

Why Meditate:

The Science of Slowing Down

In the course of a clinic day, I treat patients facing many difficulties including suffering with headaches, anxiety, digestive problems, menstrual irregularities, back pain and insomnia. I prescribe mindfulness practices and meditation to patients more commonly than any herbal medicine or exercise because my goal is to work my way out of job. My objective is for each individual to discover the influence of his or her own mind in managing stress. And in that learning process, we go one step further exploring how stress influences the symptoms that brought the individual to me for treatment. This brief article introduces you to the accumulating mountain of medical research demonstrating meditation's positive benefits for physical and mental health. I hope it will help you to consider and discover your own ability to manage stress and health through meditation, and the article will provide additional resources for your inquiry and exploration moving forward.

Over recent decades, meditation has become more and more widely practiced in the United States and appreciated for its myriad benefits: personal health, stress management, psychological well-being and spiritual development in Western and Eastern traditions. Harvard cardiologist Herbert Benson and MIT trained molecular biologist Jon Kabat Zinn have blazed the research forefront in the science of meditation.

In the early 1970s Herbert Benson observed patients diagnosed with high blood pressure experiencing side effects of fainting and dizziness, common indicators of low blood pressure, in response to medications he prescribed. Benson began researching the relationship between stress and high blood pressure and over the coming years documented the key findings that meditation results in slower respiratory rate, heart rate, blood pressure, metabolism, at the same time as increased muscular relaxation and nitric oxide. Meditation effectively generates the opposite of the "fight or flight" response. In case you're wondering what increased nitric oxide does, it assists in the following processes:

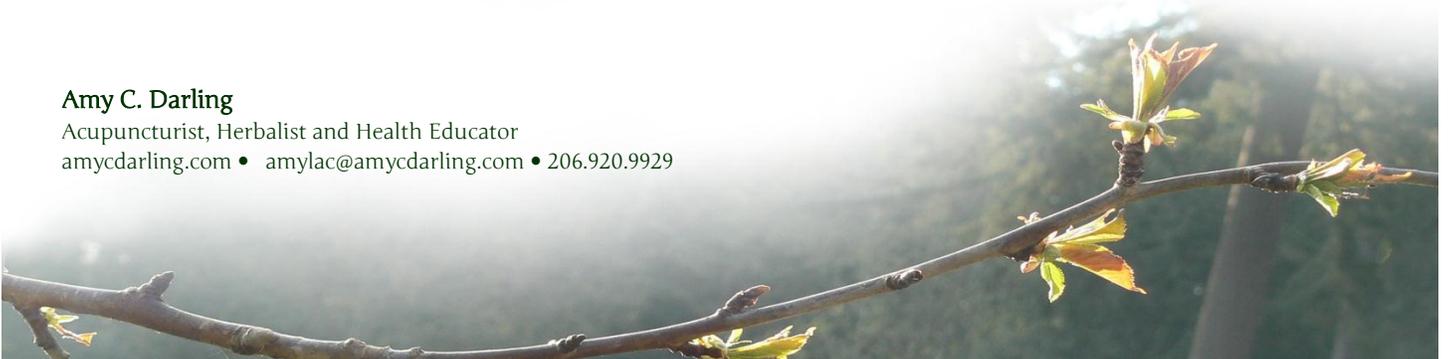
- Nerve cell conductivity with the brain
- Reduces inflammation
- Assists healthy immune response
- Assists with gastric motility
- Improves sleep
- Regulates blood pressure through arterial dilation.

As a result of these findings, Benson began prescribing meditation for patients suffering with high blood pressure in conjunction with other appropriate treatments. Prompted to make his medical research accessible to the public, in 1975 Benson published what rapidly became a NY Times bestseller, [The Relaxation Response](#), which is now translated into multiple languages and has sold over 4 million copies. Benson remains the current director of the Benson-Henry Institute of Mind Body Medicine at Massachusetts General Hospital. He has published twelve books and continues to conduct ongoing medical research.

