Phalanx Labs

Method paper

Research paper · Version 1.0

How to stop smoking weed

Why daily weed is hard to give up for people who are in control everywhere else, what the first month without it is really like, 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
Brain chemistry restabilization

Days 31 to 60
Impulse control

Days 61 to 90
Identity rewiring

1 How do you stop smoking weed? The short answer — Background

2 Is weed addictive, and is it safe to stop all at once? — Days 1 to 15

3 Why is it so hard to quit weed when I'm in control everywhere else? — Days 10 to 17

4 Why do I smoke every day, from the first one in the morning to the last one before bed? — Days 3 to 15

5 How long does weed withdrawal last, and what does it feel like? — Days 16 to 47

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

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

Background

15 When should you see a doctor, and what is this program not?

Background

Sections	Figures	Tables	References	Reading time
15	12	5	104	87 min

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Abstract

To stop smoking weed for good, change what you smoke for, not just how hard you try. Daily weed becomes the way you end the day, fall asleep and handle stress, so stopping leaves those jobs undone. Most daily smokers who stop feel withdrawal: bad sleep, strange dreams, irritability, anxiety, low appetite and strong cravings. It usually starts in the first day or two, peaks in the first week and fades over two to three weeks. Sleep can take longer. The brain's cannabinoid receptors, which heavy use turns down, recover in about four weeks. People who stop for good fix their sleep and routine first, stop everything they smoke together on the same day, get rid of what they can, plan what they'll do about every trigger that's left, and keep support in place for the months when the risk of smoking again is highest.

This paper explains each part of that answer and the research behind it. It covers whether weed is addictive, why it's hard to stop when you're in control everywhere else, why you smoke every day, how long withdrawal lasts, why you can't sleep and why your dreams get so vivid, how long weed stays in your system, how long your brain takes to recover, whether your memory and motivation come back, whether a tolerance break or cutting down works, how to stop when the people around you still smoke, and what to do if you smoke again. Each section starts with a short, direct answer. The detail and the evidence follow.

For most people, stopping weed isn't medically dangerous in the way stopping heavy drinking can be. But if you use cannabis for a medical condition, also drink heavily every day, take sleeping or anxiety medication, or have had psychosis, talk to a doctor before you stop. Section 2 explains why.

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 weed 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.

Keywords

how to stop smoking weed | quit weed | cannabis withdrawal | weed withdrawal timeline | CB1 receptors | THC elimination | sleep after quitting weed | vivid dreams | cannabis potency | tolerance break | cannabis and tobacco | trigger reactivity | habit | relapse prevention | recovery identity

Section 01

How do you stop smoking weed? The short answer

In brief

You stop smoking weed for good by changing what it does for you: how you end the day, fall asleep and handle stress, and the plan you have for the moments you want to smoke. Expect two to three hard

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weeks while your body adjusts. Trying harder in the moment is the approach that fails most often.

Medical safety note

For most people, stopping weed is uncomfortable but not medically dangerous. Talk to a doctor before you stop if you use cannabis for a medical condition such as pain, epilepsy or nausea, if you also drink heavily every day or take benzodiazepines or other sleeping or anxiety medication, if you have ever had psychosis, hallucinations or severe paranoia, or if you are pregnant. Stopping alcohol or benzodiazepines suddenly can be dangerous, and some people drink more when they stop smoking weed. If you have repeated bouts of severe vomiting while you use, see a doctor: it can be a condition caused by cannabis. If you have thoughts of harming yourself, get help now from emergency services or a crisis line. Section 2 explains each of these.

Most people who want to stop smoking weed 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 before they came to us. For weed the attempts tend to look alike: a tolerance break that ends the day it was meant to, a rule about evenings only, a switch to edibles or vapes, a bag thrown out on a Sunday and bought again on Wednesday. The research shows how common it is for those attempts to break down. In a study of 82 people who had stayed off weed for at least two weeks during outpatient treatment, 71% smoked again within six months, and 71% of those who smoked again went back to heavier use[1]. In a set of laboratory studies with daily smokers who were not trying to stop, 49% smoked again on the very first day weed was available to them[2].

The usual explanation for those failures is a lack of willpower. That explanation is wrong in a specific and useful way. Willpower, in the sense of deliberate control by the prefrontal cortex, is real, but it is the faculty most easily taken offline by the conditions in which most smoking happens: stress, tiredness, poor sleep and the presence of something that has been linked to smoking before[3-5]. Weed adds two problems of its own. The first is withdrawal. Daily smokers who stop usually feel worse for two to three weeks, with irritability, anxiety, low mood and broken sleep, and the easiest way to feel better is to smoke[6, 7]. The second is that weed usually does a job. It ends the working day, it helps people fall asleep, it takes the edge off stress. When it stops, the job is still there. So the decision to stop is made by a rested person in the morning and has to be carried out by a tired, edgy person at eleven at night who can't sleep. People are poor at predicting how different they will feel in that second state[8].

Modern addiction research explains what is 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[9]. Weed has its own version of each stage. THC, the main active compound in cannabis, works on the brain's own cannabinoid system, which helps regulate stress, sleep, appetite and reward. Regular use turns that system's receptors down, which produces tolerance and withdrawal. It disrupts sleep. It becomes the way a day ends. And in much of the world it is now legal, sold on the high street and many times stronger than it was a generation ago, so the triggers for it are hard to avoid.

It is also far more common as a daily habit than most people realise. In the United States, survey data covering 1979 to 2022 show that the share of people who use cannabis daily or almost daily rose fifteenfold between 1992 and 2022. In 1992 there were ten times as many daily or near-daily drinkers as daily or near-daily cannabis users. In 2022, for the first time, there were more daily cannabis users than daily drinkers: 17.7 million against 14.7 million[10]. Daily use is the pattern that carries most of the risk, and it is the pattern this paper is mostly about.

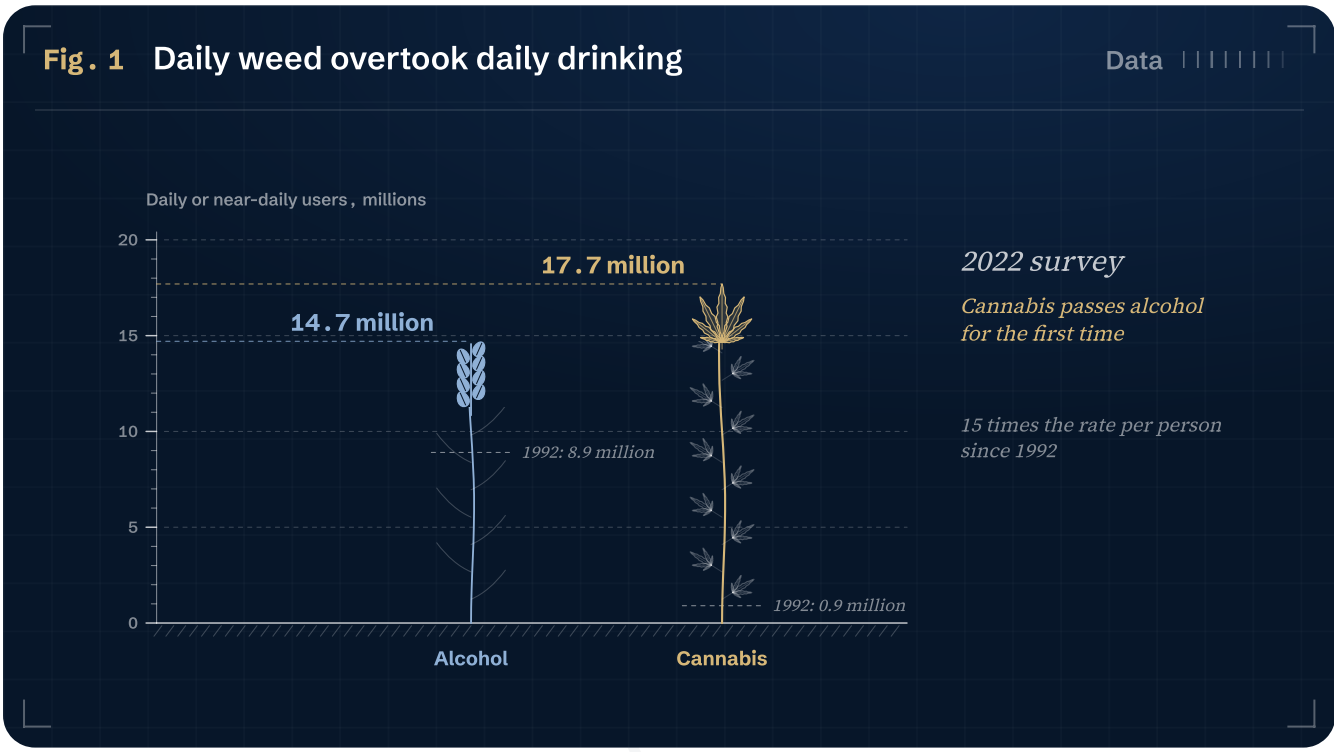


Figure 1. People in the United States reporting daily or near-daily use of cannabis and of alcohol, in millions, in the 1992 and 2022 national surveys. In 1992 there were ten daily drinkers for every daily cannabis user. In 2022, for the first time, more people used cannabis daily than drank daily. Drawn from Caulkins's analysis of 27 national surveys from 1979 to 2022[10].

Table 1. The ways people most often try to stop or control smoking weed, what each one changes, and what each one leaves in place. These are the attempts our clients most often describe before they came to us.

Attempt	What it changes	What it leaves in place
Stopping on resolve, the morning after a heavy night	The decision, at the moment it feels easy	Bad sleep, stress, the evening it used to fill and the withdrawal that peaks a few days later. Relies on self-control when it is weakest.
A tolerance break	Tolerance, for a set number of days	An end date. The habit, the triggers and the reasons for smoking are all waiting on the day the break ends.
Rules: evenings only, weekends only, one joint	When and how much	Each permitted session keeps the receptors turned down and wakes up the learned urge, so the rule is applied by the person least able to keep it.
Switching to edibles, vapes or CBD-heavy strains	How the THC gets in	The same reward loop and the same evening routine, through a different product. The concentrates used in vapes averaged 55.7% THC in 2017[11].
Stopping weed but keeping tobacco or drink	One habit of a set	The other habits, which were used alongside it and now set it off. Daily weed smokers who also smoke cigarettes are far more likely to smoke weed again[2].
Throwing out the stash and deleting the number	Easy access, for a day or two	Nothing else. Weed is easy to get again, and the reasons for wanting it are unchanged.

The rest of this paper takes the questions people ask about stopping weed one at a time. Section 2 answers whether weed is addictive and whether it is safe to stop all at once. Sections 3 and 4 explain why weed is hard to stop: what it does to the reward, stress and habit systems, and why it ends up in every part of the day. Sections 5 to 9 cover what happens after you stop: withdrawal, sleep and dreams, how long THC stays in the body, how long the brain takes to recover, and whether memory and motivation come back. Sections 10 to 12 deal with tolerance breaks and cutting down, with stopping when the people around you still smoke, and with what to do if you smoke again. Section

13 sets out what the Behavior Control System targets for someone stopping weed, day by day, and Sections 14 and 15 report our results, the limits of this paper and when to see a doctor. Where the program is described, we say what each day targets and why. We do not publish how.

Section 02

Is weed addictive, and is it safe to stop all at once?

Days 1 to 15, Brain chemistry restabilization

In brief

Yes, weed can be addictive. Most people who try it never become dependent, but about three in ten people who used it in the past year in a large US survey had a cannabis use disorder. For most people, stopping all at once is safe. Some people need a doctor first, and this section says who.

Weed can be addictive, and the risk rises with how often you use it and how strong it is. In a nationally representative US survey, 30.6% of people who had used cannabis in the past year met the criteria for a cannabis use disorder in 2012 to 2013. Over the decade before, the share of all adults who used cannabis more than doubled, and the share with a cannabis use disorder rose from 1.5% to 2.9%[12]. A review in Nature Reviews Disease Primers puts cannabis use disorder at about 10% of the 193 million people who use cannabis worldwide[13]. Over a lifetime the odds look lower, because most people who try weed never use it often: in the same national survey data, the cumulative probability that a cannabis user would ever become dependent was 8.9%, compared with 22.7% for alcohol and 67.5% for nicotine[14]. Those figures describe everyone who has ever tried it. For someone who already smokes every day, the relevant question is not whether weed can be addictive but how strong the habit has become, and the fact that you are reading this paper is usually the answer.

Two things raise the risk most: frequency and strength. In a survey of adults in the UK, frequent use of high-potency cannabis predicted more severe dependence, especially in young people, while use of lower-potency types did not[15]. A systematic review of 20 studies found that higher-potency cannabis was associated with a higher risk of cannabis use disorder and of psychosis[16]. Section 3 describes how much stronger cannabis has become.

Dependence also takes time to show itself, and it tends to resolve over years rather than months. Among people in the national survey who did become dependent on cannabis, half had done so about five years after they first used it. Remission is common in the long run: the lifetime probability of remission from cannabis dependence was 97.2%, but half of those cases took about six years from the start of dependence[14, 17]. Six years is a long time to lose to a habit that most people expect to stop on their own.

