**The somatic education approaches to auto-pedestrian collision injury rehabilitation: Why fluid, casual and unflappable works**

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Introduction

This paper explains and summarizes my work with a woman badly injured by an auto while walking. She was hit on the left side and thrown 30 feet onto the pavement. Injuries included comminuted fracture of olecranon; six fractured ribs and metatarsal, all left sided; bruising in legs, hands and feet; shock; and concussion. My objectives for her included rehabilitation of her left arm, shoulder and rib cage; reducing overall body pain, swelling and pain medication; improving cognitive function (including post-concussion syndrome), improving sleep, increasing breath capacity, and increasing relief from a mix of other symptoms and restrictions, including cognitive, physical and emotional stress. The first part of my paper summarizes my credentials, introduces details about the case, and details the day to day work with my client. The second part, (movement and cognition), examines movement issues during that work, the effects of the somatic education approaches and how neurological pathways were revealed to my client and to myself.

I. Author’s credentials and the study of focus

In my work I draw on two somatic education approaches. The first was developed by Milton Trager, M.D.the second is my dance training (including ballet, since age nine, contact improvisation from age twenty four and somatic education approaches compatible with Trager including Body Mind Centering, Authentic Movement, Klein Technique and yoga). From these modalities I incorporate specific principles of casual, nonthreatening, soothing, and rhythmic movement, sometimes hypnotic rocking, to increase perception of body weight and movement. This was performed with my client on various spatial planes; with her supported on a massage table, lying on the floor, walking, sitting, and standing. The quality of movements was paramount to achieving the earlier stated effects of true weight and easy movement.

I greeted my client for the first time as she sat uncomfortably on her couch at home. She had a reconstructed left elbow, six fractured ribs, and a boot on her broken metatarsal; she was in overall pain, for which she was medicated. She spoke fragmentally, though intelligently. She was upset, unable to rest for sleep, and taking short breaths. She was receiving physical and occupational therapy and had had an operation for her comminuted fracture of her left olecranon.

Although I had initially arrived for Reiki treatment[[1]](#footnote-1) (certified since 2001), after observing her immobility, I asked if I could work in another way and she agreed. I began using my somatic education training. This course of action came to mind because I surmised she needed to move in order to regain her functionality. To start, I asked if she could physically demonstrate the largest current goal in her physical therapy. She showed an attempt at a physical movement that, were she able to accomplish it, would bring her hands together in front of her chest. But to do this, the elbow needed to be extended and able to rotate. At that time, both movements were not accessible to her.

The methods

We began there, physically investigating the movements of that gesture, specifically the neurological way and how, involved in its execution. I asked her to pay attention to the mental message she was communicating in the movement, her conscious thoughts as she elicited movement. I asked her how movement could feel if she used less, rather than more, of her considerable effort. I asked what it would be like if she used even half of that effort. This puzzling question was a start in re-educating her sensory and motor connections toward more control and increased proprioceptive sense of weight everywhere in her movement pattern she could perceive those. Following this line of inquiry, and this searching within conscious thought for less effort and more ease and more refined movement, her living room grew quiet while she and I neurologically “searched” for ways to make this happen. In exploring movement without hierarchical roles, the environment in the room caused both of us to change the focus from the end result to the processes involved. This approach began a way of accessing movement. The client must take responsibility for noticing what they are feeling for this work to have effect.

The sessions

Sessions, lasting approximately ninety minutes, involved movement in several orientations of space. We incorporated standing, walking, movement on the floor for her ease with breathing and having space for arm extension in the sagittal plane (rising curves from the floor surface), and on a table, often the best surface to address pain especially in joints. Sometimes we spent a session in two, three or four spatial orientations and in combination. I established the expectation that sessions would be different every time, creating a feeling for predictable unpredictability reflecting a sustained, stimulating set of conditions for gently challenging her habituated patterns while creating a casual, consistent momentum toward building greater ranges in movement.

