

## Articles on Meditation Research

### Meditation changes - Behavior - Brief Article

[Science News](#), [August 30, 2003](#)

People who meditate say that the practice calms them and improves their performance on everyday tasks. There may be foundations of these benefits in the brain and immune system, a new study finds.

Psychologist Richard J. Davidson of the University of Wisconsin-Madison and his colleagues studied 41 employees of a biotechnology company, 25 of whom completed an 8-week meditation program. The scientists measured brain wave activity in all participants before, immediately following, and 4 months after the meditation program. Volunteers also received an influenza vaccination at the end of the program and gave blood samples 1 month and 2 months later, enabling the researchers to assess the volunteers' immune responses to the vaccine.

Only the meditators exhibited increases in brain wave activity across the front of the left hemisphere, Davidson's group reports in the July/August *Psychosomatic Medicine*. Earlier studies had suggested that this neural response accompanies both reductions in negative emotions and surges in positive emotions. The employees who took the course reported subsequent drops in negative feelings but no change in pleasant feelings.

Meditators displayed more-vigorous antibody responses to the vaccine than their nonmeditating peers did.--  
B.B.

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### Long-lasting effects of Meditation

[Townsend Letter for Doctors and Patients](#), [Oct, 2004](#) by [Jule Klotter](#)

When Western scientists first began studying the effects of meditation in the 1970s, they noticed that heart rate, perspiration, and other signs of stress decreased as the meditator relaxed. Scientists, like Richard Davidson, PhD (University of Wisconsin), have also been considering the long-term effects of meditation. In 1992, Davidson received an invitation from the 14th Dalai Lama to come to northern India and study the brains of Buddhist monks, the foremost meditators in the world. Davidson traveled to India with laptop computers, generators, and EEG recording equipment, thus initiating an ongoing study. Now, Buddhist monks travel to his Wisconsin lab where they meditate while in a magnetic imaging machine or they watch disturbing visual images as EEGs record their responses to see how they regulate emotional reactions.

Any activity--including meditation--will create new pathways and strengthen certain areas of the brain. "This fits into the whole neuroscience literature of expertise," says Stephen Kosslyn, a Harvard neuroscientist, in a New York Times article (14 September 2003), "where taxi drivers are studied for their spatial memory and concert musicians are studied for their sense of pitch. If you do something, anything, even play Ping-Pong, for 20 years, eight hours a day, there's going to be something in your brain that's different from someone who didn't do that. It's just got to be." Buddhist monks practice three forms of meditation: 1) focused attention on a single object for long time periods 2) cultivating compassion by thinking about anger causing situations and transforming the negative emotion into compassion and 3) 'open presence,' "a state of being acutely aware of whatever thought, emotion or sensation is present without reacting to it."

Knowing the effects that meditation has on the monks' brains, Davidson decided to see what effect meditation has on neophytes. He set up a study with 41 employees at a nearby biotech company in Wisconsin (*Psychosomatic Medicine* 65: 564-570, 2003). Twenty-five of the participants learned 'mindfulness meditation,' a stress-reducing form that promotes nonjudgmental awareness of the present and is taught by Jon

Kabat-Zinn. They learned the practice during a 7-hour retreat and weekly classes. During that 8-week period, these participants were asked to meditate for one hour each day, six days a week. Brain measurements were taken before instruction, at the end of the eight weeks, and four months later. Measurements showed that meditation increased activity in the left frontal region of the brain, "an area linked to reduced anxiety and a positive emotional state." Also, at the end of the 8 weeks, the participants and 16 controls who did not meditate received flu shots to test immune responses. When researchers took blood samples from them one month and two months after the injections, they found that the meditators had more antibodies against the flu virus than the non-meditators. Davidson and colleagues said that people with the strongest immune response also had more left-sided brain activity.

Hall, Stephen S. Is Buddhism Good for Your Health? New York Times. September 14 2003

Meditation Helps with Anxiety and General Health. 7 February 2003.  
[www.healthypace.com/Communities/Anxiety/treatment/meditation.asp](http://www.healthypace.com/Communities/Anxiety/treatment/meditation.asp)

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## The Science Of Meditation

[Psychology Today](#), [May, 2001](#) by [Cary Barbor](#)

Researchers are beginning to unfold the secrets to meditation --an ancient practice that yields modern-day benefits.

