

STRESS, HEALTH, AND THE HEART: A Report on Heart Rate Variability and Thought Field Therapy Including a Theory of the Meaning of HRV

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By

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“Nothing is more orderly than the rhythmic beating of your heart as you sit reading this, you might think. It is the paradigm of physiological regularity on which your life depends in a most immediate way. However, combined with this order there is a subtle but apparently fundamental irregularity: in healthy individuals ... the interval between heart beats varies in a disorderly and unpredictable way. If the inter-beat interval is regular _ either constant or itself rhythmic _ then this is a sign of danger,” [in The Spirit of Science, p153.]

-Brian Goodwin; Professor of Biology; United Kingdom

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What is Heart Rate Variability?

Heart Rate Variability (HRV) is a valuable predictor of illness and death. But when HRV can be improved it is likely HRV can also be a predictor of life and health. The difference, in the light of our recent clinical research, may depend upon the ability of a healer and the power of a therapy, to make the desired changes in this crucial measure.

HRV, an instrument of growing importance in evaluating health, is a measure of the intervals between heartbeats measured in microseconds. For good health these intervals should not be even; they should vary in what appears to be a random or chaotic fashion. This vital variation in intervals may be viewed as a signal that information that enhances health and life is being processed – the converse is also likely the case. This interesting idea will be elaborated upon below. The absence of variation indicates, I believe, a deficiency of vital information processing and the need for a treatment or regimen that resets the vital flow of life-enhancing information.

Thought Field Therapy (TFT) is a powerful but simple and rapid treatment I have been developing for the last 22 years. The evidence, especially with the objective measure called HRV, strongly suggests TFT is a treatment that can reduce stress, eliminate psychological problems, and promote health.

HRV is An Index of Your Health Status

Would you like to know how healthy or unhealthy you are? Would you like to know if your condition requires professional attention? Would you like to observe changes in your nervous system that can inform you how well you are responding to a specific treatment? If you have a heart problem would you like to see how much your exercise program is helping your heart? If you smoke do you want to see to what degree quitting smoking will help? Do you want to observe what effect various drugs have on your health? Would you like to see if you are at risk for sudden death by heart attack, even though you have shown no symptoms whatsoever?

Although a rare event, some apparently very healthy people suddenly and shockingly drop dead. Such deaths, it was learned in the famous Framingham study, could have been predicted by HRV. While writing this report I saw in a newspaper article that a top football player at Florida State University mysteriously dropped dead during a practice session. More recently I read where an All

Pro lineman for the Minnesota Vikings suddenly dropped dead in the heat. A number of such tragic and unexpected deaths occur each year and everyone is shocked and surprised when it happens because “the person seemed to be in perfect health.” HRV may be the only means of predicting the likelihood of this shocking problem that occurs in the absence of clinical symptoms. An HRV test that leads one to obtain an effective treatment may permit the prevention of such an event.

If you are a therapist, would you like to have an objective procedure that will show you how much various therapy procedures you use are helping your clients? If you are a client in psychotherapy, would you be interested to see how much the treatments are helping according to an objective measure?

The conventional psychotherapies have been tested in research using control groups and treatment groups with statistical tests needed to show that treatment is better than no treatment. As the statistician Simon points out if the researcher has to rely on refined statistical tests to show a difference, “the differences do not matter much (Simon, p19).” The term “statistical significance” can be an insidious and deceptive phrase for it conveys that there is clinical significance when clinical significance may be completely missing. I believe all therapies, especially psychotherapies, should be tested with HRV (Callahan, 2001d). I am not alone in advocating HRV; experts suggest HRV can be used as a measure for monitoring therapeutic effectiveness. I agree with those psychotherapists who predict HRV will be in widespread use in clinical practice in the near future and will serve as an aid in monitoring therapeutic interventions. As this happens, true objectivity will be possible for the first time in the field of psychotherapy. This will, or at least should, encourage the development and use of more effective psychotherapies. TFT has been able to validate with HRV, some exciting new therapy discoveries. I believe most treatments will be tested by this objective procedure as HRV becomes more recognized. HRV is the very best all around objective measure of therapy effectiveness I have ever come across in over a half century of practice.

Stress

We hear a lot about stress and it is indeed very important. Eysenck, a psychologist in the UK showed that psychological stress was a better predictor of death than smoking. Our findings with HRV support this notion (see chart). Many believe that the effects of stress are responsible for numerous physical illnesses. Stress causes the autonomic nervous system to go out of balance. HRV gives an objective result that tells you how much effect stress is having on your body and mind. Research shows that placebo or suggestion does not affect HRV. HRV is an *objective* measure that gives results independent of what is believed, feared, hoped for, or desired.

There is a great deal of scientific research that shows that HRV is the best available predictor of illness and death. It is such a good predictor of death, better than any other measure or combination of measures, that it has become known as such. For many years scientists have been working to find how to improve HRV. They found that giving up smoking and engaging in physical exercise will improve HRV to a small but definite degree (see chart below). Many drugs, e.g., make HRV worse. Psychological problems such as depression, anxiety, and trauma make HRV worse. But despite the efforts of scientists worldwide, until recently there have been no procedures or treatments that dramatically improve HRV. Dramatic improvements in HRV suggest that robust biologic change is taking or has taken place.

HRV – Variability is Healthy

“Variability (in the intervals between heart beats) is the reflection of a healthy, well-developed ANS (Autonomic Nervous System).” (p518, Hirsch, et al). The same authors point out: *“the clinical importance of HRV is well accepted and beyond any doubt, for the estimation of fetal well-being, probably more than in any other medical field.”*

Numerous scientists doing research in HRV report that it is the most powerful predictor of all cause mortality; it predicts more powerfully than any other measure or combination of measures.

How was HRV Discovered?

Stys and Stys (1998) inform us that Albrecht von Haller observed in the eighteenth century that “the beat of a healthy heart is not absolutely regular (p719).” However, it took two more centuries and the computer, before the measurement of the variation in intervals of the heart beat became a clinical tool.

In maternity wards it was common practice, in cases where there was reason to be concerned about the health of an unborn child, to monitor the heart by electrodes attached to the head of the fetus. For many years, despite von Haller’s observation, it was believed the heart rhythm should be even. However, it was found that unborn infants with near perfect rhythm in the intervals between heart beats were born dead. Unborn infants with a great deal of variability in their heart rhythms were born healthy. This changed forever the notion regarding evenness for the heart beat. HRV is in common use in obstetrics.