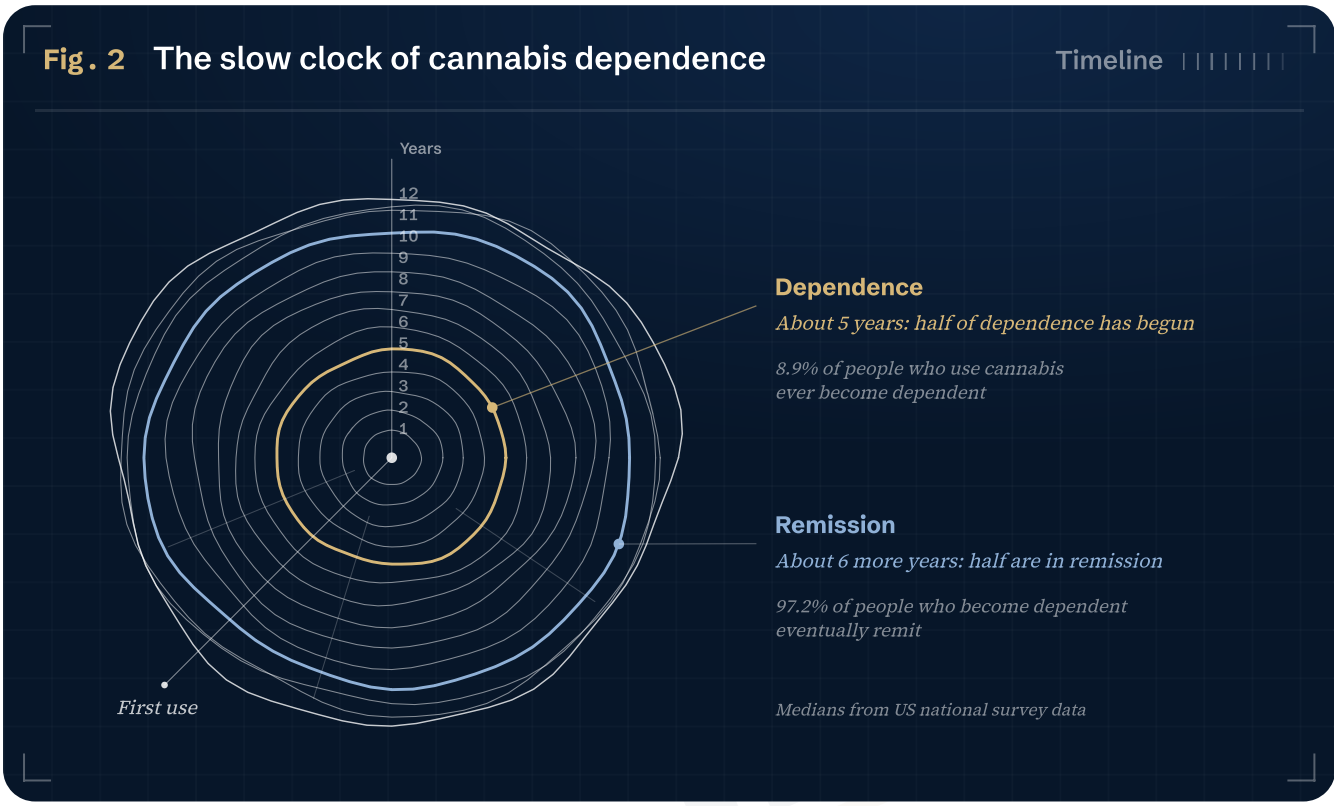


Figure 2. In US national survey data, half of the people who became dependent on cannabis did so about five years after first using it, and half of those who became dependent were in remission about six years after dependence began. Most did reach remission eventually. The figure shows medians from Lopez-Quintero and colleagues[14, 17]; individual timelines vary widely.

2.1 Is it safe to stop all at once?

For most people, yes. Cannabis withdrawal is real and common, but it is mainly a syndrome of mood and behavior, of light to moderate intensity, and it can usually be handled without a hospital stay[18]. That is different from alcohol and from benzodiazepines, where stopping suddenly after heavy daily use can cause seizures. In a meta-analysis of 47 studies covering 23,518 people who used cannabis regularly or were dependent on it, 47% had cannabis withdrawal syndrome when they stopped. The rate was 17% in general population samples, 54% in outpatient samples and 87% in inpatient samples, and it was higher in daily users and in people who also used tobacco or other drugs[19]. Withdrawal is the subject of Section 5. The point here is that it is usually unpleasant rather

than dangerous, and that it is most dangerous to the attempt, not to the body: in one study of adults who had tried to stop, 70.4% of those who had been through withdrawal had used cannabis to relieve it[7].

2.2 Who should talk to a doctor first

Some people should talk to a doctor before they stop. The first group is anyone who uses cannabis for a medical condition. Stopping can bring the condition back, and a doctor needs to plan what replaces it. The second is anyone who also drinks heavily every day or takes benzodiazepines or other sleeping or anxiety medication. Alcohol and benzodiazepine withdrawal can be dangerous, and there is a specific risk of swapping one for the other: in a study of 28 daily cannabis users who stopped for 13 days, those with a past alcohol problem increased their drinking by 52% while they were off cannabis, while those without one did not[20]. In another study of adults who had tried to stop, 41.5% had used alcohol to relieve cannabis withdrawal[7].

The third group is anyone who has had psychosis, hallucinations or severe paranoia, or has a family history of schizophrenia or bipolar disorder. In a study of first-episode psychosis across 11 sites in Europe and Brazil, daily cannabis use was associated with roughly three times the odds of a psychotic disorder compared with never using, and daily use of high-potency cannabis with nearly five times the odds[21]. A meta-analysis of 10 studies covering 66,816 people found the same dose pattern: the heaviest users had 3.9 times the odds of a psychotic outcome compared with people who didn't use, although the authors note that a causal link can't be firmly established[22]. In a Danish national register study, 47.4% of people diagnosed with a cannabis-induced psychosis between 1994 and 2014 were later diagnosed with schizophrenia or bipolar disorder[23]. Someone with that history needs psychiatric care alongside any attempt to stop. The fourth group is anyone with depression, especially with thoughts of self-harm: heavy cannabis use is associated with a higher risk of developing depression[24], and the low mood of early withdrawal can make an existing depression feel worse for a few weeks.

Finally, anyone who has repeated bouts of severe nausea and vomiting while using cannabis should see a doctor. Cannabinoid hyperemesis syndrome is a cycle of vomiting linked to regular cannabis use. In a systematic review of 183 articles, everyone described had a history of regular cannabis use, 97.4% used it at least weekly, 92.3% took hot baths or showers for relief, and symptoms resolved after stopping cannabis in 96.8%; the authors conclude that stopping appears to be the best treatment[25]. Severe vomiting causes dehydration, which needs medical care.

2.3 What a doctor can do

There is no approved medication for stopping cannabis. A Cochrane review of 21 randomized trials with 1,755 participants found that none of the medications tested, including THC preparations, antidepressants, anticonvulsants, buspirone and N-acetylcysteine, made abstinence at the end of treatment more likely than placebo[26]. A doctor can still help in three ways: by checking for and treating anything the cannabis was covering, such as anxiety, depression, pain or insomnia; by

managing any alcohol or medication use safely; and by treating severe withdrawal symptoms, especially sleep, where short-term medical help has been tested in the laboratory[27]. Talking treatments have better evidence. A Cochrane review of 23 randomized trials with 4,045 participants found that psychosocial treatment reduced how often people used and how dependent they were, compared with minimal treatment, and that an intensive combination of motivational interviewing, cognitive behavioral therapy and rewards for abstinence had the most consistent support. Rates of lasting abstinence were low across all of them[28]. 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 · Phase 1, Brain chemistry restabilization **Days 1 to 15**

Before Day 1	**Medical safety** The Root-Cause Diagnostic asks how much and how often the person smokes, what else they use with it, and about medical use, medication, drinking and any history of psychosis. Anyone in one of the groups above is told to see a doctor before they begin, and the program follows the doctor's advice on when and how to stop.
Day 15	**Medical safety** On the day abstinence begins, the client is given general information about supplements and told to consult a doctor before taking any of them. The program does not prescribe or recommend medication or supplements.

What this means in practice

If you smoke weed every day and nothing in Section 2.2 applies to you, you can stop all at once. Expect the first two to three weeks to be hard, and plan for them. If any of Section 2.2 applies to you, talk to a doctor before you stop, and tell them what else you use.

Section 03

Why is it so hard to quit weed when I'm in control everywhere else?

Days 10 to 17, Brain chemistry restabilization

In brief

Weed works on the brain's own system for calming stress and ending the day. Daily use turns that system down, so without weed you feel worse than you did before you started, and the habit runs on routine rather than on choice. The weed itself is also far stronger than it was.

Because weed doesn't only feel good. It borrows a system your brain uses every day to calm down, and daily use changes that system so that being without weed feels worse than normal. Self-control at work runs on clear goals, outside structure and a rested prefrontal cortex. Smoking happens at the end of the day, when the structure has gone, the prefrontal cortex is tired, and the urge has been learned so well that it runs before you've decided anything[3, 29]. Being good at your job doesn't protect you, because the part of you that is good at your job isn't the part that reaches for the grinder at nine at night.

3.1 What THC does in the brain

The brain makes its own cannabis-like chemicals, called endocannabinoids, and has receptors for them throughout, the most common being the CB1 receptor. This system works like a dimmer switch on other signals: it turns down stress responses, helps regulate sleep, appetite, pain and memory, and shapes how rewarding things feel. Stress changes it in both directions. Morena and colleagues' review describes how stress lowers levels of one endocannabinoid, anandamide, which helps set off the stress response and anxiety, and raises another, which helps end the stress response; chronic stress reliably reduces CB1 receptors in almost every brain region studied[30].

THC acts on the same CB1 receptors, more strongly and for longer than the brain's own chemicals do. That is why the first hit after a hard day works so well: it does in minutes what the brain's own system is struggling to do. THC also acts on the reward system. In a brain imaging study, THC caused dopamine release in the human striatum, the region at the centre of reward and habit learning[31]. Dopamine there is less about pleasure than about learning what to want: it fires most strongly when a reward is better than expected and moves, with repetition, to the things that predict the reward[32, 33]. The grinder, the lighter, the balcony, the end of the evening's work: each becomes a signal that something good is about to happen.

Definition: tolerance

Tolerance means the same amount of a drug does less than it used to. With weed, it happens largely because the brain reduces the number of CB1 receptors THC can act on. The cost is that the brain's own calming chemicals have fewer receptors to act on too, which is part of why the days after stopping feel so flat and edgy.

3.2 What daily smoking does to it

The brain adapts to a flood of THC by turning its receptors down. In a brain imaging study of 30 men who smoked cannabis every day and 28 who did not, the daily smokers had about 20% fewer available CB1 receptors in the outer layers of the brain, the cortex, with a 21% reduction in the anterior cingulate, a region involved in attention and self-control. The longer they had smoked, the lower their receptor levels[34]. A second study, of 11 cannabis-dependent men and 19 controls, found receptor availability 15% lower in almost all brain regions[35]. Section 8 shows how quickly these receptors come back.

Daily use also seems to dampen the reward system itself. In a study using brain imaging, people who used cannabis had lower dopamine synthesis capacity in the striatum than controls, the difference was driven by those who met criteria for abuse or dependence, and the more they used, the lower it was[36]. In another, 24 people with a cannabis use disorder and 24 controls were given a drug that raises dopamine. The cannabis users had markedly blunted responses in brain, body and mood, and in the reward centre the blunting was linked to higher scores for negative emotion and to more severe addiction[37]. A review of THC and the dopamine system concludes that a single dose of THC increases dopamine release, while long-term use is associated with a blunted dopamine system[38]. In plain terms: the daily smoker's brain has adjusted to weed being there, and when it is gone, ordinary life feels duller than it should for a while.

3.3 The weed is stronger than it used to be

The weed people smoke today is not the weed of thirty years ago. The University of Mississippi's potency monitoring program, which tests cannabis seized by US authorities, found that the average THC content of cannabis plant material rose from about 4% in 1995 to about 12% in 2014, while its CBD content, the compound that may soften some of THC's effects, fell, so that THC went from 14 times the CBD content to about 80 times[39]. Over the next decade the average rose from 8.9% in 2008 to 17.1% in 2017, and the concentrates used in vapes and dabs rose from 6.7% to 55.7% THC[11]. A meta-analysis of 12 studies from seven countries, covering cannabis samples from 1970 to 2017, found that THC in herbal cannabis rose by 0.29 percentage points a year and in resin by 0.57, while CBD did not change[40].

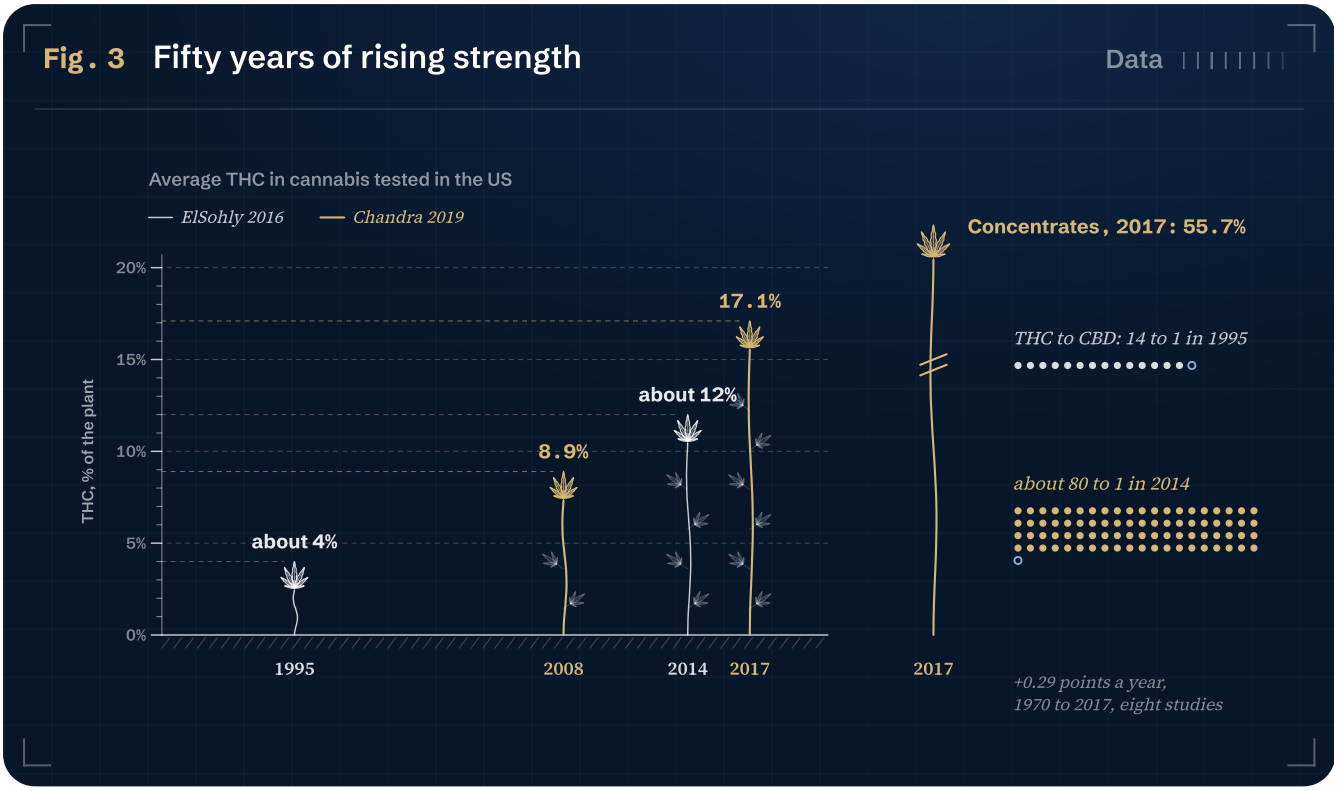


Figure 3. Average THC content of cannabis tested in the United States, drawn as a stalk that grows taller with each measurement: about 4% in 1995 and 12% in 2014[39], 8.9% in 2008 and 17.1% in 2017[11]. Concentrates reached 55.7% in 2017[11]. Across eight studies of herbal cannabis from 1970 to 2017, in the United States and Europe and New Zealand, THC rose by 0.29 percentage points a year while CBD did not change[40]. The two US series come from the same monitoring program but different samples, so they overlap rather than join.

