ADVANCED COUNTERSTRAIN

This gentle new approach addresses protective muscle spasm at its core.

Text and Illustrations by Lissa Wheeler
For more than 30 years, Sharon Weiselfish-Giammatteo had been looking for answers for chronic pain. Never satisfied that her training in traditional physical therapy was enough for clients, she continually sought out new techniques and modalities. In 1981, she discovered Lawrence Jones and his remarkable modality, strain and counterstrain, which is a technique that eliminates protective muscle spasm through precise positioning of the body. Weiselfish-Giammatteo was so impressed with results from this technique, she had her entire staff trained in strain and counterstrain, and eventually began teaching the technique.

After working with strain and counterstrain techniques, Weiselfish-Giammatteo observed that some patients responded beautifully, while others were getting only partial results and merely temporary relief. She realized that the more vital structures, such as vasculature and viscera, could go into states of protective muscle spasm in the same way skeletal muscles do. In 1990, with Jones’s blessing, Weiselfish-Giammatteo began to research and develop a whole new way to utilize his technique. She applied the same principles to purposefully innervated smooth muscles, and created advanced strain counterstrain.

A Quick Overview
Advanced strain counterstrain is an organization of positional techniques for the vascular and visceral systems. For each technique, the therapist passively1 places the client’s body in a precise position, maintaining it for one minute. These are “indirect” positions, meaning that the body is taken into the pattern where it wants to go, which can feel incredibly relaxing. The positions create a “long lever” release, so that the therapist doesn’t have to put hands directly on the structure that is being released—the design of the position does it. The positions appear quite simple, and because they are so precise, very little force or effort is required. The whole process requires only 60 seconds, making it an easy addition to any massage and bodywork session.

Why Address Blood Vessels
And Organs?
In the field of massage, we talk about the benefits of massage for improving circulation. Better blood flow helps injuries heal faster through improved cellular nutrition and reduction of venous and lymphatic congestion. This is great for a wide range of needs, from enhancing athletic performance to promoting wound healing. We also think about vascular problems in relation to serious life-threatening situations, such as cardiac disease and stroke. We may believe that these problems are beyond the realm of massage therapy. However, there is much that we can do for our more fragile clients because these techniques are so gentle.

We are also taught to avoid massage work around vascular structures because it is inappropriate to apply pressure to a blood vessel, yet the vascular system has muscles and fascia just like our deltoids and lattissimus dorsi. These tissues can greatly benefit from appropriate bodywork.

Lawrence Jones’s original idea of a positional technique is an ideal approach for delicate structures because the position does all the work for the therapist. It isn’t necessary to touch blood vessels and organs directly.

The Hierarchy Of Protection
Vasculature, nerves and viscera are at the top of the hierarchy of protection. For example, the aorta is the largest artery in the body and the primary distributor of arterial blood to the rest of the body. An irritation to the aorta would be more significant to the body than an irritated cruciate ligament. Understanding this hierarchy of protection can give you a whole new understanding of body tension patterns. While someone can live with a sprained ankle, cells will die within minutes without the oxygen provided by an artery. The entire body will rally to protect the more vital structures and systems. Muscles will contract, ligaments and fascia will tighten, joints will become rigid and body posture will become distorted. Flexibility and movement are sacrificed to splint and immobilize a vulnerable artery, vein, nerve or organ. The skeletal muscle and fascia are further down on the list, as irritation in these systems is not life-threatening. Using this concept gives you a key to unlocking chronic pain patterns for those clients who return session after session with the same tension patterns. While there can be many reasons for tension patterns, protective muscle spasm in the vasculature or viscera can be a primary or contributing factor.

A Common Example Of The Hierarchy Of Protection
A typical postural distortion is a forward head with protracted shoulders, which is usually accompanied by neck and back pain, and possibly temporomandibular joint (TMJ) dysfunction. What vascular structure might this person be trying to protect?

