Phalanx Labs

Method paper

Research paper · Version 1.0

How to stop using cocaine

Why cocaine is so hard to give up for people who are in control everywhere else, why it is so tied to drinking, what it does to the heart, why the craving can grow in the months after the last line, and what a staged 90-day method targets, day by day

Phalanx Labs

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Where each section sits in the 90 days

Days 1 to 30	Days 31 to 60	Days 61 to 90
Brain chemistry restabilization	Impulse control	Identity rewiring

1 How do you stop using cocaine? The short answer — Background

2 Is it safe to stop using cocaine suddenly? — Before Day 1

3 Why is cocaine so addictive? — Background

4 Why can't I stop using cocaine when I'm in control everywhere else? — Background

5 Why do I want cocaine every time I drink? — Day 15

6 What does cocaine do to your heart, and is mixing it with alcohol dangerous? — Day 6

7 What does a cocaine comedown feel like, and how long does withdrawal last? — Days 3 to 5

8 How long do cocaine cravings last? — Days 31 to 60

9 What triggers cocaine cravings? — Days 31 to 38

10 Can I just use cocaine at weekends or on special occasions? — Days 11 to 15

11 How long does it take for your brain to recover after quitting cocaine? — Days 17 to 25

12 How do I stop using cocaine when my friends still use it? Days 61 to 70

13 Is there medication for cocaine addiction, and what treatment works? Background

14 What should I do if I use cocaine again after stopping? Days 45 to 52

15 What does the Phalanx program target for someone stopping cocaine, and when? Days 81 to 90

16 What do our results show, and what can't this paper tell you? Background

17 When should you get help straight away, and what is this program not? Background

Sections	Figures	Tables	References	Reading time
17	14	5	81	90 min

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Abstract

To stop using cocaine for good, change the nights and the triggers that lead to it, not just how hard you try. Cocaine hits fast and fades fast, so one line leads to the next. For most people it's tied to drinking: the decision to buy usually gets made a few drinks in, so stopping the drinking that comes before it is part of stopping cocaine. People who stop for good fix their sleep and routine first, stop cocaine and the drinking around it on the same day, delete the numbers and cut the routes it came through, plan what they'll do about every trigger that's left, and keep that plan going for months, because the craving set off by triggers can get stronger in the first months after the last use before it fades. Cocaine is hard on the heart, especially with alcohol. If you get chest pain or a racing heart after using, or have thoughts of harming yourself, get emergency help now. If you also drink heavily every day, talk to a doctor before you stop drinking.

This paper explains each part of that answer and the research behind it. It covers whether it's safe to stop suddenly, why cocaine is so addictive, why it's hard to stop when you're in control everywhere else, why you want it every time you drink, what it does to your heart, what the comedown and withdrawal feel like, how long cravings last, what sets them off, whether using only at weekends works, how long your brain takes to recover, how to stop when your friends still use, whether there's medication for it, and what to do if you use again. Each section starts with a short, direct answer. The detail and the evidence follow.

The last part of the paper describes what the Behavior Control System, the 90-day method Phalanx Labs runs with every client, targets for someone stopping cocaine and on which days. Of the 290+ clients we have worked with across 12 countries over 7 years, 98.4% had already tried and failed to stop before they came to us. We report a 97% success rate, defined as the share of clients who ran the program and stayed off the habit through the program and the six months of aftercare that follow it, and we explain how it is tracked and what it cannot show. It comes from client follow-up, not from a controlled trial. The program is not therapy, clinical care or medical treatment, and it does not replace a doctor or a crisis service.

Keywords

how to stop using cocaine | quit cocaine | cocaine cravings | cocaine withdrawal | cocaine comedown | cocaine and alcohol | cocaethylene | cocaine and the heart | dopamine transporter | incubation of craving | binge and crash | trigger reactivity | habit | relapse prevention | recovery identity

Section 01

How do you stop using cocaine? The short answer

In brief

You stop using cocaine for good by changing the nights that lead to it: the drinking before it, the contacts it comes through, the people and places around it, and the plan you have for the moments you want it.

Trying harder on the night is the approach that fails most often. Cocaine is hard on the heart, so read the safety note first.

Safety note

Cocaine can cause a heart attack, a stroke or a dangerous heart rhythm, even in young, fit people, and the risk is highest in the hour after using. Alcohol makes it worse. If you or someone with you has chest pain, a racing or irregular heartbeat, a sudden severe headache, confusion, a seizure or trouble breathing after using, call emergency services now. The low mood after stopping can be severe. If you have thoughts of harming yourself, contact emergency services or a crisis line now: in the US, call or text 988; in the UK and Ireland, call Samaritans on 116 123; in India, call Tele-MANAS on 14416. Street cocaine can contain fentanyl, and after a break your tolerance is lower, so a relapse carries more risk than the old routine did. If you also drink heavily every day, talk to a doctor before you stop drinking, because stopping alcohol suddenly can be dangerous. The same goes for benzodiazepines or other sleeping or anxiety medication. Sections 2, 6 and 17 explain why.

Most people who want to stop using cocaine have already tried. Of the 290+ clients we have worked with across 12 countries over 7 years, 98.4% had already tried and failed to stop a habit before they came to us. Attempts to stop cocaine take familiar forms: a rule about weekends only, a promise after a bad Sunday, a number deleted and then found again in an old message. They often don't hold, and the research shows how common that is. In a national US study of 708 people treated for cocaine dependence, cocaine use fell sharply after treatment and stayed lower five years later, but 25% were still using it every week at five years[1]. Across studies of different habits, the curve that describes relapse has the same shape: losses are steepest soon after stopping and slow down as time without the habit builds up[2].

The usual explanation for those failures is a lack of willpower. That explanation is wrong in a useful way. Willpower, in the sense of deliberate control by the prefrontal cortex, is real, but it's the faculty most easily taken offline by the conditions in which most cocaine use happens: stress, tiredness, poor sleep, alcohol and the presence of something that has been linked to using before[3-5]. Cocaine adds problems of its own. It reaches the brain within minutes and fades within the hour, so a single dose sets up the next one[6, 7]. It's usually taken with alcohol, which lowers the brake before the first line is offered[8]. And the decision not to use is made by a rested, sober person on Monday and has to be carried out by a tired, stressed person three drinks into Friday. People are poor at predicting how differently they'll feel in that second state[9].

Addiction research explains what's happening underneath. Koob and Volkow describe addiction as a cycle of three stages, each run by different brain systems: using and its reward, in which dopamine teaches the habit and turns it into routine; withdrawal and low mood, in which the reward system

responds less and the brain's stress systems take a bigger role; and preoccupation, in which craving rises and the prefrontal cortex can't hold it back[10]. Cocaine runs each stage harder and faster than most drugs. It blocks the system that clears dopamine away[11]. It leaves heavy users with a reward system that responds less[12]. It ties itself to drinking, to nights out and to particular people. And the craving set off by those triggers can grow in the first months after the last use, when most people think the hard part is over[13].

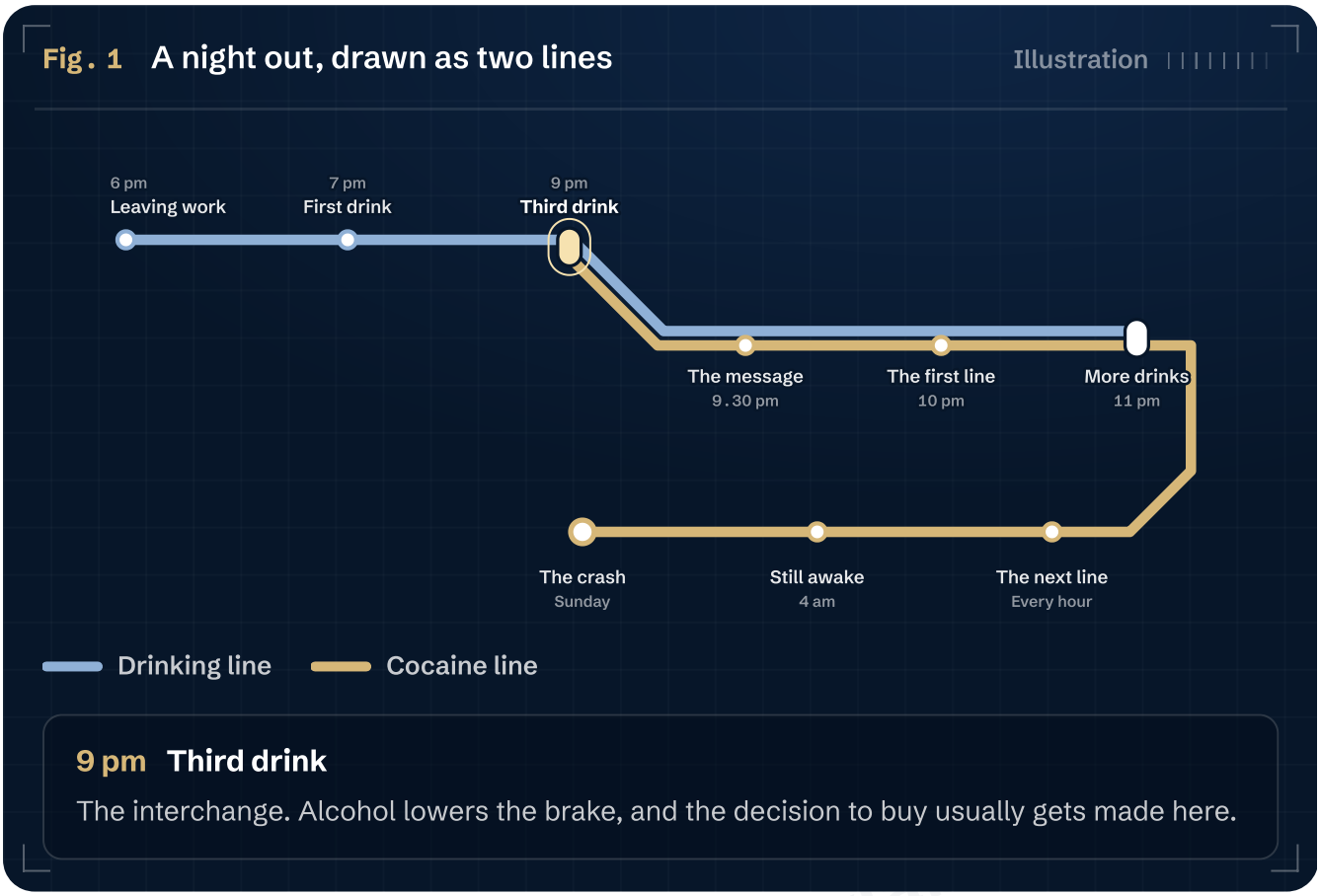


Figure 1. A typical night that ends in cocaine, drawn as a transit map: the drinking line, the cocaine line and the interchange where they meet, against a planned night that never reaches the interchange. An illustration, not data. Each link is cited where the paper explains it: alcohol before a relapse in Section 5, the speed of the high in Section 3, cocaethylene in Section 6 and the crash in Section 7.

Table 1. Common ways people try to stop or control cocaine use, what each one changes, and what each one leaves in place.

Attempt	What it changes	What it leaves in place
Only at weekends, or only on special occasions	How often	Every weekend reinforces the link between the night out and the drug. The rule is applied a few drinks in, by the person least able to keep it.
Stopping, but still drinking	The drug, not the night	Alcohol is the most common thing that comes before a cocaine relapse (Section 5). The decision gets made at the third drink.
Deleting the dealer's number	One route, for a while	The number is still in old messages and in friends' phones. Other routes, the cash and the nights out are all still there.
Setting a limit on the night	How much	Each line fades fast and does less than the one before, which pushes toward the next (Sections 3 and 10).
Stopping after a bad comedown	Motivation, for a few days	The crash passes. The flat days that follow, and the triggers that come with the next weekend, are left in place (Section 7).
Waiting for the craving to fade	Nothing structural	The craving set off by triggers can grow in the first months after stopping, so the risk is often highest just when the attempt feels safe (Section 8).

The rest of this paper takes the questions people ask about stopping cocaine one at a time. Section 2 answers whether it's safe to stop suddenly. Sections 3 and 4 explain why cocaine is so addictive and why it's hard to stop when you're in control everywhere else. Sections 5 and 6 deal with cocaine and drinking, and with what cocaine does to the heart. Section 7 describes the comedown and withdrawal, Section 8 how long cravings last and Section 9 what sets them off. Section 10 asks whether using only at weekends works, Section 11 how long the brain takes to recover, Section 12 how to stop when friends still use, Section 13 whether there's medication for it and Section 14 what to do after using again. Section 15 sets out what the Behavior Control System targets for someone stopping cocaine, day by day, Section 16 reports our results and the limits of this paper, and Section 17 says when to get help straight away. Where the program is described, we say what each day targets and why. We do not publish how.

Section 02

Is it safe to stop using cocaine suddenly?

Before Day 1

In brief

For most people, yes. Stopping cocaine doesn't cause the dangerous physical withdrawal that stopping heavy drinking can. The dangers are elsewhere: the heart while you're still using, the low mood after you stop, a relapse after a break, and the alcohol or pills that often come with it.

For most people, stopping cocaine on the day you decide is safe, and it's the approach this paper describes. Cocaine doesn't produce the seizures, shaking and delirium that can follow a sudden stop after heavy daily drinking. In the original clinical description of cocaine abstinence, the usual signs of physical withdrawal, such as high blood pressure, a racing pulse, sweating, seizures and cramps, were absent[14], and two later studies that followed people closely through their first 28 days without cocaine found no clear withdrawal pattern of the kind seen with alcohol or opioids[15, 16]. What they found instead was low mood and craving that were worst at the start and eased gradually. That's the part to prepare for, and Section 7 describes it.

Stopping is safe, but four things around it aren't, and each one needs its own plan. The first is the heart. The danger from cocaine to the heart is greatest in the hour after use, not after stopping, and it rises with alcohol (Section 6). Stopping removes that risk. The second is mood. The low, flat weeks after stopping can be severe, and some people have thoughts of harming themselves. That is a reason to get help straight away, not a stage to push through alone. The third is a relapse after a break. Tolerance falls when you stop, so a dose that was routine before can hit harder, and street cocaine is increasingly mixed with other drugs. The fourth is everything taken with it. Many people who use cocaine also drink heavily, and some take sleeping pills or benzodiazepines to come down. Stopping those suddenly can be dangerous, so the stop is planned with a doctor.

2.1 Fentanyl in the supply

In the United States the cocaine supply has changed in ways that make every use, and every relapse, riskier than it was. Of the 70,237 people who died of drug overdoses in the US in 2017, 13,942 deaths involved cocaine, and opioids were involved in 72.7% of those cocaine-involved deaths. The CDC's

analysis concluded that the rise in cocaine-involved overdose deaths from 2012 to 2017 was driven mainly by synthetic opioids[17]. Synthetic opioids such as fentanyl are strong enough that a small amount can stop a person's breathing, and someone who doesn't use opioids has no tolerance to them. The figures are from the US. Other countries' supplies differ, and the point for a reader anywhere is that what's in a bag can't be known from looking at it.