Strength matters for stopping because it matters for dependence. Daily use of high-potency cannabis predicts more severe dependence[15], and higher potency is associated with a higher risk of cannabis use disorder[16]. A habit built on 17% weed and concentrates is a bigger adjustment for the brain to make than one built on the weed of the 1990s, and the withdrawal that follows can be correspondingly harder. It is one reason that people who stopped easily at twenty find it much harder at thirty-five.

3.4 From a choice to a habit

With repetition, behavior moves from deliberate, goal-directed control to habit, a process that runs on its own once the trigger is present[29]. Wood and Rünger describe habits as responses that are set off by the context in which they have been repeated, which is why they persist even when the person's goals have changed[41]. Stress speeds this shift: stressed people fall back on habits rather than on goal-directed choices[4]. In a daily smoker, the habit is linked to particular times, places, objects and moods. When 38 regular cannabis users who had not smoked for three days held a cannabis-related object during brain scanning, reward-related regions including the ventral tegmental area, the anterior cingulate, the insula and the amygdala responded more strongly than to

a neutral object[42]. A meta-analysis of cue studies found that regular cannabis users react moderately to cannabis triggers, and that their attention locks onto them much more strongly than their reported craving would suggest[43]. The habit is often ahead of the person: by the time they notice the urge, attention has already gone to the weed.

In the program · Phase 1, Brain chemistry restabilization **Days 10 to 17**

Days 10 to 14	**The loop and the case for stopping completely** The client learns how the loop of trigger, urge, smoking and relief works in their own life, and why the program asks for complete abstinence rather than less weed. They list the easy rewards their days run on, of which weed is usually one of several, and assess where each habit sits on the path from occasional use to compulsion.
Day 17	**Alternative rewards** The client starts a demanding new pursuit that rewards effort and builds skill over weeks. It is placed in the hours weed used to fill, so the evening has something in it worth doing.

That second target rests on research on how rewards compete. Bickel and colleagues describe addiction as, in part, a problem of valuing the immediate reward too highly and the delayed one too little, and argue that treatment should strengthen the value of delayed, effortful rewards[44]. Animal research finds that an enriched environment, with more to do, explore and learn, protects against and reduces drug seeking[45]. The new pursuit is not a distraction. It is a competing source of reward, built in the same hours as the habit.

Section 04

Why do I smoke every day, from the first one in the morning to the last one before bed?

Days 3 to 15, Brain chemistry restabilization

In brief

Because weed has taken on jobs at fixed points in your day: getting going, ending work, handling stress, filling the evening and getting to

sleep. Each time you smoke at the same time and in the same place, the habit gets stronger and the gap it would leave gets bigger.

Most daily smokers don't smoke at random. They smoke at the same points every day, and each of those points has a reason: the first one to get going or to take the edge off the morning, one at the end of work to switch off, one after an argument or a bad call, one in the evening because the evening is empty without it, and one to get to sleep. The reasons feel different, but they work the same way. Weed has become the tool for a job, and every time it does that job at that time and in that place, the link gets stronger[41].

4.1 Smoking to cope

People smoke weed for different reasons, and the reason matters. A meta-analysis of 48 studies with 11,274 participants looked at five motives: to cope with bad feelings, to enhance good ones, to be social, to fit in, and to expand awareness. When all five were considered together, coping was one of only two motives that independently predicted problems from cannabis use[46]. Smoking to feel better is the motive most closely tied to the habit getting out of hand, and it is the one that most daily smokers recognise when they are honest about the evening joint.

Stress sets the urge off directly. In a laboratory study, 87 people who were dependent on cannabis went through either a standard social stress test or a neutral task and were then shown cannabis triggers. Both the stress and the cannabis triggers raised craving[47]. Over time a second loop forms on top of the first. Once someone is dependent, part of what weed relieves is the irritability, restlessness and low mood of early withdrawal, which starts within a day or two of the last use[6]. In a study of 104 adults who had seriously tried to stop, withdrawal symptoms prompted people to act to relieve them, including by using cannabis, which the authors describe as negative reinforcement: the habit is kept going by the relief of feeling less bad[48]. Koob and Le Moal describe this shift, from using for pleasure to using to escape a low state the drug itself helped create, as central to addiction[49].

4.2 The first one of the day and the last one

Two points in the day deserve particular attention. The first is the morning. Screening tests for problem cannabis use, such as the Cannabis Abuse Screening Test, ask how often a person smokes before midday and how often they smoke alone, because both mark a habit that has moved from social use to a private daily routine[50]. For some people the morning joint is how the day starts. For others it is the evening one that does the damage to the morning. One of our clients described it this way: “Normally it was a struggle waking up. You can imagine if you have these bad habits in the evening that in the morning you wake up and it takes an hour, 2 hours to kickstart the day, to get yourself in the mood to do stuff.”

The second is the last one before bed. Many daily smokers no longer remember how to fall asleep without weed, and that is the hardest job to take away. THC can shorten the time it takes to fall asleep, but a review of the research concludes it may impair the quality of sleep over the long term[51]. When the evening joint stops, sleep is usually the first thing to break, and broken sleep is one of the strongest predictors of smoking again. Section 6 covers it in detail. Here the point is that the bedtime joint is often the one people least want to give up, because it is the one that seems to protect something they need.

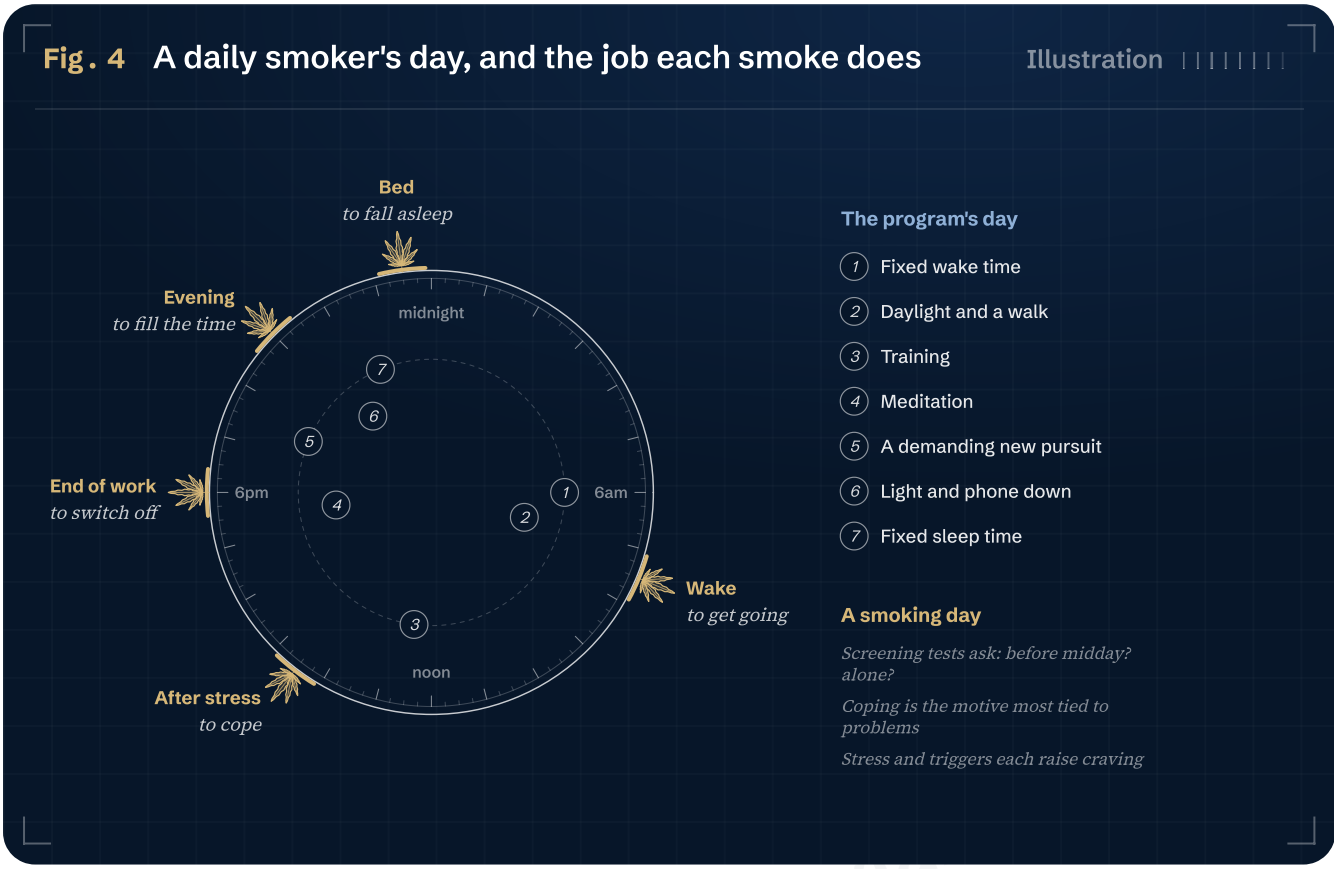


Figure 4. An illustration of the points in the day where daily weed most often sits, and the job it does at each one, drawn as a field notebook's day dial. Toggle to see what the program builds into the same hours. The points are typical, not measured: every person's dial is different, and the Root-Cause Diagnostic maps the client's own. The research notes on the dial are from the studies cited in this section.

4.3 Habits that travel together

Weed rarely travels alone. Many people roll it with tobacco, smoke a cigarette with it or straight after, drink with it, or pair it with the phone, porn or food. Agrawal and colleagues' review of cannabis and tobacco describes shared genetic risk, shared routes of use and shared smoking triggers that keep both going, similar withdrawal syndromes, and early evidence that stopping both together predicts better results[52]. In a within-person study of 12 people who used both, withdrawal from cannabis alone and from tobacco alone was of similar size, and stopping both at once was

more severe for a short time[53]. The cost of keeping one going is high: in laboratory studies of daily cannabis smokers, those who also smoked cigarettes were about 19 times more likely to smoke cannabis again when it became available[2]. Our clients describe the same thing. Two of them who came to us for weed came with other habits as well, and one described all three of his as one struggle: “These three things had a huge influence on my life. Not specifically the act of doing it, but the struggle I was going through for years and years and years trying to quit these bad habits.”

In the program · Phase 1, Brain chemistry restabilization **Days 3 to 15**

Days 3 to 9	**Sleep, body clock and the shape of the day** Before weed stops, the client fixes their sleep and wake times, gets daylight and a walk early in the day, turns light and the phone down in the evening and leaves the phone out of the bedroom, starts progressive training, starts a daily meditation and builds a day on fixed anchors. These fill the hours weed used to mark and give the body clock a stable rhythm before the first nights without it.
Day 15	**Habits that travel together** The client identifies their core habit and the habits stacked on top of it, such as tobacco, alcohol, the phone or porn, and stops them on the same day, so that no one habit is left to set the others off again.

The order follows from the research. Stable routines are what habits run on, and a new routine placed in the same time and setting as the old habit can take over its context[41]. Light is the main signal that sets the body clock, and morning light in particular anchors sleep timing[54]. Circadian disruption and poor sleep are linked to substance use and relapse across drugs[55]. Building those anchors first means the first evening without weed is not an empty evening.

Section 05

How long does weed withdrawal last, and what does it feel like?

Days 16 to 47

In brief

For a daily smoker, withdrawal usually starts within one to three days, is worst between days two and six, and fades over two to three weeks. Irritability, anxiety, low mood, poor appetite, bad sleep and strange

dreams are the most common symptoms. Some, especially sleep and irritability, can last a month or more.

Most daily smokers feel withdrawal within one to three days of their last smoke, feel worst somewhere between day two and day six, and feel most symptoms fade within two weeks. In the study that first mapped the time course, 18 daily cannabis users were followed through five days of smoking as usual and 45 days without it. Withdrawal effects usually began between days 1 and 3, peaked between days 2 and 6, and most lasted 4 to 14 days, with a size and time course comparable to tobacco withdrawal[6]. A later review puts the usual length of the syndrome at up to three weeks[18]. Some symptoms last longer. In a study of chronic users who stopped for 28 days under supervision, symptoms were most pronounced in the first 10 days, but some were still present at the end of the 28 days[56].

