KENNETH R. PELLETIER, PHD, MD(hc) MINDBODY MEDICINE

Interview by Bonnie Horrigan • Photography by Greg Habiby

Kenneth R. Pelletier, PhD, MD(hc) is a clinical professor at the University of Maryland (UMMC) and the University of Arizona Schools of Medicine. He is also a medical and business advisor to the National Institutes of Health, the World Health Organization, and many major corporations, including American Airlines, Medtronic, Disney, Merck, Ford, Microsoft, and Blue Cross Blue Shield. Pelletier received his doctoral degree in clinical psychology from the University of California at Berkeley in 1974.

Now the director of the Corporate Health Improvement Program (CHIP) at UMMC, he was previously the director of the Stanford Corporate Health Program and a clinical professor at the Stanford University School of Medicine. He is presently chairman of the American Health Association and a vice president of Healthtrac, Inc.

He is the author of 10 books, including Mind as Healer, Mind as Slayer; Sound Mind, Sound Body; Holistic Medicine: From Stress to Optimum Health; Longevity: Fulfilling our Biological Potential*; and* The Best Alternative Medicine: What Works? What Does Not?

Alternative Therapies *interviewed Pelletier in the summer of 2002 at his home and horse farm in northern California.*

Alternative Therapies: How did you come to be involved in mindbody* medicine?

Kenneth R. Pelletier: After I graduated from Berkeley, I had a 2-year fellowship, during which I traveled through Europe, the Near East, and North Africa. At one point, I ended up on the Greek island, Ios. Ios is to the Greek Orthodox Church what Lourdes is to the Catholic Church—a place of miracles. I happened to be there during a pilgrimage to a church on that island and I saw changes in people that defied explanation.

People in wheelchairs would stand up, and people who were obviously in excruciating pain seemed to be relieved of pain, and people who had terribly deformed hands, probably due to rheumatoid arthritis, suddenly flexed their hands and moved their limbs. I was astounded. The things I was seeing didn't conform to any understanding I had of neurophysiology and anatomy and how the body is supposed to work. That experience has stayed with me and I've had an abiding curiosity ever since.

In the early 1970s, when I was conducting research at the University of California, San Francisco (UCSF), School of Medicine, there was a huge controversy about whether or not people could voluntarily regulate or control autonomic functions such as brain waves, heart rate, pain perception, and blood pressure. I remembered the incidents in Greece and felt that something about a person's beliefs could influence his or her physiology beyond the boundaries we normally think possible. But it occurred to me that you couldn't address this issue or solve the problem if you studied the usual 50 sophomore research volunteers. My idea was to study adept meditators or people who had practiced and developed demonstrable mindbody abilities.

So that's what we did. At the time, Dr Charles Yeager, a professor of neurology at UCSF and the head of electroencephalography, conducted all the EEG analyses for me. We needed about $5,000 dollars to finish the experiments so I asked Charlie if he knew of anyone who could help us. Charlie said, "My brother-in-law is interested in seeing strange things. I'll see if he can help us fund this study." And sure enough he did.

When we finished the research, Charlie said, "My brother-in-law would like you to come back to Michigan and give a presentation." Well, Charlie's brother-in-law turned out to be John Fetzer. At the time, Fetzer owned the Detroit Tigers and the largest radio network in the Great Lakes area, though he is best known today for founding the Fetzer Institute. So I went to Michigan, made the presentation, and John and I stayed friends throughout his life. In fact, one of the last interviews he ever gave was at age 96 for my book, *Sound Mind, Sound Body*, since he embodied that Platonic ideal.

Since childhood, Dr Pelletier has been and is an avid open-ocean sailor.* Alternative Therapies *photographed him on his boat in San Francisco.

* Use of the term "mindbody" is intended by Dr Pelletier to indicate the complex, perpetual interaction between mind and body.

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AT: What did your research show?

Pelletier: It was fascinating. We tested 3 individuals—a karate expert, a drug smuggler, and a meditation teacher. We started with the karate expert, who would take a sharpened bicycle spoke and put it through his forearm. Then he'd suspend a heavy weight from the spoke and focus the qi using karate. We monitored 24 multiple electroencephalographic (EEG) channels and other neuropsychological indices, including muscle tension, respiration rate and pattern, heart rate and regularity, and blood pressure.

Somehow, a writer from *Playboy* found out about the research and wanted to interview me. So I said fine. Except I never realized how many people in the military and in prisons read *Playboy*. I was inundated with letters after the article came out. One prisoner in San Quentin wrote and claimed, "I can do that," and sent me some clippings from when he worked in a circus sideshow. It took months of negotiations with the California Department of Corrections, but we finally we got permission for him to come to the laboratory. So we had a heavily armed highway patrolman with a man in an orange prison uniform in the lab, which lent a whole new dimension to the idea of saffron meditation robes.

This convicted drug smuggler would take 3 bicycle spokes and put them through the cheeks of his face—in one side through his oral cavity and out the other. A photo of this was published in the medical journal article. He'd learned to do this because he had been shot or wounded a number of times while smuggling and had taught himself how to control bleeding and pain in order not to be discovered or die. He also performed feats like breathing fire and eating light bulbs. We learned a lot from him.

