

the art and science of yoga



research and kripalu

By Stephen Cope

Over the course of the last two decades, interest in yoga has soared among Westerners—particularly in the United States and Europe. A 2005 survey by *Yoga Journal* indicates that almost 7.5 percent of adults in the United States currently have a yoga practice and that another 14 percent are interested in pursuing one.

Why has yoga been so successful in the West? Clearly, the most obvious answer is that practitioners are finding immediate and profound salutary benefits from their practice. Practitioners routinely describe themselves as healthier, less stressed, and more resilient in the face of life's pressures. They say they're more relaxed, more focused—more fully alive.

We have impressive anecdotal evidence about the benefits of yoga. And yet, what do we really know about *how* yoga works—in a scientific sense? What are the specific effects of yoga on the body and mind? What are the exact mechanisms that produce its beneficial effects? Is yoga really any more effective in changing a life than, say, adopting a regular exercise program at the gym or changing one's diet? And if it *is* more effective, *why* is it more effective?

Even after a quarter century of success in America, there is shockingly little hard research into yoga's effects and mechanisms. At present, there are fewer than 12 National Institutes of Health grants that have been funded for the exclusive study of yoga. Many of the studies that do exist are done “under the radar” of the professional scientific community—and are accomplished on a shoestring budget and without benefit of state-of-the-art research techniques.

Why the paucity of research? Primarily because serious, high-quality research is extremely expensive and requires enormous amounts of time and effort on the part of highly educated investigators. Since it doesn't often bring large financial returns in the short run, it can be difficult to generate interest and funding. Large-scale research often requires the backing of powerful and compelling supporters—and, eventually, the buy-in of federal agencies.

In spite of these obstacles, other Eastern traditions have mounted significant research programs. These include, most significantly, mindfulness meditation (which has certainly had a compelling spokesperson in the Dalai Lama) and Chinese medicine—especially acupuncture (perhaps due in part to the political rapprochement of our two countries), which has led to its establishment as a viable and accessible treatment option for millions of people. Until now, American yogis have been less successful at garnering the kind of support required to bring yoga to the attention of major researchers and sponsors.

Why do we need research?

For the past two years, the question of serious research at Kripalu has resided within the Institute for Extraordinary Living, and as the director, I have been thinking about it quite a bit. Why do we need to do high-quality scientific research in the field of yoga? Here are some of my reflections on this question.

A tradition based in inquiry The call for research emerges from within the yoga tradition itself. The yoga tradition has always been remarkably empirical—interested not in metaphysics but rather in seeing precisely *how the world works*. The whole stream of practice that issued forth from the sixth, fifth, and fourth centuries BCE in India is highly psychological and scientific. In fact, one of the hallmarks of this tradition is its persistent eschewing of doctrine and dogma in favor of a practical inquiry into the concrete realities of the mind and body. So, taking an empirical view honors the most noble aspects of the tradition. Putting yoga techniques under the microscope is, well, very yogic. (Our sister tradition—Buddhist practice—has a similar view. The Dalai Lama has said that if science disproves anything about Buddhist practice, his tradition would have no choice but to change.)

Rigor and integrity A research orientation helps to peel away the cloud of mystery and vague esotericism that has surrounded yoga since it first landed in the West. In 1958, when Mircea Eliade published his majestic study, *Yoga: Immortality and Freedom*, a reviewer from the *New Yorker* gushed that it was “entirely free from the intolerable wooliness of thought in which generations of yogis have been enveloped.” Unfortunately, the contemporary yoga world is still not free from the grasp of this persistent “wooliness of thought,” which presents as vagueness, lack of intellectual precision, and superficial understanding—ultimately undermining the progress of yoga as a viable part of our society. This doesn't mean we have to lose the great stories—or even the mystery—just that we must understand their role more clearly.

kripalu's yoga research

In September of 2006, Kripalu's Institute for Extraordinary Living (IEL) gathered a team of some of the most highly respected scientists in the contemplative/yoga community and launched one of the largest serious yoga research programs in the world. The IEL research team currently has eight substantial studies underway; some are still in the data-collection phase, while others, particularly the musical performance studies, are already showing compelling results.

Tanglewood Music Center Study (TMC) In its third summer, a study of yoga and optimal performance among high-level musicians, including a study of performance anxiety, flow states, self-transcendence in performance, performance-related musculoskeletal disorders, and mood states.

