

Inter-Faculty Perspectives

Integration: How Do We Define It? How Do We Assess It? Where Do We Place It in the Ten Series?

By Kevin Frank, Rolf Movement® Instructor and Ray McCall, Advanced Roling® Instructor

Introduction

The term *integration* is embedded in how we define the work of Roling Structural Integration (SI). Is there agreement about its definition? We can frequently use a word, and not necessarily stop and ask what we mean when we use it.

Questions around this topic:

- What does ‘integration’ mean, generically, and what does ‘integration’ mean specifically to SI?
- How does the concept of integration fit into the formulation of Dr. Rolf’s Ten Series or ‘Recipe’?
- How might integration help link our work with current neuroscience and motor control theory?
- How does integration get assessed through the Ten Series and are there things our community can learn about how to evoke and recognize integration?
- What does coordination have to do with integration?

Common definitions for the word ‘integration’ use phrases like: “pieces working together as a whole,” or “fitting together to make a whole.” To apply the idea of integration to Rolf’s Ten Series, how

does ‘putting things together’ fit into the logic and sequence of the work?

Traditional Views of Integration at RISI

At the Rolf Institute® of Structural Integration (RISI), one view of integration is that the first seven Roling sessions prepare the client to integrate in sessions Eight, Nine, and Ten. The advantage of this idea is that it allows you to concentrate on differentiation in sessions One through Seven with less pressure to do integration until later. You have time to observe your client’s responses to the work before attempting to enhance the integrative process. It also works to your advantage if you are teaching, because you don’t have to ask the students to think about integration until later. The disadvantage to this idea is that you may do more differentiation than necessary, if you don’t take time to give the organism an opportunity to reflect the work back to you – to integrate. You run the risk of working contrary to Rolf’s opinion on the topic:

This is the important concept: that Rolfers™ 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 into the domain designated by the word ‘education’ . . . From the first day we see a client, we are putting him together, we are integrating him. We integrate him at the end of his first hour, at the end of the second, third, fourth, fifth, sixth, seventh and eighth. At every hour before that man or that woman walks out the door, we should have integrated him to the place where he has the best, most efficient use of his system that he can have at that level (Rolf 1978, 40).

Over time we may hear Rolf’s words differently. Is our relationship to “putting him together” the same as it was last year? Five years ago? Thirty years ago? Time and experience can affect how we view integration, its role, and its importance. Additional questions help unpack the topic so we can reflect on how we feel about it.

The ‘Integrate at the End of Each Session’ Idea

Congruent with Rolf’s words about integrating “at the end of [each] hour,” integration is often considered the part of a session in which a client receives neck work, a pelvic lift, and seated back work. The client gets to feel more complete; the repeated ritual signals closure; the neck, sacrum, and back are emphasized – these elements feature the spine (axis) as central to integration. In teaching, this idea makes sense to students. This strategy has served the work over many decades. It focuses on integration as something we *do* to the client. However, finding out what a particular client *needs* to integrate is less considered.

Integration as Pre- and Post-Intervention Diagnostic Tests

Some instructors teach an approach that uses pre- and post-intervention diagnostic tests. The practitioner either moves segments of the client’s body, or observes motion in segments of the body, or palpates motion to find any restrictions on which to work. Then, after an intervention, s/he again palpates motion to see if the restrictions are still present. Pre- and post-intervention tests constitute a logical and understandable strategy. This strategy encourages practitioners to be precise, and to keep track of what the goal is for each manipulative step. Some diagnostic tests involve a small voluntary movement, while others require more effort from the client, such as initiating movement while

seated or standing. Do diagnostic tests rise to the threshold of assessing integration? Let’s leave this as an open question as we continue to consider what constitutes integration.

Integration as Manipulation/ Movement that Crosses Two or More Joints

Students of Rolf’s work learn that ‘integration’ is defined as work that involves movement through two or more joints. The concept is attractive, in part, because it is concise. Certainly, as a manipulative strategy, working across multiple joints invites the practitioner to open his/her vision to consider what connects to what, and to also look at how well the body expresses continuity of motion through multiple joints.

