

Tai Chi, Awareness, and Novelty by Mark Donahue

If I gently tossed you a small bean bag it would be a simple matter for you to catch it. Toss that same bean bag to a 4 year old and it is likely that the bag would end up on the floor. I observed this simple task, used as a test by a child development specialist, to pinpoint areas of weakness in the motor skills of a group of children. There was a wide variety of responses in the group of 3-5 year olds. What fascinated me about this test was what the specialist did with many of the children who were unable to catch the bean bag. She used an electric facial scrubber and scrubbed the wrists of the children for about thirty seconds and then repeated the test. This time most of the children who had previously missed the bag caught it. By stimulating the sensory endings in their wrist the children now knew where their hands were relative to one another and to their body. This awareness helped them coordinate their movements and improved their performance.

I related this story because it answered a question that puzzled me for years. In Tai Chi classes the most simple instruction, "Raise your extended right arm in front of you, palm down, to shoulder height", will be carried out in a wide variety of ways. I realized that, like those children who could not catch the bean bag, those students whose arms float off in various directions did not have a clear sense of where their arm was relative to their shoulder. Learning Tai Chi is like learning to catch bean bags. To do Tai Chi well you must learn new structural relationships, new connections between a hand and shoulder, shoulder and hips, hips and feet. The form acts like the facial scrubber stimulating your awareness of the possibilities of movement implicit in your physical structure. I came to understand that it is no coincidence that the terms used in Tai Chi instruction-- structure, function, form, posture-- are the same terms that are fundamental to the disciples of anatomy and kinesiology. The act of learning Tai Chi is equally an act of exploring yourself, physically and energetically, through movement.

Biologically speaking we are extremely conservative. How you sit, stand, walk and carry out your everyday tasks is driven by habit. These habits imprint patterns in your body structure and give you your characteristic walk, posture and movement style. If you didn't have these habitual responses you would go crazy learning to walk anew each day. But, at the same time, your habits are, in a sense, a form of repetitive stress. Your body physically forms itself around these habit patterns. If you sit, stand, walk and catch bean bags the same way for years, you will find that your muscles, tendons, ligaments, joints and your sense of self will not allow you to walk any other way.

A primary benefit of Tai Chi is the chance to change habitual patterns and establish new relationships in the movement potentials implicit in the human form. The study of Tai Chi is more than strengthening and toning muscles, it is an opportunity to introduce novelty back into your structure. In practicing the form you flow through a series of postures that breaks down your habits and helps you awaken movements dynamics that were lost or that never existed.

Of your habits, the most fundamental are those that hold you together. Take the example I used earlier of lifting your arm to shoulder height. When you lift your arm, the large surface muscles do most of the work in shifting the arm from point A to point B. At the same time there are deeper muscles and tissues that hold the moving joint together, that stabilize the arm into the body and ultimately connect the movement to the ground. Every movement you do has these characteristics of finding support in the entire body and ultimately connecting to the ground. You can feel these deep movements and shifts if you really pay attention to your entire body when you lift your arm. You will find your weight subtly shift on your feet and micro-adjustments move throughout your body to accommodate the shift in the entire structure induced by your lifting arm. This is where Tai Chi shines as a movement art. Western physical culture attends to the large surface muscles. The long term goal of Tai Chi practice is to develop the

ability to initiate movement from the deeper muscles that hold you together, to have each movement be a whole body expression, and to root the movement in the earth. This is what it means to be an internal art. Lifting your arm is not done by stiffening your spine and tightening your pelvis. Instead, the lift becomes the final expression of a wave of movement arising from your feet. For most of us, to awaken the internals of the art means that we must explore and make fundamental changes in our most unconscious sensorimotor patterns.

These changes are primarily shifts in awareness. I have found, in my Rolfing practice, that most people are aware of and live from the large surface muscles of the body. Most chronic pain and restrictions in movement occur in the deeper layers of the structure. That is why it is important in practicing Tai Chi or Chi Kung, especially therapeutically, to shift your awareness from the surface muscles to those deep in the body, close to the bone. When your teacher tells the class, "Hold that posture," don't groan, rather practice shifting your awareness from the muscles actively doing the gross movement to the underlying activity of your body supporting the movement. As you do this you will find that you can relax the outside of your body. You will also discover small movements deep in the body working to hold you up. If you pay attention to these deep micro movements, you will feel like your body is moving throughout even though you are standing still. To quote Master George Xu, "One thing moves, everything moves."

