CREATING MOTION through Intentional Touch

by Irene Dowd

INTRODUCTION

Over the years, I have had the pleasure and challenge of working with several thousand highly-skilled movers: professional ballet and modern dancers; classical, jazz and rock musicians; athletes of all sorts, including a woman who swam around Manhattan and a man who ran across the USA. In my role as their neuromuscular trainer, I practice specialized movement problem-solving.

For example, one dancer needed subtle shifts in the way she moved her neck while doing a *pirouette* (spin on one foot), a pianist had to change the way he used his fourth finger just before it touched the key, the man who ran across the country needed to approach stretching his hamstrings in an entirely new way. Before changing their movements, these individuals experienced pain or diminished quality of performance.

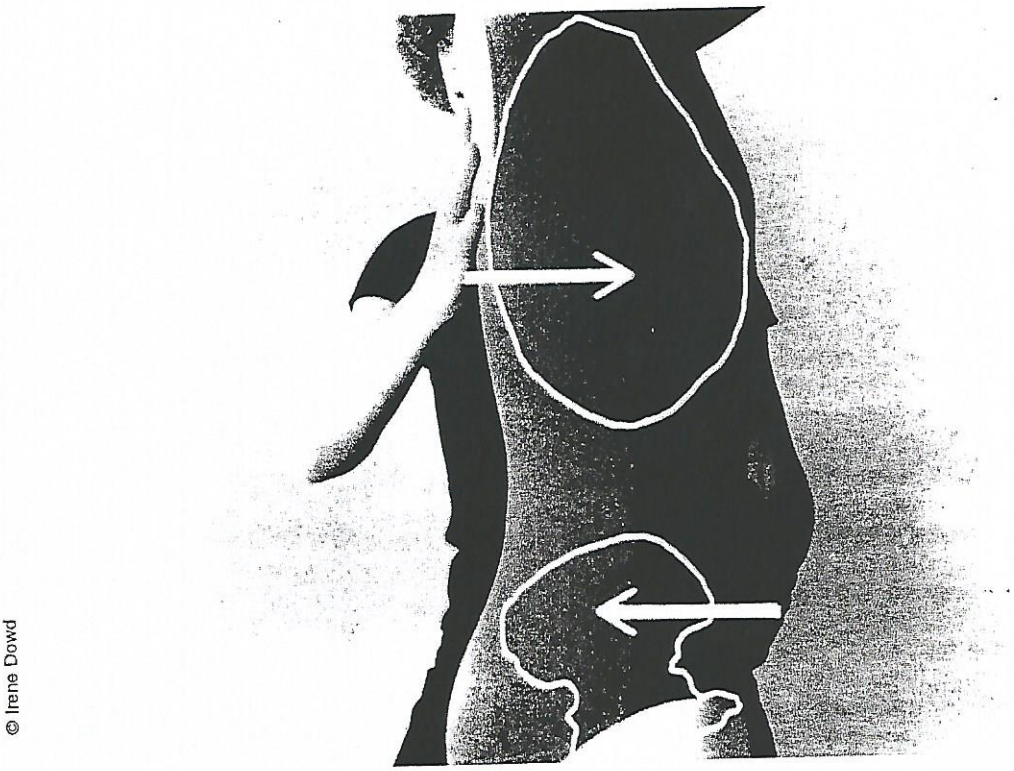
In each case, there was a period of time during our meetings when I put my hands on the surface of the person's body and practiced **intentional touch:** a highly specific and purposeful movement communication between myself and the human being whom I am touching. During my touch interaction with performers, they are likely to ask, "What are you doing now?" Sometimes there were no questions until after the intentional touch interaction, when the person was again practicing pirouettes or running. Noting better balance or faster running time, he/she might ask, "What did you do? It felt like you weren't doing anything, but somehow, now I feel completely different."

This article is a response to the question of what I am doing physically when I'm practicing intentional touch. Touching, by its nature, is simultaneously both a means of perception and a means of action, although my conscious attention may be focused primarily on one or another at any one time.

In Part I of this article, I will focus on the directional movement I perform/induce when I touch someone. It may be apparent from my student's question that my action and/or movement is often very subtle. Although the touch interaction may continue for some minutes, it may involve very small movements in terms of space and force exerted. If the reader chooses to practice the explorations described in Part I, he/she will discover that tiny movements as well as larger movements can be communicated clearly to another person. I call these movements which I convey through my touch, "lines of movement," or "vectors of motion."

In Part II of the article, I will focus on the identification and understanding of specific structures through touch. I will describe how I identify each structure of the body and locate it functionally within a body system such as the muscular or skeletal system. I will also discuss some of the ways in which I use my hands to

Drawings by Irene Dowd



© Irene Dowd

Figure 1. *Here the toucher is "sending" with one hand on the back of the upper body (thorax) and the other hand on the front of the lower body (pelvis). In so doing, the toucher is decreasing the distance between her hands, bringing them closer to the vertical. The woman being touched is growing more erect in response.*

communicate kinesthetically with each of the body systems. It is not within the scope of this article to describe how or on what basis I create the specific movement choreography which I convey through my intentional touch to the various tissues. The effort to do so would be too complex and lengthy, since the choreography I create is unique to each situation and person.

Once I can identify the specific structure with which I am communicating, then the location, direction, speed, timing, force, and phrasing of the movement I convey can be exquisitely refined. Through my movement, I can gain understanding of the current state of that structure, its immediate movement preferences and limitations, and its future movement potential for easy and adaptive function. As I "talk" with my hands, each body system "tells" me more and more about what we can do together.

PART I: INDUCING MOVEMENT

To induce motion through touch, there are two actions I can use: I can "push," or "send," a vector of force from my hand towards another person; and I can "pull," or "attract," a vector of force from that person towards myself.

For example, I can place my hand on the small of my companion's back to gently push him/her forward out a door in front of us. This is an action of **"sending"** through touch. Alternatively, if I reach my hand around my companion's shoulder and pull him/her towards me to make way for a third party, this is an action of **"attracting"** through touch.

The following activities are designed to give touch practitioners conscious control over these movements as well as physical efficiency in their performance. In this series of explorations, you will practice:

A) **Sending** a vector of motion from yourself to/through your partner (so the directionality is *away* from your hand).

B) **Attracting** a vector of motion from/through your partner's body to yourself (so that the directionality is *towards* your hand).

C) **Alternating** between sending and attracting.

D) **Using both hands** simultaneously in various combinations of sending and attracting.

