

More than good vibes: Researchers propose the science behind mindfulness

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Achieving mindfulness through meditation has helped people maintain a healthy mind by quelling negative emotions and thoughts, such as desire, anger and anxiety, and encouraging more positive dispositions such as compassion, empathy and forgiveness. Those who have reaped the benefits of mindfulness know that it works. But how exactly does it work?

Researchers at Brigham and Women's Hospital (BWH) have proposed a new model that shifts how we think about [mindfulness](#). Rather than describing mindfulness as a single dimension of cognition, the researchers demonstrate that mindfulness actually involves a broad framework of complex mechanisms in the brain.

In essence, they have laid out the science behind mindfulness.

This new model of mindfulness is published in the October 25, 2012 issue of *Frontiers in Human Neuroscience*. The model was recently presented to His Holiness The [Dalai Lama](#) in a private meeting, entitled "Mind and Life XXIV: Latest Findings in Contemplative Neuroscience."

The researchers identified several cognitive functions that are active in the brain during mindfulness practice. These cognitive functions help a person develop self-awareness, self-regulation, and self-transcendence (S-ART) which make up the transformative framework for the mindfulness process.

The S-ART framework explains the underlying [neurobiological mechanisms](#) by which mindfulness can facilitate self-awareness; reduce biases and negative thoughts; enhance the ability to regulate one's behavior; and increase positive, pro-[social relationships](#) with oneself and others—all-in-all creating a sustainable healthy mind.

The researchers highlight six neuropsychological processes that are active mechanisms in the brain during mindfulness and which support S-ART. These processes include 1) intention and motivation, 2) attention regulation, 3) [emotion regulation](#), 4) extinction and reconsolidation, 5) pro-social behavior, and 6) non-attachment and de-centering.

In other words, these processes begin with an intention and motivation to want to attain mindfulness, followed by an awareness of one's bad habits. Once these are set, a person can begin taming him or herself to be less emotionally reactive and to recover faster from upsetting emotions.

"Through continued practice, the person can develop a psychological distance from any negative thoughts and can inhibit natural impulses that constantly fuel bad habits," said David Vago, PhD, BWH Functional Neuroimaging Laboratory, Department of Psychiatry, and lead study author.

Vago also states that continued practice can also increase empathy and eliminate our attachments to things we like and aversions to things we don't like.

"The result of practice is a new You with a new multidimensional skill set for reducing biases in one's internal and external experience and sustaining a healthy mind," said Vago.

The S-ART framework and neurobiological model proposed by the researchers differs from current popular descriptions of mindfulness as a

way of paying attention, in the present moment, non-judgmentally. With the help of functional MRI, Vago and his team are currently testing the model in humans.

Provided by Brigham and Women's Hospital

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