“There is nothing outside of yourself that can ever enable you to get better, stronger, richer, quicker, or smarter. Everything is within. Everything exists. Seek nothing outside of yourself.”
– Miyamoto Musashi, The Book of Five Rings (1584 –1645)

“Remember, when moving, there is no place that does not move. When still, there is no place that is not still. First seek extension, then contraction; then it can be fine and subtle.”
– Wu Yu-hsiang (1812 – 1880)
**Introductory Concepts**

The purpose of this course is to understand internal movement so that we can change our fascial web for health, and develop nonmuscular power that ultimately is distributed and felt through the hands and limbs. This training shifts the focus away from muscular force and instead distributes the force across the connective tissues. This changes body movement to a more efficient engine, with no strain on joints.

The most difficult concept to grasp is internal movement. We can’t see it, but we can feel it. Externally, we wave our arms around and go into yoga and qi-gong poses, and it looks beautiful. Yet, what is happening on the outside has nothing to do with what’s happening on the inside. If we apply a more scientific, mindful enterprise to our movement arts, everything changes.

I spent 25 years training in martial arts and qigong, but never understood the concepts of what I should be feeling in my body. I now understand what was missing, and why none of my teachers ever explained it. Therefore, I’m going to show that to you this weekend. You will feel it in my body, and I will help you begin to feel it in yours. This work has tremendous health benefits, which is one of the reasons I am teaching this course. Change begins inside.
Fascial research (and my latest areas of study)
Dr. Antonio Stecco, University of Padua, Italy- pioneered with Dr. Carla Stecco separating the three layers of fascia in dissections, and understanding sliding in movement.

What’s This Sliding All About?
Hyaluronic acid (HA) is produced by connective tissue by HA-secreting cells in trauma — it’s also referred to as the “goo” molecule. Acts as a lubricant to maintain the sliding between muscle/tissue.

The deep fascia is not just a tough barrier structure of collagen and elastin, but is a metabolically active vascular layer which provides gliding and protective functions. (Bhattacharya V, Barooah P, Nag T, et al. Detail microscopic analysis of deep fascia of lower limb and its surgical implication. Ind J Plast Surg. 2010;43(2):135–140. doi: 10.4103/0970-0358.73424.)

In mechanical terms, fascia is similar to fiberglass cloth and resin used in auto body repair. Both the cloth and the resin can change properties depending on the applied loads.* (Reed RK, Liden A, Rubin K. Edema and fluid dynamics in connective tissue remodeling. J Mol Cell Cardiol. 2010;48(3):518–523. doi: 10.1016/j.yjmcc.2009.06.023)

*Fascia remodels and can be changed through specific movement and intent.
Quotes from *The Tensional Fascial Network of the Human Body* (Churchill Livingstone; 1 edition, April 25, 2012). *Please note some text in brackets is mine.*

- Recent studies indicate that fascia in general is not just a passive structure but is contractile and elastic.
- Fascia has also been assumed to be involved in acupuncture effects, in that planes of connective tissue have a close relation to acupuncture points and react very sensitively to them.
- The thoracolumbar fascia can play a role as a sensory organ only if it exhibits a dense innervation.
- Fascia has been discussed as a possible source of pain in patients with nonspecific low back pain (Yahia et al. 1992).
- The fascia covering the over-exercised muscle became more sensitive to painful stimulation than the muscle (Gibson et al. 2009). Collectively, these findings suggest that in patients with nonspecific low back pain, fascia tissue may be a more important pain source than the low back muscles or other soft tissues.
- We now know that glial (brain) cells interact morphologically, biochemically, and physiologically with neurons throughout the brain, modulate neuronal activity, and influence behavior (Castellano López & Nieto-Sampedro 2001; Koob 2009).
- Those who study the fascia as an all-pervasive system will recognize that one of the most vital relationships in the body has to be the relationship between the connective tissue and the nervous system.
- Fascia is “one interconnected tensional network that adapts its fiber arrangement and density according to local tensional demands” (Pischinger 2007).
- Specifically, like the acupuncture meridian system, the fascia may be viewed as a single organ — a unified whole, the environment in which all body systems function.
- Finando and Finando (2011) summarize evidence that the ancient acupuncture meridian system shares many structural, functional, and clinical characteristics with the fascial meridians.
- The involvement of the fascia in dysfunction and disease is pervasive. It is believed that, to some extent, the fascia will necessarily be involved in every type of human pathology (Paoletti 2006; Pischinger 2007).
- “There are no local problems;” “There are no local treatments” (Spencer 2007);
- Success of modern manual therapies stems from a willingness on the part of practitioners to unwind a patient’s entire traumatic history, including all of the resulting compensations. That’s very different from treating a current complaint.
The kinetic chain is an interconnected tensional network within the living matrix. All movement of the body — as a whole or of its smallest parts — is created by tensions carried through the living matrix. In laying out the following sequence of connections, it must be recognized that some parts of the network have been studied more thoroughly than others.