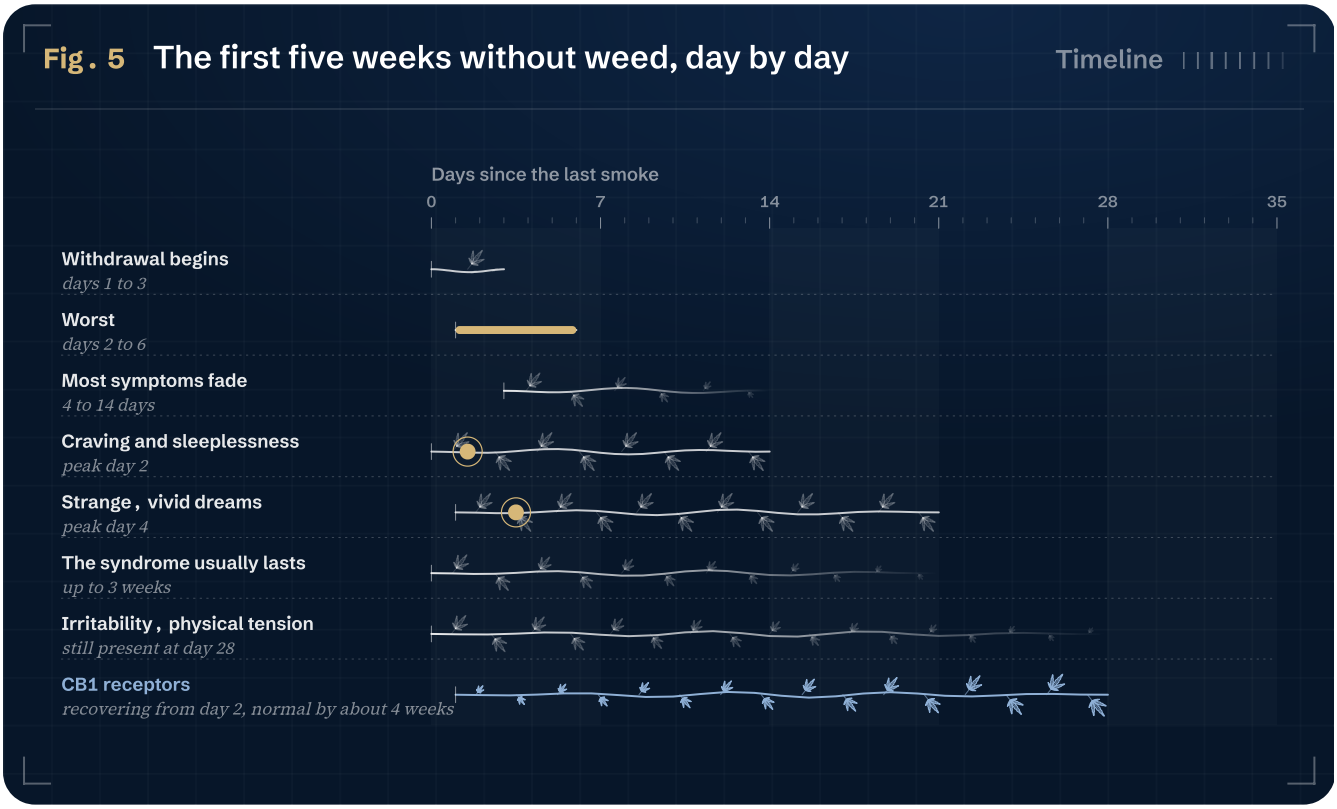


Figure 5. A field log of the first 35 days after a daily smoker stops, showing when each part of withdrawal starts, peaks and fades in the studies cited. Bands show the reported range; marks show reported peaks. Withdrawal onset, peak and length are from Budney and colleagues[6]; the peaks for craving, sleeplessness and strange dreams come from an inpatient study summarised by Bonnet and Preuss[18]; symptoms persisting through 28 days from Kouri and Pope[56]; receptor recovery from D'Souza and colleagues and Hirvonen and colleagues[34, 35]. Individual experience varies widely.

5.1 What it feels like

Cannabis withdrawal is mostly a syndrome of mood and behavior, with some physical symptoms[57]. In Budney's study, the effects that followed a withdrawal pattern were aggression, anger, anxiety, decreased appetite, weight loss, irritability, restlessness, shakiness, sleep problems and stomach pain[6]. In a national US survey of frequent cannabis users, 44.3% reported two or more withdrawal symptoms, and the symptoms fell into two groups: one of weakness, sleeping too much and slowed movement, and one of anxiety, restlessness, depression and insomnia[58]. Among adults trying to stop on their own, 95.5% reported at least one withdrawal symptom during their attempt, with a median of nine[7]. Women report stronger withdrawal than men, including physical symptoms such as nausea and stomach pain[18].

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Table 2. Common symptoms of cannabis withdrawal and when they usually appear, from the studies cited in this section. Timing varies from person to person, and heavier use usually means stronger symptoms.

Symptom	What it is like	When
Irritability, anger, aggression	A short fuse, arguments over small things	From days 1 to 3; worst in the first week; can last a month[6, 56]
Anxiety and restlessness	On edge, unable to settle, a sense that something is wrong	From days 1 to 3; worst days 2 to 6[6]
Low mood	Flat, bored, nothing seems worth doing	First weeks; reported as lasting longer than the physical symptoms[18, 58]
Sleep problems	Trouble falling asleep, waking in the night, poor sleep	From the first nights; can last longer than other symptoms[18, 59]
Strange, vivid dreams	Intense, often unsettling dreams, sometimes about smoking	Peak around day 4, later than other symptoms[18]
Reduced appetite and weight loss	Not hungry, some nausea or stomach pain	First week or two[6]
Craving	Strong urges to smoke, thoughts that keep coming back to it	Peak in the first days, then less often but strong when set off[18, 43]
Shakiness, sweating, chills	Physical discomfort, usually mild	First days[6, 18]

5.2 How many people get it

About half of people who use cannabis regularly get withdrawal when they stop. In the meta-analysis by Bahji and colleagues of 47 studies and 23,518 people, the pooled rate was 47%. It was 17% in general population samples, 54% in people treated as outpatients and 87% in people treated as inpatients, and it was higher among daily users and those who also used tobacco or had other

substance problems[19]. The pattern is what you would expect from a syndrome driven by dose: the more and the longer someone has smoked, the more their brain has adapted, and the more there is to readjust.



Figure 6. The share of people who use cannabis regularly or are dependent on it who had cannabis withdrawal syndrome on stopping, drawn as one hundred seeds per setting, with the filled seeds showing the share. Pooled estimates from a meta-analysis of 47 studies and 23,518 participants by Bahji and colleagues[19].

5.3 Why withdrawal decides so many attempts

Withdrawal matters less for what it does to the body than for what it does to the attempt. In a study of 49 cannabis-dependent adults who stopped for two weeks under monitoring, the more withdrawal interfered with their daily lives, the more likely they were to smoke during the attempt, and the more they were smoking a month later[60]. Among adults who had tried to stop on their own, 70.4% of those who had been through withdrawal had used cannabis to relieve it, and many had used alcohol or tobacco for the same purpose[7]. In laboratory studies, the daily smokers with more negative mood and more disrupted sleep during withdrawal were more likely to have a severe relapse when cannabis was offered again[2]. The first two weeks are when the attempt is most fragile, and the reason is usually not a lack of resolve. It is that the person feels worse than they have felt in years and knows exactly what would fix it.

That points to what helps. If withdrawal is mostly irritability, anxiety, low mood and bad sleep, then the person who has already rebuilt their sleep, built some daily exercise and learned a few ways to bring their stress down will feel it less and cope with it better. A small pilot study of 12 cannabis-dependent adults who were not trying to stop found that ten sessions of moderate treadmill exercise

over two weeks cut their use from an average of 5.9 joints a day to 2.8 during the exercise period, and reduced craving[61]. It was a small, uncontrolled study, and it needs larger trials. But it fits with wider research on exercise as a treatment for drug use[62].

In the program Days 16 to 47

Days 16 to 23	**The days withdrawal usually peaks** In the first week after the stop, when withdrawal is usually at its worst, the client adds heat and cold exposure, starts the demanding new pursuit described in Section 3, begins training their awareness of what sets the urge off, and adds a short breathing practice to the morning. The days are full by design.
Days 33 to 39	**Why early abstinence is hard** About three weeks into abstinence, the client learns why the brain protests when weed is gone and what the low, edgy days are doing, so that a bad week is read as withdrawal with an end date, not as proof that stopping isn't working.
Days 44 to 47	**Emotion and the stress system** The client learns how stress and strong emotion drive the urge, practises structured breathing and progressive muscle relaxation, and adds a breathing practice to the daily routine.

Slow, structured breathing has been shown to lower negative mood and stress markers in healthy adults[63], and naming an emotion in words reduces the amygdala's response to it[64]. Neither is a treatment for withdrawal on its own. They are tools for the irritable, anxious moments that are most likely to end an attempt in its first month.

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Section 06

Why can't I sleep after quitting weed, and why are my dreams so vivid?

Days 3 to 5, Brain chemistry restabilization

In brief

Daily THC suppresses dreaming sleep. When you stop, your brain makes up for it, so dreams come back intense and strange, and falling

and staying asleep gets harder for the first weeks. Sleep usually settles within a month. Fixing your sleep routine before you stop makes those nights easier and protects the attempt.

Because your brain has been sleeping on THC, and it has to relearn how to sleep without it. Daily THC suppresses REM sleep, the stage in which most vivid dreaming happens. When the THC stops, REM comes back with extra force, a rebound, and the dreams that come with it are intense, strange and often about smoking. At the same time, falling asleep takes longer and you wake more in the night. For most people this is worst in the first one to two weeks and settles within about a month, though the research on exactly how long is thin[18, 65].

6.1 What weed does to sleep while you smoke

THC can make it quicker to fall asleep, which is why so many people use it at night. A review of cannabis and sleep concludes that THC may shorten the time it takes to fall asleep but could impair sleep quality over the long term[51]. The best-known laboratory work on this is old but clear. In studies by Feinberg and colleagues, experienced users given THC or cannabis extract every day had fewer of the rapid eye movements that mark REM sleep, with some tolerance to the effect. When the THC stopped abruptly, eye movement density during REM rose to extremely high levels and REM periods lengthened[66]. In plain terms, the daily smoker is not getting a normal amount of dream sleep, and the brain keeps count.

6.2 The first nights without it

Sleep studies of people stopping cannabis show the same picture from several angles. In a laboratory study of 20 daily cannabis users who alternated between smoking as usual and three days without, abstinence brought less total sleep, lower sleep efficiency, a longer time to fall asleep, an earlier and larger share of REM sleep, and worse sleep quality as people rated it themselves[27]. In a study of 18 heavy users who stopped abruptly on an inpatient unit, sleep was recorded on nights 1, 2, 7, 8 and 13. Across those two weeks total sleep time and sleep efficiency fell, time awake after first falling asleep rose, and the amount of REM sleep declined from its early high[59]. Strange, vivid dreams tend to peak later than the other symptoms, around day 4 in an inpatient study[18]. A systematic review of 36 studies concluded that sleep is frequently disrupted during cannabis withdrawal, though differences in how studies measured it make the exact pattern hard to pin down[65].

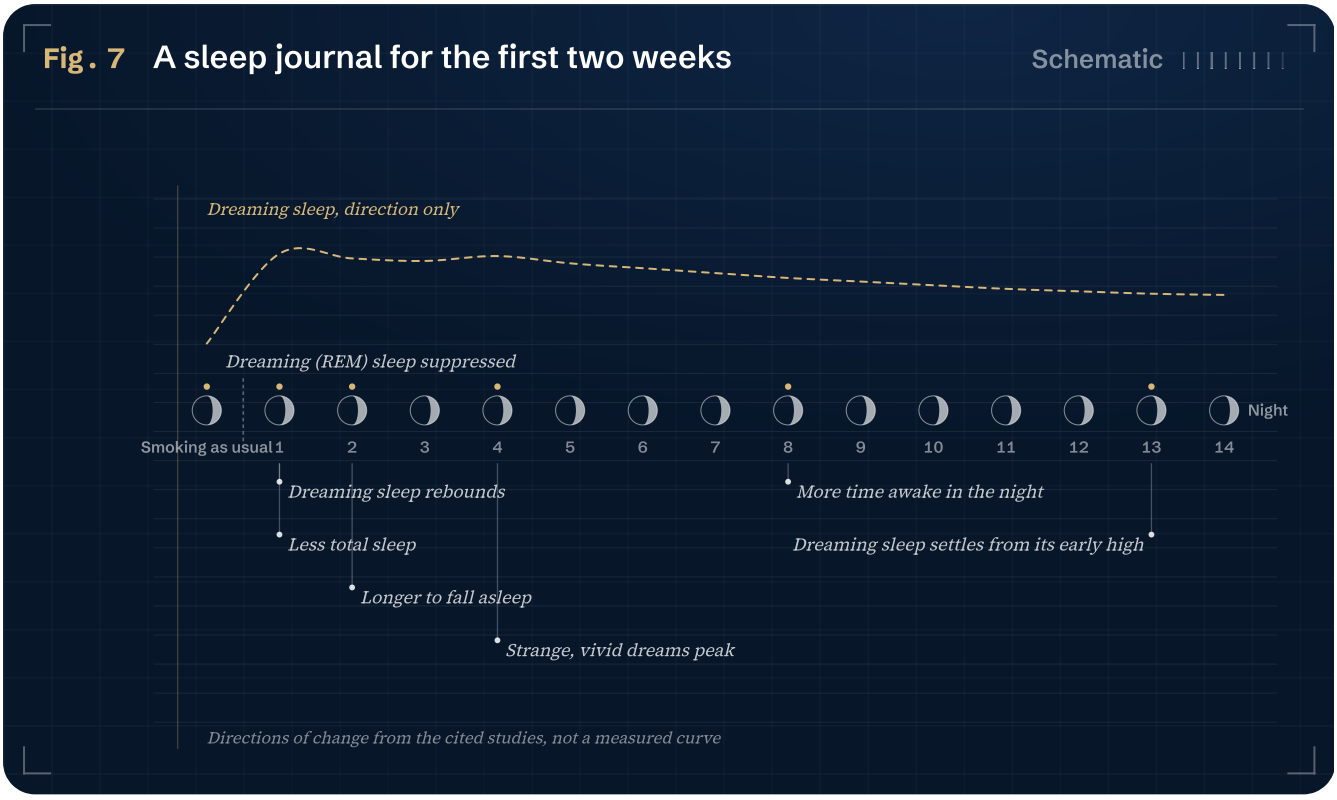


Figure 7. A schematic of what the cited sleep studies found when daily smokers stopped, drawn as a night-by-night journal. Each moon is a night; the marks under it show the direction of change in sleep measures, not their size. It is not a measured curve. From Vandrey and colleagues[27], Bolla and colleagues[59], Feinberg and colleagues[66] and the inpatient study summarised by Bonnet and Preuss[18].

