

HeartMath Interventions Certification Case Study

Steve is a 36 year old male in the Army for the past 18 years. He was referred by his Battalion primary care provider for HeartMath Interventions for management of his stress and anxiety which were believed to be contributing factors to his chronic pain with arthralgia from the initial stages of rheumatoid arthritis.

History:

Physical: Steve started noticing pain, swelling and stiffness in the joints of his wrists, hands and ankles in October 2011. His radiology studies were normal. However, laboratory values were elevated indicating an inflammatory immune response. He was referred to a rheumatologist on the local Italian economy who recommended starting a regimen of methotrexate, and Steve requested a second opinion from the American rheumatologist at the military hospital Landstuhl Regional Medical Center in Germany. The military rheumatologist recommended starting with a more conservative approach of Naprosyn 500mg twice daily, Glucosamine 1500mg, Hydroxychloroquine 200mg three tablets daily. Steve started this medication therapy and supplements this treatment with topical tiger balm. His medical history is also significant for mild traumatic brain injury (mTBI) from a blast during a deployment in 2007. He was diagnosed with the mTBI in 2009 and also diagnosed with migraines at the time, most likely related to his mTBI. These have improved and he is not currently taking prescription medication to manage the headaches. He is otherwise asymptomatic from his mTBI. Steve has significant insomnia, which has plagued him since 2011, and is currently averaging 4-5 hours per night of sleep. He thinks his sleep difficulty is due to pain and nightmares and does not want to use sleep medication.

Psycho-social: Steve's MOS is Field Artillery Targeting Officer. He has been deployed 5 times in his 18 year military career, 3 times to Afghanistan with exposure to combat-related losses and trauma. He feels he is able to maintain his bearing at work, but is not performing Physical Training due to his arthritic pain and does not want his Soldiers to know about his emotional struggles. He states, "I don't want my broken ink to run into them". He likes to keep busy and has difficulty sitting still and relaxing as this often causes an increase in pain. He smokes 10-15 cigarettes per day, drinks 300-600mg of caffeine daily, and he denies alcohol use.

Steve has been married 17 years, and has 2 children ages 17 and 14. He reports the most significant stressors are his marriage and home life and feels a divorce is imminent. He states that he and his wife have grown apart during his deployments and that he has difficulty relating to his family. He reports having almost no relationship with his children, who live in the home with him. He started seeing a psychiatrist on a weekly basis in May 2013 to assist with his feelings of anxiety and depression. Currently he manages stress by "getting away from it all". He likes to ride his motorcycle to a nearby lake where he journals and feels renewed by being in nature. He also likes to go to an Italian bar to sit,

watch people and drink a coffee in the afternoon. Steve denies thoughts of suicide or homicide at this time but admits there have been times he has wondered about ending his life.

Session #1: 9/13/13

The initial session was spent obtaining information regarding Steve's medical and psycho-social history and his personal interest in learning more about HeartMath Interventions. He was unable to sit still during the session, bouncing his leg. He made good eye contact and was engaged in the conversation, asking questions. Steve openly shared his struggles with pain, his frustration with not being able to fully perform his duties as a Soldier, and about his disappointment and guilt with his failing marriage. He shared his insight that he believes his pain has a direct correlation with the amount of stress in his life. Education was provided on the relationship between emotions and physiology and the concept of coherence was introduced. An appointment was set in two days' time for his initial evaluation and he was instructed to refrain from caffeine if possible before the appointment.

Session #2 Baseline Evaluation: 9/19/13

Steve arrived for the session quieter than during the initial meeting. He appeared nervous and bounced his leg throughout most of the assessment. He described his current pain level in his left elbow as "sharp" rating it 0/10 if flexed, 8/10 when partially extended, and 10/10 if fully extended, on a scale of 0=none to 10=max. He denied caffeine intake that morning, described his sleep the prior night as very well, and had only taken his prescribed medication in the prior 12 hours.