In the highlands of the Qinghai-Tibet Plateau, people look at life differently. Upon entering the local Buddhist monastery, there is a spectacular sculpture the size of a large oak. The intricate carving of clouds and patterns are painted in powerful colors. But as soon as winter gives way, this magnificent work will melt to nothing. The sculpture, in fact, is made of butter, and it is one of the highland people's symbols of the transient nature of life.

And life here is not easy. Villagers bicycle to work before dawn and return home long after sunset. Many live with nothing more than dirt floors and rickety outhouses. Upon entering these modest mud-brick homes, you'll find no tables or chairs--just a long platform bed, which sleeps a family of eight. However, when the people invite you in for tea, their smiles are wide and welcoming. How do they possess such inner calm in conditions we would call less than ideal?

When villagers cook, sew or plow the fields they do so in a tranquil state. As an approach to life, weaving meditation seamlessly into almost every action throughout the day seems unfamiliar to Western cultures. Is there something we can glean from this way of life that will improve our own? The romantic notion of quitting everything and joining Tibetan monks on a mountaintop is not the only way to meditate. You don't need to quit your job, give up your possessions and spend 30 years chanting. Recent research indicates that meditating brings about dramatic effects in as little as a 10-minute session. Several studies have demonstrated that subjects who meditated for a short time showed increased alpha waves (the relaxed brain waves) and decreased anxiety and depression.

To explore exactly what part of the brain meditation acts on, researchers at Harvard Medical School used MRI technology on participants to monitor brain activity while they meditated. They found that it activates the sections of the brain in charge of the autonomic nervous system, which governs the functions in our bodies that we can't control, such as digestion and blood pressure. These are also the functions that are often compromised by stress. It makes sense, then, that modulating these functions would help to ward off stress-related conditions such as heart disease, digestive problems and infertility.

Meditation: What is It?

Aside from determining its physiological effects, defining the actual act of meditation can be as elusive as

imagining the sound of one hand clapping. In his book, *What is Meditation?* (Shambhala Publications, 1999), Rob Nairn talks about it as a state of "bare attention." He explains, "It is a highly alert and skillful state of mind because it requires one to remain psychologically present and 'with' whatever happens in and around one without adding to or subtracting from it in any way."

The physical act of meditation generally consists of simply sitting quietly, focusing on one's breath, a word or phrase. However, a meditator may also be walking or standing. It isn't unusual, in fact, to see a meditating monk in the highlands walking a few steps and then lying prostrate over and over again until he reaches his destination many miles away.

There are many traditions and countless ways to practice meditation, and perhaps because of its polymorphous nature new meditators wonder whether they are doing it correctly. According to Roger Thomson, Ph.D., a psychologist in private practice in Chicago and a Zen meditator, there is one way to know for sure: "If you're feeling better at the end, you are probably doing it right."

Thomson makes it sound easy, but many people can't seem to get the hang of it, no matter how often they try. "It can be difficult," says Steven Hendlin Ph.D., a clinical psychologist in Irvine, California. "It may be a struggle to overcome the internal chatter that we all experience."

Seeking methods for quieting that internal chatter and reducing stress are what initially attract many people to meditation. "It is a very effective stress-reducer, which is a way into the practice for many people," says Thomson, who sometimes refers clients to meditation. "If someone is struggling with feelings of anxiety, he or she may benefit from its calming aspects. And it's absolutely facilitative of mental health because it brings about a higher level of self-acceptance and insight about oneself."

But greater awareness about oneself can be a double-edged sword. Mark Epstein, M.D., a New York City psychiatrist in private practice and a meditation practitioner, extends a caution about one of the ironies of meditating. "It could actually raise your level of anxiety if there are certain feelings you are not owning." In other words, there's nowhere to hide when you're practicing "bare attention." And this, for some people, is both the good and the bad news.

That's why some experts suggest marrying meditation to psychotherapy. "Both allow the person to be present for the moment, open and nondefensive," says Thomson, who explores the complementary nature of the two in a paper recently published in the *American Journal of Psychotherapy*. "In both meditation and psychotherapy, we are trying not to get caught up in internal preoccupation, but to be intimately present with what is happening here and now."

