

Mindfulness Meditation

What is it? Can it help my well-being? And some recent research.

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Introduction

Since I'm a firm believer in the potential of mindfulness practices to support and enrich mental health, I decided to gather a few of my blog posts on the topic into a free e-book. I hope they'll stimulate any interest in mindfulness practice you may have, and point you in directions for further study and practice.

Ever heard of an operational definition of mindfulness, an email course in meditation, a podcast that focuses on the intersection between mindfulness, technology, and spirituality? Just curious about what's a good book on the topic? Want to know more about the brain's negativity bias or the "default mode network" – the part of our brain whose mind wandering causes us to be less happy? Read on.

Or perhaps you're interested in how we might apply mindfulness concepts in your own psychotherapy, I'd be glad to talk with you about mindfulness and psychotherapy. Meditative interventions are especially effective in dealing with depression, anxiety, problems with impulse control and distractedness – and are now well supported by research.

(And for the curious, you'll find some good places to look up the research in the Further Resources section.)

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11 Misconceptions About Mindfulness Meditation

Found a classic meditation text, *Mindfulness in Plain English* by Bhante Henapola Gunaratana online for free. Shambhala publications re-released the book last year in a new, improved version, which you can find [here](#), amongst other places. Again, these are common *misconceptions*:

1. meditation is just a relaxation method
2. meditation means going into a trance
3. meditation is a mysterious practice which cannot be understood
4. the purpose of meditation is to become a psychic superman
5. meditation is dangerous and a prudent person should avoid it
6. meditation is for saints and holy men, not for regular people
7. meditation is running away from reality
8. meditation is a great way to get high
9. meditation is selfish
10. when you meditate, you sit around thinking lofty thoughts
11. a couple of weeks of meditation and all my problems will go away

If you're curious how they are misconceptions you should read the book. It covers the important points quite clearly. Chapter 2. "What Mindfulness Isn't." As I said you can find it for *free*, as a PDF file [here](#). But if you are really curious about this mindfulness stuff, this is a book I can recommend. Even if you put down the ten dollars it will be worth your while.

Am I Meditating Correctly?

I'm gradually working on a selected list of mindfulness links, some favorites. You could certainly do a lot worse than taking a look at Mindful.org, which has a large selection of information on the possibly *overly sexy* topic of mindfulness. In particular, their selection of [articles for beginning practitioners](#) is very nice.

Here's an excerpt from one of those, a piece by Norman Fischer titled "[Getting Started](#)", which addresses the concern that "I must be doing this wrong..."

There are many approaches to meditation. In my tradition, the Soto Zen tradition, meditation is not considered a skill that we are supposed to master. It is a practice that we devote ourselves to. So if you are meditating in the morning feeling half asleep, with dream-snatches passing by, and your mind not crisply focused precisely on the breath, the way you think it is supposed to be... this is perfectly all right. It is considered normal and possibly even beneficial. The biggest obstacle to establishing a meditation practice is the erroneous idea (firmly held by most people who want to establish a meditation practice) that meditation should calm and focus the mind. Therefore, if your mind is not calm and focused, you are certainly doing it wrong. Struggling with something that you are consistently doing wrong, and in your frustration can't seem to get right, does not inspire you to continue (unless you are a masochist, and there are more than a few meditating masochists).

Better to assume the Soto Zen attitude that meditation is what you do when you meditate. There is no doing it wrong or right. That is not to say that there is no effort, no calm, no focus. Of course there is. The point is to avoid falling into the trap of defining meditation too narrowly, and then judging yourself based on that definition, and so sabotaging yourself. You evaluate your practice on a much wider and more generous calculus. Not: Is my mind concentrated while I am sitting? But: After meditating in the morning, how is my attention during the day? Not: Am I peaceful and still as I sit? But: Is my habit of flying off the handle reducing somewhat? In other words, the test of meditation isn't meditation. It's your life.

Your Phone vs. Your Heart

If you're interested in mindfulness practices, such as meditation, you might find [this article, from the New York Times](#), of interest. Researchers had one group of subjects perform the fairly well known mindfulness practice *lovingkindness*, which encourages one to “develop more warmth and tenderness toward themselves and others.”

We discovered that the meditators not only felt more upbeat and socially connected; but they also altered a key part of their cardiovascular system called vagal tone. Scientists used to think vagal tone was largely stable, like your height in adulthood. Our data show that this part of you is plastic, too, and altered by your social habits.

