



# Mindfulness, Meditation and Mental Health

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# Meditation & Mindfulness in the Workforce

Over the years, meditation and mindfulness have become a popular wellness trend and are buzzwords that are used very often. Traditionally, meditation was taught in formal centers. But now, everyone has access to multiple online apps, courses and retreats and millions of people across North America and Europe meditate regularly. It is being taught in schools and prisons, to athletes and those in the U.S Army. It is practiced by executives and employees from Silicon Valley to Wall Street. Meditation and mindfulness are

also being suggested as possible adjuvant treatments for stress, depression, chronic pain, anxiety, addiction and high blood pressure.

What is mindfulness? “It has been defined as the intentional, accepting and non-judgmental focus of one's attention on the emotions, thoughts and sensations occurring in the present moment.”<sup>1</sup> This state can be achieved through training and techniques such as meditation. Meditation and mindfulness can be a practical way to overcome stress and respond better to a given situation. Of course, it requires a lot of practice like any other skill, along with commitment and discipline. And it has to become a part of one's everyday routine in order to produce long term benefits.

Since the early 2000s, multiple studies have been carried out by scientists to understand what changes occur in the brain during meditation and how it could help with improving mental wellness. Studies suggest that meditation can bring about structural and functional changes in the regions of the brain that are involved in self-awareness, attention and emotion.<sup>2</sup>

There are certainly challenges when studying meditation and its outcomes because the skills and ability to meditate can vary and are therefore very subjective. Also, different approaches to the meditation technique could lead to different results. While conducting research, care must be taken to design studies with an adequate number of participants, controls and a methodology to correctly assess outcomes.<sup>1</sup> Thoughts on how to include the concept of dose and effect should be given. In addition, ways of measuring outcomes, such as biomarkers or imaging studies of the brain must be included.

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# Mindfulness as a Treatment Approach for Mental Health

There are billions of neurons in the brain and they are constantly communicating with each other and producing electrical signals. These electrical signals result in brain waves. The brain waves are classified based on their bandwidths, which correspond to certain activities and functions, depending on the abundance and location. With the help of electrodes and wires attached to the brain, it is possible to detect these brain waves. Richard Davidson, a prominent psychologist, in a 2004 study observed gamma waves in the brains of Buddhist monks who were expert meditators, even when they were not meditating.<sup>3</sup> These gamma waves are associated with flash insights, peak concentration and cognitive functioning.<sup>4</sup> Studies suggest increased alpha and theta brain waves, which are associated with simple relaxation, during nondirective meditation.<sup>5</sup>

With increasing rates of stress, anxiety, depression and addiction, mindfulness as a treatment approach for mental health is being explored. The treatment options currently available might not be suitable for everyone. With additional research and clinical trials, mindfulness and meditation could very well be an effective treatment option in the coming years. Due to the stigma associated with mental health and addiction, mindfulness and meditation may also be a more comfortable option for many people. Further clinical trials and collaborations between researchers and clinicians could greatly help to better understand the full potential of mindfulness and meditation.



# References



Krithika Muthukumaran is a neuroscientist with a PhD in biochemistry from the University of Windsor, Canada. She completed her masters in Molecular Genetics at the University of Leicester (U.K.) and undergraduate degree in Microbiology at the University of Madras (India).

Her PhD focused on age-related neurodegenerative diseases and neuro-inflammation. She is a mental health advocate and enjoys learning about health care innovations, digital health and patient-centered care. She is currently focused on the use of machine learning and AI to help people suffering from stress, depression, and substance use disorders.

## References

- 1) Zgierska A, Rabago D, Chawla N, Kushner K, Koehler R, Marlatt A. [Mindfulness Meditation for Substance Use Disorders: A Systematic Review](#). *Subst Abus.* 2009; 30(4): 266 - 294.
- 2) Boccia M, Piccardi L, Guariglia P. [The Meditative Mind: A Comprehensive Meta-Analysis of MRI Studies](#). *Biomed Res Int.* 2015; 419808.
- 3) Lutz A, Greischar LL, Rawlings NB, Ricard M, Davidson RJ. [Long-term meditators self-induce high-amplitude gamma synchrony during mental practice](#). *Proc Natl Acad Sci USA.* 2004; Nov 16, 101(46): 16369 – 16373.
- 4) The Science of Meditation. Available from: <https://samharris.org/podcasts/111-science-meditation/>
- 5) Lagopoulos J, Xu J, Rasmussen I, Vik A, Malhi GS, Eliassen CF, Arnsten IE et al. [Increased Theta and Alpha EEG Activity During Nondirective Meditation](#). *The Journal of Alternative and Complimentary Medicine.* 2009; 15(11): 1187.

## ABOUT ENLYTE

Enlyte LLC is an innovator in conversational bot technology specifically designed for health and wellness. Designed for organizations looking to help people manage stress and addictions, Enlyte offers a robust bot platform that can adapt to different types of users, conversations, and challenges. Enlyte brings decades of experience in understanding how people learn and consume information coupled with domain experience from the scientific healthcare community to deliver a scalable, health and wellness bot application, designed to improve the lives and productivity of individuals and the workforce. For more information, visit [www.enlyte.bot](http://www.enlyte.bot) and follow [@enlyte\\_bot](https://twitter.com/enlyte_bot) on Twitter.