In recent years we have seen a resurgence in the use of manual techniques to treat disorders of the musculoskeletal system. Not only has this occurred in the osteopathic profession but in many other fields as well. With the realization that surgery is not indicated for many soft tissue problems, manual approaches such as muscle energy technique (MET) are starting to dominate the thinking in the field.

Not so long ago the allopathic/physical therapy/athletic training model consisted mainly of applying various forms of heat, cold, electricity, whirlpool baths, taping, and therapeutic exercise under the direction of a physician. Today athletic therapists are able to explore and utilize new and varied forms of treatment, and MET has been applied to athletic injuries with great success.

While MET is primarily osteopathic in nature, it has close parallels in the field of physical therapy under the heading of “proprioceptive neuromuscular facilitation” (PNF). Many of the same principles, concepts, and theories apply to both.

Since most therapists may already be familiar with PNF, it should be fairly easy for them to transfer the skill and integrate both approaches into an even more effective treatment modality.

Muscle energy as an osteopathic technique is usually credited to Fred L. Mitchell, Sr., DO (1909–1974). However, it can be traced to several doctors of osteopathy (DO), including Paul Kimberly, Thomas J. Ruddy, Karl Kettler, and Fred L. Mitchell, Jr. Within the allopathic system of healing, Herman Kabat, MD, Margaret Knott, PT, and Margaret Rood are commonly credited with being instrumental in the development of PNF.

Somatic Dysfunction as a Cause of Pathology

All treatment is ultimately directed to the correction of “somatic dysfunction” of some kind. Somatic dysfunction can be defined as an impaired or altered function of related components of the body. This impairment may involve skeletal, joint, and/or myofascial components.

The related vascular, lymphatic, and neural elements of the body may also be involved. Therefore somatic dysfunction may involve one or more segments of the spinal column, pelvis, or extremities. The dysfunction may produce limited motion, associated muscle involvement, pain, and autonomic involvement such as swelling and edema. Remote structures that are embryologically related may be affected.

Many models have been developed to deal with somatic dysfunction, but MET is unique among these in that it has proven effective in both acute and chronic conditions. This is because MET is based on feedback loops between the extrafusal and intrafusal fibers that set the muscle spindles for a predicted need and monitor the contraction to assure that it has been accomplished correctly.

When there is a misreading of this information, it prohibits the muscle from relaxing to a length that is balanced with its antagonist. This in turn limits the joint’s ability to return to a neutral position.

Muscle Energy Assessment Concepts

Although MET is useful for all joints except the cranial sutures, we will look at a vertebral segment that has undergone strain and cannot return to a neutral position. Multiple theories have been proposed over the years as to how, when, and why muscle energy is used, but this article is based on the Ursa Foundation concept that MET is a gentle, sophisticated spindle technique that uses precise positioning and light contractions.
Muscle energy uses standard biomechanical rules of motion for vertebrae. In the osteopathic community these are referred to as Fryette’s Laws:

1. A vertebral segment that is in neutral will sidebend to one side and rotate to the opposite side. This is normal adaptive behavior and is the body’s attempt to move the spine closer to the midline for stability. When the involved segments cannot return to neutral and stay in this position, it is called a Type 1 group adaptive lesion.

2. A vertebral segment that has the superior part flexed or extended prior to the initiation of motion will sidebend and rotate to the same side. This is normal behavior unless some traumatic event has locked the segment in this position. This case is called a Type 2 single segment traumatic lesion.

3. Law 3 states that any introduction of motion results in a decrease in all remaining motions in the segment.

Although there are different ways to test the position of vertebrae, I prefer to use the transverse processes of one vertebra to note how it moves in relation to the vertebra below. Remember, you need to examine in all three positions to establish an accurate assessment.

The basic rule for all vertebrae is that motion should be free in three planes: flexion/extension, rotation, and sidebending. Therefore a vertebra should be able to go completely into flexion, stop in neutral, and go into extension without any rotation. If rotation occurs with testing, the vertebra must be treated to restore full motion.

When deciding to use MET, you are assuming that the reason for these restrictions is the fact that there are some muscles with excessive tension forcing the vertebra to be held in an incorrect position so that it cannot return to neutral.

**Naming a Vertebral Restriction**

The examiner places the thumbs over the transverse processes of one vertebra to note how it moves in relation to the vertebra below. Remember, you need to examine in all three positions to establish an accurate assessment.

On motion testing, a vertebra that fails to extend correctly will rotate to one side because it is being held in a flexed position. Since lesions are named for the position in which they are held, we would say the superior vertebra is flexed. We then name the lesion for the most posterior transverse process. Assume that the vertebra is rotated to the right. This would make the right transverse process move posteriorly compared to the left side. Thus it would be named rotated right. Since it is a single segment, it is a Type 2 lesion, and sidebending would be to the same side. Thus the segment would have a positional diagnosis of flexed rotated right and sidebent right.

The motion restriction of this vertebra is that it cannot extend, rotate left, or sidebend left. If it could do these motions, it would have stayed in the midline and not rotated. A vertebra that is held extended would react just the opposite. In other words, it would rotate in flexion along with sidebending and rotating to the same side.

A vertebra that is held in a neutral lesion will be part of a group of three or more and able to move freely into flexion or extension, but not be able to stop in neutral without rotating. In this case the sidebending and rotation will always be opposite. Therefore if several segments of the spine were all rotated to the right when the spine was in a neutral position, we could state the positional diagnosis of the lesion as neutral sidebent left and rotated right.

Muscle energy techniques attempt to return these to their pre-injury state by a series of precisely controlled contractions after positioning the patient in a position of greatest laxity and maximum separation of the involved joint. This is often referred to as the “loose pack” or resting position.

**MET Concept**

Muscle energy treatment is based on the concept that light, precisely controlled isometric muscle contractions will reset the gamma gain to a lower and more appropriate level that will allow the vertebral segment to assume a neutral position. Therefore you are not attempting to “pull” some vertebra into a different position by means of a hard contraction, since that type of contraction would only...