Since the time of the work with unborn infants, it has been found that low HRV can predict Sudden Infant Death (SID) syndrome or crib deaths. To parallel the work with unborn infants, HRV tests done in hospitals found that as death approaches adults, the intervals between the heart beat continue to get more and more even until death arrives.

What Happens in an HRV Test?

There are different programs for measuring HRV but they all involve recording the heart beat for a period of time, usually five minutes, and then a specialized computer program computes the intervals between heart beats in microseconds and analyzes the frequencies giving information about status of the autonomic nervous system.

If you were a client of mine you would be seated in a straight back chair for five minutes while you took the HRV test prior to any treatment. First, I would ask you to think of the problem [*In the absence of a known specific problem, it isn’t necessary to think of anything in particular.*] you want treated and to rate how upset you are on a scale from 1 to 10 where 10 is the worst you can feel. I then ask you to think of this problem while your HRV is being tested. In five minutes the pre-treatment test is over and I would then administer TFT. The treatment takes a few minutes. After the treatment I would then take another HRV while you again think of the problem. If the treatment was successful you now will be unable to get upset while thinking of the problem. Success is commonly indicated after treatment by the imprecise statement by the client, “I can’t think of the problem.” Since upset has disappeared, after accompanying the thought for many years, the person

wrongly concludes that he must not be thinking of the problem. We then evaluate the pre and post therapy HRV scores. The HRV will often show an immediate dramatic improvement.

There are some versions of HRV that take 24 hours but the more practical HRV's take either five or ten minutes. Experts have pointed out that it is difficult to keep numerous factors constant in a 24 hour test. I use the five- minute version.

Short Term HRV

In TFT we have been using an HRV program that conforms to the International Standards (Task Force, 1996). We use a five minute test while the person is seated in a straight back chair. The software was developed to meet the standards and mathematical procedures for short-term HRV evaluation set by The European Society of Cardiology and The North American Society of Pacing and Electrophysiology (1996).

(p151) *“An advantage of short-term recordings is that due to restricted duration they can rather easily be performed in very strictly standardized conditions.”* (Hartikainen, et al). Kawachi et al (1995) also believe that short term recordings are superior for clinical purposes than 24 hour Holter recordings and are more appropriate because they are free of so many influences that take place in a 24 hour period.

Stability of Low HRV Scores

Van Hoogerhuyze et al (p1673) report that *“patients with low variability values have much less day-to-day variation.”* In other words, individuals with low variability do not vary as much as those with normal variability scores. Therefore, if one can improve low variability with treatment, it is even more profound than improving scores that are already in the normal range. I have been unable to find any reports of improving the variability of those who show very low HRV in the literature.

The variability of the intervals between heart beats is expressed as a standard deviation. This is a standard measure in statistics which gives an indication of the spread or variation of a set of scores. This score is indicated by the letters SDNN this stands for standard deviation, normal to normal (as opposed, e.g., to skipped} heart beats.

The test also gives a number of other indices. It gives the status of the two branches of the autonomic nervous system – the sympathetic and the parasympathetic systems. In stress, these systems are out of balance. It is desirable for optimum health to have a good balance between these systems. There is a ratio of balance given between the two nervous systems (sympathetic and parasympathetic), and it is important sympathetic not be overly dominant. The ratio between the two is ideally, close to 1.

The heart rate or pulse is also given. Professionals trained in TFT are aware of the importance of the pulse as an indicator of the presence of toxins; i.e., high resting pulse can indicate the presence of a toxin. There is a Total Power Score given and this is a valuable index as well. My clinical impression is that there appears to be a relationship between a feeling of fatigue when Total Power is low. I have seen no research on this matter and this is my present tentative clinical conclusion.

Discovering New Effective Treatments With HRV

Prior to using HRV I had only one means of knowing whether a particular treatment did anything for my client. That was the use of the report on how the person is feeling. All of my treatment discoveries were supported by client report of reduction of a problem after the treatment was given. Some call this the Subjective Unit of Distress (SUD) and it is expressed on the common ten point scale. (However, I sometimes get a client who when asked how severe the problem is on a scale where 10 designates the worst, will respond with something much higher than 10, such as 20,000. In these cases, I go with the new scale introduced by the client and continue treating until they say they are a 1; or, the problem is gone.)

All of the treatments that compose my work were selected because of the power of the treatment to immediately reduce the emotional impact of a particular problem. I was limited to this for I knew of nothing else. HRV has introduced a powerful new means of discovering a treatment that has an effect on the person but may not result in an immediate change in a SUD. I knew a SUD was not an absolute standard of effectiveness but it was all that was available to me during the previous two decades of TFT development.

An Example of a New TFT Discovery Due to HRV

Here is a dramatic example of powerful treatments, now an intrinsic part of TFT, which were unknown prior to HRV. In the following case it had been known for many years that wheat was a toxin for the person and wheat showed positive on TFT testing. First, an HRV base line was taken and then another test was done while the person held some wheat near his throat. The new treatment was applied (it took 7 seconds) and wheat was held again while another HRV was taken. You can see the mere presence of the toxin depresses HRV. Also, please note a very brief TFT procedure, taking but seconds, can raise HRV while the person is still exposed to the toxin. There was no SUD associated with holding the toxin.

	SDNN	
Baseline	134.1	
Holding wheat	72.0	-86%
After 7-second therapy and holding same wheat	152.4	+112%

Other new treatments have also been confirmed through HRV. It has been very clear to me for years that a SUD, although indispensable, had some limitations. For example, I knew from long experience that I could successfully treat a repressed person who had no SUD, i.e., felt nothing when thinking of a problem. We would not know for sure if the problem was gone until the person was later exposed to the situation that brought about the emotional upset. So it was very clear in some cases, a SUD, along with its immediate reduction was not always necessary in order to know that we have an effective treatment.

We have found that people who repress a problem, i.e., automatically keep it out of awareness, usually show evidence of the problem on HRV. When we treat the problem we can now usually see the HRV improve even though the client has no awareness that anything has happened.

Relationship Between SUD and HRV and the Relationship Between HRV and Other Health Indices

A few studies on HRV and TFT have now been done by Caroline Sakai, PhD and some of her colleagues, Greg Tanida, MSW, David Paperny, M.D, Marvin Mathews, M.D, Geri Boyd, M.S.W, Alan Simons, C.N.S., Charlene Yamamoto, M.S.W. Carolyn Mau, C.N.S, Lynn Nutter, M.A; from Kaiser Behavioral Health and Behavioral Medicine Services of Honolulu; by Monica Pignotti, MSW, and Mark Steinberg, PhD of Los Gatos; a superb report of successful treatment of trauma in Kosovo survivors, by Carl Johnson, PhD and his medical colleagues, Mustafe Shala, MD, Xhevdet Sejdiqaj, MD, Robert Odell, MD, and Kadengjika Dabishevci, MD. Two studies and a reply to critics by me are also presented in this collection. For pre-publication copies of my papers, see www.tftrx.com.