The curious twist, is the writer suggests that lack of face-to-face interaction, as can sometimes happen with extensive smart phone use, might be problematic to our mental health. Some more on the health benefits:

To appreciate why this matters, here's a quick anatomy lesson. Your brain is tied to your heart by your vagus nerve. Subtle variations in your heart rate reveal the strength of this brain-heart connection, and as such, heart-rate variability provides an index of your vagal tone.

By and large, the higher your vagal tone the better. It means your body is better able to regulate the internal systems that keep you healthy, like your cardiovascular, glucose and immune responses. Beyond these health effects, the behavioral neuroscientist Stephen Porges has shown that vagal tone is central to things like facial expressivity and the ability to tune in to the frequency of the human voice. By increasing people's vagal tone, we increase their capacity for connection, friendship and empathy.

In short, the more attuned to others you become, the healthier you become, and vice versa. This mutual influence also explains how a lack of positive social contact diminishes people. Your heart's capacity for friendship also obeys the biological law of “use it or lose it.” If you don't regularly exercise your ability to connect face to face, you'll eventually find yourself lacking some of the basic biological capacity to do so.

The article ends on a striking note: “Friends don't let friends lose their capacity -- for humanity.”

From “Search Inside Yourself” by Chade Meng-Tan — Anger and Goodness

I’m quoting, almost in its entirety, from a post to Ken Pope’s listserv — by Ken Pope. He’s excerpted a story from *Search Inside Yourself* by Chade Meng-Tan, Google employee 107. The author made it his mission to bring some kind of mindfulness practice to the engineers at Google in order to enhance their productivity and well-being. As a company, Google is rather well known for treating their employees well. But bringing mindfulness to Google wasn’t an entirely easy thing. In one of his initial forays, Meng-Tan introduced Mindfulness Based Stress Reduction (also known as MBSR), the practice created by Jon-Kabat Zinn and written about in his book, *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness*. But stress reduction never really captured the imagination of the type-A computer programmers at Google, who wear their stress as a kind of badge of honor — a token of their ambitiousness. Meng-Tan continued along other avenues. His book is highly recommended by Dr. Pope, who does not frequently extend such recommendations. At the end of the excerpt you’ll see a parenthetical comment, regarding Dr. Pope’s comfort with the word “goodness.” He’s a man of science, and it’s hard to let a word as vague as “goodness” just stand on its own.

One touching example of how goodness can change a man’s life was a personal story told to me by famous psychologist Paul Ekman.

Paul has had a very successful career as a psychologist.

In fact, he was named by the American Psychological Association as one of the 100 Most eminent Psychologists of the 20th Century.

Paul, however, suffered a very difficult childhood, so he grew up to be a very angry adult.

He told me that every single week of his life, he experienced at least two episodes of explosive anger that led him to do or say something he would later regret.

In 2000, Paul was invited to speak at a Mind and Life Conference held in India in the presence of the Dalai Lama.

Paul was reluctant to go because he did not take Buddhist monks seriously; he thought of them as a bunch of funny bald men in robes.

His daughter, Eve, had to convince him to attend.

On the third day of the five-day conference, something very important happened to Paul.

During a break between meetings, Eve and Paul went to sit with the Dalai Lama and spoke with him for about ten minutes.

For the duration of the conversation, the Dalai Lama held Paul's hand.

Those ten minutes had a profound impact on Paul.

He said he experienced an abundance of "goodness" within his entire being.

He was transformed.

By the end of those ten minutes, he found his anger completely fading away.

For many weeks after that, he did not experience any trace of anger at all, which for him, was a huge life change.

Perhaps more importantly, it changed the direction of his life.

Paul was planning to retire, but after those ten minutes of holding the Dalai Lama's hand, he rediscovered his deep aspiration to bring benefit to the world, which was the reason he entered psychology in the first place.

After some slight prodding from the Dalai Lama, Paul canceled his retirement plans and has since been giving his experience and wisdom to scientific research that may help people improve emotional balance, compassion, and altruism.

Goodness is so powerful that even experiencing it for just ten minutes can change a man's life.

It does not even matter that the experience may be entirely subjective.

