared that someone, another scientist for example, or the data right in front of you, will destroy your beautiful concept to pieces. Then, you have to start all over again. And then you once again look at the mosaic of data right in front of you with new eyes and look for a picture, a pattern, that the data is trying to tell you. So, I got hooked because it is really like detective work, and you don’t know what you will find around the corner.

SG: Sounds challenging but also gratifying.

RS: This all happened before we had the First International Fascia Research Congress at Harvard Medical School in 2007, which was a great way to link up with other researchers.

SG: First fascial connectivity and then, an amplification, people connectivity. I am very curious, how has the fascia research that you have done and been exposed to all these years changed your work, your practice of Roling SI?

RS: For a while my manual work seemed to change every couple of months, all depending on what I was paying attention to in terms of my own scientific exploration and collegial exchanges. But lately I have started to pay more attention not to how strong I work or what angle I work at; instead, I pay attention to the speed of the fluid shear happening in the tissue in response to the pressure, shear, and the sliding of my hands. Now I educate my hands to slide across the scar tissue, for example, with the slowest possible continuous speed.

SG: Millimeters?

RS: Yes, a few millimeters per breathing cycle, or perhaps a half an inch or an inch within a minute. That is based on some pdf articles I came across.

SG: What do they say?

RS: In cell culture with human fibroblasts, if you work at the slowest possible speed, not pressure but speed, the cells start producing specific enzymes 4-8 hours afterwards. In other words, this response happens not during the treatment, but a few hours afterwards. Assuming we may trigger a similar response in living tissue, your hands may not feel any response during the work but it may start to happen

half a day later. The enzymes produced by these fibroblasts then start to break down excessive collagen such as with chronic scar tissue or tissue adhesions between adjacent layers as in frozen shoulder. I and several colleagues have experimented with this ‘new super-slow fluid shear’ method and we are seeing very encouraging results so far.

SG: Do you still do the Ten Series?

RS: Much less now, unfortunately, as I have so few days left in the month in which I work with normal [clients].

SG: How do you look at the Ten Series now?

RS: It can be a very powerful tool. It is a great invention, mostly for the transformational aspect for clients – how they start to reconnect with their body, their whole self-perception, body schema, and body-image reorganization. If used that way, the Ten Series can be a stroke of genius.

SG: I agree.

RS: With every session you have a different focus, also on the relationship between sessions, how the beginning, middle, and end align. And then goodbye, even it is not a final goodbye, a temporary goodbye at the end. It’s really nice.

SG: How does the Roling SI carry over into your scientific work?

RS: My practice has been very inspired by science, but also because of my clinical background I have been able to inspire laboratory scientists who have never done therapeutic treatment themselves.

SG: I am curious, how much have you done Roling SI on these guys?

RS: [On] a lot of them.

SG: What do they say?

RS: Each of them responds differently. Sometimes they don’t stop talking and sharing exciting explanations afterwards, and sometimes they are deeply moved in a silent way. But they are usually very impressed.

SG: Your role seems almost like a mediator?

RS: Yes, jumping back and forth, between body therapies, movement, etc. What has changed now, in contrast to my life a decade ago, is that I am not identified with any explanatory model. I do not need to prove that Roling SI is better than osteopathy

or chiropractic or whatever. Instead, I am attached to the value of true science, as a journey of constant surprises and learning.

SG: I wanted to ask you about movement and the point of view, which I am sympathetic to, that movement work is not sufficiently integrated with our structural work.

RS: Well, I was involved with the international Roling faculty as a Roling instructor for fifteen years through all sorts of discussions and debates. My point of view still is that if you are interested in long, long-term improvement, you need to also address movement usage in day-to-day life. You need to change movement-related neuronal habits. If you don't succeed in changing them, you will have the old patterns reasserting themselves. I was certainly not alone with this concept back in the 90s. But now almost everyone in the faculty agrees on that. If you are only a very gifted manual therapist but have no movement education skill, or no allies [to send clients to] for congruent movement coaching, chances are you will not have a long-lasting sustainability in your work.

SG: Does a lot of your movement work include elements based on Fascial Fitness? [Editor's note: Fascial Fitness is a modality created by Schleip and Divo Müller.]

RS: It includes that but other things as well – don't forget I am a Rolf Movement® practitioner and also a teacher of Feldenkrais work, so these and other work approaches tend to sneak into my practical work quite often.

SG: What is going on with Fascial Fitness?

RS: Oh, it has become really big recently here in Germany. The media love it.

SG: In Germany! What's wrong with us?

RS: No, it will be in other countries [too], once the local media folks realize the potential. The journalists love the story of fascia as the organ that everyone forgot and now scientists bring it into the limelight. It is like a beautiful fairy tale, and above all it's true. Additionally, it comes with beautiful pictures and video clips, always important for modern media, as it sheds new light on such topics as fitness, acupuncture, or back pain. But mostly the media folks love the story of the formerly ugly Cinderella tissue, which now appears as a shining new star in science conference halls.

SG: Cinderella, but when it comes to pain perhaps a bit of David and Goliath as well.

RS: Yes, they love it. In the fitness world it has become a new major trend. In fact, if you ask anybody engaged in the fitness world in central Europe today what they would put as the most important new trend in their field, chances are that at least 50% would reply, "Fascia."

SG: At the gym I go to I always tell the trainers, "Fascial fitness, it's coming."

RS: Yes, exactly. In Germany, if you go to the gym and you hear a personal trainer teaching somebody in a private session next to you, there is a high chance that he or she will be lecturing about fascia. Some of that could be straight out of Ida Rolf's book or more often out of Tom Myers' book. However, you will also hear things that make you cringe as they take things way too far or apply them incorrectly. What should I do, walk over and correct them? I now prefer to wear earphones in such environments instead.

SG: That's the price of popularization.

RS: In Germany, Switzerland, and Austria, due to the media hype in recent years, now your average hairdresser, your average car mechanic, 60%-70% of these non-academic members in the society have heard the word 'fascia'. And among academics, more of course. That was not so even three years ago!

SG: Wow, amazing.

RS: They know that it can be a source of pain and that they can do something for it.

SG: At this conference I have been blown away by the proliferation of all the fascia techniques and modalities out there.

RS: Yes, you will see Fascial Pilates, Fascial Yoga, Fascial Taping, and what not. Now many of these techniques have changed their original packaging and describe their work as fascial therapy.

SG: I read the book you recently edited, *Fascia in Sport and Movement* [see review on page 39], in preparation to review it for the Journal. I was hoping to go through it quickly, but after reading the first few published articles, I realized this is too important, I am going to have to take my time. I thought Adjo Zorn's article was fantastic.

RS: I agree. The scientific and movement work of my Rolfer colleague Adjo Zorn from Berlin is a real jewel in my opinion. It's also one of my favorite chapters in that new book. There are more and more

exciting new aspects on fascia coming out, and also lots of valuable opportunities for self-employed manual therapists with this media wave of attention to fascia. If Rolfers are smart, they will use this wave. Now fascia is a novel topic. In five years, however, fascia will not be forgotten, but it will have become an accepted and important perspective. It will no longer be a novelty.

SG: Sometimes I am afraid we are going to be left behind.

RS: The fitness people are the most rapid [on the uptake], that is their nature. No need to compete with them. But we don't want the trigger-point folks or the osteopaths to bypass us, as Rolfers, in this wave of public attention to fascia. That would be really stupid if we allowed that to happen.

SG: One last question. When all is said and done, do you now consider Roling SI to have scientific validity?

RS: Yes, on many levels. Many of the claims that Ida Rolf made about fascia are now supported by evidence, based on ultrasound measurements, histological examinations, etc. That fascial tissue properties play essential roles in muscular force transmission, as an example in spastic contractures, or in low-back stability, is no longer a wild idea. Thanks to the new field of fascia research we now have concrete data to back these concepts up. Even a decade ago, many, including educated professionals, doubted the claim of Rolfers that we could change fascial properties in a sustainable manner by a single stroke of our elbow; [this thinking was] based on their perception of the difficulty of changing the stiffness of fibrous connective tissue. Now we know, however, that fascia is densely innervated by different kinds of sensory nerve endings which are mechanosensitive and which can easily trigger downstream physiological responses in local tissue hydration, in muscle tonicity, in autonomic regulation, or in local biochemistry. Although we do not have final proof yet that we are effecting these levels, it is now very plausible and very easy to believe that our manual work may in fact involve such profound responses.

SG: Thank you for your time. I know you must be very tired from the last three days of the conference.

RS: My pleasure.

Robert Schleip, PhD, MA, is Research Director of the European Rolfing Association, and also Director of the Fascia Research Group of Ulm University, Germany. Together with Thomas Findley, Eric Jacobsen, Stephen Evanko, and others, he was instrumental in setting up the first FRC (Boston 2007) as well as the subsequent congresses. He has been a Certified Rolfer since 1978, a certified Feldenkrais teacher since 1978, and served on the international Rolfing faculty as a Rolfing Instructor since 1992. Following a research sabbatical in 2004, he switched careers and became an enthusiastic scientist, exploring fascial tissue properties in his own laboratory at Ulm University. His findings on the active contractility of fascia have been honored with the Vladimir Janda Award for Musculoskeletal Medicine. He is author of numerous popular books as well as scientific publications. More at www.somatics.de or www.fasciaresearch.de

Szaja Charles Gottlieb MA was once an aspiring academic, having received his master's degree in European intellectual history in the early 1970s. Fortunately, a series of unexpected events, especially getting Rolfing sessions in 1978, set him on a transformational course that included becoming an artist and then a Certified Rolfer in 2001 and a Certified Advanced Rolfer in 2008.

