

What Neuroscience Can Teach Us About Compassion

Carolyn Gregoire, Senior Writer, *The Huffington Post*

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Mounting evidence of the impact of contemplative practices like meditation (which we now know can, quite literally, rewire the brain) are finally bringing modern science up to speed with ancient wisdom. Mindfulness and compassion — the practices of cultivating a focused awareness on the present moment, and extending a loving awareness to others — are part of every religion and wisdom tradition, and we're at last beginning to understand the profound impact that they have on the brain, says psychiatrist and mindfulness expert Dr. Dan Siegel.

A pioneer in the field of interpersonal neurobiology and executive director of the Mindsight Institute, Siegel discussed the neuroscience of mindfulness and compassion during a keynote address to the Nalanda Institute for Contemplative Science's Mind Science in Action Benefit Weekend earlier this month (*May 2014*).

Siegel highlighted findings in the field of interpersonal neurobiology and from his own "mindsight approach" to psychiatry — both systems revolve around the principle of "integration," which suggests that the linking of different aspects of a system, such as the brain, is at the heart of well-being, resilience, mindfulness and compassion.

"Integration is seen as the essential mechanism of health as it promotes a flexible and adaptive way of being that is filled with vitality and creativity," Siegel writes on his website. "The ultimate outcome of integration is harmony."

Through this interdisciplinary form of inquiry into the brain and mind, Siegel says, we can "build a framework that's based on science but goes beyond what science says, and looks more deeply at what it means to be human."

Compassion is a central component of what it means to be human, but we don't necessarily know how it works in the brain or why we're wired to be compassionate towards others — and interpersonal neurobiology may be a particularly helpful framework for examining the importance of this quality in our lives and relationships.

Here's what recent findings in neuroscience and neurobiology can teach us about compassion.

- **We can change the brain through changing the mind.**

As Siegel explained, the concept of "neural integration" refers to the interaction between various disparate parts of the brain. And through mindfulness practices like meditation, we can actually grow integrative fibers in the brain — studies have shown that mindful awareness increases the connectivity of separate areas of the brain.

"We now know... that you can use your mind to change the function and structure of your brain," Siegel said at the Nalanda benefit. "That's a fact. So, you want to awaken the mind because it can transform the brain in very important ways and transform our relationships."

And *how* the mind transforms the brain is by training the regulation of our attention through mindfulness practices. "The mind can actually get the brain to do something very specific to the brain — integration," said Siegel. "A mindful brain is an integrated brain."

- **We can increase our capacity for compassion through integration.**

What does an integrated brain look like? It's mindful, present and compassionate. We can increase integration in the brain through mindfulness and compassion practices, and by increasing integration, we naturally become more mindful and compassionate.

The most integrated the brain has ever been measured to be, which is measured using Gamma wave electrical signals, is found in Tibetan Buddhist monks doing compassion, or lovingkindness, meditation,

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Siegel explains. University of Wisconsin professor Richard Davidson's research on Tibetan Buddhist monks has found that meditation on compassion can produce powerful changes in the brain. When the monks were asked to meditate on "unconditional loving-kindness and compassion," their brains generated powerful Gamma waves that may have indicated a compassionate state of mind, Wired reported. The study is powerful evidence that empathy may be able to be cultivated by "exercising" the brain with lovingkindness meditation.

- **Being mindful can help us become more compassionate.**

Research done by Siegel and others has shown that mindfulness meditation stimulates the growth of integrative fibers in the brain. But can compassion have the same effect?

"What we know for sure is that through lovingkindness meditation, woven in with mindfulness meditation, you stabilize the attention and then you open it up," said Siegel. "You can build the gateway of empathy and compassion through mindfulness meditation."

A 2013 study from Harvard and Northeastern University reinforced this finding, demonstrating that meditation can improve compassion and altruistic behavior. The researchers found that participants who had meditated were more likely than non-meditators to lend a helping hand to an actor with crutches who was pretending to be in pain. A 2012 Emory University study suggested that compassion training derived from ancient Tibetan mindfulness practices may boost empathy, and other research has found that loving-kindness meditation could increase positive emotions and lead to more positive relationships over time.

The bottom line? Mindfulness and loving compassion are the techniques that integrate our mental systems. "Those are the research-proven traditions from thousands of years ago that integrate within and between — now we know that."

- **Healthy relationships can boost your brain power.**

One way to build integration in the brain is through healthy, caring relationships with others. These relationships can make us more mindful and more compassionate, facilitating greater integration in the brain. Siegel explained:

"Integrative communication in a relationship stimulates the growth of integrative fibers in the brain. You're going to say, That's too weird — how would a relationship shape the brain and why would it be that simple? Well, what they share in common is energy and information flow. So a relationship can be defined as the sharing of energy and information flow. And when we understand how that energy and information flow is happening — it could be with words, with the body, with an attitude — we can feel it, and we feel it with each other. It's not some weird unknown thing. It's fantastic and it's real. Energy is absolutely a part of this world, and energy can be shared between us."

But unhealthy relationships can have just the opposite effect on the brain, Siegel noted. Abuse and neglect impair the integrative regions of the brain — as a treatment for individuals recovering from abusive relationships, adding mindfulness to a psychotherapy practice could be beneficial.

Compassion is integration of the mind made visible.

When the brain is operating in a state of harmony and integration, that harmony is reflected externally in the way we engage with the world. It manifests, according to Siegel, as compassion towards ourselves, others, and our world.

"Integration, when it is made visible, is kindness and compassion," said Siegel. "That's really the fundamental teaching of all the world's major religions, the wisdom traditions of this world.. Integration is well-being. Integration is the kindness that the planet deserves."