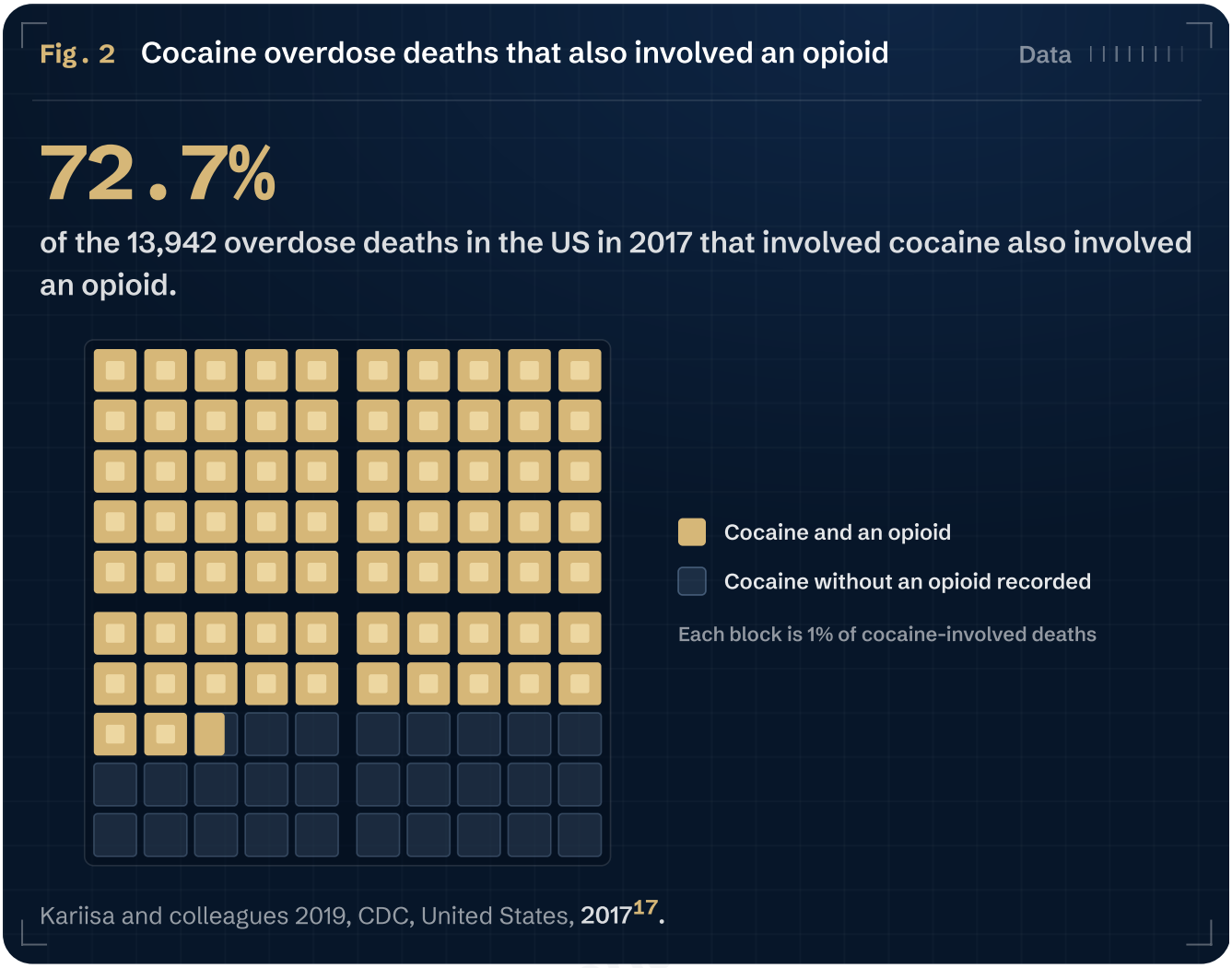


Figure 2. The 13,942 overdose deaths in the United States in 2017 that involved cocaine, drawn as a hundred city blocks, each one 1% of those deaths. Lit blocks are deaths in which an opioid was also involved. The CDC attributed most of the rise in these deaths to synthetic opioids such as fentanyl.

2.2 What a doctor can do

There is no medicine approved to treat cocaine dependence, and a large review of the trials found that most of the medicines tested didn't help (Section 13)[18]. That doesn't mean a doctor has nothing to offer. A doctor can check the heart and blood pressure, especially after chest pain, palpitations or fainting while using. A doctor can plan a safe stop from heavy drinking or from benzodiazepines,

treat depression or anxiety that outlasts the first weeks, and arrange help quickly if thoughts of self-harm appear. Our program does not prescribe or recommend medication. It works alongside whatever medical care a person has, and it never replaces it.

In the program **Before Day 1**

Medical safety

The Root-Cause Diagnostic asks how much and how often the person uses cocaine, what they drink or take with it, whether they have had chest pain, palpitations or other heart symptoms while using, and about low mood or thoughts of self-harm. Anyone who also drinks heavily every day, takes benzodiazepines or has had heart symptoms is told to see a doctor before they begin, and their plan follows that advice.

What this means in practice

You can stop cocaine today. If you also drink every day, especially in the morning, or take pills to come down, see a doctor before you stop those. If you've had chest pain or a racing heart while using, get your heart checked before you start hard training. If your mood drops low enough that you think about harming yourself, get help that day.

Section 03

Why is cocaine so addictive?

In brief

Because it is fast. Cocaine blocks the system that clears dopamine away, the high arrives within minutes, and it fades within the hour. That speed teaches the brain the link between the drug and the reward very quickly, and the fast fade sets up the next dose.

Cocaine is addictive because it delivers a large dopamine signal very quickly and then takes it away almost as quickly. Speed matters in addiction. The faster a drug reaches the brain, the stronger its high and the more it teaches the brain to want it again[6, 19]. And a high that fades within the hour

leaves a person, still out, still drinking, wanting the next one. That's why people say cocaine is hard to have just once.

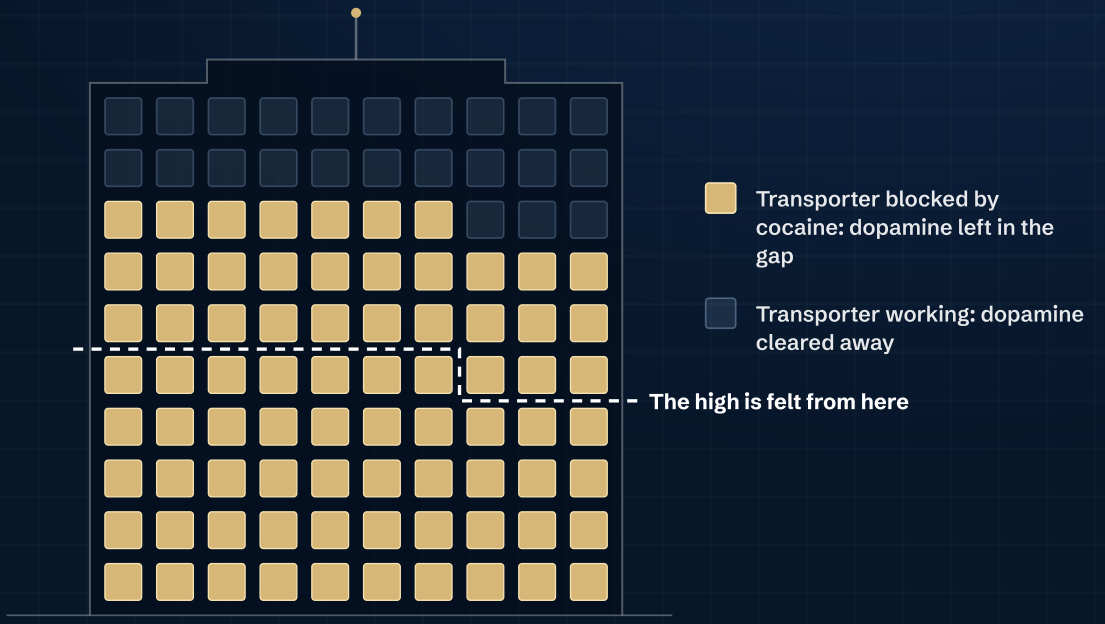
3.1 What cocaine does to dopamine

Dopamine is the chemical messenger the brain uses to mark what's worth chasing. After a nerve cell releases it, a protein called the dopamine transporter pulls it back in, which ends the signal. Cocaine blocks that transporter, so dopamine stays in the gap between cells and keeps signalling. Volkow and colleagues measured this directly with brain imaging in people who regularly used cocaine. Doses in the range people commonly use blocked between 60% and 77% of dopamine transporters. At least 47% had to be blocked before people felt the drug at all, and the stronger the blockade, the stronger the high they reported. The rise and fall of the high followed the rise and fall of cocaine in the striatum, a deep brain region at the center of motivation and reward[11].

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Fig. 3 How much of the dopamine clean-up a dose of cocaine switches off

Data



77%

The high end of what the doses people commonly use blocked.

Volkow and colleagues 1997, PET imaging in people who regularly used cocaine, injected doses of 0.3 to 0.6 mg/kg[11].

Figure 3. The dopamine transporter, drawn as a building of a hundred windows: each window is 1% of the transporters in the striatum, and a lit window is one cocaine has blocked, leaving dopamine in the gap. People felt nothing until at least 47% were blocked. Doses in the range people commonly use blocked 60% to 77%. Measured with brain imaging by Volkow and colleagues (1997).

Cocaine blocks the clean-up systems for two other messengers as well, serotonin and norepinephrine. Norepinephrine is one reason cocaine raises the heart rate and blood pressure (Section 6). But it's the dopamine signal that does the teaching. The brain's dopamine system responds most to rewards that are larger or faster than expected, and it uses that signal to learn what led to them[20]. A drug that makes dopamine surge within minutes, every time, in the same bar, with the same people, after the same third drink, teaches those links faster than almost anything else a person does.

3.2 Fast up, fast down

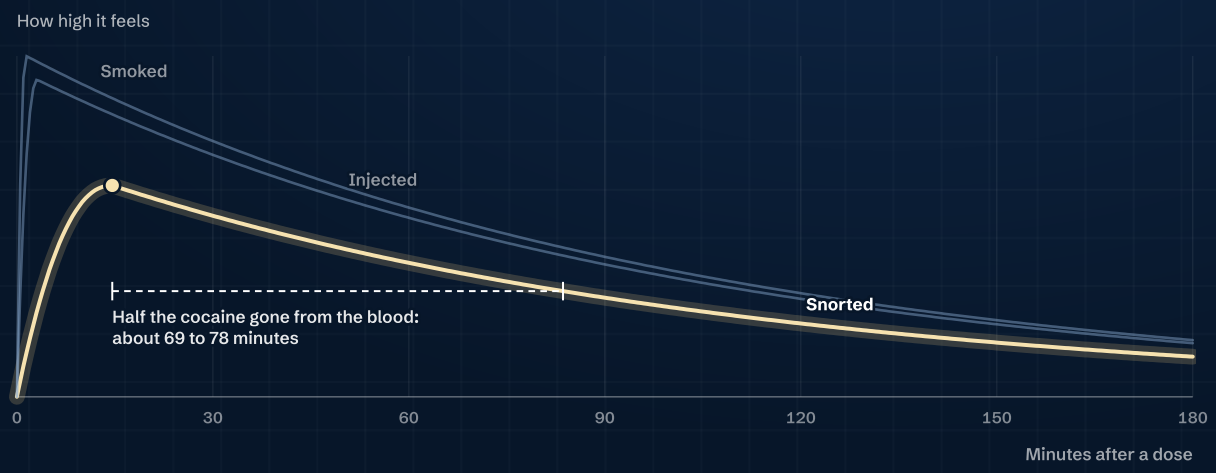
How fast cocaine works depends on how it's taken. In the same imaging study of 32 people who used cocaine, the high peaked 1.4 minutes after smoking, 3.1 minutes after injecting and 14.6 minutes after snorting. The level of dopamine transporter blockade was much the same by every route. What differed was speed, and the faster routes produced a stronger high for the same blockade[6]. In an earlier study, smoked cocaine produced more 'good' effects and more liking than an equal amount injected, which the author read as a sign that smoked cocaine carries a higher risk of dependence[19].

It also leaves fast. When people were given radioactively labelled cocaine and their brains were scanned, it reached its highest level in the striatum 4 to 10 minutes after an injection and had fallen to half that level by about 25 minutes, a time course that matched the rise and fall of the high people described[21]. In the blood, cocaine's half-life, the time it takes for half of it to be cleared, was 78 minutes after an injection and 69 minutes averaged across injected, snorted and smoked cocaine. Snorted cocaine was absorbed more slowly, with about 80% of it reaching the blood[7]. When cocaine was snorted rather than injected, blood levels stayed raised for longer[22], but the high still peaks and starts to fade well within the hour.

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Fig. 4 Minutes to the peak, then the slide

Data



Snorted

Peak high at 14.6 minutes

In the brain, injected cocaine peaked at 4 to 10 minutes and was half gone by about 25 minutes.

Curve shape drawn. Peak times and half-lives are measured.

Peak times: Volkow and colleagues **2000**[6]. Half-life in blood: Jeffcoat and colleagues **1989**[7]. In the brain: Fowler and colleagues **1989**[21].

Figure 4. How quickly the high peaks after cocaine is snorted, smoked or injected, against the time cocaine takes to clear from the blood. The peak times and half-lives are measured; the shape of each curve between them is drawn. The night goes on for hours, and the high lasts minutes, which is the gap the next line fills.

3.3 Why the next line follows

A short high would matter less if each dose did as much as the last. It doesn't. When volunteers were given a snorted dose of cocaine and then an injection an hour later, the injection raised their heart rate less and produced weaker effects than the same injection given after a dummy dose. This acute tolerance had gone within 24 hours[23]. In a laboratory study of binge use, the same pattern held over two and three days of repeated doses: tolerance developed to the heart and to several of the subjective effects, yet the people taking part went on choosing the next dose almost every time it was offered (Section 10)[24]. So each line does a little less than the one before, fades within the hour, and leaves the person in the same room with the same people and more of the night ahead. That combination, rather than any weakness of character, is what turns one line into a bag.

Definition: the dopamine transporter

A protein on dopamine nerve cells that pulls dopamine back in after it's released, ending the signal. Cocaine blocks it, so dopamine keeps signalling. The share of transporters blocked tracked how high people felt[11].

