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**Christopher Bergland**  
The Athlete's Way

# The Neuroscience of Trust

Researchers have pinpointed two brain regions associated with trust.

Posted August 12, 2015

Reviewed by Jessica Schrader





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Have you ever been betrayed by someone that you trusted completely even though gut instincts gave you early warning signs that he or she might not be trustworthy? Recent neuroscientific research shows that in many ways our brains are hardwired to trust others. This aspect of our human nature is one reason that having your trust betrayed can short-circuit your neurobiology and make it difficult to trust again.

In a new study, a team of brain researchers shed light on what motivates us to trust one another, especially during times of potential risk. The August 2015 study, **“Computational Substrates of Social Value in Interpersonal Collaboration,”** appears in *The Journal of Neuroscience*.

crossed by someone I trusted caused every neural network and association of friendship or camaraderie with that person to dissolve on a neurobiological level.

Once I realized the extent of the malevolence, I could literally feel the neural networks and brain regions associated with trust disengage and shut down. Neural networks and brain regions that had formerly been associated with positive emotions and magnanimity towards this person were replaced with animosity, suspicion, and resentment.

Forgiveness towards the person who betrayed me remains a work in progress. Can you relate? Is there someone in your life that you're trying in vain to trust again?

One of the silver linings of having my trust broken was that it forced me to practice what I preach in terms of Loving-Kindness meditation (LKM), not holding a grudge, and equanimity. Unfortunately, writing about this experience still causes my stress hormones like cortisol to spike and my oxytocin levels to diminish. I can picture my **ventral striatum** deactivating as I revisit these intense feelings of mistrust.

## What Is the Neuroscience of Trust?

different players: a close friend, a stranger, or a computerized slot machine. In reality, in every instance the participants were actually playing against a computer with a simple algorithm that systematically reciprocated actions worthy of trust exactly 50 percent of the time.

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Based on perceptions of trust, the participants reported positive interactions with the "close friend" to be more rewarding than interactions with a stranger or slot machine—and were more likely to invest with this player. This illustrates our innate human desire to connect with others and create close-knit bonds even if these ties are based on blind trust or lead to Ponzi schemes.

they were trusting a close friend. Increased activity of the **ventral striatum** and **medial prefrontal cortex** were correlated with positive social value signals when participants made decisions based on a belief they were playing with a good friend.

The ventral striatum is considered a key pathway in human reward processing and positive emotions. In a recent *Psychology Today* post, "**The Neuroscience of Savoring Positive Emotions**," I wrote about a study from University of Wisconsin-Madison that found a correlation between savoring positive emotions and sustained activation of the ventral striatum.

The medial prefrontal cortex is associated with how we perceive another person's mental state and monitoring what's happening outside our current focus of attention. The medial prefrontal cortex also plays a role in decision-making as well as retrieving and consolidating memories.

Together, these brain regions provide additional evidence that participants felt a greater social reward when they believed their good friend had reciprocated cooperation during the game. Interestingly, feelings of trust occurred despite the reality of the situation. Even though reciprocity occurred 50

imaginary players throughout the game.

## **Conclusion: Trust, Social Connectivity, and Well-Being Are Intertwined**

This new study illustrates the mechanisms underlying the social value and importance of trust. The willingness to trust others is built into our DNA. Working together has always been key to the survival of our species. Having faith in one another is in the best interest of both the individual and the collective—especially in times of risk and uncertainty.

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However, this experiment suggests that our instinct to trust can override logic. People can be fooled into trusting some-

that being betrayed by someone you trust is so jarring is the underlying vulnerability and gullibility of blind trust this experiment illustrates. Wanting to trust someone has powerful neurological roots, but genuine trust must be earned.

After being betrayed by a good friend, business associate or romantic partner, it can be difficult to give people the benefit of the doubt or blindly trust someone again. Maybe this is a good thing on some level? In a world full of scammers, having a healthy dose of pragmatic skepticism is probably a good idea. That said, collaboration and trust are essential for building healthy and strong interpersonal relationships. Ultimately, the social connectivity created by prosocial behavior and wholehearted, trusting relationships fortifies our well-being at the deepest level.

