

Dharma Singh Khalsa, MD: The Pillars of Alzheimer's Prevention

Interview by Craig Gustafson

Dharma Singh Khalsa, MD, is president and medical director of the Alzheimer's Research & Prevention Foundation (ARPF) in Tuscon, Arizona. The ARPF is dedicated to fighting Alzheimer's disease and finding a cure through research and prevention.

Dr Khalsa graduated from Creighton University School of Medicine in 1975 and received his postgraduate training in anesthesiology at the University of California, San Francisco where he was chief resident. There, he conducted highly acclaimed research on anesthesia for cardiac surgery and obstetrical anesthesiology. He is also a graduate of the University of California, Los Angeles Medical Acupuncture for Physicians Program and has studied mind-body medicine at the Harvard Medical School Mind-Body Medical Institute. Dr Khalsa is board certified in anesthesiology and pain management, and he is a diplomat of the American Academy of Anti-Aging Medicine.

In 1987, Dr Khalsa established the first holistic pain program in the Southwestern United States at Lovelace Medical Center in Albuquerque, New Mexico. In 1990, he was recruited to become the founding director of the Acupuncture, Stress Medicine, and Chronic Pain Program at the University of Arizona, College of Medicine's teaching hospital in Phoenix. In this position, he became the first director of acupuncture in an American medical school.

After founding the ARPF in 1993, he became the first physician to advocate a lifestyle approach to the prevention and treatment of memory loss, including Alzheimer's. He is among the world's leading authorities on integrative medicine, and has written extensively on a wide range of health and healing issues.

His first book, *Brain Longevity*, was published in 1987, and he has authored 6 other books for the general public, as well as several medical textbook chapters, including one for Harvard Medical School and one for the University of Arizona.

Visit ARPF at <http://www.alzheimersprevention.org> for more information on the foundation, its mission, and how you can support its efforts. (*Adv Mind Body Med.* 2014;28(3):26-32.)

Advances in Mind-Body Medicine (Advances): At what point in your life did you first encounter yoga and what was it that attracted you to the practice?

Dr Khalsa: This whole thing has been an evolution, though I remember, very clearly, the first time. You have to understand that I attended college in the late 1960s. This was a time of transition and the time of the Beatles. Philosophy was changing.

I had an advanced-level philosophy class where the teacher was considered unusually far out at that time—not very standard. He would talk about yoga in the class and he showed a few postures. He mentioned that if you put your head down in an inverted posture, you will increase blood flow to your brain and you will do better on your exams.

I remembered that. Then I remember, very clearly, before a physics exam I put my head down. I thought, "Let's see if it works." That was the very first time I had any introduction to yoga at all. Something about it was very attractive to me; it stuck with me.

During my junior year at Creighton University School of Medicine in Omaha, I remember walking through this place, old town, going through some bookstore and seeing Richard Hittleman's book, *Yoga: 28 Day Exercise Plan*. I thought that would be interesting to try. In the evenings, after dinner, I started Lesson 1 and went through Lesson 28 in this book. I really liked the effects of it. I liked the stretching; it felt good, it reduced the stress of being a medical student, and it helped me sleep. I found it very attractive.

I was an intern in Oakland in 1975 or 1976. It was a very intense time for partying. It was just like they said it was. "It is all work and all party." There was very little rest. Halfway through, I thought, "I just can't do this anymore. This is not really what I want to do." I remembered the Beatles and that they had studied transcendental meditation, or TM. I am lumping yoga and meditation together, although they are 2 sets of practices. Meditation usually is also part of yoga.

The Beatles went to India. They had Maharishi. I was living in Oakland, which is right on the border with Berkeley.

There was a TM center in Berkeley. I figured, “If it was good enough for the Beatles, it is good enough for me.” I went to a TM program in Berkeley. Then, I started actually practicing transcendental meditation. This was in 1976.

Then, I went across the bay to San Francisco and did a residency in anesthesiology. The University of California, San Francisco, or UCSF, was, and still is, considered the number one residency for anesthesia in the world. It was very academic, very clinical, very high level and, of course, very intense. Halfway through, I again picked up the practice of yoga and TM.