Dr. Jon Kabat-Zinn established the Stress Reduction program at the University of Massachusetts Medical School in 1979. Kabat-Zinn created this hospital-based program to meet the needs of patients suffering with chronic pain who had exhausted other treatment options. For over 30 years now Mindfulness Based Stress Reduction (MBSR) classes have provided training and symptom relief throughout the world to those suffering with chronic pain, anxiety, and stress management problems. Like Benson, Kabat-Zinn has published scientific papers and he continues researching the influence of meditation

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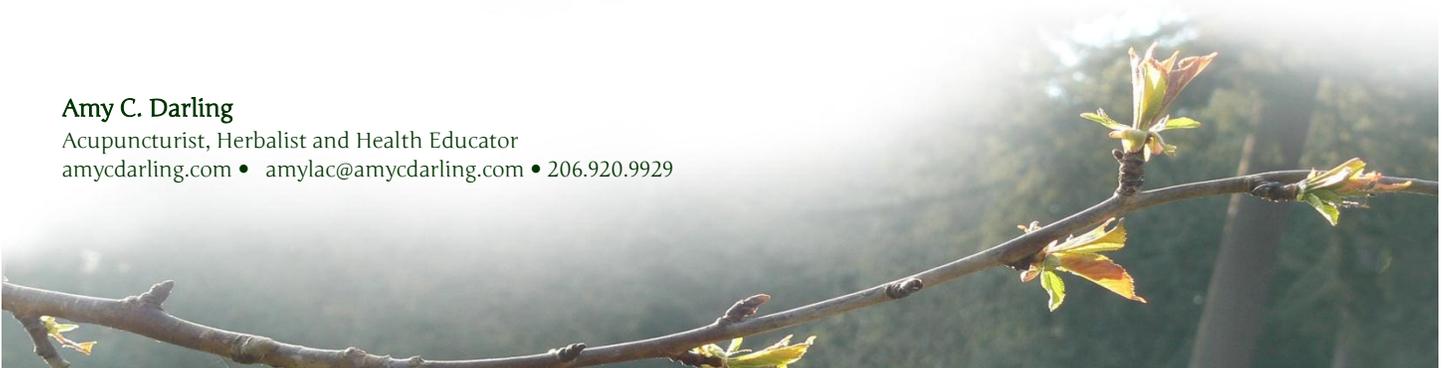
on the brain, the immune system, prison inmates and staff, in multicultural settings, and on stress in various corporate settings and work environments. His MBSR model has further inspired creation of Mindfulness Based Cognitive Therapy (MBCT) and Mindfulness Based Relapse Prevention (MBRP). Through these programs, MBSR has successfully been applied to a variety of psychological and addictive problems. He has published multiple books including Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain and Illness, and Coming to Our Senses: Healing Ourselves and the World through Mindfulness. Collectively his books have been translated into over 30 languages.

Pioneers Benson and Kabat-Zinn continue to contribute to the work throughout the country and world documenting how conditions can improve or resolve completely using meditation as a therapeutic intervention. While by no means exhaustive, below I have provided a sample of clinical research studies documenting the impact of meditation on many conditions. For those interested, you can consult the primary research found through Medline or PubMed.

