

## SPECIAL ISSUE

# Physiological Psychotherapy: Opening the Trauma Window™ in High Achievers

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*This article describes the use of heart rate variability biofeedback (HRV) in the practice of psychotherapy, including the emergence of psychological trauma. A model for understanding this phenomenon based on attentional state will be proposed. In addition techniques for transforming this “side effect” into a therapeutic opportunity will be described. The clinical case of DG, a successful business executive who was able to significantly improve his level of function, will be used to illustrate critical points.*

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*I never thought I'd be comfortable enough to tolerate the discomfort of getting to the root cause of my problems.*

—D.G., Senior Business Intelligence Analyst

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### Introduction

Heart rate variability biofeedback (HRV) has much to offer the individual who is trying to optimize function. From enhanced focus to greater resilience and balance, HRV holds great promise. However, the potential of HRV is often not realized in clinical practice because of certain unique challenges that this powerful technology presents to clinicians and clients. In particular the emergence of “unfinished business” from difficult past experiences can create an aversion to HRV feedback itself. As a result both parties lose enthusiasm, and a valuable opportunity for significant personal growth is lost.

HRV trains an individual to use breathing to stimulate her cardiovascular system at its unique *resonance frequency* for a *sustained* period of time (Gevirtz & Lehrer, 2003). The resonance frequency is that rate of breathing, usually between 4 and 7 breaths per minute, which produces the largest heart rate oscillations, that is, the greatest heart rate variability (Lehrer, Vaschillo, & Vaschillo, 2000). This property makes it significantly more powerful than standard “Deep Breathing” techniques. Breathing at the resonance frequency stimulates pressure-sensitive

vascular baro-receptors, whose output ascends via the vagus nerve to modulate CNS function (Dworkin et al., 1994).

### Heart Rate Variability as an Adjunct to Psychotherapy

Physiological effects of HRV particularly relevant to psychotherapy include balancing of the autonomic nervous system, with an increase in parasympathetic tone. In addition there is increased production of synchronous alpha waves on the EEG (McCraty, Atkinson, Tomasino, & Bradley, 2006; Sherlin, Muench, & Wyckoff, 2010). Psychologically this translates into a client who is “relaxed and ready” with an optimal level of arousal and focus. Internal dialog is reduced, feelings of well-being increased, and receptivity to input enhanced. The potential benefits for psychotherapy are readily apparent.

Psychotherapy can be very helpful; however, progress is often uneven. A common factor is clients not being in the “right mood” or “frame of mind” to be able to engage and benefit from treatment. For example, a person may be so anxious and preoccupied that he or she cannot focus effectively. Or in talking about emotionally charged issues he or she may become overwhelmed, frozen, and shut down. The clinician is then abruptly confronted with the biological reality that physiological state determines the range of possible functions. If you are falling asleep you cannot learn, and if your body is in a state of fight or flight or freeze, you can't process feelings.

HRV can be used to regulate physiological state in the “real time” of the psychotherapy hour in a variety of ways. Clients can be instructed to use HRV immediately before a session while sitting in the parking lot or in the waiting room. By beginning a session with an optimal level of arousal and focus, it is possible to “hit the ground running” making for a much more efficient and productive session.

Using HRV to regulate physiological state *during* a session is often an experience that neither therapist nor

client will forget. Particularly in “affect-oriented” psychotherapies, it is not unusual for levels of arousal and affect to rise precipitously. Sometimes it is impossible for the therapist-client dyad to modulate the arousal, and an overt defensive *physiological* state of fight/flight or freeze is triggered. (Of note is that with “freezing”/dissociation the client may simply “fade away” in a manner that is very subtle but very detrimental.) At this point the psychotherapy process has stopped, and it is critical that the therapist recognize the interruption and act decisively.

Once a defensive physiological state has been precipitated, the clinical focus needs to shift, for both therapist and client. The mental content that triggered the defense becomes secondary. Reestablishing a balanced nondefensive state characterized by feelings of safety is paramount. The therapist should clearly articulate the proposed intervention and its purpose, e.g., “Why don’t we do some resonance frequency breathing (HRV) to help you feel more safe?” Because of the nature of the defensive state, this suggestion is often met with resistance that is quite vigorous, e.g., “Screw breathing!” Proceeding with gentle but firm insistence is necessary and will usually be rewarded.

