

## **Six Weeks of Esoteric Connective Tissue Therapy improves measures of Wellbeing, Functional Capacity and Pain Levels, which last up to six months following treatment**

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**Purpose:** To investigate whether six weeks of Esoteric Connective Tissue Therapy influences subjective measures of general wellbeing, functional capacity, pain levels and the craniosacral pulse (cycles per minute). Also to investigate whether the craniosacral pulse is related to general wellbeing, functional capacity or pain levels.

**Background:** In the last ten years in our clinic we have detected and well documented increases in the craniosacral pulse of up to three cycles per minute following a 45 minute treatment of Esoteric Connective Tissue Therapy. The exact mechanisms of the therapy or the associated increases in craniosacral pulse have never before been scientifically measured, and it was not the purpose of this study to do so. Instead, it is of much greater impact for the health care and treatment of humanity to identify measurable health and wellbeing benefits of Esoteric Connective Tissue Therapy, and determine whether such benefits are maintained following a program of treatment. Also to gain a greater understanding as to whether any benefits are in any way related to an increase in the craniosacral pulse observed throughout Connective Tissue Therapy.

The craniosacral rhythm is the movement of the cerebro-spinal fluid up and down the spine and into and out of the brain and skull. The fluid continues at a consistent rhythm called a pulse, to deliver the cerebro-spinal fluid needed to support the brain and spinal column to function efficiently. Including the removal of waste products from the central nervous system and the delivery of nutrients and biochemical mediators to run a healthy and vital nervous and endocrine system. These two systems both manage the rhythm and function of all other physiological systems throughout the body, including the circulatory, digestive, immune, lymphatic, muscular, reproductive, respiratory, skeletal and urinary systems and all associated organs.

In the last 40 years there have been a number of studies investigating the presence of the craniosacral rhythm and it's functions and mechanisms. Such research has found; the craniosacral pulse to range between 4 and 14 cycles per minute in apparently healthy adults (1); that the craniosacral pulse is independent of breathing and heart rate (2,3); that an increase in intra-cranial pressure is associated with decreases in the craniosacral pulse (4); and that the craniosacral pulse decreases during short-term maximal physical exertion (5). Although it is evident that the craniosacral pulse varies greatly amongst individuals, there appears to be little research investigating whether this variance has any influence on physiological function, mental health, pain levels, physical fitness or even the healthy function of organs and physiological systems.

The number of cycles per minute that an individual holds is extremely important, if the total volume of cerebro-spinal fluid that moves up and down the spine and around the brain is also considered, which is approximately 150-160 milliliters (6). Given that two adults of approximately the same age, gender and body mass can have a craniosacral pulse that is six cycles per minute different (i.e. 6 or 12), this would be quite a significant difference in the amount of cerebro-spinal fluid that is moving into and out of their brain. For example, an individual with 12 cycles per minute experience 360 pulses more pulses per hour that an individual with six cycles per minute, which is the movement of approximately 54 liters more of cerebro-spinal fluid per hour, delivered to the brain and spinal column. This is also equivalent to 8640 pulses more per day and 1,296 liters more per day. When considering the significant physiological functions of the cerebro-spinal fluid, it is reasonable to suggest that such a reduced movement in cerebro-spinal fluid per day must in one way or another influence the function of the nervous and endocrine systems and in turn all organs.

This research investigated whether six weeks of Esoteric Connective Tissue Therapy influences general wellbeing, functional capacity of daily activities, pain levels and the rate of the craniosacral pulse. Also whether there are any relationships between the rate of the craniosacral pulse and general wellbeing, functional capacity and pain levels.

**Research Design:** Fifty adult men and women presented with a moderate level of musculoskeletal pain, which was felt on a daily or weekly basis anywhere throughout their body. Each person participated in six weeks of Esoteric Connective Tissue Therapy, one session per week. Craniosacral pulse (cycles per minute) were monitored weekly throughout the treatment, both at the beginning of every session (pre-treatment) and the end of every session (post-treatment). Four values of the craniosacral pulse are reported in this paper; i. pre-treatment week-1 ii. post-treatment week-1, iii. pre-treatment week-6, and iv. post-treatment week-6. Subjective measures of general wellbeing, functional capacity of daily activities, and pain levels were assessed at week-1 of treatment, week-6 of treatment and 6-months following the completion of treatment. Participants were asked to make no changes to their usual treatment (medication or counselling) throughout the duration of the program.

