

ADVANCES

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Resynthesizing Mind-Body Medicine Through a Quantum Physics Lens

Heart-centered Meditation: An Interview With Puran and Susanna Bair

*Selected Abstracts From the 5th North American Multidisciplinary Academic
Conference on Spirituality and Health*

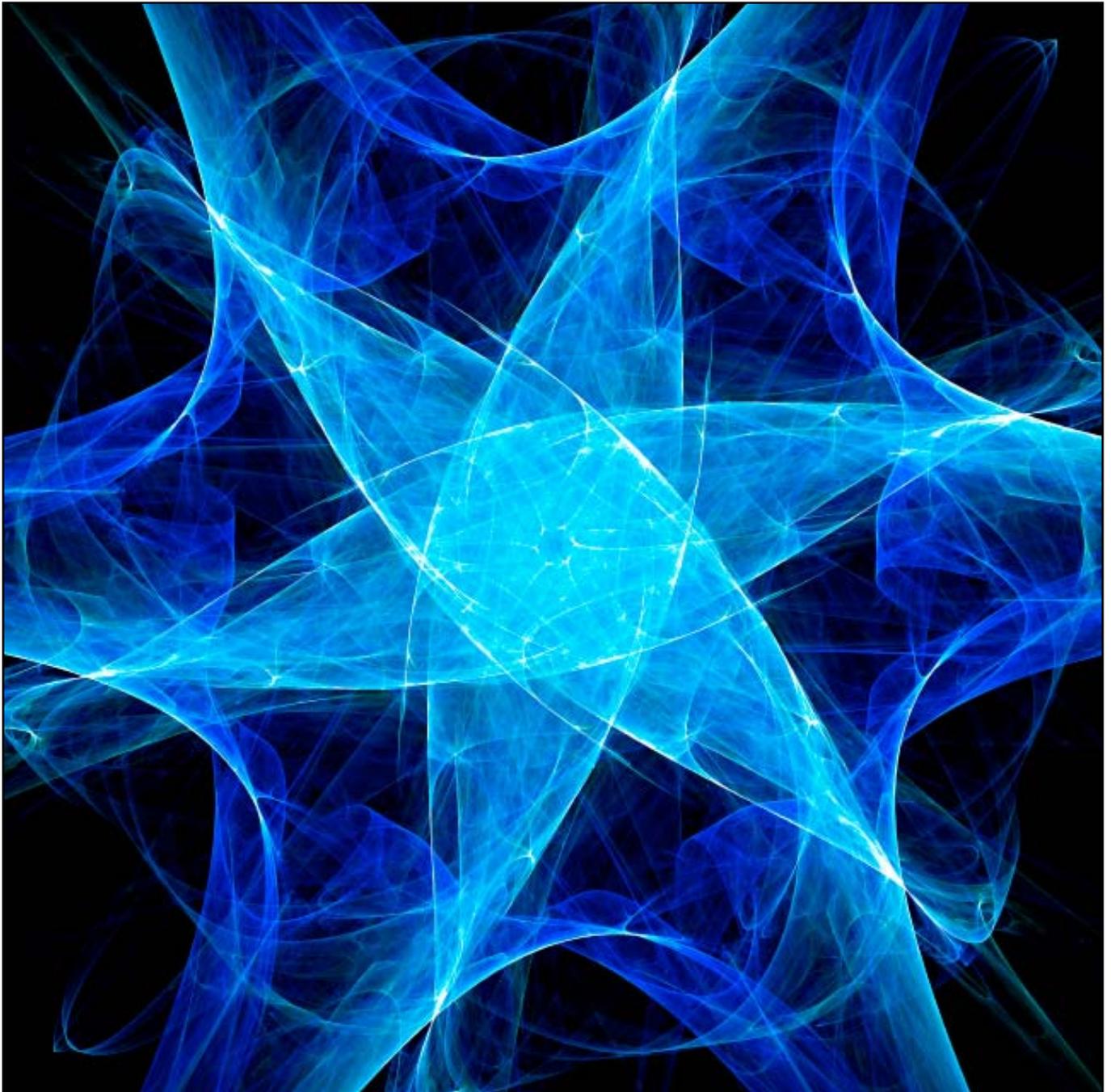


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About the Cover

ABSTRACT BLUE ENERGY PATTERN. An artist's interpretation of spinning photons, hurtling through the cosmos at the speed of light illustrates the proposal of our cover story authors that understanding mind-body medicine from a quantum physics perspective may provide a more complete explanation of the connection between mind, body, spirit, and wellness.

Quantum Physics and Mind-Body Medicine

Welcome to the fall 2009 issue of *Advances in Mind-Body Medicine*. In this issue, we continue to explore the connections between mind, body, spirit, and health—this time through a discussion of quantum and biophysics, a conversation with heart-based meditation pioneers Puran and Susanna Bair, and the second in our series of abstracts presented in September at the 5th North American Multidisciplinary Academic Conference on Spirituality and Health, held at the University of Calgary.

Quantum physics, or quantum mechanics, is at its essence the study of light. In our research article, authors Paul Posadzki, MSc, PhD, and Nel Glass, RN, MPHEd, PhD, suggest that understanding mind-body medicine from a quantum physics perspective may more fully “illuminate” why this holistic view of health and wellness is more relevant than the traditional dualistic view long held by Western medicine. Using quantum physics and its biological adjunct, biophysics, as a basis for understanding the interrelationship between mind, body, and spirit provides researchers with a fascinating scientific avenue to explore the mind-body connection, they write. Posadzki and Glass contend that the existence in living organisms of biophotons is key to understanding that connection. Human organisms emit various forms of energy, among them the low intensity light emitted by biophotons; “from the biophysics point of view,” Posadzki and Glass write, “consciousness is regarded as a form of self-integrating energy that can lead to enhanced health through mind-body medicine.” We hope you find this fascinating discussion both useful and informative.