Fig 1a

Baseline HRV: Challenge level one, no auditory or visual feedback. Steve was instructed to sit quietly and breathe normally a 2 minute recording was taken. *Avg HR: 69 HRV Coherence Ratio: Low= 41%, Med= 44%, High= 15%, HRV range= 0-7 bpm.* Steve's breathing was even and regular, situated in the chest, fairly shallow, no sighs or sudden intakes of breath. Peak spectrum average waveform was noted to be in the very low frequency band.(Fig 1a)

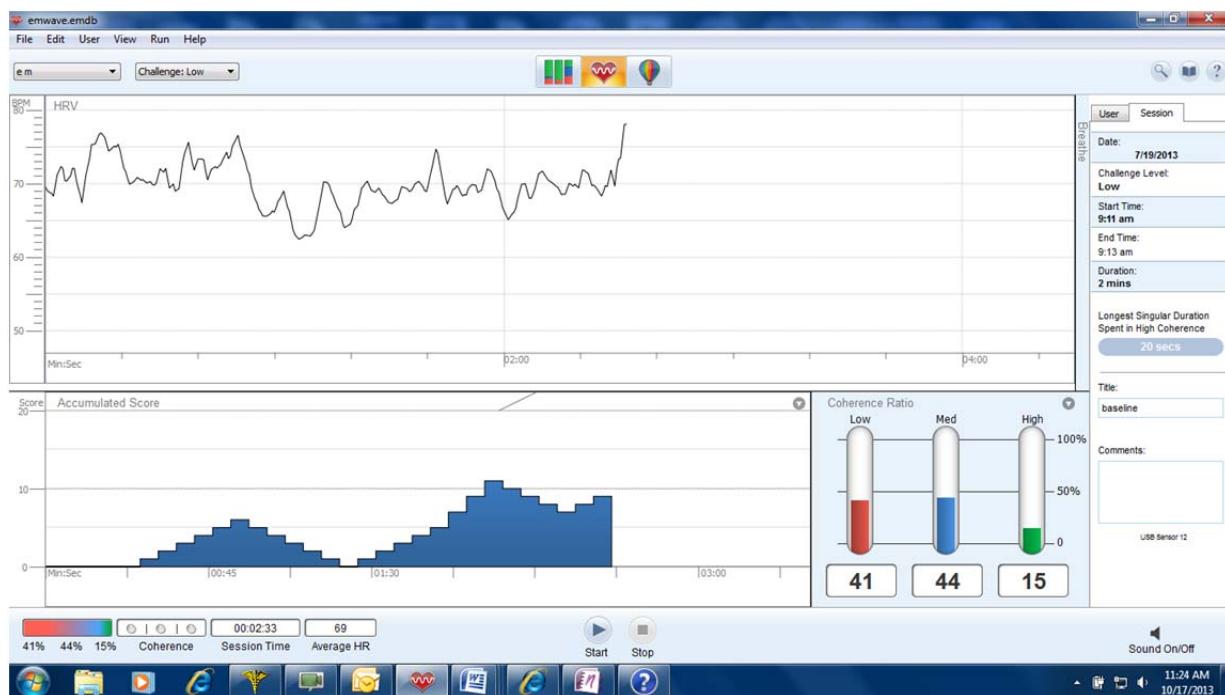


Fig 1a

Stress Recall: Challenge level one, no auditory or visual feedback. Steve was instructed to remember a recent stressor and to try to re-experience how that made him feel. *Avg HR: 74 HRV Coherence Ratio: Low=93%, Med=7%, High=0%*. Steve had a sudden intake of breath once recording started. His HRV waveform had a noticeable dampening and shifted to the very low frequency band indicating a sympathetic nervous system response. He reported thinking of many stressors rather than one event in particular, all related to things that have been said to him or his children. (Fig 1b)