What runs along the front of your spine? The aorta. The hierarchy of protection tells us what we call the hierarchy of protection. For example, the aorta is the largest artery in the body and the primary distributor of arterial blood to the rest of the body. An irritation to the aorta would be more significant to the body than an irritated cruciate ligament. Understanding this hierarchy of protection can give you a whole new understanding of body tension patterns. While someone can live with a sprained ankle, cells will die within minutes without the oxygen provided by an artery. The entire body will rally to protect the more vital structures and systems. Muscles will contract, ligaments and fascia will tighten, joints will become rigid and body posture will become distorted. Flexibility and movement are sacrificed to splint and immobilize a vulnerable artery, vein, nerve or organ. The skeletal muscle and fascia are further down on the list, as irritation in these systems is not life-threatening. Using this concept gives you a key to unlocking chronic pain patterns for those clients who return session after session with the same tension patterns. While there can be many reasons for tension patterns, protective muscle spasm in the vasculature or viscera can be a primary or contributing factor.

Why Does It Work?
The explanation for why strain and counterstrain works is conjecture at this point. The theory that best explains this self-perpetuating phenomenon is the...
concept of the myotatic reflex arc, or what’s often called the stretch reflex reaction. This is a reflexogenic response that we need to protect muscles, joints and other soft tissues from overstretching and becoming injured. This becomes a problem if the reflex becomes chronically hyperactive and never allows the muscle to lengthen. By removing all stretch stimulation to the affected muscle through the positioning techniques, the reflexogenic activity of the stretch reflex arc is stopped. This happens by relaxing the muscle spindle proprioceptors within the skeletal muscle. This then eliminates the afferent gain, which then eliminates the gamma gain that finally eliminates the alpha gain.

Relaxing the Muscle Spindle
The concept of the stretch reflex arc is the same for both autonomously innervated muscles and for skeletal muscles. It starts with the reaction of the muscle spindles. The muscle spindles are the tiny proprioceptors within the muscle fibers, which are responsible for detecting changes in muscle fiber length. They will initiate a muscle spasm if the muscle is stretched too far. They are made up of delicate intrafusal fibers that wrap themselves around the large extrafusal fibers of the skeletal muscle (see illustration, page 86). These intrafusal fibers are set to a specific level of tension. The stretch reflex arc also relates to spasticity. Cerebral palsy and hemiplegia are good examples. Because the spastic muscle cannot be stretched out, a typical solution for these people is to cut the tendons of the spastic muscle or inject botulinum into it to eliminate the spasm. Strain and counterstrain techniques can be a welcome noninvasive alternative to help eliminate spasticity in these individuals.

The Cycle of Afferent Gain
Afferent gain is what strain and counterstrain seeks to eliminate. The discharge from the muscle spindle is conveyed up the sensory afferent nerve to the spinal segment, this information is conveyed to all muscles that are innervated by the same segment. For example, the C5 spinal segment innervates the supraspinatus, infraspinatus, deltoid and biceps. Dysfunction in any one of these muscles will increase gamma gain to all the muscles at this segment. If you strained the supraspinatus muscle after lifting a heavy massage table, the rest of the muscles at this segment would also go into protective muscle spasm. All the muscles in your entire body would be affected, as their dorsal roots will receive this discharge. If this gamma/afferent/alpha gain is maintained long enough, a self-perpetuating cycle occurs where the spindles cannot relax and they continue to fire a high-frequency discharge. Thus, the muscles can never fully relax and elongate, causing chronic protective muscle spasm. This entire pattern is called the “facilitated segment.”

Smooth Muscle Spasm
An individual spinal segment innervates skeletal muscle, smooth muscle and organs. For example, the same C5 that innervates the supraspinatus also innervates contractile fibers of blood vessels that supply the neck and shoulder. If you strained the neck vasculature would initiate this same high frequency discharge, creating the same protective muscle spasm as the strained supraspinatus.
Implementing The Method
Each technique in advanced strain counterstrain has been specifically designed to reduce pressure on the muscle spindles of that particular organ or vascular structure. This eliminates the hyperexcitation of the muscle spindles, which instantly reduces spasm.

