

# A Colloid Fluid Model: The Bridge Between Biological and Energy Medicine

## Case Study of Non-Thrust Manual Manipulation on the Autonomic Regulation of a Woman 52 Years of Age

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### Abstract

**Objective:** To examine the immediate and cumulative influence of treatment with four non-thrust, Manual manipulation modalities on the autonomic nervous system (ANS) and to suggest an explanation for the changes in the ANS of a patient diagnosed with dystonia. **Design:** Patient was treated for one hour every two weeks for 12 weeks. **Setting:** An integrative health center in Washington DC. **Interventions:** Four non-thrust manual manipulation techniques: Craniosacral therapy, SomatoEmotional Release, Myofascial Release, Visceral Manipulation. **Outcome Measures:** Heart Rate Variability pre- and post-treatment test using a Heart Rate Variability Monitor (HRV) to evaluate the function of the ANS; **Results:** Maximum of 19% percent decrease in supine heart rate, 275% increase in supine POV, 83% reduction in TI, and 19% reduction in Ch MR; **Conclusions:** Suggestion of positive change, interesting and worthy of further study.

### Introduction

During the early years of the 20th century, Dr. Walter B. Cannon, a professor of physiology at Harvard Medical School described an “emergency reaction” physiological mechanism that later came to be known as the “fight flight response”, a rapid, complex, physiological reflexive reaction to the stress of being exposed to possible physical harm. The fight or flight response is thought to have had considerable evolutionary significance. Those individuals with a strong response survived danger and were able to pass the trait to their progeny.<sup>1</sup> Today, most human stress is not life threatening yet it has been demonstrated that any stress – physical or psychological, life or ego threatening, chronic or acute – still triggers the hypothalamus to evoke the fight or flight response which elicits other autonomic reflexes, increases the sympathetic nervous system’s response, and creates a spill of hormones that produce the familiar reactive schema of increased blood pressure, sweat, breath, metabolism, and heart rate, and a marked increase of blood flow to the muscles.<sup>2</sup>

In the 1950’s, Dr. Walter R. Hess, a Swiss Nobel Prize winning physiologist, demonstrated a parasympathetic response *opposite* to fight or flight by stimulating the hypothalamus of a cat. He named the reaction the trophotropic response (an innate tendency to maintain or restore nutritional resources) and defined it as a “protective mechanism against over stress that promotes restorative processes”.<sup>3</sup> Both Dr. Hess and Dr. Cannon were studying aspects of the autonomic nervous system (ANS).

I’m going to begin with a case study that raises the questions that led me to my present understanding of the human organism and the implications of this understanding for treatment.

I had a profound experience ten years ago, when I was working with an older woman who had significant degenerative changes of the cervical spine. She was unable to move her head in any direction. The patient had seen three neurosurgeons, all of whom recommended that she get a complete spinal fusion. I was wary of taking her case, because the prognosis given by the neurosurgeons was that if she had a fall or small auto accident, she would become a quadriplegic or die. But she had nowhere else to go, so I agreed to take her case on. I started to do some indirect work with her in the pelvis. What emerged were unremembered experiences of horrific sexual abuse. After processing these experiences over the course of about twelve sessions, her muscle spasticity reversed and she essentially had full range of motion of the neck. A year later, she had an MRI and the examining physician said the progression of her disease had stopped, which in his experience was unheard of.

Over my seventeen years of practice I’ve witnessed quite a number of such *indirect healings*. By this I mean that I start working in one body system or level and healing comes about in another. Why did this so strike me? In response to the way medical education and practice is packaged and delivered, I had unconsciously come to think of the human organism itself as composed of systems which can be viewed and treated in considerable independence of one another. I’d also come to think of illnesses or dysfunctions as being the province of particular treatment

<sup>1</sup> Herbert Benson MD, *The Relaxation Response* (New York City: William Marrow 1975) 47. <sup>2</sup> Hans Seyle MD, *Stress Without Distress* (Philadelphia: JB Lippincott, 1975) 44-51. <sup>3</sup> Benson 68-69.

modalities to the exclusion of others. This is the way we are taught, to be practitioners of biological/physiological or energetic, or psychological/emotional approaches with all their subdivisions.

Yet people would present with radicular nerve symptoms and come in after several sessions still sore but reporting their blood pressure had become normal. So I always went back to being curious about what the mechanism was for this. I had been taught to focus on the differentiations of the human organism more than on what unifies it, to favor analysis over synthesis. Yet it was clear that the conditions I was working on existed in their wholeness and inter-implications on multiple levels.