In this issue’s Voices interview, we’re delighted to present a conversation with 2 pioneers in the development of heart-rhythm meditation, Puran and Susanna Bair, cofounders of the Institute for Applied Meditation (IAM) in Tucson, Arizona. Known for his development of the scientific instrumentation used to measure the physiological effects of this type of meditation, Puran Bair has a background in computer science, electrical engineering, and finance. Susanna Bair, MA, is a psychotherapist with a background in theater. Both were students of Sufi master Pir Vilayat Khan, whose teachings are the foundation of IAM and under whose direction the foundation was created. While heart rhythm meditation and other types of mindfulness-based meditation share a focus on the breath, heart rhythm meditation does not emanate from Eastern contemplative traditions: it’s a Western practice with very different physiology, the Bairs explain, one that is based in the heart, not the brain.

In our book review, Sonja Foss critiques *Endless Energy: The*

Essential Guide to Energy Health, by Debra Greene, PhD. According to Foss, a professor of communication at the University of Colorado-Denver, Greene has compiled a manual for practitioners and lay people alike that expertly weaves a coherent theoretical framework of energy medicine, incorporating its many facets and diversities of research with exercises readers can use to determine their personal energy health. “In a phrase, it’s like meta-analysis meets workbook,” Foss notes.

It’s also our pleasure to present in this issue the second and final compilation in our series of abstracts presented at the 5th North American Multidisciplinary Academic Conference on Spirituality and Health.

Finally, in our news section, we briefly cover some of the latest developments in the burgeoning field of mind-body medicine, and, as in every issue, we offer you a calendar of upcoming conferences and workshops.

All of us at *Advances in Mind-Body Medicine* hope you find this issue enjoyable and informative. As always, we invite your feedback.

