

# Heartbreak hurts people physically, too

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Romantic heartbreak hurts, and researchers now have a better understanding of why.



By Christoph Martin, Getty Images

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The same regions of the brain that are activated when people experience pain in their bodies also become active when people feel rejected by someone they love, new research shows.

The findings suggest that people whose feelings are crushed in a romantic breakup also may feel actual physical pain, says University of Michigan social psychologist Ethan Kross, lead author of the study reported Monday in the *Proceedings of the National Academy of Sciences*.

Kross, an assistant professor in the psychology department, teamed with his colleagues and researchers at Columbia University and the University of Colorado-Boulder to recruit 40 people who had gone through a romantic breakup during the past six months. All said their breakups led to intense feelings of rejection and pain.

Participants underwent functional magnetic resonance imaging (MRI) scans while they:

- Viewed photos of their ex-partner and thought about how they felt during their breakup.
- Viewed a photo of a friend and thought about a recent positive experience with that person.
- Wore an arm device that created tolerable pain sensations to measure physical pain reactions.

Researchers compared the findings with 500 scans of other people's brain responses to physical pain, emotion and other psychological processes.

"We found that the intense experience of social rejection activates regions of the brain that are involved in the sensory experience of physical pain," Kross says.

The study builds on previous research that shows both rejection and physical pain activate another set of brain regions involved in negative emotions. "The mind, brain and body are

tightly linked," Kross says. "These findings may offer insights into how heartbreak and rejection can lead to different types of physical illness and disorders."

Mark Leary, a professor of psychology and neuroscience at [Duke University](#) who has studied hurt feelings, says the connection between pain and heartbreak makes sense: "We're motivated to maintain good relationships and try to repair them when problems arise because breakups and rejections hurt. It's a way of keeping us ... attuned to the quality of our relationships."

Naomi Eisenberger, an assistant professor of psychology at UCLA, says her research shows that taking Tylenol, a physical pain reliever, diminished the pain of hurt feelings and social exclusion.

She hasn't studied its use for the intense feelings of heartbreak, but she says the latest research "continues to highlight the fact that humans are an extraordinarily social species — so much so that social rejection is interpreted by the brain as being as harmful as damage to the physical body."

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