One technique for “insisting” is for the therapist to begin paced breathing in synch with the client. This helps to overcome resistance through behavioral modeling that speaks directly to the client’s right hemisphere, bypassing the left hemisphere, which is now “beyond words.” It also emphasizes the therapist’s commitment to the intervention and decreases feelings of self-consciousness while promoting feelings of connection to a “regulated other.”

If deep breathing is a flashlight, then breathing at the resonance frequency with HRV is a laser. With resonance (equals coherence) comes power. Using HRV a client can shift from a state of terror to one of relative calm in 15 minutes. For a therapist who is used to “talking people down” it is empowering to have such a potent physiological clinical tool. For the client, particularly if he or she sustained developmental trauma, it may be the first experience of rapid, dramatic relief from extreme distress. In a state of terror, safety feels impossibly far away. To learn that a feeling of safety may be rapidly reached through deliberate action by oneself is extremely empowering. (That you were helped to get there by a caring “attentive other,” thus helping to remediate attachment deficits, is an added benefit.)

As affect and arousal continue to ebb and flow following psychotherapy, HRV can be used between sessions to self-regulate. This helps the client maintain a state that

facilitates continued processing of the therapeutic material. In this way HRV is a true “force multiplier.”

Unfortunately the road to greater stability with HRV is littered with obstacles. As clients move into a state of balance and greater resilience, they will often be immediately challenged to process their “unfinished business.” The clinical scenario is remarkably stereotyped and typically unfolds as follows.

### **Heart Rate Variability and the Trauma Window™**

The client begins using HRV and within a few minutes is able to attain medium to high coherence. Coherence is characterized by a smooth, sine wave like heart rhythm, which if maintained over 10 to 20 minutes, leads to a state of physiological balance.

As parasympathetic tone increases, bowel sounds often become audible. The client begins to appear more relaxed—dropping shoulders, sitting back in the chair, relaxing facial muscles, etc. When asked about thoughts and bodily sensation at 5 minutes, he or she will report slowing of thoughts and relaxation in the body. So far so good.

There is a window from 8 to 12 minutes after attaining medium to high coherence during which there is a significant shift in physiological and psychological state in certain individuals (the Trauma Window™). Previously attained heart rate coherence will degenerate into a more irregular pattern. The steady progression to greater relaxation is interrupted. The client begins to enter a “mixed state” of relaxation and distress, with a spectrum of clinical signs and symptoms.

On the subtle end of the spectrum clients may report being “bored” or having vague somatic symptoms, e.g., tingling, muscle twitching or abdominal sensations. Often there is an urge to “do something else.” If encouraged to continue with the HRV, some clients will pass through this state and return to a state of heart rate coherence and relaxation. If not encouraged, most people will discontinue HRV: “I don’t know, I didn’t really like it [the HRV].”

For some clients who continue the HRV session, the “mixed state” will intensify with increasing signs of restlessness, agitation, and worry. When asked, clients will report a mixture of apparently incompatible feelings and sensations, e.g., “I feel relaxed but wound up” or “I’m sleepy, but there’s all this energy in my body.” Inability of clients to label their feelings and sensations in a coherent, satisfying way is typical.

As the “mixed state” continues, physical pain may emerge and become localized. Previously vague symptoms become more intense and clearly defined, e.g., “tightness in

my throat.” At the dramatic end of the spectrum the client will have a flashback, or reexperience a traumatic event with a complete complement of images, thoughts, affects, and sensations. Although the flashbacks that occur during HRV are challenging, they are generally tolerated better than would be expected based on clinical experience. Presumably this is a reflection of the more resilient state associated with increased HRV.

While it may seem incongruent to be discussing trauma in the context of high achievers, experience teaches that it is a mistake to equate achievement with psychological well-being. Across the spectrum, from performers to athletes to executives, the drive to excel is often a response to traumatic experience. In turn, *unresolved* traumatic experience ultimately limits achievement.