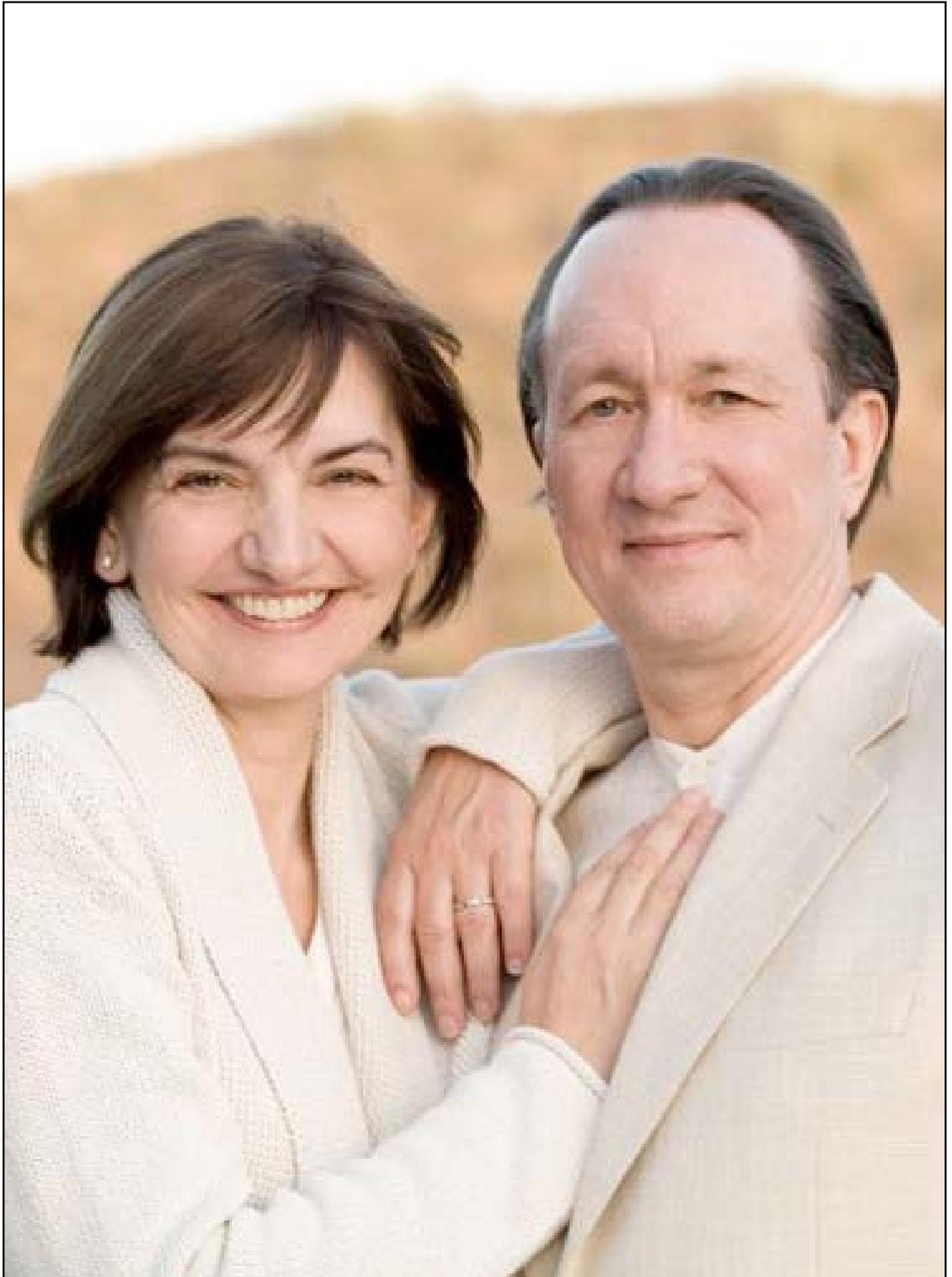
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Interim Editor

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Getting to the Heart of Meditation: An Interview With Puran and Susanna Bair

