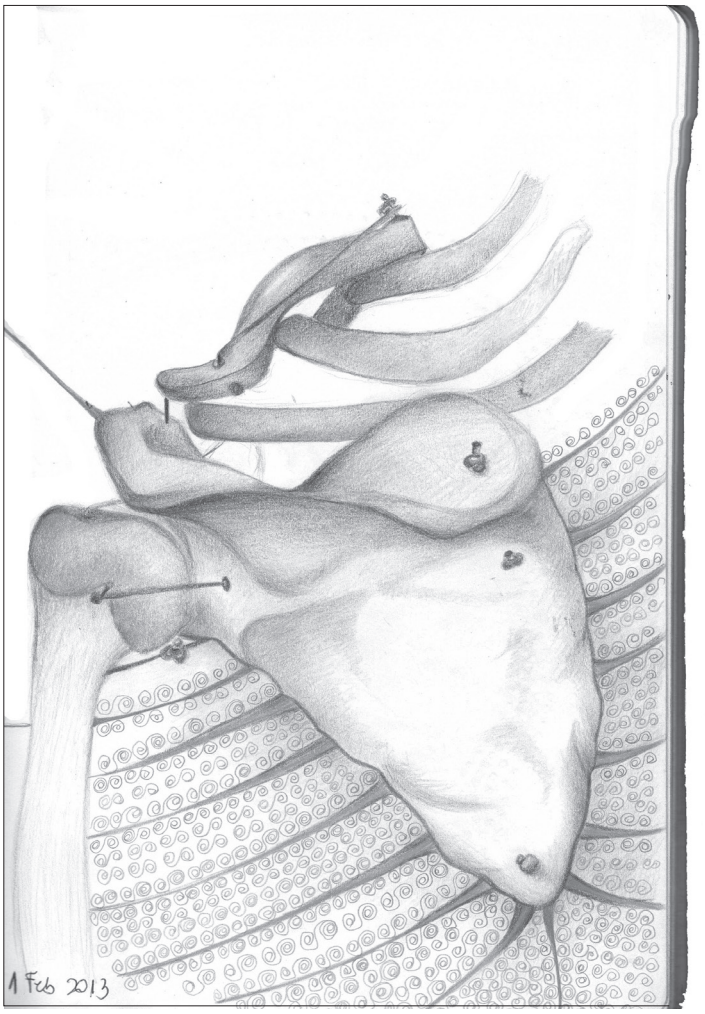
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The Feldenkrais Journal

number 28

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Letter from the Editor

Dear Colleagues,
This issue of the *Journal* is the product of a new organization for which I am most grateful. At the beginning of the year, Helen Miller and Matthew Zepelin volunteered to act as Assistant Editors and they have generously contributed many hours of thoughtful attention, creativity, and vigilance. All seven members of the Editorial Board worked with articles and authors to bring you the best of the best. Everything good about this issue is a result of their efforts.

As usual, our community dazzles with its diversity of interests and energy. You'll find a number of articles telling the stories of practitioners helping individuals in this issue—glimpses into the intimate, unique relationships that Feldenkrais practitioners build. In a similar vein, you'll find stories of working with our canine companions. Two articles celebrate exploring new areas of study: working with children and studying human gait. We are reprinting a timeless article written by Yochanan Rywerant and previously published elsewhere. And, we are publishing a first person account of the Method not working as desired, an article sure to evoke strong feelings.

The process of putting together this issue of the *Journal* began almost a year ago. Although there have been periods of intensive work, there was also a fair amount of patient waiting required, while ideas matured and expression evolved. Those pauses offer opportunities for reflection, and sometimes, a challenge to sustain attention. For those of us who work on the *Journal,* the pace of the exercise, extended over a year, is an opportunity for a different kind of management and attention. As our group learns to work better together, part of the task is learning how to enjoy and husband the time we have to produce the *Journal.*

Unlike most media in modern life, the *Journal* comes to you only on paper and only once a year. Your reading of the *Journal* can be leisurely; there's plenty of time for considered reflection. I hope you'll share some of your reflections on the articles that follow. You can become part of the process and share your reactions to articles with a letter to the *Journal.*

Or commit your own ideas to paper by writing an article to share with your colleagues. The next issue will be an Open Issue, so you can write on any topic. I've had requests for articles about using Feldenkrais with athletes, about how to build and improve the business side of a practice, how to work with clients in chronic pain, and how to solve communication problems with clients. Could you write on one of these topics? Or come up with something completely different. You can submit your creations to me and the Assistant Editors anytime up until April 1, 2016.

Sincerely,

Anita Noone

Ines's 78th Birthday Present

Eytan Mandel

On February 8, 2012, Ines came into my office in extreme pain and agony, unable to breathe. The chiropractic treatment she had gotten earlier made it all even worse. Her story included a left-knee replacement a few years earlier with a recommendation to have the other one replaced as well. She refused to have the surgery, as the tibial component of the operated knee had loosened. Changes from the feet to the spine also caused right shoulder pain. To add to all this, her dentist had recently done work that caused pain from her false teeth. And because of that, her jaw and neck hurt.

As usual I asked her to find the most comfortable position lying on the table.

Slowly she turned to her right side and arranged herself with the right palm supporting her right cheek, knees bent one on the other, as comfortable as she could be in the terrible state she was in.

I realized that this Functional Integration session could NOT include movement, as there was not a single part that did not hurt! So I sat on the table behind her next to her pelvis, and I put my right hand on her iliac crest and my left hand on her greater trochanter—touching, sensing, not moving, but definitely supporting.

We were silent, sad, and sore.

I could feel her tremor of pain under my fingertips, and I felt sorry for her prolonged suffering. So I offered her the best and only thing I could think of in this dead-end situation—namely, my support.

I had to pay attention to my self-organization. I corrected any parasitic effort that showed up in my shoulders, face, breathing, legs, feet, toes, and, of course, my lower back—taking all into consideration in my side-sitting twisted position.

To an outsider it might have looked as if nothing were going on. But I did tiny movements in the direction of side flexion, and the person I touched was very much aware under my palms.

I thought of other things I maybe should or could have done, yet I kept returning to the thought: "Acceptance." Having that in mind, I kept on doing just that with a small addition of "effort substitution."[1]

After 35 minutes in the same position, suddenly Ines took a deep breath, one which involves all and says it all.

She smiled at me and said, "Thank you. I feel much better. Did you know? It is my birthday today. You gave me a present. Now I can go home and celebrate with my family."

"Mazel-tov," I said. "See you next week."

When she left I sat for a few minutes and reflected with amazement on what had just happened. Here was yet another proof of the gentleness, kindness, and greatness of our Method.

NOTE

1 Effort substitution: ". . . very gently bring the ends of those muscles ("origin" and "insertion") towards each other. By this gentle support, the teacher substitutes his effort for part of the effort of that subsystem, presenting it with the opportunity to relinquish its own effort." Yochanan Rywerant, "Self Image and Function: An Experience with Moshe Feldenkrais," *Somatics,* Spring/Summer, 1994—reprinted in this issue of the *Feldenkrais Journal.*

Self Image and Function: An Experience with Moshe Feldenkrais

Yochanan Rywerant

Reprinted from the journal *Somatics* (Spring/Summer, 1994)

> *A voluntary action is preceded by the image one has of oneself performing that action.*

It is easy to verify this by observing ourselves. The time sequence "image before action" is easy to observe when we look at an action that calls for some planning—the action is perhaps new or unusual, or we might have some reason for hesitating to start it. In such a case, the two stages present themselves distinctly enough to be recognized.

We may ask whether this situation has any practical value. The image of the pattern of action that is going to be performed has its *engram* encoded somewhere in the conscious part of our central nervous system. It serves as a blueprint for the action. As such, it could be useful for judging the possible outcome of the action, its feasibility, and its risks. Sometimes the decision will be to postpone the action, or even to refrain from it altogether.

The more common instance is when the performance of the action is starting. At this time, a flow of sensory impulses (involving various sensory modalities) originating in ourselves and in the environment also starts as a result of the action. These sensory impulses are recognized, interpreted and integrated into a unified picture about what is happening while we are acting. This sensory information, or feedback, is of the utmost importance.

It enables us to monitor our actions and their outcomes, to compare the continuously emerging picture with the blueprint of the action mentioned before, to diminish the possible mismatch between the blueprint and the image of the ongoing action by changing (correcting) the action ("negative feedback"), to go on, or to stop. In other words, the feedback enables us to have conscious control of our actions.

Moshe Feldenkrais, in developing his system of learning, has emphasized very clearly the importance and the role of the pre-action images in voluntary actions. A complete self image would involve full awareness of all the joints in the skeletal structure as well as of the entire surface of the body—at the back, the sides, between the legs, and so forth. This is an ideal condition, and hence a rare one. We can all demonstrate to ourselves that everything we do is in accordance with the limits of our self image, and that this image is no more than a narrow sector of the ideal image.[1] Our image is formed through familiar actions in which approximation to reality is improved by bringing into play several of the senses that tend to correct each other. The possibility of a pause between the creation of the thought pattern for any particular action and the execution of that action is the physical basis of awareness. This pause makes it possible to examine what is happening within us at the moment when the intention to act is formed as well as when it is carried out. The possibility of delaying action—prolonging the period between the intention and its execution—enables man to learn to know himself.[2]

Our self image comprises more than just a static picture, like a photograph, or the way we see ourselves in the mirror. To this static aspect of the self image we should add a most important dynamic aspect, namely, the way we see ourselves potentially acting out various patterns of action. We might prefer those patterns which are somehow integrated into our way of acting; not only do we know the context in which such action seems feasible, or even habitual, but we also might anticipate the sensory input (or information) that comes with our action. Those anticipations make our patterns of action into what they are: habitual, matter-of-course, and without

special effort or conscious control. On the other hand, we might avoid the unknown, the untried or the unhabitual patterns, and even more so the ones associated with a sense of inability, inadequacy, discomfort or pain. A negative expectation associated with a pattern of action keeps us from considering the possibility of acting it out, unless we muster enough courage or curiosity to do so. When not carried out, such a pattern of action will ultimately cease to be part of our self image. In adverse conditions, in other words, the self image is reduced in the sense that less is feasible now than has been before. This could happen after injuries and operations, when health problems are present, when environmental conditions are constricting, etc.

In the Feldenkrais system, a person tries unhabitual actions in a safe environment, and is directed by the teacher to take notice of the sensory input that comes with the action so that the anticipation of sensory input will ultimately become part of the pattern of action.

Let me give two examples. With the pupil in a prone position, the teacher might, by touching, find some excessive tonus in the pupil's back muscles. This might also display itself as a stiff back. When this situation is not voluntary, but is rather controlled by a system of the central nervous system not readily open to conscious control, then the teacher can use the idea of "effort substitution." He could just very gently bring the ends of those muscles ("origin" and "insertion") towards each other. By this gentle support, the teacher substitutes his effort for part of the effort of that subsystem, presenting it with the opportunity to relinquish its own effort. When this happens, the pupil will feel more at ease to move his pelvis or his chest relative to each other, since the abdominal muscles might relax as well as the back muscles. Any considered pattern of action involving movement of the trunk will now have its pre-action image coming with an anticipation of "easy effort," quite different from the previous state.

The other example involves the idea of "relative conjugate movement."[3] Let us consider a movement in a particular joint, a movement that is an element of a pattern of action. Generally, a movement in a joint could be performed in at least two ways: by moving the distal body part (the one that is farther away from the center of the body) and leaving the proximal part (the one closer to the center) motionless, or the other way around—keeping the distal part motionless and moving the proximal one. (Other ways, where neither part is stationary, are possible.) One particular way might be the more habitual of the two; usually it will be the one in which the distal part moves. When it is habitual, the sensory anticipations are already established, so much so that they could be considered part of the image of that pattern of action.

On the other hand, when there are negative anticipations coming with the image of the action, such as a sense of inability, inadequacy, discomfort, or pain, the pattern will be avoided, possibly falling into disuse and eventually no longer being a part of the self image. In such a situation, the teacher might try the "relative conjugate movement" by proposing to move the proximal part while keeping the respective distal part motionless. That pattern, different from the avoided one, might perhaps be free from negative anticipations (or any anticipations, for that matter), and might therefore be allowed. Now comes the distal part's turn to be moved relative to the proximal one. If this is done gradually, not intrusively, the pupil might accept it. In other words, he becomes consciously aware of the change and his self image expands.

In order to illustrate this with a practical example, I will recount a unique story. It is unique for two reasons: first, it shows that the changes happening in someone's self image (its deterioration and restoration) can be really dramatic, and second, the person in question was Moshe Feldenkrais himself, so his description of what occurred to him has a special trait of authenticity.

In the beginning of 1982, Moshe Feldenkrais returned home to Tel Aviv, shortly after undergoing a major skull operation for a subdural hematoma. The operation had been successfully performed in Switzerland, and Feldenkrais had remained there for an appropriate convalescence. Now that he was at home, he wanted to regain the physical ability to work on people giving Functional Integration sessions as quickly as possible.

I worked on him three times a week, giving him Functional Integration sessions. What struck me immediately was a deterioration of the relationship between head and trunk. I knew that wonderfully organized neck from before the operation, and Moshe's old ability to move his head with the greatest of ease in all possible directions. Now, the head seemed to be strongly connected to the shoulders; head and trunk appeared as one rigid unit. I didn't feel like trying to move his head against this holding pattern. After all, one is supposed to be (consciously or otherwise) self-protective after a major traumatic experience such as a serious skull operation.

What I did instead was use the idea of the "relative conjugate movement." Moshe was lying on his back and I took his left arm in my hands, moving it up vertically. I checked to what extent he would allow me to lift his left shoulder off the table. By allowing this, he actually allowed a change in the relationship between head and shoulders. Moshe had no difficulty with this. It seemed that he was not self- protective in relation to his arm and shoulder. He hadn't been operated on there, had he?

The next step is to "integrate" this, in other words, to provide to Moshe the sensation of the practical usefulness of the shoulder's movability. With one of my hands I supported Moshe's right knee diagonally towards the middle of the body, and with my other hand I took his left hand and helped him to reach out for that knee. While doing this, he left his head "hanging down," supported only by the table. After lifting the right shoulder in a similar way, the other diagonal was established as he reached out with the right hand toward the left knee.

Now, with Moshe in this position, I could place my hands underneath his shoulder blades and play with them, alternately lifting them gently.

Then again a crucial step: after lifting the left shoulder the same way from underneath, I kept it there and put my other palm on Moshe's forehead. Now I allowed the left shoulder to lower itself on the table, while I simultaneously rolled the head to the left. I had to be very precise in keeping the head shoulder configuration steady (non-differentiated) so that no expectation of "danger" might be elicited. The movability of the head had been accepted!

It was now easy to make the transition towards moving the head relative to the left shoulder, in other words, in a differentiated way. Other approaches also in other positions were tried allowing this line of thought.

Feldenkrais stood up, and was silent for a few moments. Then he said, "You know what you did to me? You restored my neck! Since the operation, I felt myself like this!" While saying this, he repeatedly made a movement with both hands around his head and shoulders, indicating a silhouette without a neck, and showing by this the outline of a head planted directly on the shoulders, "and without a place for the mouth!"

"And now, I feel again my true image, like *this.* With a *neck* and a *chin."* This time he outlined the silhouette of the rehabilitated self image, the wide head, narrower neck, and then the shoulders.

The story exemplified, of course, the interrelationship between a person's way of functioning and that person's dynamic self image. But the story's poignancy lies in the fact that it proves that changes in the dynamic self image—in both directions—can be very dramatic. A dramatic restriction in the way of functioning can produce an immediate restriction in the self image, and a dramatic enhancement of the way of functioning can produce an immediate enlargement of the self image. The latter is equivalent to more readiness to learn about more patterns of action.

NOTES

1 Moshe Feldenkrais, *Awareness Through Movement* (New York: Harper & Row, 1977), pg. 21.

2 Ibid., pgs. 22-23.

3 Yochanan Rywerant, *The Feldenkrais Method* (New Canaan, CT: Keats Publishing, 1983), pgs. 70-76.

My Journey with Dystonia and the Feldenkrais Method: Beginning a Discussion on Contraindications for Aspects of Our Practice

Lisa M. Burrell

I am writing this article on my personal experience with dystonia and my journey through a Feldenkrais training program and beyond to broach the topic of contraindications for techniques within the Feldenkrais Method of somatic education. In my experience, the notion of contraindications is not yet a central part of dialogue and education in our work. As this Method evolves, and as we come to know more about the various ways Feldenkrais Method affects the brains and the nervous systems of individuals with a growing variety of physical, chemical, pathological, and other issues, we need to begin more critically to examine the application of aspects of our practice.

Many Feldenkrais practitioners I have encountered over the last five years believe that because this work is gentle, slow, small, goes with the pattern rather than against it, and is about smoothness, ease, and comfort, it is not possible to "hurt someone" if we continue to work within these parameters. We trust that by thinking about function, finding the easiest path, and creating more movement choices where we find limited options, we are always providing people with the tools to learn and improve.

I entered my training asymptomatic of any serious physical or neurological issues. I am a musician and a pedagogue, and my interest was in improving my work with musicians. Though I had experienced some very early symptoms of a focal hand dystonia a few years before, I thought I had successfully eliminated my problems by reexamining my alignment and other aspects of my playing. I finished my training in December, 2013 having developed a full-blown generalized dystonia: new symptoms, and a mysterious, progressive unraveling that seemed to begin after a Functional Integration (FI) lesson in my first weeks. I continue to struggle with this condition today.

Briefly, dystonia is a movement disorder involving abnormal muscle contractions and postures. It is currently believed to result from faulty self-regulation throughout the brain and nervous system. The word refers to the state of abnormal (dys–) muscle tone (–tonia), causing muscle spasms that can affect one muscle, a group of muscles, or the whole body.

My unintended experience has been a puzzling, frustrating, but ultimately an important study of the concept of "plasticity gone awry," as Sandra and Matthew Blakeslee begin to address in *The Body Has a Mind of Its Own*.[1] My hope is that, in the future, more knowledge about underlying self-regulatory problems, which may not be evident at the outset of our work with clients and students, might emerge from sharing this experience. Positive discussion of this and related topics may well prevent situations similar to mine.

Before I share my story with you, I want to emphasize that my interest is not to spark a debate about what happened or what should have been done differently. Instead, I am calling for discussion on the issue of contraindications—a discussion based on my own and others' personal experiences, work with clients and students, research, and an ongoing process of scrutinizing and rethinking the work we do as part of our continuing education as a community.

I love this Method and the positive ways it helps meet people's unique needs. I am now a practicing member of this community, and I would like for my experience and, perhaps, the puzzling and individual encounters of others, to begin to build a repertoire of new ideas on this subject, a repertoire that will continue to evolve our thinking. I hope that we might teach and learn from each other what we can offer in training programs, what new information is available to deepen our understanding of the Method, and how to make it safer and more effective for our many and varied clients.

MY DYSTONIA AND ITS REMISSION

I am a violinist. About seven years ago, I started to feel some symptoms of what I came to know as a mild focal dystonia in my left hand. At first it was just the hint of a strange sensation in my fingers when I played passages with particular sequences of repeated finger movements. Then one day, toward the end of a very long day of rehearsals, I was playing a passage of this kind of repetitive material. When the pattern ended and I tried to continue playing the next phrase, my fingers would not stop moving in the old pattern. I thought about playing the new material, and my fingers managed it half way, but the old pattern also continued, so I was stuck; everything just froze! This episode only lasted for a few seconds, and then even the strange sensation disappeared with rest.

Over the next several months, however, such episodes occurred with increasing frequency. They also began to last longer, and I began to feel more and more tension in my fingers and hand as my body compensated to stop the repeating movements. I found that I could make myself stop the excess movement and continue playing, but at a cost of increasing tension and fatigue. Even playing easy material felt difficult and forced, though I did not lose control of my fingers.

When it became evident that this problem would not go away, I talked with a couple of string player friends who had started studying with a Taubman Method pianist in New York. They told me this teacher had been able to help many musicians find ways to work around the movement patterns involved in focal dystonia. When they caught the dystonia early enough, many of her students were able to shift into remission. I was encouraged and went to see this teacher. I played for her, demonstrating the kinds of patterns that produced the most tension, and she quickly identified the problematic movements. I remember her saying, "This is a diseased movement, and you need to erase it from your playing and from your life." She said that each time my fingers, hand, and arm moved in these gestures, I was reinforcing and growing the dystonic pattern in my brain. She said it was like walking a path over and over again until it cut so deep into the ground that it would be very difficult to climb out and start another path. If I could avoid taking the path before it became too deeply carved, and find new ways of moving without using the same sequences and muscle groups together, the original path would become overgrown, and I would find it less and less difficult to avoid.

There are some clear relationships between her work and what we do in the Feldenkrais Method. She helped me find a new alignment in my hand and arm so that my fingers did not have to move so independently; she helped me find ways to play with new support so that, with concentration and awareness, it was possible to completely avoid the original sequences; and she showed me how my fingers and hand were also adopting these damaged movement patterns away from the violin, such as when I typed, held a drink in my hand, or scratched my head. The movements that seemed to evoke the problem involved allowing my fingers, particularly the pinky and ring fingers, to extend backwards and curl in a way that was not connected to the flexion and extension in my hand. I was moving them in an isolated way, but also twisting and moving into more extreme ranges of motion, because I was not able to connect the movement to anything more proximal.

To eliminate the possibility of this movement sequence, she helped me to discover paths of movement around the problematic ones, and also to avoid a number of ways of using myself that had gradually become linked to that sequence in my brain. I had to avoid breaking the connection in my wrist, keep it in the middle of its range of motion at all times, never differentiate in my fingers beyond a minimal range, never isolate a finger in adduction or abduction beyond whole hand movements, and never "curl" my fingers by flexing and extending them at the same time. The plan seemed rigid, but not impossible, and it was worth a try considering the success she had had with this disease in others. It took extreme vigilance, but over the course of only a couple of months, I was gradually able to eliminate the old patterns in my playing and in other parts of

my life. I found myself less drawn to them, and I found the tension seeping away and a new ease entering my playing. I was aware of fine distinctions in discomfort related to the old patterns and could slip into the new movements when I felt even a hint of the old cycle. I noticed that some of the mild discomfort I had experienced over the years in my shoulder and back also started to disappear. In time, and to my excitement, my playing actually became easier and freer than it ever had been before.