These studies are published in the Journal of Clinical Psychology under special invitation, i.e., no peer review but instead critiques of the research were presented along with the papers. I have a response to the critics. All the papers appear on <http://www3.interscience.wiley.com/cgi-bin/issuetoc?id=85011050>

The TFT studies show a very strong relationship between HRV and client report of how they are feeling. When a client is treated with TFT and reports a major improvement (within minutes) of a psychological problem, or pain, the HRV usually also shows a dramatic improvement. Sakai, et al, also presents some laboratory indices which improve with TFT treatment.

Home HRV Models

I can remember when the only way to get your blood pressure measured was to go to a doctor's office. Of course today, many people have home blood pressure equipment. At the present time I know of no home model that is suitable for HRV. By home model I mean one costing less than \$600 and that gives the actual variability measure which is called SDNN. It is the SDNN score that is used in most of the serious health research. I have been urging our HRV provider to develop such a model but as yet it is not available. I believe once the general public realizes the extreme importance of HRV, there will be a huge demand for adequate HRV models.

HRV as an Objective Measure of Stress

Porges proposes that an aspect of HRV, cardiac vagal tone, is an objective physiological indicator of stress. He further points out this measure can be used across mammalian species, as such a measure. Interestingly, TFT has been used successfully with infants, very young children and even with cats, dogs, and horses.

Singer and Ori, (1995) writing in a standard text on HRV, state that "*HRV can be used as a simple tool for monitoring therapeutic effectiveness. (p434)*" Our results strongly support this idea as well as the suggestion by Cohen et al (1999), that HRV may be a useful way to monitor the results of psychotherapy. In TFT we are using Heart Rate Variability (HRV) as a research instrument to objectively test the therapy effects of TFT. HRV is also being used as an aid in discovering new effective treatments in TFT as well as to measure various nuances of TFT. The use of HRV has allowed me to make some important new supportable speculations as to some of the underlying major causes of low HRV, apart from stress, and will be presented in a future report.

Our results with HRV support the idea that TFT is a powerful therapy for psychological problems and that TFT can also be used as therapy to improve hazardous HRV scores. Such scores, the research indicates are the best predictors of mortality. As TFT is increasingly replicated elsewhere, it will be seen for the first time that a psychological treatment will be able to make a dramatic, profound, objective, and obvious (according to HRV), contribution to heart as well as general health. An advantage of TFT is that it is a natural, non-invasive, and yet very powerful contributor to restoring cardiovascular and autonomic regulation. Many drugs on the other hand worsen HRV. See, e.g., Fei, (p283), writing in the HRV textbook, *“A central nervous system mechanism may be involved in the negative influence of sedatives, analgesics, and anesthetics on HRV. Adinoff et al reported that diazepam decreases HRV in a dose-dependent manner. Several studies have demonstrated that HRV is decreased by anesthesia.”*[The phrase “dose-dependent manner” has important scientific causal implications. This is one of the ways we scientifically evaluate TFT. The SUD, and now the HRV, respond to our treatments in a dose-dependent manner. Of course, with TFT the HRV is improving in a dose-dependent manner while with most drugs, the HRV is worsening in a dose-dependent manner. Despite this fact, there certainly can be reasons where, due to benefits, drugs are strongly indicated in an individual case.]

Fei also observes, *“Mental activity may also significantly influence HRV in normal subjects and in patients following myocardial infarction.”* My work with TFT and HRV lend very strong support to this latter statement, especially if the mental activity is stressful. Further, it will be shown that a powerful, non-invasive psychotherapy can have a greater impact on HRV than any other known therapy procedure.

An objective instrument has the value, among others, of extending the range of possible investigations. For example, there is no SUD (conscious awareness) for high blood pressure; one must have a machine to measure it. Also, there is no SUD for hazardous HRV or for indicating the balance of the autonomic nervous system; though a high SUD does suggest, according to our research (Callahan, 2001b) autonomic imbalance. There are numerous sudden deaths that carry no advance warning for sub-clinical heart conditions but HRV can provide this much needed warning. The evidence suggests that TFT may provide a possible preventive approach to this catastrophic condition.

Worry Over Possibly Having a Heart Attack

If you are afraid you might be vulnerable to a heart attack the usual response is to worry about it. You know it doesn't help to worry about it, but you just can't help yourself. The very thought of it simply terrifies you. TFT can usually help this problem.

Here is an example we had in our office. The 35 year old professional man lost his father to an early heart attack. As an expert professional himself he knew very well that he should not worry and that it only made things worse but he just could not help himself.

He was very afraid of taking the HRV test and discovering that his worst fears might be justified. In this case he did not respond to a TFT algorithm. Further, he did not respond to our next level up, causal diagnosis. It was necessary to use TFT Voice Technology in order to eliminate the worry as well as the fear of taking the HRV test itself. His pre-treatment SDNN (while fear and worry were present) was 49.7. After algorithm treatment the SDNN was slightly lower and still in the forties. The next day he received our higher level treatment that included causal diagnosis but the SDNN was still in the high forties. He still felt very worried and was very fearful of taking the HRV. The

next day he was treated with Voice Technology (VT) and finally the fear regarding his heart and taking the HRV test were both totally gone. His SDNN after VT was 148.6. This is an increase in HRV of 198%. Nothing comparable to such a positive improvement is reported in the HRV literature. Follow up of six months demonstrate that these gains have held.

Nervous System Status

Stress, among many other things, throws the nervous system out of balance. In addition to showing the status of the autonomic nervous system, HRV can also indicate the degree of deterioration of the nervous system in diabetes as well as in alcoholism and other possible neural degenerative conditions. This important fact can permit action to prevent further deterioration with effective treatment. Stress is usually accompanied by an imbalance in the autonomic nervous system.

Why Doesn't Everyone Know About HRV?

The first article on HRV to appear in the Annual Review of Medicine was in the 1999 edition. It is still rare for the general physician or health provider to know about HRV. Again, I believe this lack of knowledge is mainly due to an inability to do anything about poor scores on HRV.