Section 04

Why can't I stop using cocaine when I'm in control everywhere else?

In brief

Because cocaine wears down the systems that control it. Heavy use leaves fewer dopamine receptors, a reward system that responds less, and weaker activity in the parts of the frontal cortex that hold a decision in place. And it turns into a habit that runs on triggers, not on what you decided that morning.

Being in control at work and losing to cocaine on a Friday night aren't a contradiction. The control you use at work runs on the prefrontal cortex, and repeated cocaine use weakens exactly that system's hold over the reward system, while stress, tiredness and alcohol take it further offline on the nights that count[3, 25]. At the same time, cocaine use becomes a habit in the technical sense: something set off by the setting, with little reference to what you decided earlier[26]. The person who decides on Monday and the person standing at the bar on Friday are running on different systems.

4.1 What heavy use does to the reward system

Brain imaging studies of people who use cocaine heavily have found two related changes. The first is fewer D2 dopamine receptors in the striatum. In one study, the reduction was still there three to four months after detoxification, and the people with the fewest receptors had the lowest activity in parts of the frontal lobes, most of all the orbitofrontal cortex and the cingulate, regions that weigh rewards and keep behavior on track[27]. The second is a smaller dopamine response. When people

who had been dependent on cocaine were given a drug that raises dopamine in a similar way, they released less dopamine in the striatum than healthy volunteers and felt less high from it. The one place their brains responded more was the thalamus, and that response tracked their craving[12].

Put together, the picture is a reward system that responds less to everything except the drug and the things linked to it. Ordinary rewards, a good week at work or a good evening with friends, feel flat, while the triggers for cocaine feel louder than ever. Goldstein and Volkow's review of brain imaging in addiction describes how a weakened prefrontal cortex underlies not only compulsive drug use but the other choices that go with it, and the sense that free will has been worn down[25]. That describes what people tell us: they made the decision clearly and meant it, and it didn't survive the night.

4.2 From a choice to a habit

Everitt and Robbins describe addiction as a gradual shift from actions chosen for their outcome to habits set off by their surroundings, with control moving from the prefrontal cortex to deeper structures in the striatum, and with drug-linked triggers gaining direct influence over drug seeking[26]. Cocaine has been studied closely in this respect. In an experiment by Ersche and colleagues, people addicted to cocaine had trouble acting toward a goal, and when their responses were rewarded over a long stretch of training they got faster but stopped responding to whether their actions still paid off. Training that relied on punishment didn't change their behavior at all. The authors concluded that punishment-based approaches don't work and that building better habits to replace the old one is the more promising route[28]. That is one reason the program spends so little time on scaring people and so much on replacing what cocaine did.

Cocaine also moves fast compared with other drugs, which is why so many people are surprised by how quickly a party drug became a problem. In a large US survey, about 5% to 6% of people who used cocaine were dependent within their first year of use, and most cases of cocaine dependence began within three years of first use. For alcohol and cannabis the onset was slower[29]. In another national survey, half of all the cases of cocaine dependence had begun by about four years after first use, against about thirteen years for alcohol and twenty-seven for nicotine[30].

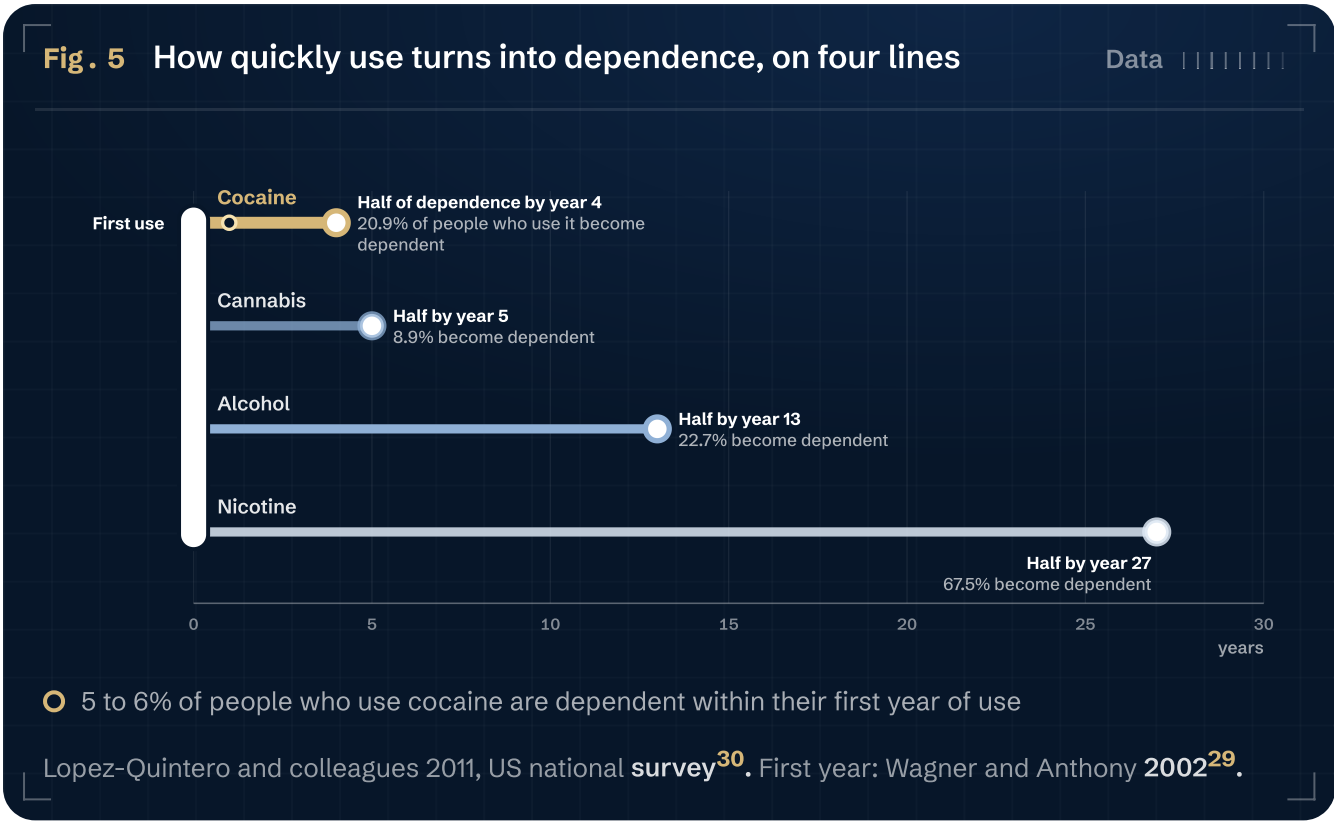


Figure 5. Four substances drawn as four transit lines, each running from first use to the year by which half of all the dependence that would develop on it had begun. Cocaine's line is the shortest. Data from a US national survey (Lopez-Quintero and colleagues, 2011); the first-year figure is from Wagner and Anthony (2002). Most people who use any of these substances never become dependent; the percentages show how many do.

4.3 Why the decision doesn't survive the night

The prefrontal cortex is the faculty most easily taken offline by stress, tiredness and poor sleep[3, 5], and stress also pushes the brain toward habit and away from goal-directed control[4]. Sleep loss matters more than most people think. A single night without sleep reduced dopamine D2 receptor availability in the ventral striatum in a brain imaging study[31], and weakened the prefrontal control over the brain's emotional reactions in another[32]. A week of late nights, a comedown and a stressful deal close leave the brain closer to the state that heavy cocaine use produces on its own. Add alcohol, and the brake that was already weak is lowered further (Section 5). This is why the program starts with sleep and the shape of the day, two weeks before the stop.

Definition: wanting and liking

Berridge and Robinson separated the brain's system for wanting a reward from its system for liking it, and showed that repeated drug use can strengthen the wanting, especially the wanting set off by triggers, without strengthening the liking[20]. It explains why people keep chasing cocaine long after the nights stopped being much fun.

Section 05

Why do I want cocaine every time I drink?

Day 15, Brain chemistry restabilization

In brief

Because for most people the two are one habit. Alcohol lowers the brake and is the most common thing that comes before a cocaine relapse; cocaine makes the drinking feel lighter, so more gets drunk. Stopping cocaine while still drinking leaves the most reliable trigger in place.

You want cocaine when you drink because, for many people, drinking is the start of the cocaine habit, not a separate one. Alcohol lowers self-control, so the decision gets made after a few drinks rather than on Monday morning. Drinking is also one of the strongest triggers for cocaine, because the two have been used together so many times. And cocaine changes how drinking feels: it takes the edge off being drunk, so people drink more, which brings them closer to the next line. If you want to stop cocaine, plan to stop the drinking that comes before it too, at least for the months it takes to break the link.

5.1 Alcohol before a relapse

The clearest evidence comes from a study by McKay and colleagues of people in aftercare for cocaine dependence. Drinking in a given month predicted a return to cocaine in the following month, even after their earlier cocaine use and alcohol history were taken into account. When the researchers compared episodes that ended in using cocaine with near misses that didn't, people who

used were much more likely to have been drinking that day: 40% against 6% of near misses at three months, and 62% against none at six months. Alcohol didn't appear to play the same part for people who had never been dependent on alcohol, and the authors concluded that relapse prevention for people with a history of alcohol dependence should include reducing their drinking[8].

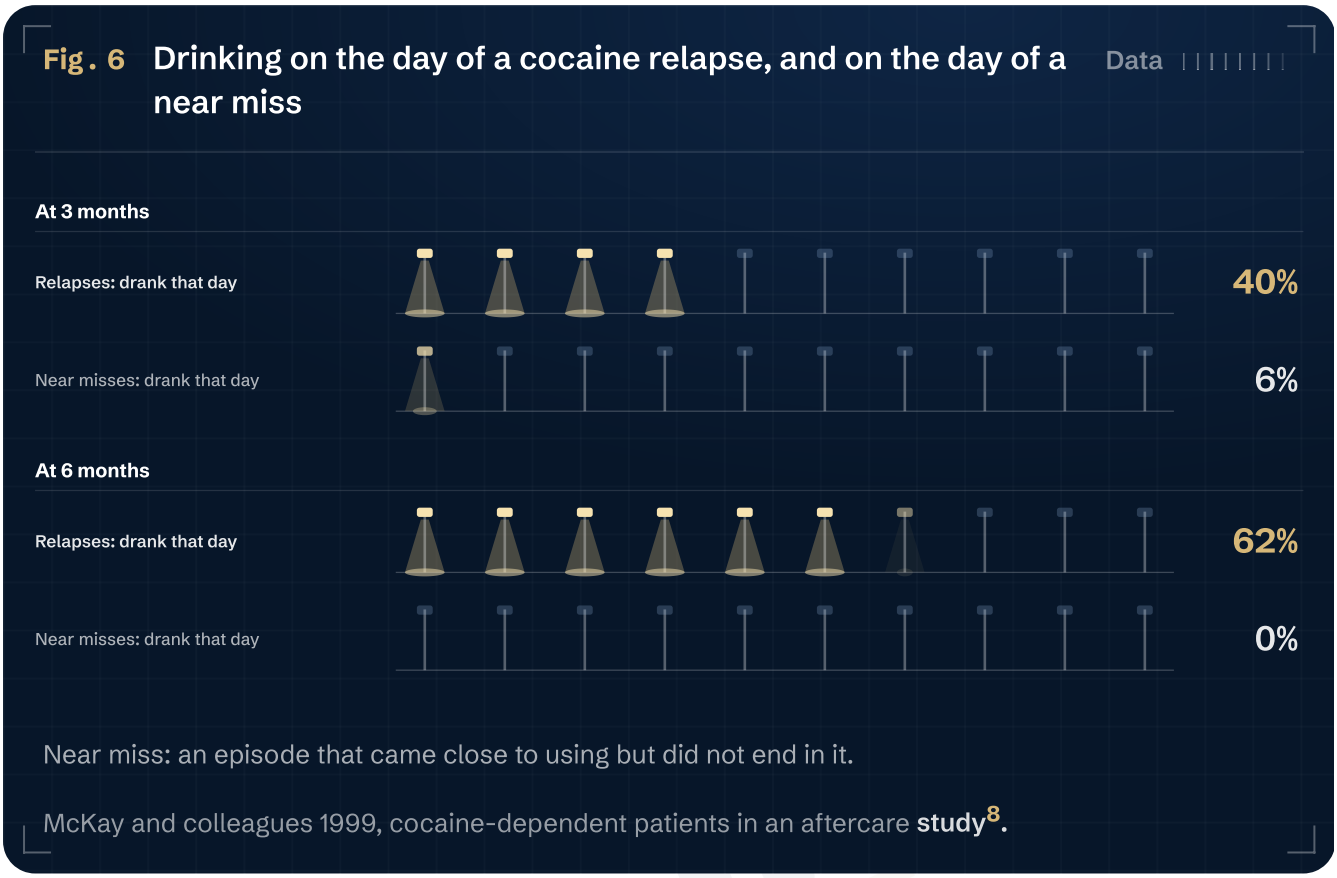


Figure 6. The share of cocaine relapses, and of near misses that didn't end in using, in which the person had been drinking that day, at three and six months into aftercare, drawn as street lamps. Data from McKay and colleagues (1999), people with cocaine dependence in an aftercare study.

Gawin and Kleber made the same observation decades earlier in their clinical work. Among the things that set off craving in the people they treated, they listed money, particular people, places and occasions, and internal states, with mild alcohol intoxication named as an example[14]. In a study of 302 people in outpatient treatment for cocaine dependence, those who were also dependent on alcohol were more likely to snort cocaine, to use it in social settings and to use the two at the same time, and they were more likely to say they drank more when they were using cocaine[33]. That's a description of the night out in Figure 1.

5.2 What cocaine does to drinking

The two drugs change each other. Pennings and colleagues reviewed the research on using them together and found that people seem to combine them for a more intense high, for feeling less drunk, and to soften the comedown. Cocaine consistently offset the effects of alcohol on learning, coordination and driving, which can make a person feel more sober than they are. Together the drugs raised the heart rate by more than either alone, and blood levels of cocaine were up to 30% higher[34]. In a controlled study, the combination reduced the sleepiness alcohol causes but did not significantly reduce how drunk people felt, and it produced more euphoria than cocaine alone[35]. In another, people liked the combination more and felt more intoxicated than after either drug alone[36]. A drug that makes the drinking feel lighter and the night feel better makes both more likely, and more of each.

This is why the program stops cocaine and the drinking around it on the same day. The program's own list of habits that travel together includes cocaine, and its lesson on those stacks makes the same point the research does: once the first habit in a stack is running, the urge for the next one is much harder to ignore. A person who stops cocaine but keeps drinking every Friday keeps arriving at the interchange in Figure 1.

