

Finding Strain Counterstrain

Tony Marek, MS, ATC
Manual Therapy Associates

CATS Spring Symposium
May 13, 2005

Lawrence H. Jones, DO, considered by most to be the father of strain counterstrain stated in his text : Jones Strain-Counterstrain: that the text was written in an attempt to pass on to other clinicians the benefits he had been fortunate enough to acquire in fifty-eight years of clinical practice treating joint dysfunctions. “It is not a scientific treatise, but the sharing of the experience of one clinician with another” That is exactly what we will do today during this session, share the experiences of treating athletes, patients, clients. Your past learned experiences with treating muscle and joint related dysfunction combined with the sharing of ideas and clinical experiences learned today will enable you to do come to several conclusions at the end of this session:

1. You now look at joint dysfunction as a myriad of potential possibilities
2. You begin to think that there could be a problem with the upper right posterior and anterior quadrants that may be causing a mechanical problem with the glenohumeral joint
3. You begin to think that there is a possibility that right anterior shoulder pain may be a dysfunction of the left scapular complex.

Think opposite side, think above and below the joint, think anterior joint pain may be a “by product” of posterior joint/capsular or posterior muscular dysfunction.

Lawrence Jones goes on to point out that two important phenomena he observed accidentally at different times, each impressed him enough to motivate experimentation with ways to utilize them in treating joint dysfunctions. The first of which provided him a unique opportunity to observe the behavior of joints under stress. The second provided a new source of diagnostic information equal to and complementing the knowledge that he had at the time of understanding the concept. Jones credits William Garner Sutherland, DO with the concept of slow and very subtle forces applied in the easy direction indicated by the structures treated. For example, Sutherland observed the movement of the skull in the direction it moved most freely, He found that by that by this approach he could reduce or eliminate asymmetrical limitations of motion. In other words, which way does the joint feel like it wants to move, in what position does the joint feel the least stressed?

At this point what discussion is further needed to conceptually grasp the idea of placing the shoulder joint in its position of greatest comfort? Applying a strain in the direction opposite that of the false message of the strain creating the mechanical stress causing the dysfunction—the functional exam. Again, think outside the box. Think opposite (anterior pain to posterior dysfunction—think superior pain to inferior dysfunction).

Jones came to four important conclusions that he credits with the treatment techniques:

1. The pain generated is not a lesion but rather an ongoing noxious process.
2. For success the hypershortened muscle must return to neutral length slowly.
3. In spite of subjective pain and weakness in the strained muscle, Jones felt that evidence pointed in the direction of the antagonist of the painful muscle (tenderness, contraction, edema)
4. Position of comfort and lasting relief were most effectively achieved with maximum shortening of this antagonist and a repeated stretch of the painful muscle, followed by a slow return to neutral lengths. Slow return did not restart the dysfunction.

Counterstrain treatment brings maximal shortening to the proprioceptor reporting strain so well it cannot continue to report strain. The false strain message is stopped and with it the irritation and pain.

Here’s where all our hours and hours of anatomy courses come into the concept, all those hours of dissection, memorization; “what direction does the supraspinatus run?” Remember, strain counterstrain results are best

achieved by taking the INSERTION BACK TOWARDS THE ORIGIN. This may be best achieved by adding an oblique rotation or joint approximation stress to the structure. Gently move the structure—feel for the joint to relax—picture in your mind “what direction do I need to take these two structures to achieve maximal relaxation of the soft tissues affecting where the athlete has pinpointed the pain” when do you as the clinician feel the structure (soft tissue or the affected joint) is in a position of comfort? That is what we, as colleagues/clinicians, will leave here today with. Your hands will become your eyes to the underlying soft tissue and joint structures.

Of course there are physiological discussions of the osteopathic somatic lesions. These lesions have qualities that we can all appreciate. Tissue texture changes, asymmetry, and changes in the range of motion of certain muscles and joints and tenderness that is manifested through the palpation of the athlete's body. All of these fundamental changes are the physiologic manifestation of the somatic dysfunction. We recognize these somatic dysfunctions as “tender points” For a more detailed discussion of these somatic dysfunctions I would refer you to Dr. Jones' discussion of the four types of mechanoreceptors, and nociceptors.

