

# **Evaluation of the Network Spinal Analysis Treatment Using the Retrospective Pretest-Posttest Method**

Theodore A. Lamb and Michelle A. Slattery

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Peak Research, LLC, 7712 Eastwood Road, Colorado Springs, CO 80919

Phone: (719) 598-9038 Email: [peakresearch@usa.net](mailto:peakresearch@usa.net) website: [www.peak-research.net](http://www.peak-research.net)

Network Spinal Analysis (NSA) is a light touch treatment method offered by some Chiropractically-trained Doctors in the United States and abroad. There has been little research done on the effectiveness of the NSA method. One study by Blanks, Schuster, and Dobson (1997) found significant health and wellness improvements.

## **Research Methods**

We used a questionnaire developed by David Epstein that was designed to obtain information on the types of changes in physical state, mental/emotional state, stress, life enjoyment, overall quality of life and general impressions (Epstein, 1996). Epstein (2000) produced a multiple regression model with a number of variables that were used to predict the perceived effectiveness of the method. Our purposes are somewhat different in that we wanted to discover if there were changes in levels of wellness at initial visits to visits after a number of office visits, that is, did the treatment have the intended effect or not.

Our study focuses on the change in perceived wellness by using a data collection technique known as the Retrospective Pretest -Posttest method (Campbell and Stanley, 1963, Lamb, 2005). This method of data collection and analysis was used in order to tap into the perceived changes in wellness in existing practice members who may have been clients for some time and thus had never completed a pretest (or posttest) questionnaire. In previous research (Lamb and Tschillard, 2005) this method has been shown to yield virtually the same results as traditional pretests and posttests. The Retrospective PreTest (RPT) is sometimes preferred because it requires only one data collection event after treatment has occurred. However, it is also useful in studies such as this one in which there are a number of potential subjects (i.e., practice members) who have already been in treatment for some time and thus would not be able to supply traditional pretest information. With the RPT method, subjects (i.e., students, practice members, patients or clients) are asked to provide answers to their levels of knowledge, skill, ability, or wellness BEFORE any treatment, training, or intervention and then NOW, after treatment or training.

The retrospective pretest-posttest methodology has been used successfully in a number of different settings when researchers cannot use standard pretest-posttest methods or want to collect data from subjects who have already been in programs before evaluation data collection has begun. Lamb and Tschillard (2005) found in a study of the effectiveness of professional development for science teachers that traditional pretest-posttest results were almost exactly the same as retrospective pretest-posttest results. Lamb (2005) suggested caution in the use of the methods as well as guidelines in certain cases. Allen and Nimon (2007) found similar results.

Dr. Siow's existing practice members (those who had been visiting the practice for some time when the evaluation research began), were given an anonymous questionnaire (Appendix A) that asked questions on some basic demographic items as well as the items from Epstein's (2000) research questionnaire. The questionnaire was constructed to elicit two answers to each item on the practice members physical state, mental/emotional state, stress evaluation, life enjoyment, and overall quality of

life. The first answer to the items asked what their state was BEFORE they visit Dr. Siow's practice and the second answer asked what their state was NOW or after having a number of visits to the office.

## **RETROSPECTIVE PRETEST AND POSTTEST RESULTS**

Tables 1-10 depict the results of the retrospective pretest–posttest means for each individual item on the different sets of questions on: (1) physical state, (2) mental/emotional state, (3) stress evaluation, (4) life enjoyment, and (5) overall quality of life. There is a second table for each state that presents a graphic of the differences between RPT and posttest means. There is a table of the percentages of responses to five questions about Overall Impressions. Next, two tables at the end of this section contain all of the comments by practice members to two open-ended questions at the end of the questionnaire.

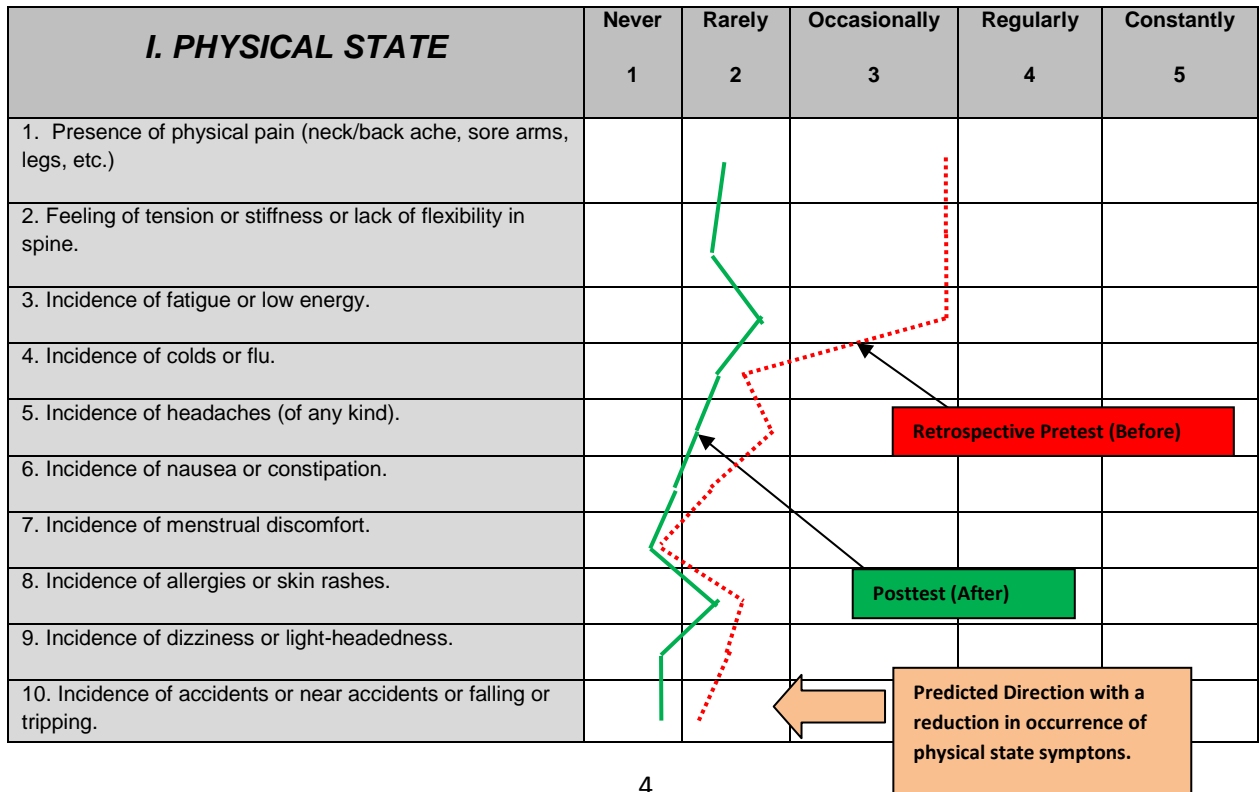
Table 1, as an example, depicts the mean of responses for the “existing” practice members who completed the retrospective pretest and posttest questionnaire. Table 2 contains a graphic of the difference between the RPT and posttest questions. In total, there were five scales used that had attributes relevant to the question being asked such as the frequency of physical symptoms scale that used: 1=never (have the experience), 2=rarely, 3=occasionally, 4=regularly, 5=constantly. Each scale is depicted on each of the tables and in the questionnaires in the Appendices. On the Physical, Mental/Emotional, and Stress scales the scores on the RPT (Before) scales are predicted to be significantly higher than the scores on the Posttest (After) scales. On the Life Enjoyment and Quality of Life Scales we hypothesize that the RPT (Before) scores will be significantly lower than the Posttest (After) scores.