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The Implications of Statistical Significance and Clinical Relevance

Karen Price Discusses Her Research into Rolfing® SI for Cerebral Palsy

By Karen S. Price, Certified Advanced Rolfer™ and Marie Terrill, Certified Rolfer

Introduction by Marie Terrill

Karen S. Price has been a Rolfer since 1979 and specializes in working with children, including children with spastic cerebral palsy (CP). Self-described as a 'closet-scientist', Karen recently had the opportunity to work with a research team led by Heidi M. Feldman, MD, PhD, Medical Director of Developmental-Behavioral Pediatrics and Professor of Pediatrics at the School of Medicine at Stanford University. The goal of the team was to look at the effects and potential benefits of Rolfing® Structural Integration (SI) for children with spastic CP. The project took six years to complete and culminated in three seminal publications. The last one was published in 2015 in the journal *Frontiers in Pediatrics*. I had the opportunity to speak with Karen recently about the project, including the research results and the implications for further research on this topic.

Marie Terrill: You have been practicing Rolfing SI for children for nearly forty years now. How did you first become interested in [working with] children?

Karen Price: When I did the first part of my training, we had what they used to call Children's Day at the Rolf Institute® of Structural Integration. At the end of the class, the instructor and some of the newly-trained practitioners would work on babies and children from the community. I brought the son of my neighbor, a tall, thin, twelve-year-old boy who had worn braces on his legs when he was young. He and Michael Salvesson (my instructor) hit it off immediately. Michael had also worn braces when he was young, and had a similar build. He agreed that he would give the boy Rolfing sessions if I could bring him up to San Francisco, which is where Michael practiced. This was after the class ended. Obviously, I could then watch the Ten Series.



Karen Price



Marie Terrill

That was my first experience and my first mentoring with children. It was powerful, particularly since Michael, normally regal and professional, was now joking and laughing with the boy. This nurtured their connection and made the boy comfortable. I saw that Michael was able to maintain his integrity as the adult while still managing to be playful and sometimes downright silly. He showed me there is a way to work with children where you meet them where they're at.

MT: What changes did you see in the boy?

KP: He changed a great deal, very quickly, both physically and emotionally. His legs supported him, his movements were more integrated, his body was more coherent overall, and he became more mature. The thing that strikes me with Rolwing work on all children is the maturity that appears very quickly.

MT: Can you talk more about this maturity?

KP: When we organize the structure through our work, it becomes more differentiated and then integrated. This is the hallmark of maturity for any organism. Ida Rolf talked about this. In this case, the boy's mother could see it after the sessions. The parents were newly separated and the mother could see how much more mature and responsible he became despite the troubling circumstances.

MT: That is particularly exciting to me; given that my personal interests are related to the sense of self and how changes in embodiment affect that. What I'm hearing you say that you witness in children is that you watch their sense of who they are in the world change before your eyes through the process of Rolwing SI. Does that sound accurate to you?

KP: Perfect, yes.

MT: Let's move on to talk more about Rolwing SI for children with spastic CP. First of all, for the benefit of our readers, what is spastic CP?

KP: Spastic CP results from an insult to the brain, typically due to hypoxia (lack of oxygen), that happens in the womb or shortly after birth. It is often found in babies who are born prematurely, although it does appear with full-term babies. It's a non-progressive neurological disorder, but what *is* progressive is the contracture in the soft tissue.

MT: The contracture is progressive as the person grows.

KP: Yes. That's why Rolwing SI is perfect for working with CP because obviously we know as Rolfers that our work is with the soft tissue. With our study we were affecting the neurological aspect with an approach that targeted the tissue. We're literally going right to the tissue itself to decrease the spasticity and increase not only the range of movement but the quality of movement, as well as improve balance, etc.

MT: So the portal is the soft tissue, but you are affecting the entire neurology.

KP: Right! And the younger the better, because the brain and the body are so plastic. The younger kids especially haven't developed a belief system surrounding their condition yet. By the time they are six or seven years old, they *know* and they *believe* that something is wrong with them and that they can't be fixed. But at a year and a half, two, three years old, their sense of self is not that strong yet, and similarly they don't have a sense of anything being wrong with them in a fixed sense.

MT: That's profound.

KP: It's very profound, yes. With a lot of our work with adults, you can see that they come in and they've got this problem and they're hoping maybe you can help them, but a lot of it is they have a fixed belief that something is wrong with them. That's a big obstacle to their healing and how we go about changing that nobody knows. But with little kids, they don't have that yet.

MT: That's beautiful. You catch them when their sense of self is still forming, so the belief that something is wrong with them is not yet fixed. There's a moment where you can get in and really make changes along the developmental pathway for that child.

KP: Exactly, exactly.

MT: This is what the study with Dr. Feldman and your team was all about. You had the chance to affect these kids along their developmental pathway. [Readers can find out more about how the study came about on page 17 in another interview where Karen Price discusses how to go about engaging with research as a Rolfer.] For now I want to focus on the actual research. As I understand it, the project produced three separate publications. The first publication resulted from the pilot project where you collected data from eight children, aged two to seven, which produced the first article and poster that you presented at a medical conference. Based on this first publication and its promising results, your team was able to secure a grant from the Gerber Foundation. This grant supported the research that resulted in the next two publications. The second publication was from the pilot study for use of the GAITRite® mat, which is a special computerized mat that measures all aspects of gait. There was little data on using the mat for children and even less

on using the mat for kids with CP. In your study, you used, among other measures, the measure of heel strike for the nine ambulatory children. The third and final study involved a larger cohort (twenty-nine children aged three and under) and combined these two outcome measures.

KP: Yes, that's all correct.

MT: The statistical metric used, Gross Motor Function Measure-66 (GMFM) in the final study is quite stringent. This, in addition to a small sample size, and the heterogeneity in the severity of CP amongst the study participants, meant that overall changes were hard to detect across the group as a whole and therefore the findings were not statistically significant. In my experience in clinical research, there is a difference between statistical significance and clinical relevance: i.e., outcomes can still have very meaningful implications for clinical relevance while not achieving statistical significance. For this study, can you talk about the changes you did see, and what clinical significance you think this study demonstrates?

KP: Yes. First let me say something about the children in the study. It was a condition of the grant that they were three years old and under. Our intention was that the children be ambulatory and GMFM level II to IV in severity so we could use the GAITRite mat. It turned out, however, that we ended up with nine ambulatory kids of the twenty-nine (far fewer than we intended). We collected a lot of data, and found that the data on heel strike for these nine ambulatory kids was statistically as well as clinically significant. In our analysis, greater heel strike translated into improved foot contact with the mat and more normal walking than prior to Rolwing sessions. We ended up only having nine ambulatory kids because with CP there are not that many ambulatory kids who are three and under and also Level II severity, so we started accepting additional kids who had higher levels of severity but were not ambulatory. In many cases they couldn't even crawl, sit unsupported, or even roll over. One way this affected the outcome was that if we had stuck to working only with ambulatory kids, all measures of change would have had the same baseline. However, because we had varying levels of severity, there was no common baseline across the group from which to measure each kid's change throughout the process.

MT: That's beautiful that you decided to include the kids that had a higher severity of CP in the study. And it doesn't mean that they didn't experience changes due to Rolfing SI. In fact, they may have had very significant changes that may have been measurable. And then there's the human factor of quality of life. The changes that you did see in those kids with a higher level of severity were probably not detectable by the measure that you used.

KP: That's right, because we had to combine them in one group, which blurred our ability to measure change. We could have chosen not to accept these kids with higher severity, but none of us wanted to do that because we fell in love with these little people and wanted to give them an opportunity to experience Rolfing SI and what it could do for them.

Therefore, my message is that there *was* change. There was a great deal of clinical change that we saw, not only in quality of life but also in movement, communication, appetite, height, and weight. Many children with CP are underweight and/or in frail health. Becoming bigger and stronger is an important asset. Many of the children in our study gained new abilities such as being able to sit unsupported, roll over, or propel themselves on the floor. This resulted in greater independence and autonomy for the child. Most increased in confidence and communicative ability even if nonverbally. Some children were able to supinate an arm that they were not able to do prior to Rolfing sessions. Drooling – which is a big problem with CP – improved. Parents reported more flexibility in their child, which made changing diapers and dressing easier. But due to the measure we used, as well as the issues I previously described, we were not technically able to report any statistically significant changes other than the heel strike using the GAITRite mat. The other thing that was really important that I felt was not emphasized enough in the paper was that four non-ambulatory children began walking during or just after the Rolfing sessions.

MT: Oh my gosh!

KP: It was just a little line in the publication. Three non-ambulatory children began walking during the Rolfing sessions and then a fourth started walking just after his Rolfing sessions ended.

MT: Wow.

KP: To me, this was the most exciting thing. Also in the first study, there was one two-year-old, non-ambulatory child who began walking during the Rolfing sessions. What I have found is that working with young children in this age range (two and under) with developmental delays with or without a diagnosis of CP is especially effective because of everything that we've been talking about.

MT: Rolfing SI can change the developmental trajectory. I'm thinking about direction here, and that before these kids saw you, they were on a certain trajectory that didn't involve walking, but the Rolfing SI nudged them enough degrees in a different developmental direction that they began walking. And they will continue literally walking along this trajectory for the rest of their lives.