Like TFT itself, HRV has been a well-kept "secret" even though available for at least two decades. However, a growing number of psychologists are becoming aware of HRV. Few physicians, apart from neurologists, obstetricians, internists, and cardiologists know about HRV. A major reason, I believe, was given by a physician I met a few years ago who had been trained at Harvard Medical School two decades earlier and who participated in research that was then being carried out on HRV. He observed me eliminate chronic psychological problems in minutes in two people. He was shocked to see how much the HRV improved after the problem was gone.

He told me that he always thought HRV was a very interesting measure but since nothing could be done about it, he lost interest in it after leaving medical school. HRV has become known as a reliable predictor of death.

One European cardiologist recently wrote an article that concluded that until we have a procedure that will clinically improve HRV, HRV may remain nothing more than a research toy (Huikuri et al). A most interesting research toy indeed; I might add. TFT is changing this helpless and rather dismal view.

Magnitude of Change

Engaging in regular exercise and quitting smoking (see chart) result in definite improvements in HRV in the neighborhood of 10 to 20%. The magnitude of the HRV change, according to experts, is likely too small to generate radically improved biological change. This notion clearly implies that changes much greater than this amount may well be an indicator of underlying improved biological change. The large HRV improvements due to TFT, may suggest in this light, radical biologic improvement.

Depression, HRV, and TFT

Depression is known to add a serious risk for heart attacks. In an effort to see if something could be done about this risk, an important recent study (Carney et al, 2000) investigated depression and Cognitive-Behavioral Therapy (CBT). Up to 16 CBT therapy sessions were given to a group of depressed heart patients. HRV's were administered to the patients pre and post therapy. The SDNN scores were slightly lower (-4%) after CBT treatment. This dismal result caused the authors to speculate that depression may cause some serious permanent damage to the mechanisms responsible for variability in the heart.

In order to check on this frightening notion, I examined eight cases of severe depression treated with TFT and also who received HRV tests before and after treatment. In each of these cases, the depression was completely eliminated (in minutes) and the variability in the HRV improved by an average of 80%. My work will need to be replicated by others but the results certainly do not support the dismal notion of permanent damage of variability of the heart due to depression. Also, in my small study the SDNN scores were much lower than the scores in the CBT study. To see other favorable results with TFT and HRV (see the special issue of the Journal of Clinical Psychology, (vol 57, no 10, 2001) for some of our studies as well as critiques of these studies. The implications of our findings, we believe, are very important for health.

TFT and HRV

HRV is a good demonstration of the power of TFT. As pointed out, HRV has permitted some new discoveries and supports some of our previous findings re toxins. Immediately after obtaining HRV, my wife, Joanne and I were able to show that what we call toxins (see below) can have an immediate adverse effect on HRV. This finding has now been confirmed by other TFT therapists using HRV.

Toxins or Individual Energy Toxins (IET)

When most people think of toxins they think of mercury, cadmium, lead, insect killers, air pollution, radiation exposure, etc. These items are universally toxic and not much can immediately be done about them other than avoidance. (Look for my future Special Report on Toxins.) The IET toxins occupy our main interest for these are the ones we can easily avoid. The general meaning of toxin is a poison and it is in this sense that I use the term. Different fields of medicine and botany may have unique and specialized definitions but it is in the sense of a poison that I use the term.

When I refer to IET, I mean foods, drinks, supplements that may be very fine for other people but for certain individuals they create many problems and extreme vulnerability to problems. For example, wheat can be a very healthy food but for some people wheat can generate terrible problems such as chronic fatigue, heart palpitations, and severe lung problems. IET simply highlights the fact of the role of individual differences; e.g., wheat may be a poison for some people and when I use the term toxin in our context it is in this sense.

IET and Fatigue

Years ago, I suffered from chronic fatigue for over 20 years. During these years I visited any number of physicians, specialists, chiropractors, acupuncturists, etc and found to my dismay that none of them could help me nor did they have the slightest idea as to the cause of my problem. When I started working on myself about 22 years ago, with some of my new discoveries, I found that my problem was due to specific IET's. When I avoided these toxins, which I identified with my diagnostic procedures, my fatigue was gone! If I accidentally was exposed to a toxin my fatigue would return. I found to my dismay, through my own work with myself, that I was a highly multiple sensitive person. Although I was curing many others with ease with TFT, I often had trouble helping myself with a problem. My algorithms never helped me personally even though the majority of people were greatly helped with the recipes I developed for various problems [*See Tapping The Healer Within for many of my algorithms for various problems.*] My own experience led me to find that what I call Individual Energy Toxins (IET) were the major cause of my chronic fatigue. We now have a very high success rate in eliminating fatigue and also identifying the particular causes of this problem.

Toxin Relationship to HRV

One of our trainees had a severe reaction to potatoes since childhood. Potatoes showed bad on a TFT test. A baseline HRV was taken and the SDNN looked very good. Then he was asked to hold a potato on his chest and his SDNN crashed and went into the hazardously low range. He noticed no change in his SUD while doing this experiment. The importance of this finding, which has been replicated by others, cannot be overemphasized. After TFT treatment his SDNN went back to normal while holding the potato. The latter demonstrates a fact long known to TFT; i.e., if TFT could not often overcome the transient effect of a toxin, it never would have been able to achieve the great success we now have.

We have a number of examples of a person having a low HRV. We do a test on their clothing, e.g., a shirt. The shirt tests as toxic (probably the laundry soap or cleaning fluid), they remove the toxic garment and do a re-test of HRV and the scores make a major improvement. Here is an example:

This person was given an HRV and he had taken many previously. This day his score was uncharacteristically low. The SDNN score was 41.3. The therapist tested the person's shirt and it was found to be toxic (though uncommon such a finding happens with regularity, due I believe, to the perfume in the laundry soap). The shirt was removed and another HRV was taken. The SDNN was 118.5. This is 186% improvement simply by removing a toxic shirt.

The role of toxins in HRV, a discovery of major importance known to a few experts, was evidently explicitly unknown prior to my work. Without doubt the role of toxins in adversely affecting HRV will become widely known and will ultimately be recognized as a major finding in the field of HRV and in health. We find that toxins not only can worsen HRV, but we find the avoidance of toxins can gradually improve HRV scores. Most of the time, an HRV improves immediately after TFT treatment. When improvement is not immediate, we have found that the person needs to be treated and observed over a period of time with continual HRV monitoring. Though many people improve immediately upon receiving TFT, I have found that recalcitrant HRV scores may be dramatically improved with the combined regimen of toxin avoidance and TFT treatment over a period of months.

