

## **A REVIEW ON THE BENEFICIAL EFFECTS OF MINDFULNESS MEDITATION**

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### **ABSTRACT**

Mindfulness meditation is a resilient mind exercise that has been practiced for many centuries. Mindfulness meditation has been established to increase the resilience and enriches the well-being of an individual. It has been exposed that meditation can improve social situations, as well. Recent research provided in this article demonstrates the benefits of mindfulness meditation on an individual.

**KEYWORDS:** Meditation, Psychological Well-Being, Social Connections, Physiological Changes

### **INTRODUCTION**

Meditation is a body-mind practice in integrative holistic medicine that has been practiced for thousands of years. It produces a deep state of relaxation and a tranquil mind. It has been an ancient practice that has been used by many groups of people to help with the healing of the ill and to enhance one's well-being [1]. When an individual meditates, the cluttered mind becomes clear and free of stress [2]. There are many types of meditation in alternative medicine. Mindfulness meditation is one of the most popular types of meditation which originates in Buddhism. Mindfulness meditation is a combination of open awareness and concentration in which an individual aims focus on one object such as feelings or thoughts and observes it as it passes rather than interacting with it. Individuals who meditate get a sense of clarity and a clearer view of life [2-3]. As mindfulness meditation becomes widely accepted by many, the interest of researchers in the practice of mindfulness meditation and valuable effects has risen. Recent studies visually examine how the anatomical and neural regions of the human brain alter due to mindfulness meditation, how the psychological and bodily well-being ameliorates, and how social connections improve..

### **REVIEW**

Throughout recent years, researchers have been increasingly interested in how the brain is affected by mindfulness meditation. According to a recent review of studies done at Brown University, mindfulness meditation operates by allowing a person to have better control over cognitive functions of sensations. Researchers Kerr et al. found that mindfulness meditation manipulates and controls the cortical alpha rhythms in the brain. According to brain scans, the cortical alpha rhythms are involved in what the mind and body senses [4]. According to a review done in 2006 by Cahn and Polich, several experimental studies done on mindfulness meditation have found that mindfulness practices have been shown to lower theta and alpha frequency waves. This usually suggests that when someone is meditating, his physical body is in a state of relaxation, yet they are very aware and conscious [5]. A research study done at the Massachusetts General Hospital showed that mindfulness meditation can significantly reduce the concentration of grey matter in the amygdala. The amygdala is located in the medial temporal lobes of the brain that is linked to stress and anxiety [6]. A study done in 2010 conducted by researcher Yi-Yuan Tang at the Dalian University of Technology and Michael I. Posner at the

University of Oregon, found that after eleven hours of mindfulness meditation, there were changes in the structures of the brain connectivity as examined via diffusion tensor imaging. After two weeks of practicing mindfulness meditation, there was a larger increase of brain connection signals. After a month of practicing the mindfulness meditation, there was not only an increase of brain connectivity signals, but also an increase in myelin, which protects nerve cells. The participants of the study also had healthier emotional moods after the meditation sessions [7-8].

One important benefit to meditation is a reduction in anxiety and stress in an individual. In a recent pilot study done at the Texas Tech University, Tacon et al. studied mindfulness meditation in relations to reducing anxiety in female participants with heart disease. Twenty female participants from a Southwestern community were recruited for the study. Tacon et al. found significant reduction of anxiety in their lives and the process improved their living dramatically [9]. A study done by FadelZeidan at the Wake Forest Baptist Medical Center showed that meditation can highly reduce anxiety in individuals by activating specific regions in the brain. Zeidan found that the anterior cingulate cortex, which regulates cognition and emotion, and the ventromedial prefrontal cortex, which is involved with regulating concern and worrying, were affected by mindfulness meditation practices. In the research study, participants underwent a trial of brain scans and found that mindfulness meditation decreased the amount of activity in the anterior cingulate cortex and increased the brain activity in the ventromedial prefrontal cortex. Anxiety in the participants also decreased by 40% [10].

There are other psychological benefits of this meditation than just reducing stress and anxiety in an individual. Meditation can build confidence in oneself. A study conducted by Shah et al. at the Nursing College at the Bombay Hospital found that confidence was highly improved after the meditation treatment was given to the participants. Meditation of all sorts can avail with breaking addictions and old habits [11]. A recent study conducted by Judson Brewer at the Yale School of Medicine showed that mindfulness meditation can help people quit smoking cigarettes. 32% of the participants of the treatment group did not have a smoke [12].

