

Opioid Withdrawal

Opioid withdrawal is the brain's alarm center screaming because the drug that was holding down the panic button is suddenly gone.

THE ONE-LINE TRUTH

When someone stops opioids suddenly, their brain's alarm system loses its brake and fires wildly — causing sweating, big pupils, stomach cramps, restlessness, and deep craving — starting 6-12 hours after short-acting drugs or 24-72 hours after long-acting ones like methadone.

The chain — how it unfolds

1. Opioid stopped → locus coeruleus loses its brake — why: The daily opioid was holding down the brain's main alarm center (locus coeruleus). When the drug is suddenly gone, that cluster of nerve cells — now extra-sensitive from weeks or months of trying to overcome the drug — fires wildly and floods the body with norepinephrine, the chemical that says 'danger, wake up, move NOW.'
2. Norepinephrine flood → sympathetic storm — why: Norepinephrine activates the sympathetic nervous system (the 'fight or flight' branch). Heart rate and blood pressure climb, pupils dilate, the gut speeds up (cramps and diarrhea), sweat glands open, and muscles tense. The person feels like they are in constant danger even though there is no outside threat.
3. Sympathetic storm → physical withdrawal symptoms — why: The body tries to cope: sweating and tears try to wash out stress chemicals, yawning tries to reset breathing and alertness, goosebumps (piloerection) try to generate heat, diarrhea tries to empty the gut quickly, and restlessness (akathisia) is the brain's inability to settle because the 'calm down' signal is missing.
4. Missing opioid signal → reward system in crisis → intense craving — why: The ventral tegmental area and nucleus accumbens (the brain's reward and motivation centers) have learned that opioids are the solution to distress. Without the drug, these areas send overwhelming 'seek the drug NOW' signals — this is craving, and it feels as urgent as hunger or thirst, making it nearly impossible to think about anything else.

5. Craving + misery → high risk of relapse in an unsafe setting — why: The person feels desperate to stop the suffering, and the brain is screaming that opioids are the answer. Many people use again without telling anyone, often alone, and because their tolerance has dropped, the dose that used to be safe can now stop their breathing (overdose). This is why supervised withdrawal or medication treatment (buprenorphine, methadone) is critical — it gives the brain a safer way to rebalance.
6. Without treatment → slow rebalancing over weeks, or cycle of use and withdrawal — why: If the person rides out withdrawal without medication, the locus coeruleus will eventually calm down and the opioid receptors will slowly return toward normal sensitivity — but this takes weeks, and during that time the person is miserable, exhausted, and at high risk of giving up. Many end up in a repeating cycle of use, withdrawal, and use again. Medication (buprenorphine or methadone) breaks the cycle by giving the brain a steady, controlled opioid signal so the person can stabilize, rebuild their life, and address the reasons they started using in the first place.

Spot it — what you see, and why

- Muscle aches and bone pain: Opioids normally block pain signals by attaching to receptors in the spinal cord and brain. When the drug leaves, those receptors wake up all at once and fire pain signals even when there is no injury, so the body feels sore all over.
- Goose bumps and sweating: Opioids quiet the autonomic nervous system (the autopilot that runs heart rate, sweating, and temperature). Without the drug, that system revs into overdrive and the skin breaks out in cold sweat and goose bumps, like a thermostat swinging wildly.
- Nausea, vomiting, and diarrhea: Opioids slow the gut by blocking receptors in the stomach and intestines. When they leave, the gut speeds up too fast—food rushes through, triggering cramps, nausea, vomiting, and watery diarrhea.
- Dilated pupils (big, wide pupils): Opioids shrink the pupils by calming the muscle in the iris. When the drug stops, that muscle relaxes and the pupils open wide, often staying large even in bright light.
- Fast heart rate and high blood pressure: Opioids dampen the sympathetic nervous system (the body's gas pedal for fight-or-flight). Without the brake, norepinephrine (a stress chemical) floods out, making the heart race and blood pressure climb.
- Restlessness and trouble sleeping: Opioids boost dopamine (a feel-good messenger) and calm the brain's arousal centers. When the drug leaves, dopamine drops and the locus coeruleus (a wakefulness hub in the brainstem) fires non-stop, so the person cannot sit still or fall asleep.