At the end of my residency, I moved to New Mexico. It was like a compulsion. I was on a track to become a professor of obstetrical anesthesia at UCSF, but I felt this draw and moved to New Mexico.

As soon as I got there, I was introduced to the study and practice of kundalini yoga by Yogi Bhajan. That is the progression of how I got into yoga and meditation. What attracted me to it was the feeling and the experience. I found it very healing and very energizing. It took me to another level of existence. I liked that.

Advances: So this was something that you did on a personal level, not as an exploration of possibilities in clinical medicine?

Dr Khalsa: Exactly. I did it because it felt good for me. One thing then led to another. It was not until much later that it became part of my professional life.

Advances: How did your experience in meditation and yoga influence your perspective on medicine?

Dr Khalsa: It made me—I think it would make anybody—more open to other things. I was an anesthesiologist. In the operating room you cannot do things differently. You have to follow the practice of anesthesia, which is basically drugs: putting people to sleep, waking them up, and monitoring them during the anesthetic to make sure they are safe.

If anything, yoga and meditation made me a better anesthesiologist because practice of anesthesia can be very stressful. You have to be able to create a rapport with someone quickly—you do not get much time when you see a patient before an operation. Later on, because of the study I had with Yogi Bhajan, I became more aware of many things. I became open to studying acupuncture, mind-body medicine, nutrition, and so on. The practice improved me as a person, as a doctor, and helped me become more open to be in the flow.

Advances: You had some significant accomplishments in Western medicine as you were practicing anesthesiology. How did you decide to change the direction of your practice?

Dr Khalsa: This is, perhaps, the most interesting thing that happened to me. I was having a “calling,” shall we say, to

move to New Mexico. I got a job at Lovelace Medical Center. As soon as I moved there, I asked the wife of a friend where I could take a yoga class. I had dabbled in it but never really taken a class. She opened up one of those alternative newspapers, the *Weekly Alibi* in Albuquerque, and pointed one out. She said, “I think that is a good one.”

I went to this place, a house by the University of New Mexico, and they called it an Ashram. A tall, skinny guy with a turban and a red beard came out, sat down, and started doing his breathing techniques and things. I said, “I really like this. This is for me.” That is how I began. Then, the big change came close to 2 years later, when I actually met Yogi Bhajan and formed a connection with him. It was clear from that point that I was in the process of becoming his student.

Over Thanksgiving weekend in 1981, I went north half an hour past Santa Fe to a little place called Española, where there is a big spiritual community—Yoga Meditation Sikh Spiritual Community. Yogi Bhajan is a master of yoga from India and was teaching a very advanced course called “White Tantric Yoga.”

There, for the very first time, I put a turban on my head because you have to cover your head for white tantric yoga. During one of the exercises, there was a break where people would go up to the front of the room and ask him questions. A lot of people also asked him for a spiritual name. I was definitely a straight anesthesiologist and a fairly straight person. I did not think I was going in this direction, but I was compelled and moved.

During this day’s exercise, I started thinking about an uncle of mine who was a great doctor and had an influence on me. He died young, at the age of 63, from cancer. I thought, “I wonder if my uncle ever had any kind of spiritual experience.” During the break I decided. You have to give him your birth name and your birth date and then he does his yogic whatever-he-does to give you a spiritual name. I was thinking about those 2 things: Should I get a spiritual name, and what about my uncle?

I happened to walk up to the front of the room where he was sitting. For some reason, I ended up right in front of him. He looked at me and he said in his Indian accent, “Tell me doctor, can you go before the public like that?” I said, “It might be demeaning. I am wearing a turban. It might take some time.” He said, “Time? What’s time? You think 63 years is a long time?”

He pulled that number out of the air about my uncle, just at that moment. I thought, “Wow, this is something special.” I gave him my name and my birthday and he wrote down my spiritual name, Dharma Singh. I had an “opening up” experience and saw my whole future unfold.