6.3 Why sleep decides whether you smoke again

Sleep is not a side issue. It is one of the strongest links between withdrawal and smoking again. In a study of 55 cannabis-dependent military veterans making a self-guided attempt to stop, those who slept poorly before they stopped were more likely to smoke again within the first two days[67]. In laboratory studies, daily smokers whose sleep was more disrupted during withdrawal were more likely to relapse severely[2]. Bolla and colleagues conclude that poor sleep could contribute to treatment failure in heavy users and that sleep is a target for treatment in its own right[59].

Part of the reason is what lost sleep does to the brain's control systems. Sleep deprivation weakens the prefrontal cortex's control over the amygdala, making emotional reactions stronger[68], and in a brain imaging study a single night without sleep reduced the availability of dopamine D2 receptors in the ventral striatum, a change of the kind linked to impulsive reward-seeking[69]. A person who has slept four broken hours is more irritable, more anxious and less able to hold a plan, on the same days that withdrawal is making them irritable and anxious already. More broadly, disrupted body clocks and poor sleep are linked to substance use and relapse across drugs[55].

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

Sleep and the body clock

Twelve days before weed stops, the client sets fixed sleep and wake times, gets morning daylight and a daily walk, dims light in the evening and moves the phone out of the bedroom. By Day 15 they have nearly two weeks of a stable sleep routine to fall back on during the nights withdrawal disrupts.

Why sleep comes before the stop date

The nights after stopping are the hardest part of withdrawal for many daily smokers, and poor sleep predicts smoking again. So the program fixes sleep timing, light and the bedroom before weed stops, not after. The nights still get worse for a while. But they get worse from a better starting point, with a routine already in place that doesn't depend on weed.

Section 07

How long does weed stay in your system after you quit?

In brief

THC dissolves in body fat and leaks back out slowly. In heavy daily smokers it can still be found in blood a month after stopping, and its breakdown products in urine for an average of about four weeks and sometimes longer. Being detectable is not the same as being high.

Longer than most people expect, if you smoke every day. THC dissolves in fat, and in a regular smoker it builds up in the body's fat stores and leaks back into the blood for weeks after the last smoke. In a study of 30 men who smoked cannabis daily and then stayed on a secure research unit, THC was still detectable in the blood of 2 of the 5 who stayed for 30 days, and its main breakdown product was still detectable in 4 of those 5[70]. In an earlier study of 86 chronic users under strict supervision, urine tests stayed positive for an average of 27 days, and in some people for 46

consecutive days[71]. For an occasional user the time is much shorter. Being detectable is not the same as being high: the amounts that leak out of fat are small. But it does mean that a heavy smoker's body is still clearing THC through most of the first month.

7.1 Where THC goes

Smoked THC reaches the blood within minutes: in one study, blood levels peaked at about nine minutes, before the last puffs had even been taken. From the blood it moves quickly into the brain and into fat, because THC dissolves far more readily in fat than in water. Huestis's review of human cannabinoid pharmacokinetics describes how, with prolonged exposure, THC concentrates in human fat and is retained for long periods, and how its release back from fat into the blood is the slowest step in clearing it from the body. In chronic users, a terminal half-life of about 4.1 days has been reported for THC in plasma, meaning it takes about four days for the remaining amount to halve, and then four more to halve again[72].

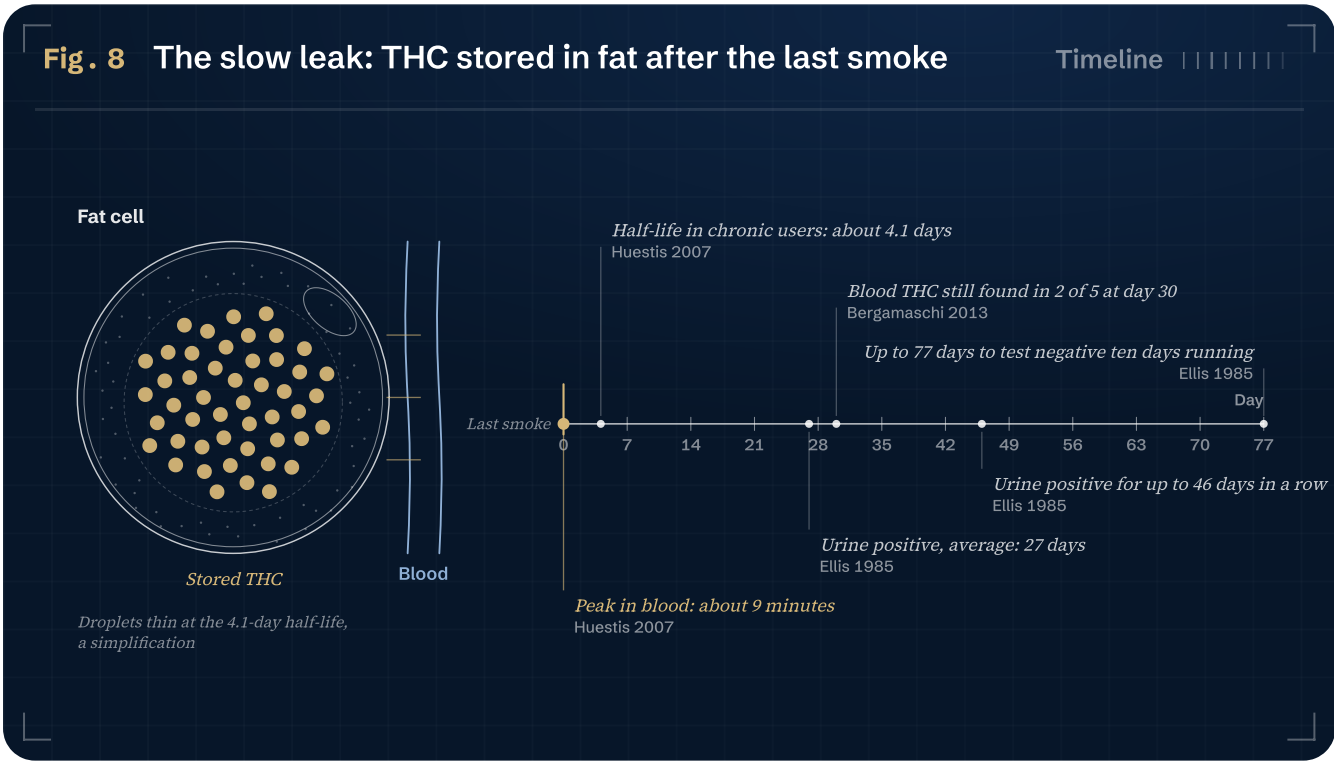


Figure 8. A specimen drawing of a fat cell holding THC, and a time line of what has been measured after heavy daily smokers stop. THC peaks in the blood within minutes of smoking and is then stored in fat, from which it is released slowly[72]. Blood THC was still detectable at 30 days in 2 of 5 heavy smokers[70]. Urine tests stayed positive for a mean of 27 days and up to 46 consecutive days, and some people took up to 77 days to test negative for ten days in a row[71]. Drag along the time line to move through the weeks.

7.2 How long it can be found

The two best-supervised studies give a consistent picture. In Bergamaschi's study, 27 of the 30 daily smokers had THC in their blood on admission. It fell gradually: only 1 of the 11 still on the unit at 26 days had cleared it, and 5% of participants still had levels of at least 1 microgram per litre after 12 days[70]. In Ellis's study of urine, excretion was clearly two-phase: a faster early fall that did not continue, followed by a long, slow tail. During that tail most people had runs of negative tests lasting an average of three days, followed by at least one positive one[71]. The practical point for someone who has just stopped is that a positive test weeks later does not mean they have smoked, and a negative one does not mean the body has finished clearing it.

7.3 Can stored THC affect you after you stop?

Possibly, a little, and mostly in ways that are hard to feel. In rats given repeated THC, a day without food or a dose of the stress hormone ACTH raised blood THC by releasing it from fat; the authors called this reintoxication and noted that whether it has functional effects in people was unknown[73]. In people, 14 regular cannabis users who did 35 minutes of exercise on a stationary bike had a small but significant rise in blood THC afterwards, larger in people with a higher body mass index; a short fast did not have the same effect[74]. Bergamaschi and colleagues note that THC lingering in the blood for a month fits the time course of the subtle thinking problems that persist in the first weeks after stopping[70]. None of this is a reason to avoid exercise, which helps with sleep, mood and craving. It is a reason to expect the first month to feel unfinished: the body is still clearing what it stored.

What this means in practice

If you have smoked every day for years, your body will still be clearing THC for most of the first month. The worst of withdrawal is usually over within two to three weeks, but give the whole first month the same care: steady sleep, exercise, food and a plan for the evenings. If you face drug testing for work or driving, don't rely on a fixed number of days, because the range between people is wide.

Section 08

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

Days 24 to 30, Brain chemistry restabilization

In brief

The cannabinoid receptors that daily smoking turns down start coming back within two days of stopping and are back to normal in most of the brain within about four weeks. Thinking and memory mostly recover within the first month too. The habit itself, the learned urge and its triggers, takes much longer to fade.

Faster than most people fear, in the parts that are best measured. In brain imaging studies, the CB1 receptors that daily smoking turns down began to recover within two days of stopping and were back to normal levels in most of the brain within about four weeks[34, 35]. That time frame matches the length of withdrawal, which a review suggests it may help explain[18]. Thinking and memory follow a similar course, covered in Section 9. What does not reset in four weeks is the habit: the learned link between weed and the times, places, people and moods where you smoked. That part is slower, and it is what most of the 90 days are for.

8.1 The receptors come back

Two imaging studies have tracked the receptors directly. Hirvonen and colleagues scanned 30 daily cannabis smokers and 28 controls, found about 20% fewer available CB1 receptors in the smokers' cortex, and then rescanned 14 of the smokers after 26 days, on average, of continuously monitored abstinence on a secure research unit (range 13 to 32 days). Receptor levels had increased specifically in the regions that had been reduced, and were back to normal in most of them. The exception was the hippocampus, a region central to memory, which did not show the same reversal in that time[34]. D'Souza and colleagues scanned 11 cannabis-dependent men at baseline and after 2 and 28 days of monitored abstinence. At baseline their receptor availability was 15% lower than in 19 controls. After just two days, the difference was no longer statistically significant, and people with lower receptor levels at day 2 had more withdrawal symptoms. At 28 days there was no significant difference from controls[35].

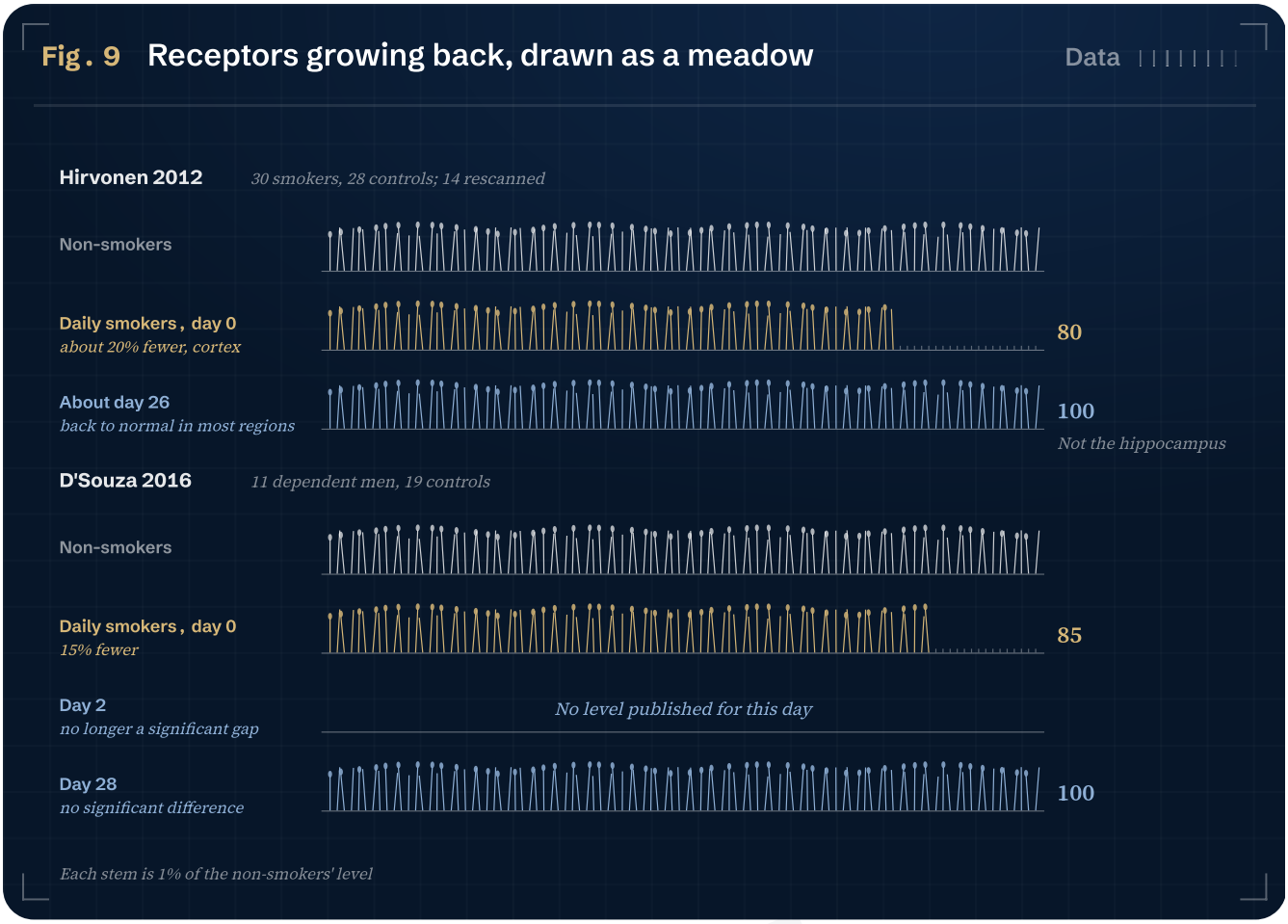


Figure 9. CB1 receptor availability in daily smokers compared with non-smokers, drawn as a meadow of receptor stems, one for each percent of the non-smokers' level. Hirvonen and colleagues found about 20% fewer receptors in the cortex of 30 daily smokers, back to normal in most regions after about four weeks of abstinence (14 rescanned at 26 days on average)[34]. D'Souza and colleagues found 15% fewer in 11 dependent men, no longer a significant difference after 2 days and none at 28 days[35].