Muscle Energy

In the first of a series, THE MUSCLE ENERGY MANUAL, VOLUME ONE, Fred L. Mitchell, Jr. DO, FAAO, FCA presents a thorough explanation of the basic science concepts and mechanics underlying Muscle Energy theory. Also included are updated and improved chapters on musculoskeletal screening procedures, physical diagnosis, manipulability disorders, and a full chapter on the complete evaluation and treatment of the cervical region. Volume one provides the clinician with powerful tools essential for mastering Muscle Energy Technique. Volume two, covering the evaluation and treatment of the thoracic spine, lumbar spine, and rib cage, is also available, with Volume three, covering the pelvis, sacrum, and extremities.

Dr. Fred L. Mitchell, Jr. is recognized internationally as an author, clinician, researcher, and educator. His presentation of Muscle Energy is recognized as the gold standard to this manual technique.

Individuals, who have problems that respond well to muscle energy techniques, often give a history of a previous injury. These individuals will often relate their chronic problems to some injury in the past. This injury is sometimes a focal point in their minds and their life seems to be affected around this injury. (gravity affected)

When using muscle energy techniques, there is a pattern, which works well if followed:

1. Identify the dysfunction
2. Position the part to be treated in a loose pack position so it is springy. It is always best to not have the joint to be treated in close packed position. The position used will in reality be a pathologic neutral position. These positions are sometimes referred to as ease/bind positions.
3. The above position is found by positioning the part in all three ranges of motion and backing off from the barrier when it is located.
- A. Loose pack position is a combination of:
 1. Flexion and Extension
 2. Left and Right Rotation
 3. Left and Right Side Bending
4. The clinician now instructs the patient to make a light contraction in the direction, which they are instructed.
5. The clinician using a countering light resistance, in order to make the contraction become isometric rather than isotonic, resists the VERY LIGHT CONTRACTION.
6. When the correct level of contraction is reached, the clinician instructs the athlete to hold the contraction steady at this level. Athletes will have a tendency to increase the amount of contraction as time goes by. (accessory muscle contraction)

7. At this point the clinician begins a count of 6 seconds. This appears to be the amount of time needed to reset the gamma gain in the muscle. (gamma gain appears to represent the amount of muscular activity occurring in the muscular tissue holding the joint in a dysfunctional position)
8. At the end of 6 seconds, the clinician instructs the athlete to relax the contraction. The muscles controlling the joint now have a different gamma gain and the neutral position of the joint will now be different.
9. The clinician now repositions the joint utilizing the steps outlined in number 3 above.
10. The clinician now repeats steps 4 thru 8 outlined above. A better result will be obtained if the clinician treats each now loose pack position separately and does not just continue in the same direction as the one utilized for the last loose pack. Doing this will increase the effectiveness of the treatment.
11. At the end of this contraction: the second one: the gamma gain will again be altered so a new loose pack can be obtained. The reduction in gamma gain will also be greatest following this second contraction.
12. At the end of the third contraction the muscles of the joint should be stretched out in the minor motion of the joint. This seems to greatly increase the effectiveness of the treatment.
13. The range of motion of the joint being treated is now retested and if found to be acceptable the treatment of that joint is now complete.
14. Although there are many methods of teaching muscle energy available today, using the techniques that a soft contraction gives a far better result than a hard contraction, resulting in better results. Assuming the concept is correct, it would make no sense to use hard contractions.

TERMINOLOGY

Classical Movements: Active and passive motion described in terms of planes and axes, i.e., flexion, extension, abduction, adduction, etc...

Closed pack position: Various tissues around the joint are under tension: joint is under tension—most vulnerable

Compensation: Counterbalancing or making up for a defect in structure or function in the body. It may employ mechanisms that meet the definition of adaptation, but it more likely implies adjustment at the expense of efficiency and with greater likelihood of fatigue and wear and tear. Both functional and anatomical breakdown are more likely to occur in a compensated situation.

