

# 'Emotions increase or decrease pain': researchers

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Getting a flu shot this fall? Canadian scientists have found that focusing on a pretty image could alleviate the sting of that vaccine. According to a new Université de Montréal study, published in the latest edition of the *Proceedings of the National Academy of Sciences* (PNAS), negative and positive emotions have a direct impact on pain.

"Emotions - or mood - can alter how we react to [pain](#) since they're interlinked," says lead author Mathieu Roy, who completed the study as a Université de Montréal PhD student and is now a post-doctoral fellow at Columbia University. "Our tests revealed when pain is perceived by our brain and how that pain can be amplified when combined with negative emotions."

As part of the study, 13 subjects were recruited to undergo small yet painful electric shocks, which caused knee-jerk reactions controlled by the spine that could be measured. During the fMRI process, subjects were shown a succession of images that were either pleasant (i.e. summer water-skiing), unpleasant (i.e. a vicious bear) or neutral (i.e. a book). Brain reaction was simultaneously measured in participants through functional magnetic resonance imaging (fMRI).

The fMRI readings allowed the scientists to divide emotion-related brain activity from pain-related reactions. "We found that seeing unpleasant pictures elicited stronger pain in subjects getting shocks than looking at pleasant pictures," says Dr. Roy.

The discovery provides scientific evidence that pain is governed by mood and builds on Dr. Roy's previous studies that showed how pleasant music could decrease aches. "Our findings show that non-pharmaceutical interventions - mood enhancers such as photography or music - could be used in the healthcare to help alleviate pain. These interventions would be inexpensive and adaptable to several fields," he stresses.

More information: The study, "Cerebral and spinal modulation of [pain](#) by emotions," published in *PNAS*, was authored by Mathieu Roy, Piché, Mathieu, Chen, Jen-I, Isabelle Peretz and Pierre Rainville of the Université de Montréal.

Source: University of Montreal ([news](#) : [web](#))

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