Implementing somatic approaches

After our initial work, I arrived for sessions with an open agenda, assessed how much energy she presented and took into account her requests. I asked what she wanted to address in that session. I asked open ended questions like, “tell me about…” and in listening to the way she answered I would construct the session taking into account responses like some lengthy unfocused description of a physical event or task gone wrong, or a physical ailment or cognitive issue like lack of concentration or confusion. This told me how and often where in the body or in spatial planes to begin.

Spatial planes

One of our most effective movements used eye tracking for building motion in the shoulder while simultaneously building her ability to focus cognitively. This series of movements organized her shoulder, elbow, upper body and neck to work as a coordinated unit as well as focused her cognitive concentration on this movement which she found effective as she later became a sufferer of post-concussion syndrome. We achieved this while she was supported by the floor. I asked her to track movement pathways of her fingertips with her eyes as she carved her hand up through space from a supine position. She lay with her knees bend toward the ceiling, her feet resting on the floor, her arms extended in a T shape on her sides, the left arm more restricted than the right. She began with turning her head to look at her left fingertips and track them with her eyes as she lifted her left arm up traveling across her body, as the crow flies, over her chest toward the right elbow which was rested against the floor. She would remain with her left fingertips against the right inner elbow while breathing into her entire left side, keeping her left hip on the floor as much as possible, noticing the sensations of stretch in her left ribs, while keeping her eyes on her left fingertips (Fig. 1). She reversed the movement tracking her eyes on the left fingertips as she retraced the path of her left hand across her upper body and reached the left fingertips along the floor back into the T shape with both arms stretched out on the floor. This eye/hand tracking combined with the final reaching made significant extension, rotation and coordinated movement possible in her injured left elbow. Because of the support she felt from the floor and the control she had over her timing we made gains in many areas at once. Her breath, range of motion for her intercostal muscles, shoulder muscles, and overall physical integration through her neck and right side increased along with mental calm and focus. Variations were available for following fingertips to other points on her right arm. She could assess and rest and continue either with more on the left side or rest the left elbow against the floor while tracking her right fingertips through the air traversing in the opposite direction. We included rest, breathing, and time for sensing or discussing any changes in her body sensation. To end she came up to standing and walked with her eyes open maintaining her sensory awareness in her upright orientation and in motion.

Another spatial plane

An example of what we did on a day for standing was that she would begin upright with her feet placed about 2-3 inches apart and under her hip sockets. With her eyes open she felt her body weight shift from left to right, forward toward the toes and back toward the heels. All of this performed without a mirror and with her visual attention looking out into the room. The next part of the exercise continued in this way: She sensed the weight of her fingers, pretending water was dripping from the ends of her fingertips, and along with sensing the weight of her head, she would shift her weight into her heels and slowly rolled her spine down and forward until hanging her upper body weight forward over her legs hinged from her hip sockets, keeping her legs as straight as possible while breathing into the sensations of her upper back (Fig 2). She would remain hanging there for as long as she could and then while her eyes were tracking her knees, she would bend them. Slowly she rolled her spine back up to standing with her head arriving last. She would then stand steady for a few moments before another walk around the room looking out while attending to inward sensation. This was a way to assess and build her leg strength, soften upper back stiffness, build and retain mental and visual focus, increase breathing, balance, and improve confidence. These movements were exhausting enough for her to increase stamina, heart rate, breathing, exertion on the large leg muscles, and proprioception in her feet and hands. Mental awareness was integrated with her movement in these same areas: the legs, upper back, shoulders, along with reinforced balance, confidence and intelligent visual focus (I would ask her to broadcast what she saw as she walked). This additionally provided us an environment to compare sensation in all these physical areas before and after her exertion. If she agreed to repeat the sequence, it showed us both how rapidly all parameters could improve, and that with each successive sequence movements became more fluid, stronger and more connected.