This awareness leads us to an understanding that everything is connected. A jellyfish, however, is also completely connected but it has little shape. To shape this whole body connection you must clarify the intention of the movement. Out of the backdrop of connectivity your intention shows as a path of connection leading from one point to another. For example, consider the posture Brush Knee with the right hand extended and the left hand brushing the knee. As you hold the posture, become aware of your body as a whole. Next, explore how to get a sense of connection from your right palm to the heel of your rear right foot. Now add a feeling of extended fullness to that connection so that it stands out in relief within a relaxed sense of the whole body. If you stand long enough the sense of directed fullness becomes a feeling of a flow. Now do the same thing, but this time wrap the path of your intention from your right palm around your back and down to the heel of your left forward foot. In this example you have not shifted the gross relationships of the posture but you have changed the dynamics of the posture with your intention. From this exercise you can begin to understand how yi, the intentional mind, leads chi, the sense of fullness or flow

In order to assist these shifts in awareness it is helpful to provide a conceptual framework that enhances the experiential. The first necessity is to understand the body differently. The common conception of a body is that it is composed of parts-- muscles, bones, organs-- and to understand the body you study the parts and how they interact. What if you start with the assumption that the body is a unified whole and that the parts are simply differentiation of functions within the whole? From this holistic perspective the component of the body that binds the complex into a whole takes on greater importance. The connective tissue network is that which encircles and supports every cell in the body. Connective tissue, which includes bone, tendons, ligaments, and fascia, forms a ubiquitous network that gives shape to the body, provides a medium for the transportation of nutrients, the disposal of waste products, and the transmission of biochemical information. It is composed of two major components: ground substance, which is a fluid matrix, and collagen, which is a rope-like material with incredible tensile strength. The ground substance literally acts as an internal ocean bathing every cell. The collagen fibers, afloat in the ground substance, bind the entire body together. Organs and muscles are not separate entities but are collections of similar tissues, embedded in the lattice of connective tissue, that form functional units. If you were able to magically remove every type of cell in the body but the connective tissue, your shape would still exist but it would be devoid of any filler.

For our purposes it is helpful to focus on the the active ingredient of this connective tissue web, the muscles. Each muscle cell is embedded in connective tissue rich in collagen fiber. Individual cells are organized in long stands which are wrapped in a connective tissue sheath. These sheaths are then wrapped together in other sheaths much like a rope. That which differentiates one muscle from another is still another sheath encasing the entire muscle. All these sheaths extend beyond the muscle along the line of action and blend into the periosteum of the bone. The periosteum is yet another sheath of connective tissue that wraps the bone. The bone itself is connective tissue and differs from the tendon and periosteum only by the fact that calcium salts have hardened the ground substance matrix of the bone. Viewed in this manner the muscle and connective tissue network forms a continuous whole that has a passive tensile component, the connective tissue, and an active motile component, the muscle tissue. The passive component provides the support and connectedness, and the active component accounts for movement.

Now an interesting thing about the collagen in the connective tissue is that the molecules that form them are arranged in a highly ordered way. This high degree of order makes it resemble a crystal and, like other crystals, collagen, when distorted by mechanical stress, produces a piezoelectric charge. A diamond phonograph needle is an example of piezoelectricity in action. The grooves in the record bend the ordered molecules in the diamond. This causes the diamond to produce an electrical charge which is then registered by the phonograph and translated into sound. The piezoelectric nature of collagen and the continuous nature of the connective tissue (see Larsen, 251-266) have exciting ramifications in attempts to explain the acupuncture meridians and the circulation of chi in the body.

With this understanding of the human structure, let's return to our exploration of Tai Chi. When you couple this holistic perspective with the three shifts in awareness-- your body is a connected whole, movements arise from the depths of your body, and intention shapes your structure with directed fullness-- you can begin to appreciate and feel your Tai Chi in a new way. To sink and relax, focus on the connectivity of the body. The idea is to respond globally, to suspend yourself in the incredible tensile strength of the connective tissue network and to minimize the use of the muscle tissue. To maximize your ability to sink and relax, body alignment is crucial. In this regard it is important to sink your awareness to the bones so that the sense of alignment involves the joints. This lets you access and change those learned deep habits that hold you together in a particular way. It also teaches you to initiate your movement from deep within the body and not from the surface. Relaxing into the tendons, ligaments and bones gives you a felt sense of down, a feeling of rootedness. Arising from your root, your intention shapes your movement as you connect your body into a unified action. In practicing the form, each posture demands making new connections through your body. This flowing exploration of posture with intention helps you to integrate your structure and to create dimensions of movement that did not exist previously. As you practice Tai Chi, the movements stretch and pull the fabric of your structure, help to circulate fluids, generate chi, and teach you how many different ways you can catch a bean bag.

Larson, Dick. "The Role of Connective Tissue as thr Physical Medium for the Conduction of Healing Energy in Acupuncture and Rolfing." American Journal of Acupuncture Vol. 18, No. 3, 1990, pp 251-266.

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