**Overall Demographic Items.** In the retrospective pretest-posttest condition there were 24 females and 6 males. The average age was 47.4 (range = 15 to 71). 13.6% had a high school education, 46.7% were college educated, and 36.7% had graduate degrees. 47% were married, 40% were single, and 10% were divorced and 3% were widowed. They had averaged 45 visits to Dr. Siow's office at the time they completed the questionnaire and averaged approximately 14 months in NSA care.

**Table 1. Physical State Retrospective Pretest and Posttest Means and t-test Results**

<i>I. PHYSICAL STATE</i>	Retrospective Pretest Mean	Posttest Mean	t-test
1. Presence of physical pain (neck/back ache, sore arms, legs, etc.)	3.80	2.50	t=8.12, df=29, p<=.001
2. Feeling of tension or stiffness or lack of flexibility in spine.	3.79	2.48	t=7.59, df=28, p<=.001
3. Incidence of fatigue or low energy.	3.80	2.80	t=5.06, df=29, p<=.001
4. Incidence of colds or flu.	2.47	2.13	t=3.01, df=29, p<=.005
5. Incidence of headaches (of any kind).	2.73	2.10	t=4.08, df=29, p<=.001
6. Incidence of nausea or constipation.	2.33	1.97	t=2.63, df=29, p<=.014
7. Incidence of menstrual discomfort.	1.88	1.75	t=1.367, df=23, p<=.185
8. Incidence of allergies or skin rashes.	2.31	2.07	t=2.25, df=29, p<=.032
9. Incidence of dizziness or light-headedness.	2.20	1.70	t=3.34, df=29, p<=.002
10. Incidence of accidents or near accidents or falling or tripping.	2.17	1.77	t=2.56, df=29, p<=.016

**Table 2. Graphic Plot of the Change in Physical State Symptoms with Retrospective Pretest and Posttest Response Means**



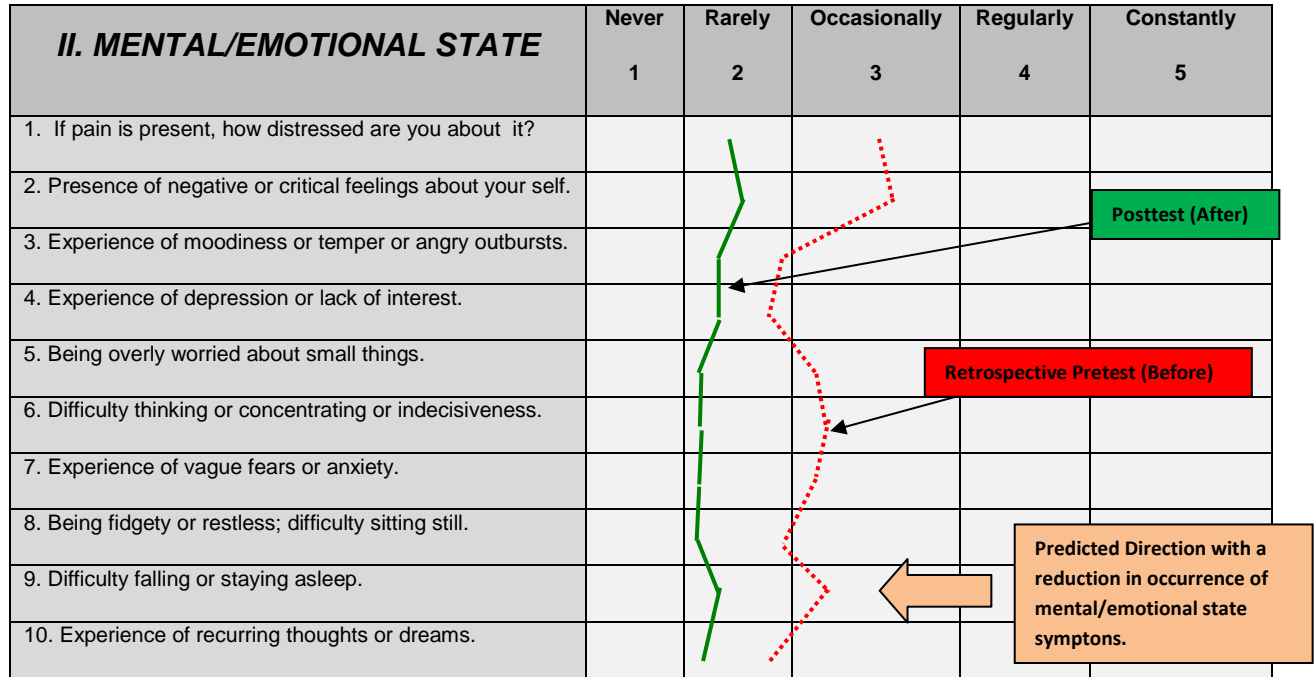
**Physical State Scale Scores Comparison.** The results for the individual items on physical state symptoms are very useful in focusing on where the most change has occurred. Table 3 clearly shows that the posttest scores were lower on all questions. With a significance level of .01 chosen, we see that there were statistically significant differences on questions (1) presence of physical pain, (2) feeling of tension or stiffness, (3) fatigue or low energy, (4) incidence of colds or flu, (5) incidence of headaches and (9) incidence of dizziness or light-headedness. The other questions had lower average scores but were not statistically significant differences. The lack of difference in menstrual discomfort may be due to the smaller numbers (males excluded) and the fact that some women who were post-menopausal indicating no change.

As useful as it is to highlight differences on individual questions, it is also useful to create an overall score for the physical state symptoms by summing the scores for each question to create a Physical State Scale Score. This Physical State Scale has a range of 10-50 (10 items scored from 1 to 5). When these scales are created the Physical State Scale Scores for the Retrospective Pretest and Posttest Scales may be compared. We hypothesize that the RPT (Before) scores will be higher than the posttest (After) scores. The mean Physical State RPT score = 27.06, std. dev. =5.84, n=17. The mean Physical State Posttest Score = 21.00, std. dev.= 3.52, n=17. T-test results comparing these scores were  $t=6.784$ ,  $df=16$ ,  $p<=.001$ , Effect Size = .532. This is statistically significant and indicates that there were significant decreases in the frequency of physical state symptoms in existing practice members when comparing the retrospective pretest responses to the posttest responses.