Nancy Nachman-Hunt, Interim Editor

Puran and Susanna Bair are cofounders of the Institute for Applied Meditation (IAM) in Tucson, Arizona. Known for his development of a type of meditation called heart rhythm meditation as well as development of scientific instrumentation to measure the physiological effects of this type of meditation, Puran Bair has a background in computer science, electrical engineering, and finance. He has also served as an analyst for several mutual fund companies. Susanna Bair, MA, is a psychotherapist with a background in theater. She served as director of the Women's Experimental Theater of the State Theatre of Switzerland. Both were students of Sufi master Pir Vilayat Khan, whose teachings are the foundation of IAM and under whose direction the foundation was created. The couple has written several books, including Energize Your Heart in 4 Dimensions (Living Heart Media, 2007) and Living From the Heart (Random House, 1998).

Advances: What are your backgrounds, and how did you become interested in heart energy?

Susanna: Puran and I have very different backgrounds. My background is in psychotherapy and theater; Puran's background is in computer science. It's a very interesting mix. We both, however, have backgrounds in meditation. As we raised a family, had bills and a mortgage to pay, we realized that our traditional meditation practices were aimed at detaching ourselves from life; we wanted to be engaged, not detached. So we took our meditation practices away from the mind and toward the heart, if you will. From that shift, we came to see the heart, not the mind, is central to emotional and physical well-being.

Puran: When I worked in research at Burrows, an early computer company, and later at IBM, I found it fascinating to learn to understand how cognitive processes work by seeing them modeled in computer systems. The other interest I've had all my life is spirituality. I've studied meditation now for about 35 years, and I had the good fortune to study for 33 years with a great teacher, Pir Vilayat Khan. At the beginning, I saw my interests in computer science and spirituality as very separate, but as I progressed in both of them, I found more and more parallels. The study of consciousness seems to link the 2 of them together.

Advances: What was Pir Vilayat Khan's background, and why, of all the many teachers of spirituality, did you choose him to follow?

Puran: He was the son of a great mystic, Hazrat Inayat Khan, and a musician, like his father. I was impressed by his mastery of all the world's meditative traditions.

Susanna: I recognized him immediately as the teacher I had been looking for. An affirmation for me was that a chronic cough I had for years was immediately cured just by meeting him.

Advances: What is heart rhythm meditation, how is it done, and what are the physiological results of its practice?

Puran: In its simplest form, Heart Rhythm Meditation is the conscious coordination of breath and heartbeat: breathe in for 6 heartbeats and breathe out for 6 heartbeats. The first physiological result one notices is that high blood pressure is reduced. But most meditations do that because, when a person meditates, the breathing slows—and there has been a lot of research on hypertension showing how lowering of the breath rate will cause one's blood pressure to drop to a healthy range. Any kind of conscious breathing process by which one breathes more slowly is going to have that effect on blood pressure.

Heart rhythm meditation shares some techniques or results with other meditations, but then it branches off due to the way breath is incorporated. Hence, there's a difference between heart rhythm meditation and *Vipassana* or Transcendental Meditation or any of the mindfulness-based meditations that have come out of Hindu or Buddhist practices. There are different ways to breathe, and the different ways give rise to the different kinds of meditation. In some meditations, one doesn't change the breath at all and only watches it. This is typical in *Vipassana*, for instance.

The practice that we do is neither Hindu nor Buddhist; it's a Western practice, and it has a very different physiology. If you change the breath, you have your hand on the control, so to speak, and heart rhythm meditation changes the breath to increase the breath volume. This is very important because increasing the volume increases the oxygenation of the tissues. At the same time we are increasing the volume, we decrease the rate. This is necessary to prevent chronic hyperventilation.