KP: I completely agree. That's what I saw. Whatever is hardwired in us, why we learn to do these things as a species, why every animal on Earth learns how to move, is what gets activated. Rolfing SI is like flicking the 'on' switch. The younger they are, the easier they incorporate the changes due to the plasticity we've been discussing and which we know from our hands. These kids start scooting. Eventually they start pushing themselves up on all fours. Again, it depends on the extent of the brain damage. While there is probably a ceiling for how much they can improve, Rolfing SI helps them achieve that optimal place. I've worked with a few of the kids from both studies long-term, as well as many other children with CP and various conditions, and the changes are unbelievable. We are assisting them in their evolution. Rolfing SI quickens their development and their evolution. By organizing the structure as best as we can, given the limits inherent in that child, we create more normal movement and function.

MT: That was one of my other questions. Did you have the opportunity to do some follow-up work with any of the children from the studies?

KP: Yes, a few from each one. There was one boy from the first study who became my favorite client of all time. He was three, and wearing braces on both legs, and glasses. They were the first family we recruited. His goal was to do karate, but he couldn't balance on one leg. Nor could he jump or run. By the time he was four or five, he was doing karate, and jumping,

and running! He taught me a tremendous amount. He was the most articulate little child I've ever met and would verbally tell me things about children with CP as well as his experience of his body. I worked with him over four years. He is now ten years old and has moved back to his country of origin. He doesn't wear leg braces, and he plays sports, including soccer.

MT: You were with him over a long amount of time while he met different developmental milestones, even though the milestones were delayed.

KP: Yes, and this could have been important for our study, particularly since we used the GMFM-66 as our measure, and this aspect of time is definitely important for future studies.

MT: Can you talk more about this? Why was the GMFM-66 measure chosen?

KP: I think there are different reasons. One reason is there are not a lot of good measurements out there to show what Rolfing SI (or indeed most therapies) achieves. Dr. Feldman is very much an objective scientist. She's very aware of the importance of the subjective domain, the necessity of including the whole person. She is also a yoga instructor. But she is still focused on the quantitative measures. Most of the journals agree with her. She has said that if we want to get published, we have to show the numbers and here's something that shows the numbers.

MT: Right. That was my thinking. When I was reading the article, I was thinking this measure is not really appropriate given what you are looking at, and yet if you did show changes by that measure, the implications for Rolfing SI would be huge in the scientific community. I can see the ambition in the publication and that Feldman probably wanted to extract the full potential, if it existed, of Rolfing SI, in using this particular measure of gross motor function. However, it's unfortunate that, for those not used to reading publications critically, or for those who don't quite know how to interpret the implications, the very first line in the discussion is "We did not see any changes."

KP: Right.

MT: This makes me think about the whole question of knowing who your audience is, and the importance of having the right audience when you're reading these kinds

of publications. I can only imagine that it was disheartening.

KP: Yes. It was difficult. When Feldman first said that this was the measure we were going to use, I had a bit of a sinking feeling. The GMFM-66 is a measure that is specifically designed for children with CP, and it measures and describes the children's abilities for gross motor function milestones at different ages. But of course any developmental milestone requires time to develop. For example, in order to change levels, a marker such as maintaining independent floor-sitting or pulling to stand would have to change sometime over the course of two years. So that means that in order for us to measure a change in gross motor function according to the GMFM, we would have needed at least one to two years of collecting data with Rolfing intervention to allow time for the kids to achieve their milestones.

MT: That all makes a lot of sense. That reminds me of the story of the old osteopath telling Dr. Rolf when she was first starting out that the one thing her recipe lacked was 'essence of thyme' (time).

KP: I was just thinking about that!

MT: In concluding, I want to come back to something you said earlier: about how CP is often considered a fixed condition, in that the brain injury is non-reversible, even though the effects of that can progress differently over time. Even though the injury itself cannot be reversed, we perhaps need to start thinking about CP as a more malleable condition, given the inherent plasticity of the brain and the body, particularly with pediatric populations. So if a therapeutic intervention is given early enough, the inherent neural plasticity can be fully exploited, possibly enabling the child to develop functionally beneficial neural compensations that would not have been possible if that intervention had not been given. I think your work is showing that Rolfing SI helps sculpt the brain through organizing the body and creating opportunities for more normal movement and functioning. We can think about the possibilities for the child, and how we can activate those possibilities to the fullest extent. Rolfing SI, clearly, is a part of that.

Karen Price's publications from the study with Dr. Feldman can be found on her website: rolfingchildren.com.

Karen S. Price graduated with honors from Northwestern University in 1974. After receiving Rolfing SI in 1977, she began her Rolfing training in 1978 and graduated from The Rolf Institute in 1979. She received her advanced Rolfing certification in 1988. She is a long-term meditator and a Registered Yoga Teacher (RYT-200). Karen has maintained a private practice in the same location in Palo Alto, California for thirty-seven years, specializing in work with women and children. For more information on Karen, please see the bio on her website rolfingchildren.com.

Marie Terrill is Certified Rolfer and Certified Structural Integrator^{CM} with a small private practice in Eugene, Oregon. She is also Secretary of the Rolf Institute Research Committee. Marie studied molecular biology at The Evergreen State College and has ten years of experience in the field of functional neuroscience, with a specific focus on epilepsy and epilepsy research. Additionally, Marie has an ongoing interest in the therapeutic aspects of movement, dance, and yoga, all of which she incorporates into her Rolfing practice. She has been a dedicated yoga practitioner since 2006 after sustaining a major injury, with a practice most recently fed by teachers in the field of Yoga Therapy and from the Iyengar tradition. Her website is www.mindbodyrolfing.com.

The Road from Rolfing® SI to Initiating Research Studies

An Interview with Russell Stolzoff

By Russell Stolzoff, Rolfing® Instructor, Rolf Movement® Practitioner and Richard Ennis, Certified Advanced Rolfer™

(Editor's Note: This interview took place in October 2015 when Stolzoff was sitting in on a Rolfing Structural Integration (SI) Advanced Training taught by Jan Sultan.)

Richard Ennis: Recently, you've taken an interest in research and did a study with Western Washington University. What drew you into an interest in research?

Russell Stolzoff: There's been a growing emphasis placed on trying to demonstrate Rolfing SI's efficacy through research. One of my clients is a professor at the university, and one day I just asked her. She was talking about some different research that she was doing, and I thought to myself, "I just need to inquire as to whether Rolfing SI could ever be part of

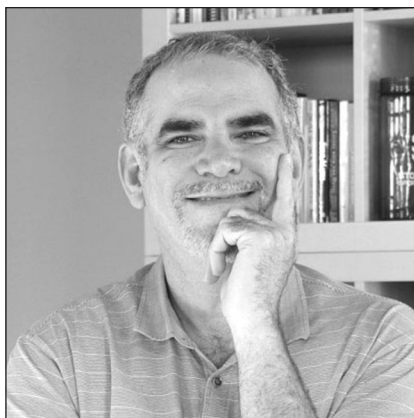
a project that she supervised." She said yes. I never saw myself, being someone who didn't have an advanced degree, as being capable of initiating or conducting research, and I didn't know how I could become part of a team of people. Several years ago, Tom Findley came and talked to the faculty. It was all good information, but he was basically saying, "If you don't have a PhD, sorry for you." That was a little discouraging. But then I saw this potential opening, and I just asked about it and it went from there.

RE: If I'm interpreting you right, you thought that it was too daunting or impossible to get into. [But now] you've done this and realized that anybody who puts energy into it could do Rolfing SI and research.

RS: It's about making the right connections, and it's good if you can link with people who have some interest. Like this professor had a real interest in fascia research, and she's been going to the Fascia Research Congress (FRC). I think I really lucked out with her. [Similarly] Karen Price connected with a lead researcher at Stanford and got her thing going. [Editor's Note: Price conducted research on Rolfing SI and cerebral palsy; see the interviews with her on pages 17 and 29.]

RE: Say a little more about what your research project was.

RS: The project was to see if Rolfing SI sessions improved proprioception of the ankle, balance and power demonstrated by what they call 'counter movement jump', or 'two-footed jump', in recreational soccer players.



Russell Stolzoff



Richard Ennis

RE: Did the players receive a Ten Series tailored to each of them, or was there a standard?

RS: What I was initially excited about was that I wanted to do a Ten Series and try to measure something, not just a session, and not just a [move]. I knew there'd been a study of doing a pelvic lift on a person who never had Rolwing SI before and it improved vagal tone.

RE: Then it becomes about a technique rather than about holistic work.

RS: It becomes about the move. It becomes about pelvic inclination but not about Rolwing SI. I really wanted it to be about receiving a series of sessions, but then you run in to all these problems. We had two different Rolfers and we tried to get on the same page, but you're never doing exactly the same moves.

RE: This is one of the things that holistic medicine or any kind of holistic practice has difficulty with – these very multi-factorial [sessions] that are tailored to the individual as opposed to just trying to test one variable.

It sounds like you got good recognition of that just from doing the study, that, "Oh, yeah. This is hard because it's hard to do holistic studies and because there are so many variables going in."

RS: Right. There are so many variables. Even though we tried to do holistic [sessions] and we tried to see whether holistic [work] would affect this small little measurement in a significant way. I talked to Eric [Jacobson] and had some back and forth with him. He actually loaned us his protocol, from his study, as he defined . . . the ten sessions [of the Series].

RE: What age group were the research subjects, and what did they know or expect?

RS: They were eighteen to thirty-four, something like that. They knew they were getting Rolwing sessions; some had heard of it, but most of them didn't know what to expect really.