Because of the rapid and palpable success of this experience, I started to turn my teaching toward injury prevention and rehabilitation, emphasizing awareness and alignment. I was interested in ways to teach safer technique that would benefit musicians, whether or not they were predisposed to neurological injuries. I emphasized alignment and stability, and the ability clearly to feel connections from distal to proximal in order to improve ease and efficiency. I was playing better and better, not just because I had eliminated the patterns connected with the dystonia-like symptoms, but because those habits were problematic to begin with, and eliminating them was making everything more accessible. This new way of working was noticeably successful with my students, too, and teachers began sending me their own students with unusual problems. I was driven by my own success in healing and improving myself through focused attention; my reading on the subject brought me to the Feldenkrais Method. Seeing its similarities to the ways in which I had been directed in my self-exploration, I wanted to learn how to apply this knowledge to students in ways that met their individual needs. After a year and a half of dystonia-free playing and teaching, I enrolled in a Feldenkrais training program.

ENTERING A FELDENKRAIS TRAINING PROGRAM

When I started my training in May, 2010, things took a different course almost from the beginning. Although I remained cautious about the old movement patterns, I felt confident about the potential in this work to increase my awareness and to build on my successes. I had begun to learn to sense myself on a deep level and was looking forward to more, and to finding ways to teach this to my students more effectively. Concerning the old dystonia patterns, I imagined from my work the two previous years that if I did not actively engage these pathways and did not isolate the movements that had caused the problems, I would be fine.

In the second week of my training, however, I had my first-ever Functional Integration (FI) lesson and my first taste of the mysterious and complex way my dystonia pathology and aspects of this Method could wreak havoc on my body through a seemingly benign process of learning. I remember that my FI lesson was about continuing to establish a stronger, clearer connection through my spine to my arm and hand so that I could find even more new options for avoiding isolated movement in my fingers. This is what I was interested in. Much of the lesson was about gaining more differentiation between my spine and my shoulder blade and in my ribs and thorax so that I could connect in many ways and at many angles through my arm to my fingers. Although I did not understand a lot of it at the time, this is what we discussed, and it felt smooth, easy, small, and gentle throughout; when I got up, I felt very relaxed, and my shoulder and arm hung about an inch lower. Over the next few hours though, things began to change dramatically. I started to feel as if a rubber band were pulling my arm up and into my shoulder. When I took my violin out to play a few notes that evening, I immediately felt an all-out tension in my hand and arm, as I had two years before at the end of the rehearsal. Now I also felt pain and tightness that radiated up my arm and all around my shoulder blade.

For the next couple of weeks, I lay low, thinking I had unknowingly triggered something after the lesson when I was so relaxed. I took some time off from playing, and I did only what I thought were the smallest, easiest movements from Awareness Through Movement (ATM) lessons. I did a lot of gentle arm, hand, and shoulder movement lessons to encourage some softening and

release in the places that were locking down so hard. I read a lot in Feldenkrais's books, listened to recordings of ATM lessons from different sources, and I tried to feel myself on a deeper level in these places. I wanted to understand the habits that must have created these patterns. I worked on going slower and smoother in everything, doing less, eliminating anything that felt like effort, and observing my thoughts and emotions. Each time I did a lesson where I found I could achieve some new smoothness and release, I felt almost a click, like a connection, and a sensation of pleasant relaxation. I looked for more ways to differentiate and to find new movement possibilities, because the sensation of release grew quite addicting. I did lessons in small parts until I found that sensation of sudden ease and clear direction, and then I would sometimes stop and try to explore the components of the new direction which felt so free and compelling. I thought I was finding a better way of moving, a new and better choice, because it felt so good, and every other possibility seemed like such effort. Many times in FI lessons, too, the practitioner or student would follow that sudden change of direction because it was so clear, and there was stronger resistance in other movements.

The problem was that each time I got up from these explorations of new and greater differentiation, I started to lock down into a tightening pattern. The lockdown also began gradually to affect more of my body and to happen more quickly. Contrastingly, many times when I did lessons that involved much effort on my part, even to the point of discomfort, I seemed to emerge relatively the same as when I began. For a very long time, this difference was not at all obvious to me, and it just seemed unpredictable which lessons would make me feel good and stop hurting (and then experience more problems later) and which would leave me feeling the same. It took many months of experiencing lessons that had that component of sudden ease and "connection" before I began to wonder what was really happening. I simply thought I was "learning" and gaining valuable plasticity, and that eventually, when I found the right combination of connections, the pain would stop.

Meanwhile, I experimented with varying the activities I did after a lesson—from walking to swimming to sleeping to just doing things that took my thoughts away from the lesson. I wrote my thoughts on note cards, and if they were negative, I turned the cards over and wrote something positive. I practiced meditation and gratefulness and positive thinking. I kept a journal to see if I could discern any patterns in my thinking or in my practice of the Feldenkrais Method that might be contributing to the problems I was having. I regularly practiced teaching ATM and FI lessons with my students and colleagues, with growing success. I tried to observe what might be different between my teaching and my own personal practice of the Method to understand how I might be instigating my difficulties by some negligence.

It did not occur to me or to most of the people around me that the differentiation, the new patterns, the learning, and the neuroplasticity could be adding to my dystonia. I did not realize this, in large part, because the change I felt in lessons was initially so pleasurable, smooth, and easy—all the things we were supposed to be looking for. I often craved the seductive sensation of these lessons when I was feeling the tightness, pain, and loss of control in between. I really felt that my difficulties had to be coming from something I was doing outside of the lessons.

I also had FI lessons with many experienced practitioners who came through our training. Often the dystonic effects were more powerful than what I experienced after ATM. I mentioned the contrast between what I felt during and after FI lessons, and hesitatingly asked, "Is it possible that something in these lessons is making it worse?" But because there was little context in the work for such questions, practitioners responded that *if* you go gently, moderately, listen, follow, etc., you cannot hurt someone when teaching the Feldenkrais Method.

The lessons most often were painless, gentle, small, and careful. I felt I was becoming better at also being this way with myself in ATM lessons, so I was convinced that it could not be something in the experience of the lessons that was the problem. Practitioners would say things like: "You lost a compensation, and now you just have to keep going until you get to the core of your habits."

"You must be uncovering something deeply emotional, and you just need time to work through it." "You are just becoming more AWARE and starting to feel these patterns of discomfort that have been hidden for a long time." "You are just 'unwinding' in these lessons, and you need to let go and follow it to the end."

Some suggested I examine the emotional roots of my playing, pressure from parents and teachers, or anxiety I might have felt about playing at the outset of the training. I never felt pressured by family to achieve with the violin, and I had been feeling so thrilled with my playing when I started the training. But the ideas mostly seemed reasonable to examine, considering most people ardently believed nothing could go wrong as a result of the work. So I trusted the principles and the ideals of the work. I also saw people improving and becoming freer. I continued to believe that it was a matter of time, that searching along the threads of release in each lesson would eventually connect me to something bigger, clearer, and more organizing.

A RESURGENT DYSTONIA

By the time I finished my first year of training, my whole thorax, neck, and left arm were so tight that I could not play for longer than 10 or 15 minutes at a time. I was growing limited in other activities, as well. I was on constant anti-inflammatories. I had a lesson with Paul Rubin, my educational director, who was the first to suggest there might be something structurally wrong under the surface, something that had somehow remained protected until the training; he said he did not understand what was happening, and he insisted I see a specialist.

I went to the reputable Performing Arts Clinic at the Methodist Hospital in Houston and saw both an orthopedist and a neurologist. They did imaging and determined there was nothing structurally wrong, but that there was a lot of inflammation, which was probably causing nerve entrapment. They suggested modalities therapy (heat and ice alternation, and ultrasound) and also pushed for steroid injections to settle the inflammation. I worked with the modalities but was hesitant to do the injections, not having identified a clear orthopedic source of the problem.

Over the next year I saw several doctors, and they encouraged more physical therapy and work on postural issues; most often this was in the form of massage, nerve-glide stretches, and other release therapies, which just seemed to worsen the contractions and inflammation. By this point I had developed a strong sensation of pulling into my chest accompanied by tightening of my neck extensors, so that my shoulders rounded forward and pulled my head forward of my spine. I often felt as if my thorax were a solid block, and I had pain between my ribs and along my sternum. The physical therapists and physiatrist I saw for a time became frustrated that my posture was becoming hunched and that I did not carry my head on top of my spine. Continued work with posture, strengthening neck flexors, massage, and release work for the flexion in my thorax just seemed to make my system react by increasing the extensor contraction and pulling throughout my spine. Most of the doctors and other specialists I worked with had little to no familiarity with the Feldenkrais Method, so explaining the sequence of events that brought me to this difficulty, and asking pertinent questions, was particularly frustrating. Much of the time my range of motion and my ability to differentiate movements was far better than average, so although they could feel distinctions in muscle tone and inflammation, they had no context for understanding what was happening.

By the end of my second year of training, my head started spontaneously to twist to the right when I felt some lengthening or release of excess effort in parts of my rib cage and along my spine. As with the other pleasant sensations of release, movement, lengthening, and freedom in lessons, this twisting felt good in the beginning. It was smooth and always felt like something that needed to happen. As with the other spontaneous movements though, it became increasingly difficult to stop this movement once it started. I tried just letting it go, following the advice of the "unwinding" experts, but then a pattern of co-contraction would start on its own to stop the twist

after it seemed to go too far. When the co-contraction began, the sensation dramatically shifted from freedom and ease to pulling and pain. I noticed that this sequence could be elicited from a number of different places during FI and ATM lessons, including new movement in the pelvis, legs, or hip joints, making it nearly impossible to avoid setting it off.

With my neck and spine caught in the involuntary movements, these co-contraction patterns became more pervasive. Sometimes my neck extensors contracted so hard to stop the movement that I would go for weeks unable to rest my head on my pillow at night. My chest would squeeze, leaving me to experience relentless fight-or-flight responses. I suffered with fear, altered breathing, lowered blood pressure, digestive, and other symptoms for up to three weeks without relief. I was well into my third year of training, still with no conclusive diagnosis from doctors, and my trainers agreed that they did not understand what was happening. I began to ask about the possible diagnosis of dystonia and neurological self-regulatory issues. But because I had been gaining new and varied movement possibilities, I did not fit the normal categories for diagnosis (other than some inflammation and increased asymmetrical muscle tone, and postural issues). Thus I felt it was up to me to continue to explore and try to make some sense of it all.

At the same time, I started to notice that these episodes occurred in progressive cycles. Finally I could see a slightly clearer set of patterns, although it was unpredictable how or when they would occur. They could start with a feeling of release almost anywhere in my body, depending on the impetus; for instance, my head would start to turn, my thorax twist in the same direction, and then my pelvis release and twist in the opposite direction, pulling my legs. If I tried to resist, it would be painful, sometimes nauseating; if I let it go, it felt okay for a while, but then at some point something else would start to squeeze, pull, or lock down. The sequence was no longer predictable, either, as new lessons, introducing new forms of movement, seemed to create new triggers.

Yet the way the cycle led to fight-or-flight reactions, strong contractions opposing the twisting, and increased twisting with increased stabilization, were similar enough for me to catch the pattern. It felt like two uncontrollable demons at war with each other, each growing stronger, outside of my conscious control. I tried to use my own consciousness to divert it, but often my attempts inadvertently strengthened one side or the other. It usually took outside intervention to stop and divert the pattern, and the earlier the better. When the pattern occurred in the training, Paul Rubin would hold my head and neck and resist the strong contractions until sometimes, after 10 or 15 minutes, fatigue made them subside for a while. Most of my FI lessons at this point involved trying to find some way to stabilize or temporarily hold the patterns in check.

In my last year of training, I finally began to realize the deep pattern of the phenomenon. Although parts of the pattern remained quite elusive, in summer of 2014 (after my training was over) I had an FI lesson with a new approach. In retrospect, it brought many of these elements together. The idea was to explore how to help the stabilizing pattern release by alternately squeezing with all of the places I felt trying to stabilize, and then feeling how to release the twisting patterns more fully. It seemed worth a try. The practitioner's observation was that the twisting was "so alive" in me that it might be hurting me to oppose it. We were initially successful in releasing many of the protection patterns and in allowing the twisting to play out on a large scale.

Again it felt great to allow the movement, as if this was what my body had to do. But when I got up from the table, my thorax was rotated 45 degrees clockwise to my pelvis. It was impossible to pull it back—with effort, with relaxation, or by any means. I took a walk to see if it would find its way back with some functional stimulation, but as I walked, I felt as if I were drunk or drugged, almost devoid of sensation or even emotion. In the coming days, I experienced a strong and long-lasting return of the protection and fight-or-flight response; it was perhaps the biggest cycle I had ever experienced. Although such a large-scale reaction was really frightening, it revealed a lot of new information that proved very helpful when I shared it with my current neurologist.

This kind of sequence clearly suggested to her abnormal pathology as seen in various forms of dystonia—something I will discuss in the next section.

The drugged and almost blank state emerged as a defining characteristic of these cycles. I would come to the point in a lesson, or in my daily activities, where I felt a click and a release followed by a short period of smoothness and ease. Then it was as if I slid down the rabbit hole into a state of relaxation in which my body started moving on its own, followed by the blankness. I felt no pain or emotion but also could not form clear thoughts. I would lie on the floor in our training for a few hours at a time like this, sometimes not being able to communicate what I needed. Often, after a long period of drifting like this, some adrenaline would kick in, and the cycle would begin anew. In retrospect, I recognize that these sensations had been present on a smaller scale during lessons earlier in the training—a sudden sense of ease and almost pleasure. It was a trance-like state of relief, what I came to think of as my "learning," or all of the pieces of the lesson coming together. The difference as the training progressed was that I often simply could not get up and emerge from this state. It was really frightening.

Sometimes someone was available and aware enough to intervene when this happened. A talented teacher, along with another assistant in my training, sometimes sensed how to interrupt these cycles. A good friend in the training, who was a Muscle Activation Technique therapist, could help me stabilize temporarily. Paul Rubin tried to intervene when he was available. Much of the time, the twisting pattern continued when I was in the "blank" state, even though I could not feel it; I sensed movement and a feeling of floating on waves, but I could not feel what was happening.

At a certain point, it did not require ATM or FI lessons to unleash these reactions any longer. By the end of the training, the sequences were so widespread that almost any activity could trigger them. At present, I am constantly in one phase of these cycles or another, and my strategy is simply to chase the movements around, finding any way I can to affect my own stabilization and to head off the larger cycles. It is an ongoing process in me and in my current physical therapy work to discover the movements that begin the cycles and to find ways to redirect the reaction early enough so that the cycles do not go out of control.

WHAT I HAVE LEARNED

I want to share how my dystonia evolved over the course of my training to show how my assumptions about the safety of the Method, and those of the practitioners around me, made it difficult to understand what was happening. Those assumptions made it impossible to recognize that anything was wrong until it went out of control. Even then it was difficult to discern how to manage it, as some lessons *did* help calm things down initially, while others introduced new triggers. I include specifics for the benefit of anyone who might have experienced something similar. I also want to provide my account as a retrospective study of the growth of a generalized dystonia through learning and movement. If I had understood the operating pathology and how it could grow and take hold in this sinister way, it is possible that we may have all done many things differently early on. This article is an invitation for further study, discussion, and research about how to work with these issues as they come up and, perhaps, ultimately, how to prevent them.

I hope that this unintentional study can serve as a learning tool for other practitioners, and as a caution about how powerful our work can be. It is imperative that we start to look for and discuss contraindications in circumstances of various pathologies and other deviations from the "norm."

After my training, I finally connected with a wonderful neurologist, who carefully listened to my story and has constructed a reasonable explanation of what happened. Her explanations (and some speculation) have helped me start to work much more effectively with my difficulties. She used my story to understand why certain abnormal symptoms exist alongside normal range of

motion, reflexes, and even increased movement capability, to form a diagnosis of generalized dystonia. With her knowledge of the science, she has explored treatment options and educated me how to be cautious, considering that adding more movement choices and increasing plasticity have worsened my illness. I have also found a wonderful physical therapist who has partnered with me and uses the information the neurologist supplies to help negotiate my symptoms. Although my new understanding seems unlikely to reverse the spread of the dystonic pattern at this stage, it has helped me gain some control and work with these cycles when they occur. I do not have half of the answers yet, but I am learning more every day.

Dystonia research on task-specific focal dystonias like those experienced by musicians, writers, or golfers has focused on cortical blurring. The blurring seems to occur with overtraining in activities that require sensorimotor precision in a narrow range, along with very specific timing.[2] Those suffering from task-specific dystonia exhibit abnormal cortical mapping of the distal areas involved in the dystonic pattern.[3] Traditional treatments have assumed that the basis of the problem is similar to that of less specific overuse patterns and have advised functional retraining and "re-differentiation."[4] Often, such therapy is ineffective, and the research does not account for the majority of those who trained similarly but did not experience these symptoms.

More recent dystonia research examines genetic components, abnormalities affecting plasticity throughout the brain and nervous system, pre-existing self-regulatory issues, and ways in which the pathology manifests itself in specific and sometimes widening motor control issues over time. Now, in addition to cortical blurring, research has focused on abnormalities in movement inhibition arising from the basal ganglia, and on pre-existing anomalies in the cerebral cortex, cerebellum, thalamus, and brainstem. The "unaffected" side can also be implicated in task-specific dystonias, as may subtle abnormalities throughout the body that can be compensatory, causative, or both.[5]

Current research indicates that adult-onset dystonias have three features that separate them from other movement disorders: abnormal inhibition or the loss of inhibition, sensory dysfunction, and hyper-plasticity (faster, stronger impulses along synaptic pathways and easier formation of new synapses).[6] This combination may contribute to the worsening of dystonia in the context that our work involves: learning through movement differentiation and focused sensory stimulation.

With loss of inhibition, motor activity overflows into muscles surrounding and opposing the muscles directly involved in a particular task. EMG studies have documented co-contractions of agonists and antagonists simultaneously and in reaction to an intended movement.[7] New studies suggest that faulty inhibition can "blur" the cortical representation of the surrounding muscles when the person selects a particular patterned movement which exists before a dystonia manifests itself. Dystonia is also characterized by its growing, cyclical nature, which is prompted by a repetition of the problem patterns and an increase of the overflow to the surrounding muscles. In a system functioning normally, inhibition suppresses surrounding movements in order to refine and make specific the intended movement. In Feldenkrais work, one of the ways we use movement is to explore inhibition to make particular movements more streamlined.

Research specifically on the role of sensory dysfunction as an underlying, possibly genetic, trait of dystonia has focused largely on the roles of the basal ganglia and relationships in the forebrain. The basal ganglia is involved in the process of spontaneously choosing which movements to include in smooth and efficient action. This part of the brain allows us to perform complex learned movements unconsciously while focusing on other tasks. For example, it allows a musician to perform a practiced and repeated pattern while he or she directs attention to the shape of a phrase or coloring the sound. Studies over the last 10 years illuminate sensory abnormalities in dystonia subjects relating specifically to sensorimotor learning. They also suggest that these abnormalities in the basal ganglia not only facilitate the expression of dystonia, but actually

induce the learning of dysfunctional movements in response to improper processing of information in sensorimotor loops.[8]

People with dystonia showed deficits in sensorimotor integration not only when stimulus was provided in the affected areas, but generalized throughout the nervous system. When sensory stimulus was provided in both affected and non-affected areas, dystonic subjects had difficulty making spatial and temporal discriminations.[9] With stimulus of the affected areas, surrounding muscle groups also fired. In the early stages of a task-specific dystonia, most individuals identify a generalized sense of weakness, tension, loss of control, and sometimes pain in the affected area. For this reason, in the early stages, the symptoms are hard to pin down because the excitation is spilling into surrounding tissues and antagonist muscles (as it did early in my disease).

Recent studies have shown that dopamine is an important component of reward-motivated behavior. It gives us the feeling of pleasure and well-being in response to such movement types as skilled performance, sex, and lactation, and it generally encourages us to continue behaviors that stimulate its production.[10] Dopamine levels in various forms of dystonia have been shown to include cases of both too much and too little dopamine in the part of the brain called the "striatum," in either case exerting a strong influence on choice of movement in sensorimotor learning. In forms of generalized dystonia where the patterns had become proximal, affecting the spine, subjects demonstrated increased dopamine levels during dystonic episodes.[11]

I have begun to wonder if the feelings of well-being, ease, and pleasure during Feldenkrais lessons that later resulted in systematic unraveling might have resulted from dramatically increased dopamine levels as the dystonic patterns expanded. When I accessed feelings of grace, smoothness, and pleasure in lessons, my painful co-contractions vanished, and I almost felt as if I were floating. Almost every movement I did for the remainder of such lessons felt easy and smooth. In time, I became more facile at getting under the layers of tension and antagonistic contraction. Gradually, these states morphed into the periods I have described of feeling drunk or drugged. Eventually, as these periods became more pronounced, coming out of this state was accompanied by many days of anxiety and an extreme fight-or-flight reaction, also very characteristic of dopamine overload.

Abnormal plasticity is the underlying distinguishing feature of dystonia that has been studied most extensively in recent years, and it is now theorized to be the largest pre-existing feature in those who develop adult-onset dystonias. In addition to the surrounding tissues becoming involved because of faulty inhibition, excess activity appears in multiple parts of the brain, including the brainstem and the opposite hemisphere from the affected side.[12] In adult-onset dystonia, new synapses are formed much more quickly, with less repetition. They remain stronger, and even strengthen over time, with minimal stimuli. This, in combination with faulty inhibition, excitability of surrounding tissue, and a generalizing to multiple parts of the brain could activate large dystonic patterns even with small amounts of sensorimotor stimulation. Thus it might be very easy for an individual with this predisposition to "overlearn" new movement patterns and create very strong new synapses quite rapidly.

By the fourth year of my training, I often seemed to over-learn many of the movement patterns explored in lessons. While many of my colleagues returned to something closer to their normal pattern after a few hours, what I learned seemed to morph into something less and less familiar. Over time I moved farther away from anything I recognized in myself, which was very frightening. I felt that my body was grappling with every component introduced at the same time. Because I was unable to distinguish functional from dysfunctional in these options, everything seemed increasingly to lock down just to stabilize from the onslaught of new information and too many equal possibilities. As an aside, my memory for lessons was such that I could easily recall a lesson in each and every detail after one hearing; every component seemed immediately absorbed into my system.

