

Brain study shows fentanyl kills by stopping breathing

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© Arek Socha/Pixabay Fentanyl begins to impair

breathing about 4 minutes before there is any change in alertness and at 1,700 times lower concentrations than other sedating drugs, a new study found. Photo by Arek Socha/Pixabay

[Fentanyl](#), the synthetic opioid that's driving a surge in drug overdose deaths, kills by stopping breathing even before someone loses consciousness, a new study reveals.

To come to that conclusion, researchers ran [electroencephalogram \(EEG\) tests](#) on 25 patients who were undergoing operations lasting 2 hours or more. Pharmaceutical fentanyl can be used to supplement sedation and to relieve severe pain during and after surgery, the researchers explained.

"We found that fentanyl produces a specific EEG signature distinct from other anesthetic drugs, which could make it possible to monitor its effects to enable safer, more precise and personalized opioid administration," said senior study author Patrick Purdon, of Massachusetts General Hospital in Boston.

"For example, think of patients with [COVID-19](#) who are sedated in the ICU or patients undergoing surgery -- currently there is no way to know if opioids are working in these unconscious patients," Purdon said in a hospital news release.

The EEG tests also revealed that fentanyl begins to impair breathing about 4 minutes before there is any change in alertness and at 1,700 times lower concentrations than other sedating drugs.

"This explains why [fentanyl is so deadly](#): it stops people's breathing before they even realize it," Purdon added.

No amount of fentanyl is safe outside of a clinical setting, the researchers said, and because fentanyl is likely to remain a major risk among illicit drug users, there is a need for increased availability of medical observation or supervision units, the overdose antidote [naloxone](#) and other tools to reduce the risk of death among people with [substance use disorder](#).

The report was published online Tuesday in [PNAS Nexus](#).

More information : For more on fentanyl, head to the [U.S. National Institute on Drug Abuse](#).

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