In Paul's case, for example, the Dalai Lama claimed he did not do anything special, suggesting that the goodness Paul experienced came more from what Paul himself brought to the situation, with the Dalai Lama being merely a facilitator.

Either way, the lesson is unmistakable: if you want to influence people, there is no greater power than goodness.

(Confession: I am comfortable using the word “goodness” only because Paul uses the word himself. If the word “goodness” is good enough for Paul Ekman, it is good enough for me.)

Neurons That Fire Together, Wire Together

He's Got Google's Ear.

Who gets to speak to an audience at Google? Well, this guy did. He's Rick Hanson, Ph.D., a neuropsychologist, who spoke on the Google campus a little over two years ago. He is one of the guys recruited by Chade Meng-Tan to speak to the search engine's employees on the topic of mindfulness, and how it might be beneficial to them. He is also the author of *Buddha's Brain: The Practical Neuroscience of Happiness, Love, and Wisdom*.

Three Goal-Directed Systems of the Brain.

Hanson posits three goal-directed systems in the brain. The avoidance system (the example of sticks v. carrots), the approach system (which seeks opportunities, rewards, pleasures) and finally, the attachment system (which seeks social proximity, bonding, feelings of closeness). He goes on to map these systems and their associations with various parts of the brain and neurobiological processes — of the attachment system he notes it is part of our “mammalian heritage.” Bonding is a very important part of our survival.

The Negativity Bias of The Brain.

Dr. Hanson makes a point regarding what he calls the negative bias of the brain. What does that mean? Well, in a nutshell, we've evolved to avoid danger. Think of it this way — which has a higher cost, a) not noticing the tiger in the bushes or b) thinking there is a tiger in the bushes, when there is none? Though being hypervigilant is annoying and in some sense a waste of time, the cost of not noticing the tiger in the bushes is so astronomically higher that we are naturally evolved to be on alert to risks and dangers. This is what Dr. Hanson calls the brain's innate negativity. He says, "sticks are more salient than carrots" — meaning we are more geared to being alert for threats than seeking reward. That doesn't mean that there aren't strong drives for seeking reward — it's just that removing threat is higher up on the hierarchy. Once we assess risks to be minimal, reward seeking comes to the fore. He adds, "the brain is like velcro for negative experiences, teflon for positive."

Negativity Bias and Stress.

But this tendency to weigh negative input more heavily can be problematic. We're pretty much adapted to life 50,000 years ago, perhaps more so than as much as for life today. The avoidance system, perfectly tuned to avoiding threat from neighboring tribes and potential predators, can get overloaded by less dire stimulus such as a traffic jam or a bad report card or what have you. And that avoidance system activates the sympathetic nervous system, the fight-or-flight system. Chronic arousal of this system (as occurs in anxiety and the hypervigilance associated with trauma) is unhealthy. Chronic stress can lead to a cascade of health events — it weakens the immune system, inhibits the gastrointestinal system (which in turn reduces nutrient absorption), dysregulates hormones, causes cardiovascular vulnerabilities, and so on.

The Take Home Point.

I advise watching the video, if you have the time, because it sketches out in more detail his ideas — but I would say the take home point, if there is one, is that it is possible to shape your brain away from what he calls its negative bias. In other words, focusing, through intention, on the approach and attachment parts of the system. How would that work? Well quite a lot of research seems to suggest, quite robustly, that parts of the brain (particularly the anterior cingulate) used in meditation are the same parts of the brain used to regulate emotion. And sketching the idea out crudely, that through attentive practice, we can essentially train our brain to cultivate positive sensations to calm down the fight-or-flight system. Over time, this can actually strengthen the system that regulates strong, primitive emotions. (Daniel Siegel, MD, has followed and participated in this research quite closely.) Check out the video. It's worth a look.

Mapping the Mindful Brain

Very briefly, came upon some fascinating work by Judson Brewer, MD, interviewed here, at [Buddhist Geeks](#). Dr. Brewer, an assistant professor of psychiatry at Yale is studying the effects of meditation on the brain. The research, utilizing fMRI brain scanning, finds that meditating deactivates the parts of the brain associated with preoccupation with self, called the “default mode network”. Now, if you could limit the activity of the part of the brain that tended to make people unhappy, would you?