That is when I knew that I did not have to use these powerful anesthetic drugs to put people to sleep anymore; that I could help them wake up and heal in their body, mind, and spirit by going in the alternative direction. At that point, I became Dr Dharma, and that was the beginning of the transition. It did not happen overnight. It was a long, slow process.

Advances: You said this process was a long, slow process. Would you talk more about that?

Dr Khalsa: The next day, I went back to where I was working and told the chairman of my department, Dr Birch, “Today is Monday. Wednesday, I am going to be wearing a turban.” I started off just like that—being a straight anesthesiologist and wearing a turban. Of course, everyone thought, “What is this? Is this guy nuts or something?”

That’s basically how it started off. I would say the next big change was in 1984 when I went up to Boston for basic mind-body medicine or what they call behavior medicine with the great Herbert Benson, MD, at Harvard, where I learned the academic approach to stress and relaxation response.

I came back to New Mexico and there was another guy who was a little on the alternative edge. He was in charge of putting on educational conferences. We put on a conference called “Attitudinal and Behavioral Forces in Clinical Medicine” and had Dr Benson down.

So I had a relationship with Yogi Bhaian, where I was learning about the yogic approach. I had a relationship with Dr Benson, where I was learning about the mind-body approach, behavioral medicine, stress, and relaxation response. Throughout the 1980s, this is what I was doing.

Then, we had a change in the directorship of the anesthesia department because the chairman died. The new chairman was much more open. At the time I was getting interested in holistic pain management. In fact, in 1987, I went to UCLA and I took the Medical Acupuncture for Physicians program. Outside of yoga, I think this program changed my worldview the most. I started thinking in different terms with energy and with people, especially with behavioral aspects of people: what they were doing and why they were doing it.

This added to the yogic approach and I started getting a lot more psychologically, or psychophysiological, oriented. The new chairman, Jerry Calkins, PhD, MD, was avant-garde—fortunately—and I was interested in pain. He and I developed a pain program. This pain program at the Lovelace Medical Center involved holistic pain management—it was not just “shots and blocks.”

Two things happened. One, at Lovelace, they were not into this very much, and then Dr Calkins got recruited by the University of Arizona. He became department chairman at the teaching hospital in Phoenix. A couple of years later, he recruited me over there and I became the director of the acupuncture, stress medicine, and chronic pain program at the University of Arizona. As such, I became the first director of acupuncture in American medical school. There, I developed what I call the Holistic Pain Medicine program. It was very successful.

Advances: Then, how did you transition toward Alzheimer’s disease as a focus for your career?

Dr Khalsa: When I worked at the University of Arizona, being an academic medical program, they had what they call an A-day. An A-day stands for “academic day” or “administrative day.” I did not have any ongoing research, so I took this A-day to review the medical literature.

I took the Advanced Program in Mind-Body Medicine at Harvard with Dr Benson in 1990 and 1991. When I came back, I had this A-day. I started reading about anesthesia, but was drawn to read about the field of stress because I had just taken an advanced program in stress medicine.

I came across this conversation that was unknown to a lot of doctors. This was a very focused conversation on neurosciences that showed that stress—with animals, not in humans, but I think I thought it applied—because of the release of a hormone called cortisol, led to memory loss. It led to the death of brain cells in your memory center, called the hippocampus. This led to memory loss in these animals.

I did not know that much about Alzheimer’s disease, frankly, but I knew about memory loss because many of my patients—pain patients—had memory loss.

Then, I had an “aha” moment. Stress causes memory loss and kills brain cells. It could lead to Alzheimer’s disease—and what is better than meditation to lower stress? I said, “Hey, this is it. This is what I am going to do.”

I had time, which a lot of other people do not have, so I could really delve into this field in great depth and explore the concept—the academic concept of stress causing memory loss and meditation actually reversing that.

Advances: You were one of the first to advocate lifestyle intervention for the prevention of Alzheimer’s disease. Obviously, the literature review you were doing at that time led you toward that conclusion. What are some of the things that confirmed that perspective for you?