RE: I'd like you to talk a little bit about the physical response that you were measuring, but also other elements of their experience. What kind of results did you get that were part of the research and what you were measuring, and what other add-ons did you get that were more about the holistic realm that's not quantifiable?

RS: The results from the measurements were inconclusive and caused us to rethink the research design, and maybe try to adjust it for possible future studies. We – Brad Jones and I; Brad worked in the study with me – took photos and we used the Body Align Pro that Isaac Osborne developed. He's down in Santa Barbara. He trained at the Guild for Structural Integration and he has developed this nifty little photographic application that you can use on a smart phone or on an iPad. You could see that people got the kinds of changes that we expect when we do SI.

RE: You got the kind of results that a Rolfer would be looking for?

RS: In terms of the measurements, [we] didn't. They weren't reflected in the measurements in the way that we hoped that they would be.

RE: What's your thinking on why that was?

RS: I wasn't really a part of the data collection. It's hard for me to know for sure . . . Some of it had to do with the choice of the joint that we measured – there's not that many degrees of motion. It might have been that the sample size was too small. It

also might have been that there were too few sessions.

RE: Because of my background in research, I have to say, "Wow, how typical." This outcome is very often so in a preliminary study. You think, we've got analytical methods involved, we've got techniques on Rolwing SI involved, and [now we] find all these things that need some kind of adjustment. Or we gain enough information from this preliminary study to design a better study, and so we've got the second-tier study. Then maybe some day things are so promising you do a placebo-controlled study of some sort and it grows. Your experience really fits that prototypical package. You do a study and [often] end up having to go back to the starting block and look at some things again.

RS: That's actually important for the Rolwing community to understand, because most of us are not researchers. I think there's this hope that we're going to get some kind of research that's going to blow people's minds and everybody is going to suddenly accept the scientific basis of Rolwing SI.

RE: It's difficult, but you don't want to discourage people. Like you said, Tom came and discouraged you initially because it is a huge task. Then there are certain people who had that perseverance who really want to keep going at it. I have an interest and the background in research.

RS: What kind of research did you do, Rich?

RE: I spent twenty-five years in biotech research, in various aspects. Mostly anti-viral research (HIV, hep B, hep C, influenza). When I got into Rolwing SI, I starting looking at the science, or lack of science, in some areas. Obviously we can use more information, good information. I think the science information I get, I actually use it for my practice a lot. I think bringing Rolwing SI into an understanding of research, and the data that's out there, and how to read research, actually can really improve your practice.

You didn't have a science background, you went from being a Rolfer to then getting into science. I'm wondering, Russell, how about science, does it impact your practice, affect your Rolwing [work]?

RS: It's a great question. I think I'm more cautious about speculation. We don't [always] know what we're really doing or why it works. Obviously, we're trying

to relate to people in their bodies in an intelligent manner – I think that there’s a lot to that. I’m more bewildered than ever and I think it goes along with the maturation of being a Rolfer for a long time. You feel less pressured to have answers because you know that people get better. You don’t know exactly how it’s happening, but you know. You don’t grip or contract around the ‘why?’. You’re able to sort of say, “I’ll tell you, I’m not really sure why.”

RE: At the same time, at the FRC this year, there were 800 scientists and bodyworkers. There’s a ton of information out there. Despite tons of information, there are still a lot of deep unknowns, but it’s not like there isn’t any information there. It’s just, “Wow, this is a complex field.”

RS: When the results from the research came back in the way they did, I was really disappointed, because I thought I went out on a limb in a certain sense. I don’t think I held it in quite the right way. I’m coming to learn more and more and feel more and more comfortable about what happened, and better about what we did. One of the things was I really wanted it to show something more conclusive than it did. Yet, when the results came back the way they did, the professor was like, “Yeah. This happens all the time in science.” A lot of people tried to help me understand that this is the case, and you did that with me as well. You were really helpful to me. I felt like I owed some explanation to all the people who donated money because I went out and asked people to [fund the research]. I initially felt like they might feel let down by what happened.

RE: That’s a really interesting point. We have this biased desire for a certain outcome. If we don’t get that outcome, our first response is, “Oh, that was a failure.” Then our second response is, “Oh, that’s the data we got – let’s interpret.”

RS: Yeah, totally. The way I kind of solved it was [to see] that there’s a hope for an outcome and that we need more validation.

RE: We could continue Roling SI as it has been done. As Jan [Sultan] said [in this class we are in], “I could be a kind of folk practitioner,” but Roling SI hasn’t grown a lot in thirty years. In that same amount of time, there’s been huge growth in other fields like acupuncture, like chiropractic work. A lot of that is driven by evidence-based practices. Yes, people come to us, but we don’t have a lot of practitioners and

Roling SI is unknown to a lot of people – I think that’s one factor. Not that Roling SI has to become an insurance-based thing or has to be very scientific in its practice.

I think sometimes people [in our community] wonder if science is going to change Roling SI. I don’t think it has to have an impact on how we do Roling SI. When I talk to clients about working on their suboccipitals and lowering the tonus in the body, they go, “Oh, that’s wild. I can work here and relax my hamstring.” When they hear there’s some science behind it, some evidence, they go, “Oh, you’re not just making this up. That’s kind of cool.” It gives you an opportunity. When you’re becoming familiar with the research and what good research is out there, [it affects] how you can talk to clients.

RS: I think that’s great.

RE: Some people live and work in really educated areas, as I do [Silicon Valley], where clients want to know, “Is there anything published on this?” If you say, “No, there’s nothing published, we just kind of recognize it,” it doesn’t have the same psychological impact. I think it gives a lot of comfort to certain types of clients [to know research is being done]. The project you were involved in was supported through donations from the public, and also supported by the Rolf Institute® which has a Research Committee and a mission to promote research. I’m on the Research Committee right now, and I know there’s some awesome Rolfer/scientists in our midst, and also non-scientists, like you, Russell, doing research. Stephen Evanko just joined the group, he’s a researcher up in Seattle. Eric Jacobson is on the Research Committee and he is doing some really high-level research on back pain out of Harvard. Then Paula Stal down in Brazil has been doing research on fibromyalgia and Roling SI. The last year, there have been several publications, including by Karen Price, who has done cerebral palsy research for several years [with Stanford], and she’s got some recent publications. A lot of publications have come out recently. The Rolf Institute has a mission to promote research, not just from the standpoint of wanting understanding of [our work], but also to teach research – how to read research, how to interpret research, how to know what’s a good research paper.

The Research Committee is working to support both young investigators getting

started doing small studies and also to promote teaching of research. Not just how to do it, but also how to interpret the literature that’s out there. When you see a paper, can you interpret whether the study design was appropriate? Whether the statistics were appropriate? That’s not a very easy thing to do. If you talk to Eric Jacobson he will say that ability to understand how to pick apart papers is something that comes out of five years of being in college [learning the background].

It’s important that [Rolfers] don’t look at this as a push to [have] a clinical understanding of Roling [and] understanding the research data that’s out there. [I would instead frame it as,] “How does that support you as a Rolfer?” You don’t have to be a scientist to let that science flow through you and help your practice. With a lot of people [in our community] helping to do research and becoming educated about research, it’s just another aspect that’s going to help the practices of all Rolfers.

RS: Awesome.

RE: Russell, what plans do you have to participate in more research?

RS: I’m going to try and get you involved in the next project at Western Washington University. Maybe if Steve Evanko, you, and I sit down with the professor up there we can ask what’s the next thing we can do.

RE: I’m in the process of moving to Whidbey Island, so we’re going to form a Northwest research team. Sharon Wheeler is also up there. I worked [with her] on her ScarWork abstract for the 2015 FRC. These are exciting times for the Roling community. Thank you for your time and for sharing your experiences.

Russell Stolzoff is a Certified Advanced Rolfer, Rolf Movement Practitioner, and Roling Instructor with a practice in Bellingham, Washington.

Richard Ennis is a Certified Advanced Rolfer on Whidbey Island, Washington and in Menlo Park, California. He is Chairman of the Rolf Institute Board of Directors, a member of the Research Committee, and on the Scientific Advisory Council for the Ida P. Rolf Research Foundation.

A Periodic Table of Functional Methods

By Jeffrey Burch, Certified Advanced Rolfer™

Functional Methods Six-Factor Model: Introduction

Andrew Taylor Still¹, the creator of osteopathy, focused his treatments on both position and mobility. Position is never static; rather everything constantly moves within appropriate range. Still recognized that body components had to be mobile before they could be moved. During Still's last years – and more strongly after him, during the first half of the twentieth century – osteopathy became focused on position, largely forgetting mobility. Then in the 1950s there was a revival of appreciation of mobility as a partner equal to position.

In 1954 osteopath Harold V. Hoover made a watershed presentation to the American Osteopathic Association (AOA) about the importance of mobility in treatment. As part of this presentation, and the subsequent publication in the AOA journal, Hoover (1956) described new treatment methods focused on tissue mobility. Hoover referred to these new methods as *functional methods*, functional in this context referring to appropriate movement in the body.

Hoover brought us back to A.T. Still's frequently repeated statement that life is motion. Since 1954, osteopaths and others in North America and in Europe have developed many different functional methods. Methods in use now include Hoover's original centralizing technique; pure unwinding; augmented unwinding; alternate interrupt; direction of effort – single dimension; direction of effort – stacked dimensions; direction of ease – single dimension; direction of ease – stacked dimensions; mixed ease and effort – stacked dimensions; oscillating in a single dimension; oscillating in stacked dimensions; first barrier stretch; first barrier glide; middle barrier technique; stepped unwinding; stack and borrow; scrubbing the walls; and numerous sub-variations and combinations of these.