When a person comes into the treatment room, that person is a collection of everything that has happened to her or him. That person is an open and self-regulating system composed of many open and in some ways self-regulating systems that must maintain "good enough" regulation in relation to each other for the health of the patient. What do the organism and its processes have to be like in order to explain indirect healing and effects in different systems and levels than the system with which we began?

Over the years in attempting to answer this question I have drawn upon the work of many scientists who from my viewpoint constitute a tradition which I have attempted to synthesize. Let me summarize the relevant work of the scientists who contributed to this tradition and then return to my own synthesis and its implications.

### The Theoretical Background

Prof., Dr. Günter Enderlein, a German scientist, who like Cannon began his career around the turn of the 20<sup>th</sup> century was a pioneer in biological medicine, a branch of medicine that focuses on correcting and restoring the internal milieu and cellular regulation.<sup>4</sup> While studying live blood under Darkfield Microscopy he observed minute protein colloids that he named protits or basic forms. These protits would upgrade or downgrade depending on certain changes in the internal milieu or regulation. He believed that the miniscule protit, not the cell, was the smallest visible living biological unit in the human body.<sup>5</sup>

What is important to this discussion is that Enderlein found the protit to be the smallest unit and also to be a colloid that changes with the internal milieu or regulation.

Dr. Alfred Pischinger, a professor of Histology and Embryology in Vienna working in the 1960s theorized that the extra cellular fluids, not the cell, were the key to health.<sup>6</sup> Pischinger called these fluids the matrix, or ground regulation system because they support everything else. They support by bringing nutrition, oxygen,

hormone messengers and other vital substances to the tissue and by removing excretion products, toxins and the residue of old disease from the tissue.<sup>7</sup>

Pursuing Pischinger's model, Hans-Heinrich Reckeweg, MD, a German scientist also working in the 1960s, developed a theory of illness and healing that he called *homotoxicology*.<sup>8</sup> Reckeweg theorized that toxins could be exogenous, originating outside the body, and endogenous, originating within the body. He further stated that these toxins negatively influence the regulatory system of the cellular matrix reducing their capacity for excretion, inflammation, and consequent elimination. Therefore according to Reckeweg, disease does not begin in the individual cell as traditional medicine believes but rather it begins with changes to the regulatory system of the cellular matrix.<sup>9</sup> Working from the principals of Homeopathy, he devised ways to use natural substances to support, clean and revitalize the extra cellular fluids, which in turn revitalized the cell.<sup>10</sup>

A contemporary researcher, Carlyle Holland, DO, discussing the biophysics of the body reminds us that the concept of structure when applied to the body is an abstraction. The body is dynamic not a static structure.<sup>11</sup> In fact 98% of the body's molecules are replaced every six months and the body is totally renewed every 5 to 7 years. Holland goes on to say that all living protoplasm is classified as tissue and all living tissue behaves as a colloid with both viscoelastic and viscoplastic qualities.<sup>12</sup>

The next question is what influences and regulates the colloidal nature, the inherent energy and motility, of the living tissue and particularly that of the matrix. Hartmut Heine, MD, a protégé of Reckeweg, studied this question. He concluded that as the autonomic nerve fibers come to a blind end in the matrix, the matrix is directly connected to the central nervous system.<sup>13</sup> Also via the capillaries, the matrix is linked to the system of endocrine glands. He found that in the brainstem and especially the hypothalamus the nervous and endocrine systems connect. In this way the matrix regulation system is constantly influenced and regulated by psychological and mental factors, not just physical ones.<sup>14</sup> Therefore, the colloidal nature, the inherent energy and motility of the living tissue – from the smallest protit to the largest bone – is governed by the autonomic nervous system (ANS) and, of course the things that act on the ANS.

The influence of energetic concepts on cellular, psychological, and mental processes has been researched and demonstrated by Dr. John Upledger at the Upledger Institute in Palm Beach, Florida. Dr. Upledger is perhaps most known for the development of CranioSacral Therapy. In the 1990's