Building strength

About a year into our sessions we added some upper body weight into her hands, by having her walk her palms forward along the floor in front of her feet as she was hanging over her legs (Fig. 3). Again we included eye tracking focused on her hands. She would slowly shift her own weight into her palms then shifted her own weight back into her feet and heels. This somatic approach encouraged exploration of movement within her range of comfort, thus expanding the reach of her hands away from her feet as well as the amount of body weight poured into her hands.  From this she experienced a lengthening and strength in her shoulders, upper body, and importantly her left elbow, which in this exercise she could also see. I had her look at both of her arms as she shifted her weight into her hands. She could adjust her weight to press both hands evenly into the floor and she could literally see her left arm getting straighter, stronger and meaningfully more reliable and stable.

Somatic table work

Work on the table offered contrast and relief from her self-generated movements performed while standing, walking or supported by the floor. The essence of our table work educated her sensory neurons to feel movement that was not being generated by her; but by an outside force, the author’s, gently rocking and moving her (Fig. 4). As if in the role of marionette her movement was received by her sensory system starting with gentle predictability. After eliciting her parasympathetic system I mixed in less-predictable patterns. This novel information was meant to build and wake up neural pathways that felt comfortable but unfamiliar, often different from the limitations she imposed on her self-generated movement.

The skill she learned from the table work was how to actively release the weight of her body and allow me to move it without her motor control. Success meant that she would let me have her weight, and experience the resultant movements, which included rocking, shimmering on the skin’s surface, and in time playful drops into gravity. This built pathways through movement, weight and novelty that she could access on her own after the session. The comfort of having her body moved in this way helped her to relax other systems, respiration, digestion, sleeping patterns so that her overall sense of well-being was restored. Importantly, it opened possibilities for change and a feeling of confidence that she could improve, and feel better than she thought she could which supported the cumulative nature in the somatic education approach which included increasing her desire for movement.

Improved proprioception

The momentum between sensation and movement fueled by strength and by pausing for integration helped her meet every-day tasks and in her rehabilitation. She learned to feel the weight of objects in her hand, like a kitchen tool, so that, like that first attempt at the impossible physical therapy exercise, she would not have to recruit every and any muscle she could find, which only added restrictions and frustration to her effort. She also could learn what the weight in that object actually felt like. What effort could be less or just right. Movement through the left shoulder was a big part of her rehabilitation and attention was given in every session to the left elbow’s extension, strength and overall sensation especially in relationship to gravity. In her other physical and occupational therapies the attention focused on her problems, her pathology, with the goal fixing what was, or could be, wrong. My somatic education approaches’ goals were to restore to her brain and learning the sense that there was nothing wrong with her, including in her elbow. And that she could use the left arm, hand and elbow. We achieved this through casual, fluid and unflappable movement content delivered within pleasurable movement choices.

The rightness of feeling, or her habituation, is where we focused our rehabilitation, building as many new references for sensation as tolerable in each session. If something habitually felt sore to her, I asked: “Well, tell me how it feels now?” Later in the session: “Well, does it feel changed?” “How is it changed?” “Where is the change?” Her search for the answer was more important than getting the answer because her brain went in search within her sensory system, looking for real, defined change, all while I was waiting for her.

II. Movement and cognition

 The somatic approach developed by Milton Trager was considered the jazz of bodywork. It emphasized for practitioners “getting out of your head”, protocols were not used, in favor of principles. From this score (dancers use this term as well as musicians, meaning the parameters put in place for an improvisation) practitioners played in multi-directions and rhythms: “I don’t know what I’m doing” claimed Milton Trager [1] The client’s mind does the fixing.

Vitamin M: How movement builds new neurological systems

When I began working with my client we started with the movements she was doing in physical therapy and we translated them into versions made easier by feeling the weight of her body and by deconstructing her reflexes so that she allowed new movement and new movement sensations. The back and forth of her own movement through gentler intention and my moving her within a greater range of comfort re-educated both her sensory and motor systems.