Although dystonia can emerge from a particular set of pre-existing abnormalities, not everyone who possesses these abnormalities develops some form of dystonia. An individual typically remains asymptomatic until a "trigger" disrupts the homeostasis of what might be a moderately dysfunctioning, but successfully compensating system. Researchers are focusing on identifying triggers in order to suggest more successful treatment. Risk factors include age, unusually high demands on sensory-motor precision, trauma or injury, gender, changes in or increase of sensorimotor stimulation, disruption of compensatory patterns, and psychological factors such as social constraints, perfectionism, and stress and anxiety.[13]

Adult-onset dystonia most often develops in people in their mid-thirties to early forties. Musicians such as violinists, pianists, guitarists, and brass players are most likely to develop focal dystonias due to the temporal and spatial specificity required in playing. Spatial specificity also plays a role in violinists being more prone to the disorder than cellists or bassists, because violinists need to learn rapid patterns in a very small range, so that movement differentiation is at its most complex. Classical musicians are more likely to trigger the onset of dystonia than jazz musicians because of the high demands and the social constraints of the profession—playing in concert halls for audiences who are likely to notice and judge based on mistakes, performing auditions where perfection is directly linked to the likelihood of winning a job. Stress and anxiety increase the likelihood of dystonic episodes, although it is also thought that the increase of episodes and the nature of the pathology also yields excess stress and anxiety, including the fight-or-flight responses I described. Injury is a strong factor in adult-onset dystonia: dystonia symptoms can arise from peripheral injury in the affected hands of musicians, and they can arise as a result of trauma such as whiplash, where the nervous system repeatedly creates and revisits patterns from the original trauma.[14]

Current treatment of dystonia is largely pharmacological, as few movement approaches have led to long-term benefit. One of the major risks more recently identified in movement-based therapies is, in fact, that introducing new movements or sensory stimuli can unwittingly overload a system. There exists the chance to create "runaway plasticity" by destabilizing compensatory factors and providing too much stimulation.[15] The problem with dystonia is that it combines normal learning with an abnormal pathology—the faulty inhibitory response to some of these learned movements. The brain fails to send a complete inhibitory signal to stop a movement, such that it continues even after the task is completed. In this way, the pattern continues to strengthen itself and to map the areas involved on the cortex more strongly; it also continues to become easier to trigger the longer it continues.

Some therapies and interventions at early stages of symptom development have helped people avoid and eliminate the targeted movement sequences—for example stopping all affected movements for a period of time. Botox is now used in these beginning stages to paralyze the involved muscles so that they cannot be mobilized. This strategy creates a constraint so that the person is forced to relearn various tasks in new ways and hopefully create a new, undamaged path to the functional goal. According to my neurologist, 25 percent of those treated with Botox in this way have experienced a reduction of symptoms. I think a similar approach could be taken through very careful movement education and awareness, if we know what we are dealing with and how this disease works. I think this is how I produced my two-year "remission" before the training, and it is how I hope to learn to use the Feldenkrais Method with musicians facing this problem. I am probably no longer a candidate for this kind of work because my dystonia has affected too many muscle groups, and the patterns involve too many movements throughout my body. The pattern has become complex.

One approach for generalized dystonia is to stabilize the cycles before they become too large. I am developing strategies to notice the moment a cycle begins and to learn ways to stabilize and balance. I try to identify and minimize the use of muscular effort in my stabilizing and use align-

ment and skeletal connections to my advantage. I also use meditation and self-calming to shift my attention deliberately away from the patterns. For me, it is a pretty slippery slope, because we often use differentiation with the Feldenkrais Method to help free muscles and create better alignment, but differentiation can also precipitate one of these cycles. My neurologist prescribes medication in late stages to help regulate the protection responses so that the compensatory side of the cycle still helps stabilize but stays within a normal range. This helps also to control the intensity of the whole cycle.

WHERE TO GO FROM HERE

Dystonia is emerging as an increasingly prominent diagnosis amongst musicians. Since I have begun to speak about my experience with this disease, I have found colleagues everywhere with similar stories. Dystonia was the topic of a featured article in the September, 2014 *International Musician*, because of its prevalence in this community.[16] For Feldenkrais practitioners working with musicians, I think it will become an increasingly commonplace challenge. I hope that this article can generate some serious and important discussion on these and related issues, as I think this work can be powerfully effective, but also risky when working with pathologies such as this.

I do not believe that what happened to me is because of negligence on the part of practitioners, but rather because we do not yet fully understand the potentially harmful effects of elements of this work. When I searched for research on contraindications with neurological conditions of any kind, and discussions of injury or unraveling or loss of control after lessons, there was very little from which to educate myself—although, in the time since, I have been in contact with a number of people who have experienced long-term adverse effects from both trainings and individual lessons. I hope sharing my story will encourage those people to come forward and enter the discussion to help educate us further.

I love this Method and still very much believe it can help people learn in more effective ways than many other modalities. I have seen remarkable results in working with colleagues and students. I even believe that it provides insights to helping people manage and possibly find ways around pathologies such as dystonia, if we begin more carefully to examine how various strategies from our work can have both positive and negative effects. From my understanding, Moshe Feldenkrais remained a true skeptic his whole life. This was part of his education as a scientist, and because he applied his skepticism to every element of his own work from the beginning to the end, he was able to refine and revise it, and to make it more and more applicable to the people he taught and worked with. I would like to invite a continuation of this kind of thinking as we meet new challenges. I think it is time to ask ourselves not only what our clients and students need to learn, what we can show them, and what they are ready to learn, but perhaps, more importantly, what they can teach us about this Method—the ways our tools can be refined and reexamined, how to listen more carefully for new kinds of reactions, and what we can learn from each unique perspective. This is already an important part of the work, but acknowledging and studying possible adverse effects and potential contraindications will help us to do this job even better.

Please join me in a productive and responsible discussion about how, when, and where we can make the Feldenkrais Method safer and increasingly effective for our clients, students in our training programs, and ourselves. I would be very glad to take on the task of compiling and organizing any new and relevant ideas, personal stories, case studies, and accounts of work with clients. I am interested in productive private or public correspondence on this issue. I would love to compile a collection of accounts on this subject for my personal learning and would be glad to present these for the benefit of the whole community at a later date if there is an interest in and willingness to share material more publicly.

I would be so glad to hear from you! Please contact me by email at rilkesq@yahoo.com

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I want to thank four individuals who have gone far above and beyond to help me through this experience, to learn along with me, and to encourage me to write this article to share with others.

My extraordinary educational director, Paul Rubin, tirelessly engaged in phone, email, and personal intervention in class, steadily pushing through and helping me around the frustrating aspects of communicating something that was both elusive and that seemed to defy the language and the terms that were available in my limited knowledge of my body and the Method. He committed himself to continue learning and growing as a teacher alongside a struggling student. He helped me to eventually find my way to explain what was happening to me to more and more people who could shed light on these events and circumstances. He evolved his teaching to include and represent experiences like mine, and he made the suggestion to write this article on contraindications in order to share my story and invite discussion. It was Paul's written notes and observations from the last two segments of my training that proved invaluable in getting my current neurologist to take the story seriously, paving a clearer path for her to help me manage the generalized form of dystonia. Paul is one of the most conscientious and generous people I know, and I am indebted to him for all of his support and guidance.

I connected with my dear friend and mentor Aliza Stewart about two years into my training, when things were especially difficult, at the suggestion of the Taubman teacher I had worked with two years before the training. Aliza's experience both with dystonia and with trainees and clients who had faced other difficulties has been invaluable. Even more significant has been her keen interest in exploring the issue of contraindications for aspects of our work more deeply and to think outside the box to help me find ways to reconstruct and follow the peculiarities of my case. She has devoted enormous time, thought, and energy to this cause, including helping me now to communicate and find more people interested in these issues in our community and those peripheral to ours, such as science, medicine, and physical therapy. I could not have written this article without her tremendous help.

I would also like to hugely acknowledge my physical therapist, Judy Sevilla, who has provided support and expertise in exploring the developments of my dystonia in this last year. She has helped me negotiate many difficulties by constantly asking questions and rethinking strategies, always working gently and respectfully. She has not only been in true partnership with me, helping me explore and sort new information and observations, but she has also encouraged my proactiveness in exploring this issue within the Feldenkrais community, sharing what I have learned and learning from others. She has inspired me to make the most of my experience and learn as much as I can.

Finally, I am greatly indebted to James Stephens, with whom I have connected in the past year of researching and writing. He has taken an interest in this project and has generously provided me with valuable, continuous feedback and the most recent and relevant research on dystonia to include in this article and to further my own study. I am so appreciative of his gifts of time, resources, and expertise.

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"Whatever happens, I surely will not unobserve it . . ."

Paul Rubin

In this issue of *The Feldenkrais Journal*, Lisa Burrell writes of the emergence and growth of a generalized dystonia during the years she was in our Houston Feldenkrais Teacher Training program. She chronicles well the onset and development of this debilitating disorder as well as her intellectual and emotional attempts to understand it and to cope with it.

As her Educational Director from the beginning, I found the growing complexity of her symptoms and the deepening of her fear to be perplexing and daunting. At first, I did not understand the severity of her situation. As it became more apparent, I was reminded of something Dr. Feldenkrais said in a lecture he gave in his Amherst training.

Given on June 15, 1981, this commentary is commonly known as "To Correct is Incorrect." In it, Feldenkrais famously recounts the process of a perplexing Functional Integration session and his thinking and feeling states during the lesson. Much more importantly, he details his self-examination in the days and months that followed as he patiently made sense of what had transpired. To my mind, one statement stands out from all the others as revealing an absolutely essential condition for growth as a teacher or as a teacher of teachers of our Method. By following an additional and oft overlooked principle articulated in this story, Feldenkrais says that his unflinching self-examination

> ". . . made, to me, a major change in my life, and a major understanding of psychotherapy, and an improvement in Functional Integration beyond anything I could do before."

The principle?

> "That was the surprise of my life . . . ***That whether I am hurt or not—whatever happens—I surely will not unobserve it.***"

This is the simple reason that I have tried my best to accompany Lisa as her teacher, consultant, and as a source of support over the past several years. This is the reason why, though there are not as of yet any clear or easily stated results of her inquiries, I believe that she and I and other sincere students of the Method simply must pay attention to her story and others like it.

In her article, Lisa recounts many instances of Feldenkrais teachers and trainers offering solution after solution after solution. Some of what was proffered was distressingly simplistic. Some people dismissed her story, and her, as being a manifestation of resistance or of psychopathology. Some seem to have felt that because the answers to some of her questions could not be known immediately, that they were not worth investigating. Others expressed concern that examining the issues raised would result in fearful practitioners—more on this later. And finally, some seem to feel significantly threatened by her questions and experience. This latter group seems to want to know only stories of our successes and to leave perplexing questions "unobserved."

But what goes "unobserved" cannot be learned from. My experience with Lisa has pushed me ever deeper into an examination of the Method and how I teach it to emerging teacher-practitioners. It has deeply affected how I examine my own processes of learning. Lisa and I have had many hours of conversation, exchanged many hundreds of emails. We have pushed each other to think new thoughts about her experience, about her questions, and more broadly, about what the Feldenkrais Method is and how it can be practiced and taught.

Recently, I encountered a wonderful book—*Do No Harm* (2015) by Henry Marsh.[1] The author is a well-respected senior neurosurgeon. His book is a straightforward but profound account of his decades of performing some of the most risky surgical procedures and, in the process, witnessing some heartbreaking results. Some were on account of mistakes, many others were simply the result of the complexity of the system in which he was intervening. Stimulated by Marsh's

retrospective thinking about his development as a practitioner, and by my discussions with Lisa, a couple of stories from my own work with clients came to mind. One is from nearly 40 years ago; one is from just a few months ago.

In 1977, fresh out of my training, I got a call from a local man whose passion was running. This fellow ran and ran and ran. He had developed what he called "shin splints." He had heard of some successful work I had done with people whom he knew, and he came with a positive attitude. At first, the hardest thing for him was to decide whether to accept my suggestion that he not run for a while. What he could articulate about his reluctance was a fear of losing his conditioning. I could see that his reluctance ran deep. But he decided to give it a go. He improved. Then he began his old regimen of running extremely strenuous, rough terrain, up a local mountain of about 3,000 feet and down again. He ran upwards of 10 miles nearly every day.

As he struggled with repeated cycles of improvement with Functional Integration (FI) lessons and re-injury upon returning to a clearly punishing regimen, I began to talk to him about how he might change his practice for good and over the long term. He struggled with the idea of doing less but did not disengage from our process. Finally, he established a program of slower paced long-distance running, over significantly less brutal terrain, as a daily practice. He found a way to run that allowed him to continue. He developed a deep loyalty to the Method and was a client for many years, even doing the first year and a half of a training program for his own personal development.

A few years after that was over, I heard he had begun to have serious psychological problems requiring hospitalization. I have wondered ever since whether his running was a necessary, unavowed self-regulation, a compensation that worked to help keep some underlying issues at bay. Did I, by focusing too narrowly on his physical difficulties and working with him to change some strong and important daily habits, inadvertently contribute to his psychological vulnerability? I can never know the answer to this question. I do not even believe that it is important to know the answer. It is simply a worthwhile question to keep in mind when working with others: when does our assistance to make changes in important habits and behaviors run the risk of negatively disturbing a balanced system? How can we know?

The second story concerns those who have expressed worry that examining Lisa's story, and other similar stories, will scare practitioners away from doing their work. I will say that many of Lisa's classmates went through a period of being frightened of touching others. It was something I tried my best to address in the training, I hope with success.

But to my second story: recently, I was privileged to work with a very fine cellist. We had the opportunity for only one lesson, because it was far from home. At the beginning of the session, I was struck by the strength of her habitual way of bringing her arms and hands directly to the positions of holding the bow and to the fingerboard. I had a flash of fear. What if I was about to disturb a highly compensated dystonia and thereby unleash it? What if this lovely person's beautiful talent was to be disturbed by my work, no matter how gentle, respectful, and well-intended? These thoughts arose in me unbidden and were answered in the space of just a few seconds.

My answer to myself was simply that I could not know that, that I will never be able to know the answer to such a question, and that I could either give up or . . . well, what? I realized, without all the words, that I could and would have to trust that the tens of thousands of lessons I have given in 40 years of practice have resulted overwhelmingly in benefit for the recipients. I realized I could only do my best, as shaped by the sum total of what I have learned about giving FI lessons, and continue to be respectful, gentle, receptive, and kind. I could only continue to trust that the majority of people do have the capability of self-regulation, that most do not have nervous systems on the verge of serious instability.

I continued with the lesson. I worked with some fear, some trust, with full respect. The next day and also over the next weeks I heard that the lesson was helpful—that it provided a continuing source of improvement in playing, in breathing, and in everyday function. I was pleased.

When we touch someone, we are engaged with an enormous series of complex relationships. As Feldenkrais pointed out so many times: cause and effect is extremely elusive in complex systems. By extension, so is control of all variables. If you improve one set or several sets of relationships in a complex system, the whole system will most likely improve. But not certainly. This is why we need to proceed with respect and care and without ambition or guarantees in our everyday work.

Insofar as Lisa's article is concerned, I hope that more people who have had confounding experiences as a teacher, a student, or as a teacher of teachers will come forward. Our successes make our reputation in the world. Mining our disappointments and those things that we do not understand will promote our maturation as a profession. These kinds of discussions must be open-ended, in my opinion. We need to avoid the expectation of quick solutions and premature conclusions. We need also to avoid abandoning or avoiding topics that might take a long time to reveal their potential for informing us. It is important to remember that honestly conducted inquiries can be counted on to take unexpected turns and to inspire new branches of investigation leading to new information or insight. In his commitment to let neither the source nor the implications of his discomfort remain "unobserved," Feldenkrais ended up in a fruitful place, one where he said he was pleased to find "the surprise of my life."

NOTES

1 Henry Marsh, *Do No Harm* (New York: Thomas Dunne Books, 2015).

Working with Clients with Histories of Sexual Abuse

Louise Runyon

Over the course of my 15 years as a practitioner, I have worked with a number of clients who have shared with me their histories of sexual abuse. Sexual abuse is an experience that is somatic and traumatic. Though it is frequently "forgotten," it lives on in people's bodies, in their movement patterns, and in the way they hold their musculature. Feldenkrais work can be invaluable in helping people address these issues.

I find it very helpful when clients share their histories of sexual abuse with me. Generally these clients have done psychotherapy but have found that their issues are not fully resolved, that troubles remain "in the body." Working delicately and respectfully, I have been able to help some people become aware of their somatic responses to the experience of abuse. Unexplained, intractable movement patterns become clearer, and we are able to shift them. If someone wants to work on sexual abuse issues through Feldenkrais work, I strongly encourage psychotherapy at the same time.

I have also seen clients who I suspect have a history of sexual abuse but who have not told me. Unlike a stroke, car accident, or cerebral palsy, this is not something immediately apparent to the outside observer, nor is it routinely shared on a client's first visit. A person may not even consciously recall this history. At the same time, it may be an enormous factor in her organization.

It sometimes happens that our work triggers memories. One client, someone who suspected she had a history of abuse, was grateful to have memories of it opened up by a pelvic floor lesson; she went on to pursue the issue more fully with a psychotherapist. The experience of Functional Integration (FI) lessons can also allow a client to verbalize unspoken thoughts and bring his traumatic experience more into the light of day. As an example, I worked with a man in his seventies who wanted help with incontinence following prostate surgery. As soon as I touched his legs they began to shake in an unusual way, and I realized he was crying. He told me he had been sexually abused by a babysitter as a child and had lived with the memories his whole life. He had never told anyone until he shared the story with his wife just five years prior.

Another of my clients with a sexual abuse history related to me that the Feldenkrais Method of somatic education—both FI and Awareness though Movement (ATM) lessons—has opened her heart, though somatic patterns remain. This client does not want to explore the history of abuse any more than she has already done through psychotherapy. She has very compressed lips, and I have often worked with her face and jaw. The last time I did so, she elaborated on the nature of the abuse and told me she did not want to re-open the can of worms by further work with her jaw. Although I believe she could make gains by dealing with this history somatically, that would only be the case if she wanted to do so. Certainly, the opening and expanding of her heart is a great gift.

GRETA

I have worked sporadically for many years with a woman I will call Greta. Working with me and with another Feldenkrais practitioner, she has been involved with the Method for over 20 years. About 11 years ago, Greta mentioned to me that she had recently discovered she had been sexually abused as a child. Since that time, while taking many ATM classes, she has come for only occasional FI lessons; some months ago, however, she began working with me on a weekly basis. I wondered if she would bring up this issue again, and how it would affect our work.

Greta tends to come late or early for appointments and classes. She frequently does not come and does not call. When I call her, or when she shows up at the wrong time, she responds with surprise, saying something like**,** "Huh! How did that happen?" She has a wall calendar, an appointment book, and a watch, but often she does not consult them. Her general response to many things is one of "not knowing."

Greta keeps her head and chest back, her pelvis forward, her weight on her heels, and her hands behind her back, as if she is gazing at something from a distance. Her first Feldenkrais practitioner told her, "It looks like you're walking backward as you walk forward." I began to wonder what Greta's time issues and stance might have to do with her history of sexual abuse. It occurred to me that the issue of "not knowing" might have to do with not wanting to know, and that her posture might be an expression of distancing herself to avoid delving into the work. I was curious about bringing Greta to some awareness of these possible relationships, but I wanted her to bring up her history of sexual abuse again herself.

Over the last 14 years, I have been teaching workshops that deal with the pelvic floor. These are based on the lessons of Australian Feldenkrais practitioners Barbara Bell and Judy Pippen. I often teach some version of these lessons, or other sphincter lessons, to individual FI clients. When Greta came in with a major bout of constipation—a lifelong issue for her—I suggested we try one of these lessons. We did so, and in that context I spoke to the issue of trauma generally. At the next FI lesson, Greta again brought up her history of sexual abuse. She expressed an interest in pursuing her abuse in our work together.

We discussed the value of exploring the issue through movement, and I strongly encouraged her to work with a psychotherapist, which she has been doing. Our work of the past six months has been in this context, and it has been extremely helpful for her to address the question directly. Issues and memories regularly come up in our FI work. These are issues that might not otherwise have emerged, and which she is then able to pursue with her therapist. In her seventies, after 20 years of Feldenkrais work, Greta's stance has altered dramatically. Though her longstanding pattern is still present, she now sits and stands "stacked up," head over spine over feet, her rib cage hanging down vertically. She is far less likely to lean back when looking at or talking to me, and she has recognized other situations in her life in which she wants to be sitting squarely on her sitz bones.

Greta is beginning to let her buttocks release, having realized she has been propelling herself through space with these muscles for many years. She remembered that, as a young girl, she made a conscious decision to tuck in her pelvis so as not to call attention to her rear end. She is now able to experience softness in her buttocks and legs, to "stick out her butt" and be "sassy." Her legs and feet are now able to roll outward in back-lying. She is beginning to be able to move her chest forward through space in walking, to stride and to lunge. Most importantly, she is happy with her new posture, her new self-awareness, and her new lack of avoidance.

Greta still has issues with time, but now she has some awareness of why this is so. She recently missed an appointment and said she knew it was because she was anticipating a big shift and was afraid. She also reported that the anticipation was much worse than the shift itself. I remind her that the work is at her pace, and I regularly check in with her on that.

THINKING ABOUT HISTORIES OF SEXUAL ABUSE

I have been influenced in my thinking about the question of sexual abuse history by several people: two therapists whom I know personally, and a cousin who was sexually abused by a priest. My cousin, a playwright, has developed a one-man show on the subject, *Conversations with My Molester: A Journey of Faith*.[1] He has found it tremendously healing to create, perform, and discuss this show within the Catholic Church. Others dealing with such histories have also found the performance and subsequent discussions very valuable to their healing. Many talks with my cousin have made me better able to think about and to understand what some of my clients may be going through. The two therapists have helped me understand how widespread this issue is, how devastating it can be, how responses may manifest themselves, and how I can broaden my vision in working with such clients.

Childhood sexual abuse has become a much more public issue in recent years. More individuals and practitioners of different modalities are examining how to address the needs of those affected. I advertise my pelvic floor workshops as dealing with multiple issues—prevention and reversal of prolapse and incontinence, enhancement of sexual function, healing from abuse, and improved mobility of the pelvis—but I have always made incontinence the main focus. In my most recent workshop, however, I was bolder in addressing the issue of "old scars," in response to one of the participants publicly asking when we would be dealing with healing of abuse within the workshop. I found out several participants had sought out the workshop because of their histories of sexual abuse, and my bolder approach seemed well-received by the group.