<sup>4</sup> Thomas Rau M.D. Biological Medicine (Switzerland: Paracelsus Klinik Lustmühle, 2003) 13-14. <sup>5</sup> Prof., Dr. Günter Enderlein, Bacteria Cyclogeny (Prescott, Arizona: Explore Publications, 1999) VI-VII. <sup>6</sup> Gabriele Herzberger M.D. The Fundamentals of Homotoxicology (Baden Baden: Aurelia-Verlag GmbH, 2001) 8. <sup>7</sup> Keith Scott-Mumby "Tissue Deep Cleansing" <http://www.alternative-doctor.com/antiaging/cleansing.html>. <sup>8</sup> Harmut Heine. Homotoxicology and Ground Regulation System (GRS) (Baden Baden: Aurelia-Verlag GmbH, 2000) IX. <sup>9</sup> Ibid 2. <sup>10</sup> Gabriele Herzberger M.D. The Fundamentals of Homotoxicology (Baden Baden: Aurelia-Verlag GmbH, 2001) 22. <sup>11</sup> Carlyle Holland D.O. The Fundamentals of Homotoxicology. (CA 707 829 3981: self-published video date unknown). <sup>12</sup> Ibid. <sup>13</sup> Harmut Heine. Homotoxicology and Ground Regulation System (GRS) (Baden Baden: Aurelia-Verlag GmbH, 2000) 8. <sup>14</sup> Ibid 8 – 9.

Dr. Upledger published about the concept of the energy cyst, a localized area of increased entropy that is contained in the body and caused by significant trauma. He has developed many processes for helping people to release energy cysts. I believe that all of Upledger's techniques but especially those associated with the release of energy cysts has a profound effect on the regulatory processes of the body. Dr. Upledger expanded on the energy cyst concept in his somatoemotional release work and his cell talk work. It was these techniques used over the 12 sessions that helped resolve the psychoemotional trauma that my patient experienced from the sexual abuse and also produced such profound changes around the increased mobility of her neck.

Dr. James Oschman, PhD., a biophysicist, published extensively on the scientific basis of energy medicine. He states that the hand of energy practitioners pulses at a variable frequency ranging from 0.3 to 30Hz with most of the activity in the range of 7 and 8 Hz of energy. He further states that this amount of energy is within a spectrum to affect biological systems.<sup>15</sup>

My contention is that the energetic and non-force manual therapy that the energy practitioner employs during a treatment creates a change in the rigidity of the cellular matrix on a local and or systemic level through normalizing the ANS. I also believe that we can measure the patient's progress toward normalization of the ANS with a before and after HRV test.

### **The Nature of the Human Organism: The Colloid Fluid Model**

The human body behaves as a colloid fluid structure. It does so on every level, whether micro or macro, local or systemic. In this model the body is seen as being in a constant state of flux moving between viscoelastic and viscoplastic properties. A colloid is a substance or structure that sometimes behaves like a solid, and sometimes more like a liquid. The Dynamic Colloid Fluid Model envisions all aspects of the body – muscle and bone as well as blood and organs – as essentially colloidal in nature. That is, the model sees our body's tissues as capable of dynamically shifting from a more solid to a more fluid state, and back again.

We only have the capacity within a certain range to adapt to and compensate for toxins, inflammations, stressors which can be microbial, metabolic, physical and or emotional in origin and perpetuation. Any trauma, whether local, systemic, or both triggers the ANS, which in turn affects autonomic tone or the normal firmness of body tissue. For example, chronic tension, inflammation, and or a strong single stressor in the muscle or fascia can cause changes in viscosity or rigidity. Even bone, though solid, is dynamic, and trauma to a bone can cause a palpable rigidity. When behaving with more rigidity, bodily tissues can stubbornly retain the imprint of trauma and stress—literally perpetuating inflammation, pain and dysfunction.

After extensive training and experience with craniosacral therapy, visceral manipulation, somatoemotional release, and

myofascial release, as well as psychological theory and other energy therapies, it is my conclusion that these modalities are all influencing the colloiddally reactive infrastructure of the ANS. I further believe that light touch manual therapy positively influences the function of the ANS. Finally, I believe that the state of the extra cellular fluids, controlled by the ANS, and not the individual cell, is the key to health.

What are the further conditions in the organism which enable the results we find?

As I noted above, Enderlein identified the smallest unit in the human organism as a colloid, which he named the protit. He proposed that when there was a change of alkalinity or acidity in the internal environment, it caused a shift in the body's regulation, and the protits would alter in a way that creates dysfunction or disease.

Pischinger then postulated the colloid matrix as a medium in which the attachments of the autonomic nervous system and of the thalamus in all the regulating systems from the brain stem interconnect. So we are looking at a fabric of regulation throughout the organism from the micro to the macro level.

This fabric of regulation supports a number of built-in processes by which the body tends to heal itself.

Let me return here to Hess's demonstration of a parasympathetic response opposite to the fight, freeze, or flight stress responses, which he named the trophotropic response, an innate mechanism that promotes restorative processes. It is an intrinsic part of the human organism to have this code which tells the body how to find its way back home---or in other words, how to get well. Homeostasis, too, is a set of processes which make up part of the human organism's natural inclination to find its way home, to restore an equilibrium that constitutes health.

