



## Love Hurts. Or at least being romantically rejected does—just like getting punched in the gut

By Alice Park

THE VERY LANGUAGE OF LOVE IS PAINFUL: YOU HAVE A CRUSH; YOU'RE swept off your feet; your heart is broken. This turns out not to be poetic license: according to the latest research, the brain doesn't distinguish much between the extreme emotional pain of social rejection and the physical pain of injury. Both experiences can activate the same neural pathways, which is why when your lover dumps you, it can hurt in a real, visceral way.

Previous studies have documented the overlap in brain activity between emotional and physical pain, but those focused mainly on the regions that layer on feelings *about* bodily pain—that is, the “I don't want to feel that again” response after we stub a toe. Until now, no studies linked purely emotional sources of pain like heartache or grief with the neural networks that register, say, the sting of a burned hand.

For the new study, scientists recruited 40 volunteers who were recently and abruptly rejected by their partners. Using functional MRI images, the researchers showed that when the jilted participants looked at pictures of their exes, their brains engaged the same pain circuits that lit up when they were probed with a heat sensor (equivalent to holding a hot cup of coffee). The researchers think the intensity of the subjects' emotional hurt activated the brain's sensory pain pathways that are normally tapped only by physical stimuli such as a slap or searing heat.

What does this mean for treating the pain of rejection? Unfortunately, antidotes for physical discomfort, like aspirin, probably won't help the lovelorn much, since any reminder of the ex simply reignites the suffering. So for now, time may still be the most powerful healer. But these findings at least suggest that the hurt isn't entirely in your head.