During these explorations, you will not necessarily move your partner through visible space. Instead, the movement you communicate may produce changes inside your partner's body which both of you can perceive kinesthetically though not visually.

A) **Sending** *a vector of motion from self to/through a partner.*

Stand facing your partner's side with the palm of your hand on the outside of your partner's nearest arm. Send a series of vectors of motion to your partner with various temporal dynamics. You might try thrusting very quickly and suddenly (staccato dynamics) or pushing smoothly and continuously with minute increments of force (legato dynamics).

While still facing your partner, change your distance to him/her as you practice sending. When you are close, you can might send primarily with your fingers and palm, which can exert the greatest refinement of motor skill and, relatively the least amount of force. Now move further away, and try sending with your forearm and elbow as well, which affords you some more force. With even more distance from your partner, you can send a vector of motion from your spine and shoulder. This allows you to send with the greatest amount of power and the least amount of refined control. If you exert power from your torso and shoulder and fine skill from your fingers simultaneously, then your sending action can most fully convey your movement intentions.

Experimentation will show you which manner of sending is most comfortable for you as well as most effective in communicating motion to your partner. If you are functioning in a way that is very inefficient for your own body, your partner will sense your physical distress and will reflect it by either trying to help or by resisting your strivings.

B) **Attracting** *a vector of motion from/through your partner.*

Maintaining the same position as above relative to your partner, keeping your whole palm in contact with the surface of your partner's arm, gently grasp your partner's arm between your thumb and fingertips. Slowly pull your partner's arm towards you with your hand. Step back from your partner, lighten the pressure of your fingertips as much as you can without breaking the contact between you, and again draw the arm towards your chest.

Still with your entire palm touching the surface of your partner's arm, visualize your palm as a parabolic disc or magnet drawing a vector of motion out of the ground under your partner's feet, up through your partner's body, out your partner's arm, and into your own hand. Now go even further, imagining that the "magnet" is under the soles of your feet instead of under the skin of your palm, taking the vector of motion you receive from your partner into your own palm, inward through your arm, through your torso and legs, out the soles of your feet, and into the ground.

C) **Alternating** *between sending and attracting.*

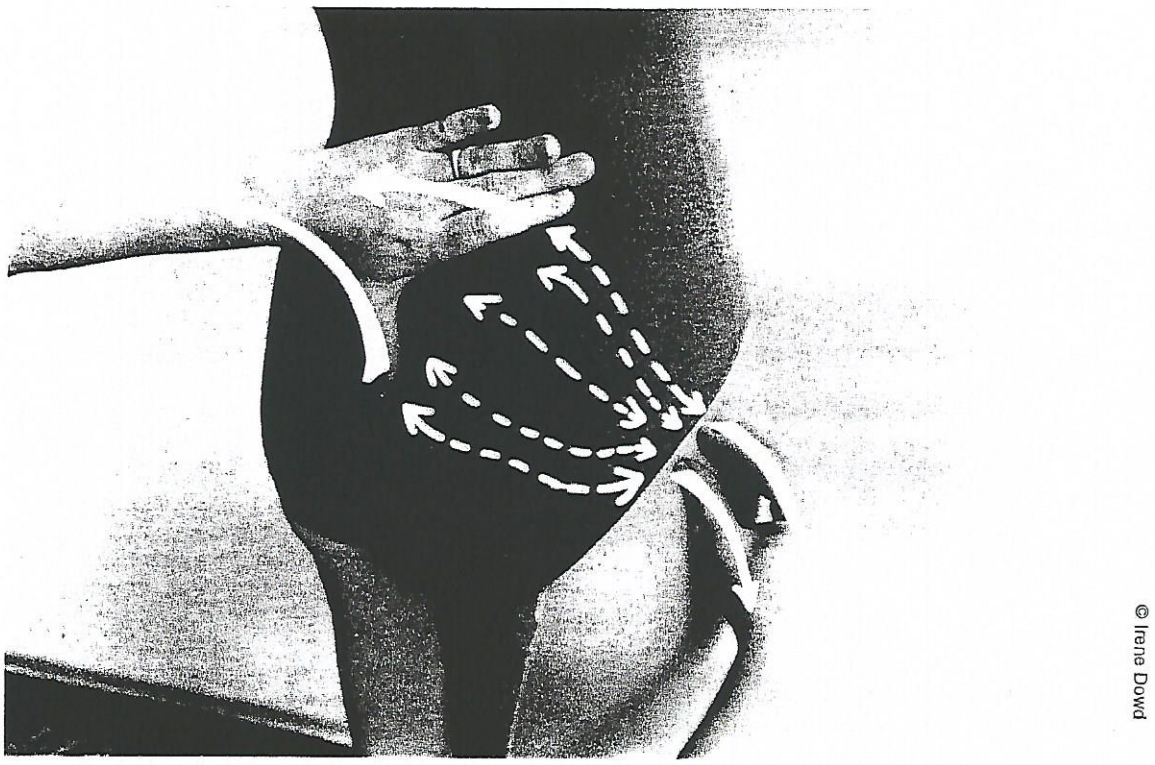
In the same stance with the center of your palm directly in contact with the outside of your partner's arm, alternate between sending a subtle vector of motion to your partner's arm and attracting a vector of motion from your partner's arm. Without telling your partner which you are doing, notice if the arm moves or shifts in any way when you change from sending to attracting or vice versa. Can your partner tell if you are sending or attracting? Try varying the force of your exertion, the depth to which your vector of motion penetrates, and your temporal dynamics. Are any of these variations more effective in communicating movement to your partner?

Sometimes, your partner might be compelled by the force of your touch to move through space, or else resist this by countering your motion with their own force in order to maintain their position in space (which, if sending, you will experience as an increase of pressure against your hand). It is also possible to exert several different forces with one hand on your partner, in order to counterbalance, harmonize or elaborate the movement you wish to convey.

INTERMISSION

At this juncture, some sensitive touchers may begin to feel slightly disoriented, dizzy, or fuzzy-headed from the intensity of focus they are giving to the interface between their hand and their partner. If you feel this way, you can shift your practice from touching your partner's arm with your palm to touching the soles of your partner's feet with the soles of your own feet, as you both lie supine (on your backs), feet to feet. Practice using your feet as you have been using your hands.

You might try this sequence: Send with both feet to your partner, penetrating all the way through their legs, trunk, arms and out the top of their head. Next, attract with both feet so that you draw your partner down from their head, trunk, legs and feet and through your own feet, and onward out through the top of your head.



