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MGH Study: Two Meditation-Based Stress Treatments Effective in Different Ways: Mindfulness meditation and relaxation response differ in how they work in the brain

Mind, Mood & Memory. 14.9 (Sept. 2018): p3.

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Full Text:

Two widely used stress-reduction techniques that use meditation to help you relax use different mechanisms in the brain to achieve their results, according to a study led by Massachusetts General Hospital (MGH) researchers and published in the journal *Psychosomatic Medicine*.

By better understanding how mindfulness meditation and relaxation response each affect different parts of the brain, doctors may be better able to choose an approach best suited to an individual's needs. "Such a finding would suggest that these programs could potentially have different effects on disease," says Sara Lazar, PhD, with MGH's Psychiatric Neuroscience Research Program and a senior author of the report.

More About Mindfulness

Mindfulness-based stress reduction was developed by Jon Kabat-Zinn, PhD, of the University of Massachusetts Medical School. It emphasizes a non-judgmental attitude (called "mindfulness") as a key to stress reduction. The idea is to become aware of how you respond to stress, chronic pain, and other sensations that come your way. By reflecting on your habitual reactions, you can change the way you respond.

Among the keys to mindfulness-based stress reduction are:

- * Nonjudgmental Observation: Examine your life and experiences without trying to change anything or grant approval or disapproval.
- * Acceptance: Accept even your unpleasant thoughts and feelings as part of life, and treat them with calm, not fear or resistance.
- * Present-Moment Awareness: Notice your thoughts and feelings as they are happening, rather than go through your day on "auto pilot."

Relaxation Response

The relaxation response was first described by Herbert Benson, MD, director emeritus of the MGH-based Benson-Henry Institute for Mind Body Medicine.

The goal is to relax body and mind, but it can be achieved in different ways. You can slow your breathing, close your eyes, and quietly repeat a sound, such as "love" or "peace." Your thoughts may stray, but you can refocus them as you relax.



Yoga can be a simple, but effective way to elicit the relaxation response.

The relaxation response can also be achieved through repetitive activities, such as running, yoga, knitting or playing a musical instrument. Some of the keys to the relaxation response approach are:

- * Slow, deep breathing: Inhale slowly and deeply through your nose and exhale through your mouth, contracting your abdominal muscles in the process.
- * Progressive muscle relaxation: Alternately tense and relax different muscles in the body, allowing you to know what relaxation really feels like.
- * Visualization: Close your eyes and imagine yourself in a tranquil setting. See, hear, smell, and feel all the sensations in that environment.

What the Research Shows

To better understand the differences between these two stress-reduction approaches, MGH researchers divided a group of healthy adults into two smaller groups and enrolled them in eight-week programs. Eighteen completed the relaxation response program and 16 completed the mindfulness

program.

The researchers then measured brain activity during a meditation technique common to both programs called a body scan. During this technique, a person's focus moves sequentially from one part of the body to another. In the relaxation response program, participants are supposed to tense and relax each area of the body. In the mindfulness program, participants are simply to focus their attention on a specific part of the body, accepting it as it is without changing anything.

Lead author Gunes Sevinc, PhD, with MGH's Psychiatric Neuroscience Research Program, explains that for each approach there were shared and unique responses in the brain. Participants in both groups experienced increases in present-moment awareness and bodily attention. But brain scans of the relaxation response group showed greater activity in the parts of the brain devoted to deliberate control and supplementary motor activity. Scans of the mindfulness participants showed heightened activity in the brain regions associated with sensory awareness and perception.

"By directly comparing the body-scan meditations, which differed only in cognitive strategy, we were able to identify the brain regions that are involved in mediating the common and differential strategies employed by each intervention," Dr. Sevinc says. "The relaxation response program is working more through deliberate control mechanisms, while the mindfulness program is working more through sensory awareness mechanisms. It is somewhat analogous to weight training vs. aerobic exercise: Both are beneficial, but each has its unique mechanism and contribution."

Source Citation (MLA 8th Edition)

"MGH Study: Two Meditation-Based Stress Treatments Effective in Different Ways: Mindfulness meditation and relaxation response differ in how they work in the brain." *Mind, Mood & Memory*, Sept. 2018, p. 3. *Academic OneFile*, <http://link.galegroup.com/apps/doc/A551870920/AONE?u=oran95108&sid=AONE&xid=b23dafbb>. Accessed 3 June 2019.

Gale Document Number: GALE|A551870920
