

# Insomnia drug helps prevent oxycodone relapse, study shows

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A good night's sleep has many proven health benefits, and a new Scripps Research study suggests one more: preventing opioid relapse.

In the new study, [published online in \*Neuropharmacology\*](#), scientists gave an experimental insomnia treatment to rats experiencing oxycodone withdrawal. The researchers found that the animals were far less likely to seek out drugs again in the future—even after ending the treatment. These findings could eventually lead to therapies to help prevent opioid addiction or relapse in humans.

"These results are very encouraging," says Rémi Martin-Fardon, Ph.D., associate professor of molecular medicine at Scripps Research and senior author of the study. "We hope in the future this compound may be useful for not only treating [sleep disorders](#), but also drug use disorders."

Opioids including oxycodone are used to treat pain, but carry a risk of misuse and opioid dependence in people who use them regularly. In 2021, [opioid overdoses](#) killed more than 80,000 people in the United States, according to the U.S. Centers for Disease Control and Prevention (CDC).

Researchers know that during [opioid withdrawal](#)—which can last for days in people who are dependent on the drug—people experience a range of symptoms including nausea, vomiting, sweating, chills, pain, anxiety and insomnia.

Martin-Fardon and Jessica Illenberger, Ph.D., a postdoctoral research fellow at Scripps Research and first author of the study, wondered whether treating the insomnia associated with opioid withdrawal might help prevent relapse. This is why they turned to an experimental insomnia drug known as DORA-12, which is like the FDA-approved drug Belsomra (suvorexant).

"A lot of drug use and relapse are primarily motivated by a person's desire to alleviate these [withdrawal symptoms](#)," says Illenberger. "The idea behind testing this treatment was that if people or animals sleep

better during that withdrawal period, then when they wake up, perhaps they won't feel so much craving and won't be as likely to relapse."

In [a previous study](#), the researchers found that suvorexant decreased the amount of oxycodone that opioid-dependent rats self-administered during binge sessions. In the new study, the team focused more on the withdrawal period from oxycodone.

During a 14-day withdrawal period from oxycodone, opioid-dependent rats showed expected withdrawal symptoms, including disturbed [circadian rhythms](#) like those seen in insomnia—marked by an increase in activity, eating and drinking during their usual sleeping hours. However, rats given DORA-12 during this [withdrawal](#) period showed patterns of behavior and physiological activities more like animals not dependent on opioids.

In addition, when once again exposed to cues they had learned to associate with oxycodone, the rats treated with DORA-12 did not show drug-seeking behavior. Signs of opioid addiction in the brain, characterized by the number of certain neuron types, were also reversed by DORA-12, and the effect persisted even if DORA-12 had not been given for days.

Interestingly, Martin-Fardon's group saw slightly different results between male and female animals. Although all rats had less opioid relapse when treated with DORA-12, the drug was less effective in female animals and the changes to neuron numbers seemed to be more pronounced in males.

"I think this is something really important to follow up on," says Martin-Fardon. "It may be that women are much more sensitive to the effect of [oxycodone](#) and different doses of treatment are required."

More studies are needed to show the utility of DORA-12 or similar insomnia drugs to treat [opioid addiction](#) in people. Already, clinical researchers at the Pearson Center for Alcohol and Addiction Research are studying the use of the insomnia drug suvorexant in people with alcohol use disorder.

**More information:** Jessica M. Illenberger et al, Daily treatment with the dual orexin receptor antagonist DORA-12 during oxycodone abstinence decreases oxycodone conditioned reinstatement, *Neuropharmacology* (2023). [DOI: 10.1016/j.neuropharm.2023.109685](https://doi.org/10.1016/j.neuropharm.2023.109685)

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