Essentially, we were working on her unconscious mind, meaning body mechanics that she was not consciously aware of, abetted by my own subconscious and conscious neurology to search for available movement options and viable movement solutions. Her rehabilitation was a re-education. In this second part of the paper I explore cognition’s effect on movement and vice versa as is theorized in current neurological studies, and then how it applied to my work.

 Movement makes psychophysical integration and somatic re-education possible by rebuilding the functional structures across the brain and nervous system [2]. Using a variety of movement-based principles, or tools, this approach affected a positive, functional change in the tissues and in the brain of my client. We used movement as medicine. I like to say infusions of vitamin M. Two primary principles of our movement served the purpose of rehabilitation, novelty and gentleness.

*Novelty*

Neural pathways that the brain finds meaningful will lead to permanent change in the neurological structures. For instance, a brain that has learned to read is changed fundamentally from one that has not [3]. Skills, learned and then habituated, are useful to the brain and to create this learning I needed to clarify or identify novel, meaningful neurological pathways.

*Gentleness*

Milton Trager, according to legend, said that practitioners could offer only what they had developed in themselves, and that clients picked it up like they would contract the measles, from being around someone who’s got it. My experience with movement and how it had infected my neurological structures was picked up by my client through my quality of movement and touch. This is what makes somatic education approaches direct and powerful. When I touched my client’s body where a fracture had healed, I could touch the skin, the outermost surface, or I could contact the soft tissue under the skin, or I could move the bone. How I contacted and moved all of her transmitted a feeling, from my own body, of mobile, unguarded tissues. I would be successful by remaining unflappably at ease in my own movement. The hypnotic constancy of movement under these conditions rehabilitated her pathology or unfamiliarity so that change could occur in my client.

Especially for larger, more whole body motions, I incorporated rocking. I initiated three dimensional waves through the bony structures of her body. Specifically I moved body parts in a rebound of that tissue’s own weight. In other words I put the body part in motion, like the left rib cage, until that motion came back on its own, like pushing someone on a swing. With my client I kept the swing going in one direction while her tissue went as far as gravity allowed it and when it reached that limit of its current amplitude it would return from that edge. Its rebound resulted in the tissue feeling itself in movement, stimulating the sensory nerves, even in anti-gravity or suspended moments. When I was rocking my client and I felt that her tissue had changed I needed to adjust her range with it. So if she released more weight into a wider swing, my rhythm should also adjust. My approach was regular but not mechanical. Changes in tissue signaled to her brain that changes in neurology were occurring.

How to recognize change

Milton Trager, when asked why he did his work, replied, “because of the change in the tissue” [4]. For him and his practitioners change included, not limited to, softening, plumping and a more buoyant quality, where such had not been before. Making tissue more like a baby’s foot, or a new pillow that hadn’t been sat on, giving a round, and life-like appearance, with a spongy and springy quality that signaled health. Change to him also included increased breathing, an increase in sensation with proprioception, and an increase in casualness or what he called a “what the heck” quality to a movement that was accepted as just normal. Like walking along with your best friend, kicking a can down the street. I included in my client; increase in muscle strength, increase in accuracy of movement, change in surface area contact with the table, floor or another body part like the shoulder blade to rib. I also included reduced anxiety, greater sentience for change, increased balance, and a deeper mental concentration.

Evolution in the brain

The human brain has evolved from genetically set functions to openly plastic motor choices and both alpha and gamma systems are being used at every moment [5]. Novelty makes the pathways fresh. Our lives are movement. Only in rarified times like sleep, meditation, sedation and anesthesia the movement part of the neurological system stops forming messages to the central nervous system, and with remarkable results. Time is not able to be felt; movement is impossible, or simply proprioceptive awareness of the body is lost or altered [6]. Movement builds the correct unconscious, as well as conscious motor calculations that are made obvious in the removal of such information. If movement and feeling are so important for the tonus in my muscles, then the way I move and my sense of it is equally important to my brain in order for effort to become habitual. I remember how heavy a glass of water is while a child is learning this. One can readily see the results of both. If I imagine the milk carton is full I use a memory of tonus and when I am wrong I immediately change it, same thing with a pot on the stove. How do I know how much muscular effort will be necessary and how do I know to immediately change that amount of tonus?