To explain his thoughts on the connection, Thomson compares Zen to relational psychoanalytical theories. He writes that it "encourages its practitioners to become aware of the fundamentally distorted aspects of an overly individualistic view of human experience. Recognizing that the true nature of all individuals is emphatically nonindividual, neither lasting nor separate, is the wisdom of zazen."

## Silence and Science

Certainly anything that helps us fight stress is a welcome tool. But what else might meditation be doing for us? Since researchers like Herbert Benson, M.D. [see story, page 56], began amassing data, many studies have shown that indeed meditation has not only a mental but a profound physiological effect on the body. Studies have shown that, among other benefits, meditation can help reverse heart disease, the number-one killer in the U.S. It can reduce pain and enhance the body's immune system, enabling it to better fight disease.

More new research offers additional encouragement. In a study published last year in the journal *Stroke*, 60 African-Americans with atherosclerosis, or hardening of the arteries, practiced meditation for six to nine months. (African-Americans are twice as likely to die from cardiovascular disease as are whites.) The meditators showed a marked decrease in the thickness of their artery walls, while the nonmeditators actually showed an increase. The change for the meditation group could potentially bring about an 11% decrease in the

risk of heart attack and an 8% to 15% decrease in the risk of stroke.

A second study, published last year in *Psychosomatic Medicine*, taught a randomized group of 90 cancer patients mindful meditation (another type of practice). After seven weeks, those who had meditated reported that they were significantly less depressed, anxious, angry and confused than the control group, which hadn't practiced meditation. The meditators also had more energy and fewer heart and gastrointestinal problems than did the other group.

Other recent research has looked at precisely what happens during meditation that allows it to cause these positive physical changes. Researchers at the Maharishi School of Management in Fairfield, Iowa, found that meditation has a pervasive effect on stress. They looked at a group of people who had meditated for four months and found that they produced less of the stress hormone cortisol. They were therefore better able to adapt to stress in their lives, no matter what their circumstances were.

Diana Adile Kirschner, Ph.D., a Philadelphia-area clinical psychologist, sometimes refers her clients to learn meditation and has seen firsthand how helpful it can be. "Not only is meditation an absolutely marvelous destressor, it helps people better relate to one another," she says. "I can tell when clients are following through with meditation. For instance, I had a couple who consistently bickered. After they started meditating, they came in less angry, more self-reflective and more loving."

So why aren't more people taking up the practice? "Because it puts us in the middle of ourselves, which is not always where we want to be," suggests Thomson. "Often, we want to fix things rather than accept them the way they are. Many of us feel as though we can't afford the time and energy to meditate, when in fact we can't afford not to."

Epstein and several other experts feel that meditation's effectiveness has to do with putting aside attachment to one's ego. As he says, "When you look directly at a star at night, it's difficult to see. But when you look away slightly, it comes into focus. I find it to be the same way with the ego and meditating. When one zeroes in on a sense of self through a practice of meditation, the self-important ego paradoxically becomes elusive. You become more aware that you are interconnected with other beings, and you can better put your own worries into their proper perspective."

A group of elderly Chinese maintain their connection by meeting every daybreak in the village common in Monterey Park, California. They swoop their arms and stretch their torsos in graceful harmony, and then stand absolutely still, simply meditating. Only puffs of warm air flow from their nostrils. All of them look vibrant and relatively young, when in fact they are well into their years.

While western scientists are still exploring exactly how and why meditation works, we already know that it has both physiological and psychological benefits. And many therapists consider it a valid complement to more traditional therapies. So perhaps we should simply take Thomson's advice--and the Tibetans' lead--and do what makes us feel better in the end.

READ MORE ABOUT IT:

Going on Being: Buddhism and the

Way of Change. Mark Epstein, M.D. (Broadway Books, 2001)

What is Meditation? Buddhism for Everyone

Rob Nairn (Shambhala, 1999)

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## **TM & Criminal Rehabilitation**

[Townsend Letter for Doctors and Patients](#), [Feb-March, 2005](#) by [Jule Klotter](#)

Transcendental Meditation in Criminal Rehabilitation and Crime Prevention

edited by Charles N. Alexander, Kenneth G. Walton, David Orme-Johnson, Rachel S. Goodman & Nathaniel J. Pallone  
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Since the early 1970s, Transcendental Meditation[R] (TM) has been the subject of over 600 psychological, physiological, and sociological research studies, some of which have been funded by the National Institutes of Health. Its stress-reducing effects have been widely documented.