Applying these simple but profound techniques is easy to incorporate into a massage session. They can be performed prior to the massage, before the client undresses. They can also be performed during the session, with attention to draping the client during positioning of the technique.

There are no contraindications with these techniques, as you are simply putting the body into a position of comfort. The only contraindication would be if the position weren’t comfortable for the client.

Each position should be maintained for 60 seconds to eliminate the spasm of autonomically innervated structures. They can be used at any time during a bodywork session. Used before a massage, they will create a more profound relaxation, because you have removed a core source of tension. An entire session can be comprised of these techniques.

When To Use Advanced Strain Counterstrain
These gentle techniques can be used for many types of clients. They can be integrated within a regular massage and bodywork session or comprise an entire session. An individual with a chronic pain pattern that is not responding to musculoskeletal modalities would benefit from these techniques. A vascular problem, such as vascular insufficiency or high blood pressure, generally responds well to this modality.

Study the client’s anatomy and begin to question whether a postural deviation and loss of range of motion appears to be protecting a vascular structure.

The techniques may be repeated as often as desired, but after the first time, the tension pattern will never be as severe.

A general philosophy with this approach is that if the same tension pattern returns with the same intensity, a different technique is needed.

The best place to begin is generally at the most proximal aspect, and then work out to more peripheral structures. The techniques presented in this article for the aorta, superior vena cava and inferior vena cava are excellent places to start and will benefit everyone. The four diaphragm techniques are included in this article as well. They should be released first before any vascular technique is performed. All the vasculature must travel through the diaphragms. You want to open these passageways to allow room for increased blood flow.

Seven Techniques
These seven techniques offer a wonderful foundation for reducing tension in the autonomic nervous system. Release the four diaphragms first. Position the body according to the instructions. (Photos are included to demonstrate the positions.) As you set up the positions, be aware of the structure you are affecting. Use just enough pressure to maintain the position.

FOUR CASE STUDIES
The following case studies illustrate a wide range of application with these techniques. Standard range of motion testing was used to show objective changes. Two of these individuals have histories of severe health issues or injuries. Small changes in range of motion are very significant for them. The remaining two individuals are in good health and responded to the techniques with more dramatic changes in range of motion.

Case Study 1
LEFT KNEE PAIN AND DYSFUNCTION
AFTER TOTAL KNEE REPLACEMENT
This case study is a good example of how releasing vascular spasm can reduce swelling. This woman had three total knee replacements because of subsequent staph infections. When she was told to have a fourth, she sought an alternative through massage and bodywork. She has been receiving integrative manual therapy as part of her rehabilitation for more than a year. The goal of this particular session was to reduce swelling and pain in her left knee. Advanced strain counterstrain techniques were performed for all four diaphragms, lymphatic vessels, iliac and femoral arteries, and superficial veins of the left leg.

Following the session, she experienced a reduction in pain and an increase of 20 degrees in knee flexion. The photo on the far right shows the changes in circumference of her left thigh. Before and after measurements of her leg were taken in four places with measuring tape.

Case Study 2
LIMITATION OF SPINAL FLEXION
AND EXTENSION
This case study is a good example of how tension in the vascular system can affect spinal range of motion. Techniques for the aorta and superior and inferior vena cava were performed on this client.
Remember that the specificity of the position does all the work for you. It takes only 60 seconds to release the protective muscle spasm. You can hold the position longer, for five to 20 minutes, to release the facial restrictions related to the structure.

There are no precautions for these techniques other than checking that the client is comfortable in the position.

**Four Diaphragm Techniques**

These four techniques ideally should be performed within the same session because all the diaphragms work together as a system. The status of one diaphragm will affect the status of all the others. The goal is to release hypertonicity of each diaphragm, which will improve breathing, circulation and reduce congestion. All techniques are performed with the client side-lying on the opposite side. For example, if the right diaphragm is being worked on, have the client lie on his or her left side.