Chronic hyperventilation is a major problem; in ordinary life, people breathe too fast and too shallow. This results in artificially low CO₂ levels in the bloodstream. You would think that you don't want to have CO₂ in your bloodstream; you want to have oxygen. But both are necessary. If the CO₂ level is too low, the blood pH becomes too alkaline, and the oxygen in the blood

can't be transferred into the tissues. It seems odd at first analysis, but when you look into it, you see that by breathing too fast, one is actually experiencing oxygen starvation because of too little CO₂. In some meditation methods that don't pay attention to the breath rate, this hyperventilation is sustained. Interestingly, some of the experiences people have during meditation are not spiritual; they are simply a result of oxygen starvation of the brain.

We have to be very careful when teaching breathing, which is the foundation of all meditation. Breath is the basic mechanism that drives metabolism and so many of the other processes in the body. Heart rhythm meditation doesn't just watch the breath; it modifies it to get a desired effect.

Advances: What is the desired effect?

Puran: Well, some meditators say, "I meditate in order get relief from the stress of my life." We say that's a secondary effect of meditation. We see meditation primarily as a rehearsal for life, to prepare ourselves and to gain 2 things—insight and power—in order to be better able to fulfill our life's work. We're not looking for relief; we're looking for preparation. We're looking for something that lets us work better.

That's why heart rhythm meditation is different. We need full breath because it gives us energy, and we also need balance in the breath. When people breathe normally, either the inhalation or the exhalation is emphasized. Seldom does one have a breath that is balanced between inhaling and exhaling. It's interesting that the English word for inhaling is *inspire*. To inspire is to breathe in. The English word for exhalation is *expire*, to give away and to give up. Both are very great and powerful processes, but they need to be balanced. Heart rhythm meditation's goal is to achieve a balanced breath. We actually count the length of these 2 parts of the breath, and we count it using the heartbeat. Heartbeat is the internal, built-in timer by which one can balance the inhale and exhale. This balance creates another process called coherence.

Advances: Is there anything briefly you can say about coherence?

Puran: In an article in *The American Journal of Cardiology*, it was shown that the most accurate predictor of impending heart disease is low heart-rate variability. Low heart-rate variability is a more accurate predictor than obesity or age or diet or any of the things that are usually considered. Low heart rate variability means that the heart is becoming rigid. The heartbeats are becoming too regular, so regular they seem mechanical. This happens when the heart becomes stiff, physically less flexible, less adaptable. One's heart rate should be adapting to breath and to exertion level. If it doesn't do that, the heart is in trouble. Brittle hearts break.

Advances: That's rather symbolic.

Susanna: Yes, it is. When we breathe in synch with the heart, our emotions also are affected. Often what makes a heart brittle is that the emotional body connected with the heart is not "oxygenated," is not moved. When you do heart rhythm meditation, you listen to your heart; you feel and hear what goes on in your heart. That's what creates elasticity in the heart and good heart rate variability.

Advances: So heart rhythm meditation creates both a physical and an emotional response?

Susanna: Definitely. If you move the breath consciously, you touch emotion, and when the emotions are moved, they bring energy into motion, and you open up what we call the spiritual body. I think that's the secret of heart rhythm meditation. And that's why breath is so powerful in emotional healing and personal transformation.

Advances: Puran, how has your training in computer science helped you develop the practice of heart rhythm meditation?

Puran: I was first trained in electrical engineering and later in computer science. One of the processes we studied

in electrical engineering is called Fast Fourier Transform (FFT), which is basically a way of describing a complex waveform as a series of single frequencies at various amplitudes. It turns out we're using that now in our analysis of heart rhythms; the frequencies that are evident in heart rhythms can only completely be understood by using this mathematical analysis tool that I learned in the 70s.

Advances: Why did you both decide to found the Institute for Applied Meditation?

Susanna: As I mentioned earlier, we were interested in using meditation as a way to engage in everyday life, rather than by detaching from it. But what ultimately pushed us toward founding the Institute was that our teacher, Pir Vilayat Khan, asked us to create a school where we would use instrumentation and science to make meditation work for people, and we did. It's a non-profit organization, and our approach is very personalized. Our students don't all do the same meditations. We ask people, "What is the pressing need in your life? What is it that your heart asks you to pay attention to?" We have teachers and mentors who listen to their students, to their mentees, and help them learn to pay attention to their individual hearts' needs.