**Table 3. Mental/Emotional State Retrospective Pretest and Posttest Means and t-test Results**

<b>II. MENTAL/EMOTIONAL STATE</b>	<b>Retrospective Pretest Mean</b>	<b>Posttest Mean</b>	<b>t-test</b>
1. If pain is present, how distressed are you about it?	3.45	2.31	$t=6.15$ , $df=28$ , $p<=.001$
2. Presence of negative or critical feelings about your self.	3.60	2.57	$t=6.36$ , $df=29$ , $p<=.001$
3. Experience of moodiness or temper or angry outbursts.	2.93	2.23	$t=5.11$ , $df=29$ , $p<=.001$
4. Experience of depression or lack of interest.	2.87	2.23	$t=3.74$ , $df=29$ , $p<=.001$
5. Being overly worried about small things.	3.17	2.13	$t=5.31$ , $df=29$ , $p<=.001$
6. Difficulty thinking or concentrating or indecisiveness.	3.20	2.23	$t=5.95$ , $df=29$ , $p<=.001$
7. Experience of vague fears or anxiety.	3.17	2.17	$t=5.59$ , $df=28$ , $p<=.001$
8. Being fidgety or restless; difficulty sitting still.	2.93	2.10	$t=5.54$ , $df=28$ , $p<=.001$
9. Difficulty falling or staying asleep.	3.18	2.29	$t=5.16$ , $df=27$ , $p<=.001$
10. Experience of recurring thoughts or dreams	2.70	2.17	$t=4.32$ , $df=28$ , $p<=.001$

**Table 4. Graphic Plot of the Change in Mental/Emotional State Symptoms with Retrospective Pretest and Posttest Response Means**



**Mental/Emotional State Scale Scores Comparison.** As with the physical state scores we hypothesize a reduction in the occurrence of the symptoms on mental/emotional issues therefore the RPT (Before) scores should be higher than the posttest (After) scores. Table 3 contains the results of the retrospective pretest and posttest means as well as the t values, degrees of freedom, and significance level. Table 4 contains a graphic depiction of the RPT and posttest means for the mental/emotional state questions.

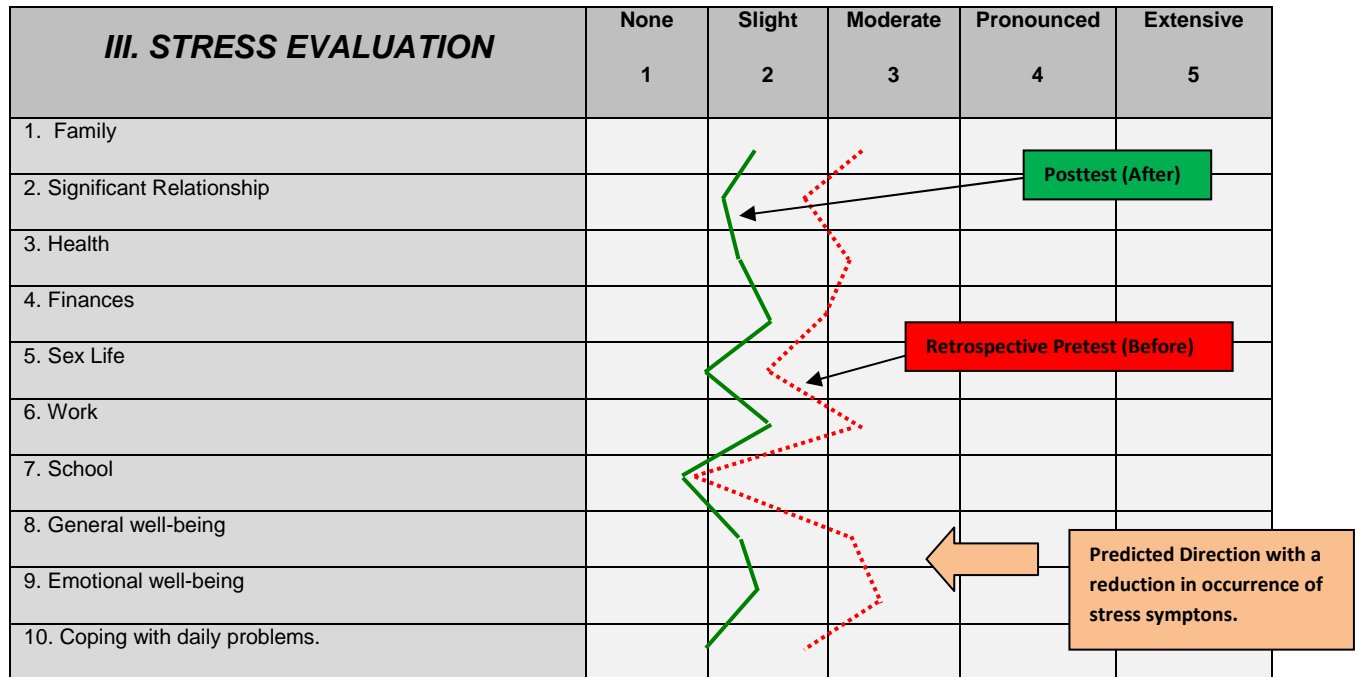
The results for the individual items on mental/emotional state symptoms are very useful in focusing on where the most change has occurred. Although there is some variability, Tables 3 and 4 clearly show that the posttest scores were lower on all questions. With a significance level of .01 chosen, we see that there were statistically significant differences on virtually all questions.

As useful as it is to highlight differences on individual questions, it is also useful to create an overall score for the physical state symptoms by summing the scores for each question to create a Mental/Emotional State Scale Score. This Mental/Emotional State Scale has a range of 10-50 (10 items scored from 1 to 5). When these scales are created the Mental/Emotional State Scale Scores for the Retrospective Pretest and Posttest Scales may be compared. We hypothesize that the RPT (Before) scores will be higher than the posttest (After) scores. The mean Mental/Emotional State RPT score = 32.84, std. dev. =6.66, n =19. The mean Mental/Emotional State Posttest Score = 23.32, std. dev.= 4.26, n=19. T-test results comparing these scores were  $t=6.142$ ,  $df=18$ ,  $p<=.001$ , Effect Size = .648. This is statistically significant and indicates that there were significant decreases in the frequency of mental/emotional state symptoms in existing practice members when comparing the retrospective pretest responses to the posttest responses.