As many people contributed to this proliferation of functional methods, curious things happened. These treatment methods were not universally, or even well, shared. No school teaches them all. Some schools

teach as few as a single method. Belief systems grew up holding some methods to be in all situations better than others, followed by the usual human bickering between camps. My considered opinion is that each method has its uses and it is best to have as full a toolbox as possible. To this end I have collected functional treatment methods from several schools. I cannot say that I have them all, only many. Studying these several methods over time I saw ways in which they were similar and also how they differ from each other. So far I have discerned six axes of variance. Seeing these patterns of relationship opened a window akin to the early development of the periodic chart of the elements. In chemistry the known elements were mapped in their perceived relationships, and this revealed holes in the chart where more elements yet undiscovered would lie. By seeing these openings in the array of functional methods, I have developed more than a dozen new variations.

Below are descriptions of each of the six axes of variance among functional methods, followed by a description of one of Hoover's original techniques including how it relates to each of the six axes.

Six Axes of Variance Among Functional Methods

Tissue Engagement

Engagement between the client's tissue and the practitioner's hand may be initiated by either party. When tissue is in contact with a relaxed hand, inherent movement in the client's tissue will engage the practitioner's hand and pull it in a particular direction or sequence of directions. Alternatively the practitioner may initiate the engagement.

Some methods make use of tissue engagement throughout the method. Other methods use tissue engagement at some phases of treatment. The method of tissue engagement in some treatment methods changes from one phase of the treatment to another.

Force

For all functional methods the force used is small, however, some methods use less force than others. For some functional methods the amount of force used changes from one phase of a treatment to the next. For example, recoil uses moderate force in the setup phase and no force in the release.

Speed

The speed with which the hands are moved varies between functional methods. Usually, the speed is low and is sometimes, but not always, in response to inherent movement in the body. In some instances, the practitioner uses his hands to further slow the movements of the body. At the other end of the spectrum, the hands are moved as quickly as possible in the release phase of recoil.

Constraint

In some but not all functional methods, tissue is prevented from moving in certain ways. The nature and extent of constraint varies from method to method, ranging from no constraint to complete prevention of movement. For example, in pure unwinding the practitioner offers no constraint to movement, while in Hoover's centralizing technique no movement is allowed.

Directiveness

In some functional methods, the practitioner requires tissue to move in particular ways; in other methods, no specific movement is required. The nature and extent of this directiveness varies from method to method. Some methods utilize no directiveness, many methods utilize limited directiveness, and some methods use varying amounts of directiveness in different phases of the same treatment.

It is important to clarify the differences between constraint and directiveness. Constraint describes what the practitioner does not allow the tissue to do. Directiveness describes what the practitioner requires the tissue to do. In both instances the practitioner makes a demand on the tissue: one forbids action while the other is a call to action. Both may be present in the same treatment method with some things being forbidden while others are required.

Relationship to Effort Barriers

In passive range-of-motion testing, tissue is moved to a comfortable end-feel. If the

practitioner's hands are kept relaxed and tissue is moved *very slowly*, the increase in resistance to movement will be felt to be stepwise, rather than a smooth curve. A certain amount of effort is required to displace tissue the first linear or angular distance; then a distinct rise in effort is felt to achieve the next increments of change. This is called the *first barrier*. With a little further displacement, a second distinct rise of force required to produce positional change will be felt. This is called the *second barrier*. A sequence of such barriers will be felt at unequal increments until end-range is reached. At end-range, tissue failure is a possibility, producing pain and damage; do not push into this range.

Some functional methods treat at a first barrier, others treat at forces less than first barrier. Some methods utilize barriers in mid range between first barrier and end feel. Recoil is always done at barriers greater than the first and may include near end-range.

End-range is of various types. In mobility testing any tissue, whether a joint or stretch in soft tissue, there is a distinct anatomic limit beyond which healthy tissue cannot be displaced without pain and/or damage. For some joints, such as extension at the elbow, this end feel has a distinct bony feel. For other healthy joints and soft tissues, there is a gradual incremental rise of force required to produce movement. At the end, a larger increment of force is required and produces little movement. In tissue that is fibrosed, edematous, or both, the effort required to move through the range will be felt to be greater than normal. In that case, there will be a less sharp rise to end-feel, and rather a more gradual or boggy increase of effort.

If there is conscious or unconscious guarding of an area, attempts by the practitioner to produce movement will provoke active muscular contraction opposed to the practitioner's intended movement. This may or may not be accomplished by a perception of pain on the part of the client. When guarding is observed, a slower testing speed may produce movement without muscular guarding or pain; if not, the nature of the end-feel is noted and it is recognized that anatomic end-range has not been found. Exploration of and possible reduction of guarding may now become treatment goals.

The incremental rise in force required to produce movement is typical of composite

substances. Imagine a piece of a pure synthetic rubber, where all molecular components are of essentially the same kind. When this is stretched or compressed, a graph of force versus displacement will be fairly smooth, usually with a substantial, nearly linear central portion. If, on the other hand, the same synthetic rubber was polymerized around a mass of Lycra fibers, the force-versus-deformation curve of the new composite material now has three distinct stretch and compression ranges: rubber, Lycra, and the surface interface between rubber and Lycra. The force-versus-deformation curve of this composite substance will show distinct steps as each aspect is engaged. Human tissue is quite complex in its composition, including connective-tissue fibers of various elasticities, as well as other components; it therefore exhibits a multistep force-deformation curve.

Centralizing (Hoover) Technique

Concept: In some techniques tissue is loaded to a first barrier. In other techniques, a load greater than first barrier is applied. In *Centralizing Technique*, tissue is stabilized to a specific position rather than to a specific barrier.

Pretest: Observe alignment in the person's body both locally and globally. Test range of motion in the area to be treated. It is vital to know the starting place both in the big picture and locally.

Therapeutic method: Test each dimension separately and note the location of the first barrier. Then stack the tissue to the geographic center between barriers in each dimension. One might think stacking tissue to a geographic center would return the tissue to the original position, but this is not the case. As an example, excursion to a first barrier may be six millimeters superior and two millimeter inferior. Within this eight-millimeter range between opposite first barriers, the geographic center is two millimeters superior from the original equilibrium point. The force required for stabilization is low since this is a sub-first-barrier technique, however absolute stillness must be maintained.

Completion and repetition: Once the geographic center has been found, stabilize the tissue at this point until a release is felt. This will be felt as a generalized spreading and softening of tissue. Often, but not always, this will be a large release. Once

a release has occurred, the new resting equilibrium point will have shifted and the location of the barriers will have changed. These may be re-tested to establish a new centralizing stack. A single treatment may produce satisfactory mobility. Two or more cycles of treatment in the same area may be required to produce satisfactory mobility. It is important to be sensitive to any hint of inflammation arising and when it is present to stop, avoiding overtreatment.

Post-Test: Observe alignment and test range of motion. Point out change to client.

Application: This method may be applied to most structures. Centralizing Technique is a big hammer. It will free up almost anything. Occasionally someone becomes enamored of Centralizing Technique and makes it a mainstay of his or her practice, but this is like hitting everything with a sledgehammer whether it is a railroad spike, framing nail, finish nail, or tack. Most tissues that are currently the primary restriction can be released with other less powerful techniques. Still, it is useful to have a big hammer in the tool kit, as occasionally it is the tool of choice.

Contraindications: Never apply this method to the pancreas, spleen, eyeball, or other fragile tissue.

Six-Factor Model as Applied to Centralizing Technique

Tissue Engagement: Tissue engagement is created entirely by the practitioner's volition and action. In this treatment method, unwinding phenomena are not only not utilized, but suppressed.

Force: In the exploratory phase, first barriers are found but not exceeded. In the setup phase, the force applied is distinctly less than first barrier. At the release, application of force dissolves and contact is promptly broken by the practitioner.

Speed: Speed of movement of the practitioner's hands in the exploratory and setup phases is slow. Once the therapeutic setup is established, there is no movement of the practitioner's hands, and unwinding of the client's tissues is forbidden. As the tissues release, the practitioner's hands are removed at a moderate pace.

Constraint: Throughout this technique, tissue unwinding is opposed and forbidden by the practitioner. Once the setup phase is established, constraint is high in the sense that no tissue movement is permitted;

however, the force required to maintain this constraint is low. The release at the end is fully allowed, signaling the prompt removal of the practitioner's hands.

Directiveness: In the exploratory phase, the tissue is moved in the several cardinal or physiologic directions by the will and action of the practitioner. In the setup phase, the tissue is moved by the practitioner to a very particular location and loading. Once this loading is established, there is no further direction given to the tissue.

Relationship to Effort Barriers: In the exploratory phase, first barriers are found in three or more dimensions, however loading to those first barriers is only transient. In the setup phase, forces applied are distinctly less than first barrier. As the setup phase is maintained, precise forces unrelated to, but generally less than, first barrier are applied as needed to counter and prevent any attempt of the tissue to unwind. At the moment of release, the resistance against which the practitioner has applied load dissolves, followed promptly by the practitioner breaking contact.

Endnotes

1. I highly recommend John Lewis' new definitive biography of Still: *A.T. Still: From the Dry Bone to the Living Man*. Available at www.atstill.com.

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The Effects of a Meatless Diet

By Owen Marcus, MA, Certified Advanced Rolfer™
with Ammi Midstokke, MBA, NTP

Editor's note: The subject of diet and the consumption of animal products can elicit strong opinions. The following article represents the viewpoint of the authors and is not to be construed as an endorsement by the Rolf Institute®. It is presented in order to stimulate thought about factors that may or may not affect our work.

