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Sound Medicine: Using State-of-the-Art Technology to Facilitate Deep Relaxation, Sleep and Pain Management

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Abstract:

The human brain and mind, our 3-pound universe, is the key to each and every moment of our lives. Neuroscience demonstrates that the brain "speaks" and processes information in specific frequency ranges, including delta, theta, alpha, beta, and gamma. Audio technologies, including drumming, and chanting have been used for millennia to influence the brain and mind. Modern science has understood better how the brain works and what sound is. Using sound technology, including binaural beats and other methods, we can access and affect the various brain wave states. In other words, we can access the languages of the brain. We can take charge of our mental states; we can become the driver, the active participant in our lives – as opposed to being a passenger and merely reactive to outside influences. One of the key aspects of this process is tapping into the recently discovered phenomenon of neuroplasticity, the fact that the brain is capable of changing and adapting. Brain functions are not fixed after a certain age as previously thought.

Samvit Wellness, a holistic wellness organizations founded by traditional, allopathic physicians, Brian Dailey, MD and Sergey Sorin, MD, in collaboration with others, works with audio technology (one of their many tools) to address specific aspects of health and wellness, including sleep, relaxation, pain management, anxiety, depression, cancer treatment (including alleviation of chemotherapy side effects), and other applications. The key aspect and focus is empowerment: empowerment of the healthcare system in the form of tools and education (offering the CME and CEU credits to healthcare professionals); of the customer/ patient in the form of more options and being able to take charge of their own health; and promotion of the complementary modality of sound technology, which can work in conjunction with other modalities as well as by itself.

Key words: Hemi-Sync, binaural beats, sound healing, brain wave entrainment, CME, continuing medical education

Background

Dr. Sergey Sorin, co-founder of Samvit Wellness, observes: “As far as we know we are one of the first, if not the first, to obtain accreditation to offer Continuing Medical Educational credits for sound healing technology. Our team is most excited about this and is eager to share what we have learned about practical applications to complement patient care.”



Dr. Brian Dailey and Dr. Sergey Samvit

Samvit Wellness is a holistic, integrative medical organization formed by Dr. Brian Dailey and Dr. Sergey Sorin, both traditional, allopathic MDs who also have an interest in complementary and alternative medical approaches.

Initially, the team began using a sound technology called Hemi-Sync®, short for hemispheric synchronization, created and patented by Robert Monroe and produced by Monroe Products. Hemi-Sync supports synchronization of the left and right hemispheres, using binaural beats embedded in recorded music.

Binaural beats were discovered by a scientist named Heinrich Wilhelm Dove. In 1839 he defined the concept of binaural beats that are created in the brain when two slightly different frequencies were played in each ear. For example, when a frequency of 100 cycles per second (100 hertz) is played in the right ear and another frequency of 103 hertz is played in the left ear, the difference is perceived by the brain as three hertz. This corresponds to a delta frequency of brain wave activity. Delta brain waves of up to 4 hertz are usually associated with deep sleep.

Dr. Dailey and Dr. Sorin started exploring the technology for their personal use. Dr. Sorin reports, “My first exposure was at The Monroe Institute. I attended the one-week residential Gateway Program. As a child, I lived in the Soviet Union, a militaristic society, which did not allow a person to express emotions or feelings. I realize now, much later, that I was completely detached from my right brain hemisphere, which meant I had blocked creativity as well as my emotions and feelings.” Dr. Sorin believes this intense exposure to binaural beats, combined with the group dynamics and guidance from facilitators, led to a newfound ability to tap into this hidden aspect of himself. “I found myself in a workshop, crying in front of twenty people, something I would have never done in the past.”

Dr. Dailey has a favorite Hemi-Sync® exercise, called *Catnapper*: “I work 12 and even up to 18-hour night shifts. I have to drive an hour to get home. Usually, I will start driving home immediately at the end of my shift. But if I find that I am struggling to stay awake, then I pull off to the side of the road and pop in the *Catnapper* CD.” This was originally created to help mothers of newborns who needed help to rest for short periods of time while their babies were sleeping. It did not take long for others to discover this CD and to enjoy its benefits. *Catnapper*, an exercise that lasts 30 minutes, is designed to help individuals complete a full sleep cycle in a compressed format, which would normally average 90 minutes. Typically, this CD enables people to obtain deeply restorative rest in a third of that time, with the added benefit of waking up refreshed. Dr. Dailey explains, “After taking a quick, 30-minute nap, I am ready to go and can easily drive home.” (Dailey, web video reference 1)