© Irene Dowd

Figure 3. *Using touch to induce elongation and relaxation of the gluteus maximus muscle.*

(front hand sending and the back hand stabilizing, then attracting) so as to convey the intention first of compressing the chest from front to back, and then of moving the chest as a whole backwards.

Practice sending with both hands at the same time so that the chest compresses inward to its center like a balloon deflating. Attract with both hands at the same time so that the chest expands outward like a balloon filling up.

Move your hands down from your partner's chest to his/her pelvis. Place the palm of one of your hands on the front of your partner's pelvis (just below the belly button and above pubic bone) and the palm of your other hand on the back of your partner's pelvis (over the top of the sacrum and lower spine area). Practice sending with each hand, first emphasizing the back hand so that it conveys a stronger vector of motion. You might see the small of his/her back move forward slightly. Next emphasize the front hand so that it conveys a stronger vector of motion. This may produce a slight concavity of the abdomen such that it moves backwards towards your left hand.

In order to further explore the roles that both hands working together can play in reorganizing your partner's body or body parts, you might explore these additional practices with your partner in a standing position. Put one hand on the back of your partner's thorax (upper body) and send his/her thorax forward while simultaneously putting your other hand on the front of your partner's lower abdomen to send his/her pelvis back so that the diagonal distance between your palms decreases, approaching a vertical. Keeping the same hand positions on the body, attract these two volumes so that the diagonal distance between your palms increases. *[Figure 1]*

In the first case, your partner's spinal posture will probably shift to one of greater erectness (flattening of the sagittal spinal curves). In the second case, when you are attracting instead of sending, you might see your partner assume a more slumped spinal posture (exaggeration of the sagittal spinal curves).

It is possible to use one hand to perform one of the three functions of "sending," "attracting," or "stabilizing" while the other hand does another. Sometimes it seems that one hand is more easily able to perform one of these functions while the other hand is more easily able to perform another. Usually we can and do perform at least two of these functions together when we use both hands simultaneously.

CODA

Before resuming your normal daily life activities, it is useful to "reground" yourself by: walking around while focusing on the sensation of the soles of your feet on the ground; massaging your feet; lying on your back with the soles of your feet flat on the ground and sliding the surface of your soles around in circles or figure 8's; walking around again, concentrating on the interaction between the soles of your feet and the ground.

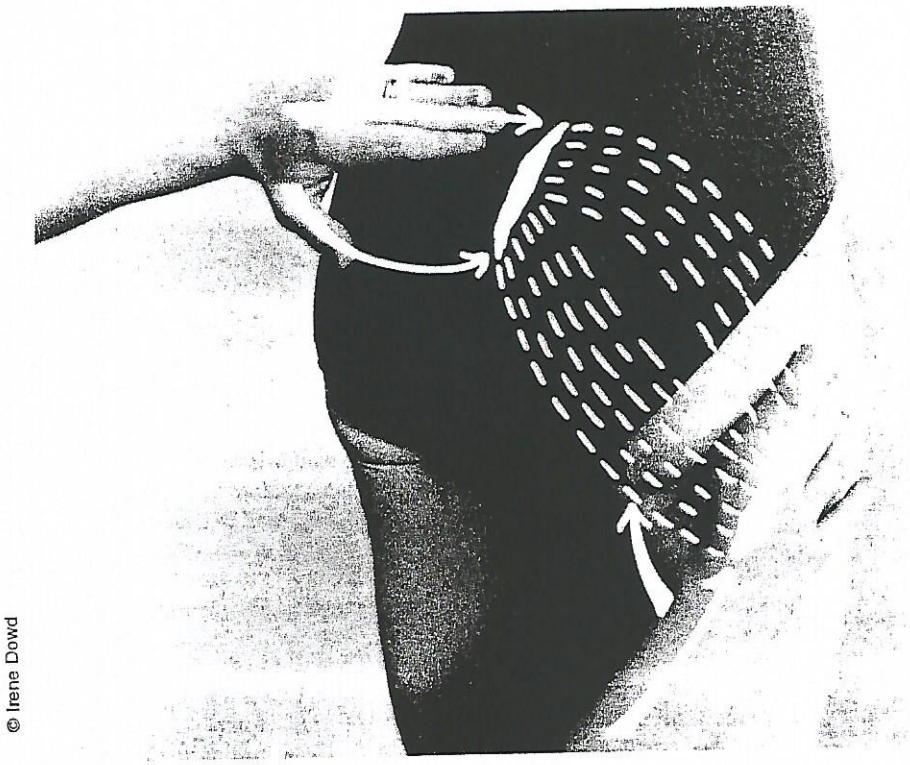


Figure 4. *Using touch to induce shortening of the gluteus maximus muscle.*

PART II: IDENTIFYING

Once you have acquired skill in touching with precise directional intent, you can practice touching as a means to identify and interact with the individual structures contained within the body.

Traditionally, each identifiable structure in the body is considered in terms of its role in one of the many functional systems including : cutaneous (skin), fascial (connective tissue), muscular, skeletal, circulatory (arteries, veins, lymphatic vessels and nodes, cerebrospinal fluid), nervous (brain, spinal cord and nerves), and visceral (glands and organs).

The skill necessary to identify a particular structure develops out of an interaction between extensive knowledge of functional anatomy/physiology/pathology and the subjective experience of touching the various structures of the body on many different people over time. This long-term practice gives a precise dimensional concept of the contents of the entire body as well as an understanding of the variations in conditions that can exist within these contents. Eventually the intentional toucher begins to find ways to communicate specific movements which enhance the functional potential of the various body contents. I like to imagine that movements conveyed through touch reveal pathways or maps leading to the fulfillment of the integrity, dreams and desires of the various body tissues.

This section is a brief review of the characteristic properties of each systemic structure as I experience them, and of how I perceive, identify, and begin interacting with each structure through touch. I think of each body system as having its own "language," a unique spatial, temporal, and energetic configuration by which I both recognize it and "listen" to it so as to learn what to do next.

The features that I must notice in order to identify both the system and the specific stucture within that system include the following:

- **location**
- **size**
- **shape**
- **temperature**
- **density or apparent hardness**
- **range and direction of motion**
- **rhythm and speed**
- **connections to or effects on other structures**
- **nature of the response to my touch**

SKIN/FASCIA

Our skin is the largest organ of our body, serving the essential roles of both separating and connecting our inner and outer worlds. The exploration of skin is a form of topography, the study of surfaces. Our skin is highly innervated, therefore extremely responsive to touch. Some of the skin receptors trigger responses in the deeper layers of our body, such as underlying muscles and even organs. (In fact,

this works both ways, in that an unusual sensation in the skin is sometimes being referred from a deeper structure.)