### **Testing and Treatment Methods:**

**Esoteric Connective Tissue Therapy** consisted of six gentle hand techniques placed on various parts of the body, (e.g. ankles, skull and jaw). Identical techniques were performed in each session. The Esoteric Connective Tissue Therapy was founded by Serge Benhayon. The techniques are taught by Serge Benhayon, Universal Medicine.

**The Craniosacral Pulse** was measured using gentle hand techniques at the skull to measure the time of expansion and relaxation of the cranio-plates in the skull, as the craniosacral fluid moves in and out of the skull in a cyclic rhythm. The pulse was determined as 60 seconds divided by the time for the plates to expand, (i.e. plates expand in 6 seconds;  $60/6 = 10$  cycles per minute). Although the hand measurement techniques of the craniosacral pulse may be considered less reliable than using MRI or other scientific equipment, the hands on technique are beginning to be recognised as a reliable and repeatable technique (5). To ensure maximum reliability and repeatability the one practitioner completed all craniosacral pulse testing and Esoteric Connective Tissue Therapy treatment.

**General wellbeing** was measured using the General Wellbeing scale (GWB), which is a series of 18 questions related to general wellbeing. The GWB scale is an index of general subjective psychological wellbeing as related to physical and mental health and life circumstances, and is considered one of the most valid and reliable indices of overall life satisfaction in clinical research (7).

**Functional capacity** of daily activities was determined by the Quebec Back Pain Disability Scale which provided an overall disability score ranging from 0 to 100, 0 being no disability, 100 being complete disability. The final score is determined through a series of 20 questions that identifies capacity or ability to complete general activities of daily living. The Quebec Scale has been determined to be a reliable and valid assessment for monitoring the change and progress of patients participating in treatment of rehabilitation programs (8).

**Visual analogue pain scale** is a reliable, valid and well established method of documenting pain levels in both scientific and clinic settings (9). A visual analogue scale (VAS) is a horizontal line of 10 cm in length, with two word descriptions at either end, i.e. no pain and very severe pain. The individual then marks on the line the point that they feel best represents their perception of their current state. Their level of pain out of 10 is then determined with a ruler, with each level measured as 1 cm.

**Data Analysis:** Means ( $\pm$  standard deviation) values were calculated for physical characteristics (age, heights, body mass) and each test variable (general wellbeing, functional capacity, pain levels and craniosacral pulse). A within-within design repeated measures ANOVA was used to determine any differences in each variable across testing periods (i.e. week-1, week-6, 6-months). Correlations among variables were investigated using Pearsons Correlation Coefficients. All statistics were determined using SPSS software, version 20, with statistical significance accepted at  $P < 0.05$ .

## Results:

### Group Characteristics

There were more women than men in the study, as seen in table 1, however there were no significant differences in age, height and weight between the two groups and both men and woman were grouped together for the overall research.

Table 1. Group numbers and physical characteristics of participants in Esoteric Connective Tissue Therapy research.

	Whole Group	Males	Females
Number of people (n)	50	15	35
Age (yr)	50 ± 11	49 ± 12	51 ± 11
Height (cm)	170 ± 8	178 ± 5	167 ± 6
Body Mass (kg)	70 ± 14	79 ± 12	65 ± 13

Values presented are group mean ± standard deviation.