If something that is supposed to help me to feel better makes me feel worse, then why should I do it? This is an excellent question, which has a satisfying answer for most of the interventions therapists propose, e.g., quitting smoking or starting an exercise program. Unfortunately for most people who try HRV for “stress management” and encounter the Trauma Window™, this question has not been adequately answered. In fact, for people on the subtle end of the spectrum their encounter with the Trauma Window™ never rises to the level of consciousness. They experience mild discomfort and discontinue the session concluding, “It’s not for me.” It is very common for people to develop an aversion to HRV itself as a result of encountering the Trauma Window™ without conscious awareness of having done so. Addressing this phenomenon is critical to realizing the potential of HRV in clinical practice. How can we understand the Trauma Window™ in a way that makes sense and will provide therapists and clients with the fortitude to tolerate the bumps on the road to increased stability and balance?

The term Trauma Window™ is a convenient clinical shorthand that refers to the *temporal* window of 8 to 12 minutes during HRV described above. It also refers to a “window into the trauma” of a person’s life that results from being in a particular physiological state. Such “trauma” spans a broad range from the horrors of combat to humiliation in the schoolyard. In general the Trauma Window™ can be considered a physiological state that produces “release phenomena” familiar to practitioners of a variety of disciplines including Biofeedback, Neurofeedback, and Body-work. One factor that seems to distinguish the phenomenon in HRV is the high frequency and regularity with which it occurs. This difference can be understood with appeal to the underlying physiology.

#### PRESCRIBING GUIDELINES FOR HRV HOMEWORK

In the initial evaluation I approximate the Lehrer/Vaschillo Resonance Frequency by guiding the client to breathe at rates between four and seven breaths per minute (e.g., 4, 4.5, 5 breaths per minute). The Resonance Frequency is the breathing rate that produces the largest oscillation or “swing” in heart rate.

Then I provide clients with approximately three sessions of breath training and HRV biofeedback at their identified Resonance Frequency. The computer screen includes a breath pacer guiding the client to his or her Resonance Frequency.

Following training in the office, many clients will benefit from using heart rate variability (HRV) at home. Using a feedback device that displays the heart wave is recommended because it maximizes time spent at the resonant frequency and also reflects negative emotions as irregular waveforms. Visualizing an irregular waveform makes anger and anxiety easier to identify, thus facilitating Mindful Awareness. The StressEraser™ and emWave™ Desktop are ideal for this purpose.

The amount of HRV home training that I prescribe depends on how much distress the client is showing in the Trauma Window™.

Empty Trauma Window™—Clients who pass through 15 to 20 minutes of HRV in the office without emergence of any symptoms suggestive of trauma are instructed to begin using HRV at home for 15 to 20 minutes once a day.

Mild Symptoms in Trauma Window™—Clients who have mild symptoms in the office are instructed to use HRV once a day for 20 minutes unless it becomes “too uncomfortable.” Rarely does anyone have trouble complying with this directive.

Moderate to Severe Symptoms in Trauma Window™—Clients who experience moderate to severe symptoms in the office are instructed to use HRV for 4 to 6 minutes once a day. This limited use facilitates some relaxation without precipitating trauma. It helps to create a positive association with HRV, sets the stage for entering the Trauma Window™ in the office, and is “a taste” of what unrestricted use has to offer after trauma has been metabolized.

General Instructions—When using HRV during therapy, some sessions will feel better than others. It is important to “let whatever happens happen” and not try to force a particular experience. A difficult session, like a difficult conversation, does not mean that it wasn’t helpful. The more one uses HRV, the more consistently sessions (and life) feel “good.”

Inset Box 1 includes prescribing guidelines, showing how one begins the breath and HRV training, and how one can tailor the client’s HRV practice outside the session depending on how much trauma and distress actually emerges in the Trauma Window™.

