Phalanx Labs

Method paper

Research paper · Version 1.0

How to stop gaming

Why video games are so hard to put down for people who are disciplined everywhere else, how they're designed to keep you playing, and what a staged 90-day method targets, day by day, including turning the same mechanics on your real goals

Phalanx Labs

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Where each section sits in the 90 days

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

1 How do you stop gaming? The short answer — Background

2 Is gaming addiction real, and how do I know if I have a problem? — Background

3 Why can't I stop playing video games when I'm disciplined everywhere else? — Days 1 to 2

4 Why do games feel better than real life? — Days 12 to 15

5 Why is it so hard to stop at one more match? — Days 40 to 43

6 Are loot boxes gambling? — Day 32

7 Does gaming ruin your sleep? — Days 3 to 5

8 How many hours of gaming a day is too much? — Day 9

9 What triggers the urge to game? — Days 31 to 32

10 What happens when you stop gaming, and how long does withdrawal last? — Days 15 to 30

11 Should I quit gaming completely or cut back? — Days 12 to 15

12 How do I quit gaming when my friends all play? Days 38 to 70

13 What should I do instead of gaming? Days 17 to 65

14 What should I do if I play again? Days 15 to 60

15 What does the Phalanx program target for someone stopping gaming, and when? Days 61 to 90

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

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

Sections	Figures	Tables	References	Reading time
17	14	5	74	84 min

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Abstract

What works to stop gaming is changing the life around the game, not trying harder to log off. Stop all at once, remove the games and launchers from every device, fix your sleep, plan the hours gaming used to fill, and find somewhere else to feel skilled, free and connected to people. Games are built to keep you playing: clear goals, instant feedback, rewards that come at random, progress bars that are always nearly full, daily rewards you lose if you miss a day, and a squad waiting for you. They also give you three things people need, feeling capable, feeling in charge and feeling connected, often more reliably than the rest of life does. Stopping has no dangerous withdrawal, but the first weeks bring boredom, restlessness and irritability. If you're having thoughts of harming yourself, contact a crisis line or emergency services now.

This paper explains each part of that answer and the research behind it. It covers whether gaming addiction is real, why you can't stop when you're disciplined everywhere else, what games give you that real life might not, why one more match is so hard to turn down, whether loot boxes are gambling, what gaming does to sleep, how many hours is too many, what triggers the urge to play, what stopping feels like, whether to quit completely or cut back, how to stop when your friends all play, what to do instead, and what to do if you play again. Each section starts with a short, direct answer. The detail and the evidence follow.

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

Keywords

how to stop gaming · how to quit video games

gaming disorder | gaming addiction | video game addiction | ICD-11 | self-determination theory | need frustration | variable rewards | goal gradient | loot boxes | gaming and sleep | gaming withdrawal | gamification | relapse prevention

Section 01

How do you stop gaming? The short answer

In brief

You stop gaming for good by stopping completely, removing easy access, fixing your sleep, and building a life that gives you what the game was giving you. Limits you set for yourself in the middle of a session are the approach that fails most often.

Safety note

Stopping gaming has no dangerous physical withdrawal. If gaming has been covering depression, anxiety, ADHD or another condition, talk to a doctor so that it's looked after properly when the game is gone. If you also drink heavily every day, or take benzodiazepines or other prescription drugs, don't stop those suddenly without a doctor. If you're having thoughts of harming yourself, contact emergency services or a crisis line now: in the US, call or text 988; in the UK and Ireland, call Samaritans on 116 123; in India, call Tele-MANAS on 14416. Section 17 says more.

Most people who want to stop gaming have already tried, often several times. Of the 290+ clients we have worked with across 12 countries over 7 years, 98.4% had already tried and failed to stop a habit before they came to us, and gaming is one of the habits they bring. The usual attempts are familiar: uninstalling everything after a lost weekend, a time limit on the console, a rule about only playing on Saturdays, selling the PC and buying another one a few months later. When they don't hold, the

reason is rarely a lack of character. A rule made in the morning has to be kept at eleven at night, one win from the next rank, with the squad still online. People are poor at predicting how differently they'll feel in that second state[1], and stress and tiredness are exactly what weaken the brain's deliberate control and hand behavior over to habit[2-4].

Games add problems of their own, and most of them are designed in. A game gives you a clear goal, a challenge pitched just above your skill, an instant answer to every press, rewards that arrive at random and progress you can see filling up[5]. The brain releases dopamine in its reward system while people play[6], and rewards that come unpredictably keep a behavior going longer than rewards that come on schedule[7]. Many games then add a layer whose job is to bring you back: daily rewards, streaks, seasons that end, and a squad that's waiting. None of this makes games bad. It does mean that someone trying to stop is up against a product that has been tested and tuned to keep people playing.

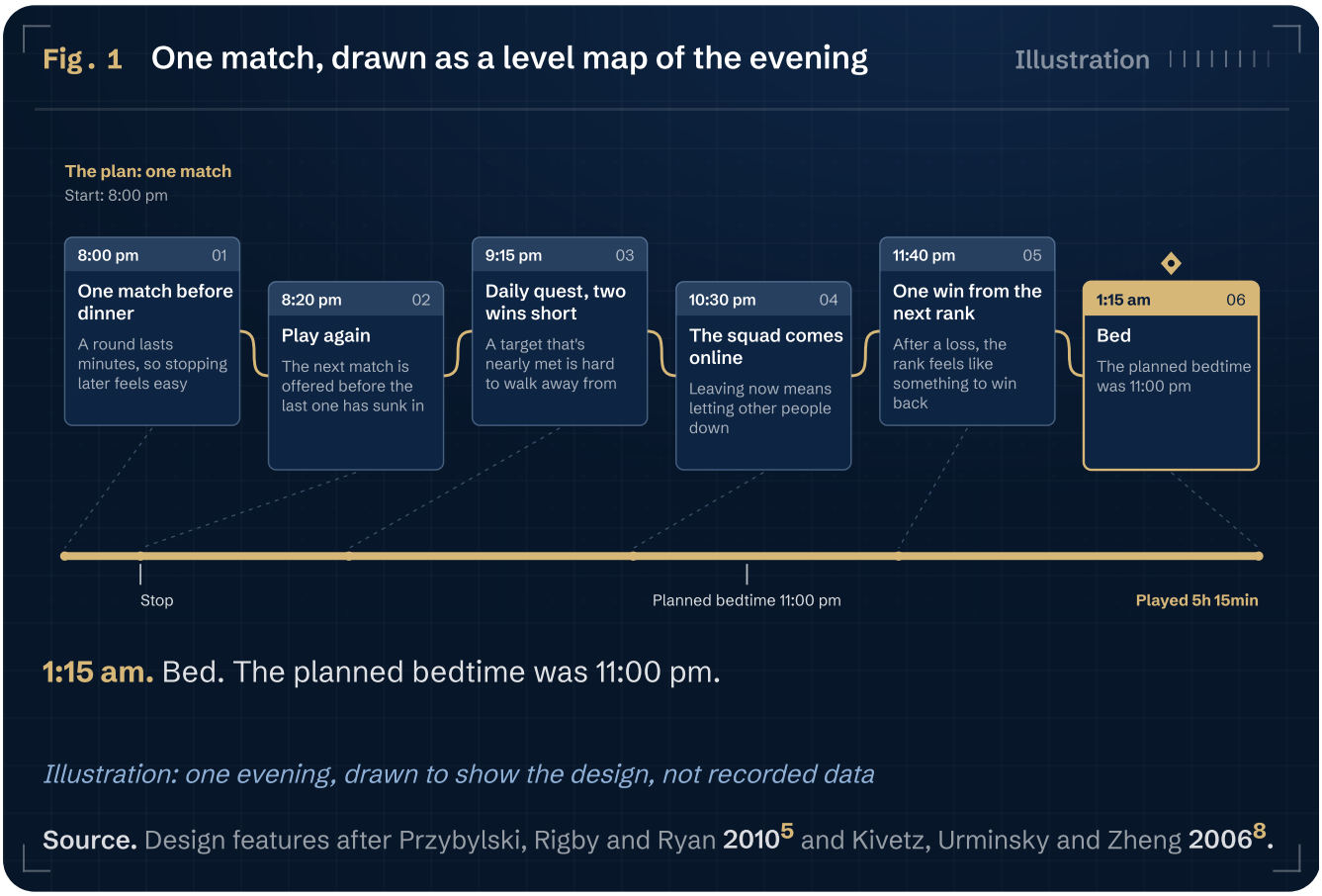


Figure 1. One evening of gaming drawn as a level map. The plan was a single match before dinner. Each room is a point where the game offered a reason to carry on: the next match starting straight away, a daily quest two wins short, the squad coming online, one win from the next rank. Move through the evening to see the hours add up. The evening is illustrative, drawn to show the design features this paper describes, not recorded from any one person.

So the approach that works changes the situation rather than the willpower. Changing the situation before the urge arrives is more reliable than resisting an urge already under way[9]. In practice that means stopping completely rather than trying to play a little, because every session keeps the learned links between the game and its triggers alive[10]. It means removing the games, launchers and accounts from every device, so that there's a gap between the urge and the first match. It means fixing sleep first, because short sleep weakens the brain's control of impulses the next day[11]. And it means filling the hours gaming used to fill with things that give you some of what the game gave you: a skill you're visibly getting better at, choices that are yours, and people. Research on why people play suggests those three needs, feeling capable, feeling in charge and feeling connected, are what games satisfy so well[12], and that people whose daily lives frustrate those needs are the ones most likely to play compulsively[13, 14].

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Table 1. The ways people most often try to stop or cut down on gaming, what each one changes, and what each one leaves in place. These are common attempts, not a survey of any group.

Attempt	What it changes	What it leaves in place
Uninstalling the game	One route to one game, for a while	The account, the launcher, the friends list, the store and the habit of reinstalling, which takes a few minutes.
A daily time limit	How long, in theory	The limit is enforced by the same person who wants another match, at the moment a match is ending and the next one is offered.
Only playing at weekends	Which days	Long, unbroken sessions that run late, and a week spent thinking about the weekend.
Selling the console or the PC	The hardware	The phone, the laptop and every reason to play. A new console is one purchase away.
Switching to a different game, or to mobile games	The game	The same rewards and the same urge, through a different screen.
Watching streams instead of playing	Who holds the controller	The craving, kept alive by watching other people play, and hours of the same screen time.
A promise to a partner after a bad night	Motivation, for a few days	Nothing structural. The setup, the squad and the empty evenings that led to the last session are all still there.

The rest of this paper takes the questions people ask about stopping gaming one at a time. Section 2 asks whether gaming addiction is real and how to tell if you have a problem. Sections 3 to 5 explain why it's so hard to stop: how games engage the reward system, what they give you that daily life might not, and why one more match is so hard to turn down. Section 6 asks whether loot boxes are gambling, Section 7 looks at sleep and Section 8 at how many hours is too many. Section 9 describes the triggers, Section 10 what stopping feels like, Section 11 whether to stop completely or cut back, Section 12 how to stop when your friends play, Section 13 what to do instead, and Section 14 what to do if you play again. Section 15 sets out what the Behavior Control System targets for someone

stopping gaming, day by day. Section 16 reports our results and the limits of this paper, and Section 17 says 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 gaming addiction real, and how do I know if I have a problem?

In brief

Yes, for a small minority of players. The World Health Organization lists gaming disorder as a condition, defined by losing control over gaming, putting it ahead of the rest of life and carrying on despite real harm. Most people who play never develop it, and the experts still argue about how to count it.

Gaming addiction is real, but it's much rarer than the number of people who play a lot. The World Health Organization added gaming disorder to its International Classification of Diseases in its eleventh revision, the ICD-11. Its core features are impaired control over gaming, an increasing priority given to gaming so that it takes a more and more central place in a person's life, and carrying on despite negative consequences[15]. The diagnosis rests on harm. Playing a lot isn't enough: gaming has to be causing significant problems in a person's relationships, work, study, health or other important parts of life[16]. The US psychiatric manual, the DSM-5, lists a related condition, internet gaming disorder, as one that needs further study, with nine criteria. Among them are losing control over gaming, being so preoccupied with games that schoolwork, work or time with people gets neglected, and deceiving family about how much you play[15, 17]. Five or more of the nine are meant to indicate clinically significant harm[15].