### General Wellbeing

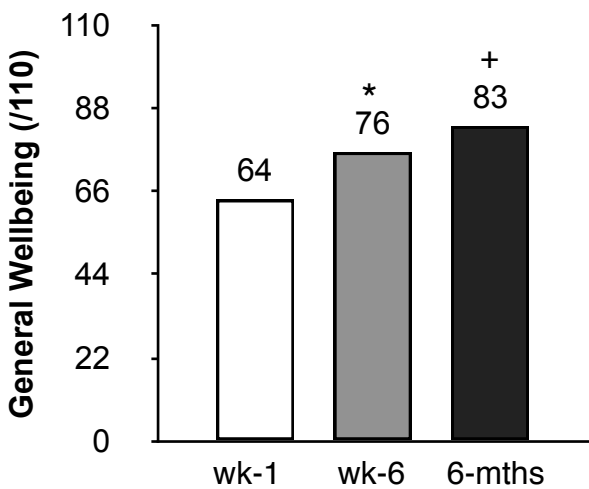
The group average for general wellbeing prior to the Esoteric Connective Tissue Therapy (week-1) was 64 (±18) out of 100, as seen in Figure 1. This increased significantly following six weeks of treatment to 76 (±19) (week-6) and continued to increase to 83 (±16) 6-months following the treatment period, which was a statistically significant increase when compared to week-6. These findings suggest that the six weeks of Esoteric Connective Tissue therapy had a positive influence on general wellbeing, which lasted up to 6-months following treatment.

### Functional Capacity

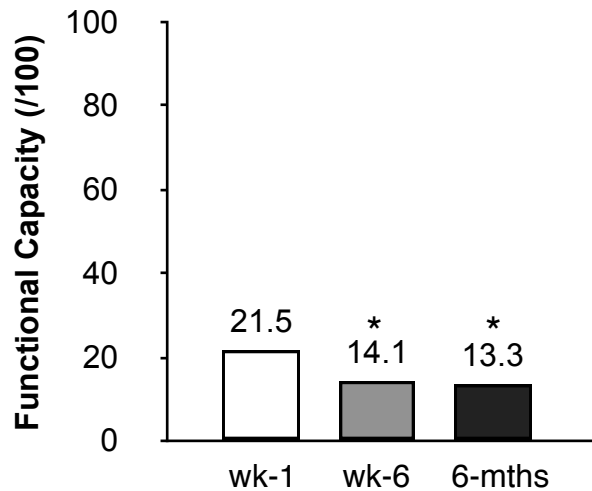
The group average for functional capacity prior to the Esoteric Connective Tissue Therapy (week-1) was 21.5 (±15.4), indicating that on average each participant had a disability measure of approximately 20/100 (0 being no disability, 100 being complete disability). Functional capacity improved significantly following six weeks of treatment to 14.1 (±13.3), as seen in Figure 2. This indicates that following six weeks of Esoteric Connective Tissue Therapy on average each participants functional capacity was greater following treatment. This improvement in functional capacity was maintained six months following treatment, as seen with a 6-month value of 13.3 (±15.3), which was significantly different to starting values (week-1).

### Pain Levels

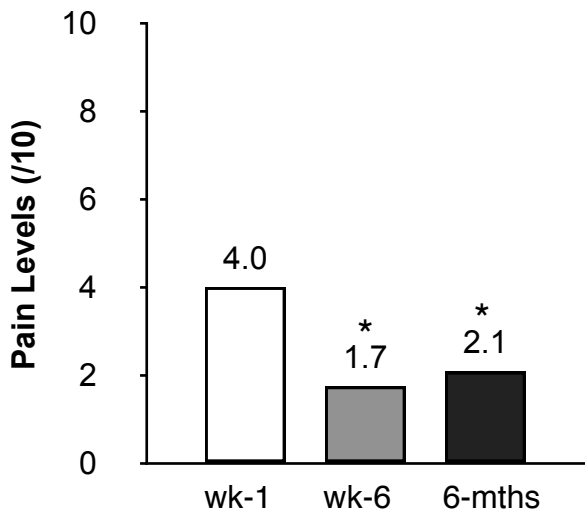
The group averages for Visual Analogue Pain Scale (Pain Levels) prior to Esoteric Connective Tissue Therapy (week-1) was 4.0 (±1.9), which is considered moderate pain on a daily basis. As seen in figure 3, pain levels decreased significantly following the six weeks of treatment to 1.7 (±1.6). This indicates that following six weeks of Esoteric Connective Tissue Therapy each participants pain level was approximately halved. This decrease in pain was maintained six months following treatment, as seen with a 6-month value of 2.1 (±1.9) that was still approximately half and statistically less when compared to week-1.