Advances: You say you study and teach about the heart and heart

“Breath is the basic mechanism that drives metabolism and so many of the other processes in the body. Heart rhythm meditation doesn't just watch the breath; it modifies it to get a desired effect.”

energy from both a spiritual and a scientific perspective. Can you talk more specifically about your approach?

Puran: One of the phrases we like to use is “self-regulation”, that we are teaching people self-regulation, both physically and emotionally. What we explore in our latest book, *Energize Your Heart*, is the ability to recognize emotional states by looking at heart rate variability data. For example, we can hook you up to an instrument and look at your heart rate in minute detail, through FFTs, and tell you what emotion you’re having. Then we teach you to meditate and change that emotion, and we can see the change in the heart rate variability graph.

In heart rhythm meditation, there are 6 things that we call the basic powers, and everyone can regulate, or control, all these things, all the time. These 6 are 1) posture, 2) breath rhythm, 3) where you place your attention, 4) what your intention is, 5) sensory stimulation, and 6) invocation of other beings. Each of these affect certain physiological factors in the body, like production of stress and anti-stress hormones, immune system triggering, alpha and theta brain waves, metabolic rate, blood pressure, blood pH, heart rate, and blood CO₂ levels. These secondary factors, which are not directly controllable, have a widespread, systemic effect. Many illnesses come from imbalances in these secondary factors, which we can’t control directly but which we can influence through control of the primary factors.

The point is that by meditation, where one is consciously controlling the things one can control, you have a method for physical self-regulation. This has linkages to the way we feel: for instance, our emotional resilience, the ability to bounce back after stress, our positive affect, our optimism. These are the most important factors in behavior, and there’s a physiology behind them. So when we’re deliberately working this mind-body connection through making our breath conscious, our heart rate conscious, our posture conscious, our intention, our attention, and invocation of other beings—making all these things conscious, we have tremendous control over this self-regulation process.

Advances: Do you perceive yourselves as teachers or as healers?

Puran: Both. Almost all of illness is self-created. It’s created because we’re not paying attention to the effects of the way we live. We don’t notice the effect of drinking or smoking or eating wrong or staying up late or any of the many things we do that are hard on ourselves—those effects come later. We want to commu-

nicate a way of being that we say is living from the heart. We wrote a book called *Living From the Heart* that has become a classic in the field of meditation because it’s all about how to regulate these forces within ourselves for our own benefit.

Susanna: I agree. We are both. With heart rhythm meditation, healing happens. People might come to this kind of meditation because they want to make spiritual progress or they want to make money or they want to have a relationship, but what happens first is healing.

Advances: Has there been any progress in observing scientifically what you both have observed and taught over the last many years?

“Throughout this conversation, we’ve been talking about the heart as a homonym—as both a physical organ, the seat of the emotional self, and the seat of the soul. We deliberately use this homonym because it is all of these things at once.”

Puran: Yes. The heart rate variability research has been very interesting. When I started meditating, the big interest was in brain waves, and I did a lot of work with researchers around brain waves. It turns out that brain waves are a bit easier to detect and to measure than some of the heart functions. But as the technology has developed, as computers have gotten bigger and smarter and faster, science and medicine has turned to investigations of the heart that are actually very complex and really systemic.

I think it’s clear now that the heart is the organ that’s in charge of the body. In the old days, we thought that the brain told the heart when to beat, which was completely wrong. There’s a little

brain inside the heart that regulates heartbeat, and there’s a new field of medicine called neurocardiology that investigates this 40 000-neuron mini brain. In addition, the hemispheric balance in the brain is influenced by the heart.

Susanna: It’s important to note that throughout this conversation, we’ve been talking about the heart as a homonym—as both a physical organ, the seat of the emotional self, and the seat of the soul. We deliberately use this homonym because it is all of these things at once. We also use this homonym to talk about the problems of the emotional heart in language that’s appropriate for the physical heart. For instance, we talk about having wounds in the emotional heart akin to ulcers or scars in the physical heart.

