

Hanh (1976) Thích Nhất Hạnh, a Vietnamese Buddhist monk

- *Mindfulness is the miracle by which we master and restore ourselves.*
- *Consider, for example: a magician who cuts his body into many parts and places each part in a different region—hands in the south, arms in the east, legs in the north, and then by some miraculous power lets forth a cry which reassembles whole every part of his body. Mindfulness is like that—it is the miracle which can call back in a flash our dispersed mind and restore it to wholeness so that we can live each minute of life.*

Applications of Mindfulness 1

- **Mental health:** e.g. therapeutic application for depression, anxiety, panic disorder, stress, emotional regulation, addiction, sleep problems, eating disorders, psychosis, ADHD, autism, reduced burnout, greater resilience
- **Neuroscience:** e.g. structural and functional changes in the brain, stimulation of neurogenesis, possible prevention of dementia and cognitive decline
- **Clinical:** e.g. therapeutic applications for pain management, symptom control, coping with chronic illness (e.g. cancer and MS), metabolic and hormonal benefits (e.g. reduced allostatic load, cortisol), facilitating lifestyle change (e.g. weight management, smoking cessation), improved immunity (e.g. improved resistance, reduced inflammation), improved genetic function and repair

Applications of Mindfulness 2

- **Performance:** e.g. sport, academic, leadership qualities, mental flexibility and problem solving, decision-making, sunk-cost bias
- **Education:** e.g. improved problem-solving, executive functioning and working memory, better focus, less behavioural problems, fostering growth mindsets
- **Relationships:** e.g. greater emotional intelligence and empathy, improved communication, reduced vicarious stress and carer burnout
- **Spiritual**

Mindfulness and the brain

Mindfulness training improves functioning in areas related to executive functioning, attentional control, self-regulation, sensory processing, memory and regulation of the stress response

Thickening of cortex in regions associated with attention, self-awareness and sensory processing thicker in meditators

- “The regular practice of meditation may have neuroprotective effects and reduce the cognitive decline associated with normal aging.”
- Hölzel BK, Carmody J, Evans KC, et al. Stress reduction correlates with structural changes in the amygdala. *Soc Cogn Affect Neurosci*. 2010 Mar;5(1):11-7.
- Hölzel BK, Carmody J, Vangel M, et al. Mindfulness practice leads to increases in regional brain gray matter density. *Psychiatry Res*. 2011 Jan 30;191(1):36-43.
- Kilpatrick LA, Suyenobu BY, Smith SR, et al. Impact of Mindfulness-Based Stress Reduction training on intrinsic brain connectivity. *Neuroimage*. 2011 May 1;56(1):290-8.
- Lazar SW, Kerr CE, Wasserman RH, et al. *Neuroreport*. 2005;16(17):1893-1897.
- Pagnoni G. Cekic M. *Neurobiology of Aging*. 2007;28(10):1623-7.

Mindfulness and Cigarette Craving

- Suppression vs. mindfulness-based strategy for coping with cigarette cravings
- Both groups reported significantly reduced amount of smoking and increased self-efficacy in coping with smoking urges at 7-day follow-up
- Only the mindfulness group demonstrated reductions in negative affect, depressive symptoms, and reductions in level of nicotine dependence
 - Rogojanski J, Vettese LC, Antony MM. Coping with Cigarette Cravings: Comparison of Suppression Versus Mindfulness-Based Strategies. *Mindfulness* 2011;2(1):14-26. DOI: 10.1007/s12671-010-0038-x

U.S. National Library of Medicine

Conclusion

Based on an examination of empirical literature across multiple methodologies, this review concludes that mindfulness and its cultivation facilitates adaptive psychological functioning.

Despite existing methodological limitations within each body of literature, there is a clear convergence of findings from correlational studies, clinical intervention studies, and laboratory-based, experimental studies of **mindfulness—all of which suggest that mindfulness is positively associated with psychological health**, and that training in mindfulness may bring about positive psychological effects. These effects ranged from increased subjective well-being, reduced psychological symptoms and emotional reactivity, to improved regulation of behavior. There is also an increasingly substantial research body pointing to a number of psychological processes that may serve as key mechanisms of effects of mindfulness interventions. As research on mindfulness is in its early stages of development, further collaborative research is needed to develop a more solid understanding concerning the nature of mindfulness, how mindfulness can best be measured, fostered, and cultivated, and the mechanisms and specificity of effects of mindfulness-oriented interventions. Future research should also continue to explore other potential applications of mindfulness, and examine practical issues concerning the delivery, implementation, and dissemination of mindfulness-oriented interventions. Given the advances that have been made thus far, it is likely that new paradigms for the understanding and application of mindfulness will continue to appear, which would move us further toward the goals of alleviating human psychological suffering and helping others live a life that is happier and more fulfilling

Harvard neuroscientist Sara Lazar

We found differences in brain volume after eight weeks in five different regions in the brains of the two groups. In the group that learned meditation, we found thickening in four regions:

1. The primary difference, we found in the **posterior cingulate, which is involved in mind wandering, and self relevance.**
2. **The left hippocampus, which assists in learning, cognition, memory and emotional regulation.**
3. **The temporo parietal junction, or TPJ, which is associated with perspective taking, empathy and compassion.**
4. **An area of the brain stem called the Pons, where a lot of regulatory neurotransmitters are produced.**

The amygdala, the fight or flight part of the brain which is important for anxiety, fear and stress in general. That area got smaller in the group that went through the mindfulness-based stress reduction program.

Sara Lazar,

- [The first study](#) looked at long term meditators vs a control group. We found long-term meditators have an increased amount of gray matter in the insula and sensory regions, the auditory and sensory cortex. Which makes sense. When you're mindful, you're paying attention to your breathing, to sounds, to the present moment experience, and shutting cognition down. It stands to reason your senses would be enhanced.
- We also found they had more gray matter in the frontal cortex, which is associated with working memory and executive decision making

BBC

- **Scans 'show mindfulness meditation brain boost'**
- The theory that meditation can reduce stress, depression and even chronic pain is one that has been gaining in momentum in recent years.
- So the BBC's David Sillito has been learning the art of mindfulness meditation in order to find out for himself.
- After getting to grips with the activity, he joined some other devotees for an MRI scan to find out what impact the practice can have on brain activity.
- 04 Jan 2012

References

- <https://youtu.be/Vrn8RWBMNsM>
- Self-Transformation Through Mindfulness | Dr. David Vago Apr 24, 2017 (20 minutes) 18 minutes in great example
- <https://youtu.be/1nP5oedmzkM>
- <https://youtu.be/leblJdB2-Vo>
The Power of Mindfulness: What You Practice Grows Stronger Shauna Shapiro Mar 10, 2017 professor at Santa Clara University, a clinical psychologist,