Then the final person we studied was Jack Schwarz, a Dutch meditator who also taught meditation for many years. I knew that Jack had been studied by Dr Elmer Green at the Menninger Foundation, so we contacted him. Within the course of an intensive 1-week study, Jack took a large-diameter knitting needle and pushed it completely through his biceps and out the other side. We filmed it and meticulously addressed every single objection that there had been to the prior research and tried to answer each one. Researchers said, "Maybe these people don't respond to pain normally," so we conducted standardized pain response tests. They said, "Maybe these people don't bleed normally, maybe they clot unusually quickly," so we did standard bleeding time and clotting time tests. From very rigorous testing, we established that Jack's physiology in a nonmeditative state was absolutely normal. But when he meditated and went into a deep meditative state, his neurophysiology altered profoundly such that he did not experience pain, did not bleed, did not experience infection, did not even experience the normal immunological response. We demonstrated this absolutely and definitively.

We also explored what happened to people as they learned such mindbody disciplines. We wanted to know what happened internally, not just what was evident. Jack had been in the Dutch resistance. After being captured by the Nazis, he was put in a concentration camp, beaten regularly, and starved. At one point when he was being beaten, he passed out. Now, Jack grew up as a Dutch Catholic. When he passed out while being tortured, he found himself at the foot of the cross of the crucifixion at Calgary. He always thought that when Jesus said, "Father, why hast thou forsaken me?" that he looked upward toward the sky. By contrast in Jack's vision, he said that Jesus looked into the eye of every person and said, "Why has thou forsaken me?" When he came out of his reverie and from that time forward, he said to the people who had been torturing him, "I love you." From that point on, the Nazis thought Jack had gone completely whacky and they left him alone. But also from that point forward he found that he could control pain and bleeding. Jack taught other people in the concentration camp how to survive by controlling bleeding and pain and resisting the torture.

The cumulative paper we published about these 3 individuals was heretical. Essentially, it was the first definitive demonstration that individuals could regulate multiple autonomic functions, such as the brain, the heart, respiration, and the pulse. At first it was rejected by the *Journal of Clinical and Experimental Hypnosis*. Their editor was Dr Martin Orne of the University of Pennsylvania who was an outspoken critic at the time and that is why we submitted the research to his journal. They didn't believe us. We had to submit our original data tapes for external review before the article could be published. But in the end, it had many profound consequences because we demonstrated unequivocally and with absolute rigor that it was possible for trained individuals or adept meditators to regulate multiple autonomic functions and that opened up a whole field of work for people.

What happened next was that the Montreal Neuropsychiatric Institute in Canada and the Canadian Broadcasting Company (CBC) series called *The Nature of Things* taped a documentary film about our research with Jack. Most recently in 2001, when *48 Hours* produced a program focused on pain, they discovered the CBC footage and contacted me. They said, "We have a man who self-mutilates, and we want to know [if this] is a real phenomenon and if it is, what does it have to do with pain control?" It was an interesting perspective from my 1974 research to a *48 Hours* documentary in 2001.

As a result of all this, pain is now considered to be the fifth vital sign, pain is now recognized as a major syndrome, and the fact that people can self-regulate certain aspects of pain has become accepted. This has applications with many clinical conditions like chronic arthritis pain, phantom limb pain, and intractable back pain. Patients don't report that the pain disappears, but rather that their perception of the pain is profoundly altered. Like Jack Schwarz—he said that if he stuck himself with the needle without meditating it would be very painful, but when he did it while meditating, it felt like his own finger pressing against his arm. You can alter the perception of pain.

So the practical applications of mindbody interven-

tions in pain syndromes really grew out of this and other pioneering research.

AT: And the efficacy of a whole array of mindbody interventions are more or less accepted medical knowledge now.

Pelletier: That's right. The use of biofeedback and the ability to self-regulate certain autonomic functions, the use of meditation, yoga, the Asian martial arts, and many other mindbody techniques are mainstream.

When I was writing *The Best Alternative Medicine*, I took my usual agnostic view and completed extensive literature researches. Much to my surprise and delight, mindbody interventions turned out to be, on a scientific basis, the most extensively documented area of alternative medicine with efficacy for the largest number of people with the largest variety and range of conditions throughout the world. That's remarkable. We tend to focus on herbs and chiropractic and acupuncture and Chinese medicine and Ayurveda, but if you look at the evidence, you find that our ability to focus consciousness or human attention on the inextricable mindbody interaction actually has the most profound effect on disease states and health states, at least in the scientific literature, of all these other areas. I did not expect to find that.

> COLLECTIVELY, MINDBODY PRACTICES HAVE A ... PROFOUND INTERACTION ... THAT YOU CAN MOVE TOWARD STATES OF HEALTH ... OR DISEASE.

