

Good Memory

Yoga offers tools to enhance memory and focus—and transform the way you think.

By Hillari Dowdle



Tune in to the news, and you can't help but notice that we live in a time of conflict and climate change and economic insecurity. The reported threats to our health and well-being seem ceaseless. And yet there's good reason not to let yourself be too riled by the news: All that negative input takes a toll on the brain.

A low-level nagging sense of fear can lead to a lack of concentration, forgetfulness, and even memory loss. We joke about these symptoms, calling them “mommy brain” or “senior moments,” but in the worst-case scenario, the stresses underlying these mild forms of cognitive decline can lead to Alzheimer's disease.

“We know that stress damages the brain,” says Maria Carrillo, the medical and scientific relations director for the Alzheimer's Association. “Along with the aging of the population and lifestyle risk factors, it's a big factor in the looming epidemic we're facing.” She cites a study the association released this year, which estimates that someone develops Alzheimer's in this country every 71 seconds. The study projects that as many as 10 million baby boomers will be diagnosed with the disease in the coming years.

“It's shocking,” says Dharma Singh Khalsa, MD, the author of *Brain Longevity* and the president and medical director of the Alzheimer's Research and Prevention Foundation. “About 15 years ago, there were 4 million people with Alzheimer's; today that number is 5.2 million, and we're going to see it skyrocket. I think stress and lifestyle are leading

causes. Right now in America we're being told to be afraid, be very afraid. There's so much stress and pressure in our society, it's creating an epidemic of memory loss.”

Are you at risk? If so, don't fret. There's good news, too: Scientists have come a long way in understanding what works to improve brain function. And some of them say that yoga—with its unique combination of exercise, meditation, relaxation, and focus—might be a great antidote to what's weighing on your mind.

Mold Your Mind

“When I was in medical school 20 years ago, we were taught that once you passed certain critical periods in childhood, the brain architecture is fixed,” says Timothy McCall, MD, *Yoga Journal's* medical editor and the author of *Yoga as Medicine*. “Now, because of advanced neuroimaging techniques like PET scans, advanced EEGs, and functional MRIs, we know that the brain is constantly rewiring itself based on experience. Neuro-scientists like to say, ‘Neurons that fire together, wire together.’ When you think and do certain things repeatedly, you create neural pathways that get deeper and deeper over time—it's right in line with the yogic idea of samskara.”

As you think, so you are—this fundamental tenet of yoga is now the basic idea of plasticity, an emerging field in neuroscience. “Many people still think of the brain as a machine that wears out over time—the gears start to slip, and the belts get loose,” says



neuroplasticity guru Michael Merzenich, a professor at the Keck Center for Integrative Neuroscience at the University of California at San Francisco. “But there’s a completely different way of looking at it. It’s a machine that’s constantly remodeling itself based on how you use it. When we start to lose our cognitive abilities, it’s not so much a problem of the brain’s physical condition but a result of how it’s been used.”

Change is possible, in other words; in fact, neuroplasticity holds that it’s inevitable. Through action or inaction, our brain will be changing all the time. This news has led to an increase in popularity of games and exercises that “train” the brain to make it work better. Brain Age, anyone?

Keeping your mind active promotes healthy aging, notes Carrillo, as does a healthy diet. But exercise may play a bigger role yet. A series of recent studies published in such journals as *Science* and the *Journal of Neuroscience* have shown that exercise can stimulate the generation of new brain cells—and that the cells can migrate from one area of the brain to another. “This is evidence that you can move beyond molding and shaping the mind: You can literally create a new brain,” Khalsa concludes. “It’s beyond neuroplasticity. It’s neurogenesis.”

But there’s a hitch. These same studies show that new brain cells don’t stick around long if we’re stressed. To create and maintain them, Khalsa says, you need to move your body, engage your mind, and manage your stress.

And that’s where yoga comes in.

Brain Prescription

Khalsa is a teacher and proponent of Kundalini Yoga, an active form of practice that links movement and breath. He likes that Kundalini Yoga can be vigorous enough to promote neurogenesis. He likes the meditative states the exercises create. Best of all, he likes an exercise called kirtan kriya, a simple meditation that combines the yogic elements of meditation, mudra, kirtan (or chanting), and mantra. Khalsa believes that kirtan kriya can help you increase and protect your brainpower—whether you’re a Kundalini Yoga practitioner or not.

The practice is being studied at the University of Pennsylvania’s Center for Spirituality and the Mind, under the supervision of Andrew Newberg, the neuroscientist famous for his revelatory studies of Tibetan Buddhist meditators. Though the final results are as yet unpublished, the preliminary findings—which have twice been presented at Alzheimer’s Association meetings—look promising. “We took people with memory loss and prescribed 12 minutes of kirtan kriya every day,” Khalsa says. “After eight weeks, you can see on our scans that after the meditation, the blood flow to the frontal lobe—the area responsible for attention, concentration, and focus is improved.”

Newberg is also involved in a study exploring how Iyengar Yoga changes the brain. He’s reluctant to make any strong statement about his findings in either study. (“We still have six months’ more work to do,” he says.) But he will say that beneficial changes have happened in each of the groups. “We know that exercise, posture, focused breathing, and meditation are all good for the brain,” he says. “Because of that, yoga should go far in creating positive brain changes. But we don’t know exactly how or why it works. In kirtan kriya, for instance, we don’t know whether the breathing, the visualization, the repetition of the mantra, or the finger movements are responsible. We just know it’s improving cognition.”

Wise Yogis

The discovery of neuroplasticity and neurogenesis may have been big news to Western medicine, but it wasn’t to yogis. “There’s a book, *Train Your Mind, Change Your Brain*; that idea really hews to the yogic ideal,” says Gary Kraftsow, director of the American Viniyoga Institute and author of *Yoga for Wellness*. “Yoga uses breath, body, mind, and sound together to effect change. It uses all the dimensions of who we are,” he says. “When you integrate breath and movement and other exercises, such as chanting, the mind becomes more focused and clear, the emotions become more balanced, and neuromuscular functioning is improved.”



Alarik Arenander is the director of the Brain Research Institute at the Maharishi University of Management in Fairfield, Iowa, and a strong proponent of Transcendental Meditation. In his view, yoga can even change our genetic destiny. “Done properly, yoga is an experience of union,” he explains. “Alzheimer’s is nothing more than a disorder of progressive disconnection. Yoga and meditation create coherence and connection. When we do yoga, the experience filters down and touches our very DNA. Very few of us have the one or two genes associated with early-onset Alzheimer’s, which is hard to prevent. For the majority of us, genetic predisposition for Alzheimer’s doesn’t matter since you can change how your genes are expressed.”

According to Joan Shivarpita Harrigan, director of Patanjali Kundalini Yoga Care, in Knoxville, Tennessee, the Yoga Sutra is a manual for how to do this. “The yogis have said for ages that spiritual practice changes the brain, and they have a very systematic method for doing so,” Harrigan says. “If you practice regularly, you can shift the patterns of the autonomic nervous system over time. You can change the physiology, the hormones, and the neurotransmitters in the brain and create a foundation for more peacefulness and clarity. The mind will become stronger, so that one is not as susceptible to the distractions and influences of negativity and confusion that are all around us.” As the Yoga Sutra says in its second verse, *Yogah cittavritti nirodhah*. That is to say, yoga is the cessation of the fluctuations of the mind. A calm mind is a focused mind—one able to function optimally now and for many years to come.

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