We now know that Wolff’s Law applies to more than bone — it is relevant for virtually all of the connective tissues, including tendons, ligaments, and so on.

Chen and Ingber (2007) describe how mechanical forces transmitted through the system ultimately reach the cytoskeleton and nuclear matrix. Here they can produce biochemical and transcriptional changes by mechanochemical transduction.

Liquid crystallinity gives organisms their characteristic flexibility, exquisite sensitivity, and responsiveness, and optimizes the rapid noiseless intercommunication that enables the organism to function as a coherent coordinated whole (Ho 1997).

Another important property of liquid crystals is piezoelectricity. When put under compression or tension, these materials develop electric fields (a possible explanation for “chi”).

A recent discovery is that biophotons are emitted from acupuncture meridians when points are stimulated with different methods (low- level “cold” laser).

Fascia is a tension network, with all the collagen inherently stressed, the so-called “prestress” of biologic tissues.

Picture a bow, as in a bow and arrow. Now imagine the bow being compressed toward its belly by multiple bowstrings that encircle the bow and are all pulled at once. If the forces were balanced, the bow would not bend, but merely compress. Tension elements at each end that compress toward the center can balance to create a pure compression force. In a tensioned fascial network bone will be laid down, according to Wolff’s aw.

Muscle also has intrinsic “tone” and is never completely lax. The entire fascial network is continually tensed, by both intrinsic tension and active contractions that can be “tuned.”

Unlike typical man-made structures that are stabilized by gravitational compressive forces, tensegrity systems are stabilized by continuous tension, with discontinuous compression.

Tensegrity structures are intrinsically self-stabilized because of their level of prestress and triangulation. This self-stabilization, in turn, allows tensegrity systems to transfer applied forces throughout their structures, allowing for flexibility while minimizing damage to the structure. Furthermore, because of the prestressed nature of the system, the tensegrity structure immediately resumes its prior shape when an applied force ceases.

Forces are distributed throughout the system rather than locally concentrated as they are in lever systems. The system functions as a single unit.

Movement is not bending of hinges, but expansion, repositioning, and contraction of tensegrities.

An increase of tension in a tensegrity structure lets it resist and become stronger. The training consists in using mental processes to generate a tangible feeling of the bones as space-makers and of the space between them. As a result, we can develop the perception of a tensional internal support. Once having found this internal support, it becomes possible to “relax” within it. Relaxation — far from being a simple “letting- go” with its well- known effect of collapsing and weakening — is a redistribution of tension within the tensile fascial network with the qualities of space and strength, and a balance of tension (pulling silk, i.e.yoga, qi-gong, etc.).
• The stability of a tensegrity structure is due to the equilibrium between outward pushing of the rigid elements that tense the tension network, and inward pulling of the tension continuum that compresses the rigid elements without letting them touch each other; tensegrity structures can be seen as restrained expansion.

• To move a tensegrity structure, we grasp it at its two ends and impart a rotational movement in them — one in relation to each other — or move one end, stabilizing the other. This creates a relative opposite movement of the stable end. Each movement is slight, but every part moves. The movement is well distributed ... across the fascial network.

• A characteristic of (fascial) training is the use of minimal muscular strength. Studies have shown that whether a movement is mentally or physically performed, the nervous system tends to react similarly (Malouin et al. 2003) and muscle strength is developed (Ranganathan et al. 2004). It means that mental imagery (i.e., intent) allows us the use of muscular work in a remarkably economical manner to achieve optimal movement efficiency and ease.
Internal Power (IP) and How to Create an Integrated Body
For Bodywork Treatments, Movement, and Health:
An Ancient History
As the ancient arts proved thousands of years ago, connective tissue
can be manipulated through specific exercises and intent for a myriad
of benefits. It’s what yoga, tai-chi, and movement arts are supposed to
do. The tensegrity model you will learn today was not taught by many
Asian teachers in traditional movement arts. It was considered a
“secret” and only a select few showed it. It also failed in in the way it
was taught due to language deficits. They knew what they felt inside
but could not explain it on the outside.