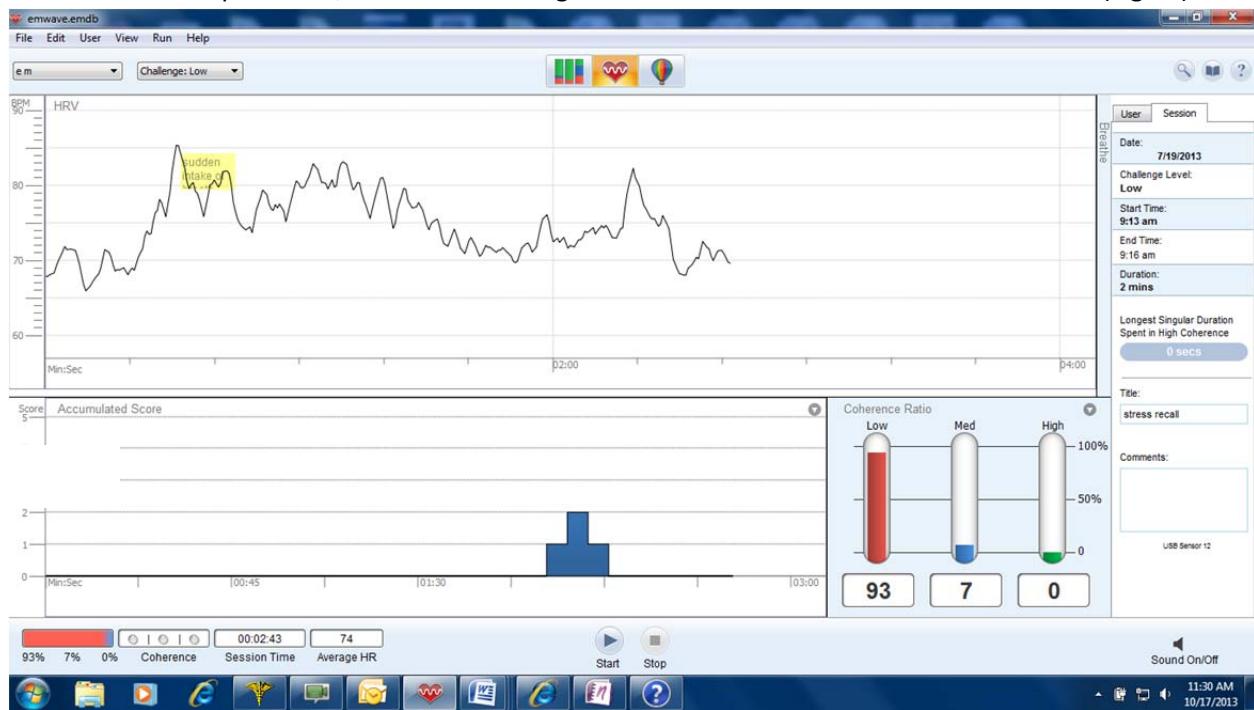


Fig 1b

6 Breath Protocol: Challenge level one, visual feedback, no auditory feedback. Steve was instructed to take a deep breath in and a deep breath out while focusing on breathing smoothly and naturally using the breath pacer on the computer monitor. The breathing pacer was set to a comfortable rhythm for him at approximately 4 seconds per minute. *Avg HR: 64 HRV Coherence Ratio: Low=4%, Med=10%, High=86%. HRV Range=10-25 bpm. His power spectrum was 500, peak spectrum*

average wave form was predominantly 0.1 hertz. (Fig 1c)