Red flags — act now

- Severe dehydration from vomiting and diarrhea (dry mouth, no urine, dizziness when standing)
- Chest pain or very fast heart rate over 120 that does not slow down
- Confusion, seizure, or passing out (rare in pure opioid withdrawal but may mean another drug or medical problem)
- Suicidal thoughts or plan to harm self
- Using alone with no one nearby in case of accidental overdose if the person relapses

Treat it — in this order

1. Buprenorphine 8–16 mg sublingual (under the tongue) once COWS score ≥ 8 (moderate withdrawal) → Buprenorphine is a partial agonist at mu opioid receptors (the main docking spots opioids use). It sticks tightly to those receptors and sends a weak 'calm down' signal, just strong enough to shut off the locus coeruleus alarm and stop the flood of norepinephrine. Within 30–60 minutes, pupils shrink, goosebumps fade, cramping eases, and the person feels the panic lift. It blocks other opioids from attaching, so cravings drop.
2. Clonidine 0.1–0.3 mg by mouth every 6–8 hours for 7–10 days → Clonidine is an alpha-2 agonist. It acts on the locus coeruleus (the brainstem alarm center) and tells it to quiet down, cutting the release of norepinephrine (the chemical that drives sweating, fast heart, high blood pressure, and muscle aches). Heart rate and blood pressure drop, sweating stops, and the jittery feeling fades. Clonidine does NOT touch opioid receptors, so it works alongside buprenorphine.
3. Loperamide 2–4 mg by mouth up to three times daily, PLUS ondansetron 4–8 mg by mouth or IV every 8 hours → Loperamide binds to opioid receptors in the gut wall (not the brain, because it cannot cross the blood-brain barrier) and slows intestinal movement, stopping diarrhea within hours. Ondansetron blocks 5-HT₃ receptors in the brainstem's vomiting center (the area postrema) and in the gut, cutting nausea and vomiting. Together they let the person eat, drink, and sleep without racing to the bathroom.
4. Connect to long-term buprenorphine or methadone maintenance, PLUS same-day linkage to housing support, case management, and weekly counseling (motivational interviewing or cognitive-behavioral therapy) → Long-term opioid agonist therapy keeps opioid receptors steadily occupied, so the brain stops screaming for the drug and the person can think clearly. The reward circuit (ventral tegmental area and nucleus accumbens) slowly rewires to expect safety and dopamine from stable routines, relationships, and small wins — not from using. Housing and therapy rebuild the scaffolding of life (a safe place to sleep, people who care, reasons to stay sober) so the brain learns that survival does not depend on opioids.

5. Screen for and treat co-occurring depression, anxiety, or PTSD (start with therapy first; consider SSRI or SNRI only after withdrawal stabilizes, usually week 2–4) → Many people start using opioids to numb sadness, flashbacks, or panic. Treating the hidden mood disorder removes the invisible gas pedal on craving. An SSRI (like sertraline) or SNRI (like venlafaxine) boosts serotonin and norepinephrine in the prefrontal cortex and amygdala, steadying mood and fear over 4–6 weeks. Therapy (especially cognitive-behavioral therapy or trauma-focused work) gives the person new tools to handle the feelings opioids were silencing.

Your top priorities at the bedside

1. Check vital signs every 2–4 hours and watch for heart rate over 120, systolic blood pressure over 160, or oxygen saturation below 92 percent. — why: Opioid withdrawal activates the sympathetic nervous system (the body's fight-or-flight alarm), raising heart rate and blood pressure; very high numbers can cause stroke or heart attack, and low oxygen may mean the person is using other drugs or has pneumonia (lung infection).
2. Use the COWS score every 4 hours and give buprenorphine only when the score is 8 or higher. — why: Buprenorphine is a partial agonist (a drug that partly turns on opioid receptors in the brain) and kicks full opioids off the receptors; if given too early while full opioids are still attached, it causes precipitated withdrawal with sudden severe symptoms, so we must wait until moderate withdrawal starts.
3. Start IV normal saline at 125–150 mL per hour if the patient has vomited more than three times, has diarrhea more than five times, or has not urinated in six hours. — why: Vomiting and diarrhea lose water and electrolytes fast, dropping blood volume and blood pressure, which cuts blood flow to the kidneys and can cause acute kidney injury (sudden kidney failure); IV fluids restore volume and prevent organ damage.