



## ***The Resilience Advantage***

*By Henry J. Novak, J.D.*

*Certified HeartMath Trainer*

### **Introduction**

This one-hour workshop will present fundamentals of the Institute of HeartMath's highly regarded Resilience Advantage program. This program, now presented in over 50 countries, is currently used by hospitals, corporations, police and fire departments, correctional institutions, professional athletes, military and Special Forces, has been proven to promote increased personal resilience and energy levels; diminish symptoms of stress; increase the ability to focus, solve problems and think more clearly under pressure; and to improve reaction times and coordination.

For well over 20 years, HeartMath has researched the dynamic functioning of the heart and its relationship to optimal functioning of the human body. Its Research Center, along with independent researchers and universities, have published numerous studies validating the HeartMath System, including studies published in numerous peer-reviewed journals such as *The American Journal of Cardiology*, *Global Advances in Health and Medicine*, *Stress Medicine* and the *Journal of the American College of Cardiology*, and many more.

The workshop participants will be given an overview of the HeartMath research on the physiology of resilience and will receive instruction on one (or more, depending on time) of the HeartMath techniques for achieving resilience-building physiological coherence and instruction on the practical day-to-day application of the techniques.

A brief synopsis of the basics of the research will provide conference attendees with a basic understanding of the technology of the HeartMath system and the technologies involved.

### **Resilience**

Resilience is the capacity to prepare for, recover from and adapt in the face of stress, challenge or adversity. Although often assumed to be a trait of an individual, resilience is best understood as a *process* because it is descriptive of an individual's state of positive emotionality *over a period of time*. We all experience a wide range of emotions during a typical day, some of which lift our energy, such as gratitude or love, and others of which wear our energy down, such as frustration or anxiety. How we react to a challenging or stressful event is a function of how much resilience we have, on balance, at any given point in time.

To illustrate, think of your resilience as the amount of energy you have stored in an inner battery—energy you have to use mentally, emotionally or physically. When you have a fully charged inner battery you have a greater capacity to remain calm, to think clearly and to be in control of your

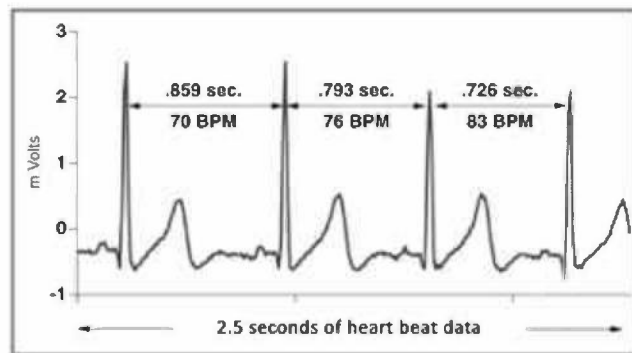
emotions and not overreact. You can more easily “roll with the punches” and flow through challenges rather than become stressed out, which further drains your energy reserves. But when your inner battery is depleted and there isn’t energy to draw from when you need it, it’s difficult to be at your best and respond well in difficult yet very ordinary situations.

It’s a fact that for most of us it is our tendency is to expend more energy during a typical day than we recover – and thus the drain on our inner battery. It’s the constant energy expenditure we endure *without adequate renewal* that leads to diminished resilience. A key in building and maintaining resilience is managing how we spend and renew our energy. And the Institute of HeartMath has developed effective and powerful tools for managing the stress, challenges and adversities of everyday life.

## Physiology of Resilience

### A. Heart Rate Variability

The heart at rest was once thought to operate much like a metronome, faithfully beating out a regular, steady rhythm. Scientists and physicians now know, however, that this is far from the case. Rather than being monotonously regular, the rhythm of a healthy heart – even under resting conditions – is actually surprisingly *irregular*, with the time interval between consecutive heartbeats constantly changing. This naturally occurring beat-to-beat variation in heart rate is called heart rate variability (HRV) and is a measure of the beat-to-beat changes in heart rate. The below diagram shows three heartbeats recorded on an electrocardiogram (ECG) over a 2.5 second period of time. The variation in the time intervals between consecutive heartbeats gives a different heart rate (in beats per minute) for each inter-beat interval.

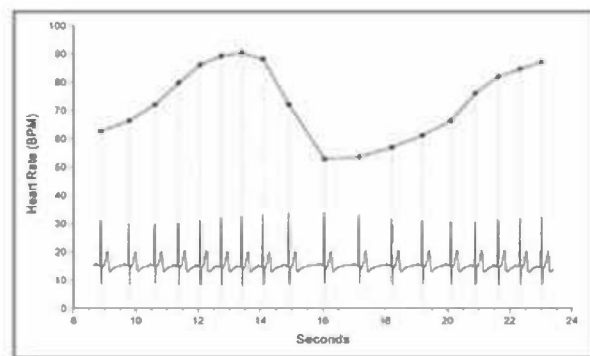


This normal variability in heart rate is due to the synergistic action of the two branches of the autonomic nervous system (ANS), the sympathetic and the parasympathetic, which are stimulated by the emotions we experience. The sympathetic branch acts to accelerate heart rate, while the parasympathetic nerves (primarily through the vagus nerve) slows it down. These two branches of the ANS are continuously interacting one another to maintain cardiovascular activity in its optimal range and to permit appropriate physiological reactions to changing external and internal conditions. The analysis of HRV therefore serves as a dynamic window into the function and balance of the autonomic nervous system.