Drs. Dailey and Sorin used the technology on a daily basis. Dr. Sorin reports, “I personally use it to enhance sleep, deepen relaxation, support my meditation practice and enhance focus and concentration.” (Dailey, web reference 2)

Eventually, they realized it was important to share their findings with patients. Dr. Dailey describes his treatment of a 21-year-old cancer patient: “Gretchen had received chemo the day before and was having a severe reaction to it. When I got there, she had been kneeling in front of the toilet for several hours, retching violently. She was weak, pale, and dehydrated. She was placed in bed, the headphones were slipped into place, and she listened to *Chemotherapy Companion*, a Hemi-Sync title specifically created to alleviate reactions to chemotherapy.

“Forty-five minutes later, Gretchen awoke and said, “That was awesome!” She looked and felt much better. After one more brief episode of vomiting, she reporting feeling fine. She ate lunch without difficulty, even though she had not eaten for twelve hours. The further good news is that she had little or no problem with chemotherapy after that.” (See more in Dailey, Web video reference 3).

Both doctors have found the use of sound combined with binaural beats helpful in many areas. The CME course designed by the doctors with the help of Allyn Evans, focuses on managing pain, enhancing sleep, reducing anxiety and providing relief from treatments associated with individuals diagnosed with cancer. In preparation are presentations on additional topics, such as binaural beat recordings for post-traumatic stress disorder and for addictions.

Client reports.

Parkinsonism

Diagnosed with Parkinson’s Disease seven years ago at age 77, Jean B. was told by a neurologist that she would be in a wheelchair and drooling within a year. Not pleased with this assessment and predicted prognosis, Jean found another neurologist who practiced holistic care. The doctor introduced her to tools for maintaining functionality, including Hemi-Sync.

One of the symptoms of Parkinson’s Disease is increased anxiety, as the dopamine levels in the brain decrease. By consistently using binaural beat technology (without other interventions), Jean was able to put off using anti-anxiety medication for the first six years after diagnosis. Jean relied heavily on a series titled: *Positively Ageless*, especially the CDs titled *Regeneration* and *Renew Through H-Plus*. Another change involved her dream states. She reported she had frequently woken up after nightmares, which increased following diagnosis. After repeated use of binaural beat technology, another shift occurred and her nightmares stopped. Instead, she’d wake up her husband by laughing during sleep. According to Jean: “Used consistently, these titles gave me a sense of my body and spirit being renewed and refreshed. Seven years later, I am still walking and functioning independently. I feel that using these exercises gave me control over some of the symptoms of my disease.”

Chemotherapy nausea, vomiting and diarrhea

‘Sally’ (assumed name) experienced extreme nausea, vomiting and diarrhea with chemotherapy for colon cancer that had been diagnosed a year earlier. It had recently spread to her liver, so doctors initiated a new chemotherapy regime to which she reacted even more violently than she had done to the first round of chemotherapy. She immediately began vomiting during the first 90-minute infusion. The nurse caring for her reported: “She experienced three ‘explosive’ episodes of diarrhea that hit without warning.”

Sally remained ill with nausea, vomiting, and diarrhea for ten days, necessitating cancellation of her second chemotherapy that had been scheduled a week later. A family member contacted Dr. Dailey, asking for assistance at the oncology center for her second round of chemotherapy postponed to three weeks after the first. Sally used the *Chemotherapy Companion*, created by

Monroe Products, fifteen minutes before the start of her 90-minute infusion of chemotherapy. Forty-five minutes later, when the CD ended halfway through her infusion, she told the nurses she was hungry and ate half a baloney sandwich. When her infusion was completed, she left, saying: "I feel better than when I came in."

Two ladies receiving therapy on either side of her had been present three weeks earlier when she was violently ill. They asked, "What was that and where can we get some?" Dr. Dailey explained the process and gave each a copy of *Chemotherapy Companion* of their own before leaving.

Samvit Wellness staff members are constantly seeking and testing new products and protocols that demonstrate effectiveness in helping others live better lives.