Many Useful Definitions – Is There an Overview?

As with all our ideas about integration, each formulation may not necessarily provide an overview of what integration means, how it occurs, how much work is needed, or when to intervene. This article invites inquiry into the larger picture of what we are doing that constitutes integration, and perhaps more importantly, what the client is doing that constitutes integration. How do we see, feel, or find out what the client is integrating at both conscious and unconscious levels?

Integration As the Primary Goal of Our Work

Another view, congruent with Rolf’s quote (above) and headed in the direction of an overview, is the idea that if the work doesn’t integrate, no change has been achieved. Unless the work is incorporated into the client’s system, SI has not occurred. This possibility lends urgency to the questions: What is integration? How/why does it occur? How do we determine if it has occurred?

Answering questions about how and why integration occurs begins with asking what does integration look like? What is this elusive ‘put together’ phenomenon? Many of the elements that are contained in the aforementioned ideas about integration hint at a further idea, an idea that links the world of motor control and neuroscience to what structural integrators do. This idea is that *integration is revealed in changed patterns of coordination*. When we see or feel a new, more successful pattern of coordination, we are witnessing the expression of integration. Coordination, in this context, means *motor*

pattern – the selection and sequence of motor units recruited by the body to orchestrate movement. The orchestrated expression of movement is *signature to each individual* and, at the same time, can be generally sorted into categories.¹ To illustrate the ‘integration as coordination’ idea, let’s review some common coordinative hallmarks of integration, ones that tend to find common agreement in our community.

Hallmarks of Integration

What expressions of movement are content-rich? What are movements that all of us observe during most sessions – ones that are commonplace and obvious? Movements that we might agree reveal coordinative change? Every encounter with a client includes some of the following movements: walking, sitting, sit-to-stand, and stand-to-sit. Most sessions involve supine-to-sit. These are moments of coordinative expression, and further moments in which integration can occur and be noticed.

Walking is a particularly complex set of movements; it is central to human behavior (we are the only bipedal mammals), and it reveals many coordinative elements: stability, axis/appendicular differentiation, degree of upper and lower trunk rotation, degree of hip extension, and palintonicity, among a long list of criteria. Most of our clients are ambulatory, although some require assistance from a walker or cane. Walking has many sub-parameters that students can learn to see, find agreement about, and then describe in standardized written or verbal observations.

When someone walks, what does ‘more successful coordination’ look like? In the past two decades, growing consensus has emerged in the SI community that contralateral gait is a reliable indicator. It really cannot be faked, and when it is present in a client, it is obvious. Integrated contralateral gait has a range of expressive characteristics that include: rotation and counter-rotation of the trunk; the sense that the pelvic and shoulder girdles ‘disappear’; the axial and appendicular skeletons move independently, and the axis relates directly with the extremities leaving the girdles ‘quiet’. Palintonic expression is enhanced – we see/feel the body finding ground and sky simultaneously. The limbs look ‘limby’ and free to swing. The spine’s curves and gravity centers are responsive to shifts in velocity and levels of demand. These hallmarks of successful contralateral coordination

represent an expression of integration. Further detailed measures of contralateral gait include Keen's (2007) formulation of Godard's 'Three Chains' (an interpretation derived from Gracovetsky's analysis of kinetic energy from the feet to the spine; Godard 2002, Gracovetsky 2001). Gait, alone, is a rich source of integrative indicators.