Hilton's Law: The nerves innervating a joint also innervate the muscles moving that joint and the skin over their insertion.

Sherrington's Laws: 1. Every posterior spinal nerve root supplies a specific region of the skin, although fibers from adjacent spinal segments may invade such a region. 2. When a muscle receives a nerve impulse to contract, its antagonist receives, simultaneously, an impulse to relax.

Muscle Spindles: the special neuromuscular organs scattered through the mass of muscle fibers which act not only as a feedback sensor to allow spinal reflexes to adjust intentional or high reflex muscle contraction orders, but also have sensitivity or "gain control" that allows them to adapt to new load or new intentional signals from above.

Neutral: The point of balance of an articular surface from which all the motions physiologic to that articulation may take place.

Counterstrain Technique: An indirect technique developed by Lawrence Jones, DO The clinician moves the athlete or affected part passively away from the motion barrier toward and into the planes of increased motion, always searching for the position of greatest comfort. A position of mild but asymptomatic strain is induced. The concept embraced the principle that the most efficient reflex release will occur when the body or parties placed in a position of mild strain in a direction opposite to the direction in which the motion barrier is engaged.

Muscle Energy Technique: A term first suggested by Fred L. Mitchell, Sr. DO to describe a form of osteopathic manipulative technique in which the athlete uses their muscles, on request, from a precisely controlled position, in a specific direction against a distinctly executed clinician counterforce.

Finding strain counterstrain cont.

In the application of strain counterstrain several patterns appear to be useful in the application process:

1. Unless the clinician finds a tender point, which is exquisitely tender and in almost all cases does not radiate from that point, the technique of strain counterstrain is inappropriate. Remember there are many other systems, which also advocate treatment of tender points. (Travell Trigger Point Therapy--Chapman's Reflexes—Prudden's Point Therapy—Acupressure Therapy—Acupuncture Therapy)
All of these techniques have theoretical basis, which differ, in some cases markedly, from strain counterstrain technique. Counterstrain as a technique may or may not be unique, at any rate Ayurvedic writings from the third or fourth millennium which describe techniques which appear to be very similar if not identical to strain counterstrain techniques (taken from URSA Foundation course material) So what does that tell us, simply that techniques for treatment of the human body have been around for centuries, some refined, some more rudimentary.
2. Once the tender point has been located, it appears best to continue to monitor it. You should feel a difference in tissue tension.
3. As you begin to prepare to shut the tender point off completely. The clinician will generally feel a softening of the tender point when the correct position is obtained. The patient will usually indicate that they can still feel the pressure of palpation but that the spot is no longer tender.
4. The clinician is now ready to start counting the time required to correct the problem. Classic strain counterstrain is 90 to 120 seconds.
5. Often around 20-40 seconds the athlete may begin to squirm or in other ways indicate they are becoming aware of the tender point again. The clinician monitoring the tender point will also become aware that the softening, which they felt when they have the spot correct, is returning.
6. At this point the clinician begins to make a very small adjustment in the positioning of the spot so that it remains off. If this spot is lost for over 5 seconds (approx.) it may be necessary to begin the treatment anew.
7. After approximately 90 seconds with the spot turned off completely, the clinician should begin to feel a release occurring in the tissue. This feels like a relaxation of the tissue moving like a wave away from the tender point.
8. The clinician should keep their palpation finger (index, long, thumb) on the tender point if at all possible and return the athlete back to neutral slowly.
9. When the clinician has the part back in a neutral position, the tender point is examined for tenderness. The classic assumption is that the tender point should be 2/3 better. Generally if the "exquisite" tender point is gone the area is still tender, the treatment is usually successful.

We will discuss DO'S AND DON'T'S during our clinical sessions. However, always remember that malpractice is a very real issue. There are NO absolutely safe techniques. Clinical judgment is essential no matter what you learn here today or what I or anyone else tells you. Tell your athletes, patients, clients, what you are about to do, be professional, and above all respect your profession.