Explanatory theories

Dr. Sorin explains, "The brain is the physical organ, but there is so much more to what Deepak Chopra coined "our 3-pound universe." It is incredibly fascinating from the point of neuroscience. When exposed to different frequencies that correspond to brain wave states such as those associated with delta, theta, alpha and beta waves, the brain will respond by synchronizing its brainwave frequencies with the frequencies of the differences in the binaural inputs."

The last several decades have seen a tremendous growth in the understanding of the field of neuroscience, especially in the area of neuroplasticity. It was assumed that the brain and the central nervous system did not regenerate or recover, especially after injury or trauma. The general belief is best expressed by the old saying, "You can't teach an old dog new tricks."

With advances in neuroscience, a new understanding has emerged. The brain and the central nervous system (CNS) are in constant states of development. Thus, it is possible to develop and train neural-pathways, as well as to diminish others, much in the same manner as in the "use it or lose it" phenomenon when it comes to physical exercise and muscle development. This applies to both the gray matter of the brain as well as white connective tissues.

Dr. Sorin continues, "Neuroplasticity is exciting stuff! Not only are we able to grow and develop our brains, we can naturally reorganize its functioning by forming new neural connections. Sound technology has shown to be a major player in facilitating this process."



Allyn Evans, MBA

Allyn Evans, COO and Educational Director of Samvit Wellness, explains, "Our brain is like the software that guides the hardware of the body. The mind can be reactive or it can be proactive. It is up to us as individuals to recognize and to take responsibility, to hold accountability and to be in charge of our own lives. Otherwise, external factors, including our environment, family and friends are more than happy to do that for us."

The Samvit Wellness approach is explained by Dr. Sorin: "It is our goal to help facilitate the process for individuals to become the drivers in their own life, as opposed to being the passengers. We can best do this through education."

The magic of introducing sound frequencies is that we can be more directive of our brain wave states at selected times. We can use sound technology to train our brains. Basically, we can "shift gears" at will, so to speak.

Likewise, the use of binaural beats can support brain wave states conducive to healing, recovery, focus, concentration and relaxation. If we combine the use of the technology with intention or purpose, we have an amazing tool to achieve more than we have ever imagined.

Brain wave states can be generally described as the languages in which the brain communicates between parts of itself. Binaural beat technology helps us communicate with the four major states.

Delta brain wave frequency ranges up to 4 cycles per second. It is the language of the brain stem and is necessary for stages two and three sleep, when restorative sleep occurs. A large percentage of people have difficulty entering or maintaining this stage of sleep on a nightly basis, and therefore, have difficulties in resting, healing and completely relaxing.

Theta brain waves range between 4 to 8 cycles per second and is the language of the limbic system, which includes the amygdala and hypothalamus. It is a language that deals with memory and emotions. Maintaining a theta state can be challenging, even for those who have held a strict meditation practice. Accessing a theta state can provide numerous benefits, including deeply meditative and introspective experiences and 'Aha!' moments such as Sir Isaac Newton's apple and gravity insights.

Alpha is in the frequency range of 8 to 14 cycles per second and is the language of the thalamus. The thalamus is the relay station of the brain, the pacemaker that receives input from external and internal sensory sources. The thalamus processes and connects the information to the cortex and other parts of the brain for processing. In the alpha state we are deeply relaxed, but also can be in a state of quiet attention. Visualize the alpha state as that of a runner at the starting line who is calm, ready and aware, but not yet in action mode. Alpha is an ideal state to access when participating in martial arts and sports. It is the main reason to consider meditation or relaxation as part of a daily practice, especially for those of us who are "too busy to relax."

Beta frequencies range from 15 to 30 cycles per second and is the language of the cortex. The cortex is the part of our brain that we use to think. It is also, unfortunately, our control center for excessive anxiety, which is caused by rumination that can take over our lives. When an individual is consistently anxious, nervous and worried the neural circuitry gets locked into a program triggered mainly by external factors. With the addition of Hemi-Sync, we can reprogram our brains, making the cortical activity a servant that works for us rather than against us.

Binaural beat technology has limitations. One of these is the inability to induce a gamma state reaction. Gamma is in the frequency ranges of 35 to 100 cycles per second. Research tells us most people who are experiencing bursts of gamma are hanging out in the 40 cycles per second range. Gamma is found when one is experiencing a peak performance in sports. This has been described as "being in the zone." Heightened creativity and innovation can occur while in this state.