We found a clinical signal and went back to study the mechanism to see what’s actually going on. We compared the neural activity of 12 Buddhist meditators to those of novice meditators that we instructed that morning. As I’m sure your listeners are aware, the instructions are simple “pay attention to your breath” but they are maddeningly hard to do. It’s easy to teach someone, but it’s not that easy to change your brain. We had them do three different kinds of meditation and looked for what was similar among all three.

The researchers found that not only is there a common neurological association to meditation, but using fMRI scans to provide real-time feedback with meditators showed that “an active posterior cingulate correlated very highly with self-referential wandering brain activity” and when it was de-activated they were focussed or in a “flow” state.

So, what of it? Well, not long ago another study, done by Matthew Killingsworth, looked at the effect of the wandering mind. They concluded that about half the time we are thinking about ourselves, and when doing so we are generally unhappy. (Here’s a write-up of that research in [Science Daily](#).)

So could you increase your odds of happiness by taking up a mindfulness practice — by taking that preoccupied self “off-line”, so to speak? There’s lots more research to be done, but it seems to point in that direction. One interesting thing about Brewer’s work, is his team is providing real-time feedback to meditators so that they are able to learn to meditate more efficiently. They had people who learned to meditate, whose meditation looked like those of longtime practitioners, within 9 minutes. (I’m not suggesting that this is a fast-track to learning to meditate like a long-time practitioner, but it does seem to make the learning much more efficient.)

You can also read an article about Brewer’s research at [Yale Scientific](#).

Your Brain on Meditation: Role of the Posterior Cingulate

What if you could enhance your well-being? **Just published** by Judson Brewer, PhD, MD, medical director of the Yale Therapeutic Neuroscience Clinic, a solid piece of exploratory (and confirmatory) research on the role of a part of the brain called the posterior cingulate in meditation. Meditators have been speculating about the states of mind evoked by meditative states and various relationships between meditating and well-being. Turns out, the posterior cingulate is implicated, mostly negatively, in the subjective well-being of meditators. What makes this interesting, is that the meditators could control the activity of this part of the brain, through real-time feedback.

There have been a number of studies that have shown that meditation lights up certain brain regions, that it's associated with changes in brain thickness, and that it alters the way our brains respond to stressful stimuli. But meditation is complex, and it involves processes like attention, working memory, and self-monitoring. So, which components of meditation actually line up with specific brain regions?

Researchers found that the posterior cingulate increases activity during states of distraction, discontentment, and a particular kind of mental effort — all states implicated in unhappiness. A decrease in posterior cingulate activity was associated with states of effortlessness and contentment.

The implications of this are great. Not only does it mean that meditation can be used to enhance well-being, but eventually the technology could be used to help people to learn to meditate more quickly. Learning to meditate more efficiently also potentially means strengthening the “wiring” in those parts of the brain that bring about well-being.

If you're curious about Judson Brewer's work, here's his TEDx talk on meditation: **You're Already Awesome. Just Get Out of Your Own Way!**, which touches on the effects of tracking and training flow states, turning off the blah blah blah part of the brain. Or check out the interview at Buddhist Geeks, **Mapping the Mindful Brain**.

Using Mindfulness Meditation for ADHD

A preliminary study.

Read the excellent article on mindfulness and ADHD at [Sharp Brains: The Brain Fitness Authority](#). It's written by Dr. David Rabiner, clinical child psychologist at Duke University. In contrast to the recent [New York Times](#) piece, it's a more focused and nuanced look into possible applications of mindfulness meditation, in this case for treatment of Attention Deficit Hyperactivity Disorder. Here are four excerpts:

Although medication treatment is effective for many individuals with ADHD, including adolescents adults, there remains an understandable need to explore and develop interventions that can complement or even substitute for medication. This is true for a variety of reasons including:

1) Not all adults with ADHD benefit from medication.

2) Among those who benefit, many have residual difficulties that need to be addressed via other means.

3) Some adults with ADHD experience adverse effects that prevent them from remaining on medication.

This includes a quoted definition of mindfulness:

“...mindfulness meditation involves **experiential learning via silent periods of sitting meditation or slow walking and purposeful attention to daily activities. Relaxation, although often induced during the training, is not the sole goal of the activity**; rather, the main activity is a cognitive and intention-based process characterized by self-regulation and attention to the present moment with an open and accepting orientation towards one's experiences.”

Journal of Attention Disorders [Zylowka, et al. (2008). Mindfulness meditation training in adults and adolescents with ADHD. *Journal of Attention Disorders*, 11, 737-746.]