In my pelvic floor work, both in workshops and with individuals, I discuss the pelvic floor as a central, intimate part of one's self—but only a part. Likewise the scars there—they do not need to define a person, although they may do so if never addressed. Sexuality in our society is often seen as "all or nothing," either flaunted or completely swept under the rug. In the Feldenkrais Method, our approach is one of integration, of always looking at both the forest and the trees. I have found verbally-guided pelvic floor lessons with FI clients to be a valuable way to work with the legacies of sexual abuse. I always check with the client before beginning, to see if she is comfortable with such a lesson.

TAKING OFF THE BLINDERS

The ramifications of sexual abuse—to individuals, among multiple generations, and in current family situations—are huge, both as a result of ignoring stories and revealing them. There are many reasons people choose not to look at these issues. Neither abuser nor abused may want to open a can of worms. Some of the reasons for their silence may have validity and, if so, should be respected. But where and how does the cycle stop? In many cases, the difficulties cannot be resolved without bringing the issues into the light of day. The cycle continues endlessly, affecting new generations: more children abused, more relationships made impossible or ruined, more people denied the realization of their full human potential**,** and thus further intractable physical and movement issues.

It can be difficult bringing these issues up within the Feldenkrais profession—we all have our own histories and our own levels of comfort with the question. But the value of taking the blinders off, recognizing the gravity of what our clients are or may be dealing with, can be life-changing for them.

We are not psychiatrists, nor are we psychologists trained in movement. We are, however, capable of addressing the somatic experience of abuse with clients who are ready to explore it. Finding ways to address these issues, and to facilitate our clients' understanding, can contribute immensely to their growth, their learning, and the expansion of their human potential. Looking at the whole person in this way, always going at the person's own pace, can mean both recovery from the shock of abuse, and development of the ability to realize avowed and unavowed dreams.

Taking off my blinders about sexual abuse has helped me have more recognition of and more compassion for the devastation of this experience, just as, having worked with people with neurological conditions, I am now much more aware of what can happen when the brain is injured. Having seen how people carry such tremendous emotional, social, and physical burdens as a result of sexual abuse, I want to continue to bring this issue to light, both for those who have experienced it and for the people who work with them.

NOTES

1 See www.michaelmacklive.com

The Power of Differentiation

Sonja H. Sutherland

A woman in her early forties came into my office. She was frustrated. Exasperated actually. She experienced fleeting moments of feeling ready to throw up her hands and just give up. In actuality, she was throwing her right arm up into the air again and again. She couldn't stop—and this was partly the source of her exasperation.

Angela is a smart, motivated, self-assured woman. She is the executive director of a business which she and her husband founded. From a traumatic birth situation, she developed athetoid cerebral palsy, resulting in erratic, involuntary movements of her torso, arms, head and neck, and legs. She uses her powerchair to get around, stands to transfer herself, and walks short distances with assistance. Ten years ago, she and her husband became pregnant, and that is when I met her. She wanted some "Feldy support" through her pregnancy, as she would say.

Angela had already had many Feldenkrais lessons over her adult life with an excellent practitioner. That person had begun traveling out of the area, so Angela was referred to me. I gave her a series of lessons throughout her pregnancy. After she gave birth, we did another series of lessons oriented around getting up and down from the floor more easily to enjoy floor time with her baby girl. We also did lessons about crawling, rolling, sitting, and moving around on the floor.

Today, Angela came in annoyed. She was complaining to me about how her spasticity was driving her particularly crazy. As she was telling me this, she was wiggling and jumping with unusual vigor: exaggerated, short, involuntary bursts of flailing through her right arm and torso. Her pelvis, legs, and feet appeared more tense than usual. She told me that whenever she tries to control her spasticity, it simply gets worse. "My spasticity has a mind of its own and it's driving me nuts today!" she exclaimed.

I was tempted to help reduce her spasticity through the quality of contact with my hands and through my somatic connection with her, something I had done many times during previous lessons. In those lessons, by regulating the intensity and shape of how I physically organize myself—internally and in relation to her—I gave more weight and form to her flailing, involuntary movements in the context of her intended, voluntary action. This established a full, supportive, and responsive connection with her. Maintaining this kind of dynamic connection within myself and with Angela reduced her spasticity significantly, and we had explored many Feldenkrais lessons this way—in standing, kneeling, sitting, and lying on her back, stomach, or sides.

But today was different. Instead of relying on the support of my contact and connection with her to influence her spasticity, I wanted to empower her to directly influence her spasticity herself.

As a Feldenkrais practitioner, I usually ask my students to reduce their effort as they organize themselves toward completing a complex action. Even if being able to perform the action is not the main goal, many Awareness Through Movement lessons are built around a complex action theme. Slowing down and reducing extraneous effort provides time and space for new ways of organizing one's self to emerge on many levels.

However, whenever Angela would try to slow down and reduce her effort without my hands-on support, her involuntary flailing would increase dramatically. Feeling like she might fly apart, she would then clamp down on herself, which would increase her flailing even more. So today, instead of having Angela reduce her effort, I helped her to differentiate how she organizes her act of efforting.

AN ANATOMICAL DEFINITION OF DIFFERENTIATION

Many people think of differentiation as simply making distinctions.[1] But considering differentiation from an anatomical perspective opens the door to another dimension of understanding how we develop, grow, form, and function.

Every cell in a person's body stems from one single cell that multiplies, divides, and differentiates.[2] All of our cells remain deeply related as they differentiate to form a myriad of diverse, interrelated, functioning body parts. We are more than the sum, or the synergy, of our interrelated parts. Through differentiation, every cell in our bodies is inherently "intra-related."

This perspective informs how I understand the Feldenkrais Method of somatic education. It also resonates with my experience of giving, receiving, and observing Functional Integration (FI) lessons. Years ago I was attending a Feldenkrais training as a visiting practitioner. Mark Reese was giving someone an FI lesson, and a new student asked Mark if he was going to integrate the distinctions and clarifications he was making with the person at the end of the lesson. Mark explained that he was always integrating every movement in every moment during the lesson. While Mark was touching the student's ribs, I could observe how he was not just working "on a body part" or only addressing the dynamic functional relationships between the student's ribs or between his ribs and other body parts. At every moment, Mark was including the student's entire movement pattern on multiple levels in the context of how this student functions.

When giving FI lessons, I consider every clarification or suggestion I make in the context of the whole person—as an "integrated distinction" or a differentiation, a distinct action pattern that is novel, yet in relation to how the person currently functions and what he or she is interested in forming.

DIFFERENTIATING THE ACT OF EFFORTING

With this understanding of differentiation, I suggested we work directly with how Angela organizes her efforting in relation to her involuntary flailing. Instead of reducing her effort, I asked her to add muscular effort to her involuntary movements to make them more defined and clear. This included how she organized her whole self (not just her arms and upper body, but also her pelvis, legs, breathing, mouth, throat, eyes, hands, etc). As if body surfing in the waves of her own inner ocean, I asked her to catch her involuntary waves and add more intensity and muscular form to her movements. This created a new type of wave, a differentiation of her involuntary wave that included her voluntary participation. Basically, I was teaching Angela how to do for herself what I previously would do for her. In previous lessons, I helped Angela regulate her spasticity by joining with her involuntary movements and then intentionally modulating the pressure—the firmness or softness I would create in me while in contact with her through my hands. Without trying to correct her involuntary movements, I added my voluntary influence. Now Angela was learning to join with her own involuntary movements and influence her spasticity through modulating her own efforting.

Angela practiced adding more form, more muscular effort to her involuntary movements to make her pattern more pronounced and vivid. I encouraged her not to exaggerate her movement pattern by making it bigger or more wild, but to maintain its size and use muscular effort to make it thicker, more dense. Following the shape of her involuntary flailing, Angela made a clear and directed movement upward and then a downward: Bang! She practiced adding more voluntary effort, more intensity to both the upward and the downward movement, turning it into a pounding action. Bang! Bang! Bang! With a big grin on her face, Angela banged purposely, defiantly, and clearly again and again.

Instead of struggling against her involuntary flailings, she supported, influenced, and formed them into an organized, complex action. Instead of relying on me to manage her spasticity, Angela influenced her pattern of spasticity herself. This created a new dimension of self-confidence, self-reliance, and self-esteem.

As Angela turned her involuntary flailing into a self-influenced, defiant "Bang!" she exclaimed, "Chutzpah. This feels like a new kind of chutzpah."

DIFFERENTIATING ANGELA'S "NEW KIND OF CHUTZPAH"

> *"To alter the course of an existence, the whole attitude and manner of action must be changed."*[3]
>
> —Moshe Feldenkrais

Chutzpah is a Yiddish word. For Angela, it is also an inherited and honed family tradition. It is what she relies on in her life to overcome challenges, forge ahead, and get things done. Angela's chutzpah has served her very well over the years. She has accomplished many things with the help of her chutzpah. And it is a cherished family quality. It took a lot of chutzpah on my part to suggest she continue differentiating her freshly formed "new kind of chutzpah," but I did it. I did it for three reasons:

1. To create greater "stickiness," more sustainability in her learning. By having Angela differentiate her freshly formed chutzpah, she would create related organizations of this behavior that would support her new learning.
2. To build more layers of connections within and in relation to how she organizes her freshly formed chutzpah. Moving, feeling, thinking, and sensing are all interrelated components of complex action patterns. Our bodily attitudes are motoric behaviors that orient how we assemble and organize our complex actions. Helping Angela to differentiate her "new kind of chutzpah" would deepen her connections within and between all these components, as well as orient how she organizes them into her complex action pattern.
3. To develop more nuanced ways of relating to herself and to how she approaches her actions and interactions. By differentiating her "new kind of chutzpah," Angela would begin to generate an inner somatic responsiveness and resiliency. This deepens self-contact and generates self-influence.

So I did it: "I like your attitude Angela. Let's differentiate it, shall we?" I proposed.
"Oh sorry," she exclaimed, "We can't mess with my chutzpah!" I assured her that differentiating her "new kind of chutzpah" would not reduce or eliminate it but rather help her to generate more distinct kinds of chutzpah. It was not a matter of chutzpah or no chutzpah. It was a matter of degree: how much chutzpah, and what kind? This would give her more expression and choice within her personal experience. Angela pounded clearly and emphatically: "I'm in."

Entering back into the dance of her involuntary and voluntary movements, this time she maintained the dynamic shape of her pounding, her "new kind of chutzpah," and de-intensified it. She slowed down and formed a clear knocking. "This is useful," Angela chided in her cheeky way. "Now I can knock and give them a warning before I go in and really pound on them." Through differentiation, Angela could now make choices: to knock, to pound, or to knock before pounding. This is useful not only in relation to others, but in relation to one's self as well.

THE FINAL DIFFERENTIATION FOR THE DAY

While maintaining her "knocking" Angela de-intensified it even further to make another distinct yet related action. As she made her gesture even slower and less intense, in midstream, she stopped and became very still. For fifteen seconds that lasted forever, neither of us moved. We were both in this silent, pulsing pause. It felt spacious and timeless, the space she had created. Angela suddenly and exuberantly threw her arms out toward me to give me a big hug, excitedly squirming in her wheelchair. She had never created this degree of quietude in herself before. It was remarkable.

SUSTAINABILITY AND "ON THE FLY" APPLICABILITY

The next time Angela came to see me, we both noticed how she was significantly and consistently calmer in her sitting. Her wiggling around was more like a gentle undulating than a jerking. She had been practicing catching her waves and differentiating their intensity all week—in her van, at work, at home. The effects of her practice were palpable and lasting. As for her chutzpah, she clearly still had it, but now she could experience and express it in more nuanced ways.

Angela has been able to use what she learned "on the fly," in real time in her life. When she had to speak to a large group of people, she got nervous, and her spasticity increased. This made her even more nervous, and her initial reaction was to try to clamp down on her involuntary movements, which made her spasticity even stronger. Then she remembered our sessions, and instead of trying to control her spasticity through clamping down, she began to influence her involuntary movements by maintaining their dynamic shape and giving them more muscular form, more density. She could then slow down and vary the intensity of her efforting in distinct steps to form new waves—new ways of containing her excitement and managing her spasticity.

IN CONCLUSION: SMALL DIFFERENTIATIONS MAKE BIG DIFFERENCES

Considering differentiation from an anatomical perspective opens the door to another dimension of understanding how humans develop, grow, form, and function. With Angela, I applied this understanding not only to our hands-on work, but also to how she influences her own behaviors.

Helping Angela to differentiate her "new kind of chutzpah" gave her choices in how she physically orients and organizes herself for action. By creating novel behaviors which grew directly out of familiar ways of functioning, and toward what she was interested in forming, Angela was able to continue her learning over time and on her own. Most importantly, Angela began to develop an inner somatic responsiveness and resiliency which deepens her self-contact and informs how she relates to herself and others.

NOTES

1 One definition in the Merriam-Webster dictionary is: "to mark or show a difference in: constitute a difference that distinguishes." *Merrian-Webster OnLine*, s.v. "differentiate," accessed July 21, 2015, http://www.merriam-webster.com/dictionary/differentiate.

2 "The normal process by which a less specialized cell develops or matures to become more distinct in form and function. . . . For example, a single-celled zygote develops into a multicellular embryo that further develops into a more complex multisystem of various cell types of a fetus. The cell size, shape, polarity, metabolism and responsiveness to signals change dramatically such that the less specialized cell becomes more specialized and acquires a more specific role." *Biology Online*, s.v. "differentiation," accessed July 21, 2015, http://www.biology-online.org/dictionary/Differentiation.

3 Moshe Feldenkrais, *The Potent Self* (New York: Harper Collins, 1992), pg. 33.

Refining the Self-Image: Feldenkrais Method® and Integral Human Gait Theory

Carol Montgomery

As Feldenkrais practitioners, we are steeped in a method that teaches us how to facilitate a person's capacity to move easily and functionally. The Feldenkrais Method trains us to appreciate the sensitivity of the human nervous system. In Functional Integration lessons, it is the clarity of how we touch and move people's bones that leads them to experience a more complete self-image. We also know that the quality of our contact allows the brain to build new pathways toward improved options.[1] This "fleshing out" of our self-image allows the possibility to engage in all aspects of our lives fully, free from habitual and parasitic patterns of action. To deeply sense skeletal support gives us access to another perception of ourselves and of our place in the world. The expression of our unique being in the world can be most clearly observed through our gait (walking).

The first purpose of this article is to help practitioners of all levels refine their self-images, and to suggest ways they can do the same for their clients. To that end, it presents an anatomical review of trunk and pelvic skeletal handles (landmarks) and their role as levers. Knowing anatomy, knowing functional anatomy, and knowing their roles as they relate to movement patterns are three distinct—yet interdependent—bodies of knowledge.

The second purpose of this article is to help practitioners understand and explore the potency of this interdependence by using Integral Human Gait theory—an integration of different viewpoints that collectively provide a map of gait, including forgotten and unexplored territories associated with gait. Note that the understanding of biomechanics of functional anatomy and movement patterns presented here is explanatory only. It is not presented with the intention of correcting the practitioner or student but in the spirit of Dr. Moshe Feldenkrais himself, who said,

"To me, there is nothing correct. However, if you do something and don't know what you are doing, it's incorrect, for you. If you do know what you are doing, then whatever you do, you are correct."[2]

"Walking is man's best medicine."

—Hippocrates

Locomotion is an evolutionary impulse. Bipedalism, with its attendant freeing up of the forelimbs, led to the expansion and reorganization of the sensory and motor areas of our brains, areas that process sensation and control movement.[3] While the use of our hands has certainly contributed to our survival for more than three million years, the origin of walking upright remains a mystery. Survival hypotheses range from scanning the horizon for predators to reaching for food sources and carrying food over long distances.[4] Some anthropologists speculate that social factors may have been principally responsible, as food sharing was an important component of social behavior.[5] Regardless of the starting point, two-legged walking has allowed us to hunt and forage for meat, create and manipulate tools, and evolve our brains.

Most human societies have developed to the point where walking is no longer a requirement for survival. Yet in terms of activating neuroplasticity and nourishing the systems of the body, the evolutionary importance of walking remains. The science is clear: a person who cannot (or will not) walk struggles with more health issues than a person who can (and does) walk.[6] A healthy gait feeds our joints and bones and assists our circulatory, lymphatic, and respiratory systems in the elimination of waste.[7] Walking regularly, even 10 minutes a day, helps support the optimal function of the digestive system, aiding peristalsis in the processing of food.[8]

Inefficient movement patterns and old injuries can contribute to osteoarthritis, tendonitis, bursitis, degenerative joint issues, and spinal disorders.[9] The biomechanical components of gait, particularly at the peak of standing on one leg, can impact the efficiency and quality of function of the muscular and nervous systems.[10] This can manifest itself in a person's ability to elicit the appropriate righting reactions and equilibrium responses required for adapting to ever-changing environmental conditions.

Recent studies support the impact of gait on cognitive functions as well.[11] Elderly subjects who walked for 40 minutes a day, three times a week, for one year, experienced a two-percent increase (on average) in the size of their hippocampus, the part of the brain that controls memory and emotion. Lowering blood pressure and increasing blood flow seem to be key factors, as the hippocampus size did not increase in subjects who did stretching only.[12]

For the past five years, investigators have observed the causal effects of posture on the mental experience of power, suggesting that upright posture is linked to a stronger self-image.[13] From a somatic perspective, strength might be more appropriately understood here as the *clarity* of one's self-image, or a more complete awareness of one's parts. Power-posing (certain static sitting and standing postures, held for two to three minutes) has been shown to affect the endocrine system, increasing testosterone levels and decreasing cortisol levels in both men and women.[14] This powerful combination of hormones notifies the body that it is capable of responding from a place of mental clarity, a place of options and choices, rather than from an anxious or parasitic mental state.

INTEGRAL HUMAN GAIT

Gait is fundamental to our lives; at the heart of the human experience is the *how* of walking. It shapes our physical comfort, our sense of security, and our emotional well-being. Beyond the usual characteristics of the stance and swing phases of gait lies a more comprehensive map that goes beyond the established findings of physical medicine, rehabilitation, and sport training—a map that charts our relationship with gravity as it fluctuates between adversarial and allegiant. The author and her colleague, Cynthia Allen, have a name for this new map; they call it Integral Human Gait theory.

In the development of Integral Human Gait theory (IHG), we look to other fields of study in order to create a more cohesive and comprehensive picture of gait. In addition to the somatic field of education, we study contributions from the fields of osteopathy, physical therapy, anthropology, human potential, biomechanics, exercise science, human kinetics, and neuroscience. Because the way we walk impacts our well-being, human evolution, and global development, IHG works in concert with all the aforementioned fields to help people find their optimal gait.

The philosophy of integral map or model making, as observed throughout the written works of Ken Wilber, influenced the development of Integral Human Gait theory. Wilber pulls concepts and theories from the disparate fields of business, politics, science, and spirituality, and he integrates them with concepts and theories from the field of developmental psychology. He defines the word "integral" as "to integrate, bring together, to join, link, and embrace."[15] His findings include the observation that most models have six to eight major developmental levels of growth, representing the way people see, interpret, and experience their world throughout the stages of childhood, early adolescence, adulthood, and late adulthood.

The developmental levels identified by Wilber are present in all facets of human growth and development (physical, emotional, mental, and spiritual). Each level is like a hidden map that people use to navigate the territories in which they live. Feldenkrais understood these hidden developmental growth maps as well, along with the impact they have on our capacity for learning. In *Embodied Wisdom*, he wrote,

> "But there is a learning in which you have no say whatsoever, and that learning is latent in the natural laws which have produced our brain and our nervous system and our body and our muscles. These laws are included in the cosmic laws of the universe. They are so precise and so sequential that you have no say about the order you will learn them in. They must be learned in that order; if not, you will not develop as a normal human being."[16]

Feldenkrais believed we cannot perform certain functions until the capacity for them has been developed. For the most part, we are unconscious of the underpinnings within and across these developmental levels and of the strong intra- and inter-functional relationships at play. According to Feldenkrais, "In the human nervous system, each part comes into function in a sequence, one after another. The functioning helps the growth at each stage as a new part of the brain comes into dominance, and changes the entire way of action. This type of learning must proceed at its own pace."[17]

Another fundamental principle of IHG theory is based on Wilber's idea to study and categorize items in terms of their nature. He uses the word "holon" (derived from the Greek word for "whole") to describe things that are simultaneously whole and part of a whole: "every entity and concept shares a dualistic role – as an autonomous, self-reliant unit (the whole) unto itself, and as part of one or more related units."[18] One example of a "holon" is the cell, which is unique as a cell and at the same time part of another whole, the organism itself. Another example is found in the traditional motor assessment of the developing infant.[19] Represented graphically (Figure 1), developmental milestones appear as concentric circles, with the higher levels both transcending and also including the lower ones.

Practitioners can often see when their students have not yet fully developed the recognition of certain movement patterns available to them. In Functional Integration lessons, practitioners invite exploration and clarity of a part that is not yet integrated or clear. The Feldenkrais Method helps students develop tools for sensing through the strategies of presence, precision, timing, and care. Gradually, increased levels of attention, concentration, kinesthetic imagination, and awareness allow students to discover and differentiate how the parts of a function relate to the whole of a person. When this perception of self is refined, the capacity for both movement and thought is grounded in choice, function, responsiveness, power, and possibility—what Feldenkrais called "mature behavior."

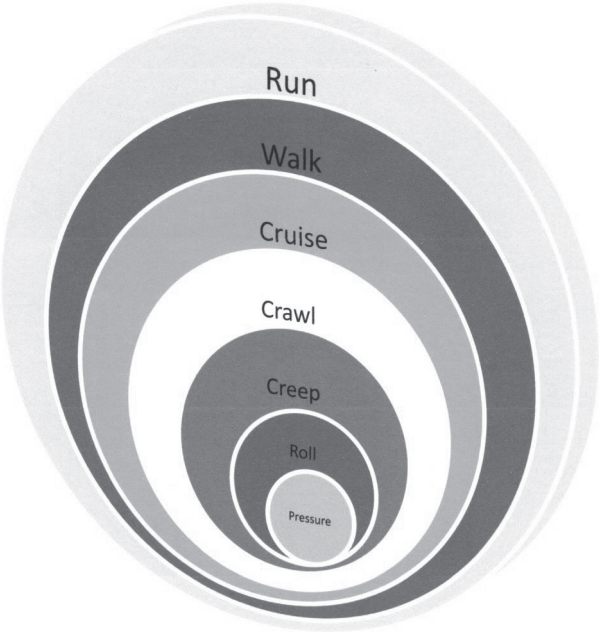


FIGURE 1 Use of the word "holon" to describe the traditional milestone/motor assessment of the developing infant.