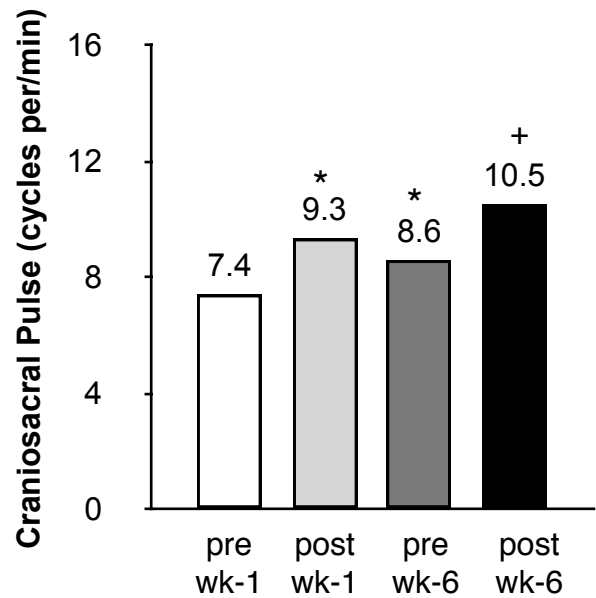
**Figure 1.** General wellbeing scores pre week-1, week-6 and 6-months post six weeks of Esoteric Connective Tissue Therapy. Values presented are group means. \*Significantly different to Wk 1, + Significantly different to Wk 6, P < 0.05.



**Figure 2.** Quebec disability scale (functional capacity) pre week-1, week-6 and 6-months post six weeks of Esoteric Connective Tissue Therapy. Values presented are group means. \*Significantly different to Week 1, P < 0.05.



**Figure 3.** Visual Analogue Pain Scale pre week-1, week-6 and 6-months post six weeks of Esoteric Connective Tissue Therapy. Values presented are group means. \*Significantly different to week 1, P < 0.05.



**Figure 4.** Craniosacral Pulse pre-treatment week-1, post-treatment week-1, pre-treatment Week-6 and post-treatment Week-6 during six weeks of Esoteric Connective Tissue Therapy. Values presented are group means. \*Significantly different to pre Week-1. +Significantly different to post Week-1, P < 0.05.

### Craniosacral Pulse

The group average craniosacral pulse prior to Esoteric Connective Tissue Therapy (pre week-1) was 7.4 ( $\pm 0.1$ ). The average craniosacral pulse increased significantly following the first treatment session to 9.3 ( $\pm 0.4$ ), as seen in Figure 4. This indicates that following only one treatment session the craniosacral pulse was increased on average by two cycles per minute in each participant. The craniosacral pulse pre-treatment for the final treatment (week-6) was 8.6 ( $\pm 0.7$ ), which is significantly greater (1.2 pulses per minute) than pre-therapy. This indicates that participants were arriving at their final treatment sessions with an average craniosacral pulse 1.2 pulses per minute greater than their initial values six weeks earlier. The craniosacral pulse continued to increase following the final treatment in week-6 to 10.5 ( $\pm 0.6$ ). The craniosacral pulse was not measured 6 months post treatment.

### Correlations

The results of the correlation analysis between the craniosacral pulse and all other variables (general wellbeing, functional capacity and pain levels) are presented in Table 2. There were significant correlations (negative) between the craniosacral pulse pre-treatment week-1 and functional capacity at week-1. This suggests that participants who had higher craniosacral pulses were more likely to have lower functional capacity values (0 being fully functional, 100 being disabled). Or participants with a higher starting craniosacral pulse presented with greater functional capacity than those with lower craniosacral pulses. Significant correlations (negative) were also observed between the pre-therapy craniosacral pulse at week-1 and pain levels at week-1. Again this suggests that participants who presented with a higher starting craniosacral pulse were likely to have lower pain values than those who presented with a lower craniosacral pulse. This significant relationship between the craniosacral pulse and pain levels was also evident at week-6 of treatment.

Table 2. Pearson’s correlation coefficients determined between the craniosacral pulse (pre-treatment week-1 and pre-treatment week-6) and general wellbeing, functional capacity and pain levels at week-1, week-6 and 6 months post six weeks of Esoteric Connective Tissue Therapy.