Collectively, mindbody practices have a very profound interaction and you can move that interaction toward states of health or toward states of disease. What occurred to me, even in that early research, is that if the mindbody system can regulate heart rate and bleeding and pain, then how many times do people unconsciously regulate in a dysfunctional direction and how many times does it self-regulate in a functional direction? That still is an unanswered question.

Use of such mindbody interventions has a profound effect in heart disease, in cancer survival, and in the quality of life. There was an article about 2 years ago in the *Journal of the American Medical Association (JAMA)* that looked at mortality rates before and after Christian and Jewish holidays. They found that just prior to Christmas, Easter, and Yom Kippur, there was a decline in mortality incidents and then subsequent to that, a month to 2 months afterward, there was a spike. So people who were going to die held off and then died 4 to 8 weeks later. They were able to temporarily stave off death. Historically, you have people like Thomas Jefferson, who died on the anniversary of the Declaration of Independence, and Mark Twain, who was born and died when Halley's comet returned. These were very conscious desires. This "anniversary phenomenon," where individuals live beyond terminal-diagnosis stage to see a child graduate or a religious holiday occur, doesn't mean that mindbody interactions overcome death. But it does mean that even death itself, to some degree, is malleable. It means that the human consciousness and will have the ability to alter, even if on a temporary basis, the inevitable end of life, which is astounding.

AT: This also says something about our true nature.

Pelletier: Yes, it does. In the writings of Paramahansa Yogananda, he pointed out that we tend to believe that we are material beings having occasional spiritual experiences, but in reality, we are spiritual beings having occasional human experiences. During those times of transcendence—however they occur, during crisis, during meditation, when faced with life-threatening disaster or death—the spiritual core of the human being actually experiences that which is beyond space and time. Taken simplistically, these events last seconds and the fact that an event lasting seconds in duration should profoundly alter a person's entire live makes no sense. That, in and of itself, seems to be de facto evidence of a higher order of reality.

I don't understand it, but it's profound and real. And the fact that these types of spiritual experiences have a subsequent transformative effect on the person's life is undoubted.

AT: Did you ever go to Lourdes?

Pelletier: Yes. Lourdes has a medical review board that determines, independently of the [Catholic] Church, whether or not an event constitutes a miracle. The criteria are extremely rigorous and very scientific. Basically, the cure has to be virtually instantaneous or within a very short period of time. There has to be unequivocal evidence of the diagnosis; the person cannot be under any kind of conventional treatment at the time; it has

to be a condition for which there is no known or effective treatment at the time, and the person needs to remain in remission for at least a year. Ten years ago when I wrote a chapter on this in my *Longevity: Fulfilling our Biological Potential*, there were 64 cases of miracles or what we might refer to as profoundly transformative mindbody events, which is rather astounding.

This shows that under these very stringent criteria, something occurred completely outside of the normative boundaries of what we know about healing and medicine. Whether we call it a miracle, spontaneous remission, mindbody reaction—the vocabulary is less important than the fact that these events are profound in their own right. What they indicate about our capacity as humankind is even more profound because if it happened to these individuals, it means there is the same potential in all of us.

AT: Let's talk now about your work with corporations.

Pelletier: My interest in working with corporations started in 1980. At the time, IBM was developing the first programs in health promotion and disease management for its employees. IBM was the first to recognize that a company should have a vested interest in the health and well-being of their employees because if someone is disabled or sick, then the company has a direct loss. Although this seems obvious, it has still not yet been realized on a worldwide scale.

In 1980, Robert Beck, the senior vice president for personnel and human resources for IBM, brought together 5 experts in prevention to help think through and design what then became the basis for IBM's "Live for Life" Program. As we were working, I realized that the largest sector of our society with an inherently vested interest in health is the private corporate sector. They need vital, productive, involved, motivated employees to be effective and competitive in the world marketplace. I thought to myself, this is great because I've always been more interested in health than disease and there is a huge population of companies with access to individuals who have the same interest, which is to improve health, well-being, and human performance. So that's how my interest in corporate programs began.

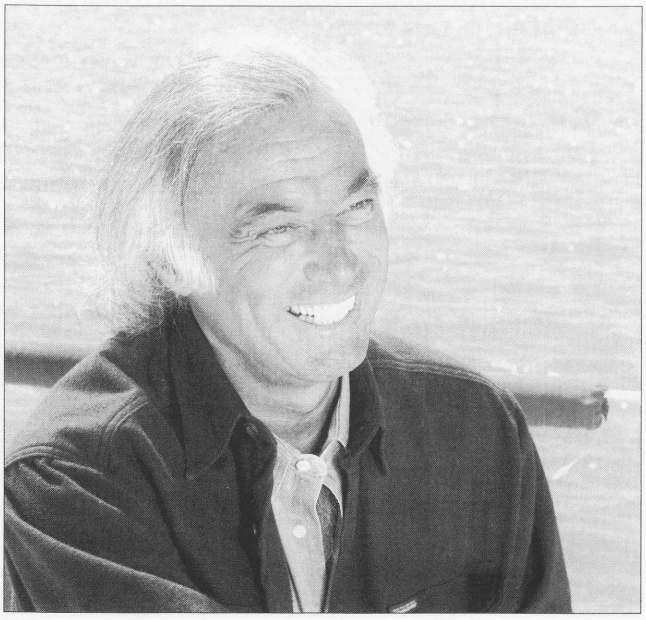
When Bob left IBM and assumed the same position with Bank of America in San Francisco, he kept asking me if there were any data about the clinical and/or cost efficacy of these programs—do they really improve health? Are they really cost effective with a return on investment? I didn't know, so through the Bank of America Foundation, he provided me with a 3-year grant. So we created the Corporate Health Improvement Program (CHIP) at UCSF School of Medicine that brought together 15 companies to research these issues.