The label is still argued over, and it's fair to say so. In 2017 a group of 26 researchers argued that the evidence was too weak to justify a new diagnosis. Their concerns were that the research base was of low quality, that the criteria leaned too heavily on those used for drugs and gambling, that there was no agreement on the symptoms, and that a label could stigmatize the many people who play as a normal, healthy part of life[18]. Other researchers replied that the WHO's definition avoids treating heavy play as illness by requiring real impairment[16], and that people who are harmed by gaming need a diagnosis so that treatment and prevention can reach them[19]. Both sides agree on the part that matters for this paper: a minority of players lose control of their gaming in a way that damages their lives, and they need help that works.

How many people that is depends heavily on how you count. A 2021 review pooled 53 studies of 226,247 people in 17 countries and estimated that 3.05% have gaming disorder. Restricted to the studies with the strictest sampling, the estimate fell to 1.96%, with very wide uncertainty, and the choice of questionnaire alone explained 77% of the differences between studies[20]. A second review of 61 studies found 3.3% overall, 2.4% in representative samples, and 1.4% after adjusting for studies that may not have been published[21]. A third approach, which applied the American Psychiatric Association's guidance to four large surveys of 18,932 people, found that more than two out of three players reported no symptoms at all, and that between 0.3% and 1.0% of the general population might qualify for a diagnosis[22]. Rates are consistently higher in men than in women: about 2.5 to 1 in the first review[20], and 8.5% against 3.5% in the second[21].

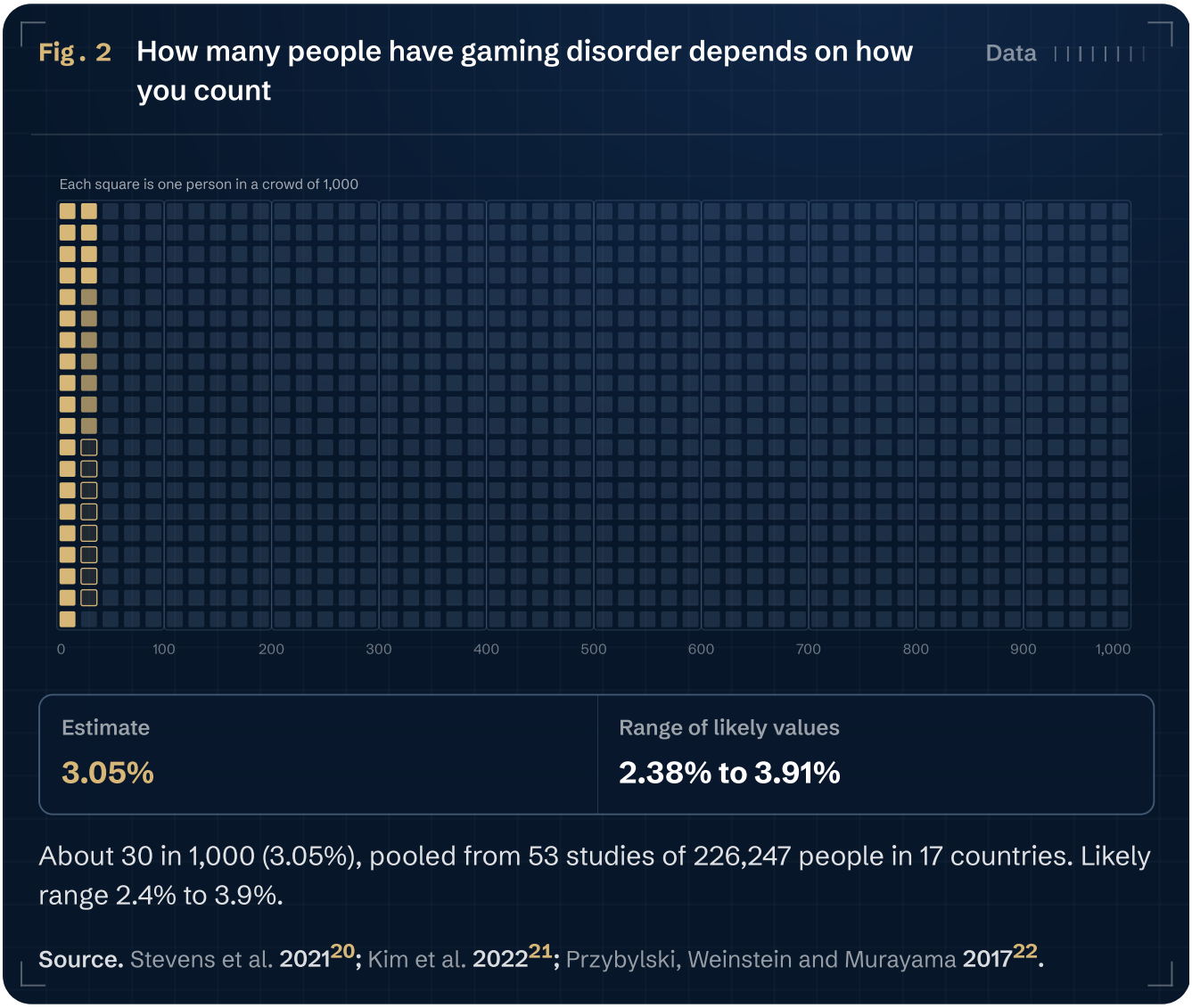


Figure 2. A crowd of 1,000 people, with the people who have gaming disorder lit in gold under five ways of counting. The outlined squares show how far the estimate could reasonably go. The estimates range from about 30 in 1,000 when every study is pooled to between 3 and 10 in 1,000 under strict criteria applied to everyone. The stricter the method, the lower the number, and the wider the uncertainty when only a few studies qualify.

For one person, the useful question isn't which percentage is right. It's whether your gaming is causing harm you can name. Table 2 sets out the signs in plain words. They aren't a diagnosis, and they're not the full wording of either manual. They describe the pattern behind the ICD-11 definition and the DSM-5 criteria[15, 17].

Table 2. Signs that gaming has become a problem, in plain words. Based on the ICD-11 description of gaming disorder, the DSM-5 criteria for internet gaming disorder and the research in Sections 4 and 10. Not a diagnosis, and not the full list in either manual.

Sign	What it often looks like
You can't stop when you meant to	Sessions run hours past the plan, most days. Limits you set don't hold.
Gaming comes first	Sleep, training, friends you see in person, work and plans keep losing to the game.
You carry on despite the damage	You know it's costing you sleep, a relationship or your work, and you keep playing.
You play to escape	The game is where you go when you're stressed, bored, lonely or down, and it's the main place you go.
It's on your mind when you're not playing	You think about the next session, the season or the rank during work and conversations.
You hide how much you play	You play after others are asleep, or say you played less than you did.
You feel irritable or restless without it	Not being able to play leaves you on edge, flat or bored to the point of distress.

Gaming problems rarely travel alone. A review of 24 studies found that most reported a significant link between gaming disorder and anxiety (92% of the studies that tested it), depression (89%) and symptoms of ADHD (85%), and 75% reported a link with social anxiety and obsessive-compulsive symptoms[23]. A review of 29 studies with 56,650 people found ADHD symptoms, especially inattention, consistently linked to gaming disorder, and recommended screening for ADHD when gaming is assessed[24]. In most of this research it isn't clear which came first. In a two-year study of 3,034 children and teenagers in Singapore, more gaming, weaker social skills and greater impulsiveness came before problem gaming, while depression, anxiety, social anxiety and falling school grades seemed to follow from it. The authors concluded that problem gaming can last for

years and isn't only a symptom of something else[25]. That is one reason the program's diagnostic asks about mood and attention before anything else, and why we tell people to see a doctor when those need attention in their own right (Section 17).

The course of the problem is also less fixed than people fear. In a five-year study of 4,121 adults in Canada, people who said that gaming had caused them significant problems mostly reported it in only one period, and symptoms eased over time on average. Very few had sought help[26]. A review of 13 long-term studies found that the course of gaming disorder varied widely, and that it tended to be more stable in teenagers than in adults[27]. For an adult who wants to stop, that's encouraging: the habit is not a life sentence. It doesn't mean the problem will fix itself, and the people in these studies who recovered were not necessarily people who had already tried and failed several times.

Section 03

Why can't I stop playing video games when I'm disciplined everywhere else?

Days 1 to 2, Brain chemistry restabilization

In brief

Because games are engineered to keep the brain's reward system engaged, and the discipline you use at work runs on a part of the brain that stress and tiredness switch off. By the evening, the game is up against a tired brain, and it's built to win that contest.

You can't stop because the discipline you use at work and the urge to play run on different systems, and games are designed to engage the second one. Deliberate self-control depends heavily on the prefrontal cortex, the part of the brain that holds a plan in mind and stops you acting on the first impulse[4]. It works well when you're rested and calm, and it's the first thing to weaken under stress or tiredness[2]. Stress also shifts behavior away from deliberate choices and toward habits[3]. So the person who keeps a demanding job on track all day and then can't stop at one match isn't being inconsistent. They're using a tired version of the system that does the stopping, against a product that has had its rewards tuned by people whose job is to keep players playing.

Games engage the reward system directly. In 1998, a brain scan study showed for the first time that dopamine is released in the human striatum, part of the brain's reward circuit, while people play a video game, and that more release went with better play[6]. Dopamine isn't a pleasure chemical. It works more like a signal that something is worth pursuing, and it drives wanting more than it drives

enjoying[28]. That distinction explains something many heavy players describe: carrying on with a game they're no longer enjoying. Wanting and liking can come apart, and the wanting is the part that keeps the controller in your hand.

Definition: wanting and liking

Wanting is the drive to get something; liking is the pleasure you feel when you have it. They run on overlapping but different brain systems, and a habit can strengthen the wanting while the liking stays the same or fades[28]. That's how a person can feel compelled to play a game they no longer enjoy.

Game designers don't usually talk about dopamine. They talk about loops. A typical game gives you a goal, a challenge pitched just above your skill, controls that answer every press instantly, a reward, and progress you can see, then hands you the next goal. Self-determination theory, the most tested account of why people play, explains why that loop is so satisfying: it meets basic needs for competence, autonomy and relatedness, and games that meet those needs are enjoyed more and played again[5, 12]. Two design choices make the loop especially hard to leave. The first is that many rewards arrive at random. A rare item drops sometimes, a pack contains something good sometimes, and you can't tell which time it will be. Rewards on a random schedule produce some of the most persistent behavior known[7], and dopamine cells respond most strongly when the outcome is most uncertain[29]. The second is that the loop has no natural end. A film finishes and a book has chapters, but a match ends by offering the next one.

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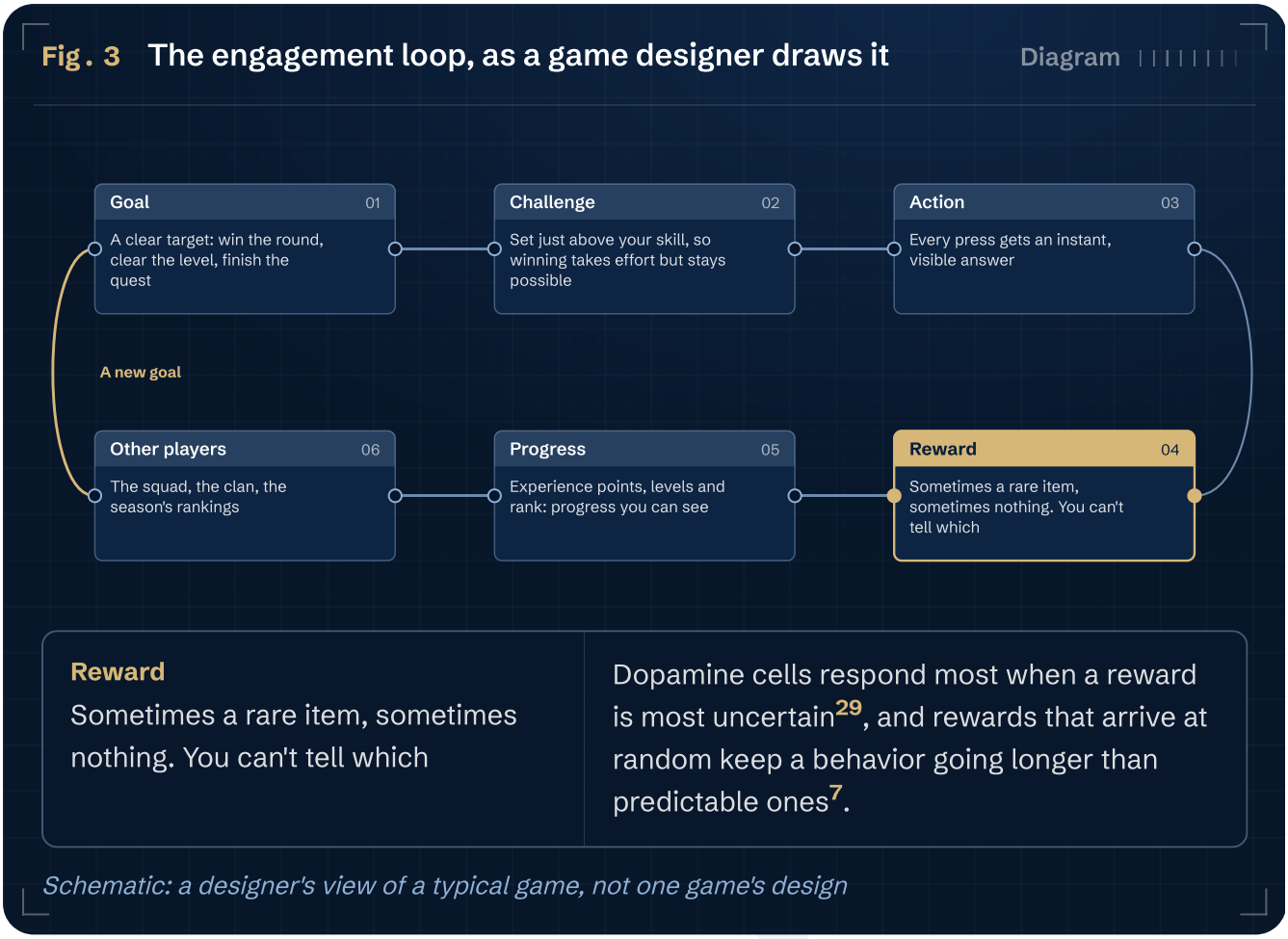


Figure 3. The engagement loop drawn as a designer's node graph: goal, challenge, action, reward and progress, wired back to a new goal, with other players feeding into the loop. Select a node to read what it does and the research behind it. The loop is a general description of how many games are built, not the design of any one game.