**Table 5. Stress Evaluation Retrospective Pretest and Posttest Means and t-test Results**

<b>III. STRESS EVALUATION</b>	<b>Retrospective Pretest Mean</b>	<b>Posttest Mean</b>	<b>t-test</b>
1. Family	3.10	2.43	$t=3.959$ , $df=29$ , $p< .001$
2. Significant Relationship	2.75	2.11	$t=3.438$ , $df=27$ , $p< .002$
3. Health	3.07	2.27	$t=4.120$ , $df=29$ , $p< .001$
4. Finances	3.00	2.63	$t=2.164$ , $df=29$ , $p< .039$
5. Sex Life	2.56	2.00	$t=4.136$ , $df=26$ , $p< .001$
6. Work	3.25	2.46	$t=4.533$ , $df=27$ , $p< .001$
7. School	1.88	1.71	$t=.899$ , $df=16$ , $p< .382$
8. General well-being	3.17	2.23	$t=4.877$ , $df=29$ , $p< .001$
9. Emotional well-being	3.33	2.33	$t=4.966$ , $df=29$ , $p< .001$
10. Coping with daily problems.	2.87	2.10	$t=3.902$ , $df=29$ , $p< .001$

**Table 6. Graphic Plot of the Change in Stress Evaluation Symptoms with Retrospective Pretest and Posttest Response Means**



**Stress Evaluation State Scale Scores Comparison.** As with the physical state scores we hypothesize a reduction in the occurrence of the stress-related symptoms therefore the RPT (Before) scores should be higher than the posttest (After) scores. Table 5 contains the results of the retrospective pretest and posttest means as well as the t values, degrees of freedom, and significance level. Table 6 contains a graphic depiction of the RPT and posttest means for the stress evaluation questions.

The results for the individual items on Stress Evaluation symptoms are very useful in focusing on where the most change has occurred. Table 5 clearly shows that the posttest scores were lower on all questions. With a significance level of .01 chosen, we see that there were statistically significant differences on questions (1) family, (2) significant relationships, (3) health, (5) sex life (6) work (8) general well-being, (9) emotional well-being, and (10) coping with daily problems. The other questions had lower average scores but were not statistically significant differences. The lack of difference in school may be due to few numbers of practice members in school.

As useful as it is to highlight differences on individual questions, it is also useful to create an overall score for the physical state symptoms by summing the scores for each question to create a Stress Evaluation Scale Score. This Stress Evaluation Scale has a range of 10-50 (10 items scored from 1 to 5). When these scales are created the Stress Evaluation Scale Scores for the Retrospective Pretest and Posttest Scales may be compared. We hypothesize that the RPT (Before) scores will be higher than the

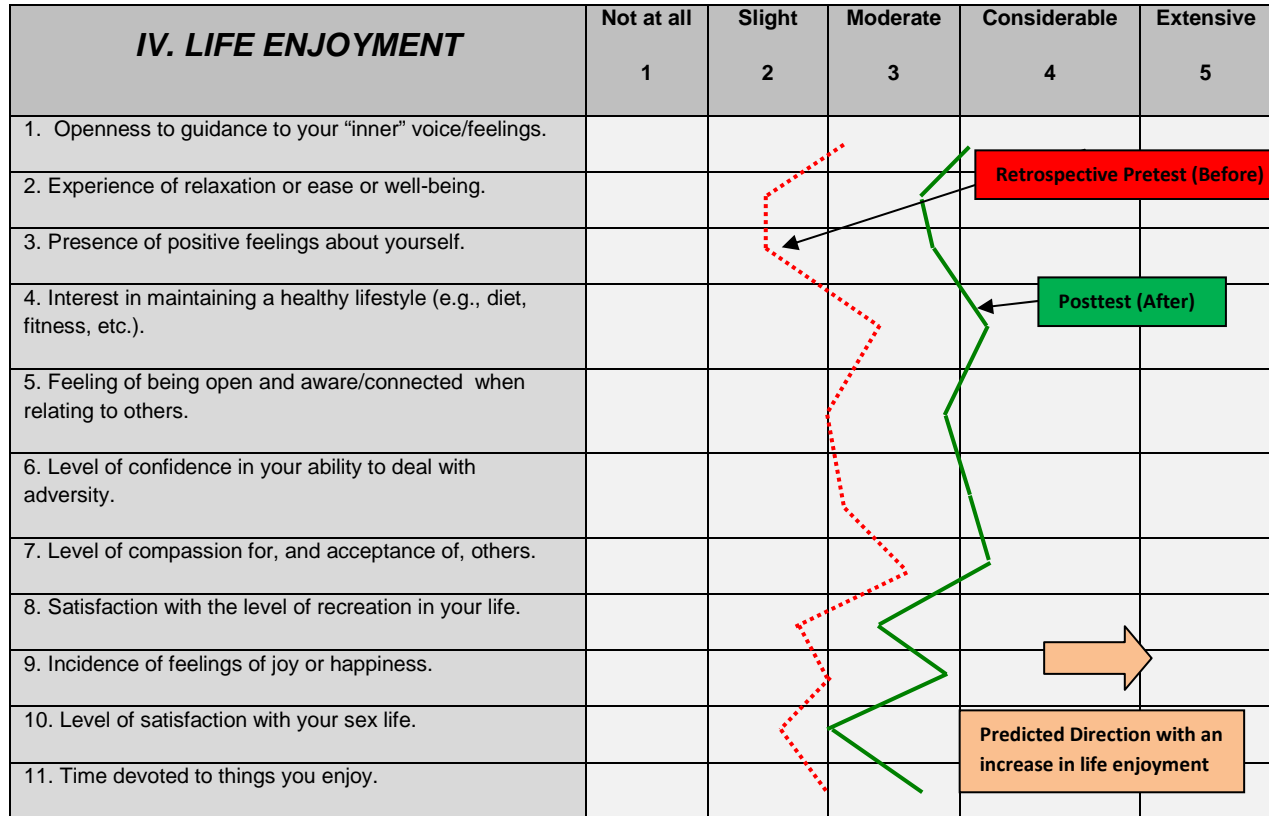


posttest (After) scores. The mean Stress Evaluation RPT score = 28.45, std. dev. =5.72, n =11. The mean Stress Evaluation Posttest Score = 20.73, std. dev.= 2.90, n=11. T-test results comparing these scores were  $t=4.587$ ,  $df=10$ ,  $p<=.001$ , Effect Size = .648. This is statistically significant and indicates that there were significant decreases in the frequency of stress in existing practice members when comparing the retrospective pretest responses to the posttest responses.

**Table 7. Life Enjoyment Retrospective Pretest and Posttest Means and t-test Results**

<b>IV. LIFE ENJOYMENT</b>	<b>Retrospective Pretest Mean</b>	<b>Posttest Mean</b>	<b>t-test</b>
1. Openness to guidance to your "inner" voice/feelings.	3.10	4.10	$t=-6.29$ , $df=29$ , $p<.001$
2. Experience of relaxation or ease or well-being.	2.53	3.63	$t=-7.31$ , $df=29$ , $p<.001$
3. Presence of positive feelings about yourself.	2.50	3.70	$t=-7.761$ , $df=29$ , $p<.001$
4. Interest in maintaining a healthy lifestyle (e.g., diet, fitness, etc.).	3.41	4.14	$t=-4.420$ , $df=29$ , $p<.001$
5. Feeling of being open and aware/connected when relating to others.	3.03	3.90	$t=-4.380$ , $df=28$ , $p<.001$
6. Level of confidence in your ability to deal with adversity.	3.11	4.14	$t=-6.914$ , $df=27$ , $p<.001$
7. Level of compassion for, and acceptance of, others.	3.57	4.23	$t=-5.135$ , $df=29$ , $p<.001$
8. Satisfaction with the level of recreation in your life.	2.70	3.33	$t=-5.188$ , $df=29$ , $p<.001$
9. Incidence of feelings of joy or happiness.	2.93	3.93	$t=-6.595$ , $df=29$ , $p<.001$
10. Level of satisfaction with your sex life.	2.64	2.96	$t=-2.353$ , $df=27$ , $p<.026$
11. Time devoted to things you enjoy.	2.90	3.70	$t=-5.442$ , $df=29$ , $p<.001$

**Table 8. Graphic Plot of the Change in Life Enjoyment with Retrospective Pretest and Posttest Response Means**



**Life Enjoyment Scale Scores Comparison.** The life enjoyment scale measures the state before and after visiting the NSA practice therefore we would expect the mean before (or upon initial visit or two) to be lower than the after visiting practice score. In other words, the scores on the posttest should be higher than the pretest scores because there is the expectation of improvement in life enjoyment. In the previous tables we expected the posttest scores to be lower than the pretest scores because we anticipated less frequency of occurrences of physical and mental state problems and less stress.