- **Angina Pectoris**
 1. Ankad RB, Herur A, Patil S, Shashikala GV, Chinagudi S. "Effect of short-term pranayama and meditation on cardiovascular functions in healthy individuals." *Heart Views*. (2011) Apr;12(2):58-62.
 2. Kaski JC; Aldama G; Cosin-Sales J. "Cardiac syndrome X. Diagnosis, pathogenesis and management." *Am J Cardiovasc Drugs*. (2004); Vol. 4 (3), pp. 179-94.
- **Addiction**
 1. Elias Dakwar, MD and Frances R. Levin, MD, "The Emerging Role of Meditation in Addressing Psychiatric Illness, with a Focus on Substance Use Disorders." *Harv Rev Psychiatry*. (2009); 17(4): 254-267.
 2. Westbrook C, Creswell JD, Tabibnia G, Julson E, Kober H, Tindle HA. "Mindful attention reduces neural and self-reported cue-induced craving in smokers." *Soc Cogn Affect Neurosci*. (2011) Nov 22. [Epub ahead of print]
- **Anxiety**
 1. Kabat-Zinn, J., A.O. Massion, J. Kristeller, L.G. Peterson, K. Fletcher, L. Pbert, W. Linderking, S. F. Santorelli. "Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders." *Am J Psychiatry* (1992) 149: 936-943.
 2. Miller, J. K. Fletcher, and J. Kabat-Zinn. "Three year follow-up and clinical implication of a mindfulness-based stress reduction intervention in the treatment of anxiety disorders." *Gen Hosp Psychiatry* (1995) 17: 192-200.
- **Cardiac Arrhythmias**
 1. Peng CK; Henry IC; Mietus JE; Hausdorff JM; Khalsa G; Benson H; Goldberger AL. "Heart rate dynamics during three forms of meditation." *Int J Cardiol* (2004) May; Vol. 95 (1), pp. 19-27.
 2. Peressutti C; Martín-González JM; M García-Manso J; Mesa D. "Heart rate dynamics in different levels of Zen meditation." *Int J Cardiol* (2010) Nov 5; Vol. 145 (1), pp. 142-6.
- **Depression**
 1. Piet J, Hougaard E. "The effect of mindfulness-based cognitive therapy for prevention of relapse in recurrent major depressive disorder: a systematic review and meta-analysis." *Clin Psychol Rev*. (2011) Aug;31(6):1032-40. Epub 2011 May 15.
 2. Segal, Z.V., J.M.G. Williams, and J.D. Teasdale. Mindfulness-Based Cognitive Therapy for Depression: A New Approach to Preventing Relapse. New York: Guildford, (2002).
- **Digestive problems including IBS**
 1. Keefer L; Blanchard EB. "A one year follow-up of relaxation response meditation as a treatment for irritable bowel syndrome." *Behav Res Ther* (2002) May; Vol. 40 (5), pp. 541-6.
 2. Ljótsson B; Hedman E; Lindfors P; Hursti T; Lindfors N; Andersson G; Rück C. "Long-term follow-up of internet-delivered exposure and mindfulness based treatment for irritable bowel syndrome." *Behav Res Ther* (2011) Jan; Vol. 49 (1), pp. 58-61.
- **Hypertension**
 1. Benson, H.; Herd, J.A; Morse, W.H., Kelleher, R.T. "Behavioral Induction of Arterial Hypertension and its Reversal." *American Journal of Physiology* (1969) 217: 30-34.

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2. Benson, H.; Marzetta, B. R.; Rosner, B.A. "Decreased Blood Pressure Associated with the Regular Elicitation of the Relaxation Response: A Study of Hypertensive Subjects." *Contemporary Problems in Cardiology*, Vol 1, *Stress and the Heart*, edited by R.S. Eliot, 293-302. Mt Kisco, New York, Futura, 1974.
- **Immune Function**
 1. Davidson, R.J., J. Kabat-Zinn, J Schumacher, et al. "Alternations in brain and immune function produced by mindfulness meditation." *Psychosom Med* (2003) 65:564-570.
 2. Kabat-Zinn, J., E. Wheeler, T. Light, A. Skillings, M. Scharf, T.G. Cropley, D. Hosmer, and J Bernhard. "Influence of a mindfulness-based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA)." *Psychosom Med* (1998) 60: 625-632.
 - **Insomnia**
 1. NIH Technology Assessment Panel on Integration of Behavioral and Relaxation Approaches into the Treatment of Chronic Pain and Insomnia. *Journal of the American Medical Association* (1996) 276: 313-318.
 - **Pain**
 1. Kabat-Zinn, J., L. Lipworth, R. Burney, and W. Sellers. "Four year follow-up of a meditation-based program for the self-regulation of chronic pain: Treatment outcomes and compliance." *Clin J Pain* (1986) 2: 159-173.
 2. Orme-Johnson, D.W., Schneider. R.H., Son, Y.D., Nidich, S., and Chob, Z.H.. "Neuroimaging of meditation's effect on brain reactivity to pain." *Neuroreport*. (2006) August 21; 17(12): 1359-1363.
 - **Side Effects of Cancer and HIV/AIDS**
 1. Carlson, L.E., Z. Ursuliak, E. Goodey, M. Angen, and M. Specca. "The Effects of a mindfulness meditation-based stress reduction program on mood and symptoms fo stress in cancer outpatients: 6 months follow-up." *Supportive Care in Cancer* (2001) 9:112-123.
 2. Matousek RH, Pruessner JC, Dobkin PL. "Changes in the cortisol awakening response (CAR) following participation in mindfulness-based stress reduction in women who completed treatment for breast cancer." *Complement Ther Clin Pract*. (2011) 2:65-70.
 3. Williams AL; Selwyn PA; Liberti L; Molde S; Njike VY; McCorkle R; Zelterman D; Katz DL "A randomized controlled trial of meditation and massage effects on quality of life in people with late-stage disease: a pilot study. *J Palliat Med* (2005)
 - **Stress**
 1. Cutshall SM, Wentworth LJ, Wahner-Roedler DL, Vincent A, Schmidt JE, Loehrer LL, Cha SS, Bauer BA. "Evaluation of a biofeedback-assisted meditation program as a stress management tool for hospital nurses: a pilot study." *Explore* (2011) 7(2):110-2.
 2. Shapiro, S.L., and G.E. Schwartz. "Mindfulness in medical education: Fostering the health of physicians and medical practice." *Integrative Med* (1998) 12: 581-599.
 - **Neuroplasticity and brain function, a current and burgeoning field**
 1. Hölzel BK, Carmody J, Vangel M, Congleton C, Yerramsetti SM, Gard T, Lazar SW. "Mindfulness practice leads to increases in regional brain gray matter density." *Psychiatry Res*. (2011); 191(1):36-43. Epub 2010 Nov 10
 2. Luders E, Clark K, Narr KL, Toga AW. "Enhanced brain connectivity in long-term meditation practitioners." *Neuroimage* (2011) 57(4):1308-16. Epub 2011 Jun 6.