Not only are there mental advantages to this meditation, but there are physical advantages also. There is evidence to suggest that if an individual meditates over a long period of time, blood pressure tends to decrease. At the Boston-Henry Institute, a study was conducted with sixty participants with hypertension. The participants were asked to try a relaxation response produced by a cardiologist. After three months of practicing this type of meditation, 66% of the participants were able to take less blood pressure medication due to the decrease in blood pressure. The study showed that the meditation technique increased the body's supply of nitric oxide, which is produced to enlarge blood vessels and increase blood flow [13-14]. Meditation is said to increase the strength of the immune system. In a study done in 2008 at UCLA, patients with HIV who meditated frequently slowed the development of HIV. It has been found out that mindfulness meditation can greatly reduce cholesterol levels, as well [15]. Chronic pain and fatigue is one of the many symptoms of musculoskeletal disorders such as fibromyalgia [16]. Mindfulness practice can aid in regulating and managing physical soreness and exhaustion. Zeidan and his fellow researchers studied the effects of mindfulness meditation on pain, which was created from a stimulating electric shock. Zeidan and his fellow researchers found that during meditation participants experienced a reduction of pain. It was also found that the participants who meditated were less responsive to the electric shock when not meditating [17]. In another study, Zeidan et al. had also looked at the underlying mechanisms of the brain responsible for the regulation and modulation of pain under the effects of mindfulness meditation by using functional Magnetic Resonance Imaging. It was found that the activity in primary somatosensory area in the human cortex, which is responsible for regulating information of touch and pain, was considerably reduced when participants in pain were meditating.

This study has evidence to suggest that the brain eases pain by shifting to a reduction of activity as a result of mindfulness meditation. It was also found that the pain reduced was also related to the deactivation of the thalamus region [18].

Mindfulness meditation can ameliorate the prosperity of social relationships. Researchers Kok and Coffey studied the effects of mindfulness meditation in couples. Kok and Coffey found that couples who underwent mindfulness meditation procured an enhance perception, autonomy, and intimacy of their relationships [19]. In another similar study performed by Carson et al., it was found that mindfulness meditation enriches the function of a relationship. It was also found that coping strategies between the individuals in the relationship was greatly improved [20]. A study done by Singh et al. showed that “mindful parenting” greatly reduces belligerence and enhances positive societal and compliance behavior in children with disabilities. It was also found that the interactions between the child and the parents were improved noticeably [21].

Mindfulness practice may be a great substitute to some medications. Medicines existing for curing of a patient suffering from a disease like cancer or HIV may have adverse side effects, resulting in enormous medical complications. Prescription drugs that treat headaches, such as ibuprofen and acetaminophen, may cause dry mouth, nausea, and liver damage [22]. Mindfulness meditation can treat headaches with no side effects and have better effects on the pain. In a study completed by Zabat-Zinn et al., it was found that mindfulness meditation was used to treat headaches successfully [23]. One particular participant was a young female with a long-term history of migraines. The participant had significant relief within just fourteen days of mindfulness practice [24]. An additional study showed that mindfulness-based cognitive therapy, or MBCT, can be just as effective as antidepressant medications. MBCT is a therapy used to treat depression and post-traumatic stress disorder using a combination mindfulness practices and methods. Zindel Segal, a professor and researcher at the University of Toronto, said that MCBT is an alternative “treatment option for those who are unwilling or unable to continue taking antidepressant medications [25].”

## CONCLUSIONS

Every single day, people clutter their minds with stress, apprehensiveness, and daily quandaries. Meditation can eliminate that untidiness of the mind. Mindfulness meditation is a way individuals can train the mind and engender a state of relaxation and tranquility. The puissance of meditation is salutary to all who practice it. There are many potent effects and benefits of meditation. The structural features of the brain incline to transmute with meditation. Meditation lowers stress in one’s life. Physical benefits of meditation include lower blood pressure and a reinforce immunity. Social relationships can also be improved due to practices of mindfulness meditation. Based on various studies, one may draw out a result that meditation is definitely pulling the trigger of an impressive technique. It should be considered as a compliment to the regular medical procedure of curing a patient. It is helpful in rebuilding a patient's social life as well as it boosts his confidence to bring back his life on the track.

## REFERENCES

1. Slagter HA, Dunne JD, Davidson RJ. Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences* 2008 Mar1; 12 (4): 163–9.
2. Astin JA. Stress reduction through mindfulness meditation. *Psychotherapy and Psychosomatics* 199; 66 (2): 97-106.