We hypothesize an increase in the life enjoyment scores from RPT (Before) scores to the posttest (After) scores. Table 7 contains the results of the retrospective pretest and posttest means as well as the t values, degrees of freedom, and significance level. Table 8 contains a graphic depiction of the RPT and posttest means for the stress evaluation questions.

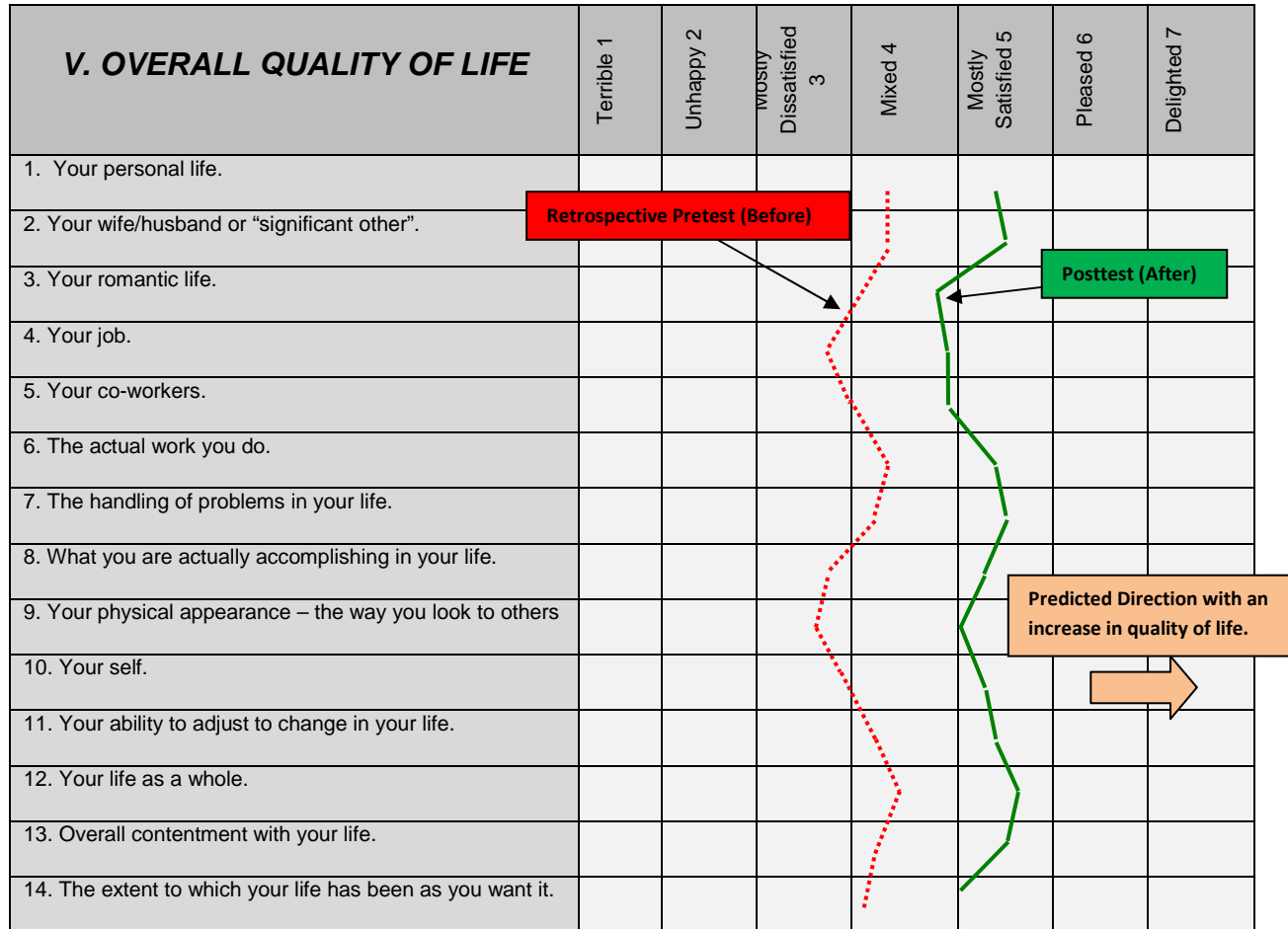
The results for the individual items on Life Enjoyment are very useful in focusing on where the most change has occurred. Table 7 clearly shows that the posttest scores were lower on all questions. With a significance level of .01 chosen, we see that there were statistically significant differences on all questions except the level of satisfaction with sex life. This may be because the practice members already had a good sex life and experienced little change or there just were not significant changes. A number of people were single or older individuals who may not have had an active sex life.

As useful as it is to highlight differences on individual questions, it is also useful to create an overall score for the Life Enjoyment by summing the scores for each question to create a Life Enjoyment Scale Score. This Life Enjoyment Scale has a range of 11-55 (11 items scored from 1 to 5). When these scales are created the Life Enjoyment Scale Scores for the Retrospective Pretest and Posttest Scales may be compared. We hypothesize that the RPT (Before) scores will be higher than the posttest (After) scores. The mean Life Enjoyment RPT score = 32.74, std. dev. =6.03, n =19. The mean Life Enjoyment Posttest Score =41.89, std. dev.= 4.67, n=19. T-test results comparing these scores were  $t=-6.877$ ,  $df=18$   $p<=.001$ , Effect Size = .647. This is statistically significant and indicates that there were significant increases in quality of life enjoyment in existing practice members when comparing the retrospective pretest responses to the posttest responses.

