



## New Pain Technology

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People who live with chronic pain might soon be able to find relief.

Sufferers of neuropathic pain (who have damaged nerves), nociceptive pain (where pain receptors are activated in an injury but, for some reason, never turn off), somatic pain (related to joint injury or arthritic conditions, and sometimes to muscle pain), or visceral pain (deep pain that originates in one or more of the body's organs) live in a world of constant hurt. In all, it is estimated that 50 million people in the U.S. are impacted, and the traditional treatments are not especially encouraging. The opioid epidemic came about from over-prescription of drug-related treatments; beyond that, there is a hodgepodge of less-than-perfect remedies, including "talk therapy," pain management classes, targeted exercise and changes in nutrition.

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Recently, a research group from the New York University School of Medicine has been approaching the dilemma from a different angle. They've created a device that has been implanted in the brains of laboratory rats, which monitors the anterior cingulate cortex, a strip of the brain that processes pain in both animals and humans. The device listens in on brain signals, and whenever it detects the activation of pain signals, it sends a message to an optical fiber inserted into the brain's prefrontal cortex. The fiber activates neurons which dampen the pain signals where they are processed and experienced.

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There is still a lot of work to do before the same technology will be available to human pain sufferers, but similar technology has already been approved and is used to forestall epileptic seizures before they can get started. The researchers note that the stimulated brain region doesn't generate a sense of euphoria, which was a leading driver of opioid addiction, and it only activates when pain is detected, which lowers the chance that the brain will adapt to the dampening signals and require more and more of them as time goes on.

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Pain can be a useful signal that something is wrong in the body, which is why nobody wants to turn it off completely; indeed, people who cannot feel pain are at much higher risk of injuring themselves than their normal counterparts. But when pain becomes a daily challenge—as it is for a large percentage of the American population—this therapy holds promise of relief.

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**Sources:**

<https://singularityhub.com/2021/06/29/a-new-brain-implant-automatically-detects-and-kills-pain-in-real-time/>

<https://www.practicalpainmanagement.com/patient/resources/pain-self-management/chronic-pain-explained>

<https://www.practicalpainmanagement.com/patient/resources/understanding-pain/types-chronic-pain>

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