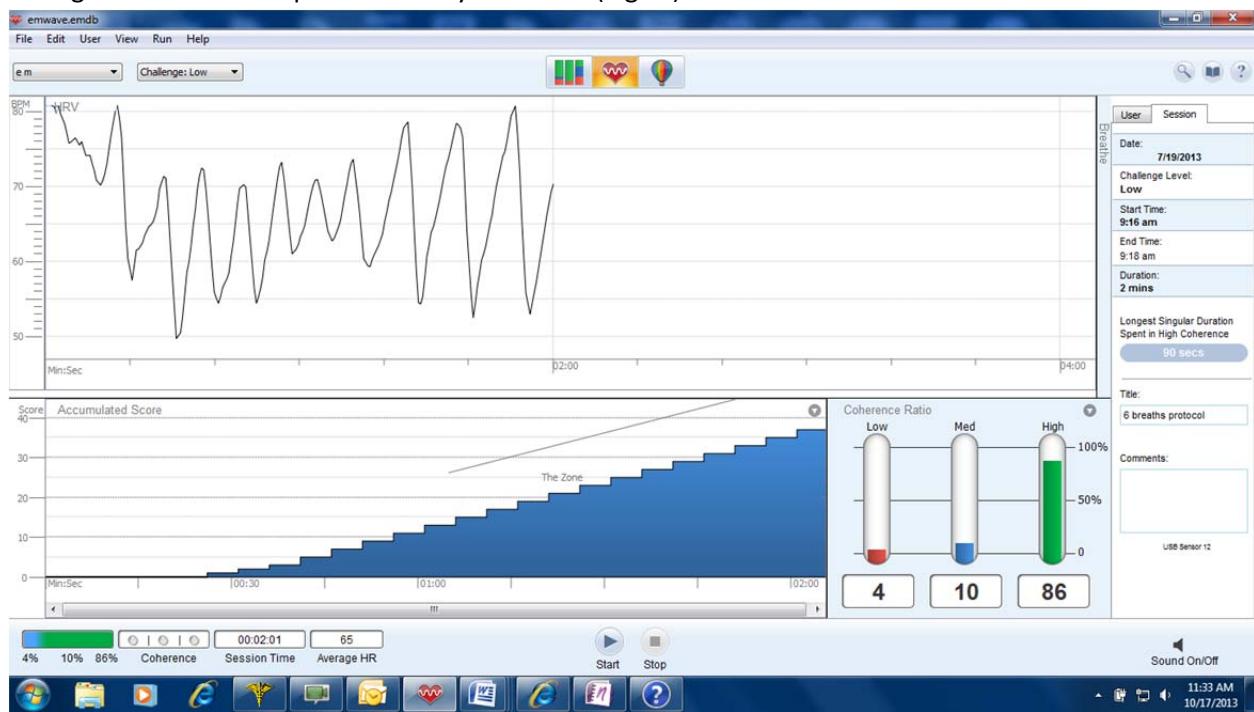


Fig 1c

The evaluation was then explained to Steve, showing him how his stressful recall had an immediate impact on his physiology with the decrease in his HRV. The immediate positive effect of the breathing with the shift to high coherence with the 6 breath protocol was then demonstrated to him. The depletion to renewal grid and where his dominant emotions of depression, boredom, apathy, frustration, anger, and reflection fell on the grid were discussed. As Steve noted that stress tended to bring on his pain, it was recommended that he use the Neutral tool to stop the energy drain and become neutral whenever he noticed the emotions he had identified as in the upper-left of the grid. I then taught him the Quick Coherence Technique was then demonstrated and taught to Steve as a way to restructure the emotional response and work on rebuilding energy stores. Steve practiced using the Neutral Tool with the EmWave, achieving 75% high coherence on his first attempt. Several situations in which the tool would be effective were then identified. Steve's breathing was noted to be shallow and he had difficulty maintaining a smooth rhythm. The use of the breathing pacer at a speed comfortable for him made the exercise much easier for him to accomplish.

Goals: To learn to experience more positive emotions, to move to the right side of the depletion to renewal grid, to learn tools to help me with this, and therefore to reduce the pain.

Patient identified strengths: tolerance, reflection, serenity

Patient identified barriers: unhappiness with family and marriage situation, judgment and resentment at work.

Homework: Steve was encouraged to start to become more aware of emotions that are draining to his energy levels and use the neutral tool to stop energy drains. He would use Quick

Coherence to build energy in his system and as a quick reset when needed throughout the day. He would practice breathing smoothly and evenly through his heart area.

Plan: To meet weekly to work towards building coherence and meeting his goals, anticipate 6-8 sessions. I believed that Steve would be a good candidate for HeartMath Interventions due to his insight into the body-mind relationship with his pain levels and his willingness to try whatever it takes to get better emotionally and physically.

Session#3: 9/22/13

Steve reported that he had been using Neutral more often than the Quick Coherence. He reports a pain level of 3/10 today in his elbows. Again, his demeanor was slightly anxious, bouncing his leg constantly during the first 15 minutes of the session. He mentioned that he has decreased his caffeine intake based on the conversation at the previous session and that he is drinking more water. He also reports feeling down and isolated over the past weekend.

Due to his low energy level and report of "feeling down" Steve was introduced to 2 new tools: Heart Lock-In (HLI) to establish a new baseline and build energy and Attitude Breathing (AB) to stop energy drains and refocus his emotions and to self-empower himself when feeling isolated, in physical pain, and/or depressed. First the Heart Lock-In was taught using the EmWave with the assistance of the Coherence Coach to facilitate ease of heart-focused breathing. Steve reported it was difficult for him to maintain attention on his heart and lost focus several times during the 5-minute exercise. However, he was able to achieve 97% High Coherence for the 5 ½ minute practice. This encouragement and positive feedback was shared with him. He reported he was trying to feel many different "feelings" during the Heart Lock-In (HLI), so he was encouraged to notice if it was easier if he only focused on one particular feeling such as care or appreciation, or one of his strengths such as serenity, instead of multiple ones.

He was then taught the Attitude Breathing tool. Steve practiced the Attitude Breathing and was able to achieve 100% High Coherence on low challenge level for 6 minutes. He used "Cherish" as his replacement attitude and reported feeling "good" after the practice.