Other common movements to consider are: 'push', 'reach', 'lift', and 'pull' with either the upper or lower limbs, or a combination of both, while standing or seated. (Reach, push, lift, and pull movements can, in our work as in life, be unilateral or bilateral.) What does a 'push' or 'reach' or 'lift' or 'pull' movement show us? The Principles of Intervention (Maitland 2016) offer a guide to what 'successful' movement or 'successful' coordination looks like. Observing those movements, we can ask the following questions: Does the movement show support, adaptability, continuity and palintonicity?² Further, do we see the beginnings of bidirectionality/eccentricity in the axis before the movement begins? [Eccentricity is another term similar to palintonicity – the expression of two opposite directions at the same time. Advantages of the term 'eccentricity' (expansion away from the center) are the implication of 'three-dimensionality' and the convenience of its opposite, 'concentricity' (Frank 2014).] Do we see eccentricity in the limbs and appropriate primary stabilization in the girdles – quiet normal stability – or do we see a tendency toward efforted, secondary stabilization? (Frank 2010). There are many parameters to use as metrics for successful coordination.

Can such metrics find a natural home in each step of the Ten Series? It's a question for each practitioner and instructor to contemplate in the context of the work. What is a practical way to begin to answer that question? Fortunately, some Roling students learn a movement assessment test that uses push and reach for the upper and lower girdle – a test that offers a procedure for assessing integration.

A Concise Example of Integration – the Wall Test for Session Eight

Some Roling instructors utilize the Wall Test as a diagnostic tool when teaching sessions Eight and Nine in the Ten Series, and also in the post-ten Three Series. It is a way to evaluate the relative ability of a client to reach and push with each of the girdles.

Session Eight traditionally poses the question "Which girdle should one address first (in session Eight) and which girdle can be postponed (until session Nine)?" Rolf taught students to use a test (nicknamed the Crest Test) where the practitioner does a small amount of fascial work on or near the crest of the ilium, then assesses how the client looks when s/he stands up. Many structural integrators learn this test, which focuses on postural response to a fascial intervention, in basic classes. The newer alternative, a test of integrated behavior that has come to be known as the Wall Test, is a test to determine which girdle is the correct one to work on first, and which will also improve order in the other girdle. The Wall Test was introduced by Hubert Godard as a way of determining which girdle – shoulder or pelvic – expresses more support, adaptability, palintonicity, and continuity.

An advantage of defining integration as coordination is that many elements have to 'integrate' to allow for change. A series of interventions occurs, the body shows you a movement behavior, and the behavior reflects how each input has found a place in the body's catalog of coordinative capacities. You look at coordinative capacity, and you can infer something about integration. One can test prior to the session, at the end of a session, at the beginning of the next session, or after several months.

The Wall Test Procedure

The setup for a basic Wall Test (see Figure 1) involves an adjustable bench and a wall to push against. The client is seated with feet flat on the floor, but with toes, and also the hands, pressed against a wall. The practitioner puts his/her hand on the back of the client at the level of the transition between the lumbar and thoracic spine (the lumbodorsal hinge or LDH) to monitor what occurs in the spine. The client is asked to "extend the hands through the wall," and the practitioner makes an assessment as the movement is performed. After releasing the hand press, the client is then asked to "extend the feet through the wall," and again, the practitioner makes an assessment. In each instance the practitioner senses for eccentricity/palintonicity in the spine – an expression of stability from head to tail. The movement asked for is, semantically, a combination of a push and a reach. ('Extend' implies a movement that, although literally a push, involves some feeling quality of a reach.)



Figure 1: Setup for Wall Test.

Integration means that the isometric action of the hands/arms/shoulders, or feet/legs/pelvis, occurs with a level of competence in the whole body.

Particular elements that contribute to integrated behavior include the following: sensory receptivity in the hands and feet; grounding/loading and eccentricity in the feet and rami; ample orientation and security in the upper pole (the head); linking of hands and feet to segmental articulation of the spine; primary stability response in the spine/trunk; and primary stability in the girdles (pelvic and shoulder). Looking deeper, other contributions include four-way directionality of the feet – which means that the bones of the foot (cuboid, navicular, toes, and talus/calcaneus) express eccentricity and sustained support – and lines of abductive and adductive support in the legs/thighs/pelvis that work together in balance. In addition, one likes to see forearm eccentricity, so that the radius 'reaches to the world' and the ulna expresses 'belonging to the ground' or to the 'lateral space'. Further, the jaw is free from the cranium; there is a balance of interoception and exteroception in overall body awareness; the attentional field of the body is omnidirectional – an expression of the body's peripersonal space occupying front and back, side to side, as well as above and below. Additionally, the client and the practitioner both notice a sense that the body maintains a feeling of volume and

spaciousness throughout, especially in the trunk, head, and pelvis.