Even some conditions that are often assigned to the category "bad" bear witness to the body's tendency to restore itself. A fever may appear as the body's attempt to kill a bacterium or virus. Pain is the body's natural inclination to bring awareness to and to protect some aspect of itself that is harmed.

Beyond these instances, all the organs and cells have a regenerative rate.

All these examples and others like them bear witness to an innate "wisdom of the body" that inclines us toward healing.

Of course, it is also true that a genetic or fetal defect may malform the self-regulatory system, as in a constitutionally weak immune system. Or a factor may transform the self-regulatory system so it creates intense homeostasis around a dysfunctional condition, as in auto-immune disorders or in the proliferation of some cancers or addictions. Or the feedback loops governing the stress response may become hyper-sensitive and damage the organism they were formed to protect.

But in the majority of cases the human organism as an open self-regulatory system is equipped for a remarkable degree of resilience.

<sup>15</sup> James L. Oschman, Ph.D. *Energy Medicine: The Scientific Basis* (New York: Churchill Livingstone 2000) 78, 87.

If I start with trust in the wisdom of the body, what does that imply for my role as a practitioner?

I do bring and hold all my learning and experience as a practitioner whenever I work with someone---but I hold it lightly. If I start with a series of pre-fashioned templates and attempt to fit the patient to them, I will only see what comes to visibility through that template. By holding my prior knowing *lightly*, by remaining receptive to the connections that disclose themselves in their own terms, I acknowledge there is a wide open space of possibilities which I and the patient can co-discover. If I hold my prior learning *tightly*, I may make myself work within such a small and specialized construct that if the determining factors of your condition fall outside this small framework, I cannot help you.

It is really the patients that give me the decisive guidance. I access that guidance by getting out of the way of their processes and acknowledging that the most effective healing occurs as I come to know and cooperate with those processes. When I do the body scan or palpation scan, I am attracted to the levels of rigidity in the body. Using energetic non-force manipulation therapies, I begin to facilitate a change in those areas. It is like the first statement in a conversation that I, or rather I and the patient, are beginning to hold with the rigidity. Its response tells us something which guides our next step. This conversation between me and the patient and between both of us and the patient's somatic responses is a sort of somatic free association. I'm open and follow what emerges in the patient's process and at the patient's rate and the patient's time.

We may start, as in the case I mentioned at the beginning, with a presenting physical problem. I pace the patient. I listen to whatever response on whatever level arises from and for the patient at each step, open to what unfolds in the process of treatment. It may be something aligned or unaligned with the patient's original understanding of her or his problem. This points to what I think is the biggest problem we all suffer from: we do not know ourselves as well as we think we do...ever. In the title of a popular book about relationships, *You're Never Upset* (I would say *Often Not*) *for the Reason You Think*.

If, as in the case I reported, unremembered sexual abuse comes up for the patient, it is not because I suggested it. It's going to be something that as the unfolding treatment works through the patient's adaptations and compensations and she feels safe with me, arises spontaneously. This way of healing is open to the prospect of working on your neck pain or abuses you have had or your belief system---on what the patient's process needs at this point.

There is a particular way of knowing that guides this form of healing. If I begin by telling myself I'm doing visceral manipulation, fascial release, psycho-emotional work, all these different works that are considered separate from each other, I again impose a template. I'm more likely to be able to

help a patient if I begin with a receptive connectedness, a sort of empathetic identification with the patient and her or his process and let it guide me.

I certainly do not dismiss the discoveries of allopathic medicine. Given the number of people to be treated, the amount that is known, and the time available to physicians, it is hard to see how medical treatment could be delivered otherwise. But these methods are incomplete. The form of treatment I am describing here has its own powers of disclosure and healing in cases where conventional medicine has been unable to succeed.

The question for those of us who want to credential to the larger medical community the forms of medicine I have described above is this: using the methods of verification they accept can we persuade those who practice conventional medicine that the forms of healing I have described above are effective, in some cases more effective, than those conventional medicine already ratifies?

### Study Subject and Design

The study subject was a fifty-two year old female who self-referred to the clinic for the evaluation and treatment of a chronic cervical dysfunction with an associated myofascial pain syndrome affecting the cranial, cervical, and postural musculature. Her past medical history included lyme disease, diagnosed in 1990, symptoms resolved 1992; hypoactive thyroid diagnosed in 1987, treated conventionally 1987-1997, resulting in normal range laboratory tests; homeopathically treated in 1997 to 2001 with good results. She had four motor vehicle accidents, 1967, 1982, and 1987 resulting in untreated injuries, 1992 with severe hyperextension injury. Multiple doctors, chiropractors, and physical therapists have treated her with poor results.