Newer sound products are being developed that can induce gamma states, such as Spatial Angle Modulation (SAM), a technology created by F.H. Skip Atwater, the former Monroe Institute President, Executive Director and Researcher Director. SAM was later perfected by Bob Holbrook, the Monroe Institute Residential Trainer and IT Director. An exciting development in this field is the ability to work with both binaural beats and SAM together. **This will be the subject of a future article.**

In the methodologies of Robert Monroe, there are two key components. The first has to do with assisting the brain via the combination of sound layering to reach specified states of consciousness, which we have already discussed. The second component has to do with the uses of frequencies to

synchronize the two hemispheres of the brain to lead one to a whole brain state, where the left and right hemispheres of the brain are working together in a state of coherence.

Typically, the brain does not operate as a whole, and one hemisphere is more dominant than the other. This is called brain lateralization and it is a combination of genetics and environment that influence whether we rely more on our left or right brain to function in the world.

Tapping into both hemispheres has shown to have other benefits besides giving you access to traits of both. It appears that when the brain is synchronized there is a tendency for enhanced clarity, creativity, problem solving and memory. Research also indicates that high-performing individuals, whether it be in business, sports, arts or science, demonstrate higher levels of whole-brain activity.

We can spontaneously find ourselves in a whole brain state for brief spurts of time. Research indicates that the two hemispheres of the brain perform and process information differently. In simple terms, the right hemisphere tends to access the more creative and emotional aspects and the left hemisphere is our logical mind.

Studies by the Menninger Foundation show us that it is difficult for an individual to maintain a whole brain state for extended periods of time. Those practicing a rigid form of Zen meditation for over 25 years were evaluated. Typically, these individuals were only able to maintain a whole brain state for fifteen minutes or less.

With the Hemi-Sync technology, anyone has the opportunity to reach and maintain a whole brain state without years of practice.

When using binaural beat technology to support brain wave states there are a number of developers who incorporate a complex mix of frequencies. The resulting products are typically a combination of music, white and pink noise and frequencies focused on specific outcomes such as beta for attention and focus; alpha for relaxation; theta for access to the intuitive, and delta for healing, resetting and sleep.

What excites the Samvit Wellness team the most about this well-researched technology is that it can and does help people improve their quality of life.

Applications of the binaural beat technology

Sleep

One of the most frequent complaints heard by medical professionals is about sleep. The challenges vary, but typically people have issues with either falling asleep, staying asleep or returning to sleep.

Typically, sleep occurs in 90 - 120 minute cycles. Earlier in the night we tend to spend more time in a deeper stage of sleep. As the night progresses, the amount of time spent in the Rapid Eye Movement (REM) stage of sleep is extended.

The stages of sleep correspond to our brain wave states. When we are starting to relax and prepare for sleeping, prior to falling asleep, we automatically experience an alpha state. Following this, stage one sleep is a lighter stage and is typically reflected by EEGs in the theta range. As we go deeper into sleep, stages two and three, we transition from high to low delta.

What has been discovered is that sound technology, such as Hemi-Sync, can support the brain wave states responding to sleep, thereby improving sleep for individuals. Depending on the person,

different sleep exercises might be beneficial, such as ones designed for deep relaxation to help someone fall asleep (*Energy Walk* or *Deep 10 Relaxation*). There are also exercises that can be played on a repeat cycle for most impact. The exercises are embedded with frequencies that help facilitate a delta-wave reaction to help maintain and deepen sleep (*Super Sleep*). A favorite exercise mentioned earlier *Catnapper*, is regularly used by the Samvit Wellness team to take one through a 90-minute sleep cycle in 30 minutes by supporting the brain wave activity corresponding to each part of the sleep cycle.

Pain

Many people have found relief from pain by adding sound technology to their toolbox.

It is chronic pain that drives people to seek medical help and robs them of their productivity and wellbeing. Pain can be experienced differently by each person and is complicated to treat. We have no objective measures to tell us how much pain a person is in. It is a subjective experience, which may or may not correlate to physical or objective findings.

Dr. Dailey frequently uses a Hemi-Sync exercise to manage pain appropriately, titled: *Pain Management*. Here is a personal example of Dr. Dailey from a few winters ago: "I stepped onto my back porch to get some firewood. It had been snowing all day and we had several feet of snow and ice on the porch. I slipped on the ice and fell, taking the full weight of the fall on my right hip." He was certain he had fractured his hip because the pain was so intense and severe. Because he had used the pain management exercise numerous times before, he was able to recall and use the "encoding signal" practiced in the exercise. He explained: "I kept repeating 55515, which immediately and dramatically improved my pain."