> "The pattern of disease or injury that affects any group of people is not a matter of chance. It is invariably the expression of stresses and strain to which they were exposed, a response to everything in their environment and behavior."
>
> —Calvin Wells[20]

As Feldenkrais practitioners, we know that Awareness Through Movement lessons improve the organization of the whole person. There are specific lessons that alter the organization of the head, the shoulder and pelvic girdles, and the ribs. In particular, the shoulder and pelvic clock lessons have a powerful impact on the central and peripheral nervous systems and on functional movement. Movements initiated during the clock

lessons are examples of the term "holon," as they are simultaneously self-reliant units (shoulder/pelvic girdles influencing their respective appendicular counterparts, arm/hand, and leg/foot) and parts of something else (head and axial skeleton, protective righting and equilibrium reflexes, health and homeostasis of physical dynamic systems within the body, access to social life and place in society, and influencing community and world development).

Depending on the orientation of the clock, practitioners can see potential for the actualization of all functional movement patterns: rolling on the floor and turning when upright, reaching upward or outward, standing on one leg, sit to stand from various heights, climbing, walking, and running. Embedded in each lesson are exploratory clues that can unlock potential energy and illuminate movement patterns. The simultaneous existence of whole and part becomes clear when the clock movements are experienced through ipsilateral and contralateral planar movements. Clock lessons are most effective when performed in a variety of positions, including side-lying, supine, prone, floor-sitting, chair-sitting, and standing with hands, feet and/or knees connected to the floor, the wall, or a chair. Since the whole and part of each clock movement are experienced in all three planes (sagittal, frontal, and transverse), the changes in spatial orientation enhance the three-dimensional quality of self-image.

FUNCTIONAL ANATOMY AND SKELETAL HANDLES

IHG theory uses the concepts of multi-planar and counter-rotational movements to restore spontaneous and functional interdependent movement patterns. There are three cardinal anatomical planes that pass through the body—sagittal (anteroposterior), frontal (coronal), and transverse (horizontal). The sagittal plane divides the body into the left and right side. The frontal plane divides the body into the front (anterior) and back (posterior) portions. And the transverse plane divides the body into the upper (superior) and lower (inferior) portions.[21] Each plane is perpendicular to the other. For movement to occur in a plane, it must rotate about an axis that has a 90-degree relationship to the plane. During activities of daily living such as reaching, walking, and exercising, movement usually occurs in more than one plane at a given joint and is therefore referred to as multi-planar. Both somatic- and medically-based rehabilitative fields recognize the benefits of moving equally well in all cardinal directions. For example, the harmonious lateral translation of the C7 vertebrae and the pelvis over a standing foot allows the other leg to effortlessly lift up off the ground and swing forward during walking. Students of the Feldenkrais Method understand that it is not just the ability to do a particular action or movement in various planes, but rather the quality of that action or movement that matters.

A way to restore or enhance quality of movement is to consciously explore the concept of counter-rotation or three-dimensional joint kinematics. There are two ways to think about counter-rotation. First, let's explore the oppositional movements that occur within a single joint. At all joints, the motion between articular surfaces is the same, whether the distal lever moves or the proximal lever moves. However, the proximal lever and distal lever move in opposite directions to produce the same joint motion.[22] For example, consider the motion of straightening and bending the knee, known as extension and flexion, respectively. The architecture of the "distal lever," or tibia plateau, is uniquely designed to produce five degrees of external rotation during the last 20-30 degrees of knee extension.[23] The relevance of this rotation is that it "locks" the knee while standing, therefore reducing the work performed by the quadriceps muscle. From a functional anatomy perspective, the tibia rotates internally during the swing phase of gait (knee flexion) and externally during the stance phase (knee extension), while the femur, or proximal lever, moves in the opposite direction. In other words, there is femoral external rotation during knee flexion and femoral internal rotation during the last 20-30 degrees of knee extension.[24] At the ankle, the tibia now becomes the "proximal lever" and at mid-stance is still rotating internally while the "distal lever" (the subtalar joint) reaches peak pronation at mid-stance.[25]

Another way to think about and experience counter-rotation is as oppositional movements occurring with collective parts of the skeleton. The ability to counter-rotate productively is a basic requirement for the developmental movements of creeping, crawling, and walking. Counter-rotation is not new to Feldenkrais practitioners, as it is generally introduced and explored early in training programs. Supine "press-and-lift" Awareness Through Movement lessons awaken the counter-rotations necessary for these early developmental movements. The basic actions of the lessons are: press/lift one shoulder, press/lift one side of the pelvis, and press/lift the diagonal shoulder and pelvis at the same time. In all counter- or oppositional-movement patterns, the part that is moving up will have a counterpart that is moving down. Likewise, that which is moving forward has a counterpart moving backward, and that which is moving in has a counterpart moving out. In reference to the body or extremities, one might be familiar with the term contralateral, which refers to the oppositional movement of the arms and/or legs that is not necessarily analogous to (but is the effect of) counter-rotation. Multi-planar or three-dimensional counter-rotational movements of the shoulder and pelvic girdle can produce contralateral arm and leg swing.

The counter-rotational movement of the pelvis and shoulder girdle has been extensively studied in rehabilitative and movement-analysis fields, where it is referred to as trunk-pelvis coordination, or pelvis-thorax rotation.[26] The difference between IHG theory and the Feldenkrais Method (along with other fields of gait study like physical therapy, kinesiology, clinical biomechanics, and orthopedics) is the identification of a specified skeletal location in the trunk or thorax where counter-rotation of the two girdles should optimally occur. Some authors state that the motion of the trunk in opposition to the pelvis during gait is mainly due to the reverse arm swing, while others conclude that arm swing is passive, and that upper-body movement is powered by lower-body movement.[27] IHG theory, on the other hand, proposes several anatomical and functional movement patterns that address key areas of the skeletal system that may be less familiar to practitioners—areas that can facilitate multi-dimensional counter-rotations within the shoulder girdle, spine, and ribs.

To explain the three-dimensional counter-rotation of the pelvic and shoulder girdles during gait, Feldenkrais's clock lessons are offered alongside the biomechanically-based stance and swing phases of gait. First, consider the movement of the pelvis on the standing leg. As illustrated (Figure 2), the right leg is lifted and swings forward, but it has not yet started its descent back to the ground. In order for this movement to occur in the most efficient, effortless way possible, and with a neutral lumbar spine, the right side of the pelvis must simultaneously translate left, tilt laterally in the frontal plane, translate anteriorly in the sagittal plane, and rotate left in the horizontal plane. Interpreting these movements using the pelvic clock image, the right side of the pelvis has moved up to the 12 o'clock position and then forward to 1, 2, and 3 o'clock positions.

Since the right side of the pelvis is connected anteriorly through the pubic symphysis and posteriorly through the sacrum, the left side of the pelvis is simultaneously rotating left in the horizontal plane and translating posteriorly in the sagittal plane. Literally, the left acetabulum, or hip socket, rotates on top of the left femoral head, or ball of the left standing leg. If a clock were placed on the left side of the pelvis and viewed outwardly, one would observe movement toward 6 o'clock, then backward to 5 and 4 o'clock. The femur on the standing leg needs to rotate internally when it starts to bear full weight. This internal rotation is dependent on the pelvis moving in three dimensions around the head of the femur, and it is a prime illustration of individual joint counter-rotation and how the pelvic clock lessons can be transferred to gait.

The concurrent counter-rotation of the shoulder girdle to the right is also illustrated in Figure 2. The shoulder girdle tilts laterally and to the right in the frontal plane. Again, viewing the clock outwardly, the right shoulder clock has moved through 6, 7, 8, and 9 o'clock, and the left shoulder clock has simultaneously moved through 12, 11, and 10 o'clock. It is the anterior translation of the left shoulder girdle (toward 10 o'clock) and the posterior translation of the right shoulder girdle (toward 9 o'clock) that is the basis for the contralateral arm swing (Figures 3-4).

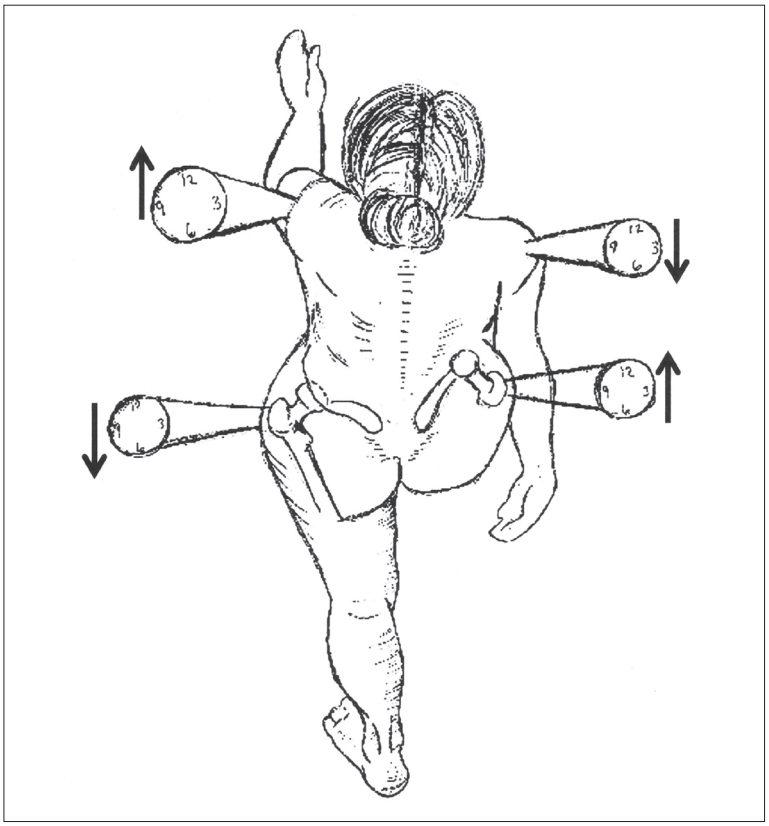
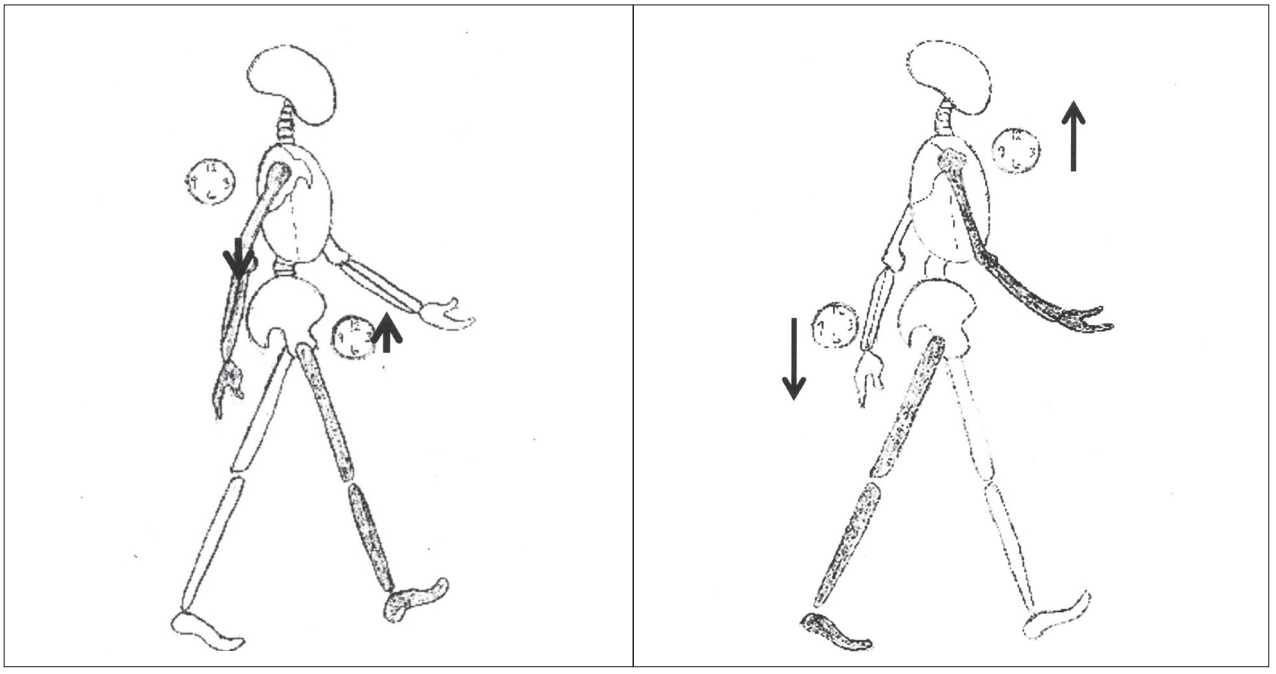


FIGURE 2. Stance and swing phase of walking. Right leg has left the ground and swings forward but has not yet started its descent to the ground. All clock images are placed on the lateral side of the body. The clock numbers are facing outward. Notice the distance between the clocks on the left is elongated. This indicates elongation of the left lateral trunk during left stance phase of walking.

FIGURE 3. Shoulder and pelvic clocks placed on the right shoulder and pelvic girdles during the later swing phase of gait. The clock numbers are facing outward. Notice the distance between the clocks is narrowed compared to Figure 4. This indicates sidebending of the right lateral trunk during swing phase of walking.

FIGURE 4. Shoulder and pelvic clocks placed on the right shoulder and pelvic girdles during the later stance phase of gait. The clock numbers are facing outward. Notice the distance between the clocks is elongated compared to Figure 3. This indicates elongation of the right lateral trunk during right stance phase of walking.



Currently, there are limited gait studies that specifically address the functional anatomy of the spine, the sternum, and the individual ribs during counter-rotation. Often these areas are referred to collectively as "thorax or trunk."[28] Instead, IHG theory proposes a dividing line between the upper and lower thoracic vertebrae and their corresponding ribs for optimal gait. The lumbar spine, the lower thoracic vertebrae (approximately T7-T12), and their corresponding ribs follow the multi-planar direction of the pelvic girdle, while the upper thoracic vertebrae (approximately T1-T6) and their corresponding ribs follow the multi-planar direction of the shoulder girdle. Gross anatomy of the axial skeleton (sternum, ribs, and vertebrae) is used to help further explain the vertebral/rib coupling of the shoulder/pelvic girdles, as follows:

> Observe the length of the sternum (Figure 5). Notice the ribs that are directly attached to the length of the sternum. Ribs 1-6 have their own individual attachments. These sternocostal (SC) junctions are joints comprised of cartilaginous discs, ligaments, joint capsules, and synovial fluid. Ribs 7-10 share an ascending conjoined attachment to the sternum via Rib 7. These ribs tend to function collectively as a group known as the right and left anterior rib angles. Closer investigation of the muscular attachments to these angles and to the ilium supports the idea of a dividing line above the lower thoracic vertebrae and their corresponding ribs.

There are certain anatomical landmarks of the skeleton that are ideal to use as skeletal handles (Figure 11). When utilized appropriately, they can help bridge the gap between anatomy and functional anatomy. Practitioners can use them as levers to direct specific lines of force through a joint or joints and help their students experience biomechanics. In addition, the clarity of skeletal handles in movement can help students improve the three-dimensional quality of their self-image.

One of the novel skeletal handles worth exploring is the bilateral anterior rib angles. Each anterior angle is made up of the ipsilateral lower six ribs. For people who suffer from chronic lower back pain due to degenerative discs and facet joint disease, most multi-planar movements of the pelvis occur at the waist level. This area is also known as the level of the iliac crests. Anatomically, this is the location between the fourth and fifth lumbar vertebrae (Figure 6).

Not all vertebrae are designed to rotate in the horizontal plane. The skeletal architecture of the interlocking lumbar facet joints is designed to have the least amount of horizontal rotation within the entire spine.[29] The lumbar facet joints are specifically designed for forward and backward motion in the sagittal plane (Figure 7). This forward and backward movement is between 12 o'clock and 6 o'clock on the pelvic clock when the clock is resting face-up on the lower abdomen and pubic area. Repetitive turning, stretching, rotating, and twisting movements at the waist level may therefore hinder rather than help those suffering from lower back pain. Exercise specialists, healthcare therapists, somatic practitioners, yoga enthusiasts, and massage therapists can take this into consideration when trying to help people who suffer from lower back and sacral pain. When used as an integral part of the ilium, the anterior angle of the rib allows for a more proportional distribution of the fulcrum of rotation across the facet joints of eleven vertebrae (Thoracic 7 through Lumbar 5) instead of just one or two vertebrae at the waist level (Lumbar 4-5). Therefore, degenerative pain from chronic tension, compression, and rotation through the lower lumbar spine can be altered.

To establish clarity of the multi-planar anterior rib angle movements with the pelvic girdle, the skeletal handles of Ribs 7-8 provide access to an under-defined self-image during functional movement patterns. Differentiation of the lower and upper divisions of the ribs in this area from the scapula can prove invaluable during Functional Integration lessons. Benefits include increased range-of-motion while reaching overhead with the same arm, increased shoulder/pelvis and head/shoulder differentiation, a more fluid activation of reciprocal arm swing during gait, and an increased stability during the single-legged stance.

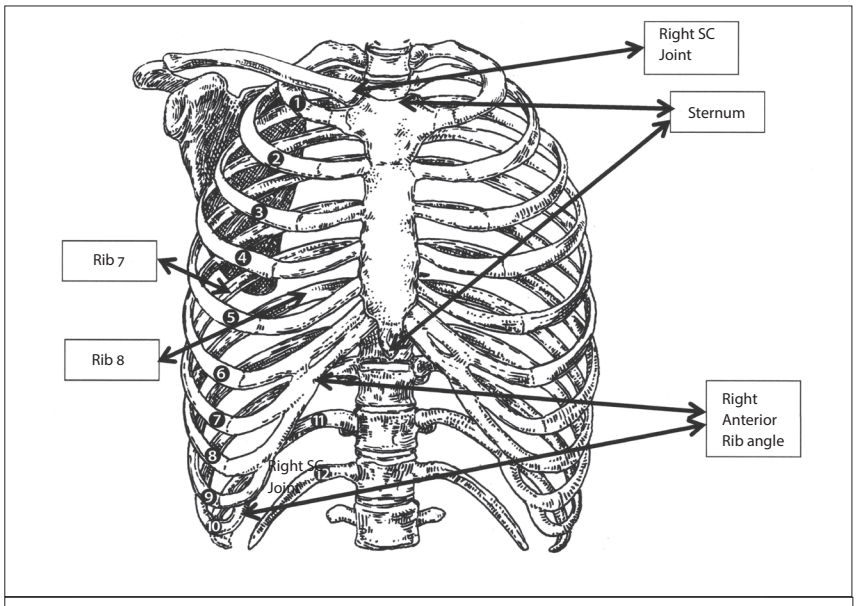


FIGURE 5. Bony framework of the thorax (anterior view). Observation of the length of the sternum, right and left anterior rib angles and the location of the posterior and interior surface of Ribs 7 and 8 in relationship to the inferior angle of the scapula.

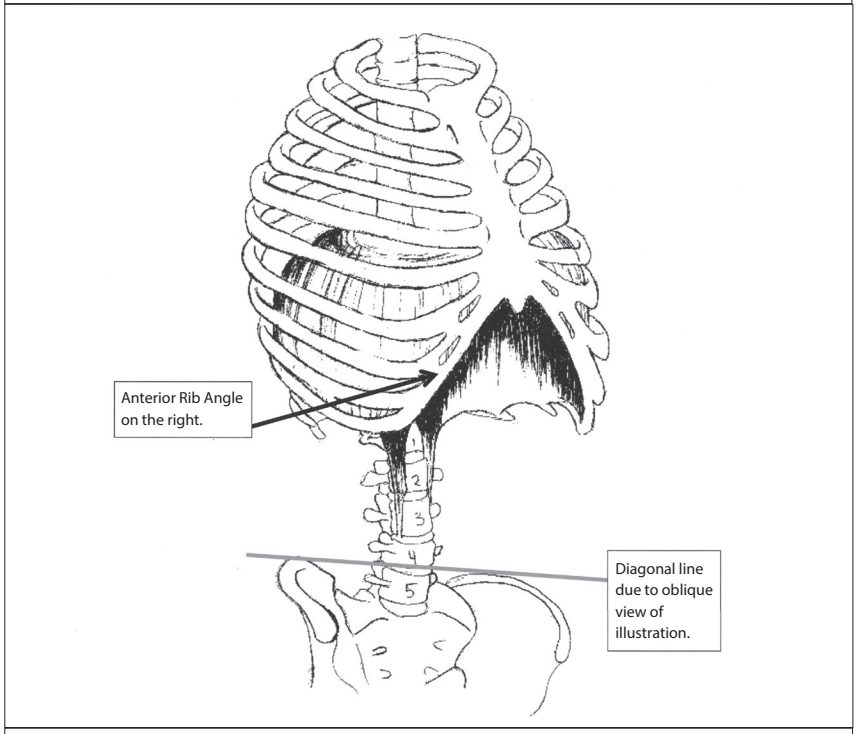


FIGURE 6. Location of Lumbar 4 and Lumbar 5 in relationship to the ilia. Attachment of the diaphragm to the anterior (interior) rib angles.

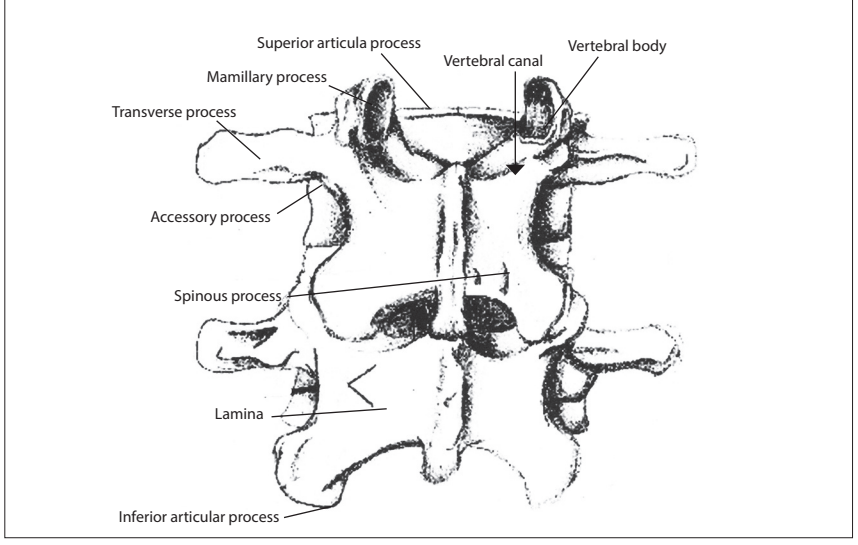


FIGURE 7. Lumbar vertebral facets (labeled above as superior articular process) are architecturally designed to promote forward and backward bending.