For purposes of a basic class, the Wall Test, taken at its most fundamental level, is a leap forward in the direction of defining and demonstrating *degrees of integrative behavior*. The test is done before and after a session, so a student discovers how to measure the degrees of integration by palpating the spine while the movement occurs. Ideally, students are introduced to the experience of a maintaining a seated posture with active hand and foot support, and to some version of push and reach movements, well before session Eight. If seated push/reach exploration comes early in the Series, students realize behavioral change matters. Students also start to gain the capacity to find a collaborative relationship with the client – a relationship that is about providing support for the client's discovery and personal exploration, which helps lead to moments of success during sessions.

Do We Teach to the Test?

How soon, in a Ten Series, does integration start? Each practitioner or instructor will have an individual response to that question, such as, when does s/he first look to see if a client owns what is presented? Might integration begin in one's first conversation with the client, or in the manner in which a client learns to accept the touch of the practitioner, or in the client's descriptions of how the touch feels as sensation? Might not the moments after a mobilizing touch be a time to observe what the body 'says back to us'? How much does curiosity itself generate an implicit invitation that encourages a client to integrate, to digest, to notice the experience?

More specifically, if we know that the Wall Test will occur in session Eight, what might we think about in sessions One, Two, and Three, for example, that prepares the client for integrated behavior in the later sessions? Do we take a bit of time to invite ownership for the orientation process, and for mobility of the chest, in session One? For the connection of feet to spine in session Two? For the capacity to find ease in sit-to-stand and stand-to-sit in session Three? Marking these moments through reflection of the client experience – what clients feel and how they make meaning of each step – is explicit support for integration.

Is it possible to help 'prepare' the client to meet the Wall Test (meaning to introduce closed-chain push and reach experiences

while supine, prone, sidelying, seated, and standing)? Can these sorts of integrative lessons fit efficiently into the time constraints of a Ten Series? Is there a place for these elements in teaching the Ten Series in Basic Training? The likelihood this form of innovation will occur rests most probably on the comfort level of the instructor – his/her comfort and familiarity with coordinative nuance.

Integrative Strategies Don't Have to Be Fancy

The fact that coordination is hugely complex, and involves timing and sequencing of motor units at a speed and proliferation that is beyond thought, may make a practitioner hesitant to attempt it with clients. However, integration that leads to change in coordination is often prompted by simply asking, "How do you notice weight right now?" or, "Is it possible to feel a little bit of softening in the contact between your hand and the wall?" or "What do you imagine might entice your reach, right now?" Quiet observation that allows the client to drop into his or her experience of the moment can be enough to foster subsequent change in the coordinative pattern of walk, push, or reach.

Strategies can progress at an appropriate pace for each client. Some primary examples: cognitive awareness that hands and feet connected to the spine reduces the effort when pushing and reaching; and imagining two opposite directions, almost anywhere in the body, tends to improve eccentricity in the execution of a movement.

How Much Do We Do? How Far Do We Go?

How much is too much? Integration is an invitation, not a performance contest. Bodies respond best in their own rhythm and pace. We must honor that rhythm and pace – if we exceed it, the results are not optimal.

How much integration belongs in each part of a Ten Series? How much do we encourage a client to explore in a session versus at home or in daily life? Clearly, there is no formula. Some clients appear to own the work and embrace coordinative challenge enthusiastically. Others may, at first, be shy about trying out integrative movements, or even accepting an invitation to reflect on their sensory experience or their felt sense. We must slowly learn the pace of integration in different people's systems, and allow for the chance to let the

client 'learn', rather than 'reform' as Rolf's quote (above) suggests.