The patient complained of a history of intestinal problems and chronic motion sickness since the early 1970's. She reported that since the onset of the Lyme disease she fatigued quickly, was short tempered, had periods of confusion or "mind fog" and episodically experienced mild to moderate feelings of depression. Surgical history included: two D & Cs in 1970's, tubal ligation 1976, hysterectomy 1989. Since 1997 she has been taking a natural compound of estrogen and progesterone.<sup>16</sup>

The patient was in treatment every week from 10.30.96 to 1.3.99 for dystonia when, because of her level of improvement, she was put on a maintenance appointment schedule of every 2 to 4 weeks. This patient was chosen for the study when she experienced an exacerbation of symptoms with a pain level of 4-7 out of 10, as well as for her history of compliance to all previous treatment and her past attendance reliability. Dates of treatment during the experiment were 6.12.00\*, 8.11.00\*, 10.25.00\*, 11.10.00, 12.6.00\*, 1.17.01, 2.14.01, 2.28.01, and 3.1.01.

<sup>16</sup> Ron Murray PT, ND, Dr. of Integrative Medicine and Others. Study Subject's Medical Chart (Chevy Chase DC: National Integrated Health Associates in progress 5/8/01) History and Body Mind Sections.

## Setting

The study was carried out in two examination rooms at an integrated health center in Washington, DC. The pre and post-tests were administered in the smaller, more austere of two examination rooms and took approximately 10 minutes for the HRV on each occasion. The hour-long treatment was given in the second room that was pleasantly furnished with comfortable chairs, pillows, blankets, soft lighting, and an electronic treatment table.

## Test Equipment

The Heart Rate Variability (HRV) is a functional assessment tool that is composed of two parts: the Nerve Express System and the Health Express System. The first section, the Nerve Express System, provides a quantitative assessment of the state of arousal of a person's autonomic nervous system. The second section of the HRV functional assessment, the Health Express System, automatically determines the functional state of the person being tested and compares it to standard norms.<sup>17</sup>

**Nerve Express System:** In the analysis of HRV, the Nerve Express System uses an easy to interpret visual representation of Heart Rhythm called Method of Rhythmography. Rhythmography, developed in 1967, measures the heart's beat-to-beat variability (R.R.) or the time between each beat. In short, the greater and more rhythmic the variability is the healthier and more responsive the ANS. A graph of the time interval between each sequential beat presents a curve-specific, wave portrait of an individual's heart rhythm.<sup>18</sup>

The nerve express evaluation requires data measurements under at least two different conditions. The conditions used by the Nerve Express are to gather data from the patient when supine, during the transition to upright, and when upright. The machine uses a simple provocation test called the Orthostatic Test and gathers data as the patient shifts from a supine to an upright position. The data gathered during this small challenge to the autonomic nervous system will reveal autonomic dysregulation.<sup>19</sup>

**Health Express System:** The second section of the HRV functional assessment test is called the Health Express System. It automatically determines the functional state of the person. With this system it is possible to obtain both qualitative and numerical data of a person's functional state based on a mathematical analysis of the HRV wave structure. This wave structure or portrait is a unique reflection or "snapshot" of the body's regulating process at the time of testing.<sup>20</sup>

The Health Express system defines the functional state of the person through the results of an orthostatic test. The functional state is defined as the ability and ease with which a person performs habitual functions. In other words, the state of our functioning sets the parameters for our ability to perform in different activities and also for the ease in which we carry out those activities. As with the Nerve Express, analyzed data involves two testing parameters: The first is data collected with the patient in a supine position and the second is data collected with the patient in the orthostatic or upright position.<sup>21</sup>

**Transitional Data:** The center strip of the Rhythmogram represents the transitional process (RR intervals from 192 to 256). A primary goal of measurement during the transitional process is to gather certain data from the end ranges of the Heart Rate Index, which indicate the subject's minimum and maximum functioning levels. The gathered data allows for a greater degree of accuracy in determining the levels of all parameters of the transitional period.<sup>22</sup>

## Methods

First, the HRV was administered. After being hooked up the patient lay down for the first four minutes of the testing run. She was then prompted by a computer sound to stand up for the last four minutes of the test, after which the computer would sound another reminder and the technician would unhook the equipment.

After an hour of treatment with the researcher, the testing regimen was repeated. Unbeknown to the researcher until the case study was completed, during 4 of the 9 dates (those marked with an asterisk) the HRV machine was not available so data was not gathered. This inconsistent data collection seriously affected the research outcomes and precluded planned statistical analysis. However, as I will argue below, the data is meaningful enough to support further study.