**Table 9. Overall Quality of Life Retrospective Pretest and Posttest Means and t-test Results**

<b>V. OVERALL QUALITY OF LIFE</b>	<b>Retrospective Pretest Mean</b>	<b>Posttest Mean</b>	<b>t-test</b>
1. Your personal life.	4.31	5.41	t=-5.870, df=28, p=<.001
2. Your wife/husband or "significant other".	4.38	5.57	t=-4.856, df=20, p=<.001
3. Your romantic life.	3.78	4.70	t=-4.208, df=22, p=<.001
4. Your job.	3.65	4.96	t=-5.053, df=25, p=<.001
5. Your co-workers.	4.00	4.96	t=-4.07, df=23, p=<.001
6. The actual work you do.	4.42	5.35	t=-3.268, df=25, p=<.003
7. The handling of problems in your life.	4.17	5.43	t=-5.774, df=29, p=<.001
8. What you are actually accomplishing in your life.	3.93	5.21	t=-5.259, df=28, p=<.001
9. Your physical appearance – the way you look to others	3.87	5.00	t=-6.378, df=29, p=<.001
10. Your self.	3.93	5.33	t=-5.771, df=29, p=<.001
11. Your ability to adjust to change in your life.	4.23	5.43	t=-5.288, df=29, p=<.001
12. Your life as a whole.	4.47	5.57	t=-6.279, df=29, p=<.001
13. Overall contentment with your life.	4.20	5.43	t=-6.954, df=29, p=<.001
14. The extent to which your life has been as you want it.	4.07	5.03	t=-3.385, df=29, p=<.002

**Table 10. Graphic Plot of the Change in Overall Quality of Life with Retrospective Pretest and Posttest Response Means**



**Overall Quality of Life Scale Scores Comparison.** As with the Life Enjoyment items we expect the posttest scores to be higher than the pretest scores because we expect an improvement in quality of life.

We hypothesize an increase in the Quality of Life from RPT (Before) scores to the posttest (After) scores. Table 9 contains the results of the retrospective pretest and posttest means as well as the t values, degrees of freedom, and significance level. Table 10 contains a graphic depiction of the RPT and posttest means for the stress evaluation questions.

The results for the individual items on Quality of Life are very useful in focusing on where the most change has occurred. Table 9 clearly shows that the posttest scores were lower on all questions. With a significance level of .01 chosen, we see that there were statistically significant differences on all questions except the level of satisfaction with sex life. This may be because the practice members already had a good sex life and experienced little change or there just were not significant changes. A number of people were single or older individuals who may not have had an active sex life.

As useful as it is to highlight differences on individual questions, it is also useful to create an overall score for the Quality of Life by summing the scores for each question to create a Quality of Life Scale Score. This Quality of Life Scale has a range of 14-98 (14 items scored from 1 to 7). When these scales are created the Quality of Life Scale Scores for the Retrospective Pretest and Posttest Scales may be compared. We hypothesize that the RPT (Before) scores will be higher than the posttest (After) scores. The mean Quality of Life RPT score = 54.20, std. dev. =9.81, n =10. The mean Quality of Life Posttest Score = 75.10, std. dev.= 9.61, n=19. T-test results comparing these scores were  $t=-5.562$ ,  $df=9$ ,  $p<=.001$ , Effect Size = .733. This is statistically significant and indicates that there were significant Increases in quality of life in existing practice members when comparing the retrospective pretest responses to the posttest responses.

## COMMENTS MADE ON THE RETROSPECTIVE PRETEST-POSTTEST QUESTIONNAIRE TO THE QUESTION:

**Table 11. Sometimes in experiences like this people have unintended or completely unexpected things happen in their lives. Have you had any such experiences after visiting Dr. Audrey?**

I am now much more aware of mind-body connection - I am much more aware of stresses in my life and the effect on my health. I have learned to listen to my body.
I came in initially to end some muscle pain! Three years later I have not only gone beyond the physical pain, I have begun healing emotional blockages I had thought I'd left behind years ago. I feel I am becoming the being I always thought I was--and I'm pain-free essentially.
Well, I went from having the worst posture to having the best posture on my swim team. My coach used me for demonstrations which is pretty cool. Dr Audrey has also taught me how to get in touch with my body and stay in hold of your emotions which can in handy when my parents said I couldn't see my best friend anymore.
Very subtle but wonderful! More joy coming into my life. Also, came in practically crippled with knee and it is healing!
For the past 36 years my life has been a roller coaster of unexpected events that pop up with no warning. These traumatic events have kept me in a state of hyper vigilance and stress. For the past few weeks part way through the "discovery" phase of treatment I began to notice I felt less stressful about life in general. I am still hesitant this but as my body softens and relaxes, so does my outlook.
I rarely use Advil now and can travel in cars much more comfortably. I feel a sense of we-being most of the time. My spine has felt amazing like there is air between the vertebrae and such ease and lightness. I didn't expect to release old emotional stuff that was holding me back. Am very grateful.
Rather than unexpected events there seems to be a softening to life. I feel much more liquid. A great thawing feeling.
I made a lot of very hard decisions regarding love, family, finances, and spirituality. I normally stay very stuck in. My ability to embrace change and see the need comes with greater patience and peace of mind and without the obsessive behavior that was my norm. I'm still obsessive in thought but extensively calmer about it and nowhere near as stubborn.

Love the Dr. work
Clearing of a vaginal issue that has plagued me for many years. I have tried various practitioners through the years. This cleared after just a few visits.
I came expecting or wanting physical relief and found mental and emotional changes I was not expecting. Better than being in therapy!
Dr Audrey has provided a safe environment to release traumas. Her programs (Clear Day and SOW) help educate the patients in how to utilize the treatments to transform their lives. When appropriate, she challenges her patients to move beyond states of being attached to pain and victimhood on all levels. My Type 1 diabetes and thyroid condition has improved since seeing Dr. Audrey. The manner in which I handle stress is completely different than 1 year ago.
No
More ease - a very new experience for me
After Dr Audrey's visits I've been more open to change and I feel more comfortable making changes in my life. Things seem generally brighter and life is definitely better.
Yes, I've been able to focus on what I want and need in my personal life and since then gotten married and had two children (one on the way). My grandfather passed and I was able to manage that pain well. I have more confidence about my ability to manage my entire life.
I am receiving better care now than I was at another network practice. I am more a part of my care and am happy with Dr. Audrey's care. Keep up the good work.
I have begun to release "stuff" - selling, donating, and clearing spaces. Recently I have had nightly dreams - many with clear messages I "get".

**Table 12. Please add any comments you wish about the Network Spinal Analysis treatment you received at Dr. Audrey Siow's office.**

Network spinal analysis is so much more than pain remedy, it's the opportunity to be your best self/deepest self!
Incredible! Everyone should do it!
I come to Dr Audrey and NSA looking for relief from the constant pain I've been experiencing. After years of regular chiropractic care my body was beginning to react with pain to the gentlest manipulation. NSA has changed the way I look at my body's reaction to pain and my levels of discomfort have reduced significantly. I have also found to my surprise that Dr Audrey and NSA combine the physical and emotional aspects. For me it was/is the missing link in getting and staying healthy.
So far she has always been right so when she tells me something that will help me I trust her. I had PT eleven years and gave up on getting better for 2 years then am amazed that I improved after seeing Dr Audrey.
The atmosphere in Audrey's space is one of openness and expression. It has a wonderful feeling that one is getting a deeper connection to oneself. Not just one's own world but a great mixing with the outer world. I just feel more permeable. Yummy! You reveal wings to fly.
I love it!!! I've always felt health care should involve more than physical symptoms and NSA does that mind, body, and spirit. I know not everyone gets the "whole" body needs care. I'm just smarter than most...:-)
It has helped me maintain and actually improve on my overall well-being during an interesting, continually increasing stressful period of my professional life. Without the treatments I would've been a stressed out wreck professionally and potentially personally.