If we demonstrate with our own body the before and after – the less integrated and the more integrated version of a movement – do we inspire the client or intimidate them? We have to determine what is appropriate in each situation.

On the other hand, if we are going to test integrative behavior in session Eight, might it not be useful to introduce some elements of seated push or reach in earlier sessions? There are many ways to do this, including simply adopting strategies that use the hands and feet more often in the series; hand participation in seated back work, for example, or feet participation against a wall surface for table work.

Does Integration Make Our Work (SI) Structural?

What does the word *structural* mean? There are many definitions for the words 'structure' and 'structural'. A *structural* engineer typically works on buildings and bridges, rather than electrical circuits which are typically the domain of an *electrical* engineer. *The Merriam-Webster Dictionary* (1995 edition) states that 'structural' means relating to "the physical components of a plant or animal body." This is a literal notion of structure, one that emphasizes focus on the physical components of a construction and how they are arranged, like the blocks in Rolf's 'Little Boy Logo'. These definitions are akin to Maitland's (2016) structural taxonomy, the SI taxonomy, which emphasizes looking at physical/tissue components and thinking about them in relation to their relative positioning in the body. The anatomy-as-structure paradigm is, of course, useful in training a practitioner.

Typically, students and clients are directed to think of SI as primarily or exclusively focused on arrangement of the physical components of the body. How does this emphasis, as of 2016, enhance or impede thinking about the integrative process that is the goal of our work? There can be honest debate on this point, but it is time to ask: Could this question, in fact, become a living element within SI education?

Meanwhile, let's note other definitions of the words 'structure' and 'structural' that have stood the passage of time.

One definition, quoted now and then in the SI community, is the one formulated

by Karl Ludwig van Bertalanffy, an Austrian biologist who founded General Systems Theory in the 1930s, a science that inspired other modern sciences including cybernetics. Van Bertalanffy (1952, 134) stated about structure and function: "What are called structures are slow patterns of long duration; functions are quick processes of short duration."

Van Bertalanffy's work led directly to Norbert Wiener's formulation of cybernetics – the science of self-governing systems. Wiener's words (quoted by Rolf) include, "We are not stuff that abides, but patterns that perpetuate themselves" (Rolf 1977, 15-16).

Rolf says about structure, ". . . *structure is behavior . . .*" (Rolf 1977, 31).

These latter definitions point to structure as something *more* than just a mechanistic idea about parts that are arranged a certain way. Rather, in systems, especially living systems, structure means *how the system predictably behaves as a response to specific conditions*.

Kelso (1982), in *Human Motor Behavior: An Introduction*, proposes the term *coordinative structure* – the body's acquired coordinative sub-routines that allow the body to function in a broad variety of ways without having to assemble, from scratch, a means to do so (each time that a different motion is called for). Kelso's ideas are consistent with systems theory and consistent with Rolf – a use of the term 'structure' to mean that which determines behavior.

What types of structure do we think about when we think about integration: geometric arrangement of parts or tendencies of behavior? The style of a Ten Series, and the narrative offered students and clients, is affected by the degree of emphasis afforded to each definition. Understandably, the history of Rolf's work has tended, up until now, to emphasize the arrangement or alignment of physical parts.

Daniel Siegel (2010), the neuroscience author and psychiatrist, says about integration: "Defined as the linkage of differentiated components of a system, integration is viewed as the core mechanism in the cultivation of well being . . . These integrated linkages enable more intricate functions to emerge." Siegel points out that a system integrates when its components are differentiated, and when the components develop links to each other;

differentiation and linking are directly related to integration, and integration enables more intricate functions to emerge. Integration, so defined, is something that students can be asked to see emerge in the client in a broad variety of forms – behavior means a broad spectrum of phenomena, but *tangible phenomena*, nonetheless, when framed as *behavior*.

