Dynamic Chiropractic

Movement of the Nervous System

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Doctors treating peripheral entrapment lesions with myofascial techniques, such as friction massage, active release and other fascial release methods, implicitly accept the concept of movement of the nervous system. According to Butler,[1] "The nervous system must have optimal mechanical function just like the other structures in the body." If we think of both the central and peripheral nervous system as a continuous tissue tract, our concepts relating to evaluation and treatment of the human condition will reach new dimensions.

In the central nervous system in spinal flexion the posterior columns move more than the tracts on the anterior side of the neuraxis; the opposite occurs with spinal extension. In lateral bending the tracts will be stretched more on the convex side. The spinal canal is 5cm-9cm longer in flexion than extension.[2] During elbow flexion the ulnar nerve stretches while the median and radial nerves shorten. The reverse occurs with elbow extension. McLellan and Swash[3] placed needles in the median nerves of volunteers and found that wrist and finger extension pulled the nerve down an average of 7.4mm. Elbow flexion caused 4.3 mm of upward movement. Local treatment of neural adhesions in these areas might make use of this information. The sympathetic trunk located just anterior to the cost-transverse joints must also have the ability to move. Lateral thoracic spinal bending stretches the contralateral side while cervical extension stretches the cervical sympathetic trunk and ganglia.[4] Cervical flexion may tense the sympathetic plexus near the carotid and vertebral arteries. It is absolutely necessary for nerves to be able to move within the connective tissue that surrounds it, and within itself for normal function. Peripheral nerves can be limited to connective tissue just adjacent to the nerves, as well as intraneural limitation not allowing sliding and elongation. Leahey's Active Release technique has proven extremely successful in restoring movement to the peripheral nervous system.

In a slumped position where a patient sits at the edge of a table with the knees flexed at the edge, the examiner has the patient flex the spine (not the hips). The patient then bends the neck (chin to chest), and the examiner applies an added pressure to the head and shoulders. The patient is then asked to extend a leg and dorsiflex the foot. Bilateral leg extension and foot dorsiflexion should be compared. In this case a patient might feel pain in the right hamstring. If the patient holds the right leg in extension and brings only his flexed head back into extension there could be a significant decrease in right hamstring pain. This reaction may be considered neurogenic in origin, demonstrating the continuum of the nervous system. If there was bilateral thigh pain in leg extension during the slump test and a decrease of pain on head extension, this might be considered a normal reaction.[1] The slump test, among many other things, demonstrates that the continuous tissue tract of our nervous system can limit combinations of motion. Nerve tension testing can be used to examine this continuum for pain and limitation at local areas. It is possible to use nerve tension stretching as a treatment. For example, a Slump Test procedure can at times be used to treat a sciatica by having the patient actively stretch the sciatic nerve by maintaining a slumped sitting position, legs extended, neck flexed just up to the point of pain and then switch to an upright sitting position with the leg flexed and the neck an shoulders in neutral or extension. Just holding the extended leg for about 10 seconds at a time without creating a severe increase in pain

may help to release the sciatic nerve.

References

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