Fascia can be easily thought of as the skin for the internal body structures. However, this characterization does not suggest the awesome prevalence of fascia in the body. Not only is every structure in the body encased in fascia; in addition, fascia separates and connects each structure of the body from and to every other, making its surfaces many-layered and extremely complex.

If you ever wondered what it is that connects and pulls from your big toe to your ear when you do an extravagant full-body stretch, the answer is: fascia. The fascia which forms a full-body stocking just under our skin is our superficial fascia (especially thick in our low back and outer thigh regions). There are multiple layers beneath that, all the way to the fascia which surrounds our body core, i.e., our spinal cord and brain. This deepest layer, since it protects our nervous system, is quite tough, aptly earning the name of dura.

In working with fascia, we can continue to use our topography model but we must think of many surfaces layered on top of each other (like *mille feuille* pastry or the layers of rock and sand that form the earth's crust).

Like skin, fascia is elastic but it is not as soft. Each layer of fascia has its own directional pull along which it will stretch more or less easily, not unlike woven fabric. Since it surrounds muscle, stretching a muscle also stretches fascia. However, muscle is "smart"—it has innervation to permit it to actively and intentionally contract or not. Fascia, in contrast, is "dumb"—it has no motor innervation —therefore, the length and surface shape of fascia can only be altered passively through movement imposed from the outside.

One can think of the ubiquitous fascia as the historical record of the body since its present condition reflects movement and positions that have been assumed by the surrounding structures in the past. For example, long term shortening in the erectae spinae muscles of the lower back will result in a shortening of the surrounding fascia. Subsequently, a sway-back posture is maintained even after the supporting lower back muscles are relaxed. Thus, it may not be enough to relax and lengthen a muscle that is too short. It may be necessary to lengthen the fascia as well in order for the muscle to be fully extensible.

David was an individual who exhibited this bodily configuration. He complained of fatigue or aching at the end of the day, while his wife complained, "his gut hangs out in front." David frequently attempted to stretch out his erectae spinae muscles with an exercise he learned from a gym class. When I asked him to show me the exercise, he slightly bent his knees and curved forward as far as he could, trying to let his fingertips touch the ground. He bounced vigorously in an effort to reach closer to the ground. This practice does, in fact, stretch (and activate) the erectae spinae slightly, but it did not diminish his sway back or his ache. In order to change his spinal posture and sustain greater length of his erectae spinae muscles, I taught him another practice which elongates the lumbar fascia as well.

The lumbar fascia stretches "on the bias" from its anchorage on the spine where it travels around to the belly, connecting the rib cage and the pelvis. ***[Figure 2]*** In order to elongate his lumbar fascia, I asked David to lie on his side and twist his pelvis forward by reaching his upper thigh out along the floor in front of him and counter-twist his rib cage backwards by reaching his upper arm out along the floor behind him. After staying in this position for a minute or two with my manual assistance, he reversed the position of his thigh and arm so that his pelvis twisted backwards with the reach of his upper thigh along the floor behind him and his rib cage counter-twisted forwards with the reach of his upper arm along the floor in front of him.

After resting in this position for a minute or two, he began to slowly swing his arm and leg in opposition, from the first to the second position. At my encouragement, he gradually increased his speed and his range of motion. Finally, he repeated the whole sequence lying on the other side. When he stood up five minutes later, his back appeared straighter, his "gut" was less prominent, and he claimed that the ache was gone and replaced with a feeling of "lightness." When he tried his original forward-hanging position again, without bouncing, his fingers touched the ground easily.

MUSCLE

Our muscles, encased and surrounded by fascia, are the "engines" responsible for producing the movement of our bony levers through space. If the exploration of the skin and fascia is analogous to the topography of the earth, then the exploration of the muscles is analogous to geology.

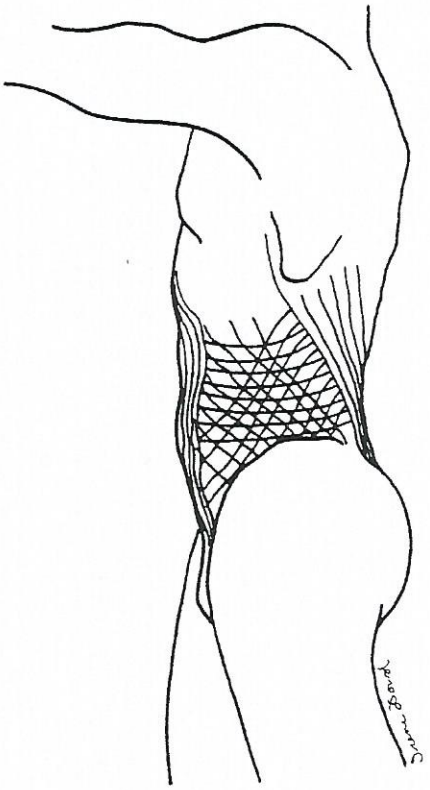


Figure 5. *The directions of action for the three layers of the abdominal wall—the external obliques, the internal obliques, and the transversus abdominis—contained between the latissimus dorsi muscle in the back and the rectus abdominis muscle in front.*

Muscles have depth and volume as well as surface. As mentioned before, a highly significant difference between muscle and fascia is that muscle is "smart," i.e., it is innervated by motor nerves. This means we can voluntarily direct the activity of a muscle and therefore affect its shape. Because it is smart, muscle can be altered by the application of voluntary thinking/imagery. I usually use spoken imagery as I am applying manual techniques to individual muscles and muscle groups.

It is quite easy to alter an individual muscle by working *linearly* along its surface. If you can locate and touch the points of attachment of a particular muscle to the bone, then you can elicit voluntary elongation and relaxation of the muscle by asking the person to imagine those two points moving apart so that the distance between the points increases. To facilitate the person's imagining (and elicit an additional reflexive or unconscious response in his/her muscle), press directly on the tendons close to their points of attachment to bone and gently pull the two polar points apart. ***[Figure 3]***

Conversely, if the person will imagine that those same two points are moving towards each other so that the distance between the points decreases, he/she can voluntarily shorten and increase the level of activity of that muscle. The toucher can also facilitate this activity in the muscle reflexively by tapping/vibrating the muscle belly quickly or using a fingernail to stroke against the direction of hair growth on the skin overlying the muscle. ***[Figure 4]***

Through touch, we can penetrate to the different *layers* of muscle. Each muscle forms one layer and has a different direction of action.