Dr Khalsa: From a spiritual perspective, I had a master, Yogi Bhaian, who on some level was orchestrating this. I was not married at that time and he, shall we say, fixed me up or arranged a marriage for me with a woman from Italy. She and I had a very good connection. We decided to work together. She had, and still has, tremendous organizational skills.

Then we pursued this idea of stress causing Alzheimer’s disease and meditation preventing it, naively thinking that, “This would be the greatest thing since sliced bread and everyone would accept it.” At the same time, Yogi Bhaian let us know that he wanted us to study the effects of this meditation called *Kirtan Kriya*. Based on the studies with Yogi Bhaian and delving into alternative medicine in stress and Alzheimer’s disease and so on, we—my wife and I—decided to found the Alzheimer’s Prevention Foundation.

Again, in the early 1990s I had time, which was fortunate. I was one of the few people who actually could review all the ongoing and emerging information on diet, on supplements, on physical exercise, on mental stimulation, on yoga and meditation, and on hormone replacement therapy. I never discounted drugs. I am an anesthesiologist: We love drugs—

that is what we do. We use drugs to put people to sleep. So, I was not opposed to using medication. Unfortunately, there never has been a good medication for Alzheimer's or I would have used it. There was actual scientific data out there supporting my conclusions but no one knew about it.

Advances: How were these ideas received by the field at that time?

Dr Khalsa: They weren't. They weren't received at all. It was considered ridiculous that you could do anything for the brain. It was considered a heresy to say that you could have any effect on cognition, cognitive function, or prevention. Are you kidding? I was told, "You can not use the words 'prevention' and 'Alzheimer's disease'"—we are talking about by the establishment—anywhere near 100 miles of each other.

Prevention and Alzheimer's don't go together, and not only in the same sentence, not in the same book, the same paragraph—anything. I was treated as an outcast by the medical establishment, except for a few people. I always say, "You can tell the pioneers. They are the ones with arrows in their back." That's what I was. I was a pioneer. I stuck with that.

In 1995, I started writing the first book ever written on this topic called *Brain Longevity*. It was published in 1997 by Warner Books and became a bestseller, translated into 12 languages. Those ideas were very far ahead of the times.

It is now mainstream. I think it first started to become mainstream in 2003 when I testified before congress and met the surgeon general, Richard Carmona, who told me, "Your work should now be considered mainstream." I think that is when it started to change.

Advances: Through the foundation, you have advocated a prevention strategy called the "Four Pillars of Alzheimer's Prevention." Could you describe this for us?

Dr Khalsa: The four pillars are (1) diet, your nutritional program and supplements; (2) stress management, especially through yoga and meditation; (3) exercise, both physical exercise and mental exercise; and (4) initially, the fourth pillar was drugs, but that has never worked out. I have evolved and the work has evolved and as more and more studies have come out, the fourth pillar has become psychological and spiritual well-being.

As far as the diet goes, there is research that shows a plant-based diet, like a Mediterranean diet, can decrease Alzheimer's risk by 40%. Today, this has also evolved to where the idea of, specifically, sugar is really detrimental to brain health—eating high amounts of simple carbohydrates, simple sugars, and even grains now. There is some work by David Perlmutter, MD, in his bestselling book called *Grain Brain*.

It is not so much that eating grain in moderation is bad, but the way we eat. We go to extremes. I think the best thing a person can do to eat right for Alzheimer's prevention would be to eliminate red meat. Eat a plant-based diet. Have fish and some chicken or poultry for protein. Because exercise, as

we see, is such an important part, I believe in protein supplements as well, such as protein drinks. A wide array of vegetables and some fruit—not a lot of fruit because of its high glycemic index—but some fruit of course. Make sure you are getting your 7 to 8 servings of fresh vegetables and some fruit every day.

Just stay away from the fast foods, the processed foods, and things you cannot pronounce—all the toxins in foods: pesticides, herbicides, and whatnot. Just eat a clean diet, just like we are supposed to. The same diet that enhances your immune system and prevents heart disease will also prevent Alzheimer's.