Over time the loop stops being a choice you make each evening and becomes a habit set off by the situation. Habits are actions the brain has linked to a context: the time, the place, the device, the mood. Once that link is strong, the context starts the action before any decision is made[31]. Research on addiction describes the same shift, from actions done for a goal to actions that run on their own and are hard to stop even when the outcome is no longer wanted[32]. For a gamer, the context might be sitting down at the desk after work, the console's start-up sound, or the phone in your hand in bed. The first move is made before you've asked yourself whether you want to play.

The brain research on gaming disorder itself is younger and less settled than the research on substances, and we use it with care. A review of ten brain imaging studies found that people with internet gaming disorder showed different activity than controls in frontal regions involved in self-control and reward, and that the more time they spent online, the stronger some of those differences were[33]. Studies like these are small and can't show which came first. What they support is the plain point of this section: the urge to play and the ability to stop are not the same thing, and the urge is the one the game is designed for.

In the program · Phase 1, Brain chemistry restabilization **Days 1 to 2**

How the loop works

The program opens by explaining how habits form and how dopamine drives wanting, so the client can see their own evenings as a loop with parts rather than as a failure of character. A nightly log starts on Day 1.

Section 04

Why do games feel better than real life?

Days 12 to 15, Brain chemistry restabilization

In brief

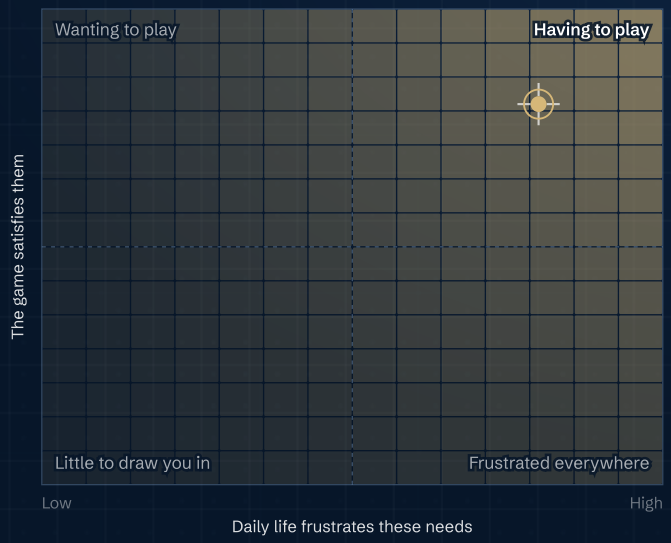
Because a good game reliably gives you three things people need: feeling capable, feeling in charge and feeling connected. When daily life frustrates those needs, the game becomes the easiest place to meet them, and that's where compulsive play grows.

Games often feel better than real life because they give you, quickly and reliably, things your days may not be giving you. Self-determination theory names three basic psychological needs: competence, the sense of being good at something and getting better; autonomy, the sense that what you're doing is your choice; and relatedness, the sense of being connected to other people. Across four studies, players' sense of competence and autonomy during play predicted how much they enjoyed a game, whether they wanted to play it again and how their mood changed after playing, and in multiplayer games, relatedness predicted enjoyment and future play as well[12]. A game is a near-perfect machine for these needs. The difficulty adjusts to your skill. The feedback is constant and clear. You choose your character, your path and your strategy. And the squad, the guild or the server is there whenever you log in[5].

The problem starts when the game is meeting those needs in place of daily life. Przybylski and colleagues found that players whose basic needs were poorly met in everyday life were more likely to have an obsessive passion for games: they felt they had to play rather than wanted to. That pattern went with more hours of play, less enjoyment and more tension after playing. Players whose needs were well met in daily life tended to play because they wanted to, enjoyed it more and finished sessions with more energy. The amount of play only went with lower well-being in players who felt compelled to play[13]. The authors' reading was that a compulsive pattern of play may be more a symptom of needs going unmet in daily life than a cause of distress on its own[5].

Later studies tested the two sides together. In 922 adults, both the satisfaction people got from games and the frustration of their needs in daily life predicted how often they played and how much problem play they reported. Together they accounted for 19.7% and 23.5% of the differences, and both gaming and problem play were highest when the game was satisfying and daily life was frustrating[14]. A second study supported the same idea, which its authors call need density: problem gaming is most likely when needs are poorly met in the real world and well met in games. It also found that need frustration in either place went with more problem gaming, and that well-being tracked how needs were met in the real world far more than in games[34].

Fig. 4 Three needs, two worlds — Diagram





Having to play. Life frustrates your needs and the game meets them. This is where people played most, and where problem play was highest.

In 922 adults, need satisfaction in games and need frustration in daily life together explained 23.5% of the differences in problem play, and both played most when both were high.

Schematic: directions from the studies, positions illustrative

Source. Mills et al. **2018**[14]; Allen and Anderson **2018**[34]; Przybylski et al. **2009**[13].

Figure 4. The three needs self-determination theory describes, shown as meters in the game and in daily life, and a map of where the research places compulsive play. Move the two sliders to set how much daily life frustrates the needs and how well the game satisfies them. The marker shows which pattern the studies found at that point. Problem play was highest where life frustrates the needs and the game meets them. The positions are illustrative; the directions come from the studies cited.

The research on why people play points the same way. A survey of 3,186 online gamers found that psychological distress was linked to problem gaming directly and also through two motives in particular: playing to escape and playing to compete[35]. When work is frustrating, progress in life is slow or friendships have faded, a world where you're skilled, your progress is visible and your team is waiting is very hard to compete with. A survey of online players grouped the reasons people play into three families, achievement, social contact and immersion[30], and each one maps onto something a person can be short of.

This matters for stopping because it changes what stopping has to include. If gaming is mainly meeting needs that the rest of life is frustrating, then removing the game without changing the rest of life leaves those needs unmet, and the urge to go back will be strong and reasonable. The aim isn't to take something away and leave a gap. It's to build sources of competence, autonomy and connection outside the game, early enough that they're in place when the game is gone. That idea runs through the whole program and is the reason the first fortnight is spent on the ground the habit stands on, before anything is taken away (Section 15).

In the program · Phase 1, Brain chemistry restabilization **Days 12 to 15**

What gaming does for you

The client lists every quick, cheap reward in their life, gaming, streams and the feed included, and works out which habits travel together and what each one does for them. For gamers this is where competence, escape and the squad usually show up as the real reasons the game is hard to give up.

Section 05

Why is it so hard to stop at one more match?

Days 40 to 43, Impulse control

In brief

Because the game is built so that a goal is always nearly met. Progress bars that are almost full, quests two wins short, streaks you'd lose and

rewards that run out with the season all make the next match feel more worth playing than the last.

It's hard to stop at one more match because games are built so that something is always nearly finished. A bar is three-quarters full. A quest needs two more wins. A season ends on Sunday. A streak breaks if you don't log in tomorrow. Each of these is a retention mechanic, a feature whose job is to bring players back and keep them playing, and several of them rest on well-studied findings about how people respond to goals and rewards. None of them is hidden, but they're easier to resist once you can see what they're doing.

The first is the goal gradient. People work harder the closer they get to a reward. In a real café loyalty scheme, customers bought coffee more often as they got closer to the free one. People who rated songs online in return for rewards visited more often, rated more songs and kept going longer as they approached the reward[8]. The same study tested what happens when progress is handed out for free. Customers given a 12-stamp card with two bonus stamps already on it filled it faster than customers given a 10-stamp card, although both needed exactly ten purchases. The authors' model explains why: effort depends on the share of the distance that's left, not on the number of steps[8]. A separate study found the same thing and called it the endowed progress effect: giving people a head start toward a goal makes them more likely to finish and quicker to do it[36].

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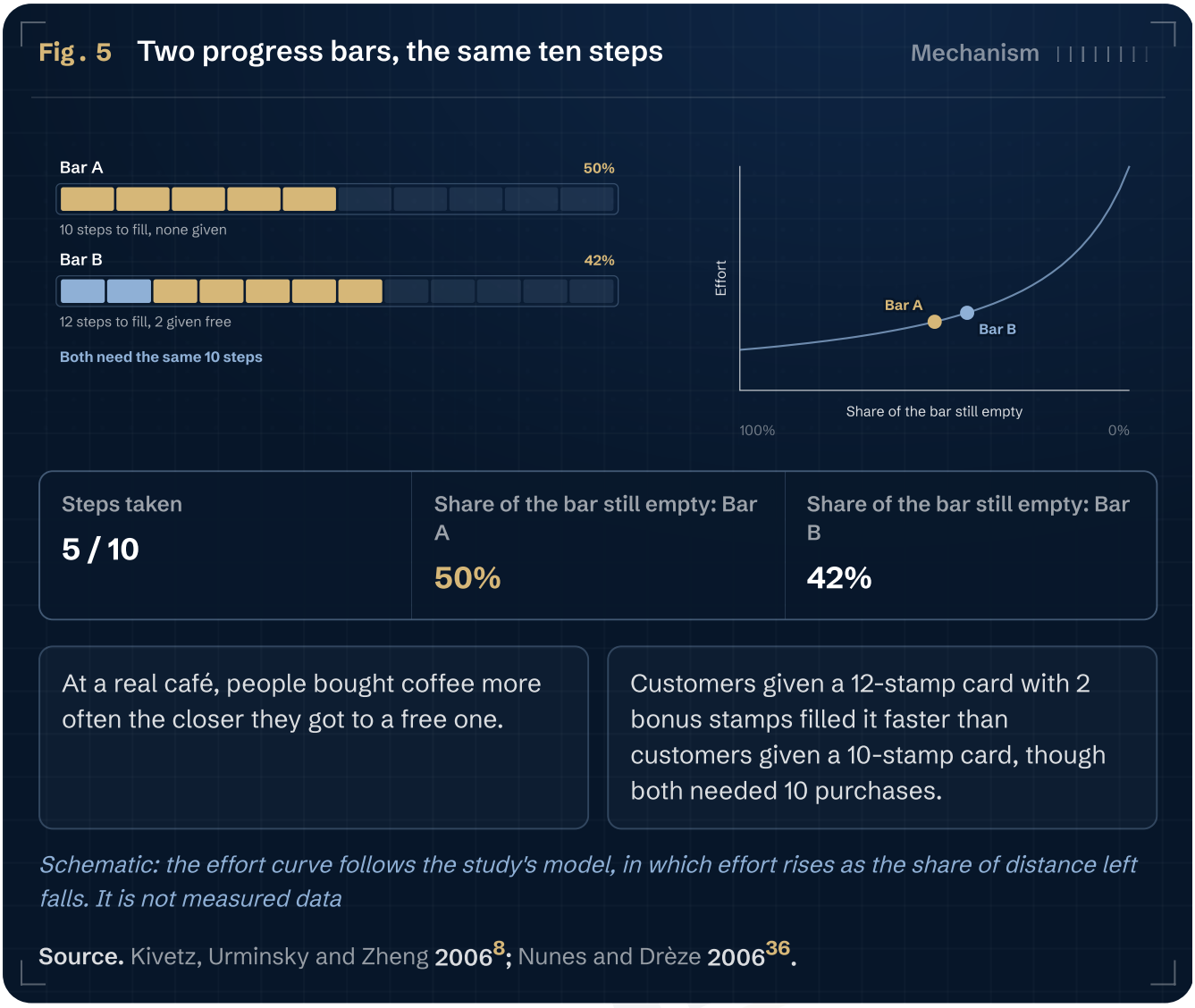


Figure 5. Two experience bars that both need ten more steps to fill. Bar A starts empty with ten segments. Bar B has twelve segments, two of them filled for free. Take steps with the slider and watch the share of each bar still empty, which is what the study's model says drives effort. Bar B always looks closer to done, and in the café study the matching cards were filled faster. The effort curve is schematic.

