

## The Power of Om

Meditation research is coming of age, as neuroscientists measure its surprising benefits in this article written by Carey Goldberg, Globe Staff on November 21, 2005. Meditation seems to energize the sleep-deprived. It seems to help with concentration. It even seems to bolster the very structure of the brain as we age.

Neuroscientists presenting their latest research at a convention of 34,000 colleagues last week had so much praise for meditation that it was starting to sound like a mantra.

Their work fits into a growing body of data that tries to bring modern science to bear on age-old methods to quiet the mind. Enthusiasts have long touted the health benefits of meditative practices such as chanting, yoga, and prayer.

Now, using the latest high-tech tools of neuroscience and biochemistry, they are teasing out how those benefits work. And increasingly, they are focusing on how meditation may help not only the body but the brain.

"As time goes on, we're understanding this phenomenon in ever more advanced scientific terms," said Dr. Herbert Benson, president of the Mind/Body Medical Institute and a Harvard Medical School associate professor who has studied the body's "relaxation response" for nearly 40 years. "And why it's so important today is because over 60 percent of visits to the doctor are in the stress-related realm."

While some of the most striking studies have involved monks who were experts at meditation, the new research also backs up claims that garden-variety meditation can bring scientifically demonstrable benefits.

Considered on the fringes of science just a generation ago, serious research on meditation now includes hundreds of studies examining its possible benefits. Three of five researchers on a panel about meditation at last week's Society for Neuroscience meeting in Washington, D.C., were from Harvard.

In recent years, academic researchers seeking to turn anecdotes into hard data have suggested that meditation may provide a broad array of benefits, from lifting depression to relieving pain to fighting flu.

Skeptics remain. Many of the studies are small and preliminary, and some depend on the meditators' own descriptions of what they feel, which could be biased by their desire for it to work.

When the Dalai Lama, the Tibetan spiritual leader and a long-time collaborator with brain scientists, was scheduled to speak at the Society

for Neuroscience conference, several hundred scientists signed a petition questioning his presence, and arguing that meditation research has not been objective enough.

But researchers say that that is their very aim: to improve the quality of the research, using new tools and better methods, to determine more conclusively what meditation really does.

"If we're going to make extraordinary claims, and claim that certain individuals can break the rules we have about human performance, the methodology has to be absolutely airtight," said Sam Moulton, a psychology graduate student at Harvard.

As the power of meditation gained credibility during the 1970s and 1980s, Moulton noted, researchers were looking mainly for physiological effects, such as blood pressure and heart benefits. "Now, we're looking for mental effects."

Monks are considered the superstars of meditation, but Benson and others say benefits can come from a spectrum of repetitive, mind-clearing practices that elicit the so-called relaxation response -- from swaying in prayer to saying the rosary to knitting. Under that broad definition, about one-half of Americans perform some sort of meditation, mainly prayer, Benson said.

Among the studies presented last week was one by Massachusetts General Hospital researchers, who scanned the brains of 20 people who meditated regularly. These people had four regions of cortex -- the rind of the brain, associated with higher functions like memory and decision making -- that were thicker than in 15 subjects who didn't meditate. In addition, the researchers found signs that one area of the cortex seemed to have aged less quickly than it did in non-meditators. The study did not look at whether those brain differences had a noticeable impact on behavior, but researchers are now doing follow-up work to assess that.

The findings "provide the first evidence that alterations in brain structure are associated with Western-style meditation practice, possibly reflecting increased use of specific brain regions," said Sara Lazar, of Harvard, the study's lead author.

In other Harvard-affiliated work, researchers reported that by using a device that can analyze every breath a person exhales, they could objectively measure the depth of relaxation a person had achieved. People who reached deeper states of relaxation exhaled more nitric oxide, a gas known to relax the smooth muscles in arteries, and aid blood flow.

"Our results provide initial evidence of how the relaxation response intervention and other mind/body approaches might lower blood

pressure," said Jeffery A. Dusek, the study's lead author. "In the near future, it may even be possible to use our new technique to determine an effective 'dose' of meditation for a given person, or to identify characteristics of individuals who best respond to the relaxation response intervention."

Another new study, from the University of Kentucky, found that meditation could offset the sluggishness of sleep deprivation better than a nap. Researchers tested volunteers on a button-pressing speed task, and found that even novice meditators improved their performance more after 40 minutes of meditation than after a 40-minute nap. Meditation helped even after a full night of sleep deprivation, the study found, said researcher Bruce O'Hara.

And Buddhist monks have demonstrated yet again that meditation can give them extraordinary powers of mind, according to work by Olivia Carter, also of Harvard.

Her team tested the powers of concentration of 76 Tibetan monks, by showing them different images in each eye. Normally, people's brains flip between the two images every 2.5 seconds. But the monks averaged about four seconds per eye, and one monk reported focusing on one of the images for 723 seconds.

Ultimately, scientists aim to understand not only the powers of monks but the everyday experiences of an amateur like Philip Hresko, a 63-year-old Boston architect who began training six weeks ago at the Mind/Body Medical Institute out of concern for his heart health. Along with more prolonged techniques, he said, he has been learning to relax when he gets a spare 20 to 30 seconds.

"When I'm stuck in traffic, instead of gripping the steering wheel and getting upset, I might look through the skylight of my little car and count clouds or watch the birds flying," he said. Already, Hresko said, his high blood pressure has fallen, and he has more energy. And does he feel mentally and emotionally better?

"Oh, my God, yes," he said.

## **To Meditate:**

**Pick a focus word**, short phrase, or prayer that is firmly rooted in your belief system, such as "one," "peace," or "The Lord is my shepherd."

**Sit quietly** in a comfortable position.

**Close your eyes.** Relax your muscles, progressing from your feet to your calves, thighs, abdomen, shoulders, head, and neck.

**Breathe slowly and naturally**, and as you do, say your focus word, sound, phrase, or prayer silently to yourself as you exhale.

**Don't worry** about how well you're doing. When other thoughts come to mind, simply say to yourself, "Oh well," and gently return to your repetition.

**Continue** for 10 to 20 minutes.

**Do not stand immediately.** Continue sitting quietly for a minute or so, allowing other thoughts to return. Then open your eyes and sit for another minute before rising.

**Practice** the technique once or twice daily. Good times to do so are before breakfast and before dinner.

SOURCE: The Mind/Body Medical Institute

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Reference for [www.MigraineSavvy.com](http://www.MigraineSavvy.com):

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