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# As many a jilted lover knows, being rejected is a real pain, new brain imaging research shows

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By Associated Press, Monday, March 28, 5:33 PM

WASHINGTON — The pain of rejection is more than just a figure of speech.

The regions of the brain that respond to physical pain overlap with those that react to social rejection, according to a new study that used brain imaging on people involved in romantic breakups.

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"These results give new meaning to the idea that rejection 'hurts,'" wrote psychology professor Ethan Kross of the University of Michigan and his colleagues. Their findings are reported in Tuesday's edition of Proceedings of the National Academy of Sciences.

Co-author Edward Smith of Columbia University explained that the research shows that psychological or social events can affect regions of the brain that scientists thought were dedicated to physical pain.

In a way, we're saying "it's not a metaphor," Smith said in a telephone interview.

The study involved 40 volunteers who went through an unwanted romantic break-up in the previous six months and who said thinking about the break-up caused them to feel intensely rejected.

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Functional MRI's were used to study their brains in four situations: When viewing a photo of the ex-partner and thinking about the break-up; when viewing a photo of a friend and thinking of a positive experience with that person; when a device placed on their arm produced a gentle, comforting warmth, and when that device became hot enough to cause pain, though not physical damage.

The two negative situations — thinking about the loss of a partner and the burn — caused response in the overlapping parts of the brain, the study found.

Previous studies had not shown a relationship between physical and emotional pain, but those had used a less dramatic event, such as simply being told someone doesn't like you, Smith said.

In this case, the volunteers were people who had actually been rejected and were still feeling it, he said.

There is evidence that emotional stress, such as the loss of a loved one, can affect people physically, and Smith said studies like this may help researchers devise ways to aid people who are sensitive to loss or rejection.

Online: <http://www.pnas.org>

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