Advances: Puran, you’ve been called an American mystic. What does that term mean to you, and is it one you would use to describe yourself?

Puran: Susanna might describe herself the same way. It’s a descriptor for someone who experiences the holistic quality of life, the unity of life, that everything is integrated and connected.

Walt Whitman was an American mystic. He said, “In every man, I see myself.” That phrase reflects the experience of unity: not experiencing other people as other, but experiencing other people as aspects and reflections of oneself. It becomes reality for a person who’s meditated a lot and gone deeply into the matters of heart that there is just 1 heart, and we all have an instantiation—an instance—of it.

Susanna: When you have unity consciousness, you move away from dualism, from good and bad. We’re moving toward a global consciousness, and we won’t get to 1 world, to 1 heart, without unity consciousness.

Advances: How can healthcare practitioners use heart rhythm meditation to help their patients?

Susanna: Recently, we had a meeting with a group of 20 hospital CEOs who consider themselves visionaries and very progressive. One of the things they were most concerned about—not only for better patient care, but for better profitability of their hospitals—was how to increase patients’ participation in their own healing. They told us—and we applauded—that patients in America are still too strongly under the illusion that the doctor is going to do “it” to them. As a result, they just let themselves be done to. In reality, patients like it better when they feel they’re involved in their own healing. Patients like to know that there’s something they can do, and if the healthcare industry can teach patients heart rhythm meditation, then they really can participate in their own healing. They can feel it, and they can see the results through the instruments.

Puran: Any time you make something conscious, it works better. If you take an unconscious process and you can find a way to make it at least partially conscious, efficiency is improved and healing is promoted. Using heart rhythm meditation, a congestive heart failure patient, for instance, could self-monitor and see progress. The same thing could happen with diabetes and arthritis. Research has shown that you can increase the blood flow in your hand by thinking of your hand. Increased circulation is very helpful for treating arthritis and diabetes. Those are among the many illnesses that can be greatly influenced by conscious control of breath and heart rate and by proper attention.

Advances: Has the general understanding of your message within the medical community progressed since you started the institute?

Puran: Definitely. We just got a call from a mental health unit inside the Air Force that’s dealing with the veterans coming back from the war with stress and PTSD [posttraumatic stress disorder]

issues. They need something that works better than medication. They need something they can teach patients that becomes part of their lives. By teaching them heart rhythm meditation, it becomes something they can take home and do every day, so that they can reverse the trauma they’ve had without the debilitating side effects of drugs.

Advances: What new projects are on the horizon for the institute and for both of you?

Susanna: We recently got approval from our board of directors to create what we are calling the IAM University of the Heart, or IAM-U. It will be accredited and primarily will have an experiential curriculum. Students will write papers, but they also will study through meditation, seminars, and retreats.

Puran: We’re very excited about this because we already have such good attendance at our courses at IAM. If we can offer both degrees and continuing education units that are accredited, then we feel we’re better serving our students and can offer them subject matter that is quite extensive and complex, of the same order of complexity as, for instance, chiropractic or homeopathy. We’d like

to recognize such achievement with a graduate degree. Presently we’re working with an accreditation group to accredit our degree at the master’s level and, eventually, as a doctorate. We think it will be very useful for healthcare professionals, therapists, and even business leaders because an important part of what we teach is about organizational leadership. When someone really grasps how the heart leads and guides and that our power is in our hearts, this realization has a lot of implications for organizational leadership. We’d like to train people to be able to use their hearts in business and in organizations, as well as to train healers and teachers and mentors.

Susanna: In our culture, we say to people, “Be reasonable. Don’t get carried away by your heart.” That’s exactly wrong. I think the only way out of the problems that we face in our time is to stop using so much of our brainpower and start using more of our heart power. It’s a different way of looking at the world.

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