For example, if I am touching the most superficial layer of the abdominal muscles—the external oblique—on the right side, then the direction of action is from the lateral aspect of the ribs to the medial aspect of the anterior pelvis (pubic region). ***[Figure 5]*** I can change the activity of this muscle in a few ways: by bringing the two points together, resulting in contraction or shortening; by sending the two points apart, resulting in relaxation or lengthening; or by crossing perpendicular to the line of the muscle, resulting in neutralizing any activity of that muscle.

If I choose to penetrate this layer and go one layer deeper—the internal oblique—on the right side, then the direction of action is from the more medial aspect of the ribs to the lateral aspect of the anterior pelvis, in other words, perpendicular to the superficial layer.

If I go onward to the deepest layer—the transversus abdominis—on the right side, then the direction of action is from the back around to the front in the direction of an elastic belt. It is possible to stretch out the belt, relaxing or elongating the muscle; or else to tighten that belt, activating or shortening the muscle.

Once you know the location and orientation of each muscle relative to the others, you can penetrate to any layer with your touch, using the directions that have an influence at that layer. It is useful to note that these three layers of the abdominal wall muscles are attached indirectly to the spine by the lumbar fascia (which I described in the case of David).

It is also possible to work *volumetrically* with any muscle. In other words, I can consider alterations in the thickness of a muscle. By focusing on changes in volume, I can alter the tension/exertion levels in the muscle, just as I altered the length of muscle when I focused on linear changes. For example, if I touch with the intention of thickening a particular muscle layer, the contractile activity of that muscle will tend to increase. If I touch with the intention of decreasing the volume of a particular muscle layer under my fingers, there will tend to be a decrease in the contractile activity of that muscle or an enhancement of its ability to elongate to its maximum length.

BONE/JOINT

Our bones are levers whose relative stiffness allow us to carry the mass of our body directionally through space. All bones are spiral in form. It is in the joints between the bones where the actual movement takes place. The joint surfaces are always rounded (concave or convex). Therefore, movement at any joint describes an arc through space. There are no straight lines in this realm. We are working with curved joint surfaces and spherical space through which the spiral-shaped bones arc.

When we touch to produce movement of bones, we are actually producing movement at joints, regardless of where the touch or imagery is focused. For this reason, my focus is generally on joint movement (although we may think of the bones themselves in order to produce movement at their joints).

When we produce movement at

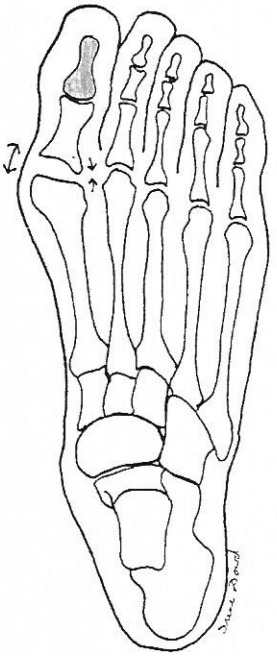


Figure 6. *View from above of a foot which exhibits hallux valgus. The joint space between the base of the big toe (metatarsal bone) and the toe itself (phalangeal bones) is expanded to the outside and constricted to the inside.*

joints, we are affecting a whole group of muscles. Some muscles are shortening to produce the joint motion; some are elongating to permit the joint motion to happen unimpeded; still others are contracting in place to stabilize the bones. Even a tiny joint movement produces a very extensive and complex muscular response. If working with skin is topography and working with muscle is geology, then working with bones is internal astronomy: the study of the orbits in a miniature solar system.

A common condition (called hallux valgus), in which the big toe is angled inward so as to point towards the second toe instead of straight ahead, serves as a case in which the "orbits" of the foot are disharmonious. *[Figure 6]* In an ideal foot, the toes each rotate vertically around their bases (the metatarsal-phalangeal joints) in smooth arcs of motion which are approximately the range of half a full orbit (135 to 180 degrees). This allows each toe to raise up off the ground to point towards the sky (extension) and to press down and grip the ground (flexion).

There is a second dimension of motion of the toes as well. This is an arc which allows each toe to angle away from the midline of the foot (second toe) so that the toes are splayed wide on the ground (abduction) and then to angle towards the midline of the foot so that the toes are all pressed together (adduction). This arc of motion is less than a tenth of a full orbit (20 to 30 degrees) but it nonetheless allows the foot the ability to significantly widen and narrow. By engaging both orbits of motion, each toe can circumduct around its base in a way which allows us to stabilize or grasp with our foot.

Let us consider the hallux valgus. In watching a dancer named Margaret, who exhibits this configuration, move her big toe, I see that the arc of motion of the tip of her toe is deflected from its path and diminished in its range. Instead of moving straight up towards the ceiling in line with the bone that forms its base (the metatarsal bone), the big toe meanders inward towards the second toe even more, so that it never actually points to the ceiling. Likewise, if the big toe is pressed down onto the ground or curled under as if to grip a sandy beach surface, it angles inward so that its motion is stopped by its collision with the second toe.

When I feel the motions of her big toe with my fingers, I will perceive the meandering and restricted nature of the joint motion. I particularly feel the lack of space on the inner aspect of the big toe joint next to the second toe (medial aspect of the first MP joint). With my fingers I can gently create a little more room in that part of the joint, so that the big toe will begin to approach its ideal orbit. When I ask the dancer to engage the muscle (abductor hallucis) on the outside of the big toe joint by imagining the outer tip of the big toe moving towards the inside of her heel bone (imagining shortening the distance between the two points of attachment of the muscle so as to increase its activity), I may see and feel some changes in the joint motion.

I might also ask the dancer to imagine the inner tip of the big toe moving away from the foot so as to make the big toe grow very long from that point (this decreases the engagement of the flexor hallucis brevis and lumbricals which tend to pull the big toe into a more angulated position when it is flexed or extended). In these small interactions with the big toe joint and its surrounding muscles, I might see some shifting of the big toe's position at rest as well as a more fluid orbit of motion. This shift may be sustained by Margaret if she continues practicing it attentively as she goes through her daily activities.

FLUID SYSTEMS: blood, lymph, cerebrospinal fluid

One can describe the movement characteristics of skin, fascia, muscles and bones primarily in terms of their spatial qualities: e.g., their changes in size, shape, direction, arcs of movement, etc. While focusing on the movement of the fluid systems of the body, however, it becomes essential to attend to the temporal aspects of the movement as well.