Actually, the first research project we conducted—this would have been in 1985—was with Levi Strauss. At the time, mammography was an excellent technology but it was underutilized. Levi Strauss was concerned because they had an inordinate number of female employees. Coincidentally, UCSF had one of the first mobile mammography units. We worked with the marketing group within Levi Strauss and developed a campaign and brought the mobile mammography van to the workplace. Instead of a woman having to take half a day or more from work to go to a doctor's office, which is a loss to the company and a loss to the women, we brought the van to the worksite. It now seems incredibly obvious, but at the time it wasn't.

We wanted to demonstrate that (1) people would use it, and (2) that the screening was as accurate as a full screening in a clinic. So we developed a campaign called the 3 Cs—Concern, Convenience, and Cost. Concern was the internal educational program about mammography and low-dose radiation. Convenience was that a woman could go downstairs for 15 or 20 minutes instead of taking a half-day off from work. And Cost was the fact that it went from $200 dollars a screening to $20 dollars because you brought it to the worksite. Levi Strauss was so happy that they paid for anyone who wanted to be screened.

Seven hundred women went through screening and, in fact, a predictable number of cases were found, some of which were benign and others that were early malignancies. We also demonstrated that you can take a useful medical technology, bring it to a worksite, and have something that's both clinically useful and cost effective. That was our very first study.

We've conducted interventions in worksites for carpal tunnel syndrome, low-back pain, major heart-disease prevention programs, cancer screening, and AIDS awareness. The consistent theme has been to work with companies at their worksites so you can interact with people in an efficient way. We've had a very transformative influence because it has helped companies think differently about how they spend their medical dollars. Rather than spending it after people are disabled, if you spend some funds before, you get a much higher payoff.



AT: What about the Stanford Corporate Health Program?

Pelletier: In 1990, I transferred the Corporate Health Improvement Program (CHIP) from UCSF to the Stanford University School of Medicine, where it became the Stanford Corporate Health Program. Its mission continued to be the same, which is to develop and evaluate innovative interventions with the focus on worksites for both clinical and cost outcomes, and to touchstone the success, especially in the corporate world, meaning a positive return on investment for a company investing in the health of its employees.

During the 1980s, health promotion was our focus. By the 1990s, health promotion had become a commercial product through companies such as Johnson & Johnson, Healthtrac, and Healthwise. Because we wanted to be on the cutting edge of research, we focused on disease management. So our work was about the early detection of a symptom of illness and rapid intervention—like detecting an increase in blood pressure or cholesterol levels or a pain from carpal tunnel syndrome before it progressed to a disability.

AT: Can you give an example of one of the company programs you created during that era?

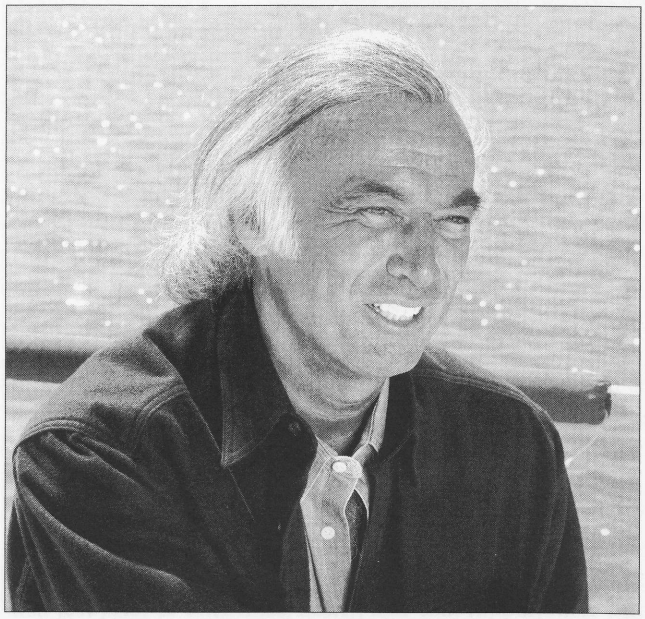
Pelletier: Yes. Research published predominately out of [our work at] Stanford indicated that a telemedicine intervention or a multifactorial intervention for reducing heart disease was more effective than usual care in reducing hospitalization and subsequent heart attacks and resulted in positive clinical and cost outcomes. It was extremely cost effective because you reached out electronically, in what we termed "electronic housecalls," to the person rather than having the person come to a clinic or a hospital.