From a biological-systems point of view, a structural change is a change that reveals integration, and conversely, integration is perhaps the most important sign of structural change. Differentiation and linking is not a mechanical process, though. Differentiation and linking is ultimately a process that happens in the client – in the client's motor system. It is, hopefully, facilitated through artful fascial mobilization and somatic education; and, ironically, sometimes *in spite of* well-intentioned ministrations by the practitioner.

Integration Across Multiple Measures

Cottingham and Maitland (1997) showed how, in treatment of a patient with low back pain, a pattern of coordination in sit-to-stand ultimately and significantly shifts toward greater ease and symptom relief (along with improvements in standard physical-therapy measures) during a session in which instruction in pre-movement turns out to be the key intervention.³ Along with the more standard measures, vagal tone also improves significantly, indicative of autonomic nervous system integration. The agreement across multiple variables, in conjunction with coordinative improvement, lends weight to the idea that integration is, optimally, a comprehensive 'putting together' – a holistic 'putting together'.

Integration: An Ongoing Inquiry

What might we want to tell students about integration? What skills might we encourage students to learn in order to foster integration during the Ten Series? It could be helpful to begin by asking students to reflect on what has been helpful in *their own* integrative experiences.

What might we introduce into the Ten Series in terms of explicit exercises/explorations that focus on integration? A start would be for students to learn how to invite a client to notice his/her own experience. Another helpful ingredient would be to include integration as an explicit discussion topic.

Additionally, to ask where are the obvious moments in which 'push' and 'reach' fit into the Series.

Are there ways of illustrating integrative outcomes in each session? Instructors most likely already do this in some fashion. Optimally, integrative outcomes are demonstrated by the instructor, as well as contrasting between 'before' and 'after' conditions, so as to ground the integration idea in specific changes of coordination.

Discussion about integration – what are the varieties of ways we can encourage and assess it; the timing of its introduction into the Series; the relationship between what we, as structural integrators, think about it, compared with what researchers studying the brain and motor control think about it – it's a topic ripe for our field.

Kevin Frank is a Certified Advanced Rolfer™ and a member of the Rolf Movement Faculty at the Rolf Institute®. He writes and teaches about perception and coordination in the context of SI. His private practice is in central New Hampshire.

Ray McCall has a master's degree in structural linguistics. He completed his basic Rolfering certification in 1978 and his advanced certification in 1981. He joined the Rolf Institute faculty in 1997. He teaches Basic and Advanced Trainings and continuing education workshops both in the U.S. and overseas. He has served on the Board of Directors of the Rolf Institute and numerous faculty committees. He is currently on the Faculty Development and Review Board. Ray has also trained to instructor level in biodynamic craniosacral therapy. He is interested in how change happens and how form manifests out of the formless. He is also interested in making really old cars look really good and go really, really fast.

Endnotes

1. Research studies reveal that as few as seven points of light attached to joint locations of a body moving in a dark room are sufficient to allow the observer to identify who the person is who is moving. Human beings recognize coordinative patterns, inherently. Students of SI learn quickly to see the contrast between coordinative patterns of lesser and greater ease and success. A source for viewing a biometric demonstration of this capacity can be found at www.biotionlab.ca/Demos/BMLwalker.html and an article describing this capacity can be found at <http://jov.arvojournals.org/article.aspx?articleid=2192503>.

2. The Principles of Intervention (Maitland 2016) are intended to capture the underlying elements that make integration of structure possible. *Support* means the body registers support, either from places of physical support, such as through the hands and feet and pelvis, or via supportive factors such as vital contact with the spatial context, or support from psychological factors that assist in establishing security; *Adaptability* means the capacity to adapt to physical and psychological demands in such a way as to not undermine ease of function; *Continuity* (a subset of Adaptability with elements of Palintonicity) means that there is an unimpeded sequence of eccentric events in the body's response to demand; *Palintonicity*, a word from an ancient Greek philosopher named Heraclitus, denotes the bidirectional sense expressed by the body – two opposite directions leads to a feeling and appearance of 'unity of opposites', or to a feeling or appearance of eccentricity (away from the center), an opening and space-creating event; *Holism* means we consider the body/mind as a system and the system behaves most intelligently when each part of the system affects all the other parts, and is, in turn, affected by all the other parts, which is not far from the definition of integration by Daniel Siegel (2010). *Closure* means the client can sustain the changes – quite relevant to the topic of integration.