Inertial Delay and Toxins

In physics the term inertia is a more specific term than mass and therefore I prefer to use it. Gel-Mann (p151) points out: "Although we have ascribed quasiclassical behavior to the heaviness of objects, it would be more accurate to ascribe it to motions associated with sufficiently high inertia. A batch of very cold liquid helium can be both large and heavy and nevertheless, because some of its internal motions have low inertia, exhibit bizzare quantum effects such as creeping over the edge of an open container."

A good general example of inertial delay is when a jumbo jet is landing. [*In physics inertia is a more precise term than mass. There are some masses that have little or no inertia.*] Soon after the wheels touch the ground, the engines are put into reverse thrust. If there were no inertia or little or no mass relative to the engine thrust, the aircraft would immediately move in the opposite direction. However, the great mass of the plane causes the reverse thrust of the jets to merely begin to slow the jet down rather than cause it to move in the opposite direction.

Those familiar with TFT are aware that the treatment results are usually immediate. One moment a phobia or depression, intact and causing great suffering for years, is there and then it is gone. When I first discovered TFT, the immediacy of the result was a profound shock. My first case was a life-long severe phobia that did not respond to conventional therapies that I tried for over a year and a half. When I performed what I now call TFT on her, every severe symptom of her problem was immediately gone!

After having other similar success with instant dramatic results, I explained this unprecedented result by the realization that in treating mental problems one is dealing with much less physical mass than treating a physical problem. A broken bone, which has more mass than a mind-problem, must be set and most will heal in a matter weeks or months – they do not heal instantly. I believe this is due to the greater mass involved in a broken bone

Exceptions to the rule have been observed over the last 22 years. A very small number of people show a delayed response to the treatment. All experienced therapists in TFT have observed this interesting and unusual (to TFT) phenomenon. The time involved before a problem is completely gone after treatment, in these atypical cases, may vary between minutes, hours, or in very rare cases, even as long as a week. I call this phenomenon "inertial delay." I call it this for I believe it is a result of more mass, or body being involved in a problem than is ordinarily the case when treating psychological problems. I believe this delay is due to the effect of toxins affecting the body and hence involving more mass.

When my causal diagnosis procedure is used correctly, the condition that signifies the possibility of inertial delay is when no further signs of the problem are revealed by my causal diagnosis yet the client reports the problem is still there. We then await (as well as hope for) an inertial delay.

In all cases of inertial delay we have found the presence of toxins as a complicating factor. The toxins are acting upon the body in various negative ways and we believe that the mass of body involvement in the problem results in the delay in response. Interestingly, we find HRV supportive of our notion of inertial delay.

HRV Examples of Inertial Delay

Here are examples of a delayed reaction to treatment as shown by HRV. The person with causal diagnosis and was continued until no further trace of the problem showed. The treatment took about 5 minutes but it took about 45 minutes before the client reported his feeling of tiredness was totally gone. This correlated with a dramatic improvement in the SDNN as well as the power score. The first measure at 8:02 was before therapy was given. The second HRV was at 8:12 and there is only a slight change and the problem felt about the same as before treatment. However, after this slight (about 45min) delay, the problem was reported to be gone and this improvement is reflected in the dramatically improved HRV.

Time	SDNN	Total Power
8:02	54.6	887.6
8:12	62.4	886.2
8:48	168.6	4716

Chaotic Re-Set

Another interesting result of treatment as viewed with HRV is that once in a great while, it may appear to get worse after treatment. This is very unusual but it can happen. I believe this is an example of inertial delay with the added feature of a major re-setting of the mechanisms of control. Here is an example of what we have come to call "*chaotic re-set*." At 6:33, the HRV score not only does not improve but it first gets worse before getting better. About a half hour later, with no further treatment, the score gets dramatically better.

Time	SDNN	Total Power
6:24	65.9	1071.5
6:33	39.3	278.9
7:05	149.6	10900.

Examples of Immediate Improvements in HRV

For the almost immediate improvements in HRV here are some reports of cases presented in TAPPING THE HEALER WITHIN.

Stephen is a 50 year old physician who has suffered from depression and hopelessness for a number of years. He did not receive help from either various psychotherapies or various medications. His before treatment SDNN was 32.2. This is quite low indicating that there is little variability in the intervals between heart beats. Another way of viewing this is his system is under extreme stress and the amount of information processing necessary for good health is quite restricted. This low score also suggests a high state of stress which conforms to the SUD of 10 which has been chronic for a number of years.

After a few minutes of TFT, his depression was reported to be gone (SUD=1). His SDNN score is now 144. This is an increase of 347% in his SDNN score. Such an increase is unprecedented in the clinical literature. This result suggests further that his system is free of stress as a result of TFT.

Naturally, one must continue to observe the client as well as repeated HRV's to ensure that the gains remain. I have found some parameters that can raise and also lower HRV. We know, e.g., that the most common cause of a reduction in HRV is the role of toxins briefly discussed above.

Here is another case taken from the same book. This physician's heart stopped one month earlier. Fortunately, he was in a hospital and after much work his heart was re-started. His pre-therapy SDNN was 16.3. This is quite low and likely indicates a hazardous degree of illness. Immediately after TFT his SDNN increased to 91.4! This is an astonishing increase of 416%! Again, nothing of this magnitude have I seen reported in the literature of HRV.

Results such as this appear to indicate that a person can, with proper treatment, be suddenly thrust from a hazardous position into a position of seeming biologic health. I should state that not all our clients show immediate results as dramatic as these two examples but most of them show unprecedented increases in HRV as a result of TFT treatment. Such patients also need to be seen by a competent health care specialist.

When TFT Does Not Immediately Raise HRV

The Framingham study reported that low SDNN predicted, in retrospect, those who died of a sudden heart attack. These individuals had no indication of a problem until it was too late. This suggests that HRV can identify possible problems in advance of any obvious symptoms.

The majority of people we treat with TFT show immediate improvements in their HRV scores. However, there are some recalcitrant cases where repeated TFT over a few days does not result in an improved HRV.

Here are a few examples taken from our three day training course, which includes training in the clinical application of HRV.

This is a 60 year old psychotherapist who smokes, is grossly overweight, and consumes good quantities of beer. He asked us to do an HRV and the result was quite disturbing. His SDNN ranged from a low of 8.1 to a high, during the three days, of 21.3. His average SDNN after 10 HRV's taken during the three days was 10.8. Here is a case where the major problem is not due to psychological stress (which is easy for TFT to eliminate) but rather is primarily due to toxins. Both cigarettes and beer tested as a toxin.