In the program · Phase 1, Brain chemistry restabilization — Day 15

Stopping the stack together

Cocaine stops on Day 15, together with the drinking and any other habits stacked on it. The client works out which habit in the stack sets off the others, which for many people who use cocaine is the drinking, and gives it the most attention. Our advice is that anyone who drinks heavily every day plans the stop with a doctor.

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Section 06

What does cocaine do to your heart, and is mixing it with alcohol dangerous?

Day 6, Brain chemistry restabilization

In brief

Cocaine raises the heart rate and blood pressure and can trigger a heart attack, a stroke or a dangerous rhythm, even in young people, with the risk highest in the hour after use. With alcohol it forms

cocaethylene, which lasts longer in the body and adds to the strain on the heart.

Yes, mixing cocaine with alcohol is more dangerous than cocaine alone, and cocaine alone is already hard on the heart. Cocaine speeds up the heart, raises blood pressure and narrows blood vessels, so the heart needs more oxygen at the moment it gets less. The risk of a heart attack is highest in the first hour after use, and it applies to young people who would otherwise be at low risk. When alcohol is in the body, the liver turns some of the cocaine into a second drug, cocaethylene, which lasts several times longer than cocaine and adds to the load on the heart. Chest pain after using cocaine is a reason to call emergency services, not to wait it out.

6.1 The hour after a line

Mittleman and colleagues interviewed 3,946 people a few days after a heart attack and compared what they had done in the hour before it began with what they usually did. Nine had used cocaine in the 60 minutes before their symptoms started. Compared with the rest of their time, the risk of a heart attack was 23.7 times higher in the hour after cocaine, though because the number of cases was small the true figure could lie anywhere from 8.5 to 66.3 times. The raised risk fell quickly after that hour. The people who had used cocaine were much younger than the other patients, an average of 44 against 61[37]. In a national survey of 10,085 US adults aged 18 to 45, people who reported frequent cocaine use had about seven times the odds of a nonfatal heart attack, and the authors estimated that about one in four nonfatal heart attacks in that age group was attributable to frequent cocaine use[38].

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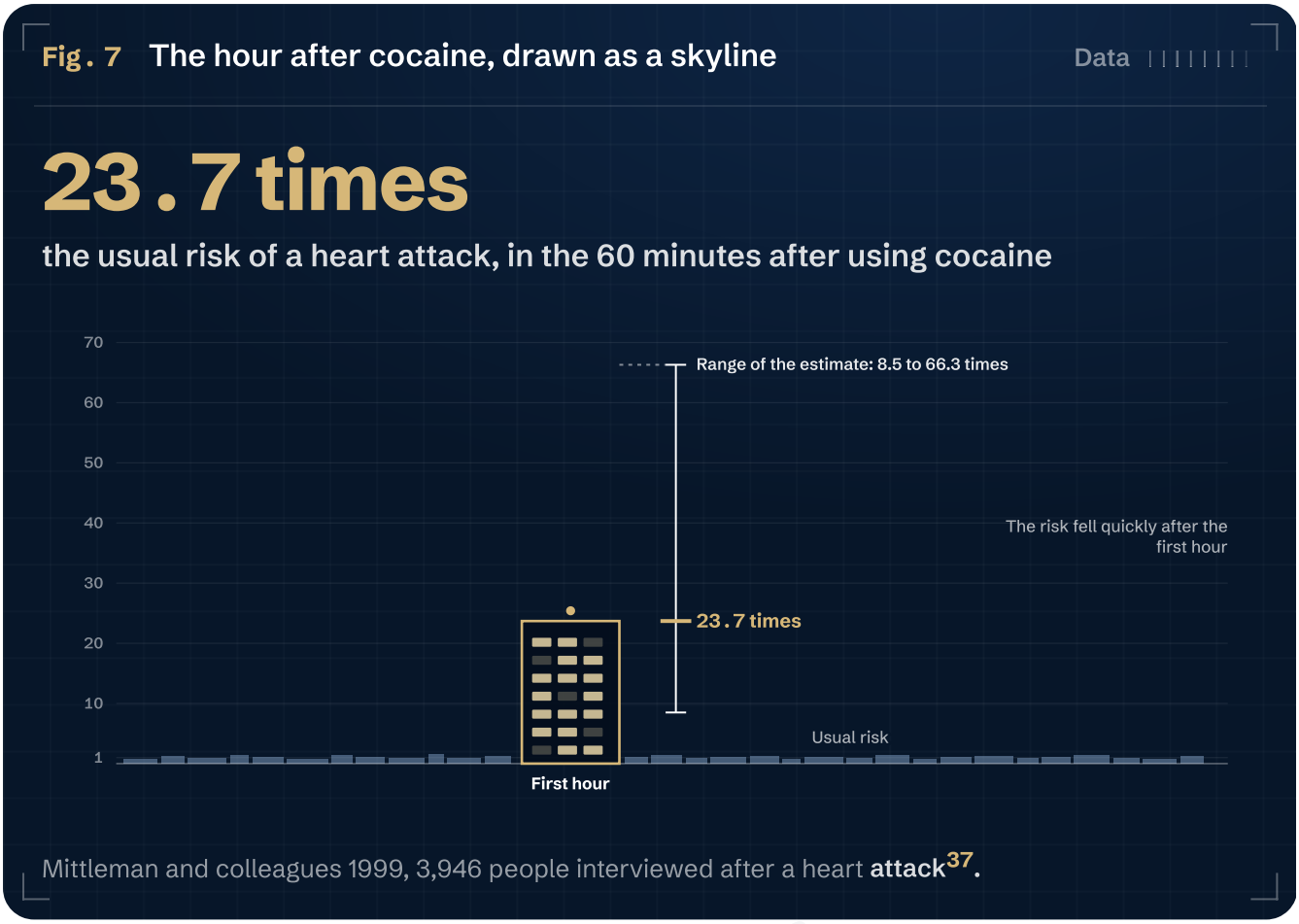


Figure 7. The risk of a heart attack in the 60 minutes after using cocaine, drawn as one tower against a skyline of usual risk, with the scaffold showing the range of the estimate. The second view shows the odds of a stroke in the 24 hours after using. Both are relative to the same people's, or similar people's, usual risk, not absolute chances. Data from Mittleman and colleagues (1999) and Cheng and colleagues (2016).

Strokes follow the same pattern. In a study of 1,090 young adults aged 15 to 49 who had had a stroke and 1,154 who hadn't, ever having used cocaine wasn't linked to stroke, but using it in the previous 24 hours was: the odds of a stroke were 6.4 times higher. Of the 26 people who had used cocaine within a day of their stroke, 14 had used it within six hours. The risk was highest when it was smoked[39]. The danger is in the hours after a dose, which is why it can fall on someone who uses only now and then.

Chest pain after cocaine can't be judged at home. In a study of 246 people who came to emergency departments with chest pain after using cocaine, 5.7% were having a heart attack. Their median age was 33. The pain began a median of 60 minutes after use, and nothing about how the pain felt separated the people having a heart attack from the people who weren't. The authors concluded that everyone with chest pain after cocaine should be checked for a heart attack[40].

6.2 Cocaethylene

When cocaine and alcohol are in the body together, the liver makes cocaethylene, a drug that acts much like cocaine. In a controlled study, about 17% of an injected dose of cocaine was turned into cocaethylene when it was taken an hour after a drink[36]. In a second study, the share depended on how the cocaine was taken: about 18% when smoked, 24% when injected and 34% when swallowed. In every route, cocaine with alcohol raised the heart rate and the heart's workload more than cocaine alone[41]. When people were given cocaethylene on its own, they couldn't tell it from the same amount of cocaine, and it appeared to be cleared more slowly[42]. Andrews's review puts cocaethylene's half-life at three to five times that of cocaine and links it with seizures, liver damage and a much higher risk of sudden death than cocaine alone, citing an 18- to 25-fold increase[43]. That last figure comes from a review rather than a controlled study, so we report it as the review states it, but the direction of every study here is the same: cocaine with alcohol is harder on the heart than cocaine alone[34, 35].

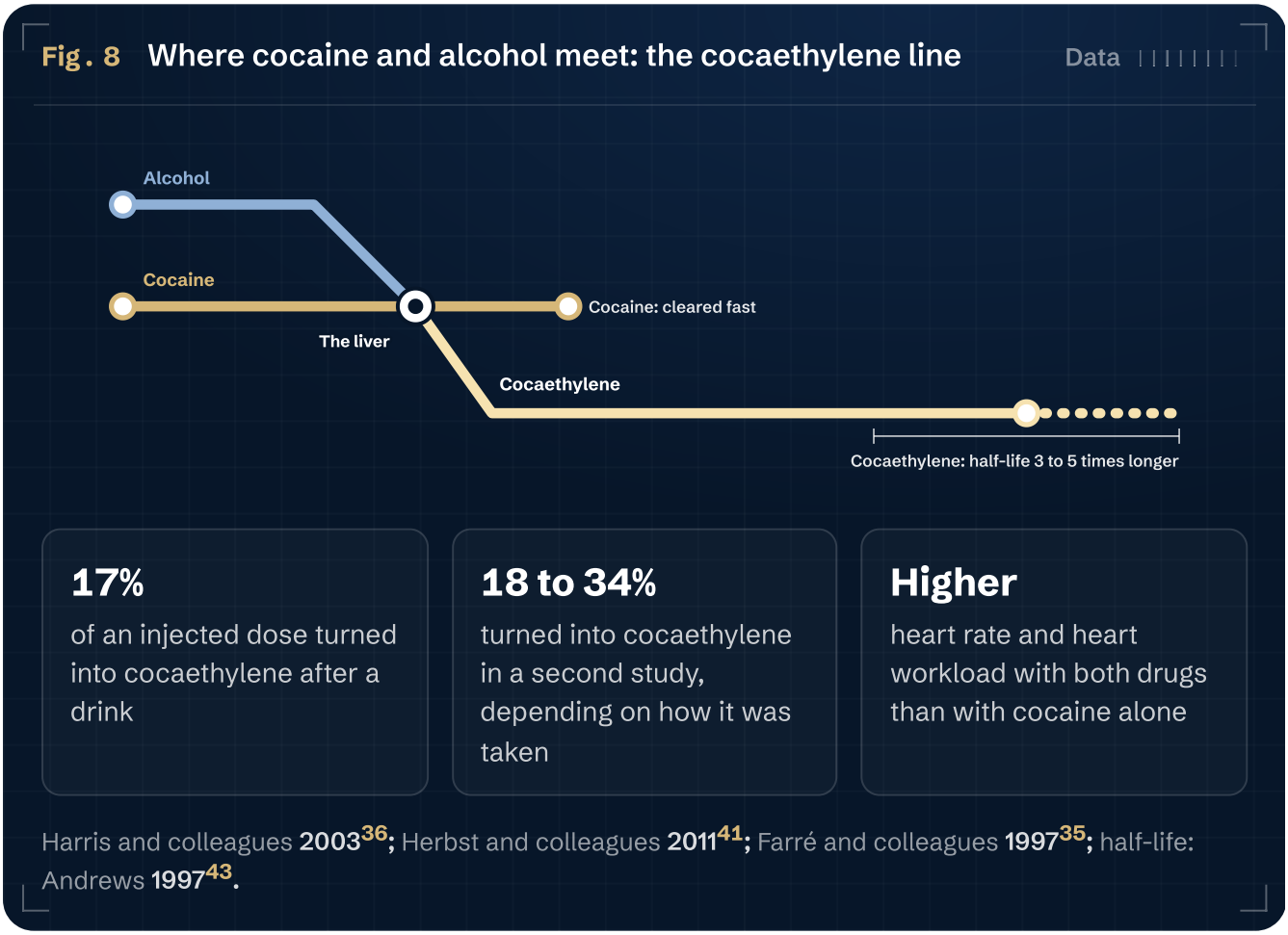


Figure 8. Cocaine and alcohol drawn as two lines that meet at the liver, where some of the cocaine becomes cocaethylene, a drug with a half-life three to five times longer. The figures under the map come from controlled studies in people. Sources: Harris and colleagues (2003), Herbst and colleagues (2011), Farré and colleagues (1997) and Andrews (1997).

Cocaine with alcohol carries risks beyond the heart as well. Pennings and colleagues' review found that the combination may make violent thoughts and threats more likely[34]. And because cocaine offsets some of the effects of alcohol on coordination and judgement while leaving the person drunk, people tend to misjudge how impaired they are.

When to call emergency services

Chest pain, pressure or tightness; a racing, pounding or irregular heartbeat; a sudden, severe headache; weakness or numbness on one side, slurred speech or a drooping face; confusion; a seizure; or trouble breathing during or after cocaine use. Call emergency services and tell them what was taken, including alcohol. Don't wait for it to wear off.

In the program · Phase 1, Brain chemistry restabilization Day 6

Training, safely

On Day 6 the program adds resistance training and cardio, and a breathing practice added in the second month is marked as unsuitable for anyone with heart problems or high blood pressure. Our advice for anyone who has had chest pain, palpitations or other heart symptoms while using cocaine is to see a doctor before starting hard training, ice baths or sauna.

Section 07

What does a cocaine comedown feel like, and how long does withdrawal last?

Days 3 to 5, Brain chemistry restabilization

In brief

The crash after a binge brings exhaustion, low mood and a long sleep over a day or two. Stopping altogether brings weeks of flat mood, low

energy and craving that improve gradually, mostly over the first month. Sleep is worse than it feels for the first few weeks.

A comedown after a night or a weekend of cocaine usually means a crash of mood and energy, a strong need to sleep, then a day or two of feeling drained, anxious or low. Stopping altogether is different from a single comedown. For the first few weeks most people feel flat: low energy, little pleasure in things, irritability, poor concentration and craving, especially when something reminds them of using. In studies that followed people through their first month without cocaine, low mood and craving were worst at the start and improved gradually and steadily over the four weeks[15, 16]. For most people the flatness lifts within weeks, though craving set off by triggers can come back for months (Section 8).

7.1 The binge, the crash and the flat days

Gawin and Kleber's clinical work in the 1980s produced the description of cocaine abstinence that most later research started from[14, 44]. Over 90% of the people they treated described moving from daily use to binges once they started to lose control, and by the time they sought treatment they averaged one to three binges a week, each lasting 8 to 24 hours. After a binge came the crash. Craving, low mood, agitation and anxiety rose at first, then over about one to four hours the craving gave way to exhaustion and a need to sleep. Many people used alcohol, sedatives or cannabis to get to sleep, then slept for a long time. After waking, a short stretch of one to five days followed in which they felt more or less normal. Then a slower, flatter state set in, with low energy, boredom and little pleasure from anything. It was in this flat stretch, Gawin and Kleber noticed, that a trigger such as money, a birthday, a mirror or a drink brought back a vivid memory of the high, and the cycle started again. When people stayed stopped, the flatness lifted within two to ten weeks[14].