Boston University Tanglewood Institute Study Modeled on the TMC study, this study uses the same curriculum and research protocols in a summer program with young musicians ages 14–18.

Boston Conservatory Study Modeled on the TMC study, a longitudinal study of music performance and yoga conducted in conjunction with the Boston Conservatory.

Rowing Team Study A study of yoga's impact on optimal performance in highly competitive team rowing. (see page 13)

Yoga and ADHD (Attention Deficit and Hyperactivity Disorder) A small pilot study of the effects of yoga on ADHD in children, done in collaboration with one of the world's leading researchers of ADHD.

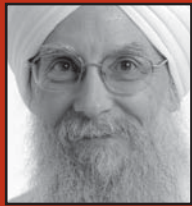
Yoga and Young Adult Development A scientific evaluation of the outcomes of Kripalu's yoga-based, young-adult leadership course (the Semester Intensive).

Yoga and Fulfillment Study A study of the impact yoga plays on the physical, psychological, and spiritual well-being of adults in the Kripalu Yoga Teacher Training immersion programs.

Ayurveda and Health A study of the mechanisms of effect in Ayurveda, specifically the intensive treatment called panchakarma.

As results from these studies become available, they will be shared with the Kripalu community and the world at large.

kripalu's top-notch yoga researchers



Sat Bir S. Khalsa, PhD, is an assistant professor of medicine at Harvard Medical School in the department of medicine at Brigham and Women's Hospital. Dr. Khalsa is one of the most active, skillful, and experienced researchers in the yoga world today.



Sara Lazar, PhD, is an instructor in psychology at Harvard Medical School and a professor of psychiatry at Massachusetts General Hospital, where she specializes in functional magnetic resonance imaging (fMRI). Dr. Lazar employs the latest techniques in brain-imaging in her research and has been widely cited in the mainstream press for her work on brain plasticity and meditation.



Dr. Lisa Conboy, PhD, is a social epidemiologist affiliated with the Osher Institute at Harvard Medical School and codirector of research and faculty at the New England School of Acupuncture. She is currently involved in a number of studies investigating Ayurveda, yoga, and traditional Chinese Medicine.

The yoga research team is codirected by Dr. Khalsa and Institute for Extraordinary Living (IEL) Director Stephen Cope, and is coordinated by IEL Research Coordinator Angela Wilson.

Enhanced effectiveness A clearer and more precise understanding of yoga can help us become more skillful in our practice and teaching. With an understanding of the actual cause-and-effect mechanisms and the implications for various health conditions, psychological conditions, and optimal performing states, we can effectively target and share the transforming, health-giving aspects of yoga—ultimately benefiting many more people. Scientific inquiry will help to create a contemporary language for practice, making both the language and the practice more accessible to more people.

Ensuring nonsectarianism The contemporary language and approach of science can help us to avoid the pitfalls of sectarianism—and to move our conversation into the wider world-community. The scientific community crosses all boundaries of faith, belief, and culture to create a simple (and democratic) conversation: How does yoga work? How does life work? How does the human being work? What is an optimal human life? Is it possible for everyone? The answers to these questions inevitably lead us to a view not based on right or wrong, or on doctrine and dogma, but on how to live a skillful and complete human life. The principles that we clarify will be applicable to all human beings on the planet—and our articulation of them will help to create unity in diversity. This is central to the Kripalu tradition, stated so clearly by Swami Kripalu: “The whole world is one family!”

What is Kripalu's role?

For 25 years, Kripalu has been witness to impressive anecdotal evidence about the benefits of yoga. We've seen people's lives change dramatically. We've seen “miracle cures” of many varieties, psychological and physical. We have no doubt that the whole range of yoga practices we teach makes a difference—and this includes not only postures and breathing but yoga philosophy, psychology, and lifestyle as well.

We are now interested in bringing scientific rigor to our experience—and we are in a unique position to do. We are certainly the largest residential yoga center in the United States. And we are one of the

few yoga institutions (perhaps the only) in the United States with the infrastructure to launch a truly comprehensive program of research. With a mission “to teach the art and science of yoga to produce thriving and health in individuals and society,” we are committed to using the systematic inquiry of scientific research to support our inquiry into what creates a fulfilled human life.