I believe that because of all the stress in society today, we do need to supplement our diet with at least a high-potency multiple vitamin and some other brain-specific supplements such as phosphatidylserine. Omega-3s are critically important and there are some others as well. You can find these on our Web site.

The second pillar is stress management, because stress is such an inherent part of our society. Everyone is way overstressed in my view. As we have seen, stress kills brain cells by the release of the hormone cortisol. It damages the hippocampus, or memory center, of the brain. This makes it very difficult to shut off cortisol production from the adrenal gland, because the same cells that are damaged also have the responsibility to shut off cortisol. You are fighting a losing battle.

I believe every person should start everyday with yoga and meditation because that sets yourself right. It changes the brain, enhances blood flow, reduces stress, and gives you a set point to come back to. It activates the good part of your nervous system and deactivates the bad part of the nervous system.

Mental and physical exercise. Mental exercise is important for neuroplasticity or improving brain cell connections. Each one of these has been shown to decrease the risk for Alzheimer's by a significant amount. Taken all together, you are getting an 80% to 85% reduction.

Physical exercise. The exact prescription is now understood to be 150 minutes a week of a combination of cardio and strength training. I think strength training is critically important, probably underestimated by the average person. It builds muscle and increases blood flow. It gives you a pump and it gives your brain a pump. It pumps blood to your brain; studies have shown that it actually grows new brain cells. This is one thing I have said for a long time. This used to be considered another heretical thing that I was saying, but now there are many studies that show that if a person exercises, even on a treadmill 3 times a week for 20 minutes, you can grow brain cells. This is called neurogenesis. You can actually grow new brain cells in the dentate gyrus, which is an important part of your brain for memory. In the same way, the Kirtan Kriya meditation improves cerebral blood flow and stimulates or activates critically important areas for memory.

Those are the first 3 mental exercises using your mind in a way that keeps you stimulated. Also, being socially active, what we call *sangat* is important to keep your mind alive.

Then, spiritual well-being. Developing a concept of serenity, of service—of *seva*, as we say—because having a purpose and mission in life has also been shown to decrease the risk of Alzheimer's. Practicing giving to or serving other people without the thought of reward for yourself also improves brain function and improves the quality of your life.

In the end, it is the quality of life—the well-being—that a person has that changes the immune system. You have less inflammation. It improves your level of energy. It improves your mood and all these things then influence your cognitive function. It is all interrelated.

I think it is a big mistake: I used to have many patients looking for a magic bullet, but there is no magic bullet. It is a synergistic approach. Everything feeds off each other and works together.

Advances: According to hormonal readings that synchronize with the circadian rhythm, cortisol levels are highest in the morning. You also believe that morning is the best time to do meditation. Is there a correlation there?

Dr Khalsa: I think there is. Most heart attacks happen on a Monday morning. People have had the weekend and now that it is time to go back to work. They are stressed out. Their cortisol levels go up and their adrenaline, norepinephrine, and epinephrine go up and that causes a heart attack.

In the same way it is a brain attack, but it is chronic. It does not happen overnight. It is not like a stroke. It is not something where you can say, "I'll just wait until I start to get symptoms," because by then it is too late. You have to take care of this everyday and cortisol is elevated in the morning. A little bit of cortisol is important. We need some cortisol to get us going, but you do not want to have tremendously high spikes. Besides, the idea of stress management in the morning sets yourself right throughout the whole day.

Instead of just getting up and having your coffee and turning on CNN and going on the freeway and running to work, and then going around and around and around until you die, you have to take some time to set yourself right and change everything. Change the way you look at yourself. Change the way you look at life. Change the health of your brain and your body. Go beneath the surface. We have seen so much superficiality. If you can just go beneath the surface a little bit, you find that life is better. You are healthier and your brain works better.

Advances: Recently, you have distributed a white paper describing the potential of yoga and meditation to prevent Alzheimer's disease. Specifically, it deals quite a bit with a specific meditation practice. Could you describe the practice that you identified and how it benefits the brain and body?