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Figure 9. The binge cycle Gawin and Kleber described in people seeking treatment, drawn as a circle line through an example week, from the binge on Friday night to the trigger on Thursday that starts it again. The second view shows the way off the circle: the flatness lifting within two to ten weeks, and occasional craving from triggers for months after. The days of the week are an example; the stages and their durations are from Gawin and Kleber (1988).

Later studies refined that picture. When Weddington and colleagues followed 12 men through 28 days without cocaine in a research ward, and Coffey and colleagues followed 24 outpatients through the same period, neither found the three distinct phases. Low mood and craving were highest at the start and fell gradually and steadily, and Weddington's team suggested that 'short-term abstinence' described the experience better than 'withdrawal'[15, 16]. The two pictures fit together. A single binge is followed by a crash and a flat stretch that last days, and stopping altogether brings a few weeks of steadily improving low mood. Neither is physically dangerous in the way alcohol withdrawal can be. Both are uncomfortable enough to send people back, which is why the program builds the routine that carries a person through them before the stop, not after.

Table 2. What the research describes after a binge and after stopping. Timings vary between people. The first two rows are from Gawin and Kleber's clinical observations (1988); the later rows are from studies that followed people through their first weeks without cocaine.

When	What people commonly feel	Source
The hours after a binge	Craving, low mood, agitation and anxiety, giving way within about one to four hours to exhaustion and a need to sleep	Gawin and Kleber 1988[14]
The next one to five days	Long sleep, then a short stretch of feeling more or less normal, then a flat, bored, low-energy state	Gawin and Kleber 1988[14]
First 4 weeks without cocaine	Low mood and craving highest at the start, easing gradually and steadily	Weddington 1990[15]; Coffey 2000[16]
2 to 3 weeks without cocaine	Sleep measured at its worst, while people feel they are sleeping better	Morgan 2006[45]; Matuskey 2011[46]
2 to 10 weeks	The flatness lifts for people who stay stopped	Gawin and Kleber 1988[14]
Months and longer	Craving set off by triggers comes back now and then, for hours at a time	Gawin and Kleber 1988[14]; Parvaz 2016[13]

7.2 Sleep is worse than it feels

Sleep is the part of early abstinence people most often misjudge. In a study by Morgan and colleagues, people who used cocaine heavily were monitored in a research unit during use and through their first weeks without it. Measured with sleep recordings, their total sleep time and the time it took them to fall asleep were at their worst after 14 to 17 days without cocaine, at the same point at which they rated their own sleep as at its best. Their alertness and their overnight learning tracked the measured sleep, not the rating. The authors called it occult insomnia: poor sleep the person doesn't notice[45]. A later analysis that pooled several studies found the same: measured sleep got steadily worse over three weeks without cocaine while people reported it getting better[46]. In another study, people judged their sleep accurately after one week without cocaine but overestimated it by an average of 40 minutes after two[47].

This matters because poor sleep weakens exactly the control a person needs in the second and third weeks, and it does so without announcing itself[31, 32]. It is also why the program treats sleep as a daily practice to be kept, measured and protected through the early weeks rather than as something that will sort itself out once cocaine has gone.

In the program · Phase 1, Brain chemistry restabilization **Days 3 to 5**

Sleep before the stop

Fixed sleep and wake times, daylight soon after waking, evening light turned down and the phone out of the bedroom are put in place from Day 3, so that sleep has ten days of work behind it when cocaine stops on Day 15, and the daily log keeps a record of it through the weeks when it is worse than it feels.

Low mood after stopping

Feeling flat, tired and joyless in the first weeks is common and usually lifts. Feeling hopeless, or thinking about harming yourself, is different. Contact emergency services or a crisis line straight away: 988 in the US, Samaritans on 116 123 in the UK and Ireland, Tele-MANAS on 14416 in India. If low mood lasts beyond the first month, see a doctor.

Section 08

How long do cocaine cravings last?

Days 31 to 60, Impulse control

In brief

The background craving you feel fades steadily over the first weeks and months. The craving set off by triggers behaves differently: the brain's response to them can grow over the first months after the last

use, peaking somewhere between one and six months, before it fades. That's when many people relapse.

Cocaine cravings come in two kinds, and they last different lengths of time. The everyday craving you feel when nothing in particular is happening is usually worst in the first days and fades steadily over the following weeks and months. The craving set off by triggers, a bar, a friend, payday, a third drink, can get stronger before it gets weaker. Research in animals and in people suggests that the brain's response to those triggers grows over the first months after the last use and peaks somewhere between one and six months before it declines. Many people feel safest at exactly the point when their brain is most reactive to a trigger, which is why plans that end after a few weeks tend to fail in the second or third month.

8.1 Incubation of craving

Researchers call the growth of trigger-set craving after the last use the incubation of craving. It was first shown clearly for cocaine by Grimm and colleagues. Rats learned to take cocaine, with each dose paired with a light and a tone, and were then kept without it for different lengths of time. When the light and tone came back, the rats' cocaine-seeking was lowest after one day without the drug and highest after 60 days, rising steadily over two months[48]. The same effect has since been found for other drugs in animals, and in people for alcohol, nicotine and methamphetamine[13].

Parvaz and colleagues then looked for it in people who use cocaine. They recorded the brain's electrical response to cocaine pictures in 76 adults who had last used cocaine 2 days, 1 week, 1 month, 6 months or 1 year earlier, using a signal called the late positive potential, which tracks how strongly something grabs motivated attention. The brain's response to the cocaine pictures was low at 2 days and 1 week, high at 1 month and 6 months, and low again at 1 year. The craving people reported, by contrast, fell steadily from 2 days to 1 year, and so did how much they said they wanted or liked cocaine after seeing the pictures. The authors concluded that the period between one and six months is when people may be most vulnerable to relapse set off by triggers, and perhaps least aware of it[13]. The study compared different people at different points rather than following the same people over time, so it shows a pattern, not anyone's personal course.

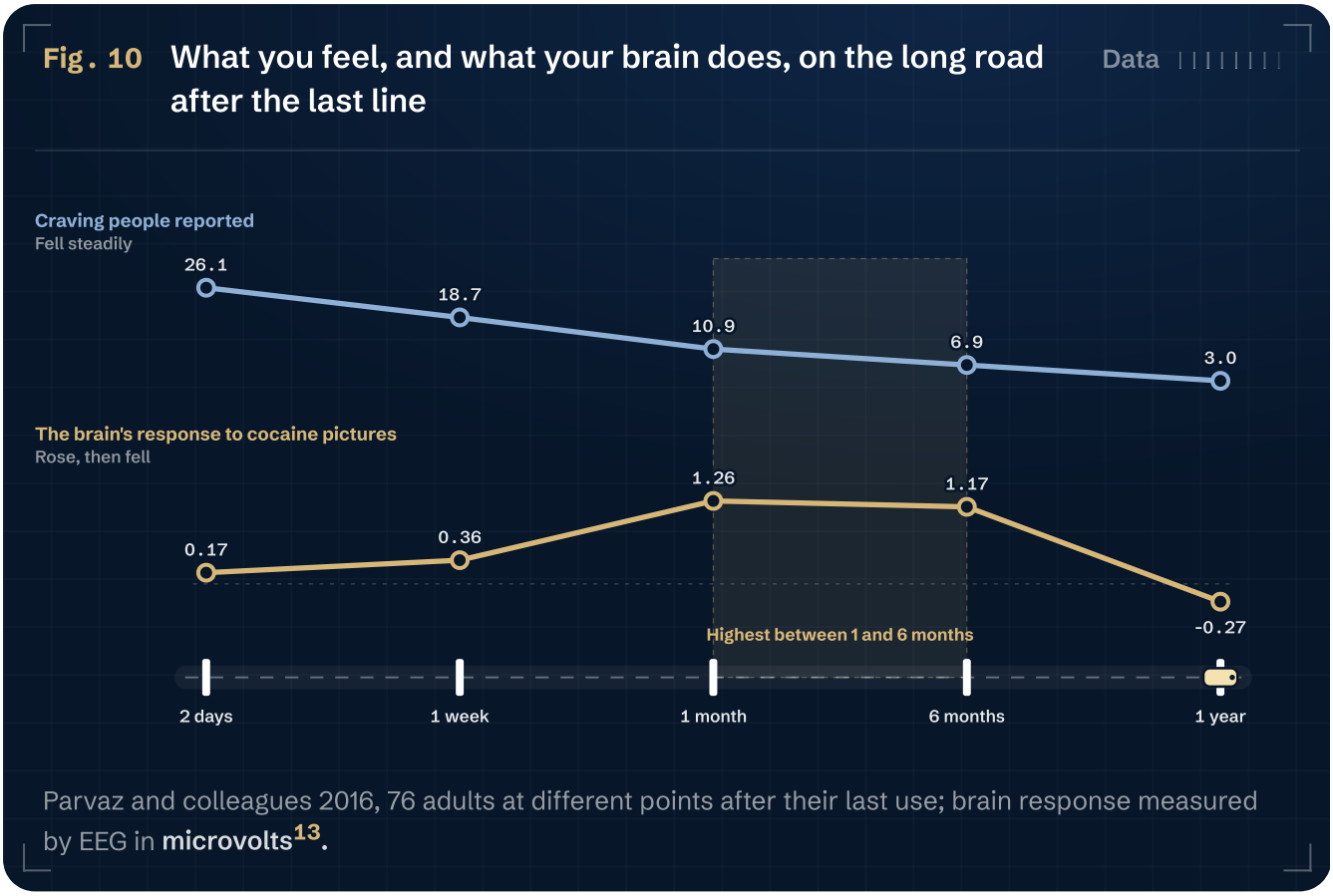


Figure 10. Two measures drawn as two roads across the first year after the last use of cocaine: the craving people reported, and the brain's response to cocaine pictures. The reported craving falls steadily; the brain's response rises to its highest between one and six months, then falls. Each road is drawn on its own scale. Data from Parvaz and colleagues (2016), a cross-sectional study of 76 adults; the second view shows the direction reported in rats by Grimm and colleagues (2001).

Gawin and Kleber saw the same thing from the clinic. In the people they followed, craving set off by triggers was reported months and even years after the last use. It came in episodes that lasted hours, and lasting recovery seemed to depend on going through those episodes without using, so that the link between the trigger and the high weakened each time[14]. That is extinction in the technical sense, and Bouton's research shows its limit: what extinction teaches is tied to the context in which it was learned, and the old link can come back in a new setting, after time has passed, or after a single use[49].

8.2 The craving you don't notice

Part of what makes trigger-set craving dangerous is that it can start before a person is aware of it. Childress and colleagues showed people in treatment for cocaine pictures of cocaine and other images for 33 milliseconds, too briefly to be consciously seen, each followed by a mask. Those unseen cocaine pictures still activated the brain's reward and emotion circuits, and the size of the response predicted how positively the person later felt about the same pictures when they could see

them[50]. In another study, the brain response to cocaine pictures predicted relapse over the following ten weeks better than the craving people reported[51]. Both findings point the same way as Parvaz's: what a person feels is an unreliable guide to how strongly their brain is reacting.

Stress matters as much as triggers. In a study by Sinha and colleagues of people leaving inpatient treatment for cocaine dependence, greater craving in response to a personal stress story was associated with a shorter time to relapse over the following 90 days, while craving in response to drug-related stimuli was not, and stress-induced hormone responses predicted how much cocaine was later used[52]. Koob's account of how the brain's stress systems are recruited in addiction explains why: over time the drug comes to be used to relieve a low, stressed state that the drug itself has deepened[53].

In the program · Phase 2, Impulse control **Days 31 to 60**

Practice through the months of highest risk

The whole of the second month works on triggers, starting with a full map on Day 31, because this is when the brain's response to them may be at its strongest. Each trigger that can't be removed gets a prepared response, and the practice continues past Day 60 into the third month and aftercare, so that it is still running when the risk is highest.

Section 09

What triggers cocaine cravings?

Days 31 to 38, Impulse control

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In brief

Anything that has been linked to using: drinking, payday, the end of a big week, certain friends, bars, bathrooms, cash, a mirror, your phone, and feelings like stress, boredom or the urge to keep a good night going. Most people have dozens. Mapping them all is the first step to dealing with them.

Cocaine cravings are set off by triggers: the people, places, things, times, feelings and events that have been linked to using it. For most people the strongest is drinking. Others are payday or a deal closing, the end of a big week, a message from a particular friend, a bar or a club, a bathroom, cash, bank cards, a mirror, small bags and the phone with the number in it. Feelings count too:

celebration, stress, boredom, loneliness after a big day, wanting to feel confident, wanting the night to keep going. Every time cocaine is used, the brain links it to whatever was around at the time, and once those links are strong, the craving starts the moment one of them appears.

The research on this goes back to the earliest clinical work. Gawin and Kleber listed the triggers their patients described: specific people, places and occasions such as birthdays, objects such as money and mirrors, mild alcohol intoxication, and moods such as the anxiety of an argument that the person had previously soothed with cocaine[14]. When Childress and colleagues showed people in treatment a video about cocaine, they felt craving and their brains showed more activity in the amygdala and anterior cingulate, areas involved in emotion and motivation, a pattern not seen in people who had never used cocaine[54]. A meta-analysis of studies across drugs found that drug-related triggers reliably raise craving and set off measurable changes in the body[55]. Kalivas's research describes how this learning is laid down in the connections between the prefrontal cortex and the nucleus accumbens, binding the habit to the details of where and when it happened[56].