Note from Owen Marcus: I want to thank my good friend and client Ammi Midstokke for adding her brilliance to this article. Ammi is an elite athlete and amazing nutritionist who's busy helping many of my clients up their level of health.

Back in the 1970s, I remember hearing that Dr. Rolf wouldn't work on vegetarians and thinking that was strange. Did she have something against vegetarians?

According to Harvey Ruderian¹ – who trained with her – Rolf, with her biochemistry background, believed that being a vegetarian would cause problems for a Rolfer's body over time. Ruderian says he has strong memories of Ida's comments on Rolfers being vegetarians, "probably because I started out vegetarian and so my ears perked up whenever she made her random comments on the subject." He recalls her saying, "While it may seem to work out for a while, after about seven years the integrity of the soft tissues, especially around the joints, will begin to break down, and I'm not going to take responsibility for those injuries, and I'm only teaching students who can do this work for many years." He goes on to quote Rolf as saying something like, "When people are vegetarians for many years, their tissues will lose the hydration and substance necessary to maintain the structure. It begins to feel like clay that has the wrong mixture of water and keeps settling each time you try to give it shape."

He also tells this story: "During a dinner with Ida when I started to pass the lamb after taking only the vegetables, she said to / lectured me that she did not believe, from her research, that simply combining amino acids from different sources would necessarily ensure that they would combine to form a healthy and strong triple-helix protein molecule – and certainly not the integrity in the collagen necessary to withstand the discipline of Rolwing® [Structural Integration (SI)]. She used a metaphor I've never shared – it seemed a bit strange: 'Just because an Arab and a Jew get married doesn't ensure that they will have a happy relationship in society.'"

Ruderian ends his memories of Rolf's views on vegetarians by saying, "I remember her saying that she did not work on vegetarians for all the above reasons." And he added another comment: "I was at my dentist this morning, who is very much a Weston-Price-oriented practitioner [who] pushes oils and fats and paleo-type eating for healthy teeth and gums. I asked him about vegetarians and his main comments were that their gums bleed easily from lack of collagen, and they get receded gum lines. Also, that after some years their teeth begin to get vertical ridges from lack of fats and [their] teeth get soft."

Turning to my own experience, when I had a clinic in Scottsdale, Arizona, the referrals we received from holistic doctors were most often patients with unresolved, complicated issues. When the issue was chronic stress, we were very successful. When the reason for not getting well was protein and essential fatty acid deprivation, we could do very little unless the clients started eating quality animal products. I recall one client, a professional runner and silver-medal winner, whose tissues were not consistent enough to be effectively worked on with Rolwing SI. She had little muscle tone, and there was chronic inflammation of the tissues. I eventually had to discontinue sessions because the work was ineffective.

Often, low animal-protein consumption accompanies low-fat consumption. Vegetable oil is becoming a less-favored source of oil. Coconut and olive oils remain the preferred non-animal source for fatty acids, and while these are both good ways to augment a nutrient-dense diet, they are not adequate as a sole source of essential fatty acids. There is less incidence of protein deprivation today, even among vegetarians and vegans; responsible vegetarians and vegans can mitigate protein deprivation with a varied and nutrient-dense diet.

More research on the health benefits of good fats is becoming widespread. The trend of the ‘paleo diet’ and versions of this ancestral eating style has also led to increased education and a shift in the area of vegetarianism and responsible meat-eating.²

Despite that, we still have protein-deprived (or generally malnourished) clients coming to our tables. Often, they do not know that some of their issues can be due to diet. In these cases, we can share our concerns and suggest education and consultation with a nutrition specialist.

Signs of Protein Deprivation

Let’s look at the signs of protein deprivation.

Lack of muscle tone: You can usually spot the lack of muscle tone when the client walks into your office. His skin is pale. Once you touch his tissue, it can feel like you are touching a less-than-full water balloon – there is not much resistance, at least superficial to your touch. Often, under the atonic layer there is a hard, dehydrated layer. The client may complain about “loose fat.” In many cases, it’s not adipose tissue or cellulite, it’s muscle that hasn’t had sufficient fatty acids and protein to maintain its structure. A protein-starved client is like a client on a long-term fast. The body’s vital organs are the priority and, therefore, muscles, skin, hair, and nails can eventually be cannibalized in order to survive.

Low energy: Rarely do I find vegetarians exhibiting a real vitality. It might take a few years to show up, but eventually their lack of tone mirrors low vitality. Without meat, these clients are eating a lot of carbohydrates that break down into glucose that causes inflammation, blood-sugar dysregulation, and endocrine imbalance. When these issues become chronic, we also see tendencies toward caffeine and sugar addiction, which only further compound the problems. These clients are more vulnerable to stress and illness. When I begin working with clients who have started eating meat again, I often have them come in once per month because they need more time to integrate, rest, and build up after a session.

Other losses: Beyond decreased muscle mass, these clients contend with hair loss, brittle nails, and a loss of density in bones and teeth. As Weston Price, DDS proved a hundred years ago, refined carbohydrates contribute to a loss of mineral content and

an imbalanced body chemistry. The more sugar consumed (and remember, brown rice breaks down into mostly sugar), the more damage.

Difficult sleep: Sleeping requires fat, a long-lasting fuel, and the body’s ability to process it. Your sleep is where your body needs all its nutrients to rebuild and repair. Poor sleep is self-perpetuating because the fatigue makes one crave simple carbohydrates for quick energy. This can lead to hypoglycemia at night and a restless sleep as your adrenals begin to send the hormone signals to break down muscle tissue into glucose for energy.

Premature aging: The chronic lack of a macronutrient has a major effect on longevity. With poor tissue quality we see greater: wrinkles; gray skin; lack of luster and color in the hair, as well as textural changes and hair loss; and skin pigmentation.

Chronic pain: These are the clients most vulnerable to fibromyalgia. Synovial fluid deficiency causes joint degeneration. There is a higher incident of injuries and much longer recovery times. Some clients don’t ever recover because they don’t have the protein to rebuild the tissue. The increased carbohydrate intake can compound the inflammation.

Chronic hunger: These clients don’t feel satisfied until they are filled up on breads, pastas, grains, or sweets. Because of this, they are needing to snack throughout the day. Their fuel burns quickly, which often leads to them being cold, having feelings of listlessness due to low blood sugar, and irregular moods.

Brain fog: The brain needs essentially fatty acids and a stable energy supply for clear thinking. Because, like many of these other symptoms, brain fog sets in slowly, it’s not noticed. It’s not old age that is causing it, it’s diet. Sometimes a limited diet will contribute to allergies to certain foods (corn, gluten) and further contribute to toxicity in the brain.

Weight gain or weight loss: Some of my vegetarian clients were slender; other were overweight. Often the difference was determined by the quality of sugars and carbs they ate. I saw a higher incidence of edema with these clients.

Emotional irregularity: All of my vegetarian clients were highly functioning men and women. With a few I saw that there were

tendencies to depression that I linked to chronic fatigue and possibly post-traumatic stress disorder. Just as the physical body was down, so was the emotional body prone to being down. Many of these clients have more than the normal amount of disassociation. They are less aware of their bodies and their emotions. They will usually be unaware of the impact that not eating meat has on the body and the mind.

It doesn’t make sense that a person would slowly starve himself. Most of my clients never had anyone explain to them what is happening to their bodies or what they can do. Of those who begin to eat meat again, the majority will start seeing benefits within a month. A few don’t want to have this discussion. I respect their beliefs, but I tell them they hired me as their body/soft-tissue expert and, as such, I feel I need to tell them that not eating meat is harming them. This blunt conversation works with a few.

As a metaphor, I wonder what self-deprivation represents. Why would a person starve himself when he is capable of eating any food he wants? The literature on vegetarianism can support a healthy vegetarian diet and in most cases the client has informed himself accordingly. But for some, the strictly vegetarian/vegan diet will not serve their health in the long run.

Solutions

Ayurvedic doctors will prescribe the medicinal eating of red meat. They may recommend four ounces per day for two weeks. Red meat is the most acidic, allowing it to penetrate into the tissues more readily. Any animal protein will do, but I tell my clients that red meat will produce the most benefit per ounce. Organ meats are the rocket fuel of protein. In some traditions, they are used to decrease the time needed for healing. Fish, poultry, pork, and insects will all work. I have never seen a plant-based protein do the trick. Many vegetarian clients have tried every protein source but animal with no results. Dairy and eggs can be great add-ons with specific benefits, but they won’t do what meat and fish do.

Collagen powder is becoming popular as a super food. I’ve used it and have recommended it to my protein-deficient clients for quicker tissue healing. I prefer to ingest it than have it injected.

For vegetarians who begin to eat meat it is useful to take a good digestive enzyme

and Betaine HCL to help prime the pump so they can digest the meat the body hasn't seen in years. One incentive I use is vanity. That worked particularly well in Scottsdale, the land of silicone. A client losing hair will do almost anything to get it back.

I encourage Rolfers to use their eyes and hands to be the judge of clients' tissue quality and determine what possibly is missing. I initially resisted the idea that meat was the missing link for many of my clients. When I started to suggest it as a possible solution and saw results, I became convinced. Let your clients' reaction be the determiner.

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Ammi Midstokke practices Nutritional Therapy in North Idaho. Her clinic specializes in autoimmunity and chronic disorders. When she is not saving the world with vegetables, she can be found running the trails of the Rocky Mountains.