These results were very encouraging, and a discussion of how spending time building coherence with HLI and AB would help to establish a new healthier baseline and would also build energy in his system occurred with Steve. His homework until the next session was to practice NT and QC as needed to stop energy drains, and then to use HLI or AB to rebuild energy in his system, with the intent to ultimately decrease his stress and help him manage his pain better (or have less pain to manage). An appointment for another session in 4 days' time was made. He walked out of the office very enthusiastic about his progress and asked about bringing this information to share with other Soldiers in his Unit.

Session #4: 7/26/13

Steve reports that his pain continues to improve. On this date, he denies pain and reports he slept well the previous night. He has been using the HM tools daily, and finds himself using NT and Heart-Focused breathing most often. He expressed his perception that his pain and stress has changed, and that it is becoming more manageable. He has become more aware of his energy drains and finds himself concerned that he is not doing enough to renew his energy levels. This led to a discussion on his current energy drains. He reports his biggest stressor at this time is receiving frequent calls throughout the day from his wife who is checking up on him. A discussion on how the HM tools can help him with these phone calls by using QC or NT before answering the calls ensued, while remaining coherent during

the call, and resetting to a coherent state, if necessary, after the call. The concept of coherence and energetic field interactions and how being coherent may also help his relationships with his family was discussed.

On this date Steve learned the Freeze Frame (FF) tool as another way to gain emotional control and to use before responding with the same emotional patterns when receiving emotionally charged phone calls. The session ended with a practice of coherence building with the Garden Game, and Steve achieved a combined 78% Medium and High Coherence Ratio on Medium Challenge level. His spectrum average has increased to 850 with HRV 17-20bpm, though in this session it was more in the very low frequency range. (Fig 2a)

Steve was loaned an EmWave 2 so he that he would have a more concrete measure for coherence building. Homework: practice building coherence using the EmWave 2, and also practice the emotional re-focusing techniques FF and AB to prevent his stress response, ultimately decreasing or preventing pain. Next session was set for August 1.