HRV is an important indicator of physiological resilience and behavioral flexibility because it reflects our ability to adapt effectively to stress and environmental demands. Just as the shifting stance of a tennis player preparing to receive a serve may facilitate swift adaptation, the heart in healthy individuals remains primed with resiliency and ready to respond to its inner and outer environments.

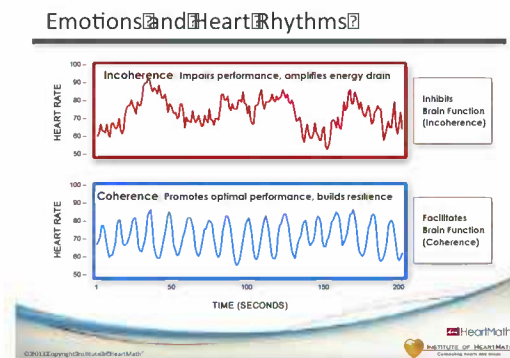
## B. Heart Rhythm Patterns and Emotions

Many factors affect the activity of the ANS, and therefore influence HRV. These include our breathing patterns, physical exercise, and even our thoughts. One of the most powerful factors that affect our heart's changing rhythm is our feelings and emotions. The below graph shows a varying heart rate (at the bottom) plotted over 24 seconds of time and producing shape of the waveform (at the top) called the heart rhythm pattern.



The emotions we experience directly affect our heart rhythm pattern - and this, in turn, indicates a great deal about how our body is functioning.

In general, emotional stress brought on by emotions such as anger, frustration, and anxiety stimulate the sympathetic branch of the ANS and give rise to heart rhythm patterns that appear irregular and erratic: the HRV waveform looks like a series of uneven, jagged peaks called an incoherent heart rhythm pattern. (See upper graph of the below chart) Physiologically, this pattern indicates that the signals produced by the two branches of the ANS are out of sync with each other and can cause our body to operate inefficiently, deplete our energy, and produce extra wear and tear on our whole system. This is especially true if stress and negative emotions are prolonged or experienced often.



In contrast, positive emotions send a very different signal throughout our body. When we experience uplifting emotions such as appreciation, joy, care, and love; our heart rhythm pattern becomes highly ordered, looking like a smooth, harmonious wave (See bottom graph of above chart). This is called a coherent heart rhythm pattern. When we are generating a coherent heart rhythm, the activity in the two branches of the ANS is synchronized and the body's systems operate with increased efficiency and harmony.

### **Coherence: A State of Optimal Function**

Generating sustained positive emotions facilitates a body-wide shift to a specific, scientifically measurable state. This state is termed psychophysiological coherence, because it is characterized by increased order and harmony in both our psychological (mental and emotional) and physiological (bodily) processes.

Psychophysiological coherence is state of optimal function. When we activate this state, our physiological systems function more efficiently, we experience greater emotional stability, and we also have increased mental clarity and improved cognitive function; our body and brain work better, we feel better, and we perform better. In this state we are renewing and increasing our resilience.

Physiologically, the coherence state is marked by the synchronization of the two branches of the ANS with one another, and an overall shift in autonomic balance toward increased parasympathetic activity. Most importantly, there is increased synchronization between the activity of the heart and brain.

#### **A. The Role of Breathing**

The HeartMath system incorporates breathing techniques to create psychophysiological coherence. Because breathing patterns modulate the heart's rhythm, it is possible to generate a coherent heart rhythm simply by breathing slowly and regularly at a 10-second rhythm (5 seconds on the in-breath and 5 seconds on the out-breath). Breathing rhythmically in this fashion can thus be a useful intervention to initiate a shift out of stressful emotional state and into increased coherence. However, this type of cognitively directed, paced breathing can require considerable mental effort and is difficult for some people to maintain.

Paced breathing is not, however, the primary focus of the HeartMath system, and HeartMath tools should therefore not be thought of simply as teaching breathing exercises. The main difference between the HeartMath tools and most commonly practiced breathing techniques is that the HeartMath tools focus on the *intentional generation of a heartfelt positive emotional state*. This emotional shift is a key element of the techniques' effectiveness. Positive emotions stimulate the bodily system to move into its natural resonant frequency and thus to enable coherence to emerge and to be maintained naturally, without the necessity for continuing, conscious mental focus on one's breathing rhythm. Input generated by the heart's rhythmic activity is a major factor affecting our breathing rate and patterns. When the heart's rhythm shifts into coherence as a result of a positive emotional shift, our breathing rhythm automatically synchronizes with the heart, thereby reinforcing and stabilizing the shift to system-wide coherence.

The positive emotional focus of the HeartMath techniques confers a much wider array of benefits than those typically achieved through breathing alone. These include deeper perceptual and

emotional changes, increased access to intuition and creativity, cognitive and performance improvements, and favorable changes in hormonal balance.

The critical element of achieving success in achieving on-going coherence and renewing and maintaining resiliency is to learn how to *self-activate and eventually sustain a positive emotion*. For many people this may take some time. Nonetheless, once one has grown accustomed to generating coherence through rhythmic breathing and has become familiar with how this state *feels*, they can then begin to practice breathing a positive feeling or attitude through the heart area in order to enhance their experience of the HeartMath tools and their benefits. Eventually, with continuity of practice, most people become able to shift into coherence by directly activating a positive emotion.

Henry Novak is a Certified HeartMath trainer and coach and a former federal criminal prosecutor. He lives in Austin, Texas