Experience bars, battle passes and achievement trackers are this effect drawn on a screen. A bar that's nearly full makes the next match feel worth more than the last one did. Many games also give you progress at the start of a season or a new character, which is the endowed progress effect in practice. And because every level leads straight to the next bar, there's never a moment when the goal is met and nothing new is on offer. In 2010, researchers studying why games motivate people noted that challenges graded to the player's skill, and positive feedback on how they're doing, are key to the sense of competence a game gives[5]. The same feedback that makes a game satisfying makes it hard to leave mid-bar.

The second family of mechanics works through the fear of losing something. Daily login rewards, streaks and limited-time events give you a reason to play today rather than later, and a cost for missing a day. People feel a loss more strongly than a gain of the same size[37], so a reward framed as

something you'll lose by not playing is more motivating than the same reward framed as something you could gain. A daily-reward calendar combines both families: progress toward a prize that's always a few days away, and a streak that resets if you miss a day.

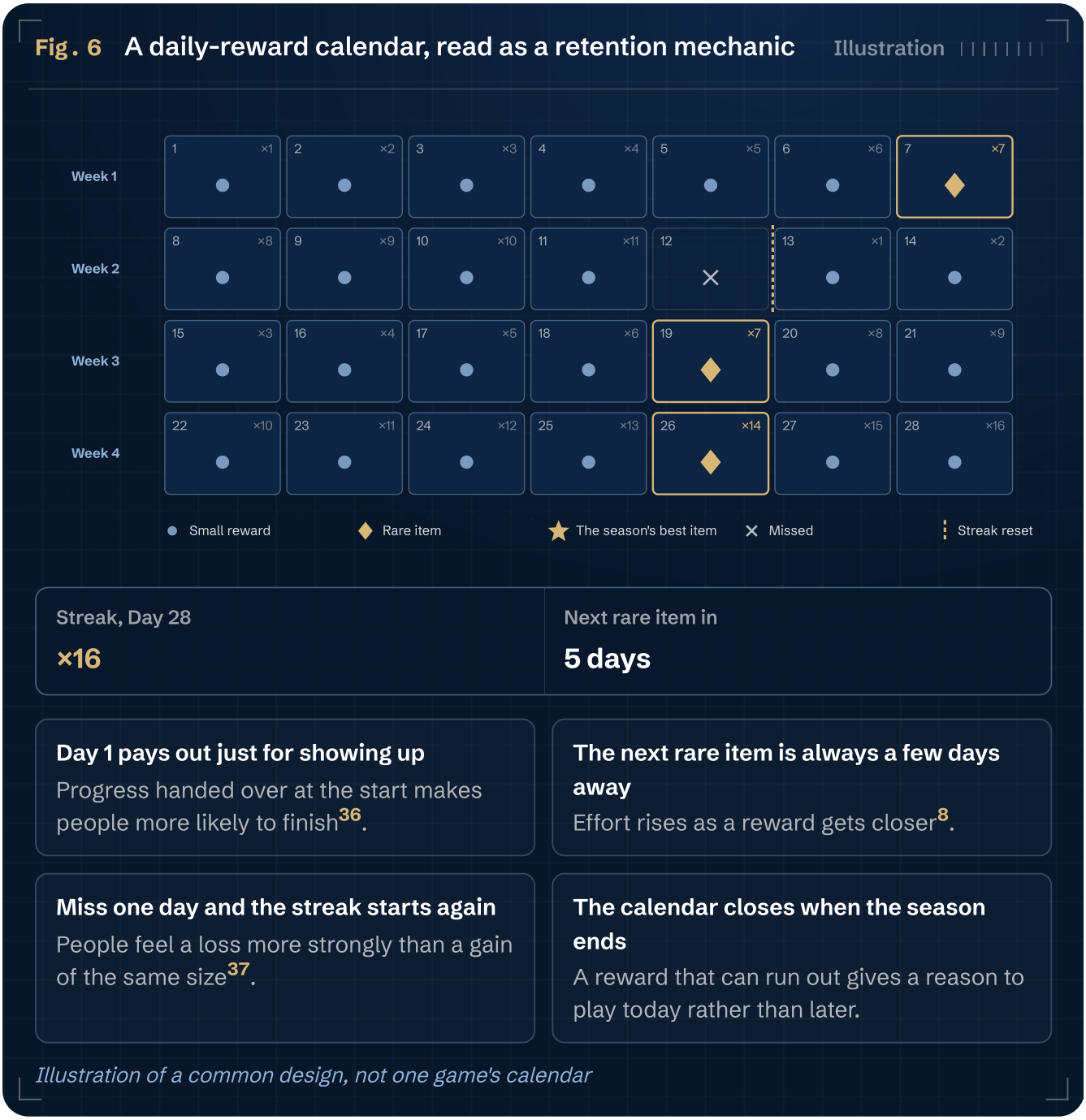


Figure 6. A 28-day login calendar of the kind many games use, with a small reward most days, a rare item each week and the season's best item at the end. Select a day to miss it: the streak resets, the reward ladder starts again, and the next rare item moves further away. Under the calendar, each part of the design is matched to the research it relies on. The calendar is illustrative, not taken from a particular game.

Most of this research was done in shops and on websites rather than in games, so we use it for the mechanism it shows, not as proof of how strongly any one game affects any one player. The point for someone stopping is practical. If you go back to a game for a single session, you go back into a structure that has a nearly-full bar, a streak to rebuild and an event about to end. A single session is rarely a single session for that reason, and it's why the program stops gaming completely on Day 15 rather than cutting it down (Section 11).

In the program · Phase 2, Impulse control **Days 40 to 43**

The thoughts that argue for one match

The client works on the thoughts that talk them into playing: just one match, the squad needs me, I've already paid for this season, I'll stop at the end of this level. Each is tested against the client's own record of what one match has meant in the past.

Section 06

Are loot boxes gambling?

Day 32, Impulse control

In brief

They work like gambling: you pay real money for a random reward. Spending on them is consistently linked to problem gambling, and the link is stronger than for other things bought inside games. Whether they lead people into gambling, or gamblers are drawn to them, isn't yet known.

Loot boxes share the structure of gambling, and spending on them is linked to gambling problems, though the research can't yet say which causes which. A loot box is an item in a game that you can buy with real money and whose contents are random: you pay before you know what you'll get. In 2018, two psychologists applied five tests that are used to tell gambling apart from other risky activities. The tests ask whether money or something of value changes hands, whether an unknown future event decides the exchange, whether chance decides the outcome at least in part, whether you can avoid losing by not taking part, and whether winners gain at the expense of losers. Of 22 games rated as suitable for players aged 17 or under, nearly half had loot boxes that met all five[38].

The link with problem gambling is one of the more consistent findings in this area. A survey of 7,422 gamers found that the more people spent on loot boxes, the more severe their gambling problems were, and the link was much stronger for loot boxes than for other things bought inside games, which suggests that the gambling-like features are what matter[39]. People with no gambling problems gave an average answer between $1 and $10 a month on the survey's spending scale, while people with problem gambling gave an average answer between $20 and $40 a month. A replication in 1,172 gamers who didn't know what the study was about found a link of almost the same size[40]. A review found that 12 of 13 publications reported the same positive link, with an average correlation of 0.27, a moderate size for this kind of research[41], and a second review of 15 studies put it at 0.26[42].

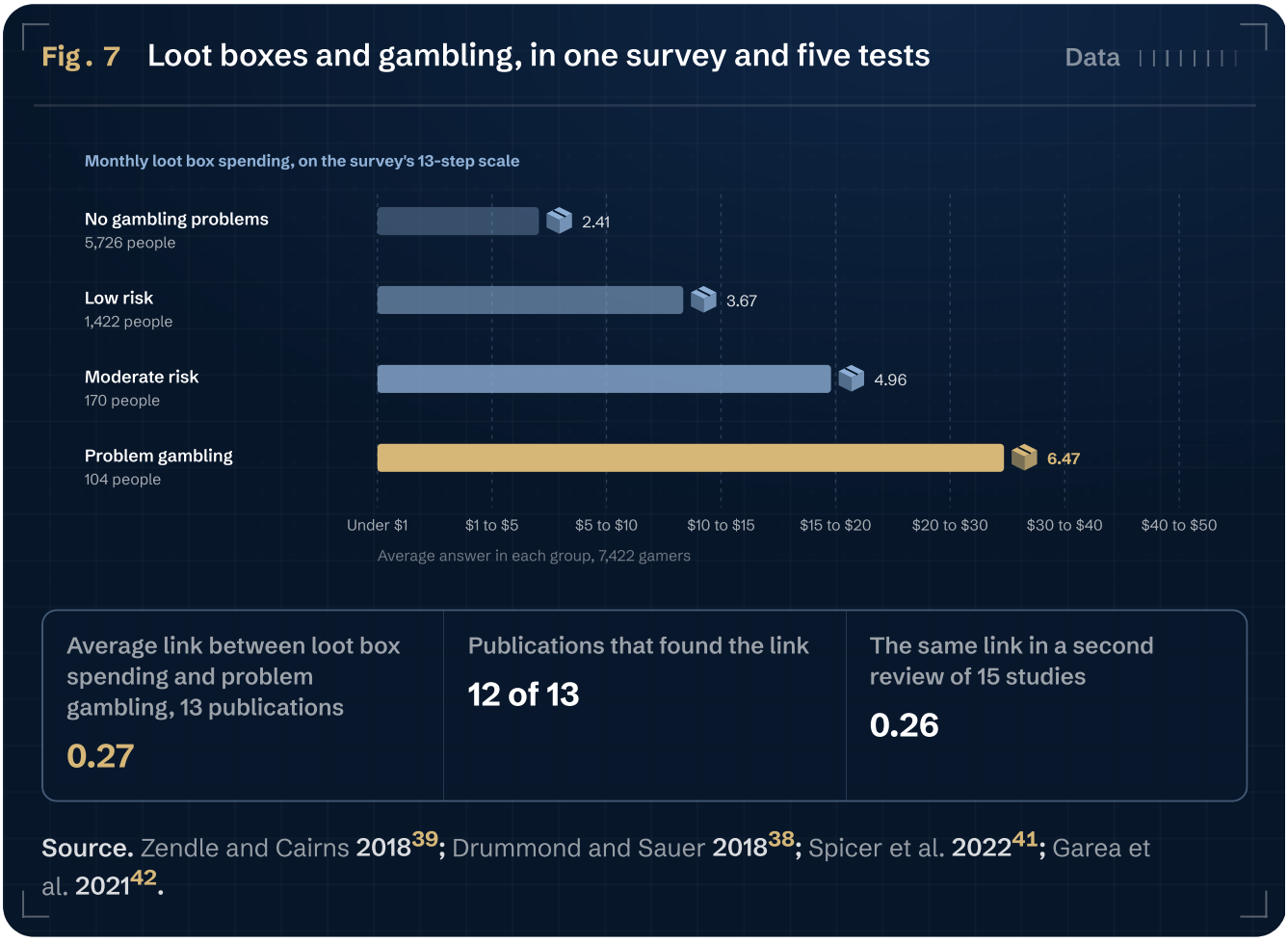


Figure 7. Left view: the average monthly loot box spending of 7,422 gamers, grouped by the severity of their gambling problems, on the survey's 13-step spending scale. Spending rose with every step up in gambling severity. Right view: the five tests for gambling that were applied to the loot boxes in 22 games rated for players aged 17 or under. Nearly half met all five. Below, the size of the link across reviews. The data show a link, not which way it runs.

