



Dynamic Chiropractic – November 17, 1997, Vol. 15, Issue 24

Chiropractic Rehabilitation Around the World

By Craig Liebenson, DC

In September, I was fortunate enough to address the Australian Chiropractic Association in Tasmania. Like myself, most of the over 200 chiropractors in attendance had never visited this pristine island of great forests and rivers. I discovered (much as in prior trips to England) that when I teach abroad, clinical knowledge is valued far more than the entrepreneurial aspect. The questions I heard were not about how to get paid, but about the techniques themselves. Chiropractic is growing in strength and numbers in the Pacific region, and the Australian chiropractic educational leaders are poised to lead this growth in a manner consistent with scientific, academic and practice excellence.

Schools outside of North America (particularly in Australia, England, Denmark and South Africa) appear to be on the threshold of offering academic programs which embrace the biopsychosocial and functional models throughout their curricula. Perhaps North American schools which have only implemented components of the revolutionary new model of musculoskeletal care will be stirred to broader action by the comprehensive vision of schools like the Anglo-European Chiropractic College (AECC) and the Royal Melbourne Institute of Technology (RMIT).

Following my Australia program, I did the unthinkable and travelled 36 hours to Prague. For the third consecutive year, Prague was host to an intensive manual medicine training course. Our group included 20 chiropractors, a neurologist, and three physical therapists. Our instructors were Professors Lewit, Janda, Vele and Jirout; Jiri Cumpelik, PT; Pavel Kolar PT, PhD; and staff physical therapists from Charles University.

A major emphasis on this trip for 14 returning participants was Lewit's work with Kolar in the neurodevelopmental approach to treating chronic pain syndromes. Kolar originally practiced as a sports physical therapist, and then worked with the renowned pediatric developmental neurologist, professor Vojta. What has this to do with chiropractic rehabilitation? The key landmarks in the development of the motor

control system occur in the first three months of life. By studying an infant's progression toward a vertical posture, the basic tenets of rehabilitation become clear.

Upright posture is gradually achieved by progression from cervical extension to trunk extension; to stabilization of body weight on peripheral joints in the quadruped position; to standing with support; to fast walking (falling forward!); to slower walking; to standing unsupported. The first steps involving raising of the head and then raising the trunk illustrate the powerful implications of the neurodevelopmental sequence for all joint rehabilitation.

For instance, at around three weeks, an infant is first able to hold its head up. This requires extensor muscle effort. However, the key is not extensor contraction force, but co-contraction of agonist and antagonist flexors/extensors. Why? When an infant lifts its head up, does the entire cervical spine extend? No. C0-C1 is actually flexed, which could not occur without antagonist co-contraction. Most exciting for rehabilitation is that a child's neurodevelopment requires the suppression of spinal reflexes and the substitution of agonist/antagonist co-contraction patterns. The first landmark is the ability to hold the head up without cranial extension. Lewit call this position the "centration" for the joint.

In rehabilitation just as in development, joint stability depends upon coordinated co-contraction of agonist/antagonist muscles. Strength is not nearly as important as coordination for motor control and development. The neurodevelopmental approach is a foundation of rehabilitation, because it shows how different parts of the body are neurologically linked together in a sensory-motor program. For instance, before infants can raise the trunk, afferent information is required from the symphysis pubis and sternum points of support. Also, before crawling can occur the elbow and forearm points of support must provide sensory feedback. Examples were shown to us of experiments where the skin of the forearm was insulated by foam cushions and the result was poor stability of the upper quarter and inability to crawl. As soon as the foam was removed, crawling ability was restored.

A key lesson from infant motor development is that muscles work in a highly coordinated way with crucial sensory feedback coming from key joints. These are linked together in highly organized neurodevelopmental pathways. The strength of these connections has been demonstrated by the facilitation of reflex motor contractions in spinal cord injured adults by a combination of reflex stimulation of key points of support in the developmental sequence, and patient positioning opposite the range-of-movement that is to be facilitated.

These muscular contractions are subcortical and of a reflex nature. They have been used in Germany and the Czech Republic to rehabilitate paralyzed patients by facilitating crawling, kneeling, standing and walking functional motor pathways. Kolar and Lewit have theorized that in chronic nociceptive states, these reflex connections are disturbed. By finding a chain of active or latent trigger points at key reflex points of support for the development of vertical posture, treatment can be aimed at a "key link" in this chain, and improvement in a chronic myofascial pain syndrome can be achieved.

The importance of the neurodevelopmental approach is that it shows how the body learns to maintain joint stability during movement. Dysfunction of agonist/antagonist relationships will compromise joint stability. Inappropriate muscular responses in key functions such as posture, gait, prehension, chewing, and respiration represent fundamental signs of dysfunction which should be addressed in a rehabilitative program.

The neurodevelopmental link is just one key area that we are only just now beginning to explore. During the stay in Prague a great deal of time was spent with Jiri Cumpelik, a physical therapist who is adept in yoga. Respiration training, spinal exercises, rib mobilizations (i.e., depression of ribs 1-4), and relaxation training were almost a daily part of the 10 day program.

Chiropractic is at a critical juncture in its evolution. The barrier phenomena (restricted mobility) which we speak about in joints is present in skin, soft tissues and muscles. Our palpatory skill is being called into question by other professions who take a more holistic approach to manipulation. Being able to identify a barrier in various tissues and "sense" its "release" (by simply waiting, having the patient breathe in and out, or isometrically contracting against our resistance) is a challenge for our profession, whose narrow approach to manipulation places us at risk of becoming dinosaurs.

Along with palpatory skill, inspection of joint stability during key functions (i.e., gait, stance, prehension, etc.) is something very fundamental in evaluation of locomotor system dysfunction. A holistic model (founded on evaluation of the barrier by palpation, joint stability by inspection, chain reactions involving the entire locomotor system, and appropriate treatments with advice, manipulation or exercise) is the future for chiropractic.

Ironically, a small band of neurologists from Prague ranging in age from 67-85 years young have taught us the value of keeping an open mind. Their curiosity to learn new techniques bubbles up in them and appears to be the source of their youthful vitality. At the same time, we have all felt their stern hand when it comes

to disappointment in our palpatory skill or knowledge of basic spinal biomechanics. After all, chiropractic is supposed to be "hands-on" and an expert in this area.

Craig Liebenson, DC

Los Angeles, California

Click [here](#) for more information about Craig Liebenson, DC.



Page printed from:

http://www.chiroweb.com/mpacms/dc/article.php?id=38618&no_paginate=true&p_friendly=true&no_b=true