Endnotes

1. Private email communication with Harvey Ruderian, 2016.
2. We realize that there is a wealth of research to argue for or against meat. We encourage you to use your own experience of Roling SI to determine what works best. For more reading on this, here is an article on the importance of meat: <http://breakingmuscle.com/nutrition/why-all-humans-need-to-eat-meat-for-health>.

Reviews

Fascia in Sport and Movement, by Robert Schleip and Amanda Baker, Foreword by Thomas W. Findley (Handspring Publishing 2015)

MELT® Method DVD (Longevity Fitness Inc. 2015)

Review by Szaja Gottlieb, Certified Advanced Rolfer™

All theory is gray, my friend. But forever green is the tree of life.

Goethe

The publication of *Fascia in Sport and Movement* is a seminal moment as the newfound exploration of fascia shifts from research to application. Although they come from different publishers, *Fascia in Sport and Movement* can be considered a companion to *Fascia: The Tensional Network in the Human Body*, which was published in 2013 and presented the most important findings from the previous Fascia Research Congresses (FRCs) in 2007 and 2011. Both are edited by Certified Advanced Rolfer Robert Schleip, who is now a prominent scientist at the University of Ulm (Germany) and one of the world's leading researchers on fascia. Schleip's new offering gives the reader an up-close view of how recent fascia research is seeping into all manner of somatic practices. This transition to application was reinforced by Connect 2013: Connective Tissue in Sports Medicine, a congress held in 2013 in Ulm. The DVD set of this conference includes twenty-three presentations, many of which overlap the articles in *Fascia in Sport and Movement*, is available at <http://fasciadvds.com/fascia-and-sports-medicine-dvd>.

Fascia in Sport and Movement is comprised of twenty-five chapters, divided into two sections, the first appropriately entitled Theory (ten chapters) and the second Clinical Application (the remaining fifteen). Each chapter is an article by an expert in his field. The initial theoretical portion is a review of the relevant aspects of recent fascia research upon which the second half of the book is based. These articles cover a variety of subjects related to fascia such as fascia as a tensional network, fascia as a sensory organ, the physiology and biochemistry of fascia, and fascial myofascial force transmission. The second part examines various movement and exercise modalities in the light of

this research such as walking, running, dance, yoga, Pilates, Gyrotonic®, and weight training in the form of kettlebells and clubbells.

The bridging articles between clinical ideas and practical application are the last chapter in the theoretical section, "Facial tissue in motion: Elastic storage and recoil dynamics" by Robert Schleip, and the first chapter in the application portion of the book, "Fascial Fitness" by Robert Schleip and Divo Müller. It is this latter article, published in 2011, then subsequently republished in a number of journals, including this Journal (Schleip and Müller 2011), and subsequently voluminously referenced, that seemingly has become the touchstone upon which every discussion of how to train fascia is based. Presenting scientific evidence as to the unique elastic properties of fascia and its critical role as a modulator of kinetic energy, Schleip and Müller then propose specific movement practices to enhance fascial health, in the same manner as weight-resistance training is used to build muscle. This article launched a new field – now referred to as fascial fitness – and, I must add, a new certification.

The second half of the book is thus an encounter between old practices and new information and ideas, stimulating deep re-examinations of assumptions around well-known and accepted modalities. The mat exercises in Pilates, for example, need considerable revamping, by adding elastic recoil and multi-directionality, according to Elisabeth Larkin in her article "Fascia Oriented Pilates Training" (Chapter 13), in order to reframe Pilates exercise as fascia- rather than muscle-oriented. Yoga in the minds of many is synonymous with stretching but, according to Joanne Avison in "Fascial Form in Yoga" (Chapter 12), what is important in yoga is not stretching but balancing tensional relationships in the body using squeeze and release techniques to amplify elastic recoil. Of the three, Gyrotonic, sometimes referred to as 'yoga for dancers', is lauded as the best choice when it comes to training fascia. Gyrotonic's three-dimensional approach and focus on elasticity, flexibility, and coordination most completely fulfill the goals of fascial fitness, according to Stefan Dennenmoser in his article "Training fascia in Gyrotonic methodology" (Chapter 14).

If nothing else, the articles in the second half of *Fascia in Sport and Movement* serve

as a primer as to how to think about the effects of movement and exercise on fascia. The articles fascinate and educate. Some examples: “The Secret of Fascia in the Martial Arts” by Sol Petersen; “How to Train fascia in Dance” by Liane Simmel; “Plyometric Training, Basic principles for competitive athletes and modern Ninja warriors” by Robert Heiduk; and “How to train fascia in football coaching” by Klaus Elder and Helmut Hoffman.

Training and movement programs, especially those aimed at fascia, always involve loading of the tensional network, which begins a process whose goal is reorganizing and remodeling collagen fibers. This critical process involved is referred to scientifically as mechanotransduction, which Stephen Mutch in his article “On Myofascial Force Transmission” (Chapter 2) describes as “the process of conversion from the stimulus of mechanical loading to cellular response.” In other words, changes in structural tension stimulate complex biochemical responses within the fascia, including the cell, the fibroblast, and outside the cell, the extracellular matrix (ECM), which results in collagen remodeling.

The question that hangs unanswered, however, is just how much loading of fascia is beneficial and just how much is injurious. This question applies to overtraining as well as rehabilitation. Even more troublesome is the problem of scarring, which Stephen Mutch in his article “Athletic Coaching” (Chapter 21) describes as the evolutionary price for survival following a wounding. All in all, the healing process, whether the goal is repair (rehab) or improvement (training), turns out to be very slow and complex. First off, collagen repairs at different rates in different parts of the body. Collagen in the Achilles tendon, for example, is the slowest in the body to renew, two to three times slower than muscle fiber. The renewal speed of the body-wide fascial network is quite slow in and of itself, measured in months and years, rather than days or weeks. The recommendation concerning fascia-specific training is for no more than two to three times a week, according to Schleip; and thus, permanent change in the body-wide fascial network takes two to three years. Of particular importance to the manual therapist is that the benefits from a collagen remodeling process – let’s say a Roling® Structural Integration (SI) session – will not show up for thirty-six to forty-eight hours, and one can expect the client to possibly feel worse at the onset of the process.

The primacy of movement, however, is unmistakable. The similarities between training fascia for performance and engaging fascia to remove pain are hard to miss. Pain and performance seem to form one continuum, which leads to the striking conclusion that movement is ‘normative’ (my term), meaning that movement is integrative, maintains structural resilience, prevents myofascial problems, and potentially heals ailments without intervention.

The article that best exemplifies this concept is Certified Advanced Rolfer Adjo Zorn’s brilliant article “Elastic Walking” (Chapter 17). Zorn, who is also a faculty member at the University of Ulm, has been studying and writing about the role fascia plays in the mechanics of walking. Previously, in 2011, this Journal published an article by Zorn, co-written with fellow physicist and Certified Advanced Rolfer Kai Hodeck, entitled “Elastic Walking: the Fascial Engine” (Zorn and Hodeck 2011), which analyzed the mechanics of gait using an inverse pendulum model. This new contribution is the fruit of years of research and exploring the mechanics and importance of gait in relation to structure, a concept already familiar in the SI community. Zorn expounds on critical recommendations related to walking such as, walking with straight legs, take long steps, using the center of the heel, pressure with the ball of the foot, carry the pelvis, elastic breathing, the sacrum, etc. SI practitioners will quickly recognize that his recommendations are identical to the step-by-step (pun intended), week-by-week, results of the Roling ten-session series as expressed in the client’s gait. His article deeply reinforces both the structural change and, perhaps more importantly, the evolution of the client’s movement during the series towards integration. The simple and accessible language of the article belies its depth and provides a secure platform of cooperation between client and practitioner to work towards goals together while striking an easy balance between the structural and the movement objectives of the series. His article powerfully suggests that movement in the form of walking embodies structure, and that therefore fluid movement embodies a highly integrated structure. I strongly recommend it.

I would also like to mention a rather technical but important article entitled “Assessment technologies: From ultrasound

and myometry to bio-impedance and motion sensors” by Christopher Gordon, Piroska Frenzel, and Robert Schleip (Chapter 24). Since there is now common agreement on the importance of fascia tissue, the development of scientific tools to measure tissue density heralds not only scientific advances and discoveries but ways of evaluating fascia by manual therapists and trainers. At the FRC’s Joint Conference on Fascia, Acupuncture and Oncology at Harvard last November there was, it seemed to me, general acceptance of a relationship between fibrosity of tissue, particularly mammary, and cancer. In some future time it is not difficult to envision a health specialist using a Star Trek-like scanner to measure tissue fibrosity in various anatomical locations of a client or patient.

The movement from theory to application in the fascial field has, as I have previously mentioned, spawned a new field of fascial fitness, and the result is a constellation of fascial-fitness modalities. One of the stars of this constellation is the MELT Method, a program created by trainer Sue Hitzmann that utilizes foam rollers and soft spongy rubber balls for self-care. MELT is, by the way, an acronym for Myofascial Energetic Lengthening Technique. The author of a *New York Times* best seller, *The MELT Method*, Hitzmann developed her program in contact with people whose names are familiar in both the fascia research and Roling communities, people such as Robert Schleip, Tom Myers, Tom Findley, and Gil Hedley. When I reviewed her book for this Journal in 2013, I lauded the program but not the sometimes repetitive and unnecessarily personal style of the book. I thought the DVDs would amend those problems. Thankfully, the personal style of the book is gone, and though the repetitive style still persists, I would still highly recommend the MELT DVDs for SI clients, especially if they lack a support system of exercise and movement for the work they are receiving from their SI practitioner.

