

Meditation alters your grey matter, studies show

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VANCOUVER— From Monday's Globe and Mail

Published Sunday, Feb. 20, 2011 4:00PM EST

Last updated Wednesday, Mar. 16, 2011 11:47AM EDT

Move over cryptic crosswords and Sudoku, and make way for the ultimate mental workout. It's called Mindfulness-Based Stress Reduction, or MBSR for short. Recent neuroscience research shows that novices using the method – developed at the University of Massachusetts Medical School in the 1970s – can get results in just eight weeks.

Brain-changing results, that is.

A 2010 study found that non-meditators who had eight weeks of MBSR training were more likely than a control group to access the brain region that provides a bodily sense of the “here and now” as opposed to the region associated with worry.

In other research published in January, brain scans of MBSR participants with no previous meditation experience showed increased grey-matter density in regions involved in learning and memory, emotion regulation, self-awareness and perspective taking.

Scientists don't know whether changes in grey-matter density influence a person's thought patterns or actions, notes Britta Hölzel, lead author of the second study and a research fellow at Massachusetts General Hospital. But she adds that decreased grey-matter concentration in the amygdala – the brain region that controls anxiety – was correlated to lower stress levels reported by participants. “This is actually a link [between] changes in the brain and behaviour.”

Previous studies suggest MBSR is a boon for overall health. Research by Jon Kabat-Zinn, founder of the University of Massachusetts' Stress Reduction Clinic, established the MBSR program as an effective medical intervention for chronic pain and stress-related illnesses such as high blood pressure. Scientists from the University of Wisconsin-Madison found that graduates of an MBSR course produced more antibodies after flu shots than did non-meditators, which indicated a stronger immune response. And in a 2010 study, researchers at the University of Toronto concluded that mindful meditation was as effective as antidepressants in preventing relapse from clinical depression.

Mindfulness meditation helps to reduce stress by providing insight, says Lucinda Sykes, a Toronto physician who has led MBSR courses since 1997. “Sometimes we're having a stress response to situations that is actually more the result of our habits of perception and attitude rather than the circumstances themselves,” she explains.

But it may be premature to draw conclusions about the health benefits of MBSR, according to a meta-analysis of meditation research commissioned by the National Center for Complementary and Alternative Medicine in the United States. The report found that the majority of meditation studies published up to the year 2005 had methodological shortcomings.

Compared to some forms of meditation, however, MBSR is a highly systematic practice. The program consists of eight weekly group sessions and a full-day retreat. Participants commit to about 45 minutes a day of exercises that include gentle yoga, sitting meditation and a “body scan,” which involves directing attention to bodily sensations. Exercises at home are led by experts via CDs and participants are encouraged to contact program leaders in between sessions for extra coaching.

Unlike transcendental meditation and various chanting practices, MBSR is not based solely on focusing the mind, says Zindel Segal, a professor of psychiatry at the University of Toronto who developed Mindfulness-Based Cognitive Therapy to treat depression. Instead, mindfulness emphasizes awareness of thoughts, feelings, sounds and sensations from an internal observer's perspective, without an attempt to judge or alter the experience. "You're watching the moment by moment ebb and flow of emotions," Dr. Segal says. "You're not running away from them but you're also not getting overwhelmed by them."

Because it's a specific method that takes practice, experts discourage beginners from trying MBSR without any guidance. "Most people are going to find it's easier to do this with a group," says Dr. Sykes, adding that MBSR alumni often begin a solo practice once they get the hang of it.

Dr. Segal cautions against attempting to "cannibalize" the MBSR program by experimenting with only one of the activities. Although the body scan, yoga and sitting meditation exercises are all designed to cultivate mindfulness, doing just one robs people of the chance to discover which practice is best suited to them, he says.

Dr. Hölzel says it's unclear which exercises contributed to structural changes found in brain scans of MBSR participants, since the program was tested as a whole. "We cannot tease apart the specific effects of each of the components," she says.

After the eight-week course is over, the recommended daily dose of MBSR depends on participants' reasons for entering the program, Dr. Sykes says. Maintaining a new level of insight may be possible in just 10 or 15 minutes a day. But if the goal is to influence a biological variable, such as blood pressure, she says, "it's likely that you're going to get the best results if you practice 20 minutes, twice a day."

Dr. Segal suggests it's better to do mindfulness exercises for a few minutes each day than to be a weekend meditation warrior. A daily practice becomes woven into the fabric of life, he explains, whereas sporadic mindfulness "is not that fully integrated."

Mindfulness exercises are compatible with spiritual traditions including Christianity and Judaism, notes Dr. Sykes. Although it's based on a form of Buddhist meditation called Vipassana, MBSR is a secular program designed for health-care settings, she says.

"People don't need to become Buddhist to nonetheless benefit from this practice."

Get with the program

Eight-week workshops modelled after the Mindfulness-Based Stress Reduction program at the University of Massachusetts Medical School are held in cities across Canada:

Toronto: Meditation for Health, www.meditationforhealth.com

Vancouver: MBSR B.C., www.mbsrbc.ca

Ottawa: Ottawa Mindfulness, www.ottawamindfulness.ca

Montreal: Living Arts, www.living-arts.ca

For people who shy away from groups, the MBSR method is outlined in books that include CDs, such as Bob Stahl's *A Mindfulness-Based Stress Reduction Workbook* and Zindel Segal's *The Mindful Way through Depression: Freeing Yourself from Chronic Unhappiness*.

– Adriana Barton