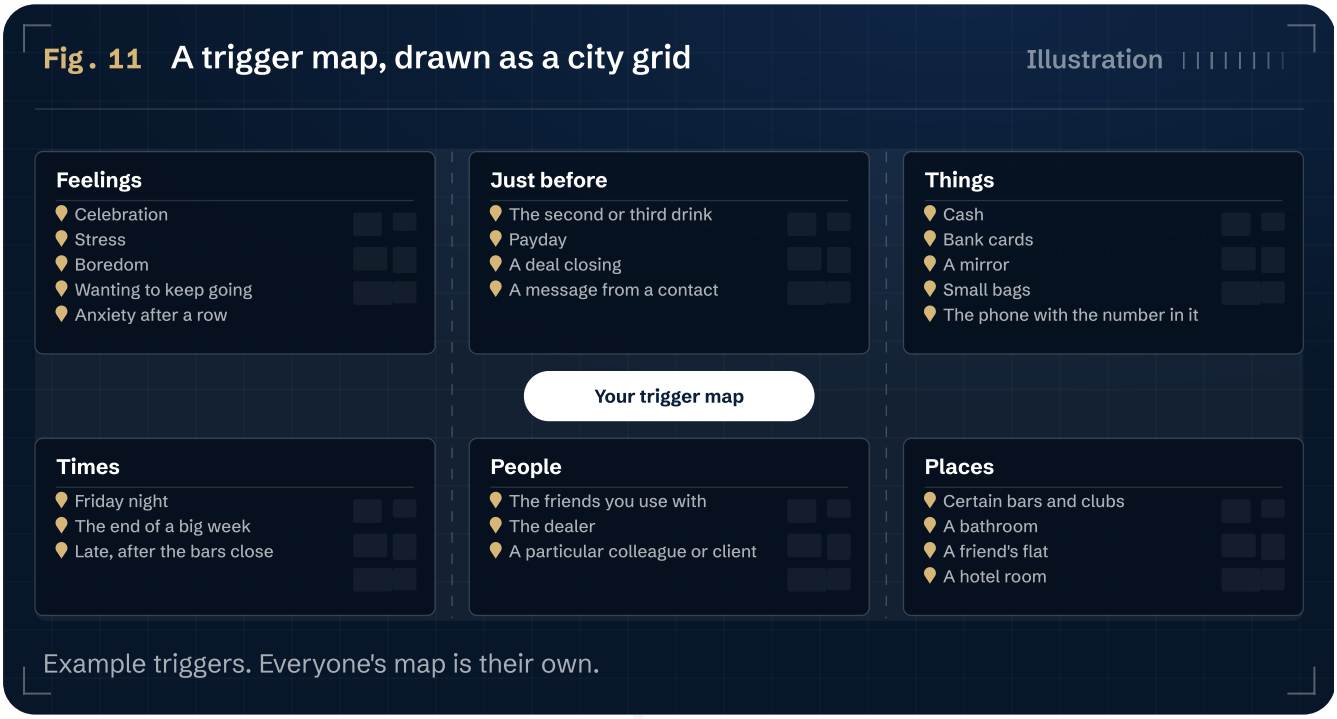


Figure 11. The six kinds of trigger the program maps, drawn as six districts of one city, with examples of the triggers people who use cocaine commonly describe. An illustration of the method, not a client's map: everyone's map is their own. The examples draw on the triggers Gawin and Kleber (1988) recorded.

Triggers matter more than resolve because they work faster. When a trigger fires, the craving is under way before a decision has been made, and as Section 8 showed, it can begin below awareness[50]. Telling yourself not to think about cocaine doesn't help: Wegner's research found that trying to push a thought away tends to bring it back more often, while having a specific alternative to think about reduces the later preoccupation[57]. What works better is changing the situation before the urge starts. Duckworth and colleagues' review of self-control strategies found that changing or avoiding the situation tends to work better than resisting an urge that is already under way[58]. And

for the triggers that can't be avoided, a plan made in advance in an if-then form had a medium-to-large effect on reaching goals in a meta-analysis, partly because it makes the moment easier to notice and the response more automatic when it comes[59].

In the program · Phase 2, Impulse control — **Days 31 to 38**

Days 31 to 32	**Mapping every trigger and removing access** On Day 31 the client maps every trigger across the six types. On Day 32 access is removed, guided by that map: the cocaine itself, the contacts and routes it came through, and the easy access around them. The aim is to remove as many triggers as possible outright, so that the ones left are few enough to plan for one by one.
Day 38	**Nights that can't be avoided** Some nights can't be skipped: a client dinner, a wedding, a team celebration. Day 38 plans those situations in advance, from how the person gets there and home to when they leave, so that the decisions are made sober and early rather than three drinks in.

Section 10

Can I just use cocaine at weekends or on special occasions?

Days 11 to 15, Brain chemistry restabilization

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In brief

For someone who has already lost control of it, rarely. Each use teaches the brain the link again, each line pushes toward the next, and the rule is applied a few drinks in, by the person least able to keep it. Stopping completely is easier to hold than a limit.

If you're reading this because cocaine has already become a problem, a weekends-only rule is unlikely to hold. Most people who use cocaine never become dependent, and some do use it occasionally without losing control. But for someone who has crossed into dependence, three things work against a limit. Each use relights the learned link between cocaine and its triggers, so the craving stays trained[49]. Each line fades fast and does a little less than the one before, which pushes

toward the next (Section 3). And the rule is applied on the night, after a few drinks, by the version of the person least able to keep it[9]. A rule like this often turns into the way the habit keeps its place in a life.

10.1 What happens when the next dose is on offer

One laboratory study shows what a limit is up against. Ward and colleagues let seven men who regularly used cocaine take a dose every 14 minutes, up to six times in a 2.5-hour session, twice a day, for two or three days in a row. Out of 420 chances to take a dose, they turned it down only 10% of the time. They kept choosing it even as tolerance built up to its effects on the heart and to several of its effects on mood[24]. These were dependent users in a laboratory, not people at a party, but the pattern is the same one Gawin and Kleber's patients described: once a binge has started, it tends to run until the supply or the night runs out[14].

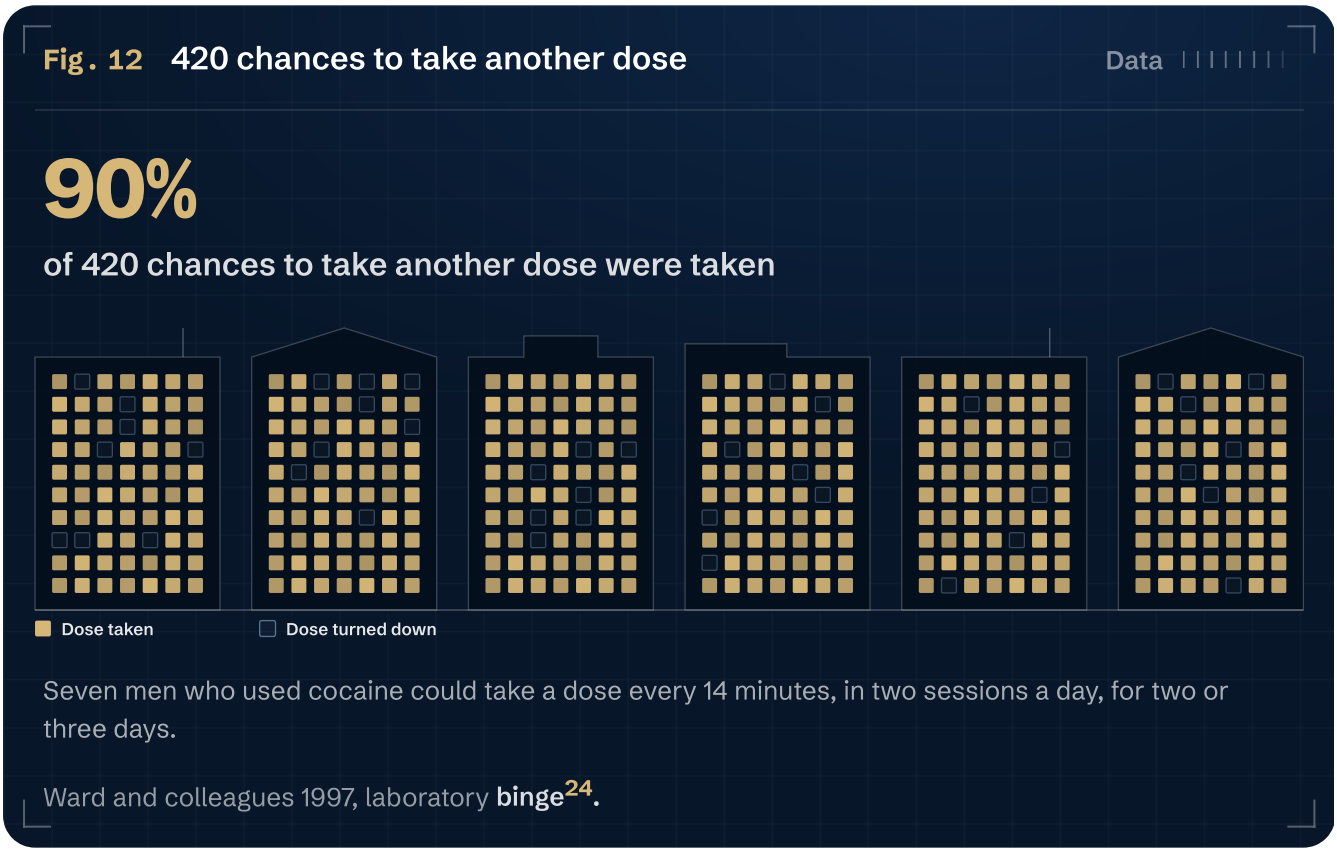


Figure 12. Every chance to take another dose in a laboratory study of binge use, drawn as 420 lit and dark windows across a night street: lit where the dose was taken, dark where it was turned down. Data from Ward and colleagues (1997), seven men who regularly used cocaine.

Gawin and Kleber's patients said something else that runs against intuition. Over 90% of them had moved from daily use to binges as they lost control, and the binges became more pronounced as they tried to cut down, with extra days of abstinence between them[14]. Using less often didn't mean using less. It often meant longer, heavier nights, separated by the flat days that set up the next one.

Stopping completely is also simpler to keep. A limit has to be judged afresh every weekend, and every weekend it is judged by a brain whose dopamine system has just been reminded of what it is missing. A full stop removes the judgement. It also gives the trigger links a chance to weaken, which they can't do while each weekend renews them[49]. And it lets a person learn, often for the first time in years, what a weekend feels like without cocaine, which is direct evidence that the life they want is possible, the kind of evidence that most reliably builds confidence that change can last[60].

In the program · Phase 1, Brain chemistry restabilization **Days 11 to 15**

The case for stopping completely

Before the stop, the program makes the case for stopping completely rather than cutting down, has the client list every cheap reward in their life, and stops cocaine together with the habits stacked on it on Day 15, so that no part of the stack is left to restart the rest.

Section 11

How long does it take for your brain to recover after quitting cocaine?

Days 17 to 25, Brain chemistry restabilization

In brief

Mood and sleep improve over weeks, dopamine receptors over months, and in one study people abstinent for more than about 35 weeks had more grey matter in control regions than people who had never used. Recovery is real, but it takes most of a year, not most of a month.

The brain does recover after cocaine, but on several different clocks. Mood and craving usually improve over the first month. Sleep can take longer than that, and is often worse than it feels in the second and third weeks. The dopamine system takes months: in one imaging study, dopamine receptors were still reduced three to four months after people stopped. The brain's structure takes longer again. In people who had stayed off cocaine for more than about 35 weeks, the grey matter in regions that support self-control was on average larger than in people who had never used it. Most of the recovery that matters for staying stopped happens in the first year, which is longer than most attempts to stop are planned to last.

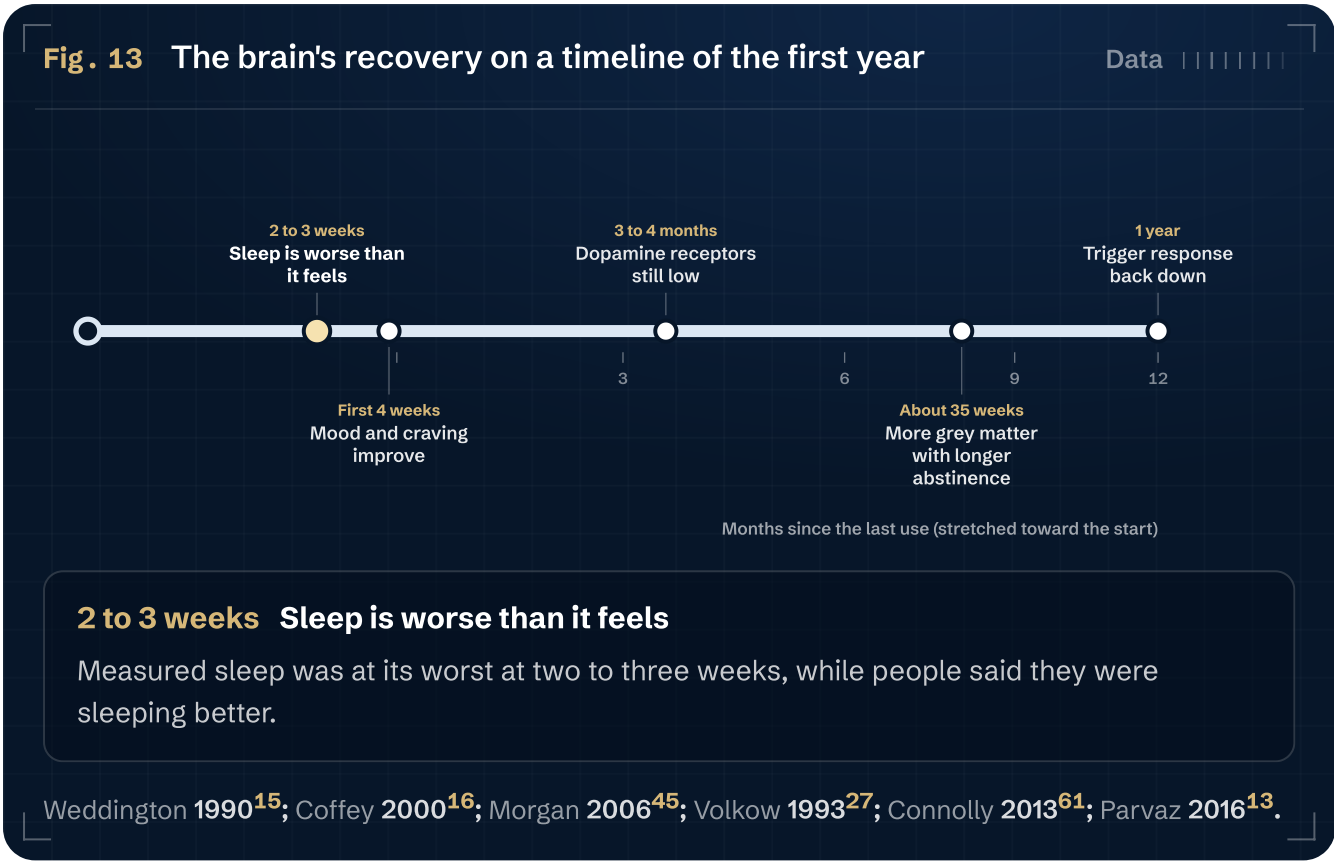


Figure 13. What has been measured at different points after the last use of cocaine, drawn as stations along one line. The time axis is stretched toward the start so that the early weeks are readable. The studies are of different people and use different measures, so the stations show when each change was observed, not a single person's course. Sources: Weddington and colleagues (1990), Coffey and colleagues (2000), Morgan and colleagues (2006), Volkow and colleagues (1993), Connolly and colleagues (2013) and Parvaz and colleagues (2016).