The citations listed above provide testimony to the compelling effects of meditation through broad reaching research. Meditation has been incorporated in ever expanding ways throughout this country: in the classroom, workplace, and prisons, from executive leadership training to the Pentagon. And yet in my experience, there are some common stumbling blocks that prevent people from even trying to meditate.

First, many people believe they don't have time. Modern western culture is defined largely by what we 'do'. Where do we go to school? What do we do for work? And how about those hours outside of school or work, what do we do with those? In our busy culture many people resist slowing down enough to dedicate even a short period of time to an action that seems to not be doing anything. The companion article "Why Meditate: An Action of Compassion," outlines further how meditation is indeed an action which influences not only our own health, but that of our broader community.

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Second, many people don't necessarily understand how to meditate or assume that it is tethered to a particular religious tradition. No single religion has proprietary rights on pausing, breathing and remembering to observe the moment by moment experience of being alive. Finally, when some people dedicate themselves and try to meditate, they feel like failures when their minds "won't be quiet." When we stop long enough to pay quiet attention to our thoughts, we realize that our minds are like a kitten chasing a moth or a wild elephant or monkey on the loose. And guess what? That is the case for anyone who has ever paused long enough to see what's happening in there. The mind does become quieter over time. And, the benefits of meditation arise simply in response to sitting and gently drawing the *monkey* mind back to the breath again and again and again.

Here are some simple tips to help you get started.

- **Start small.** 5-10 minutes every day.
- **Choose a time of day when your body and mind are alert. Morning is good.** The world tends to be quieter in the morning. As our days progress they inevitably fill up with other activities, which can conflict with the intention to meditate and result in unnecessary guilt about not meditating.
- **Try to find a place in your home where you can be alone and undisturbed.**
- **Begin with a position that is comfortable.** It is just as effective to sit upright in a chair as it is to sit in full lotus on the floor. Don't use the excuse of how you're supposed to sit or look as a stumbling block.
- **Follow your breath.** Simply notice how it enters and leaves your body. There is no need to manipulate or change your breath. Simply follow your breath in and out, and allow it to anchor you back to the moment.

"The first thing to know about meditation is there's nothing that should be happening. And the second thing is that there's nothing that's happening that should not be happening."

Paul Haller, abbot of San Francisco Zen Center

Every time you notice yourself critiquing how you're doing, recognize this is just more thinking, more of the wild elephant or monkey on the loose. You are currently trying something new, so give your mind a break. Simply return and follow your breath. The links below reference organizations engaged in research on meditation and mind-body health. There are innumerable books and websites available about meditation. Explore! My hope is this short article will simply be an entry point for you to consider the benefits of including meditation in your own life.

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