As I "listen" to the flow patterns of these fluids, I can describe them with metaphors. The pattern of flow through the blood vessels is like the progression of water down a river with a pump at one end. In contrast, lymph flows viscously and irregularly (at the impetus of an outside force such as musculo-skeletal action), much like the colloidal suspension of sand and water that forms the muddy bed of a swamp. Slower yet is cerebrospinal fluid whose tides, like those of an inland sea, ebb and flow on an enclosing shore. All these fluid systems can be studied in terms of the complex and elegant physics of fluid dynamics.

BLOOD VESSELS. Blood is the easiest fluid to monitor. You can directly feel the pulse of arterial flow by touching the front of your own

wrist, for example. Or if you lie quietly for a few moments, you can feel your arterial pulse in all your extremities.

Arterial blood is pumped rhythmically by the heart through the arteries whose strongly-binding elasticity does not allow the heart's pulse to diffuse. Venous blood is pumped back through the thinner-walled veins by movement produced by the alternate contraction/relaxation of muscles and concomitant motion of joints.

Arteries are firmer than veins. They are easily felt to have the characteristic rhythmic pulse impelled by the heartbeat. Veins are more malleable, and their motion is a function of many forces acting upon them to propel the returning blood through the one-way valves back to the heart. These forces include the elastic properties of the veins themselves, the elastic quality of the surrounding tissues, the activity of the surrounding muscles, and even the elastic properties of clothing and other externals, such as gravity or the touch of another's hands.

LYMPH flow is from periphery to center, in the same direction as venous flow. It filters and returns to the heart cellular fluids not carried by the veins, with the addition of dead white cells and other immune system sentinels, fighters and martyrs. It is not pumped by the heart but is instead propelled by the action of the muscles and organs around it. Since its main, central, deep-level channel travels along the front of the thoracic spine, the pumping produced by breathing is itself a prime mover of lymph in its final progression back to the heart. Lymphatic flow is uneven. Its viscosity, speed, and rhythm are determined by the state of the immune system, cellular health, breathing and the level of the body's physical activity at the moment.

The superficial lymphatic vessels have nodes at the joints: very large ones at armpit, base of neck and groin areas, moderately large ones at elbows, knees, wrists and ankles. These are quite easy to palpate (feel with your hands) when there is a local infection such as a mosquito bite. Even in the absence of any congestion, it is easy to palpate the relatively large lymph nodes at the groin in front of the hip.

Where blood may be perceived as moving quickly, lymph is slower, even sluggish. Where blood is more watery, lymph is more like mud. Where arterial blood flow is clearly metered, lymph movement is not metered at all. Where blood seems to have a mind of its own, lymph is mindless. Where blood is like a pulsing river, lymph can be like a peat bog.

We have all experienced the effects of venous and lymphatic pooling due to a sluggish return to the heart, perhaps when sitting for a long car trip or in bleachers at an athletic event. When we finally stand up, our feet feel hot and thick. When we take off our shoes, our feet may appear red or mottled and the tops of our shoes are marked deeply into our skin. The the red may be indicative of blood pooling while the puffy swelling may be indicative of the lymphatic pooling. Elevation of our feet coupled with active circling of our ankles may quickly alter both the color and size of our feet to a more familiar state.

A more extremely uncomfortable situation arises when we sit with one foot folded under us during that long car trip or athletic event. Then we have not only compromised fluid return to the heart, but also arterial outflow from the heart and nerve signals to the foot as a result of pressure. In this case, an examination of the foot will reveal a cooler and whiter form which experiences no sensation at all for a few moments. Vigorous encouragement of arterial flow and nerve signals to the foot (by, for example, hopping up and down on that foot) will produce the most intense and miserable of sensations. A more gradual encouragement of outflow (such as very light repetitive stroking of the foot from ankle to toes and making tiny movements of the foot) will produce somewhat less intense sensations of "pin-pricks" or "fire ants" as more normal flow is being re-established.

CEREBROSPINAL FLUID is the liquid medium in which the brain and spinal cord are bathed. This fluid is encased in three layers of a type of connective tissue called dura mater, arachnoid dura, and pia mater. The dural sacs are themselves encased in the bones of the skull and the vertebrae of the spinal column. Thus, the central nervous system is protected by flotation inside a shock-absorbing fluid medium as well as by armament within the adjustable hard plates of cranial and spinal bones. The dural sac, which encases the cerebrospinal fluid, attaches at various key points to the skull and spinal column and is itself continuous with the deep fascia of the rest of the body.

Although we cannot directly touch the cerebrospinal fluid itself, we can directly monitor its *motion* by placing our hands on the bones that its dural

sac attaches to—the skull and vertebrae. The reverberations of that motion can also be monitored from any place in the body—even the feet—because of the continuity of dura and fascia throughout the body.

In the absence of unusual influences (abnormal neural, biochemical, or musculo-skeletal conditions), the cerebrospinal fluid seems to move rhythmically and periodically. As suggested before, we can liken the cerebrospinal fluid rhythm to the tidal flow patterns of an inland sea. "Storms at sea" are eventually perceivable at any point along its enclosing shoreline. In attending to the cerebrospinal fluid, we are focusing on rhythms of motion through *time*. We may also attend to harmony or dissynchrony in these rhythms of motion when we compare right and left sides of the body, upper and lower regions, central and distal parts, etc.

Suppose that I were to arrive for a visit later the same day with the unfortunate person who sat for a long time on her foot. I might ask her to lie down on her back to allow me to hold the outsides of her lower legs and feet in my hands. If I waited quietly for several minutes with my fingers and palms touching her ever so lightly, I would be able to identify the foot that she had been sitting on by its diminished cranial rhythm—i.e., impeded resonance within the ebb and flow of the cerebrospinal fluid. My hands would feel that the outer ankle bones (fibulae) would be minutely rotating forward and backwards relative to the shin bone (tibia). ***[Figure 7]*** This minimal arcing of the fibula around the tibia would take place in a very slow pendulum-like rhythm (slower than a full breath cycle of inhalation and exhalation). On the sat-upon right foot, I would feel a diminished range of motion in the fibula's orbit and perhaps even a slower rhythm to that motion. The fibula would travel a shorter distance and take a longer amount of time to do so.