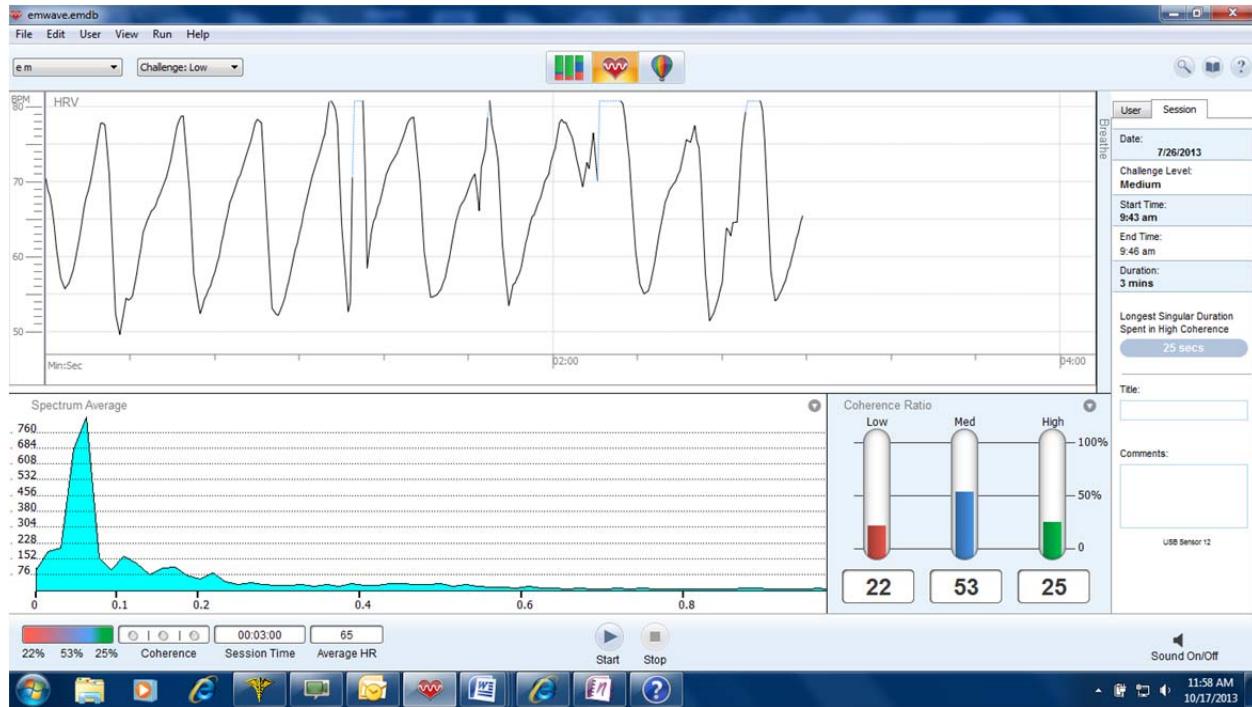


Fig 2a

Session #4: 8/13/13

Steve cancelled 2 appointments, so it has been over 2 weeks since he last attended a session. On this date, he reports his pain level is a 2/10 in his left elbow. In the past 2 weeks, he reports many positive changes. He has been to one HeartMath session at the Garrison Wellness Center (was referred by his Provider for HeartMath in both the Wellness Center and with this Clinician) and happily reported they were surprised at his mastery of Quick Coherence. He has also decreased his caffeine intake and has increased his intake of water. He quit smoking cigarettes 2 weeks ago on his own, without counseling and without the use of medication. He reports no desire to restart at this time and already notices having more stamina. The biggest improvement is with his relationships with his family. He is

spending more time at home with his wife and children and rebuilding his relationships with them. Instead of going off alone on his motorcycle, he has been spending the past 2 weekends on family outings. He reports using NT and HFB as his “go-to” tools but says he is still having difficulty accessing his positive emotions. He continues therapy with his psychiatrist. He reports the EmWave has been more of a distraction than help, but he would like to keep it for another week or two for practice.

Steve was bouncing his leg throughout the session. As he recounted an interaction with his teenage daughter, it was determined that he would practice the FF to see if he had any new perceptions about the situation. SM achieved 87% High Coherence, 10% Low Coherence on a Low challenge level for 10 minutes. (Decision was made to reduce the challenge level to low since he had not attended a session for a few weeks so he would not get discouraged if he did not see progress). SM did not notice any new perceptions during the exercise, but reported gaining a new awareness of how the FF tool worked and was able to state several situations in which he could use it. Compared to his previous sessions, his HRV waveform diminished in amplitude, and his power spectrum was also decreased to an average of 300. (Fig 2b) His breathing pattern has improved immensely, but this may show that he is still not able to use his emotions to bring about increased coherence, as evidenced by the jittery leg, his low amplitude HRV, diminished overall power, and reported inability to access positive emotions.

Homework: Use his strengths to build energy in his system instead of trying to access a “positive emotion”. In the evaluation session, he reported serenity and reflection as strengths, so he was encouraged to use those attitudes when using AB or HLI daily. His progress towards his goals of shifting to the right side of the depletion to renewal grid, improving his management of pain, and of feeling more positive was discussed, as having been significant.