Benefits of self-healing

Dr. Sorin states, "Our key motivation is to empower medical professionals and individuals by introducing them to techniques that complement their care. We want the patient to be in the driver's seat and to feel in control of what is happening to them."

A recent experience shared by Dr. Sorin explains this concept: "This 12-year-old boy came in regularly because of his high levels of anxiety, which was being treated with medications and frequent trips to the emergency room. During one such visit, the boy was experiencing a full-blown panic attack. I pulled out an iPod loaded with Hemi-Sync and slipped the earbuds on his ears. As I did this, I also talked to him about breathing slowly and using other techniques to relax his body." The experience and information was life changing for the patient. He told Dr. Sorin and his family: "I got this!" Dr. Sorin said: "According to the patient, he learned first-hand that he did have control of his own mind and body. He was introduced to a tool (Hemi-Sync) he could use to counter panic attacks or anxiety. Our goal in helping others is to offer multiple and coordinated approaches with the intention of helping the patient be in the driver's seat and proactive when it comes to managing their lives."

Further applications

There are many ways to use binaural beat technology to enhance one's life. The range of applications is as wide as the applications of the brain and the mind. We use our brain and mind for everything.

Binaural beats can support the brain wave states conducive to healing, recovery, focus, concentration, relaxation, sleep, creativity and so much more. Combined with intention we have an inexpensive tool to achieve more than we have ever imagined.

Because there are so many useful applications, especially in healthcare, Samvit Wellness is continually developing more training programs, which include in-person and on-line workshops. This information is designed to help healthcare and wellness professionals enhance their care of patients

and clients. Individuals can also benefit because they can learn more about the well-vetted complementary modalities available and ask their medical healthcare providers about alternatives or supplemental care.

In summary

Sound therapy is a novel way of assisting the brain adapt and heal. The fact is that the brain is capable of changing and adapting. Brain functions are not fixed after a certain age as previously thought.

It is the goal of the Samvit Wellness team to help people have more options while enhancing the traditional care provided by the medical community. We want everyone to say: "I got this!"

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Brian Dailey, MD, FACEP, FACFE (University of Rochester School of Medicine & Dentistry-URMC) trained in Surgery at SUNY at Stonybrook, NY. He is board certified in Emergency and Forensic Medicine. He served as an Assistant Professor in Emergency Medicine, Laser Safety Officer, Clinical Instructor in Surgery and in Complementary and Alternative Medicine (URMC) until 2003. Brian is a third degree Reiki Master. A member of The Monroe Institute's (TMI) Professional Division, Board of Advisors and Directors Emeritus, Dr. Dailey worked with The Monroe Institute to develop Hemi-Sync exercises for cancer patients. Dr. Dailey, Dr. Harry Oldfield and Dr. Thornton Streeter have been collaborating in the imaging of energy fields.

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Sergey Sorin, MD, DABFM began his career in medicine, studying the fields of Family Medicine, Urgent Care, Occupational Medicine and Emergency Medicine. He earned his degree from SUNY Health Sciences Center at Brooklyn School of Medicine. After a life-altering diagnosis of colon cancer in 2007, Dr. Sorin began to apply his knowledge of the mind, body and spirit and has since published two books on the topic. Dr. Sorin has been the recipient of the Kalberman Award for Excellence in Chemistry and has an advanced certificate in Health Care Management from SUNY Health Science Center at Stony Brook University. He has served as Medical Director at the Veteran's Administration Hospital in Bath, NY as well as filled managerial roles while at Delphi Healthcare. Dr. Sorin founded a Physician Weight Loss and Wellness Center and served as a Medical Director for a Surgical Weight Loss Practice. His travels have included a medical mission to Honduras, traveling assignments in the Virgin Islands as well as assisting people in Kotzebue, Alaska and nearby native villages.

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Allyn Evans, MBA, has teamed up with Dr. Sergey Sorin and Dr. Brian Dailey as COO and Educational Director for Samvit Wellness Institute. A former consultant and residential trainer for The Monroe Institute, Allyn is a speaker, author, former newspaper columnist, former university professor and consultant. She earned a BA in Psychology and an MBA in Marketing. An Advanced Toastmaster, Allyn offers sound technology and related workshops in the United States and abroad.

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