Dr Khalsa: First, we should talk about the significance in preventing Alzheimer's. It is really important because the statistics are staggering. It is an epidemic. The numbers are expected to continue to rise. It especially affects women—

two-thirds of all patients with Alzheimer's disease are women. All this work is really important.

Kirtan Kriya meditation was given to me to study by Yogi Bhajan. I think it is so significant because it is easy. It is not based on any religious practice. The person does not have to change their lifestyle. It is a simple 12-minute singing exercise. *Kirtan* means "singing." Kriya is an exercise that anybody can do. It involves singing what we call the sounds or the mantra—saa, taa, naa, maa—as described in this white paper.

You sing it in 2 minutes out loud, 2 minutes in a whisper, 4 minutes silently, 2 minutes in a whisper, then 2 minutes out loud. Each time you say the sound, you touch your thumb to your index finger, middle finger, ring finger, and pinky, in succession. What we see is that it activates the motor sensory area of the brain.

It's funny—this is an aside—I was at this conference and somebody was talking about chanting. She said, "Even water costs money today—\$5 per bottle for Evian—but your tongue is free." We have this thing in our mouths called the tongue and it touches the upper palate where there are 84 meridian points, according to acupuncture.

When you touch the tongue to these meridian points, you send a vibratory signal, an energetic signal to your brain, which has myriad subtle effects. Plus, you are increasing the stimulation of hypothalamus and pituitary gland to secrete its chemicals, which not only go in the brain but throughout the body. You are increasing blood flow to the brain, and you are stimulating your whole brain.

That is one of the reasons why this exercise works so well: Because it is simple, it is fast, it is efficient, and it is effective.

Each part of the practice is important. Even I used to say, "Why do we do this visualization part?" Frankly, sometimes I would leave it out. I would not even tell people to do the visualization—until we did advanced scanning on each part of the meditation separately: the singing; touching the fingers; and the visualization of energy descending through the top of your head, then exiting laterally through the front of your head at the "third eye" position. What we found is that each part of the exercise activates a different part of the brain.

The visualization part activates the back region of the brain, the occipital brain. The occipital brain is your vision center, but it is also the vision—the big vision. We have mentioned that having a purpose or a vision in life, or a mission, in and of itself has been shown to decrease the incidence of Alzheimer's disease.

Advances: Why has spiritual well-being become such an important aspect of your approach?

Dr Khalsa: We are talking about evolution, and it is not just about memory. Of course that is important. It is also not just about preventing Alzheimer's, although that is very, very important. It is about becoming a highly evolved, integrated human being. We have a body, we have a mind, and we have a spirit. What we want to do is to shine it and to take the rust off. When we are born, we are very highly evolved, and then

gradually, as we get older, we seem to get less evolved. What we want to do is go back to the depths of our spirit.

Spiritual well-being is really the greatest emerging factor in scientific research right now. I think it is for a good reason. We are in an evolutionary stage in the planet and we need to evolve as human beings to become higher-level beings. We need to become illuminated in our soul so that we can make the world a better place. That is why spiritual well-being is so important.

Spiritual well-being makes your brain function better; it can prevent Alzheimer's. When you continue doing these techniques, especially the meditation and practicing yoga, one thing leads to another and you are better. You become the best—what I call your “best self,” or the person you really are.

The 4 aspects of spiritual well-being are (1) patience, (2) acceptance, (3) compassion, and (4) surrender. What you end up surrendering to is spirit, your higher self. That often leads you—for the very first time in a long time—to find peace of mind and the ability to move beyond yourself to where you can see the bigger picture.

Put your health first; take care of yourself. Then you can help serve humanity and take care of other people. I think they are both critically important. If you are not taking care of yourself, then you really cannot help others.

The whole purpose is for the community at large, the worldwide community, to try to make some progress and to go in the right direction. There are so many obstacles today to evolving. When you turn on the TV and if you watch one of these political shows, everyone is yelling at each other. Everyone is so fixed in their position instead of trying to think of what is best for the common good. If we can just think “what is best for the common good,” that is critically important to spiritual being—to evolve to a higher level where you can serve other people and find serenity and peace of mind.