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## About the Author

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**Christopher Bergland** is a retired ultra-endurance athlete turned science writer, public health advocate, and promoter of cerebellum ("little brain") optimization.

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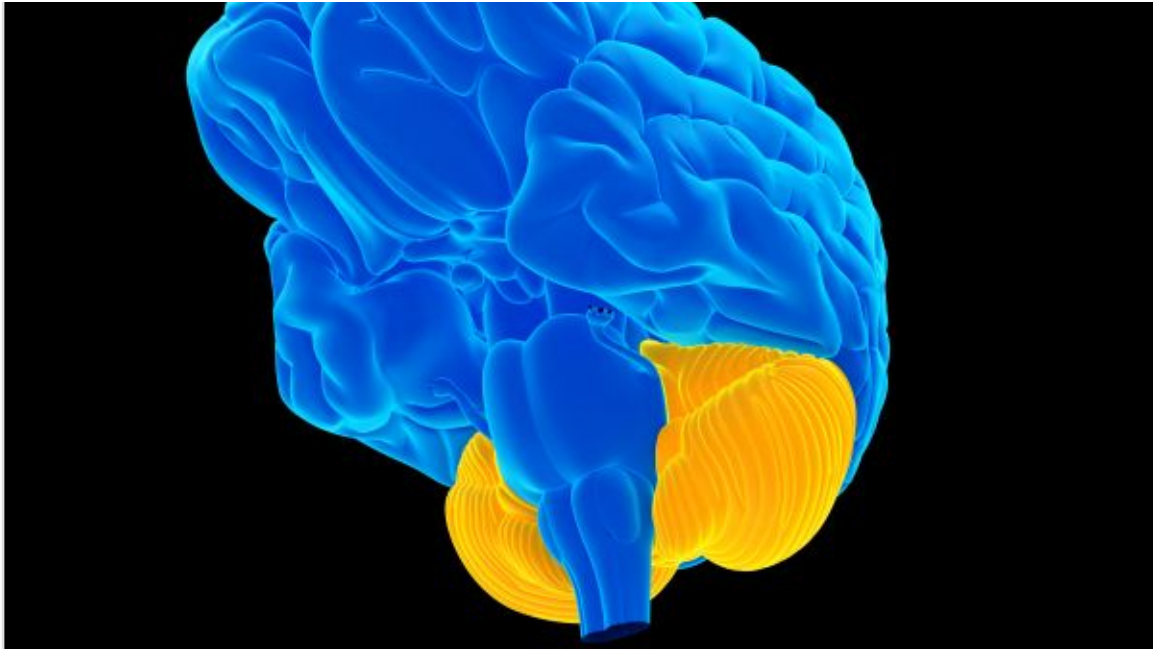


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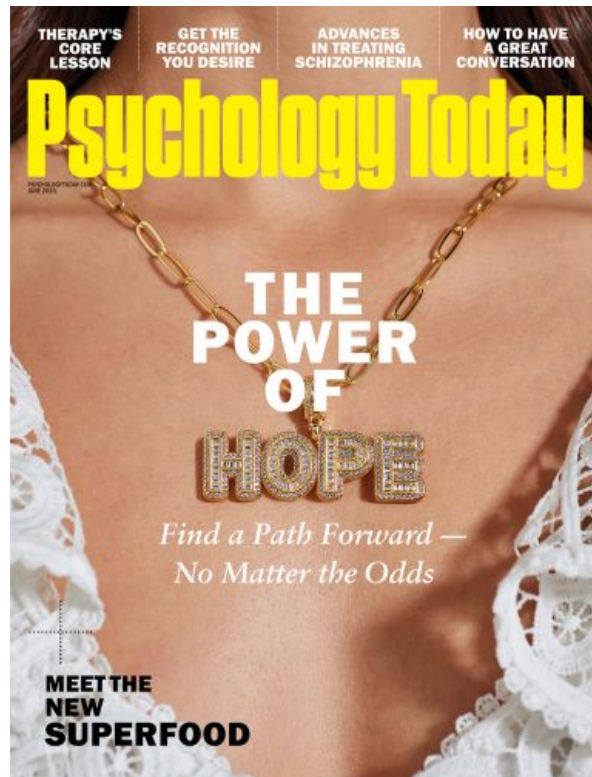
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