## The Treatment Modalities

Four modalities were used in blended and differing configurations during each treatment session, selected to address the areas of concern the patient brought to each session. Because of this treatment approach it would be impossible to specify exactly the details of each session for the purpose of replication. However, any practitioner trained and experienced in these modalities could emulate the sessions with other patients. All the techniques used were non-thrust, light touch, hands on manipulations. Although these modalities are conceptualized and described below as distinct, in reality the practitioner moved in and out of the techniques as appropriate to enhance the body's innate healing abilities.

<sup>17</sup> Quantitative Assessment of the ANS Based on an Analysis of Heart Rate Variability. (Metuchen NJ: Heart Rhythm Instruments Inc. 2002) 1-2. <sup>18</sup> Thomas Bigger Jr. MD. "letter to Dr. Alexander Riffine PhD," 5 June 1998, with report attached from The Research Holter Lab Columbia U. "A Comparison of Nerve Express and Chronos Algorithms" 1. <sup>19</sup> K. Jauregui-Renaud, AG Hermosillo, MF Marquez, F. Ramos-Aguilar, M. Hernandez-Goribar, M. Cardenas "Repeatability of Heart Rate Variability During Simple Cardiovascular Reflex Tests on Healthy Subjects" Arch Med Res 32:(1): 21-26. <sup>20</sup> Quantitative Assessment of the ANS Based on an Analysis of Heart Rate Variability. (Metuchen NJ: Heart Rhythm Instruments Inc. 2002) 6. <sup>21</sup> Ibid 16-17. <sup>22</sup> Ibid 17-18.

**Craniosacral Therapy:** An underlying theory of osteopathy is that the bones in the head move in rhythmic coordination with the dural tube and the sacrum and that this rhythmic movement forces the cerebral spinal fluid to flow up the dural tube and over the brain, washing it with essential nutrients about every 8 to 10 seconds. This process is called the CranioSacral Mechanism. CranioSacral Therapy treats any imbalance and/or restriction in the CranioSacral Mechanism. Imbalances and restrictions can cause many adverse symptoms from chronic pain to mood changes to cognitive problems.<sup>23</sup>

**SomatoEmotional Release:** SomatoEmotional Release is a therapeutic process aimed at ridding both the body and the mind of residual effects of traumatic injury or negative experience. During the treatment session, the practitioner assists the patient to identify, re-experience and release any energy cysts that may have formed during the original traumatic event. Energy cysts can be thought of as tightly bound pockets of energy patterns formed at the time of trauma that can cause chronic pain, inhibit emotional expression, create illogical fears, and reduce physical performance.<sup>24</sup>

**Myofascial Release:** The fascia is a slightly mobile; continuous from head to toe, laminated sheath of connective tissue that surrounds all organs and structures of the body. Myofascia refers to the tough bands of connective tissue that hold muscles in place and attach the muscles to bones and tendons. Physical and emotional stress can cause the fascia to tighten, which in turn may create restriction and pain in all that it surrounds. Targeted gentle manual manipulations brings the myofascia back into proper tone, shape, and relationship to all that it surrounds, alleviating pain in the process and helping the craniosacral system to function optimally.<sup>25</sup>

**Visceral Manipulation:** Visceral fascia supports the organs (viscera) as well as other structures of the body. Strains in the visceral fascia can cause restrictions, which inhibit both mobility and motility on and between the organs, in the craniosacral mechanism, structural alignment, and/or fascia systems. Precisely directed gently applied manipulations helps release the restrictions of the individual organs, the system these organs function within, as well as the structural integrity of the entire body.<sup>26</sup>

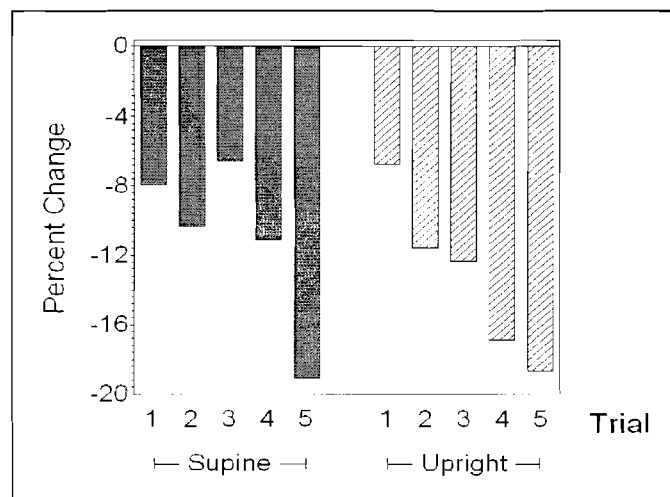
## Results

Analysis of HRV results utilizing data from the Nerve Express and Health Express systems reveals changes in pre and post-treatment data over the course of the study. Although all parameters showed some change, upon more careful review of the data it is apparent that the most clinically significant changes between pre and post treatment measurements occurred in Heart Rate (HR), Chronotropic Myocardial Reaction Index (Ch MR), Tension Index (TI), and Parameters of Optimal Variability (POV) [see *Table 1*].