What these studies can't show is direction. Loot boxes might draw people toward gambling, or people who already gamble might be drawn to loot boxes, or both[39, 40]. The same reviews found that loot box spending was linked to problem gaming too, at about the same strength or stronger[41, 42]. For someone stopping gaming, two practical points follow. Random rewards bought with money are the most gambling-like part of a game and the part most likely to keep a person spending and

playing, so they're among the first things to go. And if you've noticed that you also bet, trade speculatively or play casino apps, that's worth taking seriously in its own right; our paper on stopping gambling covers it.

In the program · Phase 2, Impulse control **Day 32**

Payment and access removed

When the environment is reset, saved cards come off game stores and launchers along with the games themselves, so that a purchase made on impulse needs more steps than a tired person will take.

Section 07

Does gaming ruin your sleep?

Days 3 to 5, Brain chemistry restabilization

In brief

It often does. Long sessions in the evening push bedtime later, take longer to fall asleep after and cut total sleep. People with gaming problems are about twice as likely to sleep badly. And short sleep makes the next evening's urge harder to resist.

Gaming, especially long sessions in the evening, often costs sleep, and lost sleep makes the next session harder to turn down. A review of 34 studies with 51,901 people found that people with problem gaming slept less than other players and had about twice the odds of poor sleep quality (2.02 times) and of sleep problems (2.60 times), with higher odds of daytime sleepiness too (1.57 times)[43]. The link isn't limited to teenagers. In a study of 844 adults aged 18 to 94, people who gamed more slept worse, even after accounting for age, sex, education, exercise and stress. Each extra hour of gaming a day went with going to bed 6.9 minutes later and getting up 13.8 minutes later, and gaming for more than an hour a day accounted for 30% of the risk of poor sleep quality in that sample[44].

Experiments show that the session itself does some of the damage, not only the late bedtime. In a sleep laboratory, 17 teenage boys with no sleep problems played the same fast-paced game for either 50 or 150 minutes before their usual bedtime, on two different nights. After the longer session they slept 27 minutes less on average, a smaller share of their time in bed was spent asleep (7% lower, falling below 85%), they had less dream (REM) sleep, and they reported taking 17 minutes longer to

fall asleep. Their heart rates didn't differ between the two nights, so the authors cautioned that physical arousal may not be the reason[45]. A review of the experimental studies concluded that long periods of play, particularly in the evening, are a common and probable cause of sleep problems, with shorter sleep, slower sleep onset and poorer attention and memory the next day[46].

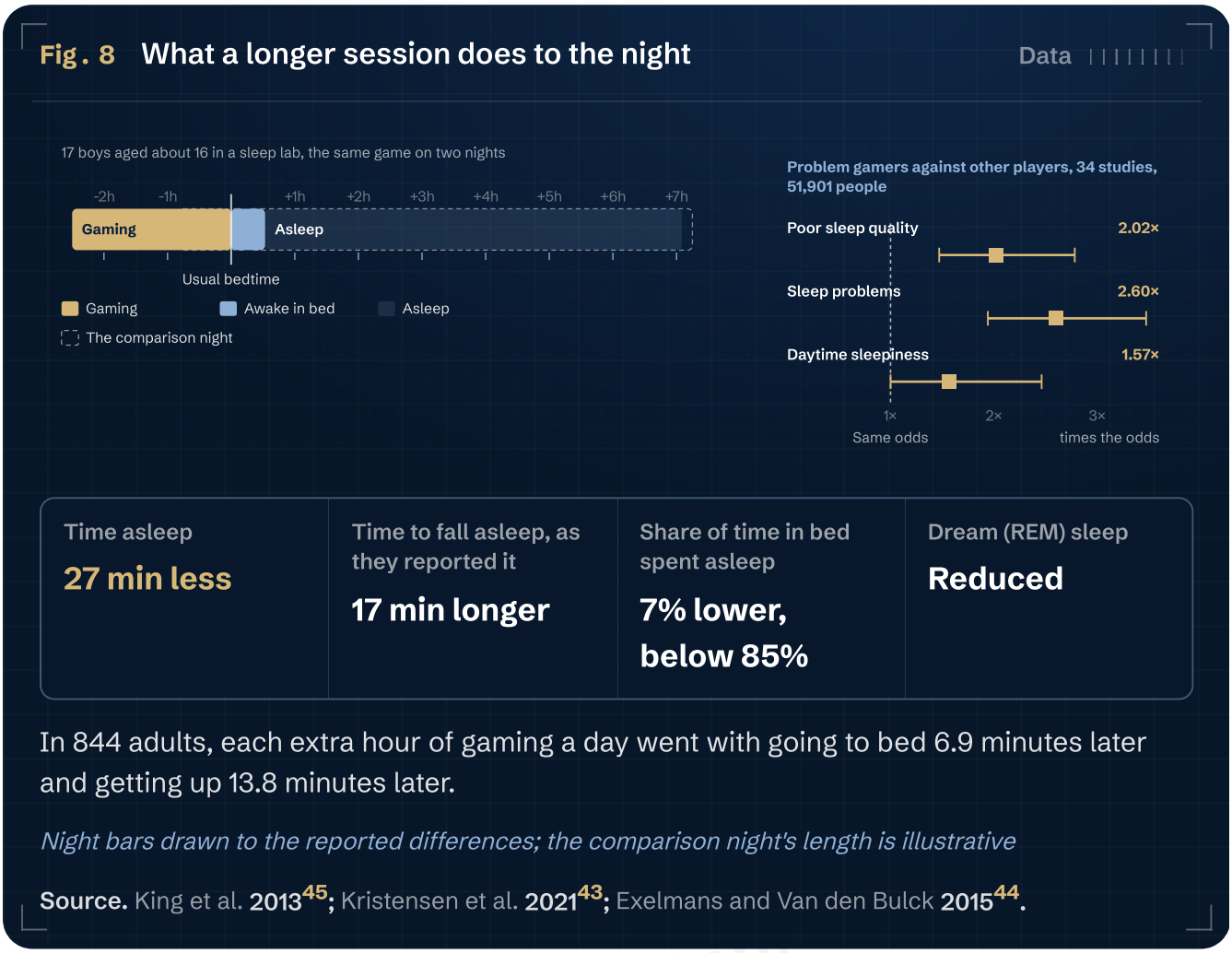


Figure 8. Left: two nights in a sleep laboratory, after 50 and after 150 minutes of the same game before the usual bedtime. Switch between them to see what changed after the longer session: 27 minutes less sleep, 17 minutes longer to fall asleep, a lower share of time in bed spent asleep and less dream sleep. Right: across 34 studies, the odds of sleep trouble for people with problem gaming compared with other players, with the range of likely values. The bar lengths for the night follow the reported differences; the comparison night is illustrative.

Sleep matters for stopping because it works in both directions. A late session costs sleep, and short sleep weakens the brain's control over emotion and impulse the next day. After a night without sleep, the amygdala, which drives emotional reactions, responded much more strongly to upsetting images, and its connection to the prefrontal regions that normally calm it was weaker[11]. A tired person is more irritable, more likely to want an easy reward and less able to keep the plan they made in the morning. That's how a habit of late sessions keeps itself going: each night's gaming lowers the next day's defenses against the next night's gaming.

The evidence has limits. Most of the studies in the review asked people about their own sleep, and the effects varied a lot between studies[43]. The laboratory study used a small group of teenage boys and one type of game[45], and the adult study was a single survey, which can't show that gaming caused the poorer sleep[44]. Still, every kind of study points the same way, and for an adult who games late and wants to stop, the practical conclusion is clear enough: fix sleep first, and take screens out of the bedroom.

Why sleep comes before the stop date

The program fixes sleep and wake times on Day 3 and takes the phone and bright screens out of the evening and the bedroom on Day 5, ten days before gaming stops. By Day 15 the client has had nearly two weeks of better sleep, and with it a better chance of getting through the first evenings without the game.

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

Sleep, daylight and the bedroom

Fixed sleep and wake times with enough hours for real recovery, daylight and a walk every day, bright screens dimmed after dark, and the phone left in another room overnight. For gamers this removes mobile games from the bed and makes a late session at the desk less likely.

Section 08

How many hours of gaming a day is too much?

Day 9, Brain chemistry restabilization

In brief

There's no safe number of hours. The research finds that how and why you play matters more than how long. Hours become too many when

they're compulsive, when they come out of sleep, or when they crowd out the things you're trying to build.

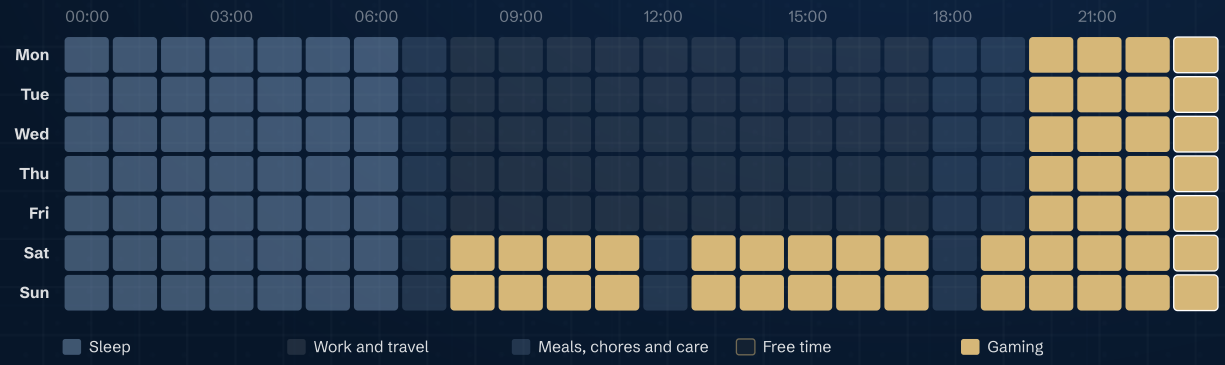
There's no number of hours that marks the line, because the research finds that the pattern of play matters more than the amount. The largest study of its kind linked six weeks of real play data from seven game publishers, for 38,935 players, with three surveys of their well-being. It found little to no evidence that time spent playing affected well-being, for better or worse, but it did find that players' reasons for playing were related to how they felt[47]. An earlier study using logged play from two games even found a small positive link between play time and mood[48]. And in the study described in Section 4, hours of play went with lower well-being only in players who felt compelled to play[13].

That doesn't mean hours are harmless. It means the useful question is different. Hours become too many when they're compulsive, meaning you play longer than you meant to and can't stop when you decide to. They're too many when they come out of sleep, as Section 7 showed. And they're too many when they come out of the things you're trying to build. Time is finite, and every hour of play comes from somewhere. A randomized trial tested this directly. Young boys who didn't own a games console were promised one, and half were given theirs straight away while the other half waited four months. The boys who got theirs first played more, spent less time on schoolwork after school, and four months later had lower reading and writing scores and more academic problems reported by their teachers. How much they played explained the difference[49].

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Fig. 9 A week of 168 hours, and where gaming takes its time from

Illustration



Gaming	Free hours left	Sleep given up
6.9 hours a day	0 hours	7 hours

In a randomized trial, boys given a games console played more and spent less time on schoolwork after school. Four months later their reading and writing scores were lower than those of boys still waiting for theirs.

In data on over 192,000 teenagers in 22 countries, how often they played made little difference to their school results.

Illustration: an example week, not measured hours

Source. Weis and Cerankosky 2010[49]; Drummond and Sauer 2014[50].

Figure 9. An example week drawn as an inventory of 168 hour slots: sleep, work and travel, meals, chores and care, and free time. Raise the hours of gaming with the slider. Gaming takes free time first, and past that point it starts taking sleep. The hours in the example week are illustrative, not measured; the trial and the international data below them are real.

The other side of the evidence deserves its place. In data on more than 192,000 teenagers in 22 countries, how often they played video games made little difference to their results in science, mathematics and reading[50]. Taken together with the trial, the fair reading is that moderate gaming alongside a full life does little harm, while gaming that takes the place of the things a person needs to do can cost them. For the people this paper is written for, who already know the game is costing them, the question has usually been answered by their own lives: the hours have been coming out of sleep, work, training, their partner or a goal they keep putting off.

A useful test is to write down a normal week in hours, then write down what you'd do with the hours gaming takes if they were free. If the second list contains things you've wanted to do for years, the hours are too many for you, whatever the average player does.

In the program · Phase 1, Brain chemistry restabilization **Day 9**

A day with no empty blocks

The client builds a daily routine anchored on fixed points, so that the long, unplanned stretches where gaming used to happen are already filled with something they have chosen before the game is gone.

Section 09

What triggers the urge to game?

