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Why the Pain of Romantic Rejection Feels Like a Punch in the Gut

By ALICE PARK Monday, March 28, 2011 | 39 COMMENTS

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There are only a lucky few among us who can't relate to the intense pain of being rejected by a significant other. If a breakup is unexpected, it's all the more painful — it can hurt with such intensity that you can't breathe, as if you've been punched in the gut.

According to Edward Smith, a psychologist at Columbia University, there's a reason for that. Along with a team of colleagues, Smith found that intense emotional pain can activate the same neural pathways as physical pain. So being rejected can really hurt in a visceral, physical way as if you've really been punched. **(More on Time.com: [Facebook and Love: Why Women Are Attracted to Guys Who Play Hard to Get](#))**

Researchers have recently found that emotional pain — feeling either rejected or sad, or grieving over a lost loved one — can tap into the same nerve networks that give pain its negative tinge. That makes sense — you don't associate something that hurts, whether it's an insult from a friend or a snub at work or even rudeness from a stranger, with good feelings. But so far, studies have not linked the negative feelings associated with rejection, for example, with the physical pathway of pain — the circuits that are called up when you stub your toe or spill hot coffee on yourself and are responsible for sending nerve signals from the injury site to the sensory centers in the brain that interpret the message as an ouch!

Now, Smith says, the brain images his team produced from 40 volunteers who were recently taken by surprise when their significant other rejected them, shows that the neural pathways involved in rejection and physical pain may overlap. In the experiment, the scientists put the participants through a functional MRI scanner and asked them to rate their pain while performing four tasks. In the rejection portion, they were asked to rate how much they hurt when viewing a picture of their ex and a picture of a good friend with whom they had had good experiences. The participants then rated their pain during physical stimuli — one stimulus simulated the heat from holding a hot cup of coffee, while the other was a warm probe that was less painful.

The jilted volunteers all reported feeling more pain when viewing pictures of their exes than when looking at their friends, and their brains showed that the pain extended beyond the regions normally associated with such emotional triggers. Even the physical areas that were activated during the hot physical stimuli were active when the subjects were looking at pictures of their exes. **(More on Time.com: ['Heartbreak': How Rejection Literally Stops Your Heart](#))**

"What we are finding is that in addition to emotional distress, there is another component, and that's the sensory experience of pain," says Smith. "If you up the ante in the magnitude of the rejection experience, you now find that brain areas involved in the actual [physical] sensation

of pain are involved as well.”

Previous studies that had looked into the relationship between emotional and physical pain had relied on less intense simulations of rejection — such as telling volunteers that the researchers or others that they knew did not like them — and failed to find activation of the physical pain pathway. Smith suspects that the intensity of being rejected by someone you love triggers this physical component of pain sensation, intensifying the experience.

What does this mean for treating the pain of rejection? First, Smith stresses that the study analyzed only the pain of rejection, and he is not sure that the sensory pathway of pain would be involved in other types of intense emotional distress. And even in cases of rejection, it's not obvious at this point how the connection could translate into more effective interventions for those who are hurting.

An intriguing study last year in which the researchers simulated rejection in the lab found that aspirin can alleviate the painful feelings triggered by rejection, but, says Smith, “I find it hard to believe that taking aspirin would really help much in true rejection. Even if you took aspirin and it helped, just thinking about the rejection experience would bring the pain back, and it's hard to tell people not to think about painful emotional experiences like that.” **(More on Time.com: Forget Pain Pills. Try Falling in Love Instead)**

So while it looks like time is still the most powerful healer for the lovelorn, these findings suggest at least that the hurt isn't all in your head.

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