Parameter	Trial 1		Trial 2		Trial 3		Trial 4		Trial 5	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Ch MR	0.76	0.69	0.75	0.69	0.81	0.73	0.7	0.74	0.93	0.75
Supine HR (bpm)	63	58	58	52	61	57	63	56	68	55
Upright HR (bpm)	74	69	69	61	73	64	77	64	75	61
Supine POV	19	19	13	13	15	17	18	31	8	30
Upright POV	11	18	12	26	12	15	6	17	12	13
Supine TI (Hz)	71	43	91	0	103	66	72	25	189	33
Upright TI (Hz)	97	38	98	38	125	87	170	70	140	120

Table 1: Pre and Post-Treatment HRV Results

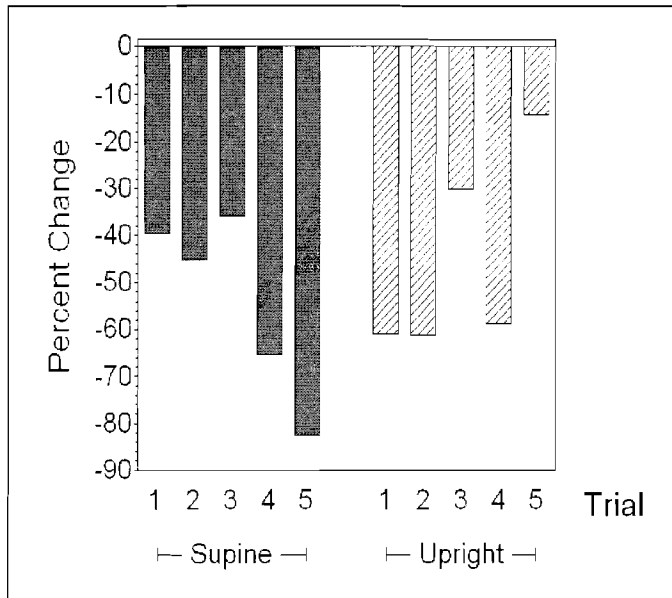
Analysis of heart rate measured both when the patient was in the supine and upright positions shows a reduction in heart rate between pre and post-treatment testing from 4 to 14 beats per minute over the course of five treatments. This translates to a greater than 10% reduction for 3 of the supine trials and 4 of the upright trials. For Trial 5 the percent reduction in heart rate was greater than 18% in both the supine and upright positions. [See *Table 1* and *Graph 1*.]



Graph 1: Percent Change in Heart Rate

Absolute changes in Tension Index from pre and post-treatment when measured in the supine position ranged from -28 to -156 Hz across the 5 trials and from -20 to -100 Hz when measured in the upright position. The 2 largest percent changes in TI occurred in the supine position (-65.3% and -82.5% for Trials 4 and 5) while percent changes in TI seemed to be more consistent in the upright position with percent reductions around 60% for 3 of the trials. [See *Table 1* and *Graph 2*.]

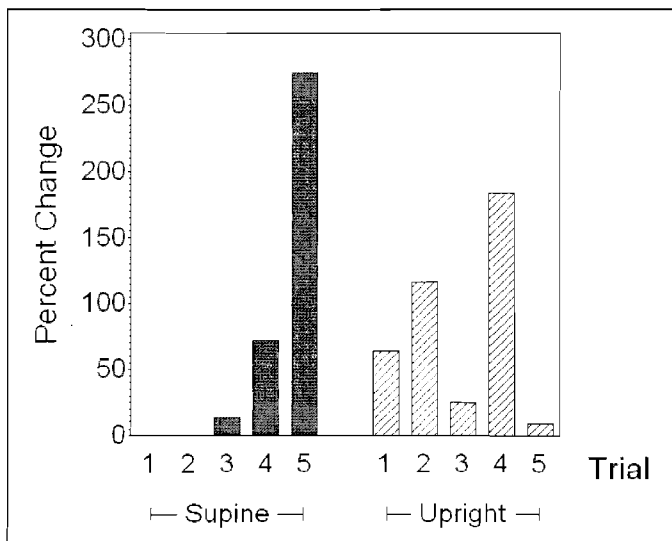
<sup>23</sup> John E Upledger DO, "The Energy Cyst: Part I" *Caduceus* 6 (1991) 34. <sup>24</sup> John E. Upledger D.O., *Your Inner Physician and You* (Berkeley: North Atlantic Books and Palm Beach Gardens: UI Publishing, 1997) 77-82. <sup>25</sup> Robert Calvert "John Barnes: Founder of Myofascial Release, Part II" *Massage* 42 Mar/Apr (1993) 12-13. <sup>26</sup> Ronald S. Murray PT, ND, Dr. of Integrative Medicine, "Visceral Manipulation," *The Medical News* (Suburban MD), January 1999: A5.