He became a client and I treated him with Voice Technology (VT) which is done over the telephone. I recommended he see his physician as soon as he got home. I treated him for his addiction to cigarettes and beer as well as treating for every source of stress we could discover.

The VT treatment has gone on for a year and his latest HRV shows how much he has improved as a result of avoiding all toxins discovered with VT.

Pre-therapy SDNN (11 months earlier) 10.2 Pre-therapy Total Power 11.4

Compare the HRV to after 11 months of therapy (taking less than four hours) with 45 sessions averaging less than 4 minutes each; some were only 1 minute.

Post-therapy SDNN is 128.3; Post therapy Total Power is 2645.3.

The SDNN is increased by 1158%. The Total Power was increased by 23104%. As far as I am able to determine, such gains do not appear in the clinical literature on HRV. It is important to note, that in this case as well as a few others, avoidance of TFT diagnosed toxins as well as TFT treatment was required over a long period of time. Such cases are exceptions in the annals of TFT but it is important to know that all is not lost if the person does not show an immediate improvement in HRV.

Usually, we can immediately improve HRV but here is another case of interest taken from our training. She did not feel well but had no idea that anything might be seriously wrong. After treating her each of the three days with TFT during the training, her last SDNN was 12.2 and her Total Power was 39.5. I strongly advised her to see her physician as soon as she returned home. She did and much to her surprise she had severe (conventional) toxic poisoning due to an industrial accident. She has undergone medical treatment for this and has improved greatly. Alas, we do not yet have a more recent HRV.

The reader should not get the impression from this report that TFT can always improve HRV. I believe we can improve HRV in most cases but I am quite prepared to believe that some cases will be beyond any ability to improve HRV. With increased experience, I am certain that we will encounter cases that will not improve with our best and most thorough efforts but until that time it appears worthwhile to try every finding we have made before giving up on any case.

Can Positive Changes in HRV be Translated into Better Health?

Two recent studies on depression and heart problems, Carney et al and McFarlane et al use the SDNN, measured on a 24 hour basis, as an index of health status.. Carney et al use Cognitive Behavioral Therapy and McFarlane et al used the drug sertraline to help depression. As mentioned above, in the Carney et al study, SDNN declined by a non-significant 4%. McFarlane et al showed a 5% improvement with the use of the medication sertraline.

“During the 22 weeks after the acute infarction, the average SDNN for the sertraline group increased *a modest 5% from 110.6 to 115.4 ...* .Conclusion: In depressed patients who have survived the acute phase of an MI sertraline facilitates the rate of recovery of *SDNN, a recognized predictor of clinical outcome (p146, McFarlane, A. et al, 2001)*. [My emphases.]

One TFT therapy session, averaging a matter of minutes, improved the average depressed person’s SDNN from 57.5 to 105.7. This is an average increase of 84%!

Of interest in both of these studies of depressed patients with heart problems is the rather high initial SDNN which is in the 100’s. In my brief report on the treatment of depression with TFT the initial average SDNN was much lower. I doubt that the 24 hour test would have that great a difference to our 5 minute test. The research suggests that it is more difficult to improve very poor scores but TFT dramatically improved the SDNN scores of depressed clients. I wonder if patients with very poor SDNN scores, known to be more difficult to change, might have been excluded from the Carney et al and McFarlane et al studies.

It is very well established that HRV is the best predictor of death and that poor HRV is associated with numerous medical and psychological problems. All the evidence **suggests** improved HRV will result in improved health. The first relevant fact is that many people feel much better after TFT

treatment and their HRV reflects this improvement. Research will certainly be done to find out with precision what happens as a result of dramatically improved HRV. However, due to the overwhelming evidence, of the role of poor HRV and health, the burden appears to be on those who would argue that dramatically improved HRV would make no difference. This ultra-conservative position entails refuting the overwhelming evidence that exists regarding HRV as a predictor of mortality and a close associate of various illnesses. Would such people argue that now that HRV can be dramatically improved, for the first time, it is no longer the best predictor of mortality? Future research will provide the definitive answer to this important question and this research is urgently needed.

Stein and Kleiger, writing in the 1999 Annual Review of Medicine say (p256), *“There is no direct evidence that increasing HRV will improve survival rates. On the other hand, many, though not all, of the interventions associated with increased HRV and decreased mortality are also associated with increased HRV.”*

I remind the reader that the interventions in HRV results of which these authors were aware do not begin to compare to the dramatic changes now possible due to the power of TFT. It is most important to keep in mind that our interventions also improve HRV even for those who have very poor HRV scores. The research shows that poor HRV scores are more stable and resistant to change than those in the normal range.

In TFT we repeatedly show that toxins can have a powerful and dramatic negative effect on HRV. If one wishes to repeat our finding the person should have a good SDNN score; i.e., above 100. If it is very low, toxins may have already had such a bad chronic effect that no result may be observable when a toxin is added (by added, I mean the person merely needs to hold it. We discourage the ingestion of a known toxin and it is not necessary for this demonstration. The issue here is similar in principle to a study of trauma done on war veterans who have been traumatized and the investigators wanted to see what effect thinking of traumas would have on HRV. The PTSD victims had an already low HRV score. The Israeli researchers, Cohen et al observe, *“The lack of response to the stress model applied in the study appears to imply that PTSD patients experience so great a degree of autonomic hyperactivation at rest, that **they are unable to marshal a further stress response to the recounting of the triggering trauma** (my emphasis), as compared to control subjects.”* The same problem will be true in the situation where one’s condition is already severely compromised by toxins. The person may have so low an SDNN, e.g., that no further effect can be shown on the SDNN by adding a new toxin.

Making Sense of HRV

It is a challenging task to briefly convey the way I view HRV but I will do my best. Although I have taken information from a few different sources, the integration of these ideas into a possible explanation of HRV is solely my own. The creative and brilliant people I quote are not responsible for errors I may make in interpretation. I very much welcome informed criticism of my ideas. First, a few important and basic ideas need to be presented as basic to my interpretation.

Defining Life

Arthur M. Young has described the difficulty in defining life. (p175):

“Biologists have long sought for criteria to distinguish the living from the non-living. Is it growth? Reproduction? Sensitivity? Photosynthesis? If growth then we would have to include the polymer chemicals. If self-reproduction, we should include chemicals – notably the virus (which by other criteria is a kind of molecule rather than a life form). If sensitivity, then we must include metals, whose sensitivity to fatigue and poisons was specifically studied years ago by Bose, and is now generally recognized. If photosynthesis, then the fungi, which are classed as plants, would not qualify ... and so it goes.” It is difficult to find a criterion to separate the living from the non-living.”