11.1 The dopamine system

Volkow and colleagues used brain imaging to measure dopamine D2 receptors, the receivers on the cells that dopamine signals to, in people who had used cocaine heavily. Compared with people who hadn't, they had fewer D2 receptors in the striatum. The reduction was still there in people scanned three to four months after detoxification, and it was linked to lower activity in the orbitofrontal cortex and the cingulate gyrus, regions that weigh the value of a choice and notice when something needs control[27]. A later study from the same group found that people who used cocaine released less dopamine than people who didn't when given a stimulant, and felt less of a high from it[12]. Koob and Volkow's review describes how this lowered reward signal, together with a stronger stress response, leaves ordinary rewards feeling flat and the drug feeling necessary to feel normal[10]. That is the biology behind the flat weeks in Section 7, and behind the program's insistence on building other sources of reward before and after the stop.

11.2 Grey matter

Connolly and colleagues scanned people who had used cocaine for anywhere from a few months to 24 years and had been abstinent for anywhere from 1 to 102 weeks. More years of use went with less grey matter in regions including the anterior cingulate, the inferior frontal gyrus and the insula. Longer abstinence went with more grey matter in a different set of regions, including parts of the cingulate, the insula and the prefrontal cortex. After about 35 weeks of abstinence, these volumes crossed those of people who had never used cocaine, and in people abstinent for longer they were on average above them[61]. The study compared different people rather than following the same people over time, so it shows an association with how long people had stayed stopped, not a guaranteed course for any one person. The authors also noted that the regions that grew with abstinence weren't the same as those that shrank with use, which suggests that recovery builds something new rather than simply undoing the damage. The program uses this study on Day 25 as evidence for the client that the brain recovers with time off cocaine.

What a person does during abstinence probably matters for that recovery. In animal studies, an enriched environment, with more space, more company and more to do, reduced drug-seeking and helped reverse some of the brain changes linked to drug use[62]. Exercise has been proposed as a treatment for drug addiction on similar grounds, with evidence from animal studies and early human studies that it reduces drug-seeking and may support the brain's recovery[63]. These are reasons, not proof, but they point in the same direction as the program: abstinence is the condition for recovery, and what fills the days decides how much of it happens.

11.3 What the long view shows

The long view is encouraging. In a large US survey, 99.2% of people who had ever met the criteria for cocaine dependence were estimated to reach remission at some point in their lives, and half had done so about five years after the dependence began[64]. Remission there means no longer meeting the criteria for dependence, which isn't the same as never using again, and the estimates come from what people recalled about their own history. But they show that dependence on cocaine is not usually permanent. The question this paper is concerned with is how to make that happen sooner and more reliably than five years.

In the program · Phase 1, Brain chemistry restabilization

Days 17 to 25

Rebuilding other rewards

In the second half of the first month the client takes up a demanding new pursuit, starts training their attention and their memory, and, on Day 25, looks at the evidence that the brain recovers with time away from the drug. The aim is to make the weeks after the stop full of something other than waiting.

Section 12

How do I stop using cocaine when my friends still use it?

Days 61 to 70, Identity rewiring

In brief

Plan the nights you can't avoid, change the ones you can, tell at least one person what you're doing, and build time with people who don't use. In one study, people who saw more people each day used less, and the people who stayed stopped were the ones whose networks came to use less.

Stopping while your friends still use is one of the hardest parts of quitting cocaine, because for many people cocaine is part of how they socialize. It helps to separate three things. Some situations can be dropped: the after-party, the late bar, the friend you only see when someone is buying. Some can be changed: arriving later, leaving earlier, driving, or meeting the same friends for dinner rather than drinks. And some can't be avoided, a wedding, a client dinner, a team night, and those need a plan made in advance and sober. Over time, the people you spend your evenings with will shift, and the research suggests that shift is part of staying stopped, not a side effect of it.

Zywiak and colleagues studied 141 people in residential treatment for cocaine dependence and followed them for six months afterwards. People who saw more people each day drank less and used fewer drugs over those six months. The substance use in the networks of people who stayed abstinent fell, while it didn't for people who later relapsed, and the authors suggested that seeing more people each day, while replacing people who use with people who support abstinence, may improve outcomes[65]. The direction of cause can't be settled from a study like this: staying stopped may change who a person sees, as well as the other way round. But the two travel together. Best and colleagues describe recovery from addiction as partly a change of social identity, in which a person moves away from groups organized around using and toward groups that support the new way of living[66].

12.1 What helps on the night

Most of the decisions that end in cocaine are made a few hours before it appears. Choosing where to go, who to go with, how much to drink and when to leave are all easier in the afternoon than at midnight. Self-control research supports doing the work early. Strategies that act on the situation before temptation arrives, such as choosing a different venue or arranging a lift home, tend to work better than resisting an urge already under way[58]. And because alcohol so often comes first (Section 5), the most protective decision on a night out is usually about drinking, not about cocaine.

- Decide in advance whether you'll drink, and if you will, how much. The research on alcohol before a cocaine relapse is in Section 5.
- Delete the dealer's number and any contacts that exist only to get cocaine, before the first night out.
- Arrange how you get home and when you'll leave before you go out, and tell someone the time.
- Tell at least one person at the event what you're doing. A goal shared with another person is more likely to be followed through than one kept private[67].
- Plan the moment someone offers, so the answer is ready and doesn't need to be decided on the spot.
- Leave when the night changes. The hour after the bars close is when many binges start.

Some friendships will change, and that can feel like a loss. It helps to remember that friends who use are often uneasy about their own use and may react to someone stopping with jokes, pressure or distance. That reaction usually says more about them than about the decision. Over time, new activities bring new people, and the program builds both deliberately: a demanding new pursuit from Day 17, and work on the social pressures behind the habit from the third month.

In the program · Phase 3, Identity rewiring — **Days 61 to 70**

Identity and the pressures around it

For many people cocaine is tied to a self-image: the one who stays out last, the high performer who works hard and plays hard, the one who keeps the night going. In the third month the client works on that self-image and on the social pressures that hold the habit in place, from the group that always ends up at someone's flat to the culture of a particular workplace.

Section 13

Is there medication for cocaine addiction, and what treatment works?

In brief

No medicine is approved for cocaine dependence, and most that have been tested didn't work. The treatment with the strongest evidence is contingency management, which rewards verified abstinence, especially combined with the community reinforcement approach. Cognitive behavioral therapy also helps, and more time in treatment goes with better outcomes.

There is no medication approved for cocaine addiction. A systematic review of 48 trials covering 66 different medicines found that most of them didn't help people stop. Antidepressants had no effect on cocaine use, and only a few medicines, among them bupropion, topiramate and some prescription stimulants, showed low-strength evidence of helping people stay abstinent[18]. The treatment with the strongest evidence isn't a medicine at all. It's contingency management, in which people receive rewards, usually vouchers or small prizes, for urine tests that show they haven't used. In a large review of 50 trials, contingency management combined with the community reinforcement approach was the only treatment that did better than usual care at the end of treatment and at the longest follow-up[68].

13.1 What the trials show

Contingency management was first tested for cocaine in the early 1990s. In Higgins and colleagues' trial, 40 people received the community reinforcement approach, which works on a person's job, relationships, leisure and social life so that a life without cocaine is more rewarding than one with it, either with or without vouchers for cocaine-free urine tests. With the vouchers, 75% completed the 24 weeks of treatment compared with 40% without them, and the average longest stretch of continuous abstinence was 11.7 weeks compared with 6.0[69]. De Crescenzo and colleagues' network meta-analysis brought together 50 trials and 6,942 participants. Contingency management with the community reinforcement approach was the only intervention that beat usual care at the end of treatment, at 12 weeks and at the longest follow-up, and it was also more effective than cognitive behavioral therapy alone[68].

Cognitive behavioral therapy for cocaine teaches people to identify the situations that lead to use and to practice other ways of handling them. In Carroll and colleagues' trial, its benefits appeared after treatment had ended: during the year of follow-up, people who had received it continued to improve, which the authors described as a delayed emergence of effects. Across the trial, people who had stayed abstinent during treatment used less cocaine in the year that followed[70]. Mindfulness-based relapse prevention combines this kind of skills training with practice at noticing urges without acting on them. In a trial of 286 people, it reduced relapse to drugs and heavy

drinking compared with treatment as usual, and at 12 months the people who had received it reported fewer days of drug use and less heavy drinking than those in a standard relapse-prevention program[71].

Table 3. Treatments for cocaine use and the strength of the evidence for each. Summarized from the reviews and trials cited; the strength of evidence is the reviews' own assessment where they give one.

Treatment	What it involves	What the evidence shows
Contingency management with the community reinforcement approach	Rewards for verified abstinence, plus work on job, relationships and leisure	The only treatment that beat usual care at the end of treatment and at the longest follow-up across 50 trials[68, 69]
Cognitive behavioral therapy	Identifying high-risk situations and practicing other responses	Benefits continued to emerge after treatment ended[70]; less effective than contingency management with the community reinforcement approach[68]
Mindfulness-based relapse prevention	Skills training plus practice at noticing urges without acting on them	Reduced relapse to drugs and heavy drinking, in a trial that included but was not limited to cocaine[71]
Antidepressants	Medicines for depression	No effect on cocaine use across trials[18]
Bupropion, topiramate, prescription stimulants	Medicines tested for cocaine use	Low-strength evidence of helping some people stay abstinent; none approved for this use[18]
Longer time in treatment	Staying in any structured program for longer	Outcomes improved in direct relation to treatment received, over five years in 708 people[1]

13.2 Time in treatment

The longest study of what happens to people after treatment for cocaine is the Drug Abuse Treatment Outcome Studies follow-up. Simpson and colleagues followed 708 people from 45 programs in 8 US cities for five years. The large fall in cocaine use seen a year after treatment held over the five years, but 21% were using weekly at one year and 25% at five years, and 26% had cocaine in their urine at follow-up. People with more severe problems at the start did worse, and outcomes improved in direct relation to how much treatment people received[1]. Cocaine dependence often runs over years, and the treatments that work best tend to be the ones that last long enough to see a person through the period when relapse is most likely.

Our program is not contingency management, and it does not use urine testing or vouchers. It shares the community reinforcement approach's focus on building a life that is more rewarding without cocaine, and cognitive behavioral therapy's focus on high-risk situations and responses, and it runs for 90 days followed by six months of aftercare. We set out its evidence and its limits in Section 16. If contingency management is available where you live, it is worth knowing that it has the strongest trial evidence of any treatment for cocaine.

Section 14

What should I do if I use cocaine again after stopping?

Days 45 to 52, Impulse control

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In brief

Treat it as information, not as proof that you can't stop. Get safe first, because tolerance will be lower and street cocaine may contain fentanyl. Then work out what led to it, change the plan, and start again the next day. How you explain a lapse to yourself predicts whether it turns into a full relapse.

If you use cocaine again after stopping, the first priority is safety, and the second is to stop a single night from turning into a return to the old pattern. Tolerance falls when you stop, so a dose that felt ordinary before can hit harder, especially with alcohol. Street cocaine can contain fentanyl. Don't use alone, don't mix it with drinking or other drugs, and if you have chest pain or someone becomes

unresponsive, call emergency services. Then, once you're safe, treat what happened as information about what needs to change, not as proof that you can't stop. The research shows that how a person explains a lapse to themselves makes a real difference to what happens next.

The safety part isn't theoretical. In 2017, cocaine was involved in 13,942 overdose deaths in the United States, 19.8% of all overdose deaths that year, and opioids were involved in 72.7% of the deaths that involved cocaine. The rise in cocaine-involved deaths from 2012 to 2017 was driven mainly by synthetic opioids such as fentanyl[17]. Fentanyl test strips and naloxone, the medicine that reverses an opioid overdose, are available without a prescription in some places. Anyone who might use again should know where to get them.

14.1 A lapse is not a relapse

Curry and colleagues studied people who had lapsed after stopping smoking. Those who blamed the lapse on themselves, as something internal, stable and global about who they were, were more likely to go on to a full relapse than those who saw it as the result of specific circumstances that could be changed[72]. The thought 'I've already blown it, so tonight doesn't matter' is the one that turns one line into a weekend. Witkiewitz and Marlatt's model of relapse describes the same moment in more detail: what happens after a lapse depends on the interaction of the situation, the person's coping response, their confidence and their craving, and small changes in any of those can tip it either way[73].

Time also matters. In a review of studies of people who had stopped drinking or smoking, the rate of relapse was highest soon after stopping and slowed as abstinence went on, so that accumulated time without the drug seemed to be the main thing shaping the curve[2]. That research wasn't on cocaine, and Section 8 shows why the second and third months may be an exception for cocaine. But the general point holds: each day without using makes the next one more likely, and one night of using doesn't erase the weeks before it.

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If you use again

Get safe first. Don't use alone, and don't add alcohol or other drugs. Chest pain, a racing or irregular heartbeat, a seizure or someone who won't wake up means calling emergency services now. The next day, write down what happened before you used: where you were, who with, how much you'd drunk and how you felt. Change the plan for that situation. Tell the person who knows you're stopping. Then carry on from the next day; one night doesn't reset the progress your brain has made.

The program treats a lapse as a sign that a trigger wasn't mapped or a response wasn't ready. The client records what happened in their log, works out which link in the chain broke, and builds or rehearses the response that was missing. Urge surfing, the practice of watching an urge rise and fall without acting on it, helps with the next one. In a study of smokers, a brief lesson in urge surfing didn't reduce urges, but the people who received it smoked fewer cigarettes in the week that followed[74].

In the program · Phase 2, Impulse control **Days 45 to 52**

Stress, urges and a response for every trigger

In the second half of the second month the client works on how stress feeds a relapse, practices watching an urge pass without acting on it, and finishes the month with a prepared response for every trigger on their map. A lapse during this period is used to find the trigger that was missing from the map.

Section 15

What does the Phalanx program target for someone stopping cocaine, and when?

Days 81 to 90, Identity rewiring

In brief

Ninety days in three phases. The first month rebuilds sleep, training, structure and other sources of reward, and stops cocaine, with the drinking stacked on it, on Day 15. The second month removes access, maps every trigger and builds a response for each. The third works on identity and the people and nights that still tempt. Six months of aftercare follow.

The Behavior Control System is the same 90-day program for every habit, applied to the loop beneath each person's cocaine use. Days 1 to 30 rebuild the ground cocaine has been running on: sleep, the body clock, training, food, stress and a structured day, and they build other sources of reward before the old one is taken away. The client stops cocaine on Day 15, together with the drinking and any other habits stacked on it, after two weeks of that work. Days 31 to 60 work on the moment cocaine actually appears: every trigger is mapped, cocaine and the contacts and routes it came through are removed, and each trigger that's left gets a prepared, rehearsed response, from the

third drink to the message from a friend at midnight. Days 61 to 90 work on identity and on the social pressures and nights out that still tempt. Six months of aftercare follow, which matters for cocaine in particular, because the brain's response to triggers may be at its strongest between one and six months after the last use (Section 8). The program asks for about thirty minutes of focused work a day: a short lesson each morning, a brief log each night, and a set of daily practices, which the program calls north stars, built into the routine the person already has.