		Craniosacral Pulse Pre treatment week-1	Craniosacral Pulse Pre treatment week-6
Wellbeing week-1	r =	0.164	0.146
Wellbeing week-6	r =	0.228	0.276
Wellbeing 6-months	r =	0.051	0.182
Functional week-1	r =	-0.316 *	-0.301 *
Functional week-6	r =	-0.290 *	-0.273
Functional 6-months	r =	-0.259	-0.116
Pain levels week-1	r =	-0.371 *	-0.194
Pain Levels week-6	r =	-0.440 *	-0.422 *
Pain Levels 6-months	r =	-0.134	-0.053

Functional = Functional Capacity; r = pearson’s correlation coefficient. \* Significantly correlated, P < 0.05.

## **Discussion:**

Following six weeks of Esoteric Connective Tissue Therapy there were statistically significant improvements in measures of wellbeing, functional capacity and pain levels. These improvements lasted up to six months following the six weeks of Esoteric Connective Tissue Therapy, without any ongoing structured treatment. These findings suggest that Esoteric Connective Tissue Therapy not only supports improvements in general wellbeing, functional capacity and pain levels, but establishes a new foundation for each client to hold on their own, without any ongoing treatment. Further, general wellbeing was not only maintained 6 months following treatment, but continued to increase significantly when compared to the completion of treatment. This suggests that not only are new levels of general wellbeing maintained six months after treatment, but a positive momentum is created to continue to improve.

The craniosacral pulse increased an average of two cycles per minute after each treatment. It was evident that these increases were not completely held until the next weekly treatment session, but instead dropped a little. However, a positive momentum was created with weekly sessions such that by the end of five weeks of treatment each participant walked into their final session with an average craniosacral pulse of 1.2 cycles per minute greater than their starting values. The craniosacral pulse was not measured six months following the six weeks of Connective Tissue Therapy so it is unclear how well the increases were maintained.

An increase in craniosacral pulse of 1.2 cycles per minute may not seem significant, but physiologically this is 1,728 more pulses per day, or approximately 260 more liters of cerebro-spinal fluid movement around the spine and brain each day. No previous research has investigated the scientific or physiological differences between a low and high craniosacral pulse. However, the present study suggests that there may be greater physiological function or mental health with higher craniosacral pulses, as indicated by the improvements in wellbeing, functional capacity and pain levels that occurred alongside the increases in the craniosacral pulse. Secondly, negative correlations were also observed in the starting craniosacral pulse (pre-treatment week-1) and starting measures of wellbeing and pain levels. This suggests that those with a lower craniosacral pulse were more likely to experience reduced functional capacity and greater pain levels, and those with a higher craniosacral pulse are more likely to have greater functional capacity and reduced pain levels. This supports the possibility of a relationship between an individual's craniosacral pulse and their functional capacity and pain levels.

The intent of this study was not to provide greater scientific evidence, understanding or discussion about Esoteric Connective Tissue Therapy, the craniosacral pulse or any associated physiological mechanisms and functions, as this is a vast topic way beyond this study. However, of much greater benefit to the direct public and humanity, this study intended to bring to the forefront the possibility that Esoteric Connective Tissue Therapy and the rate of the craniosacral pulse may be very significant counterparts in general health, wellbeing, pain levels and possibly even vitality.

## **Conclusion:**

The present study found that measures of general wellbeing, functional capacity and pain levels were improved following six weeks of Esoteric Connective Tissue Therapy. These improvements were still present six months following treatment, without any ongoing or structured treatment. Further, general wellbeing continued to increase in the six months after treatment, indicating that not only did the six weeks of therapy improve wellbeing, but established a new foundation or rhythm for each participant to continue to improve from. Increases in craniosacral pulse ranging from one to three cycles per minute were also seen following the six weeks of therapy. Further, significant relationships were observed between the rate of the craniosacral pulse and general wellbeing and pain levels. Suggesting that individuals with higher craniosacral pulses (10-11 cycles per minute) are more likely to experience greater wellbeing and reduced pain levels when compared to individuals with lower craniosacral pulses (7-8 cycles per minute).

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