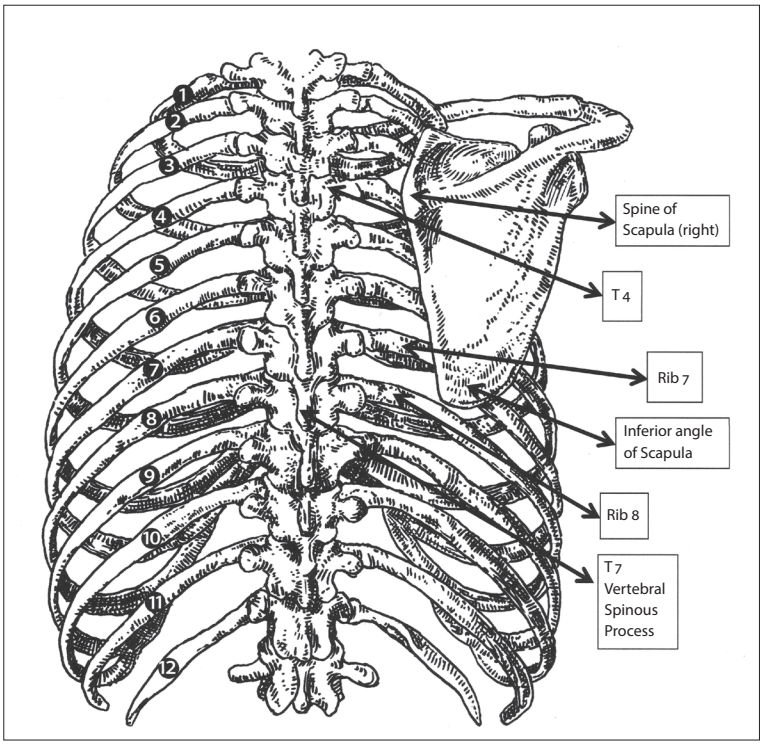


FIGURE 8. Bony framework of the thorax (posterior view).

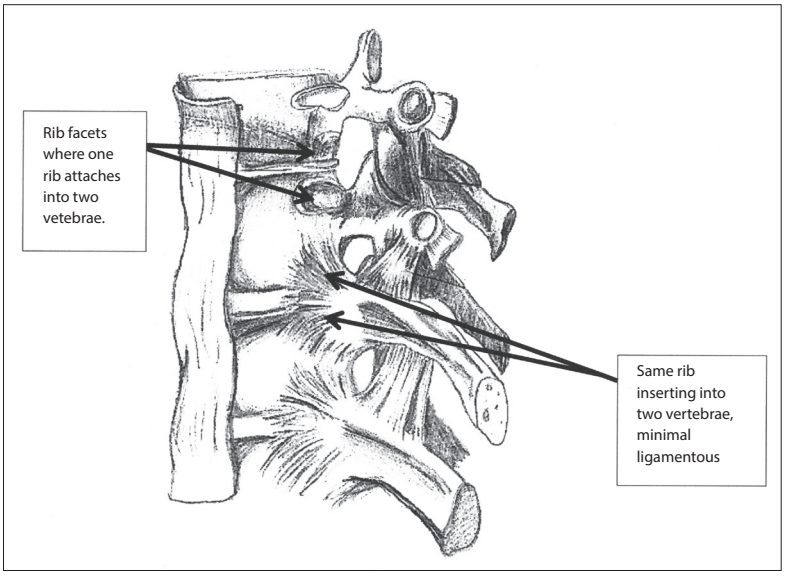


FIGURE 9. Thoracic vertebra and corresponding rib. Three views or levels of anatomy illustrating how one rib attaches into two vertebrae: maximum ligamentous support, minimal ligamentous support and rib facets

This increased flexibility and differentiation also allows people to look over each shoulder while walking without losing their balance. The interior surfaces of anterior rib angles serve as the origin of the anterolateral attachments of the diaphragm (Figure 10). Differentiation between the upper and lower ribs allows the diaphragm to return to neutral. In turn, the reduction of chronically-held dysfunctional movement patterns in the diaphragm allows for an increase of volume during inhalation.

A lack of anatomical knowledge can contribute to an inaccurate or incomplete self-image. Take the scapula, for instance. People often feel the inferior angle of the scapula sliding over their ribs and erroneously assume they are feeling their upper ribs (Figure 8). The configuration of ribs is frequently (and mistakenly) viewed as a stack of plates. Like a plate, the front edge of the plate can be traced around, where the back edge is presumed to be at the same level as the front

edge. As we know, this is not true in the structure of human ribs (Figure 5). The inferior angle of the scapula is an easily-palpated skeletal landmark used in Feldenkrais training to assist in differentiating movements (assuming the scapula is "ideally" located on the back). Rib 7 can be found directly underneath the inferior angle area, which leaves Rib 8 available for uninterrupted palpation and serves as a consistent landmark for counting and identifying the ribs above and below. Ribs 2-9 attach directly to their corresponding vertebrae *and* also to the vertebrae above. Rib 1 and Ribs 10-12 are *singularly* attached to their corresponding vertebrae. For example, Rib 8 attaches to the vertebral bodies of T8 and T7 (Figure 9); however, the long skeletal handle of the vertebral spinous process of T8 lies at the Rib 9 level (Figure 8). It is no surprise, therefore, that many people lack the anatomical knowledge necessary for a more complete self-image, given the various subtleties and nuances of the body.

All sensory systems of the human body deliver information to the brain in orderly maps.[30] The ability to discriminate between two points of contact on the skin relies on the density of sensory receptors within the area. For example, the skin on the fingertips contains about 100 times more receptors per square centimeter than the skin on the back.[31] Additionally, the middle back, which is rich in the mechanoreceptors that are located in all muscles and joint capsules, plays an important role in proprioception and motor control.[32] Through selective pressure and differentiated movement of skeletal joints within the area, the undescribed self-image in the middle back can be made clear. During Functional Integration® lessons, consider the importance of the *spine of the scapula* (Figure 8). This dense area of bone is a prime skeletal handle, as the fossa above and below the spine of the scapula can be quite thin and flat. Anatomically, the ideal resting position of the spine of the scapula is at the Rib 4 level. Knowing this anatomical connection allows practitioners to easily make the following two functional anatomy connections:

> First, the elusive mid-scapular ribs can be located individually and identified easily. Posterior rib clarity is further highlighted to its anterior skeletal handle counterpart at the level of the sternum. Using a slight but clear compressive force, the two skeletal handles become linked. Practitioners can produce a three-dimensional "see-saw" effect for students by moving the two ends simultaneously and in opposite directions. Clock images superimposed over the sternum and/or the middle back can further clarify and anchor the three-dimensional movement experience. Students can reliably replicate this movement themselves by using the clock numbers. Functionally reaching overhead or out to the side is easily permitted, as trunk elongation is possible without excessive arching or increased lumbar lordosis. The "see-saw" movement is hidden in all counter-rotating functional movement patterns.
>
> Second, by locating Rib 4, practitioners can outline and differentiate the Thoracic Vertebra 3-5. The spine of the scapula can then be used as a bridge to connect the hand and arm to the middle back. Clarity in this connection can lead to a perceived increase in strength, as multiple skeletal areas are congruently aligned and ready for any functional activity that involves pushing, pulling, or weight-bearing through the upper extremities. The upward sloping of the spine of the scapula also acts as an extension of the upper arm, especially when it is positioned in 120 degrees of flexion, scaption (elevation), or abduction.
>
> **NOTE**: The rib level associated with the spine of the scapula can change. As practitioners, do not be misled. It can be altered by the winging, tipping, or tilting of the scapula due to alteration in the normal amount of thoracic kyphosis, muscular imbalances of the shoulder girdle, or poor organization of the pelvis.

When both shoulder girdles are viewed together, their anterior connection is very similar to the connection of the two ilia that make up the right and left sides of the pelvic girdle. Unlike the pelvic girdle, however, there is no counterpart to the sacrum that binds the posterior aspects of the shoulder girdles. A shoulder girdle is comprised of three bones – the clavicle, the scapula, and the humerus. It is common for clients and students to have an inaccurate self-image of the scapula and the clavicle while walking. A lack of anatomical understanding may be one reason for this

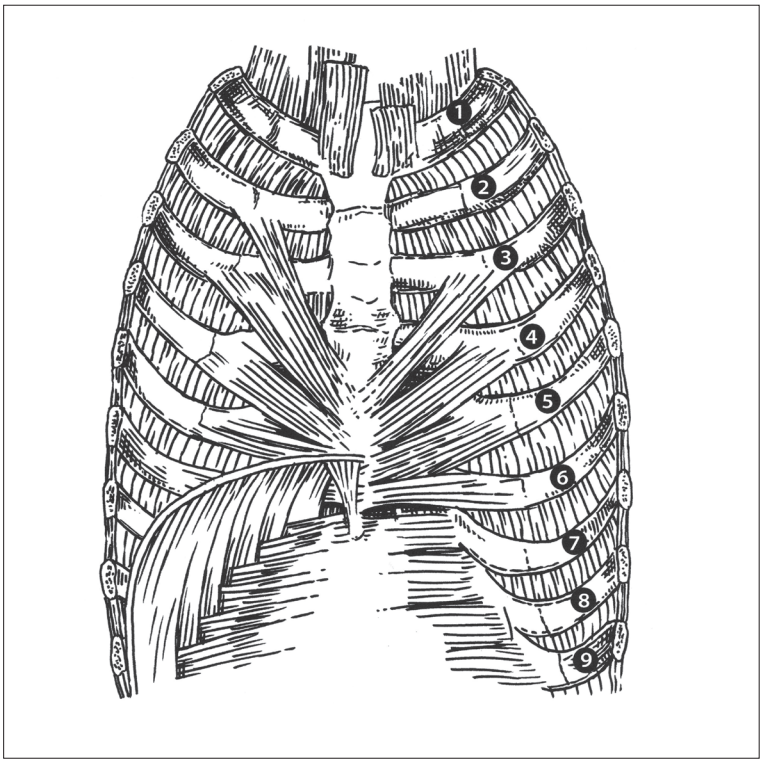


FIGURE 10. Interior surface of the anterior thoracic wall.

FIGURE 11. Examples of key skeletal handles that can bridge the gap between anatomy and functional anatomy
Bilateral Anterior Rib Angles
Spine of the Scapula
Posterior Lateral Rib
Sternum
Inferior Angle of the Scapula
SC Joint-Proximal and Clavicle

confusion. Most people perceive that the scapula and the clavicle are fixed or attached securely to the trunk. Indeed, there are muscular and ligamentous attachments that connect those areas to the ribs, but most people are unaware that there is only *one* true anatomical joint connecting these bones to the axial skeleton. The sternoclavicular (SC) joint connects the proximal end of the clavicle to the sternum (Figure 5). When the clavicle, the scapula, and the humerus are envisioned together as a single lever, the SC joint becomes the primary axis for functional movement. The subtle three-dimensional rotation of the scapula and the clavicle through their respective joints (the acromioclavicular joint and the SC joint) sets in motion the quality of movement of the entire shoulder girdle. The sensation of three-dimensional movement at this joint is often unfamiliar in a person's self-image.

Given this knowledge of shoulder girdle anatomy, functional anatomy can now be considered during the shoulder clock lessons. Movement toward each clock position can now reach beyond the familiar ball-and-socket description of the arm and shoulder blade. Clock movements can now reach the less familiar SC joint, especially when performed by the arm in a variety of positions. In turn, the SC joint can now be used as a skeletal handle during Functional Integration lessons to complete the three-dimensional self-image of the shoulder girdle. And finally, functional movement patterns and the maturation of kinesthetic imagination and awareness can now help us discover and differentiate how the specific *parts* of a function relate to the *whole* of a person.

Walking upright allows for the functional freedom of our upper limbs and hands. Individuals with a more developed and mature self-image are able to better sense movement through the collective architecture of each joint when an action is performed. The conscious sensation of this kinematic chain leads to a deeper awareness of functional anatomy and its application within specific movement patterns. As practitioners, you may now understand and explore the potency of skeletal handles in relationship to functional anatomy and IHG theory and consider the following questions:

What impact does gait have on neck, shoulder, and upper/lower back health?
Why is gait so important to human health and in relieving chronic pain patterns?
When is walking an agent of health versus an agent of disease?
Does the scapula move *over* the ribs, or do the ribs move *under* the scapula during walking?
What happens to the counter-rotations of the shoulder and pelvic girdles in the presence of poor posture or distortion in the normal anatomical curves of the spine and/or ribs (functional or anatomical scoliosis)?

CONCLUSION

Through our academic studies and practical experiences, we understand that the growth process is never complete, and we understand that we possess an infinite capacity for learning. As Feldenkrais practitioners, we know that when we move differently, we begin to look at life differently. May this introduction to Integral Human Gait theory add another dimension to your Feldenkrais Awareness Through Movement and Functional Integration lessons and provide you with some additional teaching tools. Consider the concepts of skeletal handles and counter-rotation within and between the pelvic and shoulder girdles. And be open to the idea that increasing levels of attention and awareness allow people to expand their self-image from something that is flat and two-dimensional to something that is more interactive, responsive, and three-dimensional. According to Feldenkrais, we do not have to return to "being a baby in order to function properly."[33] We can learn to move, walk, and stand differently because we are capable of re-wiring the very nature of our brains. We just have to remember that "there is nothing permanent or compulsive in [our] system, except what [we] believe to be so."[34]

Artist Contributions: Julie Lonneman, Amber Smith and Kim Watanabe

NOTES

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The Feldenkrais Method for Our Canine Friends

Mary Debono

SONNY HEALS HIS TORN KNEE LIGAMENT

The sound of barking dogs greeted me as I strode up the slate steps. A small woman with short, black, curly hair and a smile in her voice called out, "Come on in!" as she wrangled the canines away from the door. There were three of them—a gigantic Tibetan mastiff, a yellow Labrador retriever, and a chocolate Lab. I knew immediately who I was there to see: the yellow Lab enthusiastically wagging his tail while balancing on three legs.

Sonny, this exuberant five-year-old Lab, had torn a ligament in his right knee. He underwent surgery to repair his cranial cruciate ligament (oftentimes referred to as the anterior cruciate ligament or "ACL").[1] The surgery went well, and Sonny had been expected to return to full activity following a period of rest and rehabilitation. Ten months had passed since the surgery, however, and Sonny was still limping. His surgeon was at a loss to explain why.

In my Feldenkrais practice, I work with dogs, cats, horses, and humans. I'm an avid student of canine and equine anatomy, biomechanics, and behavior, so it was natural for me to adapt the strategies I learned in my Feldenkrais training to help four-legged animals with movement habits not unlike ours. I developed an approach, called *Debono Moves,* which empowers people to help themselves and their animal companions discover comfortable, healthy movement while deepening the human-animal bond. So here I was on Sonny's doorstep, looking forward to helping this cheerful Labrador discard his inefficient movement habits so that he could once again run and play with ease.

DOGS CAN LIMP OUT OF HABIT

I could see that even when Sonny put his right hind foot on the ground, he carried more of his weight on his left hind leg. And when Sonny walked, he had a distinct limp. The dog's body showed the telltale signs of this asymmetrical balancing act: his back was constantly tense, the muscles of his right hind leg had atrophied, and the muscles of his left hind leg were taut. Sonny's tight shoulders also indicated the extra work his front legs were doing.

Since the veterinary surgeon could find no reason for the dog's continual limp, it was possible that Sonny's habit of protecting his injured, painful leg had become so ingrained that he had forgotten what it was like not to limp. He had spent months guarding against pain, first from the injury and then from the surgery. In doing so, Sonny had lost the supple, confident use of his body. His continued limping put a constant strain on his opposite hind leg, leaving him predisposed to tearing that CCL. We certainly wanted to avoid that.

My job was to help Sonny feel that moving freely was safer and more pleasurable than limping. To do this, I tapped into the same wisdom of the nervous system that created the limp in the first place. After all, limping is an intelligent response to pain, in dogs as in people, which temporarily protects the injured area. The drawback only comes when the limp has outlived its usefulness and the imbalance creates strain and the potential for further damage. Since the limp was now an impediment, it was clearly time for the Labrador to let it go.

POSITIVE REINFORCEMENT CAN HELP CALM AN EXCITED OR DISTRACTED DOG

I went over to Sonny's dog bed and encouraged him to lie down. Sonny did as he was asked, but quickly popped up again. We repeated this a few times. Tail constantly wagging, Sonny was just too excited to lie down while there was a new person in his home. It is certainly possible for me to

work with dogs while they are standing up (I do it with horses all the time), but lying down would allow Sonny's muscles to relax, giving me more opportunities to move his back and legs, and generally allowing for quicker results.

It's been my experience that most dogs will begin to settle down and enjoy the session once they feel that my hands are offering them a way out of their usual discomfort. So each time Sonny lay down, I used my hands to gently lift and support the muscles along his back. I worked down one side of his spine and up the other. My movements were leisurely, light, and rhythmic. Sonny's eyes began to close and his breathing deepened.

SONNY LEARNED THAT MOVEMENT CAN BE BALANCED AND PLEASURABLE

The lifting motion helped relieve the tension in Sonny's overworked back muscles. Even more importantly, Sonny experienced that movement in his back could be pleasurable and comfortable once again.

This is an important step—letting the animal experience that it's possible to feel differently, to feel better. This knowledge helps break the vicious cycle of protective habits, making change, once dangerous and potentially painful, an easy and pleasing option.

After slowly outlining Sonny's spine on both sides, I placed my hands on the fullness of his body and delicately slid his ribcage in various directions. This helped to relieve the strain in Sonny's shoulders and neck. I also worked with his sternum and individual ribs, reminding Sonny that these parts could move too. I supported the muscles along Sonny's shoulders, which elicited great, deep breaths of apparent appreciation. At this point, Sonny had stopped thinking about getting up to play or to investigate any noises.

I supported and guided Sonny's body, letting him feel how his different parts could move easily. I always kept the movements safe and gentle, continually checking the dog for signs of stress. I noted the depth and rate of his breathing, the look in his eyes, and the set of his ears and tail. To reduce the chance of causing him anxiety, I worked with Sonny's non-injured side first. I alternated between moving the left hind leg and the right hind leg, so Sonny could experience how the movement of both hind legs felt similarly safe and pleasant. As we ended that first session, Sonny's softened muscle tone and slow, deep breaths indicated that he had let go of some habitual, parasitic contractions, although the limp was still present.

NON-HABITUAL MOVEMENTS REINFORCED THE LABRADOR'S PROGRESS

I returned several more times to work with this lovely dog. Since the brain is stimulated by novelty and variation, I used non-habitual movements in various ways to reinforce Sonny's learning. I placed a small hardcover book under his paws so that Sonny's brain would register that he was "standing" on a firm, flat surface. This "artificial floor," as we refer to it, gave Sonny the sensory experience of standing, evoking the neurological and physical functions that would allow him to stand more easily.

Using the artificial floor with dogs is different than with humans. In giving a Functional Integration lesson to a human, I can use the artificial floor to reproduce standing by creating force that travels directly from the foot into the hip joint. But given their natural angulation, dogs don't stand on straight hind legs. In addition, canines stand on their toes so that the calcaneus (our "heel bone") is off the ground. If you look at a dog from the side, the calcaneus is the part of the leg that sticks out at the back. It is one of a number of bones that forms a dog's tarsus, which is commonly referred to as the "hock." The hock is similar to our ankle.

To help Sonny stand and walk with confidence, I wanted him to experience how force could travel painlessly from his hind paws up into his spine. And I wanted to do it while maintaining the natural bend in his leg. To accomplish this, I held Sonny's lower tarsus between my thumb and index finger, while my other hand held the artificial floor against his paw. The artificial floor let me produce movement that traveled through Sonny's phalanges and metatarsals into his tarsus. I then pushed through

his tarsus into his knee. After changing the position of my hands, I pushed through his femur into his hip joint. Pressing gently but intentionally at the outside of his hip joint (greater trochanter), I produced movement that traveled through his pelvis and into his spine.

This transmission of force helped Sonny "stand" on first his left hind leg, then his right, all while he was lying down safely. This allowed him to experience "standing" with a relaxed back. I imagine that it had been quite a long time since his nervous system associated standing with a supple back.

THE DOG'S WHOLE BODY NOW MOVED IN A HEALTHY, COORDINATED WAY

Now that he was prepared, it was important that Sonny learn how to keep his back flexible as he actually stood and walked around. If he did not, his tight back would interfere with his freedom of movement and could set him up for further orthopedic problems down the road. To show Sonny how his back could remain supple, I asked him to stand, and I lightly moved his hips, pelvis, spine, and ribs. I then gently shifted his weight in a circle, allowing him to feel how he could now bear weight painlessly on all four limbs, including his surgically repaired right hind leg. This was very different than forcing the Labrador to stand on the leg he had been favoring. The circles gave Sonny the experience of shifting his weight safely and effortlessly from leg to leg, which allowed him to gradually give up the habit of protecting his right hind leg.[2]

Afterward, I encouraged Sonny to walk, and I was happy to notice how much freer he looked. Now that Sonny had improved his coordination, the different parts of his body worked together to share the effort of moving. Happily, Sonny's limp disappeared after several sessions. This exuberant Labrador had regained confidence in his body and could once again run and play with joy.

JACKSON STOPS ARTHRITIS IN ITS TRACKS

Dark-haired and impeccably dressed, Mary Jane entered through the glass door of my office with Jackson, her Airedale, limping along by her side. Although his left front leg was obviously bothering him, the black-and-tan dog didn't let it affect his attitude. Body wiggling, he greeted me as if I were a long-lost friend. As I squatted down beside her dog, Mary Jane explained that a veterinarian's examination and X-rays had shown that her dog had arthritis in his left carpus, the area similar to our wrist.

EVEN YOUNG DOGS CAN BE DIAGNOSED WITH ARTHRITIS

Mary Jane had not expected such a diagnosis. It would be one thing if her dog were geriatric, or even mature. But Jackson was only three years old! How could he have arthritis? She was dismayed to hear the words "degenerative changes" and "arthritis" spoken about her young dog. They were such hopeless words. Words that suggested a future filled with increasing pain, stiffness, and reduced mobility. Mary Jane was concerned how arthritis would affect Jackson's quality of life now and in the future, and she wondered if there was a way to change the course of her beloved dog's condition. So when a friend suggested that I could be helpful, Mary Jane didn't hesitate to contact me.