Engrams

Thoughts in the brain are important for movement. As a dancer I “marked” steps by mentally rehearsing them before execution “full out.” (I lift this wrist, moving like a butterfly, and stomp a bug with my right foot, slide effortlessly over a beautiful glass surface here, like this, etc.) I used conscious, then unconscious connections and corrections. Unconscious movement decisions are made by dancers’ highly attuned kinesthetic memory that is built in training including the possibility for correcting in the moment, this way, not that way, like this, etc. The resultant movement in the dancer feeds sensory information through brain structures, both consciously and unconsciously, and through sensory neurons that instruct the brain in learning new movement patterns, conscious and unconscious [7]. These get encoded in engrams, memory patterns that become habitual.

Individuals, like my client, who find themselves stuck in inefficient, painful patterns can benefit from bold, appropriate, clear, meaningful, and unflappable intervention. When she could release into gravity from a habitual pattern, if only for a moment, she could sense true body weight, and while moving that weight her neurological mind, registered, if only for that moment in the sensory cortex that her movement or weight was free from pain. Expanding that moment, and bringing it into the conscious mind and making it stronger were my goals.

How movement affects everyone

Movement patterns exist in the unconscious mind. (Ref Handbook)

I experience this approach as an exploration of unconscious movement, and the systems activated before and during the movements that one can or cannot do. Redefining unconscious movement is what somatic education approaches do. There is responsibility on the client to feel, and to name, emerging sensation they are having, especially as it surfaces, shadowy and vague. This attention, naming, and sensory awareness is the rehabilitation process.

Lasting effects

As a performer in the highly competitive field of dance I am aware that things need to be worked on. I learn a lot when I stop practices. Like love, I might be vague and confused about what it is, but I absolutely know when it is no longer there. Something happened when we attended to neurological feedback loops. Something else happens when we stopped. When I had not seen my client in around two months she suffered a fall.

Where to go from here?

I looked for connections that could be strengthened and rewired; we regained 80% of full range in her left elbow. Her mood, confidence, breathing, balance, sleep and coordination are much improved, pain medication reduced. With our casual, fluid and unflappable movement practices we continue to work with post-concussion syndrome. Lack of certainty while adhering to movement principles can offer opportunity in the overwhelming presence of body trauma with its setbacks, fears and despair. A touching moment with my auto collision client came when she wrote me an affectionate note about my familiarity with, indeed appreciation for, the absurd. Dancers find a way. As a dancer I will try to do just about anything. Function is a moving target. Rehabilitation occurs within an electrical and biochemical soup involving conscious and unconscious neural connections, both our own and those of other people. Bodies and objects move, or do not in a universal force called gravity with its benefits and limitations. We, our neurological pathways, and our movement styles are malleable; we are able to refine movement and eager for meaningful change.

**References**

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[8] Juhan D. Job’s body: A handbook for bodywork. Barrytown, NY: Station Hill Press, 1987.

Figure Captions

Fig. 1 Static moment in eye tracking supported on floor. Author as model. Photograph by Mark Howell.

Fig. 2. Static moment in rolling over exercise. Ann Shakelford as model. Photograph by Mark Howell.

Fig. 3. Static moment of weight distribution from upper to lower extremity.

Fig. 4. Static moment of table work.

1. Reiki is a modality whereby initiated practitioners provide energy work to a client, often by influencing the aura fields around the body, but sometimes through targeted tactile stimulation with the hands. [↑](#footnote-ref-1)