I love how well I feel cared for by Audrey's office staff. I appreciate Audrey's willingness to address the many questions of my inquiring mind. I love the concept of the expansion of the capacity of my physical structure to support my shifting evolution.
I resisted NSA whenever a friend suggested it. She facilitated the first sessions and I went ahead with them. After the first one I knew it was the right treatment.
AFTER my clear day, my life seems to be making more sense. I am thinking clearer and my energy level has greatly increased. My pain is less and I hope this will all continue.
I am always discovering new parts of myself that I have been disconnected from most of my life. I feel more connected to myself and a deeper sense of wholeness and peace.
Thank you for helping me to connect to my deeper self
Dr Audrey is one of the most intelligent people I have met. She is perceptive, caring, professional and a very good friend.
I respond well to NSA. I had been searching for a more natural treatment for years. With these treatments my body learns how to take care of itself and I feel healthier all over.

## DISCUSSION OF RETROSPECTIVE PRETEST-POSTTEST RESULTS

**Overall Results.** The results for the RPT-Posttest study are quite positive and in the directions predicted. The sample size, although relatively small at 30, yielded effect size calculations in the moderate and higher range. Table 13 clearly shows that there were reductions in the symptoms associated with physical state, mental/emotional state, and stress and that the effect size (Cohen's d) calculations were in the medium to large effect size range (Effect Size  $\leq .2$ =small,  $ES > .2$  and  $\leq .5$ =medium,  $ES = > .8$ =large). Effect size is a very useful statistic that allows comparisons across different types of statistical results where means and standard deviations are known. Basically, in this case, it gives an estimate of the impact of the treatment (visits to Dr. Siow's NSA practice) by estimating the size of the effect the treatment had. Table 13 also shows that there were statistically significant increases in life enjoyment and overall quality of life and the effect size calculations were moderately high.



**Table 13. Summary Table of Results for Each Scale**

Scale	RPT Mean and Std. Dev.	Posttest Mean and Std. Dev.	t-value and Significance
<b>Physical State</b> (predicted decrease in frequency of symptoms)	<b>M=27.06</b> SD=5.84	<b>M=21.00</b> SD=3.52	t=6.784, df=16, p<=.001*, ES = .532
<b>Mental/Emotional State</b> (predicted decrease in frequency of symptoms)	<b>M=32.84</b> SD=6.66	<b>M=23.32</b> SD=4.26	t=6.142, df=18, p<=.001*, ES = .648
<b>Stress Evaluation</b> (predicted decrease in frequency of symptoms)	<b>M=28.45</b> SD=5.72	<b>M=20.73</b> SD=2.90	t=4.587, df=10, p<=.001*, ES = .648
<b>Life Enjoyment</b> (predicted increase in life enjoyment)	<b>M=32.74</b> SD=6.02	<b>M=41.89</b> SD=4.67	t=6.877, df=18, p<=.001*, ES = .647
<b>Overall Quality of Life</b> (predicted increase in quality of life)	<b>M=54.20</b> SD=9.81	<b>M=75.10</b> SD=9.61	t=-5.562, df=9, p<=.001*, ES = .733

\* statistically significant at the selected level of .01.

Additionally, as on Epstein’s instrument, we included five questions that asked about the practice members overall impressions of the state of their physical, mental/emotional, stress, life enjoyment, and quality of life . Table 15 summarizes those results. Remarkably, 100% indicated an improved state of physical well-being along with very high percentages indicating improvements in their mental/emotional state, ability to handle stress, enjoyment of life, and quality of life.

**Table 14. Percent of answers of Overall Impressions of Practice Members Different States Compared to When they First came to Dr. Siow’s office.**

<b>VI. OVERALL IMPRESSIONS</b> Answer each of the questions with respect to when you first came to this office.	<b>NOW</b>		
	Better	Same	Worse
1. Overall my physical well-being is:	100%	0	0
2. Overall my mental/emotional state is:	95.8%	4.2%	0
3. Overall my ability to handle stress is:	95.8%	4.2%	0
4. Overall my enjoyment of life is:	83.3%	16.7%	0
5. Overall my quality of life is:	81.8%	18.2%	0

**Improvements in the RPT-Posttest Technique.** Directions for practice members completing the questionnaire need to be improved by adding a comment such as “if an item does not apply to you, then simply leave it blank.” Unfortunately, a number of people who were not in school or were not working answered with “none” on both the retrospective and posttest sections which were coded as “1” in the database and may have yielded skewed data. Also, the same occurred with answers on sexual activity (for very young and old practice members) and women who were post-menopausal for the question on menstrual discomfort.

**Traditional Pretest-Posttest Analyses.** In order to compare the RPT-Posttest method and data to data gathered with a traditional pretest and posttest method we are currently gathering data with new practice members. These new practice members are given an instrument with the same items at an initial or second visit to the office and then asked after approximately 10-12 office visits to complete the questionnaire again for a posttest measure. We will analyze these data and present them in future works as the data are gathered.

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# Appendix A

## Appendix A. Regular Practice Members Retrospective Pretest-Posttest Questionnaire



### ***Health, Wellness, and Quality of Life Questionnaire***

(Adapted from a pdf at the website of Dr. Donald Epstein: <http://www.donaldepstein.com/pdf/newlongitudinal.pdf> )

This is an anonymous questionnaire. We ask that you complete the items to provide insight for us in how our methods work. Your time is greatly appreciated. Results will be available on the web at: [www.draudreysiow.com](http://www.draudreysiow.com)

Demographic Data (for describing the sample who complete the survey).

Age\_\_\_\_\_ Gender\_\_\_\_\_ Marital Status: Single Married Divorced Widowed

Education Level: High School\_\_\_\_ College (Yrs) \_\_\_\_\_ Graduate School\_\_\_\_ Other\_\_\_\_\_

Approximately how many visits have you made to Dr. Audrey's office? \_\_\_\_\_

How long have you been in Network care? \_\_\_\_\_ months or years

You may contact Dr. Ted Lamb, Senior Consultant, Peak Research, LLC at email: [peakresearch@usa.net](mailto:peakresearch@usa.net) if you have any concerns.