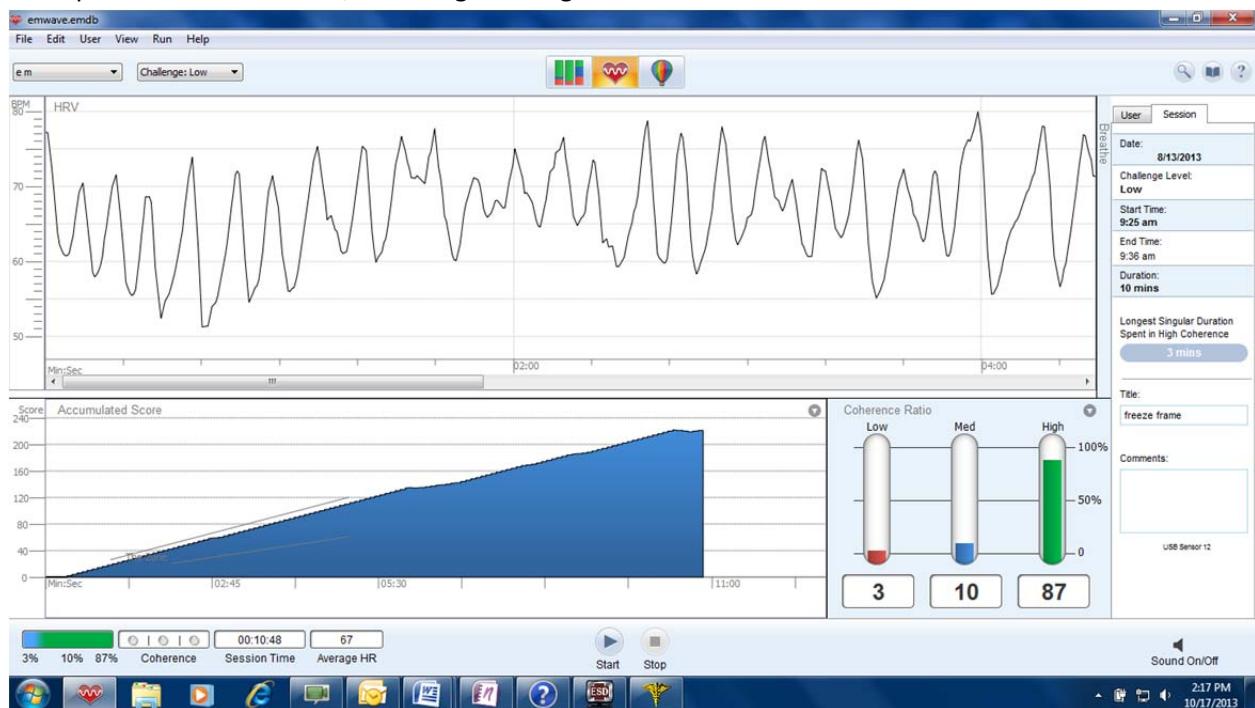


Fig 2b

Session #5: 8/27/13

Steve returned on this date for the scheduled session and he reported that his pain level was 0/10 and that overall his pain has been much improved. He returned the EmWave2, and stated he has been practicing the HM tools on his own and has had one more session at the Wellness Center. His progress towards his goals was discussed, and he was very satisfied with his decrease in pain and felt this was directly related with his mastery of use of the HM tools to manage his stress levels. An added benefit was the improved relationships with his family and also at work. Repeat EmWave Measurements were taken for comparison with his baseline evaluation measurements.

Final Session 6 Breath Measurements: Avg HR: 64 HRV Coherence Ratio: Low= 0%, Med= 0%, High= 100%, HRV range= 25-30bpm. Comparing the two 6 Breath Protocols, Steve has increased his HRV, and his spectrum average has doubled from 480 to 920. This indicates that Steve has established a new and healthier psycho-physiological baseline. (Fig 3a)

Upon reviewing the increase in the power spectrum and HRV with Steve, it was agreed that he has made incredible progress. He attributes these changes to HeartMath, and he was encouraged to continue to use the HM tools and his insights to maintain his new baseline to continue to see positive changes. It was satisfactory and exciting that he could have made so much progress in 6 weeks.