**Pelvic Diaphragm**

The pelvic soft tissue is almost always in a state of spasm, especially because of the incidence of sacroiliac biomechanical imbalance. This technique can be used during pregnancy, during labor to facilitate delivery and immediately after delivery to promote healing of the pelvic floor. Follow these steps:

- Lift both feet towards ceiling six inches off the table.
- Push on the ilium, two inches below the iliac crest, mid-axillary line. Push with three pounds of force.

**Respiratory Abdominal Diaphragm**

This technique specifically improves breathing and is an excellent support for any pulmonary, cardiac or spinal problems. Follow these steps:

- Flex hips to 50 degrees.
- Flex knees to end of range.
- Gently side bend the neck, as far it will go comfortably.
- Press on the lower lateral rib cage towards the floor.

**Thoracic Inlet**

This technique is good to use before performing any cranial techniques in order to open up venous drainage. This will also improve lymphatic drainage, as the lymph terminus is located in the thoracic inlet. Swelling and congestion of the entire body will be reduced. Follow these steps:

- Use a pillow under the head and neck to keep them in midline.
- Abduct the ipsilateral shoulder to 70 degrees.
- Gently press the ipsilateral shoulder girdle toward the feet with three pounds of pressure.

**Cranial Diaphragm**

This technique will prepare the body for cranial work, as it releases protective muscle spasm in the

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**Case Study 3**

THE EFFECT OF THE AORTA TECHNIQUE ON SPINAL MOTION AND LEFT SHOULDER EXTENSION BEING DEMONSTRATED BY WIESELFISH-GIAMMATTEO

When the aorta is in a state of protective muscle spasm, there can be considerable limitation in spinal motion and left shoulder range of motion. Typically, this includes limitation in spinal extension and guarding of left shoulder movement in order to protect the aorta from further stretching. Releasing the protective muscle spasm in the aorta allowed the client to have considerable increases in her range of motion in these areas.

**Case Study 4**

TRAUMATIC BRAIN INJURY

Reducing vascular spasm can be significant in the rehabilitation of neurologically injured clients. This man sustained a traumatic brain injury, which affected all functions, including walking, bowel and bladder. Advanced strain counterstrain has been part of his rehabilitation process. At the time of this session, he was just beginning standing and gait training. The technique for the right iliac artery was performed to increase his ability to abduct his hip as preparation for his gait training session. Spasm of the iliac artery was preventing his ability to abduct his right hip. After this technique was performed, he gained 20 degrees in right hip abduction. This improved his hip stability, which increased his ability to stand and take steps.
When the aorta is hypertonic, there will be limiting flow without balancing the others. Ideally, all three techniques are performed. There can be a change in total body edema, secondary to extra-cellular edema from tension surrounding the aorta. Heartburn may be occasionally affected from releasing pressure on the esophagus, which sits between the heart and aorta. Thoracic outlet syndrome and reflex sympathetic dystrophy clients will also benefit.

Follow these steps:
• Have the client sit on a table or on a chair without a back.
• Rotate the trunk to the right 10 degrees. Side bend the trunk to the right 10 to 15 degrees.
• Rotate the head and neck to the right 10 degrees.
• Side bend the head and neck to the right five degrees.
• Move the spinous processes of T2, T3 or T4. Pick the most rigid segment and gently flex this segment toward the front of the body. The aorta sits right in front of the spine. Think of taking the pressure off the top of the aorta.
• Press L3 up toward the other hand. Think of taking pressure off the bottom of the aorta.

Superior Vena Cava
Follow these steps:
• Sit to the right of the client. Place one hand under the spine at the level of T4, and compress both transverse processes toward each other. Think of gently taking pressure off the back of the heart, where the superior vena cava enters the heart.

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Both the superior and inferior vena cava techniques are excellent for reducing edema, lymphedema, lipedema, all fibromyalgia-like symp-
toms, scars and other connective tissue problems. Cardiopulmonary and cardiovascular problems are also helped with these techniques, and all brain and spinal cord dysfunction whether mild or severe, chronic or acute.

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Bibliography