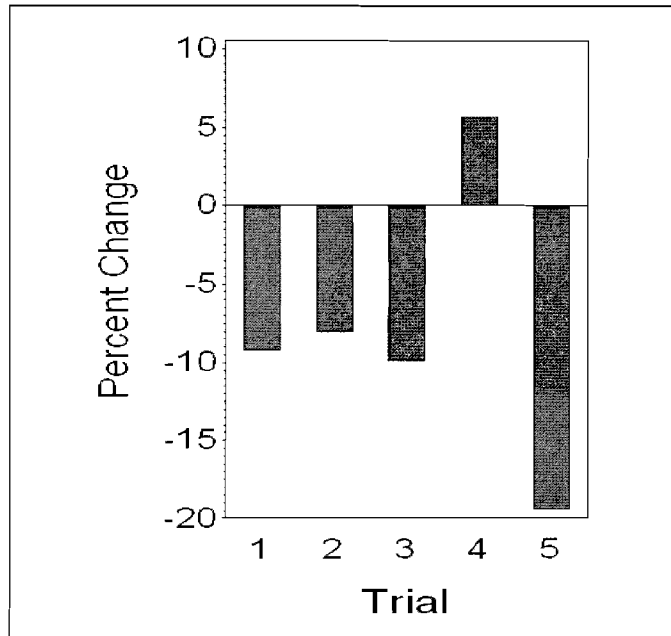
Graph 2: Tension Index

Changes in the Parameters of Optimal Variability from pre and post-treatment did not occur in the supine position until Trial 3. However, the absolute change was 22 in Trial 5. This translates to a 275% increase in POV in the supine position in the 5<sup>th</sup> trial. Absolute changes in POV in the upright position ranged from 1 to 14 over the 5 trials. Two of the largest percent changes in POV in the upright position were 116.6% (Trial 2) and 183.3% (Trial 4). [See Table 1 and Graph 3.]

Absolute changes in Chronotropic Myocardial Reaction Index ranged from an increase of 0.04 in Trial 4 to a decrease of 0.18 in Trial 5. For Trials 1 through 3 the percent changes in Ch MR were between -8% and -10%, while the percent change in Ch MR was down to -19.4% for Trial 5. [See Table 1 and Graph 4.]



Graph 3: Percent Change in Parameters of Optimal Variability



Graph 4: Percent Change in Chronotropic Myocardial Reaction Index

**Discussion**

The outcome of the research was seriously constrained due to the problem of having limited numbers of trials with the HRV data. In addition, the study subject had an emergency and missed three sessions so the planned test cycle pattern of every two weeks for twelve weeks was irreparably disrupted. However, some interesting and suggestive results emerged indicating that treatments positively affected the subjects ANS between the pre and post-testing cycles.

For any replication it is important to ensure that the testing equipment is reliably available. Two other changes in design could be made. It would be advisable to work with a number of subjects to be able to make statistical comparisons as well as to have a back up if one subject is unable to fulfill the original time commitment. The results would also constitute a case series for purposes of comparison. 🌸

*About the Author*

Ron Murray is a Physical Therapist, Naturopath, and holds a Doctorate in Integrative Medicine. He is the director of The Asclepeion Center of Body Mind Medicine in Silver Spring MD. He has been on the faculty of The Capitol University of Integrative Medicine for over 5 years where he has taught the colloid fluid Model<sup>®</sup> approach to CranioSacral Therapy. His mentors include Dr. John Upledger who, among others taught him advanced form of body mind work. Maria Gabrielle has mentored him in Darkfield Microscopy. He has taken extensive coursework from Dr. Konrad Werthmann, Dr. Thomas Rau, Dr. Kirk Segal, and is currently attending The Paracelsus Biological Medicine Network's two-year curriculum of Paracelsus Biological Medicine. His passion is synthesizing the conceptual frameworks of energetic and biological medicines and their influence on the ANS.