These 4 aspects are part of any yogic description of spiritual being. In my understanding, in my meditation, these characteristics of spiritual being ultimately lead you to be yourself, to discover serenity, and to find peace of mind. Being able to serve others with commitment is, first of all, patience. You develop patience.

Patience allows you to maintain your spiritual practice. It is just like medicine. When you do studies on drugs, you say, “This is your medicine, you have to take this everyday.” If you have an illness, you have to take the drug and if you do not take it, then you are not going to get the effects. It is the same with yoga and meditation practice: You have to develop the patience to sit and do your yoga or to practice your meditation.

The first thing that develops in a developing spiritual being is this patience. This allows you to have regularity in your yoga and meditation practice. This gives you the sense of empowerment. You release your negativity. You become creative with yourself. You become empowered and you can empower other people. It eventually moves itself up the chakras. You open your heart. You begin living your truth. You have intuition, and then you can connect. You connect with everyone on that spiritual level and this brings you to

acceptance. You are in the flow, and now you allow the universe to work for you. Instead of chasing, you let it come. Acceptance brings with it the self-acknowledgement and self-appreciation of who you are. This gives tolerance, which allows you to see yourself, talk to yourself, and also talk to others—but yet, to drop the criticism, look beyond the fault, and accept yourself and others as they are.

This will lead you to forgiveness. Forgiveness releases anger, which is very toxic to your whole body: to your brain, your immune system, and your cellular function. It also leads to a higher state of mental awareness.

The Tahitian culture has a word for it: *orina*, which means “I accept you as you are, I accept everything.” They have a fishing culture. They cannot control the tide, they cannot control the water, and they cannot control the fish. They accept.

If we can adapt that feeling of acceptance, we can evolve as humanity. This would bring you to compassion, which conveys kindness. It is empathy, which emboldens healthy feelings and communication. Communication is critically important and it is very difficult. Being on this path, you develop compassion, which allows you to become clear: to know who you are and where you are going. This helps you to have the commitment and courage to be yourself without fear and to pass to the next level of your spiritual growth, which becomes surrender.

Surrender to the path. As we say in yoga: Surrender to the stretch when you are doing a difficult posture, such as bound lotus, and after the 11th minute you can start to feel it. It can start to hurt in your back and in your knees. What you have to do at that point is to meditate deeply, inhale, and then bend into the stretch. You surrender to the stretch. In this case, you are stretching your limits as a person; you are stretching to your spirit, to your soul. You have to surrender to that stretch. Let that be your guide.

When you surrender to your soul, you then gain strength. These practices give you inner strength, mental strength, physical strength, and spiritual strength, which allow you to sacrifice—to have the strength to sacrifice your own personal desires and to serve others in some way. You cannot serve everyone in every single way, but you can find a way to serve someone.

It has taken me a long time, but I have gotten to the point where I realized that the work I am doing is a service. I went through the process of writing books and of having a commercial business. I was in the commercial industry. I know what it is like. I was an anesthesiologist. I know what it is like to make money. Now, I am at the point of my life where I am giving back without thought of reward for myself. We have a nonprofit foundation. This is my way. Everyone has their own way of serving. This is called *seva* in yoga. It brings within a sense of true happiness and serenity. Remember, you have to take care of yourself first. You cannot really tell other people to have a practice unless you have a practice.

Once you do that, you get into this serenity, this flow, that gives you the peace of mind and a new sense of universal

love that we talk about but quite often do not have. You see the oneness in everything, in everywhere. You see how everything is connected. This is the ultimate in brain longevity work and is what many people call “enlightenment through illumination of the soul.” The enlightenment is not of your brain. It is not of your body. It is of your spirit. That brings spiritual well-being, which is the highest form of existence. Once you have that, this allows you to have peace of mind, which is a good way to be.