Transcendental Meditation in Criminal Rehabilitation and Crime Prevention contains a collection of papers and studies that focuses on offender rehabilitation. Many of the papers were co-authored by one of the book's editors: Charles N. Alexander, Kenneth G. Walton, David Orme-Johnson, Rachel S. Goodman; Nathaniel J. Pallone. All of the editors, except Nathaniel J. Pallone, are affiliated with Maharishi University of Management (Fairfield, Iowa). Nathaniel Pallone is the editor of the Journal of Offender Rehabilitation and a professor at Rutgers University. The Maharishi University of Management is an arts, humanities and business college that follows the Vedic principles taught by His Holiness Maharishi Mahesh Yogi.

In the book's "Introduction and Overview," Transcendental Meditation[R] is described as an effortless, systematic program for attaining a state of inner silence. It is used for 20 minutes, twice a day. Instruction in TM involves introductory lectures, a brief personal interview, individualized private instruction, and a minimum of three group, follow-up sessions. According to the articles in this book, TM has been practiced by prisoners and prison guards in Senegal, prison inmates in the Netherlands Antilles and in the US, and offenders on probation in Missouri. All of the institutions report improved behavior and reduced stress among meditators. In addition, prisoners using TM are less likely to return to jail than controls. A study that followed 259 subjects from Folsom and San Quentin maximum security prisons and Deuel Vocational Institution (medium security) for over five years found 35% to 50% fewer new prison terms among TM groups than among control groups. Among former Folsom Prison inmates, 46.7% of the TM group was convicted of a felony within 15 years compared to 66.7% for the control group. The severity of the new offenses were less serious among the TM group. In addition, parole outcomes at one year, and rap sheet outcomes for up to six years, were significantly better for the TM groups than for controls.

Hon. David C. Mason, Judge, Circuit Court of St. Louis, Missouri, sought an effective rehabilitation program for seven years before coming across the research on TM. In late 1996, he began sentencing first offenders, as part of their probation, to attend an introductory lecture describing the TM technique as a first step in the Enlightened Sentencing Project. Those who agree to learn the technique receive standard training, then attend class sessions twice a week for 13 weeks after which mandatory class sessions drop to once a month for the remainder of their probation. The classes provide information about other stress-reducing practices, involving breathing and yoga, and give participants feedback about their experiences with TM. By September 1999, 100 offenders sentenced for a variety of crimes had been referred to the Enlightened Sentencing Project. Only 5 of the 69 who completed the TM courses broke probation. Judge Mason attributes the program's high success rate to TM's ability to relieve stress and improve self-esteem, self-control, and coherent thinking. "It makes them feel better," he writes in the book's Preface. "They find themselves getting along better with their families, and their children are easier to take care of. They develop the strength to turn their backs on tobacco, alcohol, drugs, or whatever their problems are." Five other Missouri judges have joined Mason in using the Enlightened Sentencing Project for first offenders.

The coherence that results from a regular practice of Transcendental Meditation[R] does more than calm the

individual who meditates. Research studies in a variety of countries have shown that when 1% of a population practices TM, crime decreases. David W. Orme-Johnson, who writes about this 'Maharishi effect,' says this crime reduction is "a by-product of individuals directly experiencing the unified field." Individual stress affects the collective consciousness, increasing the likelihood of crime and other erratic disturbances. Meditation helps individuals gain coherence, an inner calm and integrity. Their coherence affects the coherence of the society around them.

The reports in Transcendental Meditation in Criminal Rehabilitation and Crime Prevention have the most relevance for people working in criminal justice, social work, and mental health. But if TM can relieve stress and heal the lives of people that society has given up on, what can it do for the rest of us? One of Judge Mason's parolees, who was initially skeptical of the TM program, says: "When I meditate, I feel like the stillness of a man standing at the center of a hurricane. Everything is whirling around him, but at the center he is silent. If I had learned this 20 years ago, my whole life would have been different. I was a young man, I was scared. I had no idea where to turn." Being able to stand in a silent center in this time of war, corruption, natural disasters, and terrorism would help all of us. I wish the instruction cost less.

review by Jule Klotter

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