The Neuroscience of Mindfulness

Brain research confirms the power of mindfulness to affect and change our level of well-being and happiness. It activates positive neuronal circuits and strengthens their circuitry throughout the brain, particularly in the left frontal lobe, producing numerous beneficial effects.

Mindfulness triggers brain wave patterns associated with relaxed alertness. It increases serotonin levels, activating positive emotions. Mindfulness strengthens awareness of our internal state, which increases empathy. It counters the “fight or flight” part of the brain to help us relax, strengthen the immune system, improve cardiovascular health, and dampen chronic pain.

Rick Hanson, neuroscience expert and author of the best-selling books, Buddha’s Brain and Hardwiring Happiness, calls the practice of bringing mindful attention to positive experiences of well-being when they arise “Taking in the Good.” Here’s how it works: when you have a positive experience your brain is releasing dopamine and norepinephrine, two “feel good” chemicals. At that moment, being present in a mindful way means not only knowing “I’m feeling good”, but also being aware especially in your body “this is what it feels like to feel good.” You savor the moment for a little while. Marinate in it!

When you do, that uplifting experience is imprinted in your hippocampus where memory is stored. It is then transferred to your cortex and is much more easily available and able to be activated. As Rick says, keeping mindful attention on a positive feeling is like shining a spotlight on it and vacuuming it into the neural circuitry. Keeping it there lets it register even deeper in your being.

Think of the field of awareness as a large stage. What's outside awareness is backstage, in the wings. A spotlight lights up whatever you momentarily focus your attention on. The brain creates neural structures for whatever you’re aware of—everything on stage—but it turbo-charges neural networks within the field of focused attention, those in the spotlight.

The attentional “vacuum cleaner” operates automatically, for better or worse. Spend your days dwelling on resentments and regrets, and neural structures that support pessimism, self-doubt, and unhappiness will quietly start wiring together. Alternately, spend your days dwelling on the good all around you and in you—focusing on gladness and gratitude, facing your problems with determination and initiative—and neural structures that support optimism, confidence, and happiness will gradually wire together. Which would you prefer?

The key difference between these two is how you use your attention. Since attention is largely under volitional control—you can usually direct it with conscious effort—you have an extraordinary tool at your disposal at any time to nudge your moment-to-moment experience in a positive direction. This will gradually sculpt your brain in positive ways, which in turn will lead to an increase in positive experiences and actions for you. That will sculpt your brain even more in a wonderfully positive cycle.

The key aspects of attention are where you place it, how long you keep it there, and your attitude toward what it illuminates. Mindfulness is a particular sort of attention in which there is sustained, accepting presence with some content of mind—perhaps empathy for a friend, the sensations of
breathing, the soft feelings of hurt underneath brittle anger, a prayer. Since mindfulness typically increases the duration, intensity, and embodied experience of what you are paying attention to, mindfulness tends to increase its traces in your brain.

Additionally, studies have shown that the stance of mindfulness—stabilizing attention while opening wide to one’s experience without judging or getting swept away by it—literally thickens the layers of the brain region that:

1. Control attention (so you get better at attention itself),
2. Increase the relative activation of the region (behind the left side of your forehead)
3. Help control and reduce negative emotions (so you get more even-keeled and happier)
4. Strengthen your immune system.

Mindfulness has many other benefits for physical and mental health that are too numerous to list here. Just try searching for “Benefits of Mindfulness” and see for yourself.

Mindfulness is natural. We are normally mindful of many things throughout the day. The problem is that most of us remain mindful for only a few moments at a time. The trick is to have more "episodes" of mindfulness each day and to lengthen and deepen them.

We all know the experience of having something activate memories from long ago. For instance, have you ever heard a song from your teenage years and, in a moment, you’re brought back to the people and associations connected with that song like, for example, your crush in high school? That’s because impactful experiences are stored in the brain. And mindfulness deepens that impact.

If you set aside time each day to be deliberately and explicitly mindful, you’ll probably notice a positive impact on your life. Try staying present with a specific object of attention (e.g., the sensations of breathing) or opening wide to whatever flows along in the stream of consciousness. Throughout the day, try to add some additional moments of mindfulness—perhaps just a few seconds long though they can certainly be longer—when you just drop into intentionally being present to whatever is happening around you or inside you.

**Pay attention to any good moments you find yourself in**—a warm hug from a friend, a beautiful sunset—instead of taking those moments for granted. If you can do this for **fifteen seconds, six times a day** you’ll probably notice a real difference within just a couple of weeks. When you feel grateful or happy or calm or compassionate, it registers more deeply if you really take it in. Don’t force it or try hard to make pleasant experiences happen. Just be open to letting them register in your being when they are here.

**Some resources:**

*Buddha’s Brain* – Rick Hanson

*Hardwiring Happiness* – Rick Hanson

The Science of Mindfulness - Mindful Magazine *(article)*

The Neuroscience of Mindfulness in 4 minutes *(Video)*

The Neuroscience of Mindfulness *(Google Search)*