In September 2006, the Kripalu Institute for Extraordinary Living initiated a research program that has already put in place many of the components for a successful and scientifically rigorous research department. In addition to launching eight pilot programs, the research team has focused a tremendous amount of energy on the demands of cutting-edge research. This includes asking the right questions (in many cases new kinds of questions) and developing new protocols and research instruments. The accumulation and analysis of compelling “pilot” data is ongoing, and we are hopeful that these initial findings will attract the attention of the public at large, as well as major funding sources. As we step forward with this commitment, our next steps are clear: continue to gather data, create a community of support, and garner the funds to make this a viable effort.

Ultimately, our desire is to catalyze the broadest possible reach for yoga—as a piece of the puzzle that can address and heal core imbalances experienced by individuals, communities, and, in fact, our entire global society.

If you are interested in finding out more about supporting Kripalu's yoga research through the Institute for Extraordinary Living, please contact Kristi Nelson, Director of Development, at 413-448-3222 or kristin@kripalu.org. ■

Stephen Cope is Director of the Institute for Extraordinary Living. He is the author of three books, including the highly acclaimed Yoga and the Quest for the True Self as well as the recently published The Wisdom of Yoga: A Seeker's Guide to Extraordinary Living.



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Last fall, when Jason Dodds' crew coach at Mainland Regional High School in Lindwood, New Jersey, told his varsity team that this season they were going to try something a little different, Jason was skeptical. Yoga stretches instead of the usual warm-ups? Different breathing techniques for practices and races? Sitting still to meditate? It all sounded a little bit weird.

“But as it progressed, it was obvious it was working,” says Jason, who turns 18 this year. “It helped me feel better, it helped me reach the next level of performance, and it helped the pain of practice and racing go away.”

The new approach, which incorporated yoga, meditation, and pranayama, was facilitated by Jason's head coach, David Funk, and pioneered by Ed Harrold, Director of Sports Training and Yoga at Kripalu's Institute of Extraordinary Living and director of the Kripalu affiliate studio Comfort Zone Yoga Center in Lewes, Delaware. David and Ed's work with 18 members of the crew team from September 2006 to April 2007 was documented by Kripalu's Harvard University research team, which reported that the participants in the program dropped their time, on average, between 15 and 20 seconds per 2,000 meters on an indoor rowing machine (the standard for measuring rowing times).

“What took place on that high school team is almost mind-boggling,” Ed says. “Not only did they improve athletically, their parents were completely overwhelmed at how the boys had changed energetically by the end of the four months. They were completely differ-

ent, which is really what it's all about. It's not about winning races, it's about winning the game of life.”

The team members practiced yoga stretches, breathing techniques, and meditation at each practice, and worked with Ed in longer sessions once a month. What Jason and his teammates found most helpful was Ed's system of nasal breathing, inspired by ancient pranayama techniques and by the inspiratory muscle training (IMT) developed in the West. As creator of the Flexibility for

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Athletes workshop and DVDs, Ed has developed more than 50 breathing sequences for athletes that strengthen the respiratory and cardiovascular systems to access deeper levels of energy.

“From the very first workout we did together, they immediately felt a difference,” David says of the boys. “They couldn't believe their bodies could feel that way, and that in such a short amount of time they could work to such a high state. As the season went on, their minds became clearer and their flexibility improved. Each time we met, the guys were looking forward to it more and more. It allowed them to relax; they could put their guard down, get into the moment. We stripped away all the armaments they put up in their daily lives and gave them the opportu-

nity to make progress in their training, and in their lives as well.”

David and Ed first worked together in 2003, when David and his twin brother, Andrew, then his rowing partner, began meeting with Ed once a week to practice ways of breathing, stretching, and keeping their minds clear during a race. The brothers went on to win every race they entered that summer except one in which they came in second. David also worked with Ed in 2006, when he won the South Jersey Doubles and Singles Championships—the second racer to win both titles in the same year since the race began in 1924. (Andrew was the first to do so in 2003.)

“Yoga works quite well not only in the emotional world but also in the athletic world,” Ed says. “We're using the basic yoga model as a way to enter the mind through the body, linking breath and movement, repatterning the breathing and the rotation of thoughts in our mind. Once we do that, we can tap into the athlete's special gifts. Competition seems external, but really it all takes place inside.”

As for the Mainland Regional High School team, last season was their most successful varsity season in recent years. More importantly, the team's work with Ed gave them skills they can use throughout their lives. “Whenever I was using the breathing, I'd always feel better about racing, or stretching, or cooling down, or whatever I was doing,” Jason says. “It had a really positive impact on everything I did. I'll definitely use it whenever I row, and whenever I feel I need it.” ■