Advances: As you have expressed, you must take care of yourself before you can care for others. This brings to mind the rate of doctor burnout and the old adage, “Doctor, heal thyself.” Is this an area where Western medicine is failing?

Dr Khalsa: Right. I do not think that not taking care of yourself as a doctor makes you a bad doctor. Doctors are very well trained. Honestly, I have seen doctors—even my own, when I have gone to the doctor—who have been overweight and overworked, but they are still good doctors.

I can share my own personal experience, where about 3 years ago, I realized that I had run myself into a wall and I was facing burnout. I was facing some health problems. I had gained some weight. This is not what I wanted.

I decided that I had to look in the mirror. I had to look at myself. Based on that, I have developed my own well-being practice and I call this the “Return of the Turtle.” What do I mean by that?

Do you remember the story about the tortoise and the hare? The hare went really fast but lost the race. The tortoise went slow and won the race. Today is such a stressful environment that people cannot figure it out. It is a very unusual set of circumstances that we live in now. Everything is going so fast. That is why I call it return of the turtle: You make it a priority to take care of yourself and put your health first.

If you put your health first, then you can, first of all, feel so much better. You have so much more energy and you sleep better, which is critically important for our brain function, immune function—everything.

Then, eventually, you can get to the point where you can help others as well, but you must put your health first. In my view, how that is applied to me is—as I call it—self-discovery or self-realization through physical fitness. I have always worked out. I have always been athletic. I play tennis. I have gone to the gym. But I really took it to another level and found that I have evolved personally through this practice, which also involves yoga and meditation. I really made an effort to put my health first.

This is all part of the brain longevity aspect: prevention of Alzheimer’s. Everything is related. You must make a commitment. You cannot just talk about the stuff. It is not a pill. You have to take the time to do it—you have to do it. You have to put your health first and make it important.

There is something called subjective cognitive impairment. Once you get symptoms, I am not saying it is entirely too late, but you are on a slippery slope. Because

subjective cognitive impairment, where you have the feeling that your brain is not working as well as it should, is progressive unless you really get lucky and can stop it. Subjective cognitive impairment can proceed to mild cognitive impairment, where you would have more significant memory loss, which then can progress at a very high rate to true Alzheimer’s disease. Once you get Alzheimer’s disease, in the early stages, you can do something to slow it down. But once you get to the midstage, really, it is very difficult. There is no cure for that right now. That is why the best cure is prevention.

Advances: What is the foundation doing now to validate some of these ideas through research?

Dr Khalsa: Well, we have a number of research projects ongoing. We continue to study Kirtan Kriya at UCLA where we are now looking at patients with mild cognitive impairment to see if we can slow the progression. At the University of West Virginia, we have a study going on looking at subjective cognitive impairment as well as mild cognitive impairment in individuals living in a retirement community. I think that is going to be a very good outcome and a very good study. We have a study going on at the University of Arizona where, because of the association between postural instability—difficulty in walking—and cognitive function, we are looking at their program on improving mobility through a virtual reality training program and then adding meditation to see if that extends the beneficial outcome as well.

Perhaps the most exciting study that we have going on is the FINGER study in Finland because, as we have been mentioning, in America we are behind in studying prevention. We are still looking for the magic-bullet drug and spending \$150 million in one research study looking for some drug that they will probably never find. I hope they do, but I am not the optimistic.

With the country of Finland and also the Karolinska Institute in Stockholm, the FINGER study is the largest study in the prevention of Alzheimer’s. It is the Finish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability. It involves 1200 participants and they are studying our whole program with the exception of meditation: nutrition, physical exercise, mental exercise, and improvement of cardiovascular risk factors. Because we have the meditation studies elsewhere, they did not include that aspect. The groundbreaking part of the study is that we are measuring genetic health by measuring telomere length.

We have shown in our other research that Kirtan Kriya improves genetic health. This trial is going to look at 1200 people before, during, and after the study to show that the program we are funding improves genetic health as well. You are not a prisoner of your genes. Even if a person has bad genes, they can do things that will improve their genetic expression.