Life and Health

Quantum physicist Erwin Schroedinger wrote a science classic admired and referred to by biologists, including cell communication expert Loewenstein (see below). In *What is Life?*, Schroedinger introduced (from physics) the concept of entropy (in the form of its opposite, negentropy) as the pivotal idea in understanding life. Entropy is the tendency of organization to go into disorder – negentropy is the localized exception to the Second Law of Thermodynamics. The Second Law is the most highly regarded law in physics. Schroedinger attempts the difficult task to explain life.

As far as I know, an explanation of health as a degree of life has never been done though it is quite possible that it has been done but I am unaware of it. It is possible the relationship is just taken for granted as a self-evident fact. In any event the HRV appears to lend itself to my notion of health as a degree of life or distance from entropy.

Entropy

What is entropy? Imagine a highly organized library where initially every book is in its proper place but the books are never returned to the proper place after use. The entropy (disorder) of the library, like some of our personal workspaces, increases with time [*In fact, some physicists suggest that entropy itself is a marker for the difficult concept of time.*] A deck of new playing cards is arranged according to suit and number. Foster writes, (p34): *“if we now shuffle the cards then we increase their entropy, their state of random disorder, until they come into a state where no further shuffling can increase the random disorder, in which case we have reached maximum entropy.”* Many years ago, the physicist Boltzmann showed mathematically that any disorder, even of a deck of cards, is another legitimate expression of entropy. Death, for a formerly living creature, represents maximum entropy.

Arthur M. Young explains (p175):

“life moves against the current of entropy; it locally violates the second law of thermodynamics. This law states that any given distribution of states, such as hot and cold, ordered and disordered, tends to average out. A glass of cold water, left in a room of usual temperature, gets warmer; a glass of hot water gets colder. Stones roll down mountains and fill valleys. The sheets of a manuscript, when scattered by the wind, lose their ordered position; cards when shuffled, attain more random distribution. All non-uniformity eventually evens out, becomes more average.”

Young then states even more succinctly (p176): “... *the more correct statement of the law of entropy is that order tends to revert to disorder. Energy itself neither decreases nor increases, but the availability of energy decreases. In other words, order is available energy.*”

What is the Meaning of HRV?

HRV measures the intervals between normal heartbeats; this interval is then expressed as SDNN, or the standard deviation of these (NN = non-ectopic or normal to normal) intervals. What is the meaning of this interval that predicts death (total entropy) better than any combination of other indices?

An important clue to understanding this meaning is subtly suggested by Schmidt and Morfil (1995, p87) who make a most important provocative but almost casual statement about HRV; it is the only place I have found such a comment and I believe it to be most profound. They observe (p87): ***“Rhythmicity, a major feature of the electrocardiogram (ECG) signal is a characteristic of biological systems and deviations from rhythmicity are often associated with information transfer.”*** Information transfer is a vital process (see Loewenstein) and DNA itself, the very foundation of life, is pure information according to the molecular biologists. Could Schmidt and Morfil be correct? I think they are for the idea coheres with modern biology and it coheres with what I believe is happening in successful TFT (Callahan and Callahan).

In order to be healthy, our cells must communicate with each other. Cell communication expert Loewenstein observes “it is not energy that counts in biological systems, but information (p59).” The brilliant theoretical physicist, David Bohm, once commented in discussing illness in a radio interview: “We call illness a disorder. However, if there were no order within the disorder then no help would be possible.” I believe that TFT, more specifically, the causal diagnosis of TFT reveals the necessary sequence of treatments that restores order to a relatively disordered being and apparent chaos to the interval between heart beats.

A highly relevant book for students of TFT is *The Philosophical Scientists* by David Foster. It gives the clearest picture of coding and life that I have come across. [*I am most grateful to psychologist, Dr Gary Emory for giving me this book.*] Coding and de-coding is the basis of our causal diagnostic procedures as well as the basis for the algorithms [*Although one does not need to know causal diagnosis in order to carry out my algorithms, my algorithms were all discovered and developed through my causal diagnostic procedures.*] I discovered and developed. The treatments we obtain from my causal diagnostic procedures are highly specific information in encoded form. Foster is intimately familiar with the practical uses of coding for he designs computer run automobile factories and sees coding as the basis of this work as well as the basis for molecular biology and life.

Foster writes (p105) “*Almost all physical processes are wayward and subjected to shuffling and disorder ...*” Shuffling is a mindless activity while sorting is a conscious process. You can, e.g., think of other things when you shuffle cards but you must have some degree of conscious awareness if you are attempting to sort things into a highly ordered state.

Healing: Active Induced Negentropy?

The body consists of physical processes and a central mystery to molecular biology, and medicine, is how does healing take place? As I see the process of therapy, it seems like an obvious strong example of active induced negentropy. Foster (p77) notes that we do not know how Nature repairs damage (heals). Although we still do not know exactly what is going on, it is now possible to control and induce healing (negentropy) through appropriate administration of TFT.

The more we understand exactly what is taking place, the more effective we will become in helping people. A good understanding can help to integrate the many new facts available as a result of our work with TFT and HRV. (Callahan, 2001a, Callahan, 2001b, Callahan, 2001c, Pignotti and Steinberg, 2001).

Due to my clinical observations with TFT and my interpretation of the facts associated with HRV, I propose that the SDNN measure of HRV is, as hinted by Schmidt and Morfil (above), a direct measure of the processing of relevant life and health information. Keeping in mind that total entropy is equivalent to death, it is important to note it has been observed first in newborn infants, and later in adults, that as the person approaches death, SDNN continues to progressively decrease - leading to total entropy or death. The opposite side of this is when we treat someone with severe debilitating symptoms such as clinical depression who shows very little variation in the HRV, the person immediately feels better with no trace of depression (or other severe symptom) and the SDNN score of the HRV increases greatly (Callahan, 2001a). It is of relevant interest in this context that the pattern of a strong correlation between SUD and HRV is a common finding in TFT research (Callahan, 2001b, Callahan, c, and Pignotti and Steinberg, 2001).

Dardik's Penetrating Question

Dardik (1996, p67) asks a most penetrating question: *"Why does HRV emerge as a single common risk factor for virtually all chronic diseases at all ages? ... The finding of one single risk factor for such a wide variety of problems is unexpected."* Here are some of the problems associated with HRV and altered autonomic function Dardik cites:

"behavioral disorders; in utero and infant mortality; sudden infant death (SID) syndrome; HIV/AIDS infection; drug addiction; juvenile delinquency; death from cancer and cardiovascular disease; progression of coronary artery disease; multiple sclerosis; diabetes mellitus; obesity; adult criminal behavior; brain injury; neurological disorders such as Guillain-Barre syndrome; and orthostatic hypotension of the Shy-Drager type."