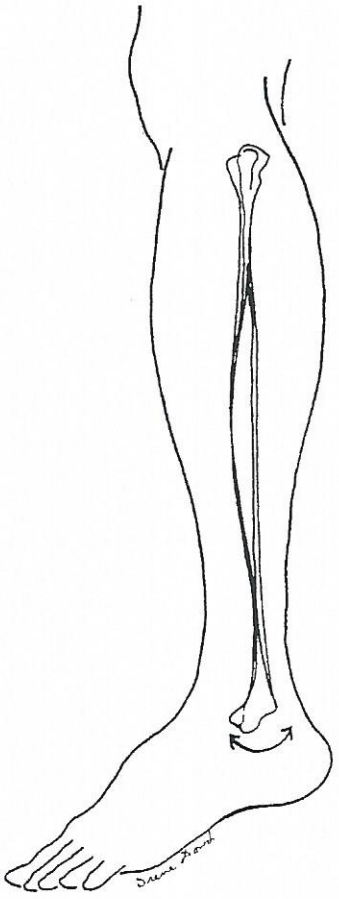


Figure 7. *View from the outside of the left leg showing the fibula and its motion.*

The difference in the two sides would be subtle but palpable, possibly for many hours after the mildly traumatic sitting event.

NERVOUS SYSTEM

The movement of signals along nerves is so rapid as to seem instantaneous. This gives us the satisfying illusion that our brain and any particular cell in the periphery (say, a muscle cell in the index finger) are in simultaneous synchrony. In fact, studies have shown that they're not. Approximately .3 seconds will pass between the time our eye sees a flash of flight and our brain sends an impulse to our finger to move so that it presses a button.

Unless a nerve is severely inflamed (as in sciatica), we normally don't feel the nerve itself, but only the result of its transmissions: we feel sensations such as temperature, pressure, pain, and itch due to transmissions from the periphery *to* the spinal cord/brain; we produce movements of our bones through space due to transmissions to the muscles *from* the spinal cord/brain.

While nerves transmit impulses via electric currents, these currents are themselves affected and altered in terms of intensity, speed, duration, and spatial pathways by the continuous changes in production by the brain of

specialized chemicals called neurotransmitters. The relative concentration of these chemicals at any given site within the nervous system at a particular moment is contingent on such factors as previous experience (i.e., learning), level of alertness, fatigue, overall health, emotional and hormonal states, as well as the amount and type of stimulus being received by the brain at that moment.

Even the simplest neurological response involves millions of nerve synapses (connections between nerves across which impulses are transmitted). Any action can be thought of as a vast orchestral performance or temporal-spatial *web* of interactions within the nervous system. There are many different instruments in the orchestra and each one plays its score of varying tones in various sequences through time, but the music is the summation of all the instruments together.

The *web* of interactions within the nervous system is incredibly elaborate even when we are performing the simplest motion. When I think of interacting with the nervous system, I like to imagine that I am listening to a symphony. The brain of the person I am touching is the conductor of the neural symphony. As audience, I can be observant, appreciative, and critical. If the person I am working with, the conductor (I'll call her Sonia), is interested in changing or enhancing the "symphony," she will have to become consciously aware of what my hands, as audience, are conveying. If I have gained Sonia's attention, then a few words coupled with the most minimal spatial and temporal directions from my fingers can have a significant effect on her entire nervous system.

For example, Sonia suffers from a degenerative neurological syndrome which causes the left side of her body to be weaker and less sensitive than her right. The difference in her two sides is not constant. Sometimes she will experience almost equal sensorimotor innervation to both sides. Other times she will be severely debilitated for months on end.

One day at the swimming pool, she asked me to observe her crawl stroke. She was going through a period of marked debility in which swimming was the only activity she could enjoy. However, she noticed that she had difficulty staying in her lane and was constantly bumping into the rope to her left side. What I saw was that her right arm always reached forward more strongly and with more sustainment while her left arm seemed to merely follow through. I told her what I was seeing with the comment that I suspected this to be a result of her neurological disability. To my surprise, she expressed surprise at my observation. She told me, "I feel as if I use both arms equally when I swim."

In response, I suggested that we try an experiment. I asked her to imagine that her left arm had to move through something denser and more resistant than water. As I said this, I lightly resisted the movement of her left palm forward through space with my own hand, as if my hand were the water. She followed my suggestion during her next lap and immediately exhibited a more symmetrical stroke. When she arrived at the end of the lane, she exuberantly announced that she hadn't run into the rope even once. She said, "Now I feel like I'm doing everything with my left arm, and it feels good."

We continued to swim at the pool every day for the rest of the summer. Now that she was giving more of her attention to her left arm, she was able to swim in a more symmetrical fashion. The sensory loss induced by her neurological condition had allowed her to "forget" her left arm and therefore to not use it even as much as she was able. Although her medical condition was unchanged, she was able to engage her brain to give more stimulus to her left arm and thereby more integrated function to her whole body.

ORGAN AND GLANDULAR SYSTEMS

Organic function can best be understood with a detailed awareness of spatial location, tissue texture, temporal dynamics, and the complex interactions between each organ/gland and another.

Glands are characterized by their ability to secrete a substance which can be carried (usually via the circulatory system) to other locations in the body. Organs are characterized by their specialized ability to carry out a function which alters or processes substances which pass through them.

Any variation in the amount and/or type of secretion produced by a particular gland can have effects on each and all the other body systems in elaborate ways. Any shift in the processing capacities of a particular organ can likewise result in adjustments and changes within all the other body systems.

Increased activity in one organ/gland can produce decrease in its antagonist organ/gland, and vice versa. Thus, it is not desirable to simply stimulate what is "underactive" or soothe what is "overactive." Because of these complex interactions, I let the glands/organs "tell" me about themselves, but I do not "talk back" or intervene except to remove external