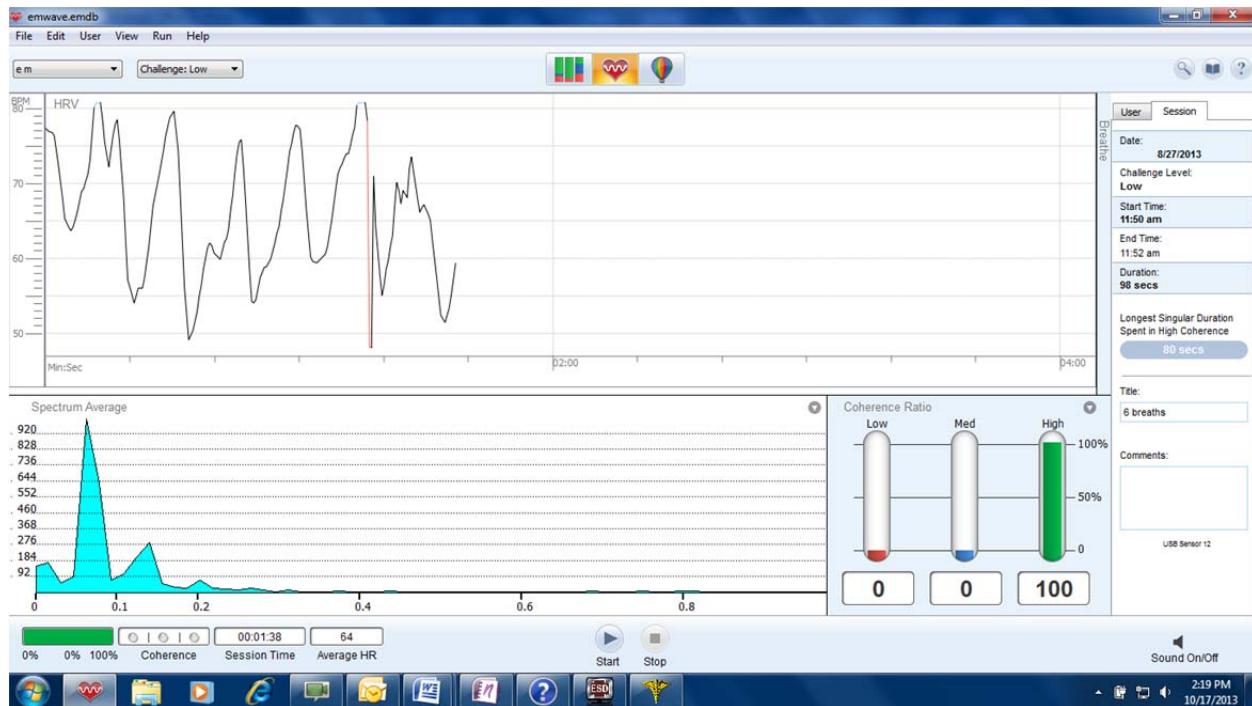


Fig 3a

Summary/Self Evaluation:

HeartMath Interventions was a positive addition to Steve's treatment plan for his chronic pain. He was able to take the HeartMath tools and not only use them to decrease his pain, but make healthy lifestyle changes which have benefited him and his family and work relationships, enabled him to quit smoking, and to decrease his use of caffeine. Steve was assured that he has the tools needed to continue on this path to wellness and new beginnings, and that he could return at any time if he felt he

needed to for a “tune-up”. He will continue for 1-2 more sessions of his HeartMath with the Wellness Center, has signed up for a Meditation class, and will also continue Behavioral Health counseling and his medical care. Looking back at his treatment plan, it is possible that several of the tools were introduced too quickly. It may have been more beneficial to have taken more time with Steve to really progress him up through the higher challenge levels of the EmWave. One reason for this is attributed to not having had the consideration of time. He was already making an appointment for the Meditation class which would add an extra appointment a week to his schedule, and he had 1 or 2 appointments left with the Wellness Center for additional HeartMath instruction as dictated by referral of his Medical Provider. With the extra practice at the Wellness Center and he had a good understanding of the tools, it was easier to part. It was an additional concern that he was trying to be a “good” patient and was trying to please me as his Practitioner. His reporting was validated by the evidence of his progress in the increase in his HRV and Spectrum Average. However, another concern was that he may have been making many changes in too short a time frame. It is hopeful that he was truly ready, and believed that by practicing the HM tools, he had the increased resilience to make these changes permanent.

As a Registered Nurse with 20 years of experience, I am used to giving my patients instructions, comfort, and care. HeartMath Interventions is teaching me a new way to interact with my patients that encourages them to get in touch with their own heart’s intuition. I am a guide, not there to offer my advice or to tell them what to do, and this has been a new role. With HMI, I am learning to step back and let the patient come up with his/her own insights and perceptions. I have only been using HeartMath since February of this year, and each week I feel I am gaining insights into myself as a practitioner and personally as a human being. I use the tools between patients to prep, sustain, and reset, and the benefits keep me going through busy days of taking care of the 173rd Airborne, of which most are veterans of the Iraq and Afghanistan wars and all with a busy, high operating tempo.

What I like most about HMI is being able to show a soldier in a concrete, visual way how his emotions are affecting him on a physical level then being able to teach him a tool he can walk out of my office with and use immediately to regain control over his own emotional responses to life’s challenges. Many of these soldiers have become out of touch with their emotions, and I am still learning the right way to phrase my terms so that it is not too “touchy-feely” and instead to put it in a language they will relate to. I also love having the ability to tailor HMI to the individual’s needs. I may only have 2 or 3 sessions with a soldier, or I may have several months, so I can really decide how I would like to approach the treatment based on my assessment and the patient’s needs.

In August, I had the great fortune to also become a Licensed HeartMath Qualified Instructor. This training has offered more insight into teaching HeartMath tools to Soldiers in a way they understand through the Coherence Advantage Program. I am able to blend the language of Coherence Advantage with my understanding of HeartMath Interventions, and this has only deepened my enthusiasm for wanting to spread this information to this population.

I am looking forward to many years of practice with HeartMath Interventions, and expect that as I continue to practice the HM tools, I will only become a better Practitioner.