Days 31 to 32, Impulse control

In brief

The setup itself, the time you usually play, a notification from a launcher or the squad, a trailer or stream, and feelings like boredom, stress and loneliness. In people with a gaming problem, just seeing game images lights up the same craving circuits that drug triggers do.

The urge to game is usually set off by something you can name: a place, a time, a device, a person or a feeling that has been paired with playing many times. In one brain imaging study, ten men with an online gaming addiction and ten men without one looked at pictures from the game they played. In the addicted group, the pictures activated regions including the orbitofrontal cortex, the nucleus accumbens, the anterior cingulate, parts of the prefrontal cortex and the caudate, more than in the other group, and the more these regions responded, the stronger the urge to play the men reported. The authors noted that the pattern resembles what happens when people with a drug addiction see drug-related images[51].

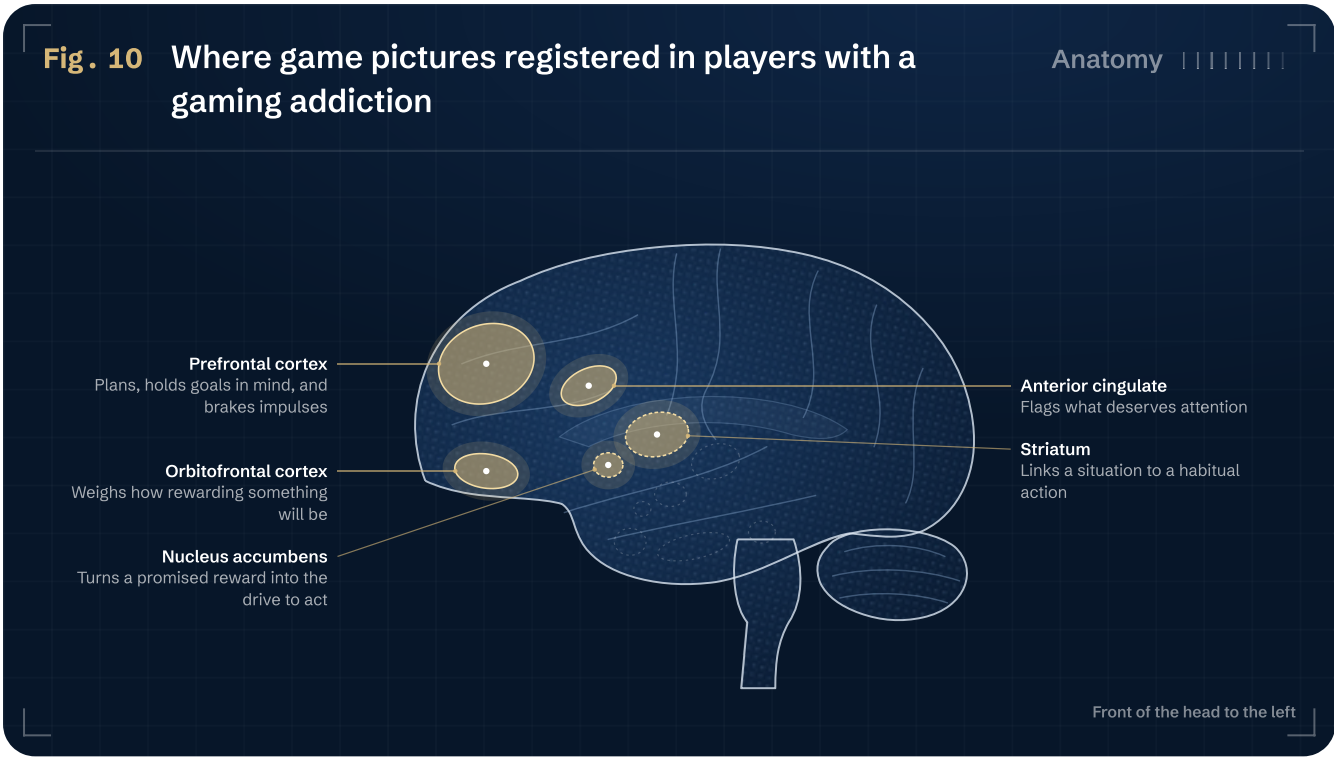


Figure 10. The brain regions that responded more strongly to pictures of their game in ten men with an online gaming addiction than in ten men without one. The strength of the response tracked how strongly they wanted to play. The roles given are general descriptions of what each region does, not findings of this study. A small study, from one game, in men only.

Most triggers fall into a few groups. Things: the console, the PC, the controller, the headset, the gaming chair, the launcher icon on the desktop, mobile games on the home screen. Events: finishing work, the end of dinner, a free weekend, a notification that the squad is online, a patch or new season, a trailer or a stream of someone else playing. Times: whenever you usually play. People: the squad, the clan, an online friend, a friend who streams. Places: the room with the setup, the sofa in front of the console. And feelings: boredom, stress, frustration after a bad day, loneliness, wanting to feel good at something, excitement about a release. Feelings matter most for many people, because the strongest reasons for problem play are escape and competition (Section 4)[35].

Watching other people play deserves a special mention. For many gamers, streams and gaming videos are where the habit moves when the game is uninstalled. They show the game, the excitement and the community, which keeps the learned links between those images and the urge to play strong, and they fill the same hours. The research on triggers in Section 3 suggests that's exactly what keeps a habit ready to restart: each exposure to the old context, without new learning, keeps the old response available[10, 31]. For someone stopping gaming, that's why the list of easy, unearned rewards that stop on Day 15 should include streams and gaming videos, not only the games.

Knowing your triggers is useful because most of them can be removed or changed before they fire, and changing the situation is more reliable than resisting an urge already under way[9]. Uninstalling launchers, leaving or muting servers, unsubscribing from channels, turning off store notifications

and moving the furniture so the room stops looking like the place you play all remove triggers outright. For the ones that can't be removed, like the desk you also work at, or the friend you still want to see, the program builds a prepared response (Section 12).

In the program · Phase 2, Impulse control **Days 31 to 32**

The trigger map, and the environment reset

The client maps every trigger across six kinds: feelings and thoughts, the events that come just before, things, times, people and places. Then everything connected to gaming that can be removed is removed: games, launchers, accounts, servers, channels and notifications, and the setup itself where it's a dedicated machine.

Section 10

What happens when you stop gaming, and how long does withdrawal last?

Days 15 to 30, Brain chemistry restabilization

In brief

There's no dangerous physical withdrawal. Most people feel bored, restless and irritable, think about the game a lot and miss the people they played with. Few studies have followed it closely, but the hardest stretch is usually the first few weeks, while the hours the game filled are still empty.

When you stop gaming, the most common experience is boredom, restlessness and irritability, not physical illness. A review of 34 studies on withdrawal from gaming found that the symptoms described most consistently were irritability and restlessness after stopping. It also found that the evidence is thin: few studies have described what stopping is actually like, and treatment studies haven't tracked how the symptoms change over time[52]. So we can say what people feel, but no study we found gives a reliable day-by-day timeline for gaming, and we haven't drawn one.

One study asked players to describe it as it happened. Twenty-four young adults who played online role-playing games regularly, nine of whom met the criteria for gaming disorder, stopped playing for 84 hours and answered seven online surveys before, during and after. Their 155 written answers fell into six themes: the things that set off the wish to play, their beliefs about gaming, low mood

while they weren't playing, the ways they coped, changes for the better, and costs such as feeling cut off from the people they played with. What they described most was boredom and a drive for something that would stimulate the mind, which the authors noted fits poorly with the idea of withdrawal borrowed from drugs[53].



Figure 11. Left view: 24 regular online players who stopped for 84 hours, and the six themes their 155 written answers fell into. Most of all, they described boredom and a wish for something to stimulate the mind. Right view: 186 adults who asked an online service for help to stop, followed up a week later. Those still not playing were less likely to have had withdrawal symptoms or to play action shooting games. Across a review of 34 studies, irritability and restlessness were the most consistent withdrawal symptoms.

A second study followed 186 adults with gaming problems who had contacted an online service for help to stop, and checked a week later whether they had kept to it. Those who had were less likely to have had withdrawal symptoms, and less likely to play action shooting games. Four in ten of the group had symptoms of low mood or anxiety. Those people had more gaming problems, more unhelpful beliefs about gaming, such as overvaluing in-game rewards, and a poorer quality of life, but their mood symptoms didn't predict whether they managed to stay off. The authors suggested that people trying to stop may benefit first from ways to handle withdrawal and from knowing which kinds of games are riskiest[54].

The program tells clients plainly that the first 12 days without the habit are when most people struggle. For a gamer, the research above suggests what that struggle mostly is: boredom, restlessness and irritability, frequent thoughts about the game, and missing the people they played with. The boredom can be intense, because the game has been filling every free hour. That's why the program spends the first two weeks building a routine, training, a skill to get better at and time with people before gaming stops, and why the second half of the first month adds more. The urge passes faster when there's something else in the hour it used to fill. Urges themselves rise, peak and fade if they aren't acted on, and learning to watch that happen without acting on it has helped people with other habits[55].

What gets better is worth knowing too. In the 84-hour study, changes for the better were one of the six themes people wrote about on their own[53]. Sleep is the most predictable gain, for the reasons in Section 7. Time is the most obvious one. Many clients find that the evenings and weekends gaming used to fill are where the progress they'd been putting off finally starts.

In the program · Phase 1, Brain chemistry restabilization

Days 15 to 30

The first weeks without games

On Day 15 the client stops every source of easy, unearned reward they listed on Day 12. For a gamer that means games on every device, with streams and gaming videos. The client keeps attention on their routine and daily practices rather than on the game they're not playing, and from Day 16 adds heat and cold exposure, a demanding new skill, awareness training, breathing and memory training, and offline skill games played with real objects.

Section 11

Should I quit gaming completely or cut back?

Days 12 to 15, Brain chemistry restabilization

In brief

If gaming has become a problem for you, stop completely for a set period rather than trying to play less. Every session keeps the habit's

triggers alive, and a limit has to be kept at the worst possible moment. The research comparing the two for gaming is thin, and we say so.

If gaming has become a problem for you, stopping completely for a set period works better than trying to cut back, for three reasons. Each session keeps the learned links between the game and its triggers alive, so the urge stays as strong as it was[10]. A limit has to be enforced by the person who wants another match, at the moment a match ends and the next one is offered, which is exactly when control is weakest (Section 5). And the design features that make games hard to put down, the nearly-full bar, the streak and the squad, are all still there in a shorter session. The program asks clients to stop every source of easy, unearned reward for at least twelve weeks, so the brain has time to settle and new habits time to form.

The research comparing the two approaches for gaming is thin, and it's fair to say so. A review of 30 treatment studies for gaming disorder found them too varied in approach, and too often poorly designed, to say which treatments or treatment goals work best[56]. What the evidence does show is that the way someone plays matters more than how much (Section 8). Players who feel they have to play, rather than wanting to, get less from their games and more of the harm, at any number of hours[13]. For a person in that state, a smaller amount of the same kind of play doesn't change the kind of play.

There's also an argument from the people who manage to stop. In the study of 186 adults trying to stop gaming, those who were still not playing a week later had fewer withdrawal symptoms and were less likely to play action shooting games[54]. That's an early finding over a short time, and it doesn't prove that cutting back fails. It does fit the design reasons above: a shorter session of the same game is still a session of the same game. Switching to a different game, or to mobile games, usually brings the same rewards and the same urge through a different screen (Table 1).

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Table 3. Stopping completely compared with cutting back, for someone whose gaming has become a problem. The research comparing the two directly for gaming is limited; the points below come from the evidence on how habits and games work, set out in Sections 3 to 5.

Question	Stopping completely	Cutting back
Do the triggers keep their strength?	They fade with time and new learning, though they can come back in old settings	Every session reinforces them
Who enforces the rule?	No decision to make, so nothing to negotiate at 11 pm	The same person who wants another match, at the end of a match
Do the retention features still work on you?	No streak to keep, no bar to fill, no event to miss	Yes: daily rewards, streaks and seasons are designed for short, regular visits
What about the people you play with?	Needs a plan, because the squad doesn't stop (Section 12)	The squad stays, and so does the pressure to stay on
What does the research show?	Early abstinence went with fewer withdrawal symptoms[54]	Treatment studies are too varied and too often poorly designed to compare the two[56]

This paper doesn't claim that nobody who once had a problem can ever play a game again. Many people's gaming problems ease over time without treatment[26], and the evidence on playing again after a long break is thin for gaming. What we can say is that trying to play less while the habit is at its strongest is the version that most often fails, and that a clean stop for a set period gives the brain and the rest of life a chance to change first. Whether a game ever has a place again is a decision better made later, with evidence from months without one.