As I stroked the handsome Airedale, I too wondered why such a young dog would develop arthritis. Then I set to work to find the answer.

With Jackson standing quietly, I delicately shifted his weight in different directions. These explorations allowed me to sense how Jackson habitually carried his weight before the pain of arthritis caused him to modify his movement.

What I discovered was that Jackson had a habit of bearing more weight on his left front leg. Yes, the leg that had developed painful arthritis. Sure, he took his weight off that leg now that it hurt so

badly; but when I asked him to shift his weight in different directions, he returned time and again to loading that limb more than the others. The asymmetrical development of some of his muscles also pointed to this left foreleg bias.

OVER TIME, UNBALANCED MOVEMENT CAN CAUSE WEAR AND TEAR DAMAGE

Why was Jackson using his body asymmetrically? It is possible that at some earlier time the Airedale sustained an injury, even a minor one, on his right side. He may have compensated for the discomfort by slightly favoring his right side, which caused him to carry more weight on his left front limb. Since that strategy helped him feel better, he continued it, even long after it was helpful. Over time it became a habit and felt normal to Jackson, in much the same way that Sonny's limp had stuck with him. Although it may not be as visible as some limps, this kind of uneven limb loading can cause increased strain on joints and muscles. If it goes on long enough, injury can occur.

With Jackson now lying quietly on a royal blue dog mat, I supported his tense muscles, which were fatigued from compensating for his painful leg. This elicited deep, audible breaths from the Airedale. Helping a dog to release sore, tense muscles enhances relaxation, develops trust, and allows the dog's nervous system to focus on learning.

I then used my hands to guide different parts of his body through gentle, novel movements, which, as we know, can stimulate the creation of new neural connections. Such neural activity meant that the Airedale would be less likely to be stuck in his habitual, unbalanced way of moving, which had been overstressing his left wrist. Instead, Jackson could learn how to load his limbs in a healthier, more equitable way.

THE LESS PRESSURE YOU USE WITH A DOG, THE MORE YOU AND THE DOG CAN FEEL

After working with the dog for about 40 minutes, I began exploring the movements of his front leg joints. I was very careful to make only light, delicate movements that were barely more than a thought. Since the Feldenkrais Method of somatic education works by engaging the dog's brain, small and gentle movements that leave room for thinking and the generation of new neural pathways are usually best.

These small movements did not invoke a protective response from the dog. Large, potentially unpleasant manipulations can create muscular contractions around the joint, which further limits its movement. Anxiety about being hurt also prevents the dog from learning a healthier way to move.

I ASSOCIATED JACKSON'S NEW MOVEMENT POSSIBILITIES WITH PLEASURE AND EASE

And even though Jackson's right wrist could have easily and safely been taken through a greater range of motion, I only moved it the same amount that his left wrist could easily move. This provided Jackson with an equal sense of mobility in both legs. I wanted Jackson to feel the possibility for fluid movement in his left leg by associating it with pleasure and ease. By alternatively moving the dog's left and right wrists, I helped strengthen this association.

Again, the dog was creating new neural pathways between his brain and his left leg. Hopefully, they would enable him to use his leg in an easier, more functional way. The Airedale, still lying on his side, often closed his eyes. Jackson's soft facial expressions and slow, even breaths let me know that he remained relaxed throughout the session.

While it was wonderful to see how good Jackson felt while he was lying down, it was time for him to experience that he could now walk better too. So after asking the young dog to stand up, I gently shifted his weight in a smooth, even circle, just as I had with Sonny. The exercise let the Airedale feel how he could use all four of his limbs in a more balanced way, something he was not able to do when he limped into my office. To further enhance Jackson's body awareness, I put my hands on various parts of his body as Mary Jane asked her dog to walk around.

Jackson left the office that day without a limp. He was, according to Mary Jane, "a new dog." And while the reader may be left wondering how one Feldenkrais session could possibly cure arthritis, I have an explanation: Jackson's arthritis *wasn't* cured. If a radiograph was taken immediately following the session, it would look the same as it did before the session. Based on X-rays alone, it would appear as if the session had done nothing helpful at all. But radiographs don't tell the whole story. While X-rays can tell us what an individual's skeletal structure looks like, they don't tell us how efficiently the individual uses that skeleton.

FOR LONG-LASTING IMPROVEMENT, I ADDRESSED THE CAUSE OF THE AIREDALE'S ARTHRITIS

What the Feldenkrais principles did was help the Airedale release the neuromuscular tension that caused much of his acute soreness and stiffness. And even more importantly, Jackson discovered how to move in a way that reduced the stress on his joints and muscles. That is why giving a dog pain-relieving medication, without resolving the underlying issue causing the arthritis, simply masks the pain. It doesn't stop the cycle of excessive wear and tear.

Although he received sessions later in his life for minor sports injuries, the arthritis in his left foreleg stopped being a problem for Jackson. As a matter of fact, I took to calling him *Action Jackson* due to his high energy and athletic prowess!

It was fortunate that Jackson's carpal arthritis was diagnosed at an early stage, before the arthritis caused significant deterioration of his carpal joints. Unfortunately, that is often not the case. Since many dogs develop arthritis slowly, they gradually become accustomed to the stiffness and discomfort. These dogs often do not limp or otherwise reveal their problem until the arthritis becomes more advanced. Jackson's limp and Mary Jane's quick action allowed her dog to make a full and speedy recovery.

As Jackson's story illustrates, early intervention can prevent a temporary dilemma from becoming a progressive, debilitating problem. That is why I teach people how to recognize the early, subtle signs of movement difficulties in their animal companions. A big part of my practice involves instructing dog lovers how to sensitively touch and move their dogs in ways that encourage learning in both dog and human. Such shared movement explorations can reduce stress and strain, enhance awareness, promote vitality and deepen the human-canine bond.

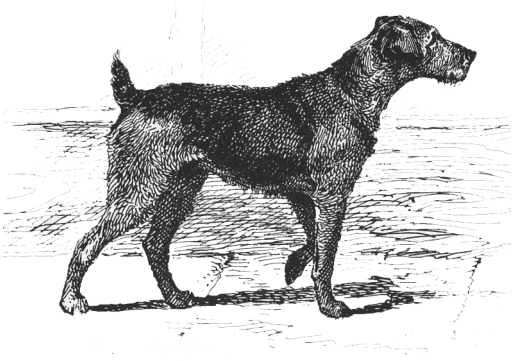
You can add novelty, variety and a whole lot of fun to your *Feldenkrais* practice by working with dogs. To get started, you might try a little comparative anatomy, improving your understanding of human anatomy by exploring the skeletal behavior of your canine friends. Then use your knowledge as a *Feldenkrais* practitioner to suggest new possibilities of movement to a canine client. You could change the course of a dog's future, your future, and expand the field of the Feldenkrais Method.

NOTES

1 While many people use the term "ACL" when speaking about their dogs, it is more accurately referred to as the cranial cruciate ligament or "CCL" in dogs.

2 Pelvic clock and crawling Awareness Though Movement lessons have prepared us for understanding what it means to shift a dog's weight in a circle, but if you can't immediately call up the sensation of shifting your own weight when on all fours, you might review the following exercise, which I often give to my human clients when I am working with their dogs. Find a carpeted area and go on all fours. Your weight will be on your hands and knees. If it's difficult to put your palms on the ground, place your fists on the ground and keep your wrists straight. Notice how your weight is distributed over your four limbs. Shift your body so that you take more weight onto your left hand. Keep the weight there for only a second or so, and then shift your weight onto your left knee, then your right knee, and then your right hand. You just shifted your weight in a circle.

Now do it again, noticing what parts of your body move to accommodate your weight shift. Can you feel your torso, pelvis, and head responding? Can you make the movements lighter and faster, so that you reduce the pressure on each of your four limbs? Remember that the lighter your movements are, the more you will feel. The more you feel, the more you can improve. Explore how easily you can shift your weight from limb to limb in a circle. Does moving other parts of your body help you shift your weight effortlessly? Change the direction of your circles and notice any differences.



Developing a Healthy Bias: Four Days with Sheryl Field

Seth Dellinger

> *This work has the astounding quietness and precision that allows a child—even at the earliest age—to hear themselves and do right for themselves, to do better for themselves.*
>
> —Sheryl Field

Sheryl Field sat on the edge of the table, kicking her feet back and forth in the air, allowing the movement to rock her entire body. As she did this she turned her head from left to right, making eye contact with each one of us as she told stories and shared her ideas. She did this almost without pause for four days. At one point, she acknowledged, "I kick all the time, in case you didn't notice. I'm always wiggly!"

Field is not a little girl, but she hasn't forgotten what childhood feels like. The magical experience of learning that pervades each one of childhood's waking moments is at the heart of what she lives and teaches.

Field has over three decades of experience as a Feldenkrais practitioner. She specializes in working with infants and children with motor disorders and developmental difficulties. Since 1999, Field has been Executive Director of the Field Center for Children's Integrated Development.[1] She leads a team of half a dozen Feldenkrais practitioners who see a couple dozen children with a wide range of diagnoses on a daily basis. She also leads advanced trainings and professional development programs for Feldenkrais practitioners who wish to specialize in working with children.[2]

This past January, my classmates from the Feldenkrais Training Program of Baltimore and I had the good fortune to work with Field for an extended weekend. Having reached the third year of our four-year training, many of us were already teaching Awareness Through Movement (ATM) lessons. We were already aware that many ATM lessons are based on motor patterns established early in a child's development. Still, for most of us, this was our first opportunity to learn what it might be like to work with children directly.

During four days of guided movement, demonstration, and discussion, Field showed us how to identify what she considers to be the foundational patterns of all human movement—patterns that can already be observed in the fetus at the earliest stages of development in utero.

We discovered how each person has a bias towards movement in a particular direction, and how learning to recognize this bias in ourselves and others provides a unique opportunity for increased self-awareness. Field also invited us to imagine and revisit the unique psychological experience of being a baby, when *learning how* to move also meant *learning about* our bodies and limbs for the very first time.

"DEVELOPMENT HAS A DIRECTION, BUT IT IS NOT *DIRECTED*"

"There is a general sequence to a baby's motor development," writes movement educator Beverly Stokes in *Amazing Babies* (2002), "but that sequence is not linear."[3] Similarly, Field told us, "Development has a direction, but it is not *directed*." In other words, all babies must face similar challenges, but each baby will solve these problems in a unique way, and not always in the same sequence.

Furthermore, the process of human development involves individual preferences and biases. While we share innate tendencies to turn towards light or sound, we also respond uniquely to other aspects of our surroundings. We should certainly take notice if an infant seems to be falling

behind on an essential developmental milestone, but we should never expect any baby to progress in exactly the same manner as her peers.

As Field understands it, there are three essential qualities that define the development of all human actions. First, our orientation to the environment hinges on our ability to locate ourselves in the field of gravity. In other words, we need to know "which way is up." Second, as we move, we must determine which direction we are moving in. In other words, what are we moving towards? Finally, we must be able to modulate our behavior when internal or external stimuli suggest the need for us to reverse or change direction. These essential qualities, already observable in the movement of newborns, are areas where we can always look to support a child's development.

Long before learning language or high school physics, the baby is learning how to act out her intentions in relationship to her environment—simultaneously sensing, feeling, and acting. She does not gain this knowledge through lying still and contemplating her situation but rather through movement.

As Field led us through a series of Awareness Through Movement lessons, she urged us to keep the following idea in mind: the baby is simultaneously discovering her environment and herself. The movement sequences that Field prepared for us mirrored the challenges that a baby playfully engages as she makes her way from moving entirely at ground level to standing and walking.

"Think of yourselves as fierce newborns!" Field said. "It's not easy being a baby, going through all of your developmental paces, and some of these lessons might not be so simple for you either." Indeed, there were many challenges and discoveries made over the course of the weekend, as we wiggled, rolled, twisted, and reached, and as we looked for balance and comfort on our backs, our stomachs, our hands and knees, and, finally, on our feet.

ATM lessons are central to the education of future Feldenkrais practitioners. A trainee lying on the floor will later teach the lessons he is learning and also develop Functional Integration sessions based on ATM blueprints. In addition, ATM lessons heighten our sensitivity and self-knowledge, a prerequisite for being able to guide others in finding greater comfort in themselves.

However, we have to think differently when we work with a child than when an adult lies on our table. As Field pointed out, children are doing "the same human movements as we are, but with one essential difference: *they have never done this before!"* For this reason, Field stressed the importance of trying to inhabit the *mental* experience of infancy along with the developmentally significant movement sequences of the ATM lessons.

Field does not concern herself with the relationship of the different "parts" of a child's anatomy. Nor does she attempt to position the child to perform a particular action. Rather, through the medium of her hands, Field listens for evidence of how well the child's movements answer those basic questions: *Which way is up? Which direction am I going? Will I go there or not?*

"Sensations and our perceptions of them define the relationship we have with ourselves," said Field. Therefore, when there is an interruption in the relationship we have with ourselves, there will be problems with self-regulation.

When we do our work effectively, we are providing the person we touch with possibilities for improving the regulation of her own system. "I don't try to help the child *do* something," Field explained. Instead, the goal is to create a context where "the child can *feel herself* better, in order that she can improve her ability to accomplish the actions *she* desires, on her own terms."

WORKING WITH YAYA: "MAKING VITALITY THE ORGANIZING FORCE"

Our first opportunity to observe this process was in Field's interaction with a seven-month-old girl named Yaya, who had suffered a brachial plexus injury at birth. The family had not yet been able to obtain an exact account of the injury, but it was clear that there had been severing of some of the nerves connecting to the child's left arm. This arm, however, did not lie limp at her

side. Instead, Yaya held the arm a bit away from herself at all times. Field commented that this perpetual action demonstrated that there was functioning nervous tissue at the level of the girl's shoulder, at the very least.

This action also represented an enormous and unnecessary effort, which impacted everything else that Yaya did. "Try holding your arm out like that for just ten minutes," Field said. "Then see how you feel and how everything else you do is affected by it."

For about an hour, we watched Field playing with Yaya, always supporting her with her hands somewhere along her back or under her bottom. Just as she had promised us ahead of time, Field hardly touched the girl's left arm.

After the lesson, Field was asked what she was "doing to" the baby's pelvis during their time together and what her goal was as she did this. "Your question is a great opportunity for me," said Field, holding her hands over her head and then swinging them downward, "*to smash that sacred cow*. . . there it is, all in pieces!"

This idea of "thinking in parts," said Field, is a common, and even a well-defended approach, but it "is the biggest obstacle to truly *seeing movement* and giving real Functional Integration lessons. Yes, I was touching different parts of Yaya's body, but what I was really doing was *joining her movement*. With my hands I am finding the place where the movement begins so that she herself can also listen and feel where the movement begins."

And why didn't she put special attention on the girl's dysfunctional arm?

Field told us that it is not particularly useful to concentrate in the area where the child is limited. "Instead we take what is working best and hold it up for celebration so the child can learn to know herself through what she does best. We can't remove the injury, but we can try to help tip the scales, as early as possible, *towards making vitality—not difficulty—the organizing force in her life*."

One simple way that Field supported Yaya in the first lesson was by placing a folded towel under her left hip. This adjustment allowed the girl, who spent most of the hour sitting, to keep the majority of her weight on her right side where she was safer, more comfortable, and would be ready, if necessary, to support her weight by leaning on her healthy right arm.

While we couldn't see all the small and subtle adjustments Field was making with her fingers as she connected to Yaya, what was clear was that Field's intervention was not an interference. Field was in almost constant physical contact with the girl, but she never directed Yaya or pushed her to do anything she didn't wish to do. Instead, they simply played together.

To gain her trust, Field spent a significant amount of time at the beginning of the lesson just making eye contact with Yaya and talking to her. Eventually, the baby decided to hand over her rattle. "That was the whole lesson right there," Field said afterwards, because at that moment the infant picked a playmate who was not coaxing or challenging her, but patiently waiting for her to define the game, thereby "allowing her to have her own complete expression."

By the end of the hour, Yaya would do many things of her own volition, including making more purposeful movements with her injured left arm.

"MOVEMENT BUILDS THE BRAIN"

As we enter the third year of our training, my classmates and I already know something about giving Functional Integration lessons. But, again, working with a cooperative adult who lies still on a table hardly looks the same as what we witnessed Field doing with a moving target in diapers! How could we possibly learn to do the same thing?

To orient to this possibility, we spent much of the weekend learning how to see in action—and feel in ourselves—some of the more fundamental patterns of human movement, patterns that begin in the womb.

Field gave a fascinating explanation of how she understands early development: by day 49 in utero, the fetus begins to move a little left and a little right, more to one side than the other. This bias

to one side will be a lifelong feature of that eventual human being's organization. But if this side-to-side movement does not occur at this time, the fetus does not survive.

"This is a point in development when the organism is still nothing more than blood, nerve and bone—the brain does not yet exist" Field explained. "In other words, movement precedes the brain and, you might say, *movement builds the brain*. Developmentally speaking, the head, neck, and eyes are as much appendages as the limbs. We can only look to movement itself to explain how the nervous system itself is organized."

After 10 to 12 weeks in the womb, three more basic movements have been added to the repertoire of this evolving human organism: folding forward, an arching movement, and a twist. All of these movements are organized slightly differently in one direction as opposed to the other, in keeping with the original bias. Long before birth, these movements are highly practiced and familiar. The unborn baby also has a clear sense of gravity, that fundamental question: *Which way is up?* As Field would often remind us, the newborn does not *learn how* to perform the most basic foundational movements, she *learns about* these movements that are already part of herself.

The first movement lesson that Field led us through was called "The Lamprey," named for the sea creature that is one of the oldest known vertebrate species, and whose movement is like the fetus at 49 days: all it does is wiggle side to side.

For an hour we lay on our backs on the floor and moved side to side in one plane, eventually forming our whole bodies into a 'C' and then the mirror image of a C. Many of us, myself included, found doing the very first human movement to be quite a challenge!

Instead of bending directly sideways, I always seemed to want to twist. As I swung my legs left and right without bending the knees, my head wanted to roll in the opposite direction. My pelvis also wanted to turn.

After Field called my attention to what I was doing, I finally realized that it was possible to move sideways *without* rotating my spine. And, as Field had promised us, by the end of the lesson we could all clearly feel that we had a bias—a clear preference for wiggling towards one side over the other!

As the weekend progressed we explored folding, arching, and twisting, returning to being lampreys at the end of each sequence. And each time, for some reason, being a lamprey got a little easier.

Why was this happening?!

"FILLING IN THE GAPS"

"ATM lessons were devised to fill in the need for more experience and the need for further self-correction," explained Field, "so we can continue to mature." Revisiting these developmental movements can help us to understand how to work with children because "that's what the children also require. They need the opportunity, the right circumstances, in order to gain more experiences that are appropriate, that fit their needs—so that they can self-correct and therefore grow, develop, and become more mature, more purposeful on their own terms."

Although much of what we did on the floor that weekend reminded us of other Awareness Through Movement lessons, the discovery of our bias—and learning to embrace it—created a different kind of experience.

The difference began with how Field oriented us at the beginning of each lesson. Instead of a traditional "scan," where the instructor guides the students through a systematic process of observing how their different parts lie on the floor while in a nominally symmetrical position, Field invited us to position our arms, legs and head in "any old way" that we found comfortable. "Unsnap yourself from the grid!" she urged us. "The grid serves the adult process," which we are

used to engaging during ATM class, but "it's hard to snap a kid to a grid." At the earliest stages of development, when a baby is still learning about himself, "there is no midline—it's moving!"

By resting this way—"any old way"—each time we paused between movements, we continually encountered the bias in our spines. "You must pay attention to the bias–it's precious. *You are not trying to straighten out!* Without the bias, the kid can't learn! This weekend you are unfettered by gridded-ness."

After discovering our own bias on the floor, Field led us in discovering one another's bias through the medium of our hands. In pairs, we felt along the sides of our partner's spine and, as we investigated and compared, most of us eventually found a clear difference under our fingers: a greater willingness to follow the suggestion to move on one side, and a subtle resistance on the other.

This bias "is an organizing force you can never get away from," Field told us. "We need the bias at those moments when we need to move to ensure our survival, to get the hell out of the way of something that's going to bite us." For this reason, learning to find the bias in another person gives Feldenkrais practitioners a key to helping any person improve his movement. (And it's especially useful in working with a kid unsnapped from the grid and constantly on the go!)

After one lesson, I stood up and walked around feeling invigorated, as I often do after ATM lessons. But rather than experiencing the sensation that my spine was straight, I found that my head preferred to move to the right as I walked. And I seemed to lift my right hip higher than my left.

Then I discovered that if I didn't bemoan the lack of a due North in my spine, but, rather, embraced the crookedness, something inside me shifted. The constant striving for an unattainable ideal was no longer there. A new kind of lightness had taken its place.

I wasn't the only one who had this kind of experience during the ATM lessons that weekend. One of my classmates had a pronounced scoliosis and was forced to wear a brace around her rib cage as a child. She said she had always had an image of her back "like a wooden barrel." After one of Field's lessons, she felt her entire back lying flat on the floor "for the first time in my life."

Field celebrated these moments with us and underlined their importance, helping us to understand why Moshe Feldenkrais thought it was so valuable for adults to revisit the infant's experience of learning through movement. By "starting over" the process of learning to roll, crawl, walk, or any other basic action, we can bypass our adult habits and create the possibility of "filling in the gaps" in our development.

The sequences Field led us through were intended to be "an across-the-lifespan examination of fundamental issues in development. You find these at any age. People of every age have something they can look back on and say, 'yeah, I could use a little more of that, just a little more time with that relationship, a little more examination, a little more experience.'"

There is a story about an encounter between Moshe Feldenkrais and the renowned anthropologist Margaret Mead that speaks to the significance of this process. Mead had repeatedly visited a community in Bali where the men were fantastic hunters and fishermen yet could not perform basic movements that entailed "hopping from one foot to the other." Feldenkrais speculated that the deficiency "probably arose from an inhibition or taboo affecting crawling in early childhood."[4] Astounded, Mead replied that the Balinese she met did not allow their babies to touch the ground on all fours for fear that they would grow up as animals! As it turns out, missing this key developmental phase robbed them of the ability to perform certain basic human actions as adults.