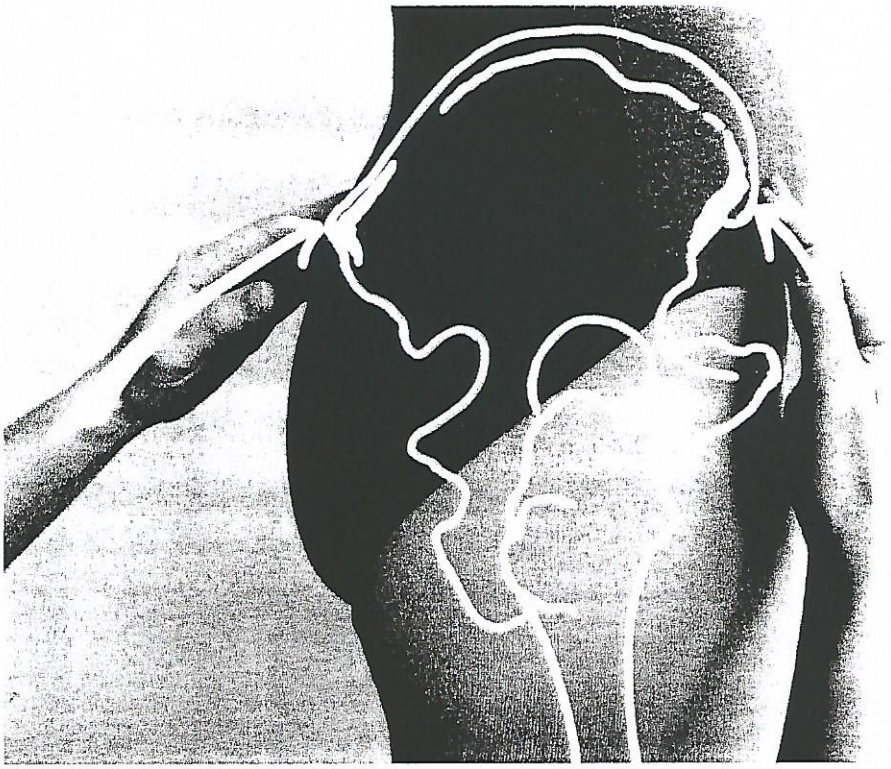


Figure 8. *Here the toucher is sending inwards and upwards towards the many systems contained within and above the bones of the pelvis.*

impediments to their balanced functioning (such as tight clothing, muscle tension, joint rigidity, etc.).

Generally speaking, a healthy gland/organ feels soft, movable, and not easily distinguished from surrounding soft tissue. For example, a healthy thyroid gland (snuggled around the "adam's apple" or thyroid cartilage) can barely be palpated when it moves up and down along with the adam's apple in swallowing. It is usually like a soft padding to either side of the cartilage. However, when it is inflamed (as in thyroiditis) it will be hot and the overlying skin will be red. When it is enlarged (with goitre) it is visible as a large bulging mass filling the space between the chin and the sternum. It may even have a grainy texture like tapioca if it has nodules growing in it.

When I am working with someone, an organ or gland may "call out" to me strongly by resisting my motion, for example. My hands can then respond by: (1) identifying the specific visceral "shouter"; (2) removing impediments to its full function—i.e., release surrounding muscle spasm, reduce rigidity, stasis, pressure, interrupt pain when possible, etc.; (3) balancing/integrating the body system as a whole to support integrated function. Although my actions do not directly make an infirm organ or gland resume its normal functions and secretions, my hands might inform a healthy organ or gland about conditions of greater ease and mobility.

SUMMARY

I sense skin and fascia as surface —topography. I perceive muscle as surface and volume—geology. Skeletal joints are characterized by orbital movement—astronomy. The fluid systems of blood/lymph/cerebrospinal fluid are identified by the rate and rhythm of their directional linear flow—fluid dynamics. I can only begin to comprehend the complex patterns of the nervous system if I think orchestrally. The glandular/organ systems are perceivable in complex patterns over long diurnal cycles and biorhythms which I must run at fast-forward through my memory in order to gain a sense of them.

The kinds of things that I "hear" skin and fascia telling me about are elasticity and extensibility (or restriction). Muscle tells me about extensibility as well as contractility. Joints inform me about their surrounding muscles and also about their intrinsic mobility (or stiffness). Fluid systems talk about rhythm (or arrhythmia), speed, dilation (or constriction) of the vessels which carry the fluids, viscosity and congestion. The nervous system tells me about communication channels, synthesis and webs of functional control. The glandular and organ systems talk about resilience (or hardness), adaptability, long-term complex

(cont'd)

interactions.

To perceive each system, I find it useful to "talk" to it by sending/attracting vectors of motion to, from and around it. The movement I convey through my hands initiates a kind of kinesthetic conversation with the various tissues of the person I am touching. As I move responsively, always sending and attracting, I begin to understand what a particular group of cells is "telling" me. Eventually, I choreograph more complex and lengthy sequences of motion with my fingers in interaction with those cells to present new possibilities for movement interactions with other structures.

If I send with one hand on either side of the pelvis, I can identify and interact with all the body systems which compose that volume contained between my hands. My front hand might be sending the psoas muscles away to relax against the front of the spine, thus allowing the kidneys and intestines to fall backwards into the abdominal cavity so that the surface of the abdominal wall becomes more convex under my hand.

Meanwhile my back hand can be sending the lumbar vertebrae forward so that each intervertebral joint moves into a position of greater extension. This will increase the height of the intervertebral discs, thus decompressing them while opening the spaces through which the nerve roots pass in and out of the spinal column to communicate with the lower limbs. My back hand could also be sending the erectae spinae muscles forward to relax against the back of the spine. If I lower my back hand slightly so that it is resting on the sacrum, I might gently add to the ebb and flow of the cerebrospinal fluid (whose rhythm reverberates all the way down to the feet).

If I choose to simultaneously send with both hands so that they not only move towards each other but also slightly upwards towards the person's head, I might affect other fluid systems such as the lymphatic trunk which carries the lymph from the front of the hip joints to the heart. If I keep sending with both hands with increasing pressure as the person exhales, I will force the abdominal contents upwards against the diaphragm, causing it to dome up as far as possible into the thorax. This will allow the lungs to expel more air, increasing their usable volume. I can induce movement in each body system contained between my hands by varying the location, pressure, force, timing and depth of my touch while sending. ***[Figure 8]*** The motion induced can be elaborated even more if I combine sending and attracting touch.

Generally, I perceive a system to be at ease when there is vitality, rhythmic movement and harmony. I perceive a system to be under duress when it resists movement, is distinctly hot/cold, rapid/slow, arrhythmic or utterly still. In other words, if a particular structure is yelling or singing dissonantly, then I pay very careful attention to what it has to say. If I can understand it, then I can "sing back" with my hands through the basic actions of sending and attracting as an informed intentional toucher. Including verbal communication further clarifies and facilitates the touch interaction.

Through intentional touch, I hope to engage all of the body systems of the person I am touching so the parts can perceive mutually harmonious ways of moving, and the person can achieve greater freedom to function adaptively throughout life. ★

To contact the author: Irene Dowd, 14 East 4th St., Suite 606, New York, NY 10012; tel. (212) 420-8782.