At Right: Illustrated Explanations of Chen Family Taijiquan (“tie-jeech-wan”)
Chen Xin, published around 1919 — proof that they figured this stuff out
centuries ago.

How to Change the Internal Body?
1. **Rewire the brain:** The only way to connect the myofascial meridians across the body
   is by first rewiring the brain to feel these connections. You must have a “dantian brain.”
   You must have mindful movement.

2. **Tanren (or shin shin no tanren) and misogi:** Self-training of mind/body. *This is the
   most important, and most difficult to grasp, element to change the body.* This is done
   on a daily basis, in addition to yoga or movement classes. Without tanren, there is only
   so much change.

3. **Intent:** Defined as movement before movement. A movement begins with intent,
   before any physical movement. Once physical movement reaches its end point, with
   intent the movement continues in the mind. Breath and movement are all driven by
   intent.

4. **Heaven and Earth (yin and yang):** Every movement has an opposite force.
The Myofascial/Tendon Meridians
There are distinct lines in connective tissue from occipital to toes and fingers. It is these lines we seek to rewire and connect by taking the slack out of the fascia and creating a soft tension. The thumb essentially connects to the dantian, and pinky finger to ming-men. After much tanren, you will feel these connections as you perform your movements. For example, moving the thumb will pull on the tissue in dantian, pinky ming-men. Other sensations include tingling, heat, and an overall feeling of being “in the body.”
Terms
To understand the concept of internal fascial manipulation, one must know these definitions. Please understand, dantian and ming-men are connective tissues that work as one unit. I will refer to them as gates — one in the front (dantian), and one in the back (ming-men). We will discuss opening and closing these areas:

1. **Dantian**: The web of tissue below the navel where one develops this “ball” of power. This area, once developed, “moves” with the entire body. (We are not discussing chi or energy in these locations, but the building of the fascial web.)
2. **Ming-men**: The web of tissue of the low back approximately across from dantian.
3. **Kua**: The crease (tissue) between the shoulders and hips (glenohumeral and trochanter). These are rotated in opening and closing movements.
4. **Intent**: In basic terms, moving before moving. Every movement is filled with intent. Beginning and end movements never “end.”
5. **Pulling silk**: “Pulling” is taking the slack out of the fascial chains. When we pull silk, we are developing (pulling) the fascial tissue, i.e. “silk” is fascia. We accomplish this by setting anchor points in the body to pull from.
6. **Winding**: Wrapping the tissue around the bones. The bones do not move. This develops the soft tissue in a spiral manner and creates incredible nonmuscular power in the body.

The Science: What All This Means
Fascia, when dissected in the human body, is very much like an elastic steel mesh. It is not the “ridged” structure often defined in anatomy texts. Developing the lines of fascia throughout the body and connecting them to dantian gives you access to a very unusual type of power and incredible health benefits. It is referred to as a “steel wrapped in cotton” kind of soft power. The ancient yogis and warriors were often said to have “skins of soft steel.” This concept of actually manipulating tissue is the most difficult thing for students to wrap their heads around. Connective tissue can be manipulated by movement and intent; science proves it and you can change it!
Changing the Internal Web of the Body: A Review

- Fascia is not muscle. It takes time to create change. Collagenous tissues take time to “remodel” in the body. Tanren helps us achieve this. A dantian must be created though tanren.
- It requires rewiring. The muscle-tendon meridians must be “connected” to affect change. Once you get this connection, you will feel it.
- After performing the exercises for a while, changes will be felt as strange sensations, i.e., connected tingling in toes/fingers or “pulling” from ribs/etc., as you lift or lower arms. This is progress.
- Always think in six directions, i.e., fascial tissue expands in six directions during movements.
- Work slowly. Do the exercises. Don’t worry about getting everything correct. But have confidence in yourself that you can learn this. After a while, you will know if you are aligned correctly and you will feel the connections. If you want it, you have to do it!

Setting Up the Frame

Before pulling exercises, the body must be set up to best facilitate movement. Use the following as line guides:

- Axis
- Shoulder line
- Hip Line
- Knee line (knees gently over feet)

We use these physical relationships to understand how we are aligned or misaligned. Alignment is still maintained in positions of postural change (leaning, crouching, moving). A helpful alignment guide is the “body box.” This is the box that is created by drawing lines up the sides of the body from the hips to the shoulders, and between the shoulders and between the hips.

