Dynamic Chiropractic

CHIROPRACTIC (GENERAL)

MPI Is More than Palpation and Examination

MPI is much more than just joint examination. In fact, MPI has changed with the publication of new research data. Have you?

Over the last few months, I have received numerous e-mail inquires about what's new with respect to the osteokinematics of the human body and how this new information relates to the examination, understanding, treatment and eventual rehabilitation of deconditioned patients.

This is a simple question to answer, but I have discovered that few doctors have read the current literature or attended the latest conferences at which this material was introduced. With this in mind, I offer the following answer beginning with the kinetic chain mechanism. Dysfunction in a joint, fascial sling or other structure can lead to functional pathology anywhere along the locomotor system's kinetic chain. This reminds me of the words of Clarence Gonstead: "Find it, accept it where you find it, fix it and then leave it alone." He truly was a great man of exceptional foresight.

The kinetic chain of the upper extremity can include the occiput-atlas-axis complex; temporomandibular joint; cervical spine; investing fascia; shoulder joint (including the acromioclavicular and sternoclavicular joints); elbow (including the trochlear joint, ulnohumeral, radiohumeral, proximal, middle and distal radioulnar joints); and wrist (including the radiocarpal, ulnomeniscotriquetral, midcarpal, intercarpal and carpo-metacarpal-phalangeal joints). Any dysfunction or pathology of a structure (muscle, ligament, bone or fascia) or joint along the kinetic chain can affect one or more of the other structures or joints proximally, distally, or in combination along this kinetic chain. The upper extremity has connections to the thoracodorsal and thoracolumbar fascia and therefore can be neither excluded, nor treated, as a separate entity (and vice-versa) with respect to the spine and extraspinal articulations.

The lower extremity kinetic chain includes the continuum of the two layers of the thoracolumbar fascia; the lateral raphe and its ventral connections (the adductor longus, transversus abdominus and internal and external obliques); the aponeurosis of the erector spinae; the lumbar spine; the pelvic joints (including the sacroiliac, iliosacral, lumbosacral junction and sacrococcygeal joints); the hip; the knee; the superior and inferior tib/fib joints; the talocrural and subtalar (including the posterior, middle, anterior and functional talocalcnaeonavicular joints); the transverse tarsal; the calcaneocuboid; the first ray complex; and all joints distal.

Not mentioned in the above, but of equal importance, are the tonic and phasic muscles, their relationships, and the ligamentous systems of the entire kinetic chains. The hip and pelvis, for example, are not single entities in themselves, especially as they relate to the dynamic activities that occur in daily life and sport. The hip is a part of the lower extremity and part of a chain of connective tissue (known as the back force transmission system or posterior ligamentous system) that affects the kinetics of the entire ipsilateral lower limb and the contralateral back and upper extremity. Therefore, it can be easily understood (if we just consider the lower extremity, for example), that problems that occur in any one area of the body can affect other parts of the body, especially when cyclic repetitive activities occur.

These repetitive activities place strain and stress on the tissues of the entire connective tissue sling. When a tissue, group of tissues, or even a joint becomes less mobile or even immobile, the effects can be seen in tissues proximal, distal, and a great distance away from the cause. In the case of altered function, a single tendon, muscle or joint that loses the ability to move through a full range of motion affects not only the tissues directly relating to its movements, but also the mechanics of the joints above and below, and eventually over the entire limb and connective tissue sling.

For example, a tibiofemoral joint that lacks full extension in a dynamic gait pattern obviously will place a lot of strain on the knee, as well as the structures that cross the knee. It also has the ability to affect the talocrural joint, subtalar joint, tibiofibular joint and patellofemoral joint below by changing the mechanics of the lower kinetic chain. A point to remember is that the pain and presenting complaint may be in the foot, but the cause in this case would be in the mechanics of the tibiofemoral joint. This situation also may affect the structures above, i.e., the lumbosacral junction, thoracic cage and its functions; the upper extremity; and the cervical spine. The sacroiliac and hip joints adapt or compensate due to altered mechanics of the tibiofemoral joint, something seen in chiropractic offices every day.

To effectively treat and be consistent with outcome measures for dysfunctions of the kinetic chain, examination, including observation of the patient performing their daily tasks or sporting event, as well as orthopedic and neurologic exams of the entire chain, must be carried out to determine which joint or joints along the chain are the cause of (or are contributing to) the patient's presenting complaint. To state it simply, you treat the cause and rehabilitate the entire kinetic chain.

This subject will be a series over the next few months and will cover topics such as visceral dysfunction; (viscerosomatic response) overgrowth syndrome; overuse or overtraining dysfunction; the facilitated segment; and other related topics. MPI is much more than palpation, a fact you will become aware of over the next series of articles.

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