



# Gas Station Heroin: The Dangers of Tianeptine

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### Background

Tianeptine, a drug commonly referred to as “gas station heroin”, is an emerging risk to public health due to its potential for misuse and widespread availability. Tianeptine is an atypical tricyclic antidepressant first approved in the 1980’s in several European countries for use in treating major depressive disorder (MDD). **The Food and Drug Administration (FDA) has not approved tianeptine for medical use in the U.S., however it can be purchased over the counter as a nootropic agent<sup>1</sup>.** Nootropics are substances often used due to purported ability to improve cognitive function and mood. Tianeptine is marketed as a dietary supplement and sold in gas stations, convenience stores, and online. **Currently, only a few states have imposed regulations and bans on the sale of tianeptine.**

### Mechanism

Gas station heroin differs from many other first-line pharmacological treatments for MDD. Drugs classified as serotonin and norepinephrine reuptake inhibitors (SNRIs) and selective serotonin reuptake inhibitors (SSRIs) are commonly used for treating MDD<sup>2</sup>. It was believed that unlike other serotonergic drugs that inhibit serotonin reuptake,

tianeptine was unique in that it *stimulates* the reuptake of serotonin<sup>2</sup>. Research now shows that tianeptine's mechanism of action is glutamate modulation<sup>2</sup>. Tianeptine is a mu-opioid receptor agonist and weakly affects the delta-opioid receptor<sup>2</sup>. Its' effects trigger a dopamine release, leading to a high potential for abuse<sup>2</sup>.

## Effects & Symptoms

Tianeptine misuse can cause adverse health effects mimicking TCA/serotonin toxicity such as sweating, high blood pressure, rapid heartbeat, respiratory depression, coma, or death<sup>4</sup>. Withdrawal symptoms include anxiety, depression, chills, and muscle pain. **Protracted withdrawal symptoms are also associated with tianeptine<sup>3</sup>.**

The dangers of tianeptine stem from its risk of misuse due to its effects on opioid receptors, similar to other opioid agonist drugs. A clinical dose is typically between 25-50 mg per day, but when used for recreational purposes, individuals have taken doses upwards of 3000mg per day to experience euphoric effects<sup>2</sup>. Reports suggest that one trajectory for misuse of tianeptine is for management of withdrawal symptoms for individuals with opioid use disorder<sup>3</sup>.

## Treatment

Due to its effects on opioid receptors, opioid antagonist medications like naloxone are suggested for treating tianeptine overdose<sup>5</sup>. **Studies have been conducted showing success in using buprenorphine to treat tianeptine withdrawal symptoms.** One study reported an individual using tianeptine for 3 years and unable to taper use was given buprenorphine (12mg) sublingually for one week and could stop tianeptine use completely by day 145. The individual's withdrawal symptoms based on the COWS

(Clinical Opiate Withdrawal Scale) decreased after initiation of buprenorphine, and between day 14-28, there were no withdrawal symptoms or cravings reported<sup>5</sup>.

## Resources

Gas station heroin use has become more common, with increased cases of tianeptine exposure being reported in the U.S. A CDC (Centers for Disease Control) report highlighting data from National Poison Data System showed that between 2014 and 2017, there were 207 tianeptine exposure cases reported compared to 11 total cases between 2000 and 2013<sup>4</sup>.

**It is recommended to use naloxone (Narcan) to treat a tianeptine overdose.** To access naloxone, [click here](#).

## Sources

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