When considering the alignments of this box, focus on keeping the shoulder and hip lines parallel. Maintaining the equally and parallel nature of these two lines is a great start. Feel for discomfort. If you feel it, stop and adjust your position. After some time, this becomes back brain.
The Bows and How They Affect Fascia
In addition to pulling silk to take the slack out of fascia, when we open or close we create bows that take even more slack out of the system. Flexed arms and legs create a closed bow. Extension creates an open system.

The back bows can be thought of as a turtle shell or Captain America shield. Opening in dantian creates a taut turtle shell from occipital to toes. Opening ming-men does the same. Adding the arm and leg bows creates a powerful (soft) tension in the soft tissue, and negates change and growth in the tissues. Bowing also creates a powerful spring that stores kinetic energy, shifting forces away from muscle. The result is less strain on the body, because we are using the power of connective tissue to lift, pull, and move. It’s what the body is supposed to do.
Pushing With Partner “No Force”
This is a very important component to training. Pushing helps us develop the connective tissues and proprioception by dealing with forces applied to the body. I use this with Parkinson’s and balanced-challenged patients.

With fist or open palm, the partner gently applies a pushing force over brachial plexus (to start). The force should be enough to send the partner almost back on the heels. The partner should communicate if enough pressure is applied. Once established, that force should be maintained; in other words, don’t waiver in the force, but keep it constant. The partner being pushed focuses on not meeting the force with her body, but “making it disappear” by expanding the tissue under it. We accomplish this by pulling silk and relaxing with no residual tension. Use only gentle tension in the fascia. The partner pushing should not feel as though the other partner is “meeting” or leaning into the force.

To test this, the pushing partner moves her hands away quickly. If the partner falls into or forward, she is not in her body. Removal of force contact should not disrupt the other partner’s body; she should remain perfectly still in her body.

Later, pushing is applied all around the partner’s body — side, back, front, legs, etc. Repeat this with a pulling motion. Dantian and ming-men are opened and closed to “counter” the force. Remember, there is no force, only expansion.
Solo (Tanren) Exercises
(Remember to relax in-between exercises/sets — this is very important.)

Opening the Body (“one point, six directions”)
1. Shizentai (shee-sen-tie) (natural posture)
   reaching exercise (feel the connections of the major bands, best performed every morning):
   - Reach your arms all the way to the sky, pointing your fingers. After physical movement, intent keeps reaching to space. Pelvis pulls to the earth as occipital pulls up and is suspended. Slowly lower your arms to horizontal and feel the connections. Everything from your fingers to your toes should begin to tingle as the connections are drawn taut.
   - Next, bend your elbows (it should feel even tighter now), and let your wrists drop (DO NOT bring your fingers up) Hold that tautness for a bit as your arms lower, trying to maintain that feeling of soft tension. SHOULDERS STAY DOWN. This is not a “stretch,” but a tautness in connective tissue. It has nothing to do with muscle tension.

2. Shizentai/organ nourishing (I do this every morning):
   - Tree hug pose, pull silk, intent six-directions. Relax — no residual tension! If you feel it remove it.
   - Hand-over-hand-over-dantian.
   - One deep cleansing breath — breathe through mouth. May bend forward at waist as you open ming men. (optional)
   - Inhale. Arm reach/scoop up — pull silk through elbow/fingers, legs corkscrew down.
   - Hands come back to rest on ribcage — six circles clockwise; six counterclockwise.
   - Hands move to dantian — six clockwise; six counterclockwise.
   - Hand-over-hand-over-dantian. Open dantian with intent; open ming-men with intent, four to six times. (May bend forward at waist — optional.)
   - With middle finger as axis, hands move down inner leg (tai yin spleen meridian) to between big toe. Legs corkscrew into earth (kua rotation) in doing so.
   - Repeat six times.
   - Six cleansing breaths with hands over dantian to end.
10 & 10 Drill (10 seconds performing the exercise, 10 seconds relaxing)

Please take note, these exercises, in my opinion, tend to create residual tension in the body when they are done in an early stage. If you have not connected the body, these are difficult to perform. I highly recommend the static, tree hug pose until you feel the connections:

- **Pole hugging stance (stillness in motion and motion in stillness):** From the first exercise, try to get that feeling, but now in the traditional pole-hugging stance. Stillness in motion, and motion in stillness as you try to feel each of those bands, trying to manipulate them to be tight like a rubber band.
- **Tension POP:** In the same pole-hugging stance, try to set the tension and then make all the connections (dantian, ming-men, finger, toes, elbows, etc.) POP at the same time. Pay attention to what didn’t pop. Try to think of your body as a balloon that is suddenly blown up.
- **Relaxed to POP:** Similar to the last exercises except that in this one, you are starting from a relaxed state and suddenly POP-ing into position. Here you should be monitoring what has become bowed and how simultaneous the pop was.
- **Relaxed to POP to relaxed:** Similar to the last exercise, but now you go back to being relaxed and moving while still keeping the tensions.
- **Tissue winding:** (this is not spiraling, which recruits both muscle and bone). Here the point is to only rotate the tissues around the bones, but not the bones themselves. This is an important distinction from “spiraling” movements. (To be demonstrated.)