As well as the operational definition for this particular study:

Mindfulness meditation is described as involving 3 basic steps: **1) bringing attention to an “attentional anchor” such as breathing**; 2) noting that distraction occurs and letting go of the distraction; and, 3) **refocusing back to the “attentional anchor”**.

Some history along with a smattering of technical jargon:

In recent years, mindfulness meditation has a new approach for stress reduction and has been incorporated into the treatment for a variety of psychiatric disorders, including depression, anxiety, and substance abuse. Of special relevance to the treatment of ADHD are findings that meditation has the potential **to regulate brain functioning and attention**. For example, research has demonstrated that **mindfulness meditation can modify attentional networks, modulate EEG patterns, alter dopamine levels, and change neural activity**.

Finally, the author notes the responsible researchers' caveat:

The authors are appropriately cautious in discussing their findings and suggest that the study supports the "...feasibility and potential utility of mindfulness meditation **in at least a subset of adults and adolescents with ADHD**." They are careful to note, however, that this was a **pilot study with a small sample**, and that the reported pre-post changes in behavioral and neurocognitive measures should be "...considered exploratory given the **absence of a control group and reliance on self-report measures of psychiatric symptoms**."

Exciting and promising, if preliminary, research. Again, you can read the **entire article** at Sharp Brains.

Further Resources

App: Buddhify 2. (iOS and Android, \$4.99)

About 70 guided meditations based on the context of what you're doing or feeling. Pricey, but worth it. Outside of timers, this is the best meditation app I've seen. Recommended.

App: Insight Timer. (iOS and Android, free)

A timer designed specifically for meditation. Includes a number of different options for bells to ring at regular (or irregular) intervals. The bells sound nice, too. Recommended.
www.insighttimer.com

Email course: Aro Meditation.

Eighteen-week email course. It starts a day or two after you give them your email address. No spam. Thoughtful, and the weekly email serves as a useful reminder.
www.aromeditation.org

Book: Mindfulness in Plain English

If you were only going to read one book, you could do a lot worse than this one by Bhante Henapola Gunaratana. It's a straightforward and easy to read introduction to the topic. Highly recommended:
<http://www.wisdompubs.org/sites/default/files/preview/Mindfulness%20in%20Plain%20English%20Book%20Preview.pdf>

Book: Full Catastrophe Living by Jon Kabat-Zinn

Kabat-Zinn essentially started the mindfulness movement. He researched a full-body method of Mindfulness Based Stress Reduction (MBSR), and came back with strong outcomes. And if you're interested in attending such classes, they are still very much active. In the Los Angeles area, try InsightLA.org.
<http://www.amazon.com/Full-Catastrophe-Living-Wisdom-Illness/dp/0739358588>

Book: A Path With Heart by Jack Kornfield

Kornfield lived as a monk in Thailand for well over a decade, and aimed to bring back part of what he found. Still actively speaks. He has many books. This one is especially good.

http://www.amazon.com/Path-Heart-Through-Promises-Spiritual/dp/0553372114/ref=sr_1_1?s=books&ie=UTF8&qid=1432151232&sr=1-1&keywords=path+with+heart

Website: Mindfulness.org

Wide ranging articles on the topic of mindfulness, some related to research others to practical applications. Check out the useful “Start Here” section.

www.mindful.org

Website: Buddhistgeeks.com

Diverse group of podcasts on the intersection of mindfulness, technology, design, culture, Buddhism, and contemplative practice. If you’re interested in the cutting edge of mindfulness practices, it’s here.

www.buddhistgeeks.com

Website: Research on Mindfulness and Meditation: Pope, Ph.D.

For those that prefer quantifiable evidence, **Ken Pope, Ph.D.**, hosts a long list of research on mindfulness and meditation at his website. This link is for the meditation research, if you look at the sidebar, there’s also one for mindfulness (chiefly for therapists):

<http://kspope.com/hospices/meditation.php>

Online Book: MCTB

This stands for Mastering the Core Teachings of the Buddha. If you want to go *deep* into philosophical underpinnings of meditation, this site is quite interesting, but it is not for the faint of heart. Also available on Amazon.com, but here for free:

<http://www.dharmaoverground.org/dharma-wiki/-/wiki/Main/MCTB/en>