## My Health, Wellness, and Quality of Life

### Health, Wellness, and Quality of Life Questionnaire

	<u>BEFORE</u> visiting Dr. Audrey					<u>NOW-AFTER</u> visiting Dr. Audrey				
	Never	Rarely	Occasionally	Regularly	Constantly	Never	Rarely	Occasionally	Regularly	Constantly
<b>I. PHYSICAL STATE</b> Rate the following questions with respect to frequency. Circle your answer for both BEFORE and NOW-AFTER.										
1. Presence of physical pain (neck/back ache, sore arms, legs, etc.)	1	2	3	4	5	1	2	3	4	5
2. Feeling of tension or stiffness or lack of flexibility in spine.	1	2	3	4	5	1	2	3	4	5
3. Incidence of fatigue or low energy.	1	2	3	4	5	1	2	3	4	5
4. Incidence of colds or flu.	1	2	3	4	5	1	2	3	4	5
5. Incidence of headaches (of any kind).	1	2	3	4	5	1	2	3	4	5
6. Incidence of nausea or constipation.	1	2	3	4	5	1	2	3	4	5
7. Incidence of menstrual discomfort.	1	2	3	4	5	1	2	3	4	5
8. Incidence of allergies or skin rashes.	1	2	3	4	5	1	2	3	4	5
9. Incidence of dizziness or light-headedness.	1	2	3	4	5	1	2	3	4	5
10. Incidence of accidents or near accidents or falling or tripping.	1	2	3	4	5	1	2	3	4	5
<b>II. MENTAL/EMOTIONAL STATE</b> Rate the following questions with respect to frequency. Circle your answer for both BEFORE and NOW-AFTER.	Never	Rarely	Occasionally	Regularly	Constantly	Never	Rarely	Occasionally	Regularly	Constantly
1. If pain is present, how distressed are you about it?	1	2	3	4	5	1	2	3	4	5
2. Presence of negative or critical feelings about your self.	1	2	3	4	5	1	2	3	4	5
3. Experience of moodiness or temper or angry outbursts.	1	2	3	4	5	1	2	3	4	5
4. Experience of depression or lack of interest.	1	2	3	4	5	1	2	3	4	5

5. Being overly worried about small things.	1	2	3	4	5	1	2	3	4	5
6. Difficulty thinking or concentrating or indecisiveness.	1	2	3	4	5	1	2	3	4	5
<b>II. MENTAL/EMOTIONAL STATE</b> Rate the following questions with respect to frequency. Circle your answer for both BEFORE and NOW-AFTER.	Never	Rarely	Occasionally	Regularly	Constantly	Never	Rarely	Occasionally	Regularly	Constantly
7. Experience of vague fears or anxiety.	1	2	3	4	5	1	2	3	4	5
8. Being fidgety or restless; difficulty sitting still.	1	2	3	4	5	1	2	3	4	5
9. Difficulty falling or staying asleep.	1	2	3	4	5	1	2	3	4	5
10. Experience of recurring thoughts or dreams.	1	2	3	4	5	1	2	3	4	5
<b>III. STRESS EVALUATION</b> Evaluate your stress relative to the following. Circle the answer for both BEFORE and NOW-AFTER.	None	Slight	Moderate	Pronounced	Extensive	None	Slight	Moderate	Pronounced	Extensive
1. Family	1	2	3	4	5	1	2	3	4	5
2. Significant Relationship	1	2	3	4	5	1	2	3	4	5
3. Health	1	2	3	4	5	1	2	3	4	5
4. Finances	1	2	3	4	5	1	2	3	4	5
5. Sex Life	1	2	3	4	5	1	2	3	4	5
6. Work	1	2	3	4	5	1	2	3	4	5
7. School	1	2	3	4	5	1	2	3	4	5
8. General well-being	1	2	3	4	5	1	2	3	4	5
9. Emotional well-being	1	2	3	4	5	1	2	3	4	5
10. Coping with daily problems.	1	2	3	4	5	1	2	3	4	5
<b>IV. LIFE ENJOYMENT</b> Rate the following on a scale of 1 to 5. Circle your answer for both BEFORE and NOW-AFTER.	Not at all	Slight	Moderate	Considerable	Extensive	Not at all	Slight	Moderate	Considerable	Extensive



1. Openness to guidance to your "inner" voice/feelings.	1	2	3	4	5	1	2	3	4	5
2. Experience of relaxation or ease or well-being.	1	2	3	4	5	1	2	3	4	5
3. Presence of positive feelings about yourself.	1	2	3	4	5	1	2	3	4	5
4. Interest in maintaining a healthy lifestyle (e.g., diet, fitness, etc.).	1	2	3	4	5	1	2	3	4	5
<b>IV. LIFE ENJOYMENT</b> Rate the following on a scale of 1 to 5. Circle your answer for both BEFORE and NOW-AFTER.	Not at all	Slight	Moderate	Considerable	Extensive	Not at all	Slight	Moderate	Considerable	Extensive
5. Feeling of being open and aware/connected when relating to others.	1	2	3	4	5	1	2	3	4	5
6. Level of confidence in your ability to deal with adversity.	1	2	3	4	5	1	2	3	4	5
7. Level of compassion for, and acceptance of, others.	1	2	3	4	5	1	2	3	4	5
8. Satisfaction with the level of recreation in your life.	1	2	3	4	5	1	2	3	4	5
9. Incidence of feelings of joy or happiness.	1	2	3	4	5	1	2	3	4	5
10. Level of satisfaction with your sex life.	1	2	3	4	5	1	2	3	4	5
11. Time devoted to things you enjoy.	1	2	3	4	5	1	2	3	4	5

	<u>BEFORE</u> visiting Dr. Audrey						<u>NOW-AFTER</u> visiting Dr. Audrey							
<b>V. OVERALL QUALITY OF LIFE</b> Evaluate your feelings relative to the quality of your life. Circle your answer for both BEFORE and NOW-AFTER.	Terrible	Unhappy	Mostly Dissatisfied	Mixed	Mostly Satisfied	Pleased	Delighted	Terrible	Unhappy	Mostly Dissatisfied	Mixed	Mostly Satisfied	Pleased	Delighted

1. Your personal life.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
2. Your wife/husband or "significant other".	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3. Your romantic life.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. Your job.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
5. Your co-workers.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6. The actual work you do.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
7. The handling of problems in your life.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8. What you are actually accomplishing in your life.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9. Your physical appearance – the way you look to others	1	2	3	4	5	6	7	1	2	3	4	5	6	7
10. Your self.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
11. Your ability to adjust to change in your life.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
12. Your life as a whole.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
13. Overall contentment with your life.	1	2	3	4	5	6	7	1	2	3	4	5	6	7
14. The extent to which your life has been as you want it.	1	2	3	4	5	6	7	1	2	3	4	5	6	7

	<u><b>NOW</b></u>		
<b>VI. OVERALL IMPRESSIONS</b> Answer each of the questions with respect to when you first came to this office.	Better	Same	Worse
1. Overall my physical well-being is:	1	2	3
2. Overall my mental/emotional state is:	1	2	3
3. Overall my ability to handle stress is:	1	2	3
4. Overall my enjoyment of life is:	1	2	3
5. Overall my quality of life is:	1	2	3

Sometimes in experiences like this people have unintended or completely unexpected things happen in their lives. Have you had any such experiences after visiting Dr. Audrey? Please explain-use the back of this sheet if you need more writing space.

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Please add any comments you wish about the Network Spinal Analysis treatment you received at Dr. Audrey Siow's office.

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***Thank you!***