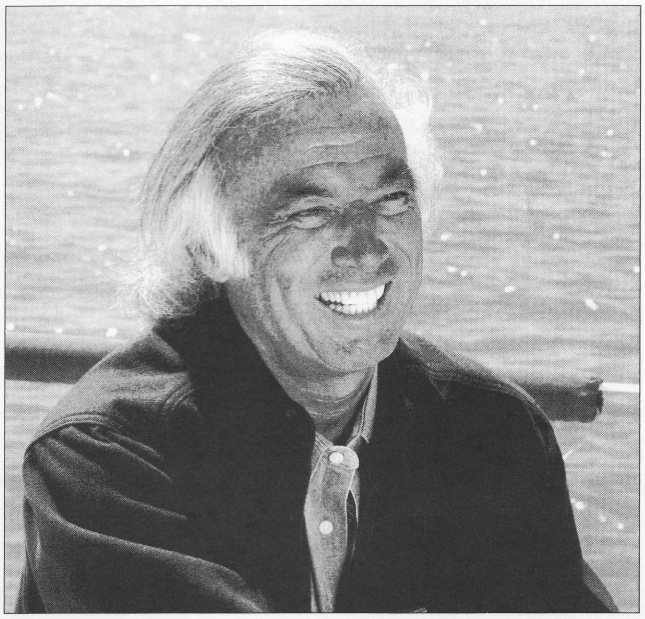
When Blue Shield of California saw those results they said, "That's interesting, could we apply that in a worksite?" At the same time, the General Electric Nuclear Energy, or GENE, in San Jose has about 2,500 employees. They service virtually every nuclear power plant in the free world. These people travel 80% of the time on troubleshooting missions. It's a stressful, high-demand job, and they were having a very high incidence of heart disease and sudden, non-premorbid history fatal heart attacks. So Blue Shield funded the intervention at General Electric, with our staff at Stanford providing the training and intervention. At the end of the study, we were able to demonstrate a major reduction in risk and a major reduction in incidence of heart attacks.

Subsequently GE has implemented this program in 6 sites nationwide that use this same model of intervention in their clinics. Also, Blue Shield of California covers such interventions as part of the benefits within its plan for California.

AT: Why did this kind of intervention work better than having the people go to a clinic?

Pelletier: It works for a number of reasons. One is convenience. People have instantaneous access. If you have a niacin or other drug adverse reaction, you don't have to make an appointment and go to the clinic to get a simple answer. You get the answer within seconds. Second, all of the interventions delivered by the nurse case managers focused on state-of-the-art behavior change. How do you get a person to modify his or her lifestyle? Third, we continued to use pharmaceuticals but we were able to reduce dosages, which decreased the frequency of side effects. Lastly, we taught them to how to live. They learned each step of the way with regard to stress management, sound diet, exercise, cardiovascular risk factors, appropriate use of medications, and





social support. They learned along with us how to improve their health choices and freedom. That was a big factor.

AT: If people want source material on this work, where could they go?

Pelletier: There is a series of 5 articles that I have published in the *American Journal of Health Promotion*. In each one is a table in which you can see for a 2-year interval where the study was conducted, which companies were involved, what type of workers, what was done, how it was analyzed, what the clinical outcome was, and what were the cost outcomes. Most recently, the last article covers 1998 to 2000. And all of them are also available on Medline.

AT: And you are still involved with this program?

Pelletier: Yes. Part of what I am doing right now is rethinking the program. We're calling it CHIP (Corporate Health Improvement Program), the third generation. The first generation was about basic health promotion, when that was an innovation. The second generation was disease management—early detection, cholesterol screening, hypertension screening, diabetes, and similar conditions. Now, the third generation will focus on integrative medicine, because when we talk to our medical directors—and again this is American Airlines, Bank of America, IBM, Merck, Medtronic, United Health Care, and Ford—they tell us that the major area that their employees are asking for is alternative medicine. So they want to know what to include on what basis? Should they cover chiropractic? Should they cover acupuncture? What about Chinese herbals? What about homeopathy?

So CHIP, the third generation, will focus on creating and implementing integrative medicine intervention and demonstration projects in worksites. Our delivery models are, by and large, telemedicine-based. As soon as someone leaves work and goes to a clinic or a hospital, it's inherently more expensive. So increasingly I'm interested in using nurses, doctors, and psychologists over the telephone, using computers and mail, and interacting with people very conveniently to manage their conditions. Once you do that, geography is no longer an issue. You can have a bank of nurses anywhere in the country or anywhere in the world that people can access for care.

Essentially, we are creating a virtual CHIP that will have ties to 2 or 3 medical schools. The actual delivery of the clinical interventions will be from remote sites. Again, we're trying to push the envelope both in content and model of delivery. But I like the challenge of making something work at least as well if not better than what is done conventionally, and at least as good as if not better in regard to practical, economic return on investment because we have an incredibly inefficient, wasteful medical system. Companies understand this because they pay the costs. If you can make a difference in low-back disability for major automobile manufacturers, they don't question why are you using acupuncture or yoga.

AT: They just care about results.