3. 'Pre-movement' is an important concept for SI. Pre-movement is the automatic preparation the body makes prior to movement. For example, before one lifts one's arm, postural muscles contract to anticipate the change in weight distribution that will happen next. Or, before we inhale to take a breath, the postural muscles prepare to compensate for the concentric action of the respiratory diaphragm. These are gross examples, but there are pre-movements of perception that nest within pre-movements of posture, and the topic of pre-movement has many layers of consideration. What occurs in pre-movement is part of the motor pattern and largely shapes motor-sequence choices that the body makes as it executes the movement itself. Changing pre-movement is a feature of SI, and sets it apart from other systems of postural change through the combination of fascial mobilization and perceptual intervention; both of these allow the body to make different choices in pre-movement, and that, in turn, leads to different motor patterns for meeting the

situations encountered in life. In the world of motor-control science, the term used for postural activity that anticipates movement is 'anticipatory postural adjustment' or 'anticipatory postural activity' – APA for short (Frank 2004, Frank 2006, Santos et al 2010).

Bibliography

Cottingham, J. and J. Maitland 1997 Sept. "A Three Paradigm Treatment Model Using Soft Tissue Mobilization and Guided Movement-Awareness Techniques for a Patient with Chronic Low Back Pain: A Case Study," *Journal of Orthopedic Sports Physical Therapy* 26(3):154-167.

Frank, K. 2014 Dec. "Rolf Movement® Faculty Perspectives: The Craft of Teaching Eccentricity of Function." *Structural Integration: The Journal of the Rolf Institute®* 42(2):2-4.

Frank, K. 2010 Dec. "SI Psoas Intervention Considered in Terms of Normalized Stability Response in Hip and Trunk Flexion," *Structural Integration: The Journal of the Rolf Institute®* 38(2):33-43.

Frank, K. 2006. "Articulated Perception, Articulated Structure: Building the Sense of Other in Structural Integration." *The 2006 Yearbook of Structural Integration*, Missoula, Montana: The International Association of Structural Integrators, pp. 61-67.

Frank, K. 2004 Apr. "Tonic Function: Gravity Orientation as the Basis for Structural Integration." *Hellerwork News*, pp. 16-18.

Godard, H. 2002. Lecture notes of Kevin Frank from course taught by Godard in Holderness, New Hampshire.

Gracovetsky, S. 2001. "Analysis and Interpretation of Gait in Relation to Lumbo-Pelvic Function." Presentation to the 4th Interdisciplinary World Congress on Low Back and Pelvic Pain, Montreal, Canada.

Keen, L. 2007. "Gracovetsky's Chains – Contralateral Walking." Unpublished class handout.

Kelso, J.A.S. 1982. *Human Motor Behavior: An Introduction*. New York: Psychology Press.

Maitland, J., 2016. *Embodied Being: The Philosophical Roots of Manual Therapy*. Berkeley, CA: North Atlantic Books.

Rolf, I.P. 1978. *Rolfing and Physical Reality*, R. Feitis, Ed. Rochester, Vermont: Healing Arts Press.

Rolf, I.P. 1977. *Rolfing: The Integration of Human Structures*. New York: Harper and Row.

Santos, M., N. Kanekar, and A. Aruin 2010 Jun. "The Role of Anticipatory Postural Adjustments in Compensatory Control of Posture: 2. Biomechanical Analysis." *Journal of Electromyography and Kinesiology* 20(3):398-405.

Siegel, D. 2010. "About Interpersonal Neurobiology." www.drdansiegel.com/about/interpersonal_neurobiology/ (retrieved 7/30/16).

van Bertalanffy, L. 1952. *Problems of Life*, Mansfield Center, CT: Martino Publishing.