

Meditation and the Brain

By Dr. Andrew Weil

When I first started practicing meditation more than 30 years ago, it was still considered part of the 1960s counterculture. Today, meditation — which is simply directed concentration focusing your awareness on the breath, a repeated word or phrase, or another object of perception — is entering the medical mainstream, thanks to research showing it can benefit health concerns ranging from stress and anxiety to atherosclerosis and chronic pain. And now, a high-tech study may help explain why this low-tech approach can have such powerful effects.

The study, recently published in the July-August issue of *Psychosomatic Medicine*, was led by Richard Davidson, PhD, director of the Laboratory for Affective Neuroscience at the University of Wisconsin at Madison, and my friend Jon Kabat-Zinn, PhD, founder of the respected Stress Reduction Clinic at the University of Massachusetts Medical Center in Worcester. Earlier research by Dr. Davidson, using brain-imaging technology and EEG readings of brain electrical activity, suggested that each person's brain has a natural "set point" for good versus bad moods. People who are generally happy and calm typically show greater activity in the left side of the brain's frontal area compared with the right side. In contrast, those more prone to sadness, anxiety, or worry typically show more activity on the right side of the frontal area and less on the left. Life's ups and downs may alter your ratio of left versus right activity for a while, but it will tend to return to its usual level.

What Drs. Davidson and Kabat-Zinn discovered is that meditation can apparently shift this emotional set point in a more positive direction. The study looked at stressed-out volunteers from a biotechnology firm, who were randomly assigned to one of two groups. A group of 25 people attended eight weekly classes in mindfulness meditation (which involves remaining aware of bodily sensations and thoughts, without passing judgment on them) and participated in a seven-hour retreat. They were also asked to practice mindfulness meditation for an hour a day, six days a week. The 16 people in the control group didn't receive meditation training until the study was completed.

The researchers found the meditation group had a significant increase in activity in the left side of the brain's frontal area, and they also reported feeling more positive emotions in their daily life. (The control group didn't show these changes.)

In addition, the meditation group showed enhanced

Extraordinary Effects of Long-Term Practice

immunity: They produced more antibodies in response to a flu shot than did the control group. So meditation may not only make you happier but may also keep you healthier.

While this new study revealed that even novice meditators can reap health benefits, other recent research has shown some extraordinary effects from long-term meditation practice. When Dr. Davidson had the chance to test a senior Tibetan Buddhist monk at his laboratory, he found that the monk's brain had the highest ratio of left versus right activity out of all 175 people tested, suggesting an unusual degree of emotional contentment. Paul Ekman, PhD, a professor of psychology at the University of California Medical School in San Francisco, tested the startle reflex of a different Buddhist monk by exposing him to noises as loud as a gunshot. While meditating, the monk was able to suppress this reflex, his face not moving a muscle. This was an unprecedented display of mental control over a supposedly automatic response.

Dr. Ekman had previously developed a test of how well someone can read other people's emotions from rapid, subtle changes in facial expression (the test involves watching a videotape of these fleeting expressions and attempting to identify the correct emotion). Most people do poorly on the test, but when Dr. Ekman tested two advanced Buddhist meditators, they got nearly perfect scores. This suggests meditation may actually sharpen perception and enhance empathy.

Impressed by these findings, Dr. Ekman is helping design a program called Cultivating Emotional Balance that includes training in both meditation and Western psychological techniques (like conflict resolution skills), so people can better manage their emotions and relationships. A pilot version of the project has begun in the San Francisco Bay area, and researchers hope to do a controlled trial that will evaluate whether the program improves emotional and social skills as well as boosts immune function.

These early explorations of meditation's effects have piqued the interest of other researchers. On September 13 and 14, the Dalai Lama and eminent Western scientists will meet at the Massachusetts Institute of Technology to discuss the latest findings and future research directions.

I hope all this research inspires more people to take up meditation. You can likely find a beginner's class at a local hospital, community college, or adult education center, or consider listening to the instructional recording I made with Dr. Kabat-Zinn, called *Meditation for Optimum Health*. (to order, call 888-337-9345.) And these findings should encourage those who are already meditating to deepen their practice, perhaps by joining a meditation group that meets regularly. The time you spend quieting your mind may literally change your mind for the better.

Andrew Weil, who received an AB degree in biology (botany) from Harvard and an MD from Harvard Medical School, is director of the Program in Integrative Medicine and clinical professor of internal medicine at the University of Arizona in Tucson. Dr. Weil is an internationally recognized expert in medicinal herbs, mind-body interactions, and integrative medicine, and the author of nine books, including *Natural Health, Natural Medicine*; *Spontaneous Healing*; *Eight Weeks to Optimum Health*; and *Eating Well for Optimum Health*.