8.2 The reward system and mood

The dopamine findings in Section 3 come from people who were still using, and there is less direct evidence on how fast they recover. What the research does show is that the blunted dopamine response in heavy users was linked to negative emotion and to the severity of the addiction[37], and that lower dopamine synthesis tracked how much people used[36]. Both fit what people describe in the first weeks after stopping: ordinary pleasures feel muted, and boredom is hard to bear. Both also point to what helps: rewards that take effort and come from real activity, rebuilt deliberately rather than waited for. Lasting changes in the brain's reward and habit circuits after long drug use are thought to underlie the risk of relapse that outlasts withdrawal[9].

8.3 The habit takes longer

Receptor recovery is the brain undoing its adaptation to THC. The habit is something else: learning. Stopping does not erase what was learned. Bouton's work on extinction shows that when a learned response stops being rewarded, the original learning is not deleted. A new, competing memory is laid down, and it is tied to the context in which it was learned, which is why the old response can return in a new setting, after time passes or after a single reminder[75]. A weed habit learned on a particular sofa, with particular friends, at the end of particular kinds of day, will still be there when those return, long after the receptors have recovered. That is why the program's second and third months work on triggers, thoughts and identity rather than on the body.

In the program · Phase 1, Brain chemistry restabilization

Days 24 to 30

Evidence of recovery

At the end of the first month, the client looks at the evidence that the brain recovers with abstinence and learns how triggers are formed, as the bridge into the second month's work on triggers.

Section 09

Will my memory and motivation come back after quitting weed?

Days 20 to 23, Brain chemistry restabilization

In brief

For most adults, yes. The memory problems linked to heavy smoking are mostly tied to recent use and largely fade within a month, much of it in the first week. Weed reduces motivation while you're high. The exception is heavy use that started in adolescence and went on for decades, where some loss may not fully reverse.

For most adults, memory and concentration come back within weeks of stopping. The best evidence suggests that the memory problems seen in heavy smokers are mostly residual effects of recent use and withdrawal, not permanent damage. In studies that required people to have been off cannabis for more than three days, the difference between users and non-users was small and not statistically

significant[76]. In studies that required at least 25 days, there was no significant difference in any area of thinking measured[77]. Motivation is more complicated. Weed reduces the willingness to work for rewards while you're under its effects, and the first weeks after stopping often feel flat. But studies of dependent users who were not high have found their motivation largely intact.

9.1 Memory

The clearest study followed people through a supervised month without cannabis. Pope and colleagues tested 63 current heavy users, who had smoked at least 5,000 times and were smoking daily, 45 former heavy users and 72 people who had barely used it, on days 0, 1, 7 and 28 of a 28-day washout monitored by urine tests. On days 0, 1 and 7 the current heavy users scored significantly worse at recalling word lists, and the deficit tracked how much cannabis was in their urine at the start. By day 28 there were virtually no significant differences between the groups on any test, and no link between lifetime cannabis use and test scores[78]. A randomized trial in 88 regular users aged 16 to 25 assigned 62 to four weeks of abstinence and 26 to keep using as usual. The abstinent group's verbal learning improved, and the improvement came mostly in the first week[79].

Two meta-analyses fit the same picture. Scott and colleagues pooled 69 studies of 2,152 young cannabis users and 6,575 comparison participants. Frequent or heavy use was associated with a small reduction in thinking ability overall, an effect size of -0.25. In the 15 studies that required more than 72 hours of abstinence, the effect shrank to -0.08 and was no longer distinguishable from zero, against -0.30 in studies with shorter or no abstinence[76]. Schreiner and Dunn found no significant effect on global performance or any of eight areas of thinking in the 13 studies that tested users after at least 25 days of abstinence, and concluded that negative residual effects are limited to the first 25 days[77].

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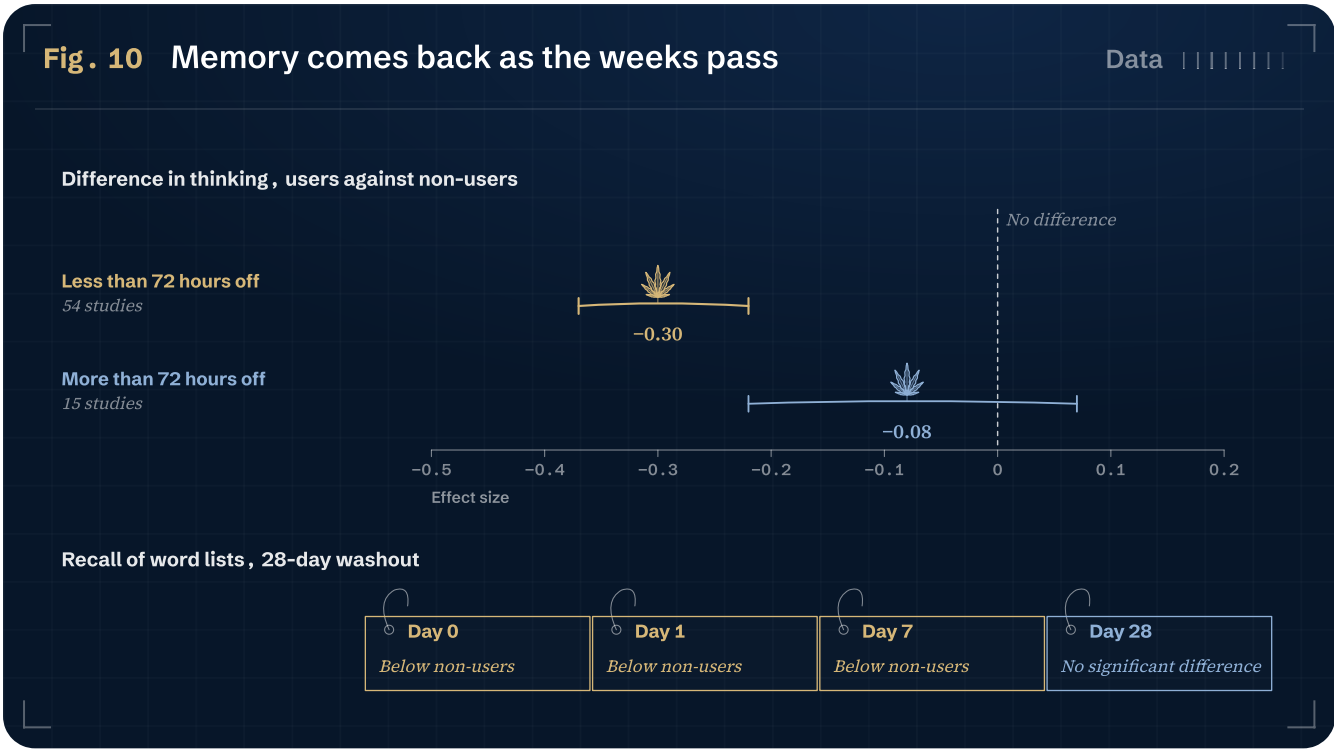


Figure 10. Above: the difference in thinking between frequent cannabis users and non-users in a meta-analysis of 69 studies, as an effect size with its 95% confidence interval, for studies with less than 72 hours of abstinence and for studies with more[76]. Below: a supervised 28-day washout in which current heavy users scored significantly below non-users on recalling word lists on days 0, 1 and 7, but not on day 28[78]. Drawn as pressed specimens; the further left a mark sits, the larger the gap.

9.2 The exception: starting young and smoking for decades

The reassuring findings above come mostly from adults and from studies over weeks or months. The most important caution comes from the Dunedin study, which followed 1,037 people in New Zealand from birth to age 38 and tested their thinking at 13, before any cannabis use, and again at 38. People who used cannabis persistently showed a decline across many areas of thinking, even after accounting for education, and people who knew them noticed more problems with memory and attention. The decline was concentrated in those who started in adolescence, it was larger the more persistent the use, and stopping did not fully restore functioning in the adolescent-onset users[80]. The hippocampus finding in Section 8 points the same way[34]. For someone who started young and smoked for decades, most of the recovery in the first month is still real, but some of the loss may not come back, which is one more reason to stop now rather than later.

9.3 Motivation

The idea that weed makes people unmotivated is half right. In a well-controlled laboratory study, a dose of cannabis reduced people's willingness to choose high-effort tasks for money, compared with placebo: a short-lived amotivational state while under its effects. The same study found that cannabis-dependent people tested while not intoxicated chose effortful tasks as often as controls did, though they learned from rewards less well[81]. A later study of adults and adolescents who used cannabis three to four days a week found no more apathy and no difference in effort for rewards, wanting or liking than in non-users[82]. A review of cannabis and behavior describes the evidence on lasting amotivation as mixed and calls for better studies[83].

For a daily smoker, though, the distinction between acute and lasting effects is academic, because a daily smoker is under acute effects most of the time. If someone smokes from the evening into the night and again in the morning, the short-lived amotivational state is most of their waking life. When they stop, they have to go through withdrawal's flat, irritable weeks first. Then the motivation that was being taken each day can return. One of our clients described the change this way: “Focus on work has been through the roof because my mind doesn't get disturbed anymore with wasteless thoughts, so now I'm using my mind to actually think about my business, about how I can improve on my life.”

In the program · Phase 1, Brain chemistry restabilization

Days 20 to 23

Attention and memory

During the first weeks without weed, the client starts daily memory and game training, demanding mental work that gives the recovering brain something to do and lets the client see their own attention and memory return.

Executive functions such as working memory, attention control and flexible thinking can be improved with practice, and they are among the first things to suffer under stress, poor sleep and poor fitness[5]. The training also has a second job: progress the client can see is evidence, against the fear that weed has done permanent damage, that their mind is coming back.

Section 10

Can I just take a tolerance break or cut down instead of quitting?

Days 15 to 43

In brief

A tolerance break lowers your tolerance, because receptors start recovering within days. It doesn't change the habit, and it ends on a date you already know. Cutting down works for some people with milder problems. For a daily smoker who has already tried to control it, stopping completely is the more reliable route.

A tolerance break does what its name says: it lowers your tolerance, because the receptors that daily smoking turned down start recovering within two days and are close to normal within about four weeks[34, 35]. What it doesn't do is change why you smoke. The triggers, the evening, the sleep problem and the stress are all waiting on the day the break ends, and so is a brain that will now feel the first joint more strongly. Many breaks also end at the worst possible time. A one-week break ends just after the peak of withdrawal, and a two-week break ends while sleep is still disturbed. Cutting down can work for people with milder problems, but people with more severe problems are more likely to aim for abstinence, and for a daily smoker who has already tried rules and limits, stopping completely is usually the more reliable choice.

10.1 What the research on goals shows

In a trial of 291 adults seeking help for cannabis, those with more problems and more symptoms of dependence were more likely to choose abstinence as their goal. People tended to reach outcomes consistent with the goal they chose, and their confidence that they could reach it predicted whether they did, for both moderation and abstinence[84]. That is a fair result for moderation. But it also shows who moderation suits: people whose problem is milder. Someone who smokes every day, has tried limits before and is reading this paper is usually in the other group.

There are three reasons controlled use is hard for a daily smoker. First, each session keeps the receptors turned down, so withdrawal never gets the chance to finish, and every day off is a day of mild withdrawal pressing for the next session. Second, each session reactivates the learned link between weed and its triggers. Extinction research shows that a learned response returns most readily when the old reward comes back, even briefly[75]. Third, a limit has to be enforced at the moment self-control is weakest: late in the evening, tired, possibly already high. Early lapses after stopping are also strongly associated with going back to heavier use: in the outpatient study described in Section 1, 71% of people who smoked again went on to relapse to heavier use, and earlier lapses were more strongly linked to relapse[1].

Table 3. A tolerance break, cutting down and stopping completely, compared on what each one changes for a daily smoker. Drawn from the research cited in Sections 5, 8 and 10.