3. Kabat-Zinn J. *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York: Hyperion; 1994.
4. Kerr CE, Sacchet MD, Lazar SW, Moore CI, Jones SR. Mindfulness starts with the body: somatosensory attention and top-down modulation of cortical alpha rhythms in mindfulness meditation. *Frontiers in Human Neuroscience* 2013 Feb13;7 (12).
5. Cahn BR, Polich J. Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychological Bulletin* 2006 Mar; 132 (2): 180–211.
6. 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 Research* 2011 Jan30;191 (1): 36-43.
7. Tang YY, Lu Q, Fan M, Yang Y, Posner MI. Mechanisms of white matter changes induced by meditation. *Proceedings of the National Academy of Sciences* 2012 June26;109 (26): 10570–10574
8. Hartline DK, Colman DR. Rapid conduction and the evolution of giant axons and myelinated fibers . *Current Biology* 2007 Jan; 17 (1):29–35.
9. Tacón AM, McComb J, Caldera Y, Randolph P. Mindfulness meditation, anxiety reduction, and heart disease: a pilot study. *Family & Community Health* 2003 Jan-Mar; 26 (1): 25-33.
10. Zeidan F, Martucci KF, Kraft, McHaffie JG, Coghill RC. Neural Correlates of Mindfulness Meditation-Related Anxiety Relief. *Social Cognitive and Affective Neuroscience* 2013 Jun3;93 (10):1-9.
11. Shah AH, Joshi SV, Mehrotra PP, Potdar N, Dhar HL. Effect of saral meditation on intelligence, performance and cardiopulmonary functions. *Indian Journal of Medical Sciences* 2001;55 (11):604-608.
12. Brewer JA, Elwafi HM, Davis JH. Craving to Quit: psychological models and neurobiological mechanisms of mindfulness training as treatment for addictions. *Psychology of Addictive Behaviors* 2012 Jun;27 (2):366-379.
13. Dusek JA, Hibberd PL, Buczynski B, Chang BH, Dusek KC, Johnston JM, Wohlhueter AL, Benson H, Zusman RM. Stress management versus lifestyle modification on systolic hypertension and medication elimination: a randomized trial. *Journal of Alternative and Complementary Medicine* 2008 Mar;14 (2): 129-138.
14. Montagne R, presenter. To lower blood pressure, open up and say 'Om'. NPR News [radio broadcast]. Washington, D.C.: NPR, 2008 Aug 21.
15. Creswell JD, Myers HF, Cole SW, Irwin MR. Mindfulness meditation training effects on CD4+ T lymphocytes in HIV-1 infected adults: A small randomized controlled trial. *Brain, Behavior, and Immunity* 2008 Feb;23 (2): 184-188.
16. Bradley LA, McKendree-Smith, NL. Central nervous system mechanisms of pain in fibromyalgia and other musculoskeletal disorders: behavioral and psychologic treatment approaches. *Current Opinion in Rheumatology* 2002 Jan;14 (1): 44-51.
17. Zeidan F, Gordon NS, Merchant J, Goolkasian P. The effects of brief mindfulness meditation training on experimentally induced pain. *The Journal of Pain* 2010 Mar;11 (3): 199-209.

18. Zeidan F, Martucci KT, Kraft RA, Gordon NS, McHaffie JG, Coghill RC. Brain mechanisms supporting the modulation of pain by mindfulness meditation. *The Journal of Neuroscience* 2011 Apr 6; 31 (14): 5540-5548.
19. Kok BE, Coffey KA, Cohn MA, Catalino LI, Vacharkulksemsuk T, Algoe SB, Brantley M, Fredrickson, BL. How positive emotions build physical health: Perceived positive social connections account for the upward spiral between positive emotions and vagal tone. *Psychological Science* 2013 Jul 1;24 (1): 1123-1132.
20. Carson J, Carson KM, Gil KM, Baucom BH. Mindfulness-Based Relationship Enhancement. *Behavior Therapy* 2004; 35 (1): 471-494.
21. Singh NN, Lancioni GE, Winton AS, Singh J, Curtis WJ, Wahler RG, McAleavey KM. Mindful parenting decreases aggression and increases social behavior in children with developmental disabilities. *Behavior Modification* 2007 Nov;31 (6): 749-771.
22. National Institute of Health [Online]. 2011 Apr 12 [Cited 2013 July 21]; Available from: URL: <http://www.nih.gov/>
23. Kabat-Zinn J, Lipworth L, Burney R. The clinical use of mindfulness meditation for the self-regulation of chronic pain. *Journal of Behavioral Medicine* 1985;8 (1):163-190.
24. Kabat-Zinn J. *Full Catastrophe Living*. New York: Dell Publishing; 1990.
25. Stubenrauch, JM. Meditation as good as medication? *American Journal of Nursing* 2011 Mar;111 (3): 16.