Breathing at the resonance frequency of the cardiovascular system (HRV) leads to a state of moderate arousal, with balanced activation of the autonomic nervous system and increased alpha waves. These are the essential attributes of the “arousal portal” described by Les Fehmi, in which attention is fluid and multiple attentional states coexist (Fehmi, 1998). Diffuse Focus attention is charac-

terized by a broad awareness of the self and world, without particular focus on any one thing. Narrow Focus attention is more like a spotlight that focuses on one thing and ignores everything else outside of its beam. In the “arousal portal,” both of these states can exist simultaneously giving rise to a very powerful way of attending to experience.

According to Fehmi (2010), Narrow Focus attention is an emergency mode that facilitates survival. This mode is associated with increased sympathetic arousal and high-frequency (beta) brain waves. The soldier who “Narrow Focuses” on getting to safety, rather than on his feelings about being wounded, is much more likely to survive. Under less dramatic circumstances, anyone may learn that by “Narrow Focusing” painful feelings can be ignored.

For example, during a painful divorce a man may “Narrow Focus” on his work to avoid feeling overwhelmed. The resulting relief reinforces the use of Narrow Focus, which may then be used to deal with other difficult feelings. If his use of Narrow Focus becomes a habit, however, there will be an accumulation of “unfinished business.” There will also be the wear and tear of a chronically overactivated sympathetic nervous system. Seeking relief, he finds his way to HRV and begins training.

As he shifts to the more balanced state, his sympathetic arousal decreases. His brain waves shift from high-frequency localized processing to lower-frequency, more global, and synchronous processing. Simultaneously his attention begins to shift to Diffuse Focus. He begins to feel more relaxed and present. So far so good.

The attentive reader can anticipate that as the man enters the Trauma Window™, this individual’s discomfort will rise, and the reader will not be surprised when he tearfully says, “I’m scared, I don’t want to grow old alone.” Based on the functional model, emergence of powerful feelings is predictable and expected. In fact, it presents a tremendous opportunity for healing. Having set the stage, the prepared clinician can utilize her therapeutic technique of choice to facilitate continued processing. Clinical experience suggests that Eye Movement Desensitization and Reprocessing (EMDR)/bilateral stimulation can be particularly effective, in resolving such traumatic experiencing. (The author will be describing his use of HRV biofeedback in combination with EMDR in a second article at a later date).

### **A Case Study: D.G.**

D.G. is a 45-year-old divorced Senior Business Intelligence Analyst with bipolar disorder, who presented for treatment to “keep me out of trouble.” Having sustained multiple

episodes of mania and depression over 25 years, he had resigned himself to his “biological destiny.” Pessimistic about improving his performance, he was more focused on not *losing* function. Given his demanding role as liaison between Senior Management and the Information Technology (IT) Department, this concern was easy to understand. Like many high achievers he used his considerable strengths to “work around” his deficits, which were therefore not readily apparent. For example by virtue of working in IT, it wasn’t noticed that he communicated almost entirely via computer, thus obscuring his near phobic avoidance of phone calls. Similarly his excessively long work hours insulated him from criticism for not attending social work functions. Ultimately his adaptations left him exhausted and with a sense of shame regarding his never ending avoidance.

Psychotherapy was characterized by an intellectual style that kept discussion of emotional issues on a cognitive level. Despite content suggesting considerable distress and functional compromise, the associated feelings were largely missing. He seemed to be fearful of affect in general, which he tended to avoid. HRV was initiated with the goal of improving his capacity for self-regulation. Perhaps if he was more confident in his capacity to self-regulate, he would be better able to tolerate the physiological changes associated with feelings. And with increased capacity to experience feelings there would be less need to avoid uncomfortable things in his life, past and present.

During his initial training with HRV DG was able to attain 50% combined medium and high coherence. After approximately 8 minutes he developed “body tingling,” an increase in his baseline tinnitus, and “tense thoughts.” With encouragement he continued, and at 15 minutes he described his thoughts as “quiet.” The tingling decreased, and the tinnitus returned to the baseline level. After finishing the training he reported that he had felt very uncomfortable and “like I was looking over the edge.” He was perplexed as to why he was so uncomfortable when he was “basically feeling calm.”