What it affects	Tolerance break	Cutting down	Stopping completely
Receptors	Start recovering within days[35]	Stay partly turned down	Back to normal in most regions within about four weeks[34]
Withdrawal	Felt in full, then cut off at the end of the break	Mild and constant, pressing for the next session	Felt in full for two to three weeks, then fades[6]
The learned habit	Paused, then reactivated by the first session	Reactivated by every session[75]	Begins to weaken; triggers still need a plan
Who it suits	People who want lower tolerance, not to stop	People with milder problems who choose moderation[84]	Daily smokers, and anyone whose limits have failed before

10.2 Switching products

Switching from joints to edibles, vapes or CBD-heavy strains changes the route, not the habit. Concentrates for vaping averaged 55.7% THC in 2017, against 17.1% for plant material, so a switch to vaping can raise the dose rather than lower it[11]. CBD on its own does not get people high, but for someone dependent on THC it keeps the ritual, the product and the shop in their routine. And no medication, including THC preparations given as a substitute, has been shown to make abstinence more likely[26].

10.3 Tobacco and alcohol

The habits weed travels with need a decision of their own. For tobacco the evidence leans toward stopping both: a review of cannabis and tobacco reports early evidence that stopping both together predicts better results[52], and in laboratory studies daily cannabis smokers who also smoked cigarettes were about 19 times more likely to relapse[2]. Stopping both at once makes withdrawal more severe for a short time[53], which is one more reason to rebuild sleep and routine first. For alcohol the risk is substitution. People with a past alcohol problem drank 52% more while off cannabis in one study[20], and 41.5% of adults trying to stop on their own used alcohol to ease cannabis withdrawal[7]. Anyone who drinks heavily every day should see a doctor before stopping alcohol, because alcohol withdrawal can be dangerous.

10.4 The thoughts that argue for one more

Weed comes with an unusually persuasive set of permission thoughts, because some of them are partly true. It's legal here. It's a plant. It helps me sleep. It's less harmful than drinking. I'll just have one at the weekend. I've been good all week. Each of these is a reason to smoke dressed up as a fact, and each tends to arrive at the moment the urge does. Trying not to think them makes them come back: in Wegner's classic studies, people told not to think about a white bear thought about it more, especially once they were allowed to again[85]. Approaches that teach people to notice a thought, name it and choose an action anyway have a stronger record[86]. People also predict badly, in a calm state, how much an urge will push them later[8], which is why an answer prepared in advance holds up better than one made up on the spot.

In the program — Days 15 to 43

Days 40 to 43	**Permission thoughts** The client identifies the specific thoughts that have argued them into smoking before, writes a prepared answer to each one, and learns to recognise these thoughts as a predictable part of the urge rather than as conclusions to act on.
Day 15	**Complete abstinence** Weed stops completely on Day 15, together with the habits stacked on it, after two weeks of groundwork. The program does not set a reduced or occasional-use target for weed.

Section 11

How do I quit weed when my friends or my partner still smoke?

Days 38 to 80

In brief

Plan each situation in advance, change where and how you see the people you smoked with, keep weed out of your home, and spend more time with people who don't smoke. Smoking spreads through

social ties, and so does stopping. Your sense of who you are has to move with you.

By deciding in advance what happens in each situation, rather than on the night. Weed is often social in a specific way: one group of friends you always smoke with, a partner who smokes, a flat where it's always out, a ritual after football or at the end of the week. Those people and places are triggers in exactly the sense Section 3 describes, and they also carry an identity, the version of you that smokes. You don't have to lose the people. You do have to change the settings, keep weed out of the home you live in, plan the occasions you can't avoid, and add time with people for whom not smoking is normal.

11.1 Smoking and stopping spread through social ties

The best long-term evidence on how a smoking habit moves through social networks comes from tobacco. In Christakis and Fowler's analysis of a large social network followed over three decades, people stopped smoking in clusters, and a person's chance of smoking fell substantially when a spouse, sibling, friend or coworker stopped[87]. For cannabis itself, the clearest shared link is with tobacco: the two are often smoked together, and shared routes of use and shared smoking triggers may help keep both going[52]. A change in the network can also be built deliberately. In a randomized trial with people treated for alcohol dependence, a treatment designed to shift a person's social network toward support for abstinence changed their networks and improved outcomes[88]. No equivalent trial exists for cannabis, so this is an inference from other substances, not a proven result for weed.

11.2 A partner who smokes

Living with someone who smokes is the hardest version of this, because the trigger is in the home every evening. The practical options are limited and concrete: an agreement that weed is not kept or smoked in shared space while you stop, a different evening routine for the first month so you are not on the same sofa at the same hour, and an honest conversation about what you need. The research on extinction explains why the setting matters so much: what is learned about a trigger in one context does not automatically carry over to another, and the old response comes back most easily in the place it was learned[75]. Changing the situation before the urge starts is far more reliable than resisting it once it has[89].

11.3 Who you are now

For many daily smokers, weed is part of who they are: the relaxed one, the one who always has some, the one whose evenings look a certain way. Oyserman's identity-based motivation model holds that people act in ways that feel congruent with the identities that are salient to them in the

moment[90]. A person who thinks of themselves as a smoker taking a break is still a smoker, and the identity will argue for the next session. Best and colleagues describe recovery as a social identity transition: people move away from groups whose identity is bound up with use and toward groups whose identity supports recovery, and the new memberships support the new self-description[91]. That is why the program's third month works on identity and on the people and places that still pull a person back, after the habit has been off for more than six weeks and there is evidence for a new self-description to rest on.

In the program — Days 38 to 80

Day 38	**Social situations** The client plans in advance for the social situations where weed has been part of the routine: who will be there, where it will be, what they will do instead and how they will leave if they need to.
Days 61 to 70	**Identity and outside pressures** The client works on the identity they are building and on the people, events and cultures that still pull them back toward smoking, including friends whose time together has always included weed.
Days 71 to 80	**Rehearsing high-risk situations** The client rehearses the situations most likely to end in smoking, such as a night with old friends, a festival or a hard day at home, until the response is familiar before the situation arrives.

Rehearsal rests on a long line of research. Driskell, Copper and Moran's meta-analysis found that mental practice reliably improves performance, though less than physical practice[92]. Implementation intentions, plans in the form “if this happens, then I will do that”, made people more likely to reach their goals across many studies, because the response is linked to the situation in advance and does not have to be decided under pressure[93].

Section 12

What should I do if I smoke weed again after quitting?

Day 49 onward

In brief

Treat it as an event with a cause, not as the end of the attempt. Go back to your plan the next day, work out what set it off and add a response for it. Most people who stop smoke again at some point, and what happens next depends largely on how they explain it to themselves.

Go back to your plan the next day, and find out what happened. A single smoke after stopping is common, and it does not undo the weeks before it: your receptors will not be back where they were after one joint, and the work you did on sleep and routine is still there. What turns one smoke into a return to daily use is usually not the smoke itself but the conclusion drawn from it: I've blown it, so it doesn't matter now. The useful conclusion is narrower. Something set it off, the plan didn't cover it, and the plan can be changed this week.

12.1 How often it happens, and when

Smoking again is common, and the risk lasts longer than withdrawal does. In Moore and Budney's study of 82 people who had stayed off cannabis for at least two weeks during outpatient treatment, 71% used at least once within six months. The average time to that first use was 73 days, long after withdrawal had ended. Of those who used, 71% went on to relapse to heavier use, defined as at least four days of use in a week, and early lapses were more strongly associated with relapse[1]. Across other drugs, the relapse curve has the same shape: losses are steepest soon after stopping and slow down as time without the drug builds up[94]. A review of cannabis use disorder treatment describes enduring abstinence as an uncommon outcome even with the best-tested treatments[13].

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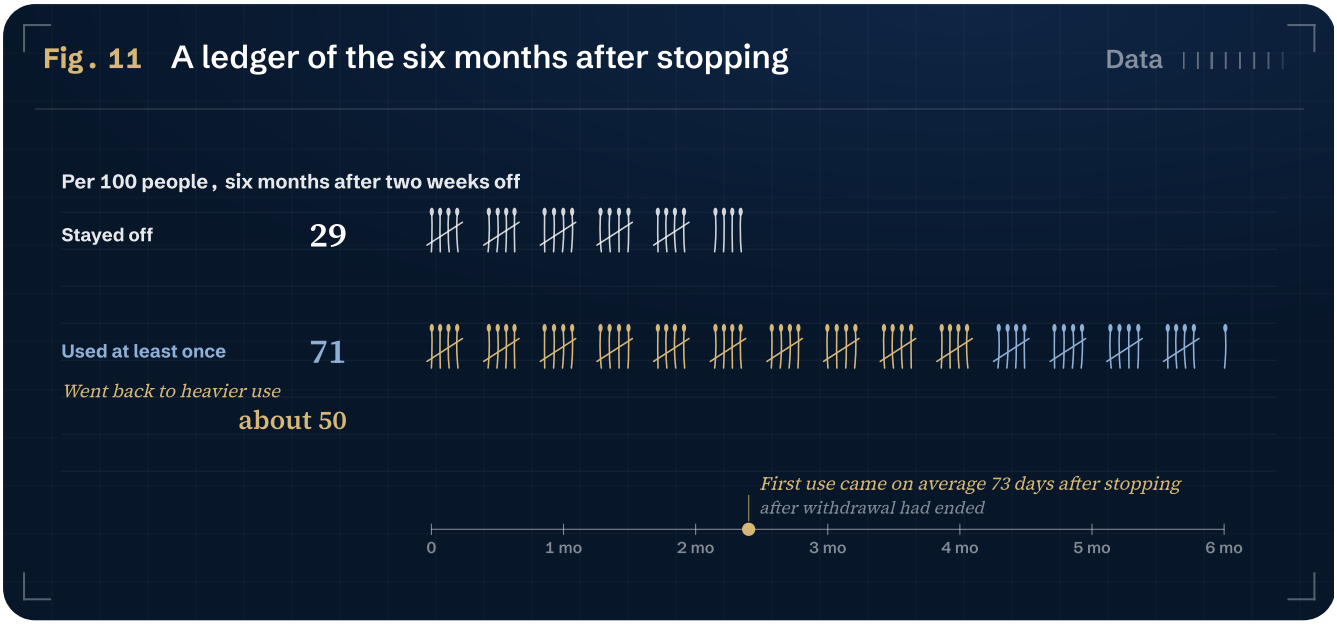


Figure 11. What happened in the six months after 82 people stayed off cannabis for at least two weeks in outpatient treatment, drawn per 100 people from the percentages Moore and Budney reported: 71 used at least once, on average 73 days after stopping, and 71% of those, about 50 of every 100, relapsed to heavier use[1]. The counts per 100 are calculated from the published percentages. The figure describes one treated group, not what will happen to any one person.

12.2 How you explain it decides what happens next

Research on how people interpret a lapse explains why the same smoke ends one attempt and not another. In a study of people stopping tobacco, those who blamed a lapse on internal, stable causes they felt they couldn't control, such as a lack of willpower or a basic weakness, were more likely to return to regular smoking than those who saw the lapse as caused by a specific, changeable situation[95]. Witkiewitz and Marlatt's model of relapse treats a lapse as part of a dynamic process, in which stress, mood, thoughts and coping skills interact moment to moment, rather than as a single failure of character[96]. A lapse explained as a missing plan for a trigger is a reason to add a plan. A lapse explained as proof that you can't do it is a reason to stop trying.

12.3 The urge itself is temporary

Most lapses happen during a craving, and a craving is shorter than it feels. Kavanagh, Andrade and May's elaborated intrusion theory describes how a brief thought about weed turns into a vivid, sustained craving as the mind elaborates it into imagery: the smell, the first draw, the relief[97]. The urge is strongest while that picture is being built, and it fades when attention moves on. In an experiment with 123 people who smoked cigarettes, a brief instruction in urge surfing, watching the urge rise and fall without acting on it, did not reduce how strong the urges felt, but it did lead to

fewer cigarettes over the following week[98]. That study was in tobacco, not cannabis. We cite it for what it shows about urges in general: the practice changes what a person does with an urge, not whether the urge comes.

In the program — Day 49 onward

Day 49	**Urge observation** The client learns to observe an urge from its start to its fall without acting on it, and practises it until riding out a craving is familiar rather than frightening.
Days 52 to 60	**A response for every trigger** The client writes a specific response for every trigger on their map, practises the responses daily and keeps a record of each craving: what set it off, what they did and how it went. The record shows which responses work and which need changing.
Days 91 to 100	**Self-forgiveness and relapse prevention** In the first days of aftercare the client writes to themselves about the past with forgiveness, including the failed attempts to stop and what weed cost them, reinforces the identity built in the third phase and keeps a record of what they have gained.

If you smoke again

Go back to your plan the next day. Write down what happened in the hours before: where you were, who with, how you'd slept, how you felt and what you told yourself. Find the trigger your plan missed and add a response for it. Throw out anything you bought. If you are working with us, tell your specialist the same day. And don't use the lapse as a reason to start counting again from zero in your head: the weeks before it still happened.

Section 13

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

Days 81 to 90, Identity rewiring

In brief

Ninety days in three phases. The first month rebuilds sleep, the body clock, exercise and the shape of the day, and weed stops on Day 15 with the habits stacked on it. The second month maps every trigger and builds a response for each. The third works on identity and the people and places that still pull toward smoking. 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 smoking. It 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. Days 1 to 30 rebuild the ground weed has been running on: sleep, the body clock, daylight, exercise, stress and a structured day. The client stops weed on Day 15, after two weeks of that work, along with the tobacco, drinking or other habits that travel with it. Days 31 to 60 work on the moment smoking actually happens: every trigger is mapped, the ones that can be removed are removed, and a prepared response is built for each of the rest. Days 61 to 90 work on who the client is becoming and on the people, routines and cultures around them. Six months of aftercare follow. This section states what each stretch targets and why, for someone stopping weed. It doesn't publish how: the exercises, their steps and their wording stay inside the program.