In addition to the above, a recent study shows HRV predicts sepsis (infections) in infants (Griffin and Moorman). The Task Force of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology (1996) adds that HRV *"may be useful in quantitating the rate of disease progression and/or the efficacy of therapeutic interventions (my emphasis)"* (p. 1060).

To cite still another interesting example reflected by HRV, Porges reports that circumcision in infants causes severe stress as demonstrated by a sharply lowered HRV (Porges, 1995).

Successful Therapy Increases Flow of Information (Negentropy)

When we successfully treat someone we typically find it correlates with an increasing flow of information as indicated by the improving SDNN as well as an improving SUD (Subjective Unit of Distress). There has been evidence for years that psychological problems and stress have an adverse effect on health and our work, especially with HRV, supports this idea.

We have evidence that our treatments provide a hierarchy of success in eliminating psychological problems, stress, and in improving HRV. My algorithms, which are a kind of mass production treatment were discovered by my causal diagnostic procedures, have a good success rate but lower than that available by our two higher levels of treatment both of which use causal diagnosis to obtain a specific treatment for an individual. The causal diagnosis called Voice Technology (VT) is superior to our ordinary causal diagnostic procedure. I have thousands of examples in my tape files demonstrating these robust facts and we now have the support of HRV data as well. The VT is more accurate than any other diagnostic procedure but when someone is helped with an algorithm they may not need the causal diagnosis unless the problem keeps returning and then we need to discover, through causal diagnosis and to prevent, the reasons for this recurrence.

TFT appears to have a far higher success rate than any other therapy. [*It is interesting that, as far as I can determine, TFT is the only psychotherapy that discusses the possible cause of the return of a problem. Also, TFT is the first therapy to use the scrupulously avoided word "cure." The conjoining of these two facts are themselves illustrative of my point.*] Since we can typically eliminate various psychological problems in minutes, we are in a unique position to be able to observe the return of a problem. If a problem cannot be eliminated in the first place then there can be no *return*. I have discovered the major source of the return of a previously cured problem – it is IET or toxins as briefly discussed above.

If we view successful treatment as the restoration of order in the body which paradoxically results in apparent disorder in the variability of the heart we have a basis for understanding that healing is governed by specific information input to the individual in the correct manner.

What Can One Do?

The simplest and best thing I can recommend comes from my experience when I was invited to the Las Vegas Nevada Medical Clinic of Dr Fuller Royal, the director of the clinic. Dr Royal introduced me to Heart Rate Variability which he was using to test the effectiveness of various treatments.

He found that my simple algorithm for phobias was the most powerful treatment he had ever observed, according to his HRV tests. While there I witnessed Dr Royal expertly administer my simple phobia algorithm to twelve patients with varying medical symptoms - not phobias.

Much to my astonishment, I saw that whatever symptoms these patients presented were reduced or eliminated by my simple algorithm. I also observed the HRV scores being quite dramatically improved as a result of my phobia algorithm. There was 100% success rate on this day but if more patients had been treated I am sure the success rate would have reduced.

To find that my simple phobia algorithm had such a dramatic effect on improving HRV on medical patients, (as well as reducing various kinds of medical symptoms) was a dramatic and unexpected surprise to me. Later, when I read the research by Kawachi et al where a high association between phobic anxiety and poor HRV was found, it began to make some sense to me. The more recent research with my various algorithms, carried out by Sakai, et al (2001) at a major hospital is also relevant. “Seven TFT-trained therapists at Kaiser Behavioral Medicine Services and Behavioral Health Services used (the algorithms) ... in 1594 applications with 714 patients (p 1216).” Various medical as well as psychological complaints were helped in this study including acute stress, anxiety, depression, bereavement, addictions, obsessive-compulsive disorder, panic, trichotillomania, physical pain, nausea, tremors, and neurodermatitis (p1218). Some HRV results are also included in this report.

As a result of these findings, I recommend the reader try my simple algorithm for phobias for whatever symptoms are being experienced. If you are having medical symptoms it is crucial to also consult your physician. Instructions as to how to carry out my treatments for phobias and trauma algorithms can be downloaded from our web site www.selfhelpuniv.com. This is taken from our book Stop The Nightmares Of Trauma. If you should have Tapping The Healer Within, this book includes the treatment for trauma as well as numerous other algorithms I discovered.

**PerCent Improvement in HRV
With Different Therapies**

%	Exercise	Smoking	16 CBT	TFT	Drug	Biofdbk
80				XXXX		
70				XXXX		
60				XXXX		
50				XXXX		
40				XXXX		
30				XXXX		
20	XXXX	XXXX		XXXX		
10	XXXX XXXX	XXXX XXXX		XXXX XXXX		XXXX
05	XXXX	XXXX		XXXX	XXXX	XXXX
00	XXXX	XXXX		XXXX	XXXX	XXXX
-05			XXXX			

This chart shows the average % gain in HRV achieved by different treatments. Smoking cessation and exercise improve HRV by about 20% after at least 6 months or one year. Biofeedback, a procedure used to reduce stress, results in an improved HRV of 8% after two months of treatment or training.

The most common conventional psychotherapy is called cognitive behavioral therapy. When this treatment is given to patients with depression for “up to 16 sessions” average HRV change is a minus 4%. This discouraging result led the scientists in this study to speculate that depression somehow may cause permanent damage to the desirable ability to have variation in the interbeat intervals of the heart.

I checked on this alarming notion by examining some cases of depression treated with TFT. In addition to eliminating depression in minutes, TFT achieved an average increase of 80% in SDNN. It is important to keep in mind that the TFT was, in all these cases, done within minutes rather than hours, weeks, or months. It is noteworthy also to keep in mind that HRV scores that are low are more stable than scores in the normal range, and therefore considered more difficult to change. In the TFT study, the HRV scores of this group of depressed individuals were significantly lower than the scores done in the conventional psychotherapy study. These early results strongly suggest that TFT is generating significant biologic enhancement of the important mechanisms responsible for life and health as indicated by heart rate variability (HRV).

Recently....a study on depression by McFarlane, Fallen, Malcolm, Cherian, and Norman, demonstrated that the drug sertraline improved SDNN by 5% after 22 weeks.

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