In the program · Phase 1, Brain chemistry restabilization **Days 12 to 15**

One stop, for everything that works the same way

On Day 12 the client lists every easy, unearned reward in their life. On Day 15 they stop all of them together, games on every device, streams and the other habits that work the same way, so that the brain doesn't simply move the habit to another screen.

Section 12

How do I quit gaming when my friends all play?

Days 38 to 70

In brief

Tell them, plan what you'll say, leave or mute the servers and group chats, and move the friendships somewhere offline. Loneliness can lead into problem gaming and come out of it, so replacing the company matters as much as removing the game.

Tell your friends you've stopped, decide ahead of time what you'll say when they ask you to join, leave or mute the servers and group chats where sessions get organized, and move the friendships you want to keep to something offline. The hardest part of stopping is often not the game. It's losing the people, the jokes and the routine of an evening together. That's a real cost, and it needs a real replacement, not just willpower.

The research shows why the people matter in both directions. A study surveyed 851 Dutch teenagers, 543 of them gamers, twice, six months apart. Loneliness, weaker social skills and lower self-esteem each predicted problem gaming six months later. Problem gaming in turn predicted more loneliness six months later. The authors suggest that gaming may come to take the place of time with people face to face[57]. The same pattern shows up in the reasons people play. Social reasons are one of the three main groups of motivation in online games[30], and in the 84-hour study, feeling cut off from the people they played with was one of the costs people described[53].



Figure 12. Two surveys of the same teenagers, six months apart, drawn as a session lobby. Switch views to see what came before problem gaming and what came after it. Loneliness, weaker social skills and lower self-esteem predicted problem gaming later, and problem gaming predicted more loneliness. The study surveyed teenagers, not adults, and shows links over time rather than proof of cause.

For an adult, the practical point is that stopping gaming means rebuilding some of your social life on purpose. Recovery from addiction often involves joining new groups and taking on a new social identity as well as leaving an old one, and the people around someone shape which version of themselves feels natural[58]. In practice that might be a training partner, a club, a team sport or a regular evening with the friends you already have, doing something other than playing. Some gaming friends will be happy to meet that way. Some won't, and that tells you which friendships were mostly about the game.

What to say is simpler than people expect. A short, true sentence works better than a long explanation: you've stopped for a while because it was taking too much of your time. People who play a lot sometimes push back, and the push usually comes at the same moments as the urge, a new season, a free weekend, the squad short one player. Deciding in advance exactly what you'll do in those moments, written as an if-then plan, makes it far more likely you'll do it[59].

In the program Days 38 to 70

Day 38	**Situations you can't avoid** Some triggers can't be removed: friends who play, a gaming night someone else organizes, a release everyone is talking about. The client plans in advance how they will handle each one, so that the decision is already made before they walk into it.
Days 68 to 70	**The people and culture around the habit** The client looks at the self-image gaming has given them and the pressures around them that still push toward it, including friends, online communities and the wider gaming culture, and decides what place each will have from now on.

Section 13

What should I do instead of gaming?

Days 17 to 65

In brief

Things that give you some of what games gave you: a real skill you can see yourself getting better at, choices that are yours, people in the same room, and clear goals with visible progress. You can use the same mechanics games use, aimed at real goals.

Do things that give you some of what the game gave you: a skill you can see yourself getting better at, choices that are genuinely yours, and time with people. Self-determination theory, the research on what people need in order to feel well, describes those three needs as competence, autonomy and relatedness, and games satisfy them unusually well[12]. That's why simply removing the game tends to fail. It takes away a reliable source of all three and puts nothing in its place, and the person is left with a life that feels emptier than the one they had while gaming. The replacement doesn't have to be as fast or as bright as the game. It does have to meet the same needs.

The things that tend to work share the features that made the game work. A martial art, a team sport, a strength program, a musical instrument, a language or a building project all have a clear next goal, a challenge that grows as you do, feedback you can see and a group of people doing the

same thing. They differ from the game in one important way: the progress is real and it adds up. A belt or a personal best stays earned. An hour of practice is still there next month.

The game's own mechanics can be turned on real goals. Experience points, levels, quests, rankings, a squad and a daily reward each have a real-life version, and putting them on a real goal keeps the parts of the game that worked for you. Gamification, the use of game design elements outside games, has been studied widely. A review of the early research found that most studies reported positive effects, but that they depended on the setting and the people using it[60]. A later analysis of the experimental studies on gamified learning found a small to medium effect on what people learned, and small effects on motivation and behavior that held up less well in the most rigorous studies[61].

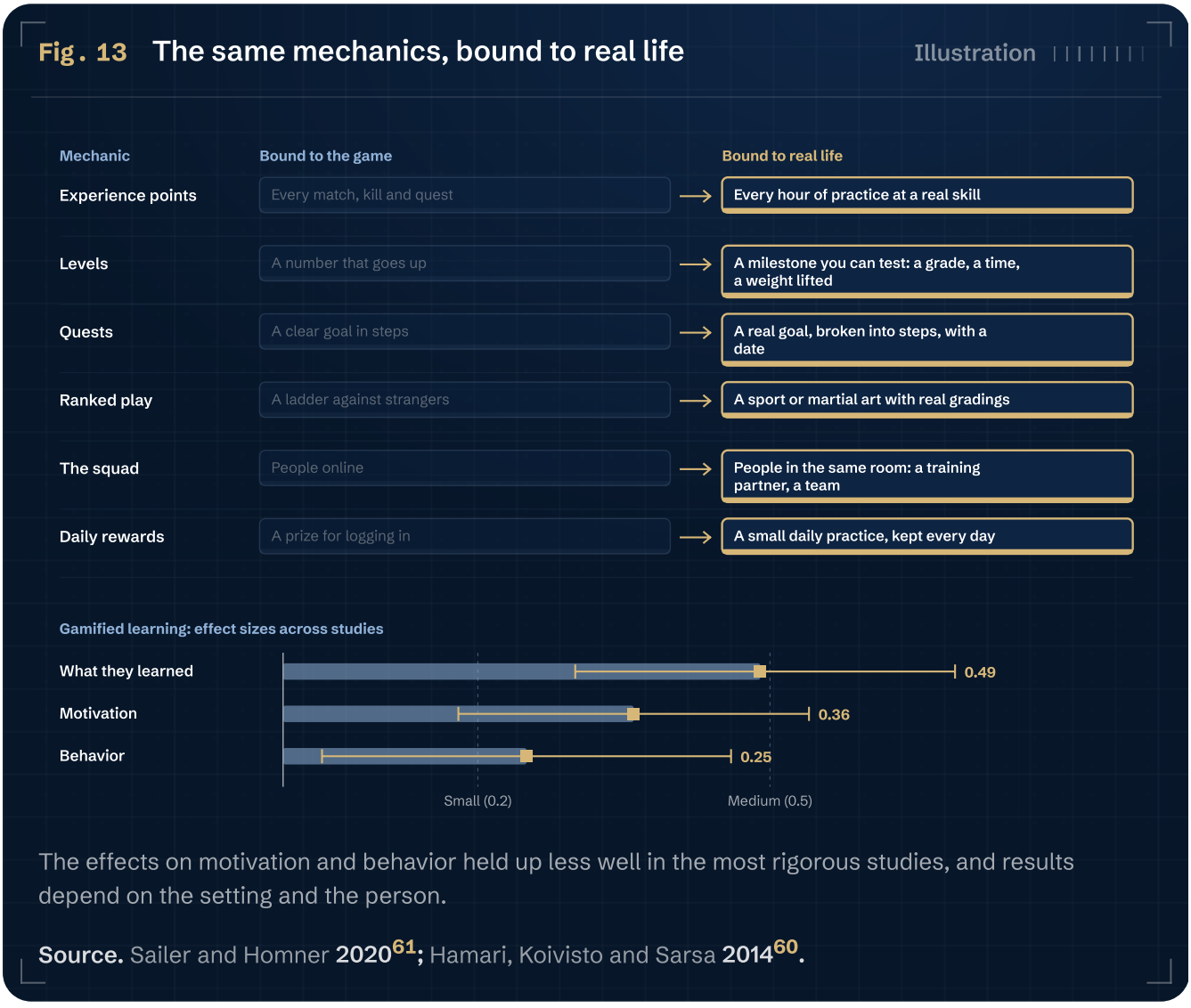


Figure 13. Six of the mechanics that keep games engaging, drawn as a control-binding screen. Switch views to rebind each one from the game to a real goal. Below, what the research on gamification found: effect sizes for gamified learning across experimental studies, with the range of likely values. The bindings are examples, not measured results.

Timing and setting matter as much as choice. Gaming usually happened at a set time, in a set place, with a set device, and those things will go on setting off the urge for a while (Section 9). A new activity placed in the same slot, ideally away from the old setup, has the best chance of taking over that slot[31]. It also takes time. Lally and colleagues followed people forming a new daily habit and found that it took a median of 66 days to become close to automatic, with wide differences between people, and that missing one day didn't spoil the process[62]. A replacement that feels effortful in week two may run on its own by month three.

In the program — Days 17 to 65

Days 17 and 23	**A real skill, and offline games** On Day 17 the client picks a demanding new skill to practice every day, chosen because it's hard and they can see themselves improving. On Day 23 they add offline skill games played with real objects, which train focus and give some of the feeling of mastery a screen used to give.
Days 63 to 65	**Game mechanics on real goals, and what drives you** On Day 63 the client applies the mechanics of a video game to their own progress in real life. On Day 65 they identify what drives them, whether achievement, connection with others or power and winning, and point it at goals that build something.

Section 14

What should I do if I play again?

Days 15 to 60

In brief

Stop the same day and don't treat it as proof you've failed. One session is one event. Carrying on the next day is what turns it into a relapse. Write down what led to it, close the gap that let it happen, and tell someone.

If you play again after stopping, stop the same day and treat it as one event, not as proof that you've failed. The program's rule is that a single session is one event. Going back to it the next day, and the day after, is what the program calls a relapse. So close the game, write down what led up to it, close

the gap that let it happen, whether that was a launcher you missed, a friend's invitation or an empty evening, and tell someone. If you're working with us, contact our team the same day.

How you explain the session to yourself matters. Curry, Marlatt and Gordon studied people who had a cigarette after stopping. Those who blamed the lapse on something internal, stable and global about themselves, such as a lack of willpower, were more likely to go on to a full relapse[63]. Marlatt called this the abstinence violation effect: the feeling of having already failed, which makes it seem pointless to keep going. With gaming it has a specific form. One match reconnects you to the progress bars, the daily rewards and the squad, and the thought that follows is often that the break is over anyway, so you might as well catch up. Witkiewitz and Marlatt's model of relapse treats a lapse as an event with causes that can be found and changed, not as the end of the attempt[64].

It helps to know that games are designed to make a return feel like a homecoming. Games often offer rewards or catch-up deals to players who come back after time away, and a season or event in progress makes the time away feel like lost ground (Section 5). That temptation is built in. It isn't a sign that you're meant to play. Uninstalling again straight away, rather than after one more session, keeps a single event from becoming the start of a new run.

In the program — Days 15 to 60

Days 15 to 30	**Learning from a session** If the client plays in the first weeks after stopping, before the trigger work begins on Day 31, they write down what happened and what led up to it. Those notes become material for the trigger map and the responses built in the second month.
Days 52 to 60	**The plan for a lapse** The responses the client builds in the second month include what they will do in the hours after a session: who they contact, which gap they close and how they deal with the urge to catch up.

If you play again

Stop the same day. Uninstall again straight away. Write down what led up to it. Close the gap that let it happen: the launcher, the account, the invitation or the empty evening. Tell someone you trust, or contact our team if you're working with us. One session is one event; what you do the next day decides whether it becomes a relapse.

Section 15

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

Days 61 to 90, Identity rewiring

In brief

Ninety days in three phases. The first month rebuilds sleep, training and the shape of the day, then stops gaming on Day 15. The second month removes the games, maps every trigger and builds a response for each. The third works on identity, turns the game's mechanics on real goals and replaces what gaming did. 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 gaming. Days 1 to 30 rebuild the ground gaming has been running on: sleep, daylight, exercise, stress and a day with no long empty stretches. The client stops gaming on Day 15, on every device, after two weeks of that work, and then adds a demanding new skill and other training that gives the brain some of what the game used to. Days 31 to 60 work on the moment a session actually starts: every trigger is mapped, the games, launchers and servers are removed, and each trigger that's left gets a prepared, rehearsed response, including the thoughts that argue for just one match. Days 61 to 90 work on identity, on what drove the person to play, on the mechanics of games turned toward real goals, and on the people and culture that still tempt them back. Six months of aftercare follow. 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.