Pelletier: That's right. They care about both clinical and cost results. I also enjoy the challenge of producing a better, practical result. That's always what I've done in all of my clinical research over the last 30 years.

Here's a current project that we are implementing. In 2000, 1 of the big 3 automobile companies spent about 70 million dollars on direct medical reimbursement for low-back pain only! That's not absenteeism, that's not lost productivity, worker replacement, or down time. It was straight medical payout for low-back pain. They have 12 clinics nationwide that do nothing but low-back pain disability management. We met with their medical directors as part of our corporate program and looked at the protocols used in the clinics. It was primitive pain management.

They happen to have 3 manufacturing sites located in 1 city. The demographics were perfectly matched. At 1 clinic, selected at random, we will train the nurses and physicians to deliver an integrated medicine model for low-back pain. This protocol includes stress management, mindbody techniques, yoga, acupuncture, and education about what low-back pain is, what nonsteroidals can do and not do in terms of medication management, and information on reasonable alternatives like boswellia as an anti-inflammatory herb. We will support them via a telemedicine model so that when they have questions they can call us and we will interact directly with patients and staff.

The study will begin in January of 2003, and our hypothesis is that even though the intervention is inherently more expensive initially, that over the 3-year period of the intervention, people will go back to work sooner, have less recidivism, be more pain free, make more appropriate use of medications, and be more productive. We are looking at medical outcome as well as cost outcome. If and when this works, it's likely to be a model intervention that will be adopted systemwide. But this is an example of this convergence of my 2 interests—alternative or integrative medicine and the private, corporate sector. In the past, they always seemed like parallel paths with a Grand Canyon between them. But in the last 4 years they've begun to converge, mostly because of the demand by the employees for alternative or integrative medicine and the absolute need for companies to resolve exploding medical costs that don't return productivity.

Another current research project of mine is that the word "Presenteeism" has become the buzz word in the corporate sector. Absenteeism is one thing because a person is present or absent; it's measurable. But what does it mean if a person is present but not functional? How "present," how functional, how focused is a person at his or her work if there's a condition or concern that's preventing optimal performance? So we conducted a 2-year study funded by Merck that focused on 3 different worksites and developed a scale called the "Stanford Presenteeism Scale" or "SPS-6." It's very sophisticated. We used rigorous statistics and biometrics, and developed a brief, 6-item

scale that measures how functional and how present a person is when at work. It bridges the gap between the purely medical, health issues that the personnel department is interested in and the performance and productivity issues that the finance and business people are interested in.

We published the scale in the *Journal of Occupational and Environmental Medicine* in January 2002 and I have never had as many responses to any article. Right now the SPS-6 is being used in about 30 different companies, including Eastman Kodak, Dow, and Sprint. Also, the American College of Occupational and Environmental Medicine (ACOEM) is developing a white paper on new metrics and our scale will be included.

In September of this year, I am going to Singapore and Hong Kong for 10 days. There is a major collaborative effort between the private and public sectors in Singapore, the entire focus of which is to determine how the Singapore health and medical systems can make their corporations more effective. I'm going to meet with government, corporate, and foundation individuals for a series of consultations and lectures focused on clinical and cost outcomes as well as Presenteeism. Again, you can influence Presenteeism by conventional methods or alternative methods. To me, the interesting thing is how you can fuse these and create an integrative medicine approach that produces greater Presenteeism.

AT: This work with corporations could have a huge snowball effect in our culture in advancing integrative medicine.

Pelletier: Absolutely. A good example is the study we conducted on cardiovascular intervention for General Electric, which we discussed earlier. It has now been adopted systemwide throughout General Electric. So from a single demonstration project that is clinically useful and cost effective, the company then turns to its health plan providers and says, "We want a cardiovascular risk-reduction program." So all of the health benefit providers who want to access these hundreds of thousands of employees during open enrollment then have to add cardiovascular risk-reduction programs to their offerings. Similarly, this occurs when people suddenly have access to a new service like acupuncture or herbal medicine or chiropractic. The ripple effect continues in that the clinical practitioners out in the community who provide the services through the health plans have to be trained, which ties back to education. So this is an incredibly critical leverage point for the kind of transformation of healthcare that has to occur as we evolve from a disease management industry to a true healthcare system.

AT: Tell me about your work with successful aging.

Pelletier: Stanford Medical School was one of the first centers funded by what has become the National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (NIH). At one point we conducted a study focused on who was using alternative medicine and why. It turned out that it was older adults who were more affluent, better educated, and who had a life emphasis on obtaining optimal health as opposed to recovering from illness. So we shifted our plans and now the entire research program focused on successful or healthy aging.

> BALANCE-RELATED MARTIAL ARTS, SUCH AS T'AI CHI, [MAY] ... HALT OR EVEN REVERSE THE AGE-RELATED TENDENCY [TOWARD] IMPAIRED ... BALANCE.

