

# Research advances understanding of opioid addiction in face of public health crisis

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As the United States grapples with the devastating effects of an opioid epidemic, researchers are making progress in advancing our understanding of opioid addiction-related health issues, according to studies presented today at Neuroscience 2017, the annual meeting of the Society for Neuroscience and the world's largest source of emerging news about brain science and health.

Approximately 90 Americans die every day from [opioid](#) overdoses, according to the National Institute on Drug Abuse, creating what public agencies have referred to as both an epidemic and a crisis. Opioids, which include prescription pain medications such as morphine and oxycodone as well as illegal substances such as heroin and fentanyl derivatives, alleviate pain and can induce euphoria by interacting with receptors on nerve cells in the nervous system. They also have high abuse potential, meaning that clinical uses of opioids bear added risks associated with substance use-disorders, physical dependence, and withdrawal.

Today's new findings show that:

- A [common genetic variation](#) in an opioid receptor gene protects against behavioral effects of prenatal opioid exposure in mice (Shivon April Robinson, abstract 702.15, see attached summary).
- Opioid addiction heightens fear and anxiety responses to traumatic events in mice, potentially explaining the prevalence of [post-traumatic stress disorder](#) in individuals dependent upon

opioids (Zachary T. Pennington, abstract 247.08, see attached summary).

- "Erasing" drug memories using a novel procedure reduces heroin cravings and relapses when administered within one hour of methadone treatment (Ping Wu, abstract 515.03, see attached summary).
- Critically ill, full-term infants exposed to opioids through repeated anesthesia and prolonged sedation show signs of [abnormal brain development](#) within the first year of life (Dusica Bajic, abstract 284.04, see attached summary).

Other recent findings discussed show that:

- A diet rich in high fructose corn syrup reduces neural and behavioral responses to oxycodone in rats, potentially encouraging overuse of the drug and increasing risk of dependence (Meenu Minhas, abstract 418.16, see attached summary).

"Given the current public health crisis as well as the medical importance of safe, effective pain medication, we need to learn as much as possible about the effects and interactions of opioids with the brain and nervous system," said press conference moderator Edward Bilsky, PhD, provost and professor of biomedical sciences at Pacific Northwest University of Health Sciences. "These new findings hold promise for advancing treatment options for substance-use disorders and also informing clinical uses of these drugs as analgesics in the treatment of acute and chronic pain."

**More information:** [www.brainfacts.org/](http://www.brainfacts.org/)

Provided by Society for Neuroscience

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