13.1 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 weed it has two jobs. The first is safety. It asks how much and how often the person smokes, what they use with it, whether they use cannabis for a medical reason, what medication they take, and about any history of psychosis, mania or self-harm (Section 2). Anyone in those groups is told to see a doctor before they begin. The second job is to identify the loop beneath the smoking: what sets it off, what each smoke does for the person and what keeps the habit going. Our team reads that loop across three areas that addiction research uses to describe it: urges set off by triggers, the low or anxious states the habit relieves, and the planning and self-control that should stop it[99]. The rest of the program is applied to that loop.

A preparatory phase, Phase 0, follows before Day 1 and does not 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 weed 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. Dates that feel like a new beginning make people more likely to start on a goal[100], and the most reliable source of confidence that a change is possible is the direct experience of having done it, even once[101].

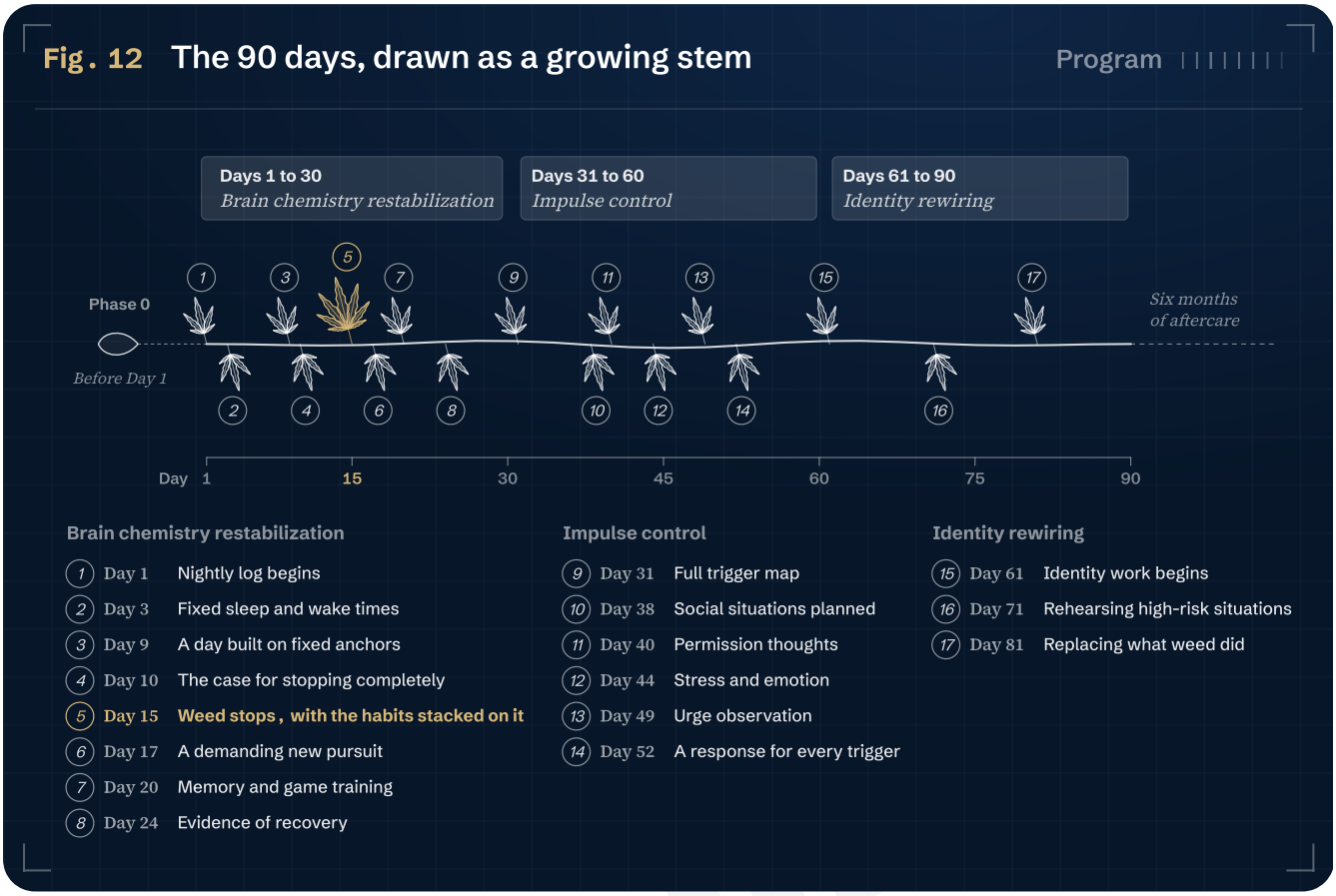


Figure 12. The three phases of the program, with the days on which the targets that matter most for weed are introduced. Phase 0 comes before Day 1. Weed stops on Day 15, after two weeks of groundwork, together with the habits stacked on it. Six months of aftercare follow Day 90. The targets come from the program; the exercises themselves are not published.

Table 4. The day map for someone stopping weed: 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 weed
Before Day 1	Root-Cause Diagnostic: the loop beneath the smoking, and a safety check for psychosis, mood and medical use	Daily high-potency use is associated with psychosis[21]; the loop is read across trigger-set urges, negative emotion and executive function[99]
Before Day 1	Commitment, a meaningful start date, one day of control	Fresh starts and direct experience of success raise follow-through[100, 101]
1 to 2	How the loop works; the nightly log	Recorded monitoring of progress improves goal attainment[102]
3 to 5	Sleep and wake times, daylight, evening light, phone out of the bedroom	Poor sleep before a quit attempt predicted lapse in the first two days[67]
6	Progressive resistance training and cardio	In a pilot with 12 daily users, use fell from 5.9 to 2.8 joints a day during two weeks of exercise[61]
7	Daily meditation	Groundwork for watching an urge without acting on it[98]
8	Nutrition, at a general level	Appetite often drops in the first days of withdrawal[6]
9	A day built on fixed anchors	Stable routines fill the hours in which habits run[41]
10 to 14	The loop, the case for stopping completely, the reward inventory, self-assessment	Daily use leaves CB1 receptor availability about a fifth lower in much of the cortex[34]
15	Weed stops, with the habits stacked on it	Each smoke reactivates learned links to its triggers[75]; tobacco and cannabis keep each other going[52]

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Days	Target	Why it matters for stopping weed
16 to 23	Heat and cold exposure, a demanding new pursuit, awareness training, memory training, practice days	Withdrawal usually peaks in the first week[57]; earned rewards compete with the habit[44]
24 to 30	Perspective, evidence of recovery, how triggers are learned	CB1 receptors returned to normal within about four weeks[34, 35]
31 to 32	Full trigger map; weed, gear and easy access removed	Changing the situation beats resisting an urge already under way[89]
33 to 39	Why early abstinence is hard, the response sequence, social situations, breaking the routine	A lapse often comes weeks after withdrawal ends, on average 73 days in[1]
40 to 43	Permission thoughts	Pushing a thought away makes it return[85]
44 to 51	Emotion, stress, breathing, relaxation, urge observation, an earned reward, the future self	Smoking to cope with bad feelings is linked to more frequent use and more problems[46]
52 to 60	A response for every trigger; daily practice and a craving record	If-then plans improve follow-through on goals[93]
61 to 70	Identity, smoking culture, outside pressures, limiting beliefs	Stopping smoking spreads through social ties[87]
71 to 80	Rehearsal of high-risk situations	Mental practice improves performance[92]
81 to 90	Replacing each function weed served; review of the 90 days	A new routine takes weeks to months to become automatic[103]
After 90	Self-forgiveness, identity reinforcement, six months of aftercare	How a lapse is explained predicts whether it becomes a relapse[95]

13.2 Why the order matters for weed

The order follows from the research in Sections 2 to 12. Weed stops after sleep has had almost two weeks of work, because sleep recorded in the lab got worse, not better, across the first two weeks without cannabis, and poor sleep before a quit attempt is linked to smoking again within days[59, 67]. The evening also needs something already in it on the first night without weed, which is why exercise, a fixed shape to the day and a demanding new pursuit begin before or alongside the stop. The habits that travel with weed stop on the same day, because a cigarette, a drink or a scroll that stays in the evening keeps the old setting alive and acts as a trigger for the rest[52]. The trigger work comes in the second month, when withdrawal has mostly passed but the risk of smoking again is still high, because lapses tend to come weeks after the stop, not days[1]. The identity and social work comes last, because who a person spends their evenings with and who they think they are carry the habit long after the receptors have recovered[87, 90].

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

Replacing what weed did

The client confirms a replacement for each function weed used to serve: the way they end a working day, get to sleep, deal with pressure, reward themselves or spend time with friends. They review the full 90 days against their log and record what they have gained.

Replacement is the last step 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 smoke can take over its context[41]. Lally and colleagues found that the automaticity of a new daily behavior built gradually, reaching 95% of its plateau after a median of 66 days with wide variation between people, and that missing a single day did not reset the process[103]. That is part of why the program runs for 90 days and is followed by six months of aftercare.

13.3 In our clients' words

Two of our clients who smoked weed have described their experience on the record. Marcel R., a commercial director in the Netherlands, had smoked weed and cigarettes for about 15 years and had tried seriously to stop at least ten times. He described the early weeks plainly: “It can be painful, emotions come up, sleep gets disturbed. It's a true process, like the first few weeks felt like months and then the last few weeks flew by like it was days.” When he recorded his interview, he had gone four months without weed, cigarettes or endless scrolling: “I'm totally done with all three of these bad habits. I haven't been doing them, not a single time. It's out of my system.”

Juan Carlos, a senior product manager in Spain, came to us mainly for porn, and smoked weed as well. He described what the habits had done to his days: “It was kind of my day-to-day. I was just waiting to arrive home to indulge myself. I was doing okay, but I wasn't fulfilled.” And of the

program as a whole: “And if I have to describe this in one sentence, I will say that it's a system that works.” Their accounts are individual experiences, not a measure of results; our figures, and what they do and don't show, are in Section 14.

What this paper does not publish

This paper states what each part of the program targets for someone stopping weed, 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 14

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 weed. 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 weed 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

14.1 How outcomes are tracked

Throughout the program, the client keeps a nightly 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.

14.2 What our figures do not show

- Self-report. Whether a client has stayed off weed is known from what the client tells us, not from urine, blood or hair testing. Testing would also be a blunt tool here, because THC metabolites can stay in the urine of a heavy smoker for weeks after the last use (Section 7).
- 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 a talking treatment, a mutual-help group or stopping alone, over the same period.

- Time window. The success rate covers the program and six months of aftercare. It does not describe what happens after that, and the relapse research in Section 12 shows that risk continues for months after stopping.
- All habits together. The rate is across every habit our clients bring. We don't report a rate for weed alone, and a single rate does not predict the outcome for any one person.

14.3 What the research in this paper does not show

The studies cited here have their own limits, and readers should weigh them. Many of the cannabis studies are small. The withdrawal time course rests heavily on an outpatient study of 18 people and an inpatient study of 18[6, 59]; the two receptor imaging studies scanned 30 and 11 daily smokers[34, 35]; and the exercise study was a pilot with 12 participants and no control group[61]. A systematic review of sleep during cannabis withdrawal concluded that methodological problems in most studies prevent firm conclusions about which parts of sleep are affected[65]. Much of the potency data comes from the United States and from samples seized by law enforcement, which may not match what any one person buys[11, 39]. The memory findings are averages across many studies with different designs, and the long-term studies cannot fully separate the effect of cannabis from the reasons some people start young and smoke heavily[76, 80]. Some findings come from tobacco rather than cannabis, such as the research on urge surfing and on how a lapse is explained[95, 98]; we use those for the mechanism they describe and say so where we cite them.

Other approaches have stronger trial evidence than ours. A Cochrane review of 23 randomized trials found that psychosocial treatment, especially an intensive combination of motivational interviewing, cognitive behavioral therapy and rewards for abstinence, reduced how often people used and how dependent they were[28]. In one of those trials, Budney and colleagues randomly assigned 90 adults dependent on cannabis to cognitive behavioral therapy, rewards for verified abstinence, or both, over 14 weeks: the rewards produced longer stretches of continuous abstinence during treatment, and adding cognitive behavioral therapy helped people keep that abstinence over the following year[104]. Even so, the reviewers describe lasting abstinence as uncommon[13]. 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 does not 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, 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 15

When should you see a doctor, and what is this program not?

In brief

See a doctor before you stop if you use cannabis for a medical condition, also drink heavily or take sleeping or anxiety medication, have a history of psychosis, or are pregnant. Get help at once for thoughts of self-harm. The program is not therapy, clinical care or medical treatment, and it works alongside a doctor, never instead of one.

See a doctor before you stop smoking weed if you use cannabis for a medical condition such as pain, epilepsy, nausea or sleep, if you also drink heavily every day or take benzodiazepines or other sleeping or anxiety medication, if you have ever had psychosis, hallucinations, severe paranoia or mania, if you have depression, or if you are pregnant. A doctor can check for and treat what the cannabis may have been covering, manage any alcohol or medication safely and help with severe withdrawal symptoms, especially sleep[26, 27]. If you have repeated bouts of severe vomiting while you use, see a doctor[25]. If you have thoughts of harming yourself, contact emergency services or a crisis line now.

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Medical safety note

Stopping weed is rarely medically dangerous on its own, but the conditions around it can be. Anyone who uses cannabis for a medical condition, also drinks heavily every day, takes benzodiazepines or other prescription drugs for sleep or anxiety, has a history of psychosis, or is pregnant talks to a doctor before stopping. Stopping alcohol or benzodiazepines suddenly can be dangerous, and any change to them should be made with a doctor.

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 does not act as the client's

doctor or therapist, and the program does not replace either. Where the diagnostic suggests a medical or psychiatric risk, we tell the person to see a doctor before they begin.

Some of the program's physical practices carry ordinary risks of their own. Cold and heat exposure and starting a training program are not suitable for everyone, and people with heart conditions, high blood pressure or other medical conditions should check with their doctor first. 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 is not suitable as the only support for someone with a serious mental health condition, someone at risk of harming themselves or others, or someone whose substance use needs medically supervised treatment. 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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