We wanted to find out if behavioral and/or pharmacological interventions could halt or reverse the malleable aspects of aging. One of our research projects within that program (many of them are still ongoing) focused on t'ai chi as an intervention to reduce or restore [or improve] inner ear equilibrium for older adults. There is literature from China suggesting that, although they tend to have smaller bone density and mass than Caucasians, elderly Chinese experience fewer falls and fractures of the pelvis and extremities, which is the major cause of disability for older adults in the United States, especially women. Using a very sophisticated assessment that tells us whether someone is inclined to become disoriented and fall, we selected individuals on that basis. They either went to usual care or to practice t'ai chi. It is interesting to note that our t'ai chi instructor is actualy a professor of physics at Stanford. We found that when people practiced balancing, which is one of the physical essences of the martial arts, they could restore and maintain equilibrium into advanced age.

AT: You also have something called SAGE?

Pelletier: SAGE is an acronym for the Successful Aging Growth Experience. This research project was really inspired by Michael Murphy and George Leonard's book *The Wisdom of the Body,* and they served as consultants to us. They developed a group participation program based on the principles in their book that they believed would keep people healthy, functional, and disease free. It had never been scientifically evaluated, so we took their basic ideas and information, modified and added to it, and developed a program called SAGE. It is still running, and again, it is one of those studies that promises very positive outcomes.

We deliberately selected people between the ages of 65 and 85 years and enrolled them in groups of 15 to 20 individuals. The question was: Could we develop a structured intervention consisting of educational modules like appropriate use of medical care, education about pharmaceutical use for adults, training in martial arts exercises like t'ai chi, stress management, diet and nutrition, imagery and visualization, and building a social support network? So if you created this in a structured environment, could you halt or reverse the aging process? Could individuals become more healthy than they had been even though they would be between 3 and 5 years older?

We also developed a very sophisticated battery of tests to determine the actual phenomena of aging. It turns out that measuring aging is an extremely difficult task. How do you know how old you are other than by having 1 more birthday? How would you measure if someone is moving in a positive direction rather than just maintaining or even prematurely aging? So we developed new metrics, which we are testing right now, that measure functions such as increased wisdom, or a broader, more global, spiritual perspective on life in addition to accuracy and rapidity of their memories.

What is unique about this program is that for the first 3 months a therapist runs the group. For the next 3 months, the members select someone from their own group to become the leader-therapist of the program. Then in the final stage, from 6 to 12 months, the individuals are on their own. They can call on us for help and advice, but they are no longer actively participating in an externally structured group. Basically we wanted to see if we could transition the teaching from a therapist to the person and get people to carry the lessons and practices into their daily lives. Again, this is self-empowerment and enhancement of individual choices.

So far, our preliminary evidence suggests that, yes, we are absolutely able to do this. People in the study did halt or reverse a number of aspects of what we term the aging process. We'll have the final results probably in about 2 years.

AT: Without revealing the contents of the study before you publish, can you give me 1 aspect of aging that you were able to slow down or halt?

Pelletier: One area that I mentioned is inner ear equilibrium, which involves falls resulting in fractures. There is an indication that when an individual engages in the balance-related martial arts such as t'ai chi, he or she is able to halt or even reverse the age-related tendency to have an impaired ability to balance while walking or climbing stairs. Another is short-term memory recall and accuracy. Again, we have objective evidence that through this program—though we can't say whether it was exercise or the diet or the stress management or the meditation that is the active component—that an individual's ability for short-term recall of specific information is improved both in terms of speed and accuracy of that recall. And not only in the specificity of the recall, but the time lag between the question posed and the response was decreased. So they're remembering quicker and more accurately.

Those are 2 examples. Although we have not fully analyzed the data yet, we are seeing improved overall health status, reduction of specific risk factors, and improved connection to other people.

AT: Let's talk about the Federation CAM guidelines. You were on the committee—how did all that come about?

Pelletier: The Federation of State Medical Boards (FSMB) is the national entity that represents all state medical licensing boards. They are charged with issuing guidelines or recommendations to state boards that cover every conceivable aspect of medical practice. About 4 years ago, they issued their first white paper on alternative medicine. It was dubbed the "search and destroy document" because it was extremely negative toward alternative medicine. I've forgotten the exact wording, but it had fraudulent and deceptive in the title and alternative medicine was synonymous with fraudulent and deceptive practices. The thrust of it was that any practicing physician who was using alternative medicine ought to have legal action taken against him or her.

A little over 2 years ago, they decided to revisit this so they invited Dr Russell Greenfield, Dr David Eisenberg, and me to be their ongoing advisors. The task was to come up with a new set of guidelines or decide to have the old ones stand. So for the last 2 years, we met regularly with their committee and provided them with documents, evidence, and information at their request. The composition of the committee covered the whole spectrum. It went from people who were open-minded toward alternative medicine, though not actively practicing, to not necessarily supportive but at least open-minded, to negative, and I mean really negative. It took an enormous amount of time and effort, but the result was that a document was approved by the full FSMB House of Delegates on April 27, 2002, and is now actively disseminated as a model guideline to all 50 states.

