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## CranioSacral Therapy and Scientific Research, Part II

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After Drs. Roppell, Retzlaff and I successfully demonstrated live sutural contents and rhythmical cranial bone and sutural motion, I began working with biophysicist and bioengineer Zvi Karni, PhD, DSc. He was a visiting professor from the Technion-Israel Institute of Technology in Haifa, Israel, where he chaired the biophysics department. He initially joined me to prove that I was crazy in my concept that "energy" was passed from one person to another during a hands-on treatment session (later named CST). After closely observing my treatment sessions, we theorized how we could best investigate. I became his student in biophysics, and he became my student in clinical manual medicine and biology. He gave me reading assignments in classical and quantum physics followed by pop quizzes; I gave him insight into the strange hands-on approach I was using.

Dr. Karni and I worked intensively for about three years, after which he was recalled to Israel. He arranged for me to go there the following summer as a visiting professor at Technion, where he introduced me to Professor Nachansohn, MD, the director of the Loewenstein Hospital, Ra'anana, the country's principal neurological rehabilitation hospital. I studied in the hospital's coma ward. After examining numerous comatose patients, I discovered that their craniosacral rhythms, as monitored in the paravertebral regions, were not present at the level of spinal cord injuries and below. With 100 percent accuracy, I was able to tell doctors the precise level of spinal cord injury in each patient, with no clue other than the loss of palpable craniosacral rhythm. This was truly a "blind" study, with eight to 10 very skeptical neurologists observing constantly.

During our years together at Michigan State University (MSU), Dr. Karni and I decided that we would look at the human body as an insulator bag made up of skin and mucous membranes full of electrical-conductor solution. We hypothesized that the conductor solution would undergo voltage changes in response to energy

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changes that occurred in the body as I did my treatments. In order to measure such millivoltage changes, Dr. Karni built what he called a modified Wheatstone bridge. The instrument algebraically added the millivoltage deflections in both the positive and negative directions at any given instant from a determined baseline. Thus, we could see millivoltage changes in patients as they occurred.

We began this series of experiments by applying electrodes on the midline of each patient's anterior thigh, three inches above the superior border of the patella. The grounding electrodes were placed upon the dorsum of each foot on the anterior midline over the tarso-metatarsal junctions. We also monitored cardiac activity through a V-2-placed electrode, and we tracked pulmonary/respiratory activity by placing sensitive strain-gauge and band apparatuses around the thoracic cage at the level of the juncture of the manubrium sterni with the xiphoid bone. Circumferential variations in thoracic-cage volume reflected breathing activity. These four measuring devices were then plugged into a polygraph that recorded the heart rhythm, breathing activity, and total-body millivoltage changes.

Dr. Karni monitored the readings on polygraph paper. Initially I told him what was happening as I initiated treatment techniques or patient changes occurred, and he noted the comments on the polygraph paper at appropriate locations. After a while, he was making accurate patient observations by simply monitoring changes in the polygraph recordings. We treated more than 150 patients this way and collected what seemed like miles of data. By demonstrating correlations in total-body electrical potential, we again confirmed the activity of what we called the craniosacral system.

As all of these laboratory studies were taking place, my colleagues and I conducted two clinical inter-rater reliability studies on children. I developed a 19-parameter evaluation protocol used to rate the level of mobility for various bones of the skull and sacrum. The first study was carried out on 25 nursery-school children examined by myself, one of two other cranial osteopaths, and a student assistant. The four of us evaluated the children independently, and reported our findings on each parameter to an independent research assistant. No one had any knowledge of the other's findings until after an independent statistician completed the statistical analysis. The percentage of agreement between the examiners varied from 72 percent to 92 percent, with the allowed variance of 0-0.5 percent. Once again, these findings supported the existence of a craniosacral system and sutural movement.

Still not satisfied, I went on to use the same examination protocol on 203 grade-school children. I personally evaluated the children with no knowledge of their histories. I then reported my findings to a research assistant who faithfully recorded them. An

independent statistician then collected information from each child's school file, along with historical data from parent interviews. He correlated my findings with the data he recovered, and reported a very high level of agreement between the craniosacral examination findings and learning behavior; seizure problems; head injuries; hearing problems; and even obstetrical problems.

The study, because of its scientific design, obviated the possibility of random agreement. The results showed that standardized, quantifiable craniosacral system examinations represent a practical approach to the study of relationships between craniosacral system dysfunctions and a variety of health, behavior and performance problems. Other researchers have performed similar studies related to psychiatric disorders and symptomatology in newborns. Again, most of this work has been published. This is but a small portion of the research that has been done to prove the efficacy of therapy upon the craniosacral system.

Today, there are close to 100,000 CranioSacral Therapists around the world - and even more reports of patients helped by its noninvasive techniques. I find it odd that this information counts for nothing in the eyes of some skeptics who continue to proclaim the craniosacral system a fantasy. In any case, the craniosacral system will continue to exist and be used therapeutically with essentially no risk.

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