15.1 Before Day 1

Every program starts with a Root-Cause Diagnostic: an application describing the habits involved and what has already been tried, followed by a thirty-minute, one-on-one conversation with our team. For cocaine it has two jobs. The first is safety: it asks about chest pain, palpitations or other heart symptoms when using, about heavy daily drinking and benzodiazepines or other sedatives that may need a doctor's involvement to stop, about other drugs, and about low mood and any risk to the person themselves (Sections 2, 6 and 17). The second is to identify the loop beneath the cocaine use: what it does for the person, the earliest recurring trigger, the conditions that make it likely, why earlier attempts broke down and what's missing for change to hold. Two people who both use cocaine every weekend rarely have the same loop. One uses it to keep drinking without getting drunk; another to keep up with a work culture of long nights; a third alone, at home, to escape the flatness that the last binge left behind. The structure of the diagnostic parallels the three domains the Addictions Neuroclinical Assessment proposes for this problem: the urge set off by triggers, negative emotion and executive function[75]. It is not a clinical assessment.

A preparatory phase, Phase 0, follows before Day 1 and doesn't count toward the 90 days. It separates the decision to stop from the start. The client sets out in concrete terms the life they are building and what cocaine has cost it, makes a commitment to someone who matters to them, chooses a start date that marks a real boundary in their life, and proves to themselves that they can hold one full day of control. The choice of start date rests on the fresh start effect: temporal landmarks such as the start of a week, a month or a meaningful date were followed by increases in aspirational behavior[76]. The day of control rests on Bandura's finding that direct experience of succeeding at a behavior is the most dependable source of belief that one can do it[60]. A commitment that is recorded and made to another person holds better than a private one[67].



Figure 14. The program drawn as a single transit line through three phases, with a station at each day on which a target that matters for cocaine is introduced. Cocaine stops on Day 15. Phase 0 comes before Day 1, and six months of aftercare follow Day 90. Select a station to read its target. The exercises themselves are not published.

Table 4. The day map for someone stopping cocaine: what each stretch of the program targets, and the evidence behind the choice. Days refer to the program calendar. The table states the target only; the exercises themselves are not published.

Days	Target	Why it matters for stopping cocaine
Before Day 1	Root-Cause Diagnostic: the loop beneath the cocaine use, and checks for heart symptoms, heavy drinking, sedatives and risk to self	Heart risk is highest in the hour after use[37]; the loop is read across trigger-set urges, negative emotion and executive function[75]
Before Day 1	Commitment, a meaningful start date, one day of control	Fresh starts and direct experience of success raise follow-through[60, 76]
1 to 2	How the loop works; the daily log	Recorded monitoring of progress improves goal attainment[67]
3 to 5	Sleep and wake times, daylight, evening light, phone out of the bedroom	Sleep after stopping cocaine is worse than it feels[45]; sleep loss weakens prefrontal control[32]
6	Progressive resistance training and cardio	Exercise has been proposed as a treatment for drug addiction, with supporting animal and early human evidence[63]
7	Daily meditation	The base for observing urges; mindfulness-based relapse prevention reduced relapse to drugs and heavy drinking[71]
8 to 9	Food, and a day built on fixed anchors	The flat, bored days after a binge are where the next one starts[14]
10 to 14	The loop, the case for stopping completely, every cheap reward listed, self-assessment	Each use keeps the learned links to its triggers alive[49]
15	Cocaine stops, together with the drinking and other habits stacked on it	Drinking predicted cocaine relapse in people with a history of alcohol dependence[8]

Days	Target	Why it matters for stopping cocaine
16 to 26	Heat and cold exposure, a demanding new pursuit, awareness training, breathing, memory and strategy training, perspective, evidence that the brain recovers	Other rewards compete with the drug; vigilance controls strong habits; grey matter recovers with abstinence[61, 77, 78]
27 to 30	How dopamine, behavior and triggers work	Drug learning is laid down in the links between the prefrontal cortex and the nucleus accumbens[56]
31 to 32	Full trigger map; cocaine, contacts and easy access removed	Changing the situation beats resisting an urge already under way[58]
33 to 39	Impulsivity, why the early weeks are hard, how a trigger becomes a craving, the response sequence, unavoidable nights out, breaking the pattern	The brain's response to triggers can grow in the first months after stopping[13, 48]
40 to 43	The thoughts that argue for one line	Learning to recognize and answer the situations and thoughts that lead to use had effects that lasted after treatment[70]
44 to 51	Emotion, stress, breathing, relaxation, urge observation, quick relief from cravings, the future self	Stress-set craving predicted a shorter time to cocaine relapse[52]; urge surfing changed the response to urges[74]
52 to 60	A response for every trigger; daily practice and a craving record	Implementation intentions have a medium-to-large effect on reaching goals[59]
61 to 70	Identity, the social pressures that keep the habit going, limiting beliefs	Recovery is also a change of social identity[66]; networks that use less go with staying stopped[65]
71 to 80	Rehearsal of the nights that usually go wrong	Mental practice improves performance[79]
81 to 90	Replacing each function cocaine served; review of the 90 days	A new routine takes weeks to months to become automatic[80]

Days	Target	Why it matters for stopping cocaine
After 90	Self-forgiveness, identity reinforcement, six months of aftercare	How a lapse is explained predicts whether it becomes a relapse[72]; the riskiest months for triggers run past Day 90[13]

15.2 Why the order matters for cocaine

The order follows from the research in Sections 2 to 14. Cocaine stops after two weeks of work on sleep, training and the shape of the day, because the flat, tired weeks that follow a stop need something already in place on the first weekend without it[14, 15]. The drinking stops on the same day, because for many people it is so often the step just before a line[8]. Access is removed systematically at the start of the second month, guided by a full map of the triggers, so that the barriers cover every route rather than only the obvious one[58]. The second month's work on triggers is timed for the period when the brain's response to them may be climbing, and it keeps running into the third month and aftercare, when that response may be at its highest[13]. Identity and social context come last, because they change slowest and because a new self-description needs weeks of evidence behind it to be believed.

In the program · Phase 3, Identity rewiring — **Days 81 to 90**

Replacing what cocaine did

The client confirms a replacement for each function cocaine served: the energy at the end of a long week, the confidence in a room full of people, the sense that the night isn't over, the escape from a flat, stressful stretch. They review the full 90 days against their log and record what they have gained.

Replacement comes last because a habit that served a function leaves a gap when it stops, and a gap left empty tends to be filled by whatever is most available. A replacement placed at the same time and in the same setting as the old habit can take over its context[81]. Lally and colleagues found that the automaticity of a new daily behavior built up gradually, reaching 95% of its plateau after a median of 66 days, with wide variation between people, and that missing a single occasion didn't materially affect the process[80]. By Day 90 the replacement has been in place long enough to begin running on its own, and aftercare covers the months in which the old triggers are still strongest.

15.3 In our clients' words

None of the clients whose stories we have published came to us mainly for cocaine, so this paper quotes no client. We would rather leave the section without a quotation than borrow one from someone who came for a different habit. Our results for cocaine are part of the overall figures

reported in Section 16.

What this paper does not publish

This paper states what each part of the program targets for someone stopping cocaine, on which days and why, with the evidence for each choice. It does not publish the exercises, their steps, scripts, worksheets or wording. A reader can evaluate the reasoning from this paper, but cannot reproduce the program from it.

Section 16

What do our results show, and what can't this paper tell you?

In brief

We report a 97% success rate, meaning clients who ran the program and stayed off the habit through the program and six months of aftercare. It comes from our own client follow-up, not from a controlled trial, and the research in this paper supports each part of the method without testing the whole.

Phalanx Labs has worked with 290+ clients across 12 countries over 7 years. Of those clients, 98.4% had already tried and failed to stop before they came to us. Our success rate is 97%, defined as the share of clients who ran the program and stayed off the habit through the program and the six months of aftercare that follow it. That rate covers all of our clients and all of the habits they came with. We don't publish a separate rate for cocaine. Because the definition matters as much as the number, we set out below what each figure counts, how it is known and what it does not establish.

Table 5. The figures we report, what each one counts and how it is known. All figures are drawn from our own client records and cover every habit we work with, not cocaine alone.

Figure	What it counts	How it is known
290+ clients	People who have worked with Phalanx Labs over 7 years	Client records
12 countries	Countries in which those clients lived while working with us	Client records
98.4%	Share of clients who had already tried and failed to stop before they came to us	What clients reported about their history in their application and the diagnostic
97% success rate	Clients who ran the program and stayed off the habit through the program plus 6 months of aftercare	Client follow-up across the program and the six months of aftercare

16.1 How outcomes are tracked

Throughout the program, the client keeps a daily log and completes a weekly progress update. These are written records of what happened, what was difficult and what was handled; they are not scored instruments. At the end of each of the first two phases the client has a progress call with our team, the first around Day 28 and the second after Day 60. During aftercare we follow up with clients on whether they have stayed off the habit. A client counts as a success when they have run the program and stayed off the habit through the program and the full six months of aftercare.

16.2 What our figures do not show

- Self-report. Whether a client has stayed off cocaine is known from what the client tells us, not from urine or hair tests. In the five-year treatment study in Section 13, self-reported cocaine use agreed with urine tests about four times in five[1], so self-report is informative but not exact.
- Selection. Clients choose to apply, are accepted after a diagnostic in which we decline people we can't help, and are counted only if they ran the program. People who decide to work with us may differ in motivation or circumstance from people who don't.
- No comparison group. We can't say how many of the same people would have stopped through another route, such as contingency management, therapy, a residential program or on their own, over the same period. Section 11 shows that most people with cocaine dependence reach remission at some point[64].

- Time window. The success rate covers the program and six months of aftercare. It doesn't describe what happens after that, and the research in Sections 8 and 13 shows that craving set off by triggers and relapse can continue beyond it.
- All habits together. The rate is across every habit our clients bring. We don't report a rate for cocaine alone, and a single rate doesn't predict the outcome for any one person.

16.3 What the research in this paper does not show

The studies cited here have their own limits, and readers should weigh them. Several of the most vivid findings come from small samples: the heart attack estimate in Section 6 rests on nine people who had used cocaine in the hour before their symptoms[37], the binge study in Section 10 on seven men[24], and the sleep studies on a few dozen people in research units[45]. The incubation finding in people comes from a study that compared different people at different times rather than following the same people[13], and the clearest evidence for incubation comes from rats[48]. The grey matter study is also cross-sectional[61]. The three-phase account of abstinence comes from clinical observation, and later studies didn't find the phases as distinctly[14, 15]. The figure for the risk of sudden death with cocaethylene comes from a review, not a controlled study[43]. Some of the methods described in this paper, such as urge surfing, implementation intentions and the research on how a lapse is explained, were tested mainly in other habits[59, 72, 74], and we use them for the mechanism they describe and say so where we cite them.

Other approaches have stronger trial evidence than ours. Contingency management with the community reinforcement approach has the strongest evidence of any treatment for cocaine across 50 randomized trials[68], and cognitive behavioral therapy has been tested in randomized trials[70]. Our method has not been tested in a randomized or controlled trial, its outcomes have not been assessed independently, and it has not been published in a peer-reviewed journal. The research supports the reasoning behind each element. It doesn't show that the combination works, or how much each element contributes. The figures in Table 5 are our evidence for the combination, with the limits stated above. A controlled evaluation would need independent outcome assessment, ideally with urine testing, a comparison condition and follow-up beyond six months. We would welcome one.

The definition, stated once more

97% success rate: clients who ran the program and stayed off the habit through the program plus 6 months of aftercare. Tracked through client follow-up, across all habits. Not a clinical trial, with no randomization and no control group.

Section 17

When should you get help straight away, and what is this program not?

In brief

Call emergency services for chest pain, a racing or irregular heartbeat, signs of a stroke, a seizure, overheating or someone who won't wake up. Get help straight away for thoughts of self-harm. See a doctor before stopping heavy daily drinking or sedatives. The program is not therapy, medical treatment or a crisis service.

Call emergency services straight away for chest pain, pressure or tightness; a racing, pounding or irregular heartbeat; a sudden severe headache, weakness on one side, slurred speech or a drooping face; a seizure; a very high temperature with confusion or agitation; trouble breathing; or anyone who can't be woken. Tell them what was taken, including alcohol. These can happen to young, healthy people, and the danger is greatest in the hours after using (Section 6)[37, 39]. If you have thoughts of harming yourself or ending your life, contact emergency services or a crisis line now: in the US, call or text 988; in the UK and Ireland, Samaritans on 116 123; in India, Tele-MANAS on 14416. If you also drink heavily every day, or take benzodiazepines or other sleeping or anxiety medication, talk to a doctor before you stop, because stopping those suddenly can be dangerous.

Safety note

Emergency services now for chest pain, a racing or irregular heartbeat, signs of a stroke, a seizure, overheating with confusion, or someone who won't wake up. Crisis lines for thoughts of self-harm: 988 in the US, Samaritans on 116 123 in the UK and Ireland, Tele-MANAS on 14416 in India. Street cocaine can contain fentanyl, and tolerance falls after a break. Don't stop heavy daily drinking or sedatives without a doctor.

See a doctor, not only a crisis line, if you've had chest pain, palpitations or fainting while using, even once; if paranoia, or hearing or seeing things that aren't there, has come with your use; if low mood lasts beyond the first month after stopping; if you're pregnant; or if you use opioids or other drugs as well as cocaine. A doctor can check your heart and blood pressure, plan a safe stop from alcohol or sedatives, and treat depression or anxiety that outlasts the first weeks.

Phalanx Labs is a behavior and performance engineering firm. The Behavior Control System is a structured method for changing behavior. It is not therapy, clinical care or medical treatment, and it does not diagnose or treat any medical or psychiatric condition. Our team doesn't act as the client's doctor or therapist, and the program doesn't replace either. Where the diagnostic suggests a medical or psychiatric risk, we tell the person to get that help first.

Some of the program's physical practices carry ordinary risks of their own, and for people who have used cocaine the heart is the main concern. Cold and heat exposure and starting a training program aren't suitable for everyone, and people who have had heart symptoms while using cocaine, or have high blood pressure or another heart condition, should check with their doctor first. One of the program's breathing practices is marked as unsuitable for people with heart problems or high blood pressure. The program gives general information about supplements and tells clients to consult a doctor before taking any; it does not prescribe or recommend medication or supplements.

The program is also not designed for every situation. It is not a crisis service. It isn't suitable as the only support for someone with a serious mental health condition, someone at risk of harming themselves or others, or someone who needs medical care to stop using alcohol, sedatives or opioids safely. The diagnostic exists partly to identify these situations, and when we can't help, we say so and suggest the person seek appropriate care.

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