Research has revealed that fascia is a watery world – at least it should be. The first order of business for repair and maintenance is hydration. The importance of hydration is discussed in Robert Schleip’s important article, “Fascial Fitness,” and he recommends using a foam roller in a sponge-like manner to push water out and allow water back into the fascia tissue. Hitzmann’s system is based on this insight,

her language (gliding, shearing, rinsing, melting) exemplifying such. Besides this physical process of MELTing with foam roller and soft sponge balls, the other half of her program attempts to rebalance stuck stress in three key areas – shoulder girdle, diaphragm, and pelvic girdle – and thus becomes a program of somatic awareness. While I may have some quibbles with her program – there is an absence of discussion of movement and kinetic chains, and I question that a soft foam roller is superior to a harder one – MELT is a complete and potentially very helpful program for SI clients. If you care about your clients' resilience and need to give them a program to sustain your work, MELT is a good choice in terms of self-care, particularly for older clients who need very simple and not overly challenging movement and exercise.

Müller, D. and R. Schleip, 2011. "Fascial Fitness." *Terra Rosa E-Magazine* (Issue 7). Also, "Fascial Fitness: Fascia-Oriented Training for Bodywork and Movement Therapies." *Structural Integration: The Journal of the Rolf Institute*® 39(2):7-13 (Dec 2011).

Zorn, A. and K. Hodeck, Jun 2011. "Elastic Walking: The Fascial Engine." *Structural Integration: The Journal of the Rolf Institute*® 39(1):5-8.

Functional Atlas of the Human Fascial System by Carla Stecco MD (Churchill Livingstone Elsevier 2015)

Reviewed by Allan Kaplan, Certified Advanced Rolfer

Wow, wow, wow. . . I confess I am not the anatomy geek I once was, but this volume really grabbed my attention with the most engaging photographs of fascia yet to be seen. I'd tend to describe it as a cross between a technical anatomy text and a coffee table photo book, but any way you slice it, it's 'fascia porn' at its best.

The text is really the majority of the book, and is comprised of a technically in-depth journey through the body's entire fascial net. The photos are well-lit and generally crisply focused, and many are truly works of art. Occasionally, an inset box with a "Clinical Pearl" will expound on the text with interesting facts and anecdotes. There are also a few well-conceived diagrams scattered about to further illustrate concepts.

While the book's text is extremely comprehensive, certainly the most so I've

seen in terms of fascia, I hesitate to call this book an 'atlas', as it is not a comprehensive guide in the extent of its illustrations and labels. I'd say it is more the most-detailed fascial anatomy text there is, with gorgeous photos to marvel at, some of which are more scrupulously labeled than others. If you're really looking for an anatomy photo atlas, Rohen and Yokochi's *Color Atlas of Anatomy* remains the standard. But if you want to drool over enthralling dissections of fascial planes, Stecco's *Functional Atlas of the Human Fascial System* is the way to go.

Yoga: Fascia Anatomy and Movement by Joanne Avison (Handspring Publishing 2015)

Review by Kate Bradfield, Certified Rolfer™, RYT-200

Let's start by acknowledging that *Yoga: Fascia Anatomy and Movement* is huge – in scope, content, and intention. Joanne Avison has set out on a major task, linking together the history of anatomical study with current fascia research and its practical application to present-day yoga practice. It is no small task. And the reader must have deep curiosity on all of these fronts to get through her book.

I was initially drawn to this book by its cover, wise old sayings be damned. We see an image of a person, in a pose similar to Warrior 2, wrapped in some kind of gauze or nylon tube, almost like a sheer windsock. She slinks her physical form to find the shape of a deep lunge and presses against the fabric that keeps her contained. It's a powerful image. The person looks free in her body, but simultaneously bound. It's like the 'endless web', but seen in an external representation. It made me want to climb into that windsock and start pressing my way out through its resistance. It's a beautiful and weird image.

Avison is a Kinesis Myofascial Integration (KMI) practitioner and teacher as well as the director of the Art of Contemporary Yoga Teacher Training in London. As such, the Anatomy Trains myofascial meridians are woven throughout the book, as are anecdotes of her training and study with Tom Myers.

So much of what she writes about deeply connects to what I have been studying and searching for over the past thirteen years. I first landed at the The Rolf Institute® after having taught yoga for several years. I was always drawn to an alignment-based

practice, and I had come up against a road block as far as how deeply I could dive into anatomy in the context of yoga teacher training. Furthermore, I was developing a curiosity about what I saw in the yoga studios where I taught. I would be flummoxed by one person's ability to move with ease and adaptability from one pose to another, while another student comparable in age, strength, and fluidity would look completely different in all of his shapes and movements. I had rough ideas about why and how this might be, but I wanted to know more. This book would have unlocked that mystery. As it turned out, I went to the Rolf Institute and learned about fascia and the rest is history. But this book should be in the library of anyone who is curious about the human form and how it is able to do what it does, especially in the context of *asana*.

Avison divides *Yoga: Fascia Anatomy and Movement* into three parts: history of classical anatomy and the way that emerging fascia research changed or enhanced all of this; application of this science in *asana*; and finally specific movements and sequences to explore the fascial net. Each section is loaded with information, whether it be scientific, historical, or explorative in the context of *asana*. Almost every page has lengthy margin notes, and the end of each chapter cites many references – from Robert Schleip to Stephen Levin to Japp van der Wal to Tom Flemmons. Many of these names will be familiar to the structural integration (SI) community, but those who come to this book from a different background will have their eyes opened wide to the ever-expanding field of fascia research. Curiously, there is no mention of Ida Rolf anywhere in the book. Perhaps I am biased, but I found this to be odd. Considering Avison's SI roots and the long list of scientists / researchers / artists / doctors included in the historical timeline, one would think that Rolf would have been mentioned. After all, it could be argued that without her, fascia might never have been considered as having any importance!

Those who have been taught that the body is mechanical by nature, linear in form, will have their world turned upside down by reading this book. Avison devotes large sections of her book to biotensegrity, tension/compression, embryology . . . all of the components that can greatly expand a limited view of the body as a series of levers and fulcrums. For this alone, I love this

book. The more we can get our community of manual therapists, physical therapists, doctors – basically anyone who works with healing and the human body – to start thinking this way, the better off we are.

I found *Yoga: Fascia Anatomy and Movement* to be inspirational – not just while I was teaching my weekly yoga classes, but while I was in session at my Roling® Structural Integration office. Having my own understanding of fascia and biotensegrity ‘tuned up’ is immensely helpful in keeping my language with clients fresh and my lens less foggy for seeing the whole body. This is the kind of book that one can pick up and open to any page, glance at the images or read a few paragraphs, and springboard from there. While “yoga” is the first word in the title, this book is by no means limited to yoga teachers or practitioners. Avison covers such expansive territory in the field of fascia research, neural plasticity, and biotensegrity that anyone who works with people in a healing capacity will benefit greatly from reading it. Just be warned: it is a hefty tome!

Advanced Myofascial Techniques, Volume 1 by Til Luchau (Handspring Publishing, 2015)

Reviewed by Allan Kaplan, Certified Advanced Rolfer

Rolfer™ Til Luchau, after many years of teaching at the Rolf Institute® and on his own, has finally produced a book to promulgate information found in his classes. This first volume of a series centers on the appendicular skeleton, containing a selection of techniques drawn from his experience, and is written for trained practitioners and students.

The book’s format is straightforward, and the text is profusely illustrated with both large, high-quality, color photos and Primal Pictures’s crisp anatomy graphics. Luchau has divided the contents into regions of the body, and then focused on addressing areas and issues he finds need attention. Each area is introduced and followed by a variety of assessment protocols and techniques, all clearly described in the text and summarized step-by-step in an accompanying box. The chapters are thoroughly referenced, and followed by a series of study questions. In addition, Luchau provides web links and QR barcodes (read with the appropriate smart phone or tablet app) that link to

videos showing the techniques in motion. Of course, the book is not a substitute for one of the Advanced Myofascial Techniques workshops, but in its thoroughness, it tries to be.

Evidence-Based Physical Therapy for the Pelvic Floor, 2nd edition, Kari Bø, et al., Eds. (Churchill Livingstone Elsevier 2015)

Reviewed by Allan Kaplan, Certified Advanced Rolfer

For what it is, I think this book is a great information resource for pelvic-floor therapy. The editors have compiled a very thorough selection of professional journal research papers related to all aspects of pelvic floor function and dysfunction in women, and some related to men, which provide what appears to be a wealth of knowledge. The selection seems comprehensive, but the depth varied, depending on the scope of the individual paper. But, in the end, I was disappointed; I was expecting more mention of manual therapy and at least *some* attention to manual/hands-on work and technique, but there really was a vacuum in that aspect of the book. However, because of its scope, *Evidence-Based Physical Therapy for the Pelvic Floor* can stand as a good stepping-off point, with which one may first get a solid foundation, and then fill in the gaps with other sources.

In Memoriam

Structural Integration: The Journal of the Rolf Institute® notes the passing of the following members of our community:

**Sherri Cassuto,
Certified Advanced Rolfer™**

**Jan Rizzo,
Certified Advanced Rolfer**

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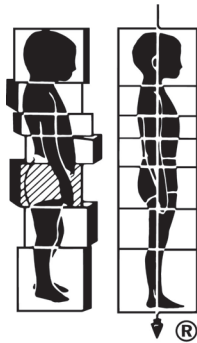
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