

Understanding pain exacerbation with opioid use

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A new study published in *JNeurosci* advances understanding of how the potent opioid analgesic fentanyl can increase pain sensitivity in animals. These findings could inform the development of treatments for chronic pain that minimize the side effects of these powerful pain-relieving drugs.

Fentanyl, a class of opioids more potent than morphine and heroin, has taken center stage in the United States' deadly opioid epidemic. When prescribed and used appropriately, fentanyl is a powerful, fast-acting painkiller. Paradoxically, it can also increase patients' pain sensitivity. This serious adverse effect makes it difficult to manage the drug's risks and benefits.

To better understand the neurobiological basis of such heightened [pain sensitivity](#), Jon Levine, Dionéia Araldi and colleagues injected rats with fentanyl and monitored the amount of pressure on the paw that the animals could tolerate. The researchers found that fentanyl can lower [pain threshold](#) in rats. In studies of the underlying mechanism they found that when calcium signaling inside sensory neurons is blocked, this so-called opioid-induced priming effect is prevented, and experimental animals do not become more sensitive to painful stimuli.

More information: Fentanyl Induces Rapid Onset Hyperalgesic Priming: Type I at Peripheral and Type II at Central Nociceptor Terminals, *JNeurosci* (2018). [DOI: 10.1523/JNEUROSCI.3476-17.2018](https://doi.org/10.1523/JNEUROSCI.3476-17.2018)

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