States' actions will vary—some of them will take it as is, some will just disseminate it, and some will modify it. But it's very, very positive in the following way: The definition of alternative medicine they used was taken from the NCCAM Web site. One of the points of our advocacy was that unless there was a compelling reason to deviate from the NIH and NCCAM norms and standards of definitions, then that was what should be adhered to, which was different from the earlier document that defined alternative medicine as inherently negative. Actually, the

most significant change, however, is that the new guidelines contain an explicit line that a physician will not be subject to disciplinary action solely on the basis of using alternative medicine.

In the first paragraph and in the conclusion, the document acknowledges that patients have the right to seek any and all methods of care. Period. So it recognizes the right and power of individual choice and it recognizes that the practice of alternative medicine is not de facto fraudulent or deceptive.

Also, the document provides for referral to alternative practitioners. In the previous document, just the act of referral to an alternative medicine practitioner could have been grounds for disciplinary action. Now it states explicitly that if you refer to another practitioner of alternative medicine that that person should be licensed and certified in whatever discipline he or she is practicing, but that it is an acceptable practice.

Literally, each word and each phrase in that document was gone over and debated and assessed. It was astounding. So I'm really quite pleased.

Our thrust was that you should have conventional and alternative medicine function with parity. In other words, the standard is good practice, not whether it's identified as conventional or alternative. Before there was a disproportionate level of burden placed on the alternative medicine practice. Now that's no longer the case. It's either good practice or bad practice. What they realized—and we asked them to consider this—was that the vast majority of disciplinary actions nationwide are not because of the use of alternative medicine. They are because of the abuse of conventional medicine, such as excessive surgeries, inappropriate prescribing, dangerous prescribing, or self-prescribing. This was from their own database, and the point was that using alternative medicine did not constitute grounds, per se, for disciplinary action. Again, there will be a ripple effect because these guidelines will stand for a number of years.

AT: Self-care is becoming more and more popular. Are there dangers in this trend?

Pelletier: That's a vital question. We need to differentiate between informed and empowered consumers and those who are misinfomed. Self-medication when you are uninformed or misinformed is potentially dangerous. To me, the promise of integrated medicine is when you have an informed and empowered consumer-patient who works with a clinician who has special skills—be it medicine or nursing or nutrition or exercise or meditation or whatever—to help that person make the most informed decisions. It's very difficult to take general nutritional guidelines and decide on the optimum diet, especially if you have a chronic illness. But that's what nutritionists can do. So to me the future is really an enlightened self-care in which the patient and provider mutally interact in a model of integrative medicine using best practices from both conventional and alternative medicine.

Here's what I mean. I remember after one lecture, a woman came up to me and said how very conservative my approach to herbals had been. I said, "Conservative?" I mean, I'm used to being called all kinds of things but never conservative.

She said, "It's because you were talking about all those precautions and contraindications."

So I responded, "That's not conservative, that's just being agnostic." So I would like to advocate that people use St John's wort appropriately if they have mild to moderate depression, but I would not want them to use it with other drugs, such as Prozac or other selective serotonin reuptake inhibitors (SSRIs), with which it has an interaction, and I would certainly not want them to use it for major depression because there is no evidence that it is efficacious with major depression. So it's not a wholesale endorsement but evidence-based advocacy.

As we become more sophisticated about the appropriate use of alternative medicine, we realize that the question really is: Which of the 650 CAM practices identified by NCCAM work for which persons for what condition under what circumstances relative to all the other factors about their biology, from their genotype to their particular familial history? That's the challenge. Self-care is an inherent part of that and it is vital.

Surgery is surely the most extreme end of the continuum where the person is most absent and the practitioner is the most active. Yet surgical outcomes are equally dependent in many ways on the self-care involvement of the person pre- and post-operatively as on the skill of the practitioner. We've had some fascinating discussions about this with Medtronic Corporation, which makes implantable defibrillators and arrhythmia devices. What they have found is that the behavioral context of the survey—how well patients understand the unit and what they do by way of exercise, nutrition, and stress management—is more predictive of a successful postoperative outcome than the skill of the surgeon. You see an enormous difference in patient outcome with the same surgeon, and when they look at what makes a difference, it's all these self-care dimensions. Even when we have very high-tech medicine or pharmaceuticals or genomic-based interventions, when you use medicine appropriately in a self-care model you have much better outcomes. So it's not high-tech versus self-care or pharmaceuticals versus herbals. It's really to find the best evidence-based, integrative medicine approach.

Presently, I'm more optimistic than ever. If you look into the not-too-distant future, more corporations will be developing integrative medicine services for their employees and we'll have better evidence that it really does improve health for the individuals and productivity for the companies. We'll see more medical schools with this kind of training and more collective practices where you really will have nutritionists, ministers, physicians, nurses, and psychologists all working together. Virtually every insurance company in the country now has some aspect of alternative medicine that's covered under its health plans.

It's not so much to advocate for alternative medicine, but to advocate that people have the access to the full spectrum of choices they need to maintain and enhance their health, manage illness and disease, and to live to their optimal lifespan; that they have access to the best knowledge that we have as practitioners. We are getting closer to realizing that vision, and that is very exciting.