The following observations about his response to training were discussed before he left the session. He appeared to have difficulty relaxing deeply (which he acknowledged), and he seemed to have “unfinished business” in the form of feelings that he tried to keep at bay. In addition it was likely that HRV could help him tolerate and release those feelings, with increased mood stability as a likely result. The client then left and went to a local supermarket where he burst into tears. (Having been briefed about the possibility of further “release,” he “rode it out” and reported these events at this next session.)

He reported that in 25 years of treatment he had never had that type of reaction. Waves of grief washed over him leaving him with a profound sense of relief. With the self-directed tool of HRV to help him manage his feelings, he had hope for the first time in years. He realized that he had been living with unacknowledged terror of his illness since his first episode. He feared that any strong feeling meant he was going to have a manic or depressive episode, and that all he had achieved in life would be lost. As a result he avoided strong feelings, and his personal and professional function was severely compromised. Having experienced waves of grief that were nothing like clinical depression, he felt that he didn't have to fear his feelings as he had in the past.

He began using HRV exercises outside the office and, with a reduction in fear of feelings, experienced a rapid acceleration of progress. (Inset Box 2 provides instructions for the client for HRV practice outside the session.) For example, he was able to contact his feelings of fear, and of being a burden, engendered by his alcoholic father's irritable response whenever he asked for help. As an adult this residual fear made the lack of visual feedback with phone calls intolerable. To his astonishment, after having released these feelings, he began making phone calls spontaneously. "You have to realize, I don't do this. I don't call anybody ever. I can count on one hand the number of people I will call on the phone. I can't believe I'm doing this. It didn't seem scary at all. I wanted to talk to her so I called her. Great, but damn weird. These are positive things but they are not things I am used to."

The nature of the psychotherapy work changed to helping him to reorient and adjust to his new identity, including new feelings and behavior. "I'm not used to feeling good if it's not an aberration" shifted to "I'm no longer waiting for the other shoe to drop." Ongoing psychotherapy helped him to differentiate between ordinary feelings and symptoms of a major affective episode, e.g., sleep quality. In addition reinforcement for feeling a spectrum of feelings led to a significant reduction in shame. "I don't feel like I'm weird anymore."

The ability to make phone calls was the leading edge of a generalized increase in his capacity to express himself and engage with others. No longer locked into Narrow Focus mediated avoidance of feelings, he decreased his work hours by a third and began to see new social and professional opportunities. Ultimately this led to moving to another city to pursue a romantic relationship, confident in his ability to secure a challenging professional position. "I can be happy, and I owe it to myself to try." "I'm having

#### HOME HRV PRACTICE: INSTRUCTIONS FOR GETTING STARTED WITH THE EMWAVE™ OR STRESSERASER™

- Find a quiet, comfortable place to sit uninterrupted for 20 minutes once a day.
- Follow the instructions on your emWave/StressEraser and begin to create the largest smooth wave possible.
- Using the emWave, try to enter and stay in the Green zone (High Coherence). Using the StressEraser, try to earn three boxes under each heart wave.
- If 20 minutes seems like a long time, start with 5 minutes and gradually extend the time.
- Maximum benefit tends to occur when used from noon to early evening.
- Using immediately before sleep may be too stimulating for you, and disrupt sleep.
- Every time feels different. Don't force it. Let whatever happens happen.
- Don't sweat the numbers. Regardless of your "score," you will benefit from your practice.
- You may experience discomfort. That's okay, keep going. It's like a difficult conversation that doesn't feel good, but is helpful anyway.
- If it's really uncomfortable, stop and discuss your experience with your therapist.
- Using before your appointment, in the parking lot or the waiting room, may be helpful for the challenging work of therapy. Discuss this option with your therapist.
- Using between appointments can help to keep you balanced and accelerate your progress.

fun in my life and I like it." "I'm not going to collapse if bad things happen." "Life is easier."

### Conclusion

HRV is a powerful clinical tool that facilitates access to a physiological state characterized by flexible attention and resilience. In this state, psychological trauma is available, and its associated discomfort well tolerated. These attributes make HRV an ideal physiological regulator in the practice of psychotherapy.

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