Field joked that those of us who practice the Feldenkrais Method of somatic education actually celebrate when we encounter gaps in our knowledge, since these moments show us what areas we can revisit in order to tackle our weaknesses. Filling in the holes in our developmental process creates a stronger foundation for complex adult movement.

WORKING WITH 'PRINCESS MASHA'

The second child that Field worked with was a three-and-a-half year old girl named Masha, who has Down Syndrome. Masha's mother, Ana Kharlamova, is a member of the Baltimore training program.

Before the session, Field explained that children with Down Syndrome have structural differences in their skeleton, such as in the vertebrae of the neck and the way in which the femur enters the hip joint. Their limbs are somewhat shortened, and they have a generally lower muscle tone. This situation often creates the need for standing with a wide stance to maintain balance. This organization, however, is not so ideal for walking.

"Masha is perfect. She feels no deficit," Field told us. Indeed, we had all seen Masha playing many times, with all the excitement and vigor of any child her age. However, because of her wide stance, Masha walked with a "pounding" gait. Field explained this would cause her to experience soreness in her joints as she grows in size. "We take a lifespan approach," Field said.

With Masha, the "getting to know you" process was much longer. Many times in the early part of the lesson, she would squirm away or try to remove Field's hands from her body. "Sorry, that's my job," Field would say each time, and continue working. Still, it was perhaps a half hour before they established a consistent rhythm together. Afterwards Field explained the importance of developing this balance of patience and persistence.

"I'm not watching the clock, but I feel the clock ticking—her *life* is ticking." There is urgency to working with children that doesn't exist with adults, because they are in the process of forming life-long patterns and the structures of their adult bodies. Such a situation does not conform well to a waiting approach. "I have a job to do, and I'm not giving her the option that I'm not going to be touching her. She's not my boss, but I'm not her oppressor, either. All relationships are a negotiation, so in that way it's no different than anything else."

Eventually, Field sat on one side of Masha handing her blocks, which the girl took and handed to her mother, who sat on the other side, stacking them into a tower. "The configuration of the student on the table is just as important as what you do with your hands," said Field. She pointed out to us that by playing this game Masha was repeatedly practicing movements of twisting and arching.

In the course of an hour, Masha's posture transformed from being practically curled up in a ball as she hid her face to sitting tall as she deftly shifted her weight from one side of her pelvis to the other, reaching in different directions to play. Her demeanor completely shifted as well.

After rejecting many toys that didn't interest her, Masha suddenly became fascinated with a roll of colored tape. Field ripped off pieces of the tape for Masha to stick to her mother's clothing. Eventually, Field stuck a few pieces of tape to Masha's shirt, forming the letter M. "M for Princess Masha!" she said.

Masha bloomed from that moment onwards. And when her father came to take her away at the end of the lesson, Masha seemed to have decided that she truly was a princess. Having ignored the several dozen spectators around her for the past hour, she suddenly began waving at us as she floated off in her father's arms. As he walked past a particular gentleman whom Masha recognized, she reached towards him, and, when her father brought her closer, kissed him on the cheek.

This gesture provoked an audible reaction from onlookers. Masha looked about the room again and began blowing kisses in every direction, continuing to wave as she rode away on her chariot, the colorful 'M' still emblazoning her chest to remind us of her royal status.

"TO CORRECT IS INCORRECT"

Feldenkrais once gave an important lecture to his students about the relationship we form with someone whom we touch. "To correct is incorrect," he said, and this is an idea that Sheryl Field has always taken very seriously.

"If our work is meant to align as closely as possible, to be able to mirror back what the person is—so that they can do better for themselves, on *their own terms,* from *their own starting place*—we must afford them that right: to *know themselves* in our hands. We can't violate them by doing something *to* them. This work has that potential. This work has the astounding quietness and precision that allows a child—even at the earliest age—to hear themselves and do right *for themselves*, to do better *for themselves*."

Indeed, as we watched her with Yaya and Masha that weekend, there was much to admire about the way Field was working, from her easy demeanor with the children to her skill at creating functional learning situations through play. And yet, at the end of each lesson, there was a tangible sense of what each of these two little girls had themselves accomplished. Field came back to this point again and again during our time together. "It's not about what you (the practitioner) do," she said. "It's about what they can do with what you've done."

Describing her work with Yaya, Field explained, "With my hands, I say: 'Here is the place of your greatest ease.' We tend to ignore that place when we [use unnecessary] effort." By helping the child identify the place where she is most efficiently organized, instead of focusing on her disability, Field sends her a different message: "OK, fine, you have this limitation—*but look! You can still breathe, you can still move, you can still play!*' . . . That's a very different orientation than 'correcting' or 'teaching.' With this approach, integration can happen very quickly." And for Field, "that possibility is the most important thing for me about my work."

Another aspect of Field's work that emerged from the demonstrations with the two girls was how she oriented the parents towards their children's full potential. In order to accomplish this, she had to be a keen observer of the parent-child relationship and, while providing new information, not do anything to interfere with it.

For example, Field told us that before each lesson she thought deliberately about how to create a learning situation for the child that would be less stressful than their daily routine. "I watched how the parents moved themselves in relation to her and made calculations about my own movement's tempo." The parents were moving quickly, "so I dialed it down a notch—but not too much, so that when she goes back with her parents after the lesson she can use what she takes from me because it's not *too* unfamiliar."

In her first lesson with Yaya, Field interacted with four adults—the child's parents and paternal grandparents. When she discovered Yaya's bias towards one side (just as she had taught us to do), she demonstrated this to her family. To clarify the idea for Yaya's grandmother, Field invited the woman to sit on the table and briefly demonstrated with her hand on the woman's spine that she, like Yaya, had greater comfort in resting her weight slightly towards one side as opposed to the other.

At the end of the second lesson, attended only by Yaya's parents, Field showed them how holding their child in a particular way would give her the greatest feeling of safety. "She likes to scrunch on *that* side," she said. She also cautioned them, despite their desire for Yaya to improve quickly, not to try to rush the process of learning. For example, she explained that it could be a mistake to try to coax Yaya into standing or walking before she was ready.

"Allow her to be in the place where she doesn't have to go on high alert, but where she has some facility and, therefore, the opportunity to explore her own variations," she told them. "She will find what she's looking for if she is given the chance."

An example of this kind of interaction took place at one point during Yaya's second lesson. Field held the girl in her lap in such a way that she could rest her left arm on the table, temporarily deactivating the perpetual contractions of her left shoulder. Field pointed out that Yaya immediately began drawing her knees up into the air, a movement that would be part of the pattern of moving from sitting to a crawling position. This was significant because it was a transition that Yaya was normally only exploring to the right. Field helped us see what we might have easily

missed in this momentary knee lift: this little girl's intelligent nervous system seizing an opportunity to learn and grow.

In this second lesson, we could observe that Yaya's left arm was resting much more than it had previously. She still lifted the arm unnecessarily, but she didn't take it as high. At the conclusion of the lesson, she demonstrated that she had come to a new relationship with herself in which she could use her left arm with intention: she squeezed Daddy's finger with her left hand.

PARENT AND CHILD: FIRST UNDERSTANDING OF THE SOCIAL ENVIRONMENT

Being a parent can be exhausting, especially if you have a child with special needs. It takes a special kind of patience to both support him and also encourage his independence. Parents learn when to do things for the child that he cannot do on his own and when to allow him to search for his own solutions. Discovering this kind of balance means recognizing that the child's options are always changing, and that his potential is often greater than it may appear at any given moment.

Feldenkrais's discoveries about the human nervous system were not limited to the inner workings of the body. He was keenly aware of how we grow and relate in a *social* environment. In *The Potent Self* (1985), Feldenkrais wrote:

> *From the earliest moments of our lives, we can distinguish two sorts of action: (1) those where we are left to ourselves to work out our own way, as in learning to comply with the demands of our bodies, and (2) those where the adult in charge of us becomes emotionally excited and encourages us to continue our actions, or discourages us to the best of her ability or judgment. There is no clear-cut subdivision of these actions; that is, actions in which we are left to work out our own way suddenly become the focus of adult interference, and* vice versa*, actions that were strictly supervised are just as suddenly left to take their own course. From this process, we emerge with (1) a series of personal behavior patterns with which a comparatively low emotional tone is associated and (2) others that are always accompanied with a high emotional tension.*[5]

Field reminded us that the adult in the child's environment plays a crucial role in the formation of the child's understanding of what she is and is not capable of, even at a preverbal stage. "The way a child is handled reminds them of how they are thought of. 'Developmentally delayed' simply means that some children need more time to construct what is necessary to move to the next stage. This is why we don't help when we try to make them 'catch up.' We serve them better by giving them the time and help they need to find necessary means to advance on their own terms."

As I took in the weekend, I had a lot of new things to think about—both as a Feldenkrais practitioner-in-training, and as the father of an extremely bouncy six-year-old daughter named Maria Carolina. Maria has been blessed with good health, but like any young child, she often experiences tummy aches or other pains that require band-aids and kisses. My daughter also knows that Daddy does a funny thing called "Feldenkrais," which is supposed to make you feel better, so periodically when something hurts she will ask me for "a lesson."

Before the weekend with Field, I had played around with Maria on my Feldenkrais table on a couple of occasions but had never done any serious work. As it turned out, one evening when I returned from the training session, Maria said her leg was hurting and seemed truly distressed about it.

When I examined her, I noticed that she was holding her foot with the ankle extended, pointing the toes, and would not give up the position when I tried to gently flex her ankle again. Instead of taking out my table, I just sat with her on the sofa while she watched cartoons, feeling along her spine to discover her bias. When I found it, I began to support her in different ways with my hands on her back or under her pelvis.

When it was bedtime, she practiced reading a story to me while I played with her feet. She was still agitated, twitching her toes without noticing what she did, but beginning to calm down a bit. Whenever she squirmed too much, I returned to placing my hands on her spine or pelvis, supporting her in her bias, "taking over the work for her," as we would say in training. After about twenty minutes of this, Maria yawned and announced she was going to sleep, seeming to have forgotten about her leg. So I kissed her goodnight, and the next day I thanked Sheryl Field for giving me the opportunity.

NOTES

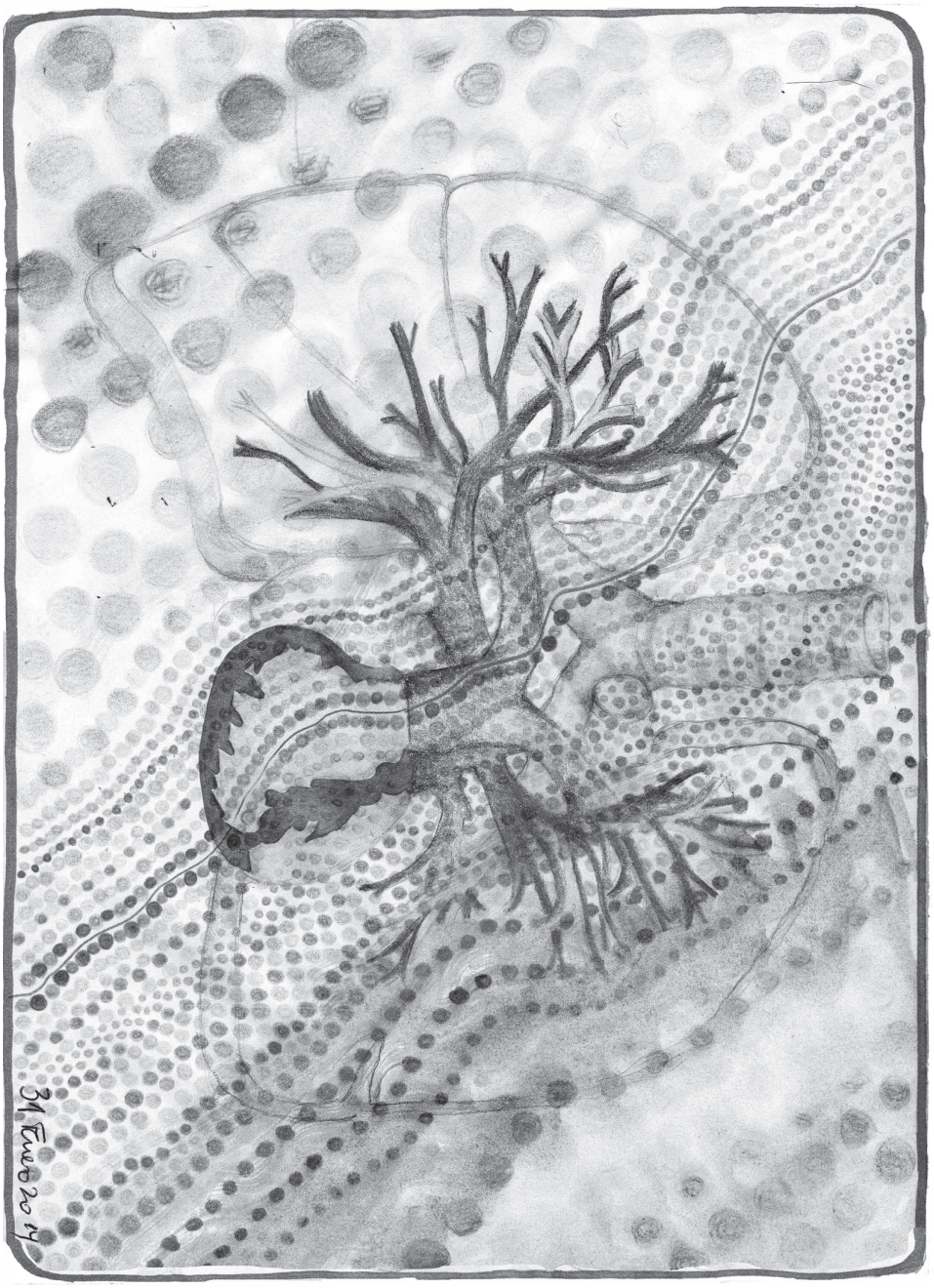
1 See http://www.thefieldcenter.org

2 See http://askillfullife.com/training

3 Beverly Stokes, *Amazing Babies: Essential Movement for Your Baby in the First Year* (Toronto, ON, Allenwood, NJ: Move Alive, 2002).

4 Moshe Feldenkrais, *The Elusive Obvious* (Capitola, CA: Meta Publications, 1981), pg. 34.

5 Moshe Feldenkrais, *The Potent Self: A Study of Spontaneity and Compulsion* (San Francisco: Harper and Row, 1985), pg. 8.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Yochanan Rywerant (1922 – 2010) began his studies with Moshe Feldenkrais in 1952. He was the author of the books *The Feldenkrais Method: Teaching by Handling*; *Acquiring the Feldenkrais Profession*; and the monograph *Corollary Discharge, The Forgotten Link: Remarks on the Body-Mind Problem*. He worked as Dr. Feldenkrais's close assistant until Dr. Feldenkrais's death in 1984. As a Feldenkrais trainer, Rywerant taught extensively at professional trainings and workshops in the USA, Canada, Europe, and Israel.

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Journal no. 17	General Issue
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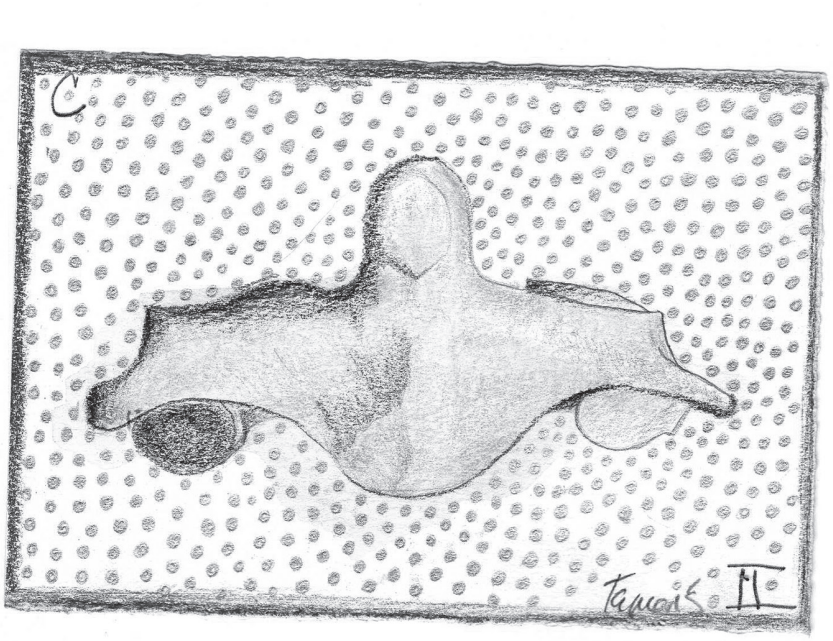

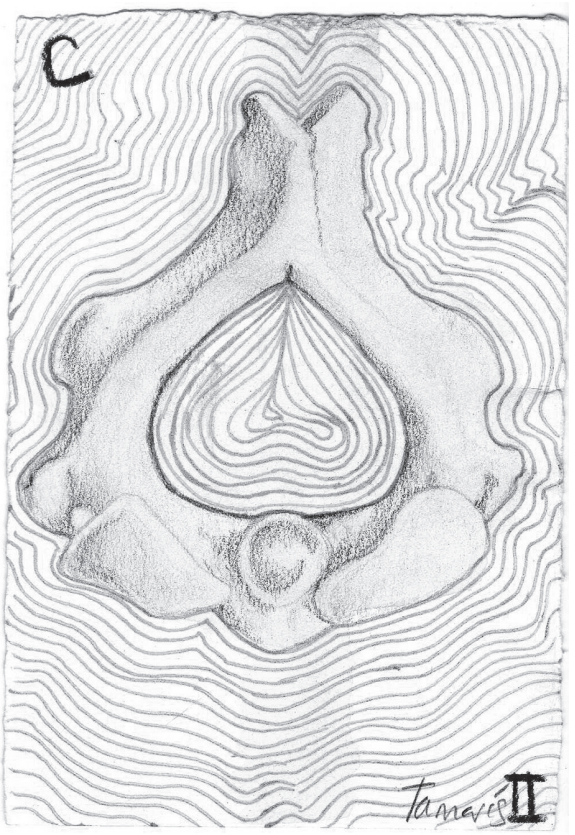

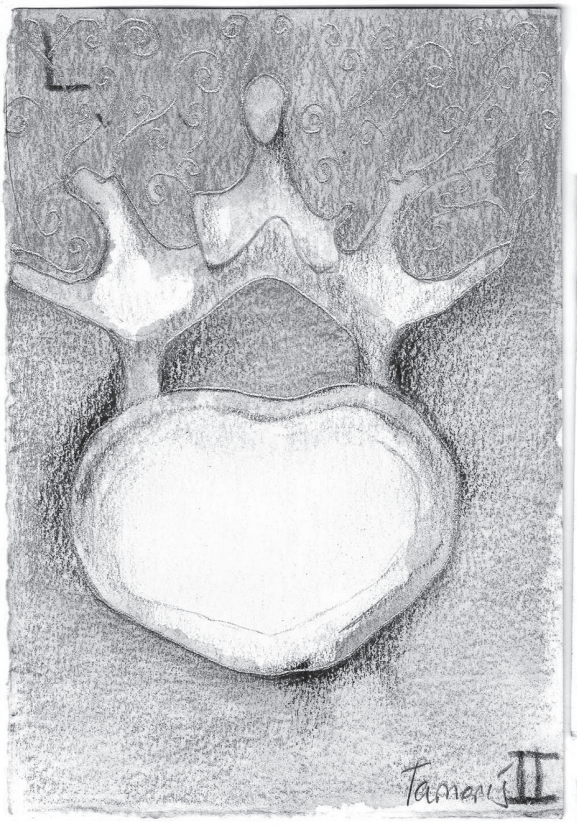

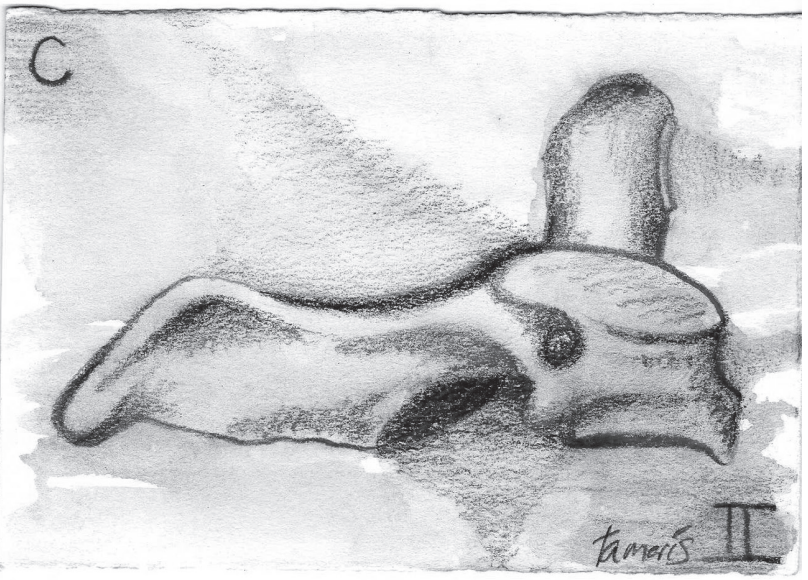

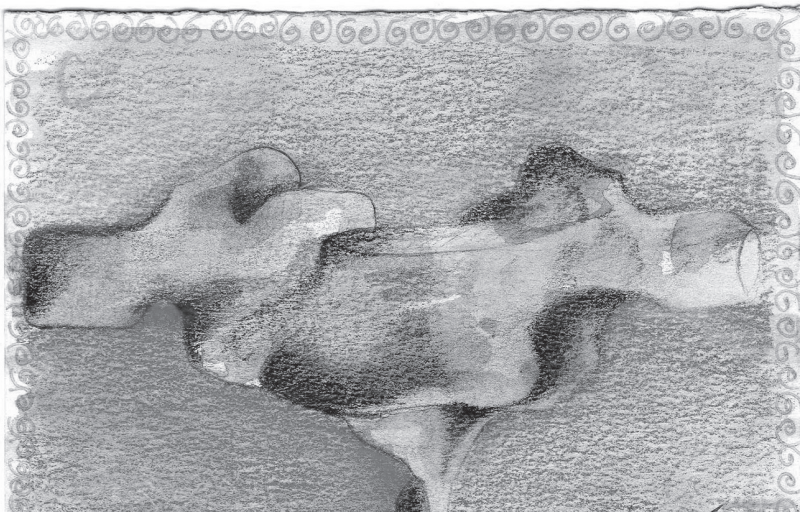

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