**Yi Jin Jing** (Eee-in-jing)

This is a powerful qi-gong exercise to perform several times a day, especially before bodywork treatments as it heats the fascia tissues that can then be transmitted through the hands.

_Yi Jin Jing_ means “muscle/tendon change classic,” and is intended to change/connect the fascial tendon meridians (although again, it _was not_ taught like this — even when I first learned it). It should be performed with the same intent as everything discussed (i.e., pulling silk/tissue):

- **Start—breathing is through the nose, with tongue on upper palate. Tree hug pose, pull silk, six directions. No tension.**
- **Open arms and legs as you breathe in. Open shoulder and hip kua, chest. Hands lift up to your side to shoulder level, palms up. The rotation of the arm is kua, forearm, wrist — all pivoting around the axis of the middle finger.**
- **Just before being completely open, close and start to exhale exhale. Ming-men opens (bows) first. Legs bow and corkscrew (pull to earth). Palms rotate down, again, after kua-forearm-wrist. Arms come down towards your side.**
- **Just before completely closed, change inhale and open. Bow. This time arms stay down at sides as you breathe.**
- **Now exhale and close as your hands start back up, hands down, everything rotated on the axis.**
- **Change before completely closed to inhale and open. Descend with the arms in an opening rotation during inhale. Return to neutral side position and relax, shaking arms with no residual tension.**

By bowing (opening) and unbowing (closing) before the end point during this exercise, the kinetic energy stays in the “suspension,” so the lines are drawn taught. This creates growth in the tissue, yet it
also creates a spring-like power in the body. This is important for bodyworkers; as you open and close while touching, you are producing a heavy nonmuscular pressure.

**Remember:** tanren (self-exercises) must be performed daily to create change. Most importantly, find someone to push on you so you can play with force. It will help you make the connections in the tissue. I highly recommend short periods of exercises throughout the day instead of one, lump hour. If you want it you have to earn it!
Applying IP and fascial science to bodywork treatments and daily life

Bodywork should be targeting fascial meridians/lines. All touch/pressure is not muscular but heaviness comes from dantian (fascial connections). When you touch, your tissue expands into that person creating weight:

1. Wringing
2. Pendulums
3. How to use dantian/ming-men in treatments and daily life

Goals/Overview

1. **Tanren daily to rewire and connect.** Your goal is to be able to turn this on and off, instantly drawing the line taut from head to toe.

2. **Dantian brain.** It doesn't matter where you are. Your dojo or class is wherever you are. Car? Open and close bows while driving. Opening a door? Pull with ming-men as dantian expands. Pull a suitcase? No, instead make it *part* of your body by bringing it next to you as you walk. These are all simple examples of being within your body.

3. **Open the body daily.** Feel the connections. Draw the fascial bands taut. This gets more intense as you practice and can never be mastered. It just gets better.

4. **Apply this model to movement arts,** whether that be yoga, etc.

5. **Start a group.** Meeting once a week to apply pushing has myriad benefits. You get to coach each other and refresh the knowledge.
About Timothy Agnew
Timothy Agnew completed the ATC (Athletic Trainer Certified) course requirements under the guidance of Barry University in Miami, and finished the program at the University of South Florida. He is co-author of the textbook *Kinesiology for Manual Therapies* (McGraw Hill, 2010). Tim has studied martial arts for 25 years, and has devoted his time to understanding the principles of internal power as it relates to fascia science. He has spent the last 10 years researching human fascia, both from physical and medical components. His research includes fascia dissection studies with Dr. Antonio Stecco, as well as other fascia symposiums. He is an active member of the Fascia Research Society (FRS). He has a private practice in Sarasota, Florida and teaches his concepts globally.

Recommended reading and most content discussed and quoted is from *The Tension Network of the Human Body* (Churchill Livingstone, 2012), and my personal fascia dissection research.

![Namaste](image)

Questions?
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