15.1 Before Day 1

Every program starts with a Root-Cause Diagnostic: an application describing the habits involved and what has already been tried, followed by a thirty-minute, one-on-one conversation with our team. For gaming it has two jobs. The first is safety: it asks about risk to the person themselves and about anything that may need a doctor's involvement alongside the program, such as low mood, anxiety, attention problems or heavy drinking (Sections 2 and 17). The second is to identify the loop beneath the gaming: what it does for the person, the earliest recurring trigger, the conditions that make it likely, why earlier attempts broke down and what's missing for change to hold. Two people who both game every night rarely have the same loop. One plays ranked matches to feel good at something after a day of feeling stuck; another plays with an online group because that's where their friends are; a third plays mobile games in bed to switch off from stress. The structure of the

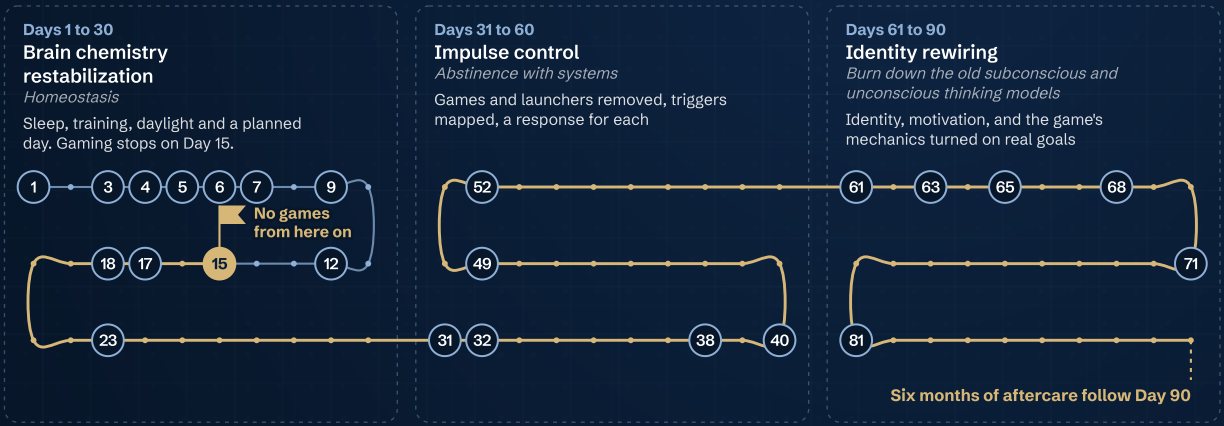
diagnostic parallels the three domains the Addictions Neuroclinical Assessment proposes for addiction: the urge set off by triggers, negative emotion and executive function[65]. It is not a clinical assessment.

A preparatory phase, Phase 0, follows before Day 1 and doesn't count toward the 90 days. It separates the decision to stop from the start. The client sets out in concrete terms the life they are building and what gaming has cost it, makes a commitment to someone who matters to them, chooses a start date that marks a real boundary in their life, and proves to themselves that they can hold one full day of control. The choice of start date rests on the fresh start effect: temporal landmarks such as the start of a week, a month or a meaningful date were followed by increases in aspirational behavior[66]. The day of control rests on Bandura's finding that direct experience of succeeding at a behavior is the most dependable source of belief that one can do it[67]. A commitment that is recorded and made to another person holds better than a private one[68].

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Fig. 14 The 90 days for someone stopping gaming, as a campaign map

Timeline



Day 15. Gaming stops: console, PC and phone

Brain chemistry restabilization

Homeostasis

Days 1 to 30

Day 1	Nightly log begins
Day 3	Fixed sleep and wake times
Day 4	Daylight and a daily walk
Day 5	Phone and screens out of the bedroom
Day 6	Strength training and cardio
Day 7	Daily meditation
Day 9	A day with no empty blocks
Day 12	Every easy, unearned reward listed
Day 15	**Gaming stops: console, PC and phone**
Day 17	A real skill to get better at

Impulse control

Abstinence with systems

Days 31 to 60

Day 31	Full trigger map
Day 32	Games, launchers and servers removed
Day 38	Situations you can't avoid, planned for
Day 40	The thoughts that argue for one match
Day 49	Watching an urge pass
Day 52	A response for every trigger

Identity rewiring

Burn down the old subconscious and unconscious thinking models

Days 61 to 90

Day 61	Identity work begins
Day 63	Game mechanics turned on real goals
Day 65	What drives you, pointed elsewhere
Day 68	Self-image and the gaming culture around you
Day 71	Rehearsing high-risk moments
Day 81	Replacing what gaming did

Day 18	Awareness training
Day 23	Offline skill games: a real cube or board

Figure 14. The program drawn as a campaign map: one path of 90 days through three regions, one for each phase, with a checkpoint on each day a target that matters for gaming is introduced. Gaming stops on Day 15. Phase 0 comes before Day 1, and six months of aftercare follow Day 90. Select a checkpoint to read its target. The exercises themselves are not published.

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Table 4. The day map for someone stopping gaming: 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 gaming
Before Day 1	Root-Cause Diagnostic: the loop beneath the gaming, and checks for low mood, anxiety, attention problems and risk to self	Gaming problems often come with anxiety, depression and ADHD[23]; the loop is read across trigger-set urges, negative emotion and executive function[65]
Before Day 1	Commitment, a meaningful start date, one day of control	Fresh starts and direct experience of success raise follow-through[66, 67]
1 to 2	How the loop works; the nightly log	Recorded monitoring of progress improves goal attainment[68]
3 to 5	Sleep and wake times, daylight, evening light, phone and screens out of the bedroom	Long evening sessions cost sleep[45], and sleep loss weakens control of emotion[11]
6 to 9	Strength training and cardio, meditation, eating, a day built on fixed anchors	Gaming takes its hours from somewhere; a planned day leaves fewer empty ones[49]
10 to 14	The loop, every easy reward listed, self-assessment	Escape and competition are the motives most tied to problem play[35]
15	Gaming stops, on every device, with streams and the habits that travel with it	Each session keeps the learned links to its triggers alive[10]
16 to 26	Heat and cold exposure, a demanding new skill, awareness training, breathing, memory training, offline skill games, perspective	Other rewards compete with the game, and the needs it met can be met elsewhere[12, 69]
27 to 30	Principles recap; how dopamine and triggers work	Games engage the brain's reward system[6]

Days	Target	Why it matters for stopping gaming
31 to 32	Full trigger map; games, launchers, accounts, servers and notifications removed	Changing the situation beats resisting an urge already under way[9]
33 to 39	Why the early weeks are hard, the response sequence, situations you can't avoid, breaking the routine	Game images set off craving circuits in people with gaming addiction[51]
40 to 43	The thoughts that argue for one match	Unhelpful beliefs about gaming go with more problems[54]
44 to 51	Emotion, stress, breathing, relaxation, watching an urge pass, an earned reward	Urge observation reduced relapse in other addictions[70]
52 to 60	A response for every trigger; daily practice and an urge record	Implementation intentions have a medium-to-large effect on reaching goals[59]
61 to 70	Identity, game mechanics on real goals, motivation, self-image and the gaming culture	Identity shapes which actions feel natural[71]; recovery is also a change of social identity[58]
71 to 80	Rehearsal of high-risk moments	Mental practice improves performance[72]
81 to 90	Replacing each function gaming served; review of the 90 days	A new routine takes weeks to months to become automatic[62]
After 90	Identity reinforcement, six months of aftercare	How a lapse is explained predicts whether it becomes a relapse[63]

15.2 Why the order matters for gaming

The order follows from the research in Sections 2 to 14. Gaming stops after two weeks of work on sleep, training and the shape of the day, because the empty evening is where most sessions start, and something needs to be in it on the first night without a game. The demanding new skill comes the next day, Day 17, because the need to feel capable doesn't stop when the game does[12]. The games, launchers and servers are removed systematically at the start of the second month, guided by a full map of the triggers, so that the barriers cover every route rather than only the obvious one,

and the responses that follow have time to work in the delay those barriers create[9]. Identity and social context come last, because they change slowest and because a new self-description needs weeks of evidence behind it to be believed.

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

Identity, mechanics and motivation

Gaming is often tied to how people see themselves: the one who's good at this, the one the squad relies on, the one with the rank. The client works on that self-image and on the gaming culture around them. On Day 63 they turn the mechanics that held them in games onto their own progress in real life, and on Day 65 they identify what drives them and point it at goals that build something.

The mechanics work matters for gaming in a way it doesn't for most habits. A person who loves getting better, competing and seeing progress doesn't need to stop being that person. They need somewhere for it to go that adds up over time. People act in line with the identity that feels relevant at the moment[71], and recovery from addiction often involves taking on a new social identity as well as dropping an old one[58]. Turning the game's structure on real goals keeps the part of the person that games were feeding, and gives it something real to feed on.

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

Replacing what gaming did

The client confirms a replacement for each function gaming served: the feeling of being good at something, the escape from stress, the company, the thing to do on a quiet evening. They review the full 90 days against their log and record what they have gained.

Replacement comes last because a habit that served a function leaves a gap when it stops, and a gap left empty tends to be filled by whatever is most available. For a former gamer, that's often another screen. A replacement placed at the same time and in the same setting as the old session can take over its context[31], and the automaticity of a new daily behavior builds gradually, over a median of 66 days in one study[62]. By Day 90 the replacement has been in place long enough to begin running on its own.

15.3 In our clients' words

Pshem, a founder in Poland whose work is largely on social media, came to us with procrastination, video games and scrolling, three habits that kept feeding each other. His north stars were aimed first at his evenings and the start of his day, because a late session cost him the next morning too. Describing where he is now, he said: “My mental clarity is on point. I can focus on my goals.” And of

the habits themselves: “I do not crave bad habits at all.” What he values most is being able to do it himself: “And the best thing about this is that now I know the tricks.” Our results for gaming are part of the overall figures reported in Section 16.

What this paper does not publish

This paper states what each part of the program targets for someone stopping gaming, 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 can't reproduce the program from it.

Section 16

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

In brief

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

Phalanx Labs has worked with 290+ clients across 12 countries over 7 years. Of those clients, 98.4% had already tried and failed to stop before they came to us. Our success rate is 97%, defined as the share of clients who ran the program and stayed off the habit through the program and the six months of aftercare that follow it. That rate covers all of our clients and all of the habits they came with. We don't publish a separate rate for gaming. 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 gaming alone.

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

16.1 How outcomes are tracked

Throughout the program, the client keeps a 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.

16.2 What our figures do not show

- Self-report. Whether a client has stayed off gaming is known from what the client tells us, not from play records or account data.
- 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 therapy or on their own, over the same period. Section 2 shows that many people's gaming problems ease over time without treatment.
- Time window. The success rate covers the program and six months of aftercare. It doesn't describe what happens after that.

- All habits together. The rate is across every habit our clients bring. We don't report a rate for gaming alone, and a single rate doesn't predict the outcome for any one person.

16.3 What the research in this paper does not show

The studies cited here have their own limits, and readers should weigh them. Prevalence estimates for gaming disorder vary widely with the questionnaire used and the way the sample was drawn[20, 21], and researchers still disagree about where the line between heavy play and disorder falls[16, 18]. Several of the most vivid findings come from small samples: the brain imaging study of craving compared ten men with ten[51], the sleep laboratory study used 17 teenage boys and one game[45], and the 84-hour study followed 24 players[53]. Much of the research on loot boxes is cross-sectional, so it shows a link with problem gambling but can't show which came first[41, 42]. Studies using real play data have found little link between hours played and well-being, which is a reminder that hours alone don't make a problem[47, 48]. Some of the methods described in this paper, such as watching an urge pass and implementation intentions, were tested mainly in other habits[55, 59], and the research on reward programs used in Section 5 comes from shops rather than games[8, 36]. We use them for the mechanism they describe and say so where we cite them.

Treatment research for gaming disorder is still young, and the strongest of it isn't about our method. A meta-analysis of cognitive behavioral therapy for gaming disorder found large short-term reductions in gaming disorder symptoms and depression, but it was unclear whether time spent gaming fell, and the gains at follow-up were not statistically significant[73]. A review of 30 treatment studies found serious problems with how most of them were designed and reported[56]. Some trials have tested specific programs against standard therapy, such as a psychological intervention for adolescents compared with cognitive behavioral therapy[74]. Our method has not been tested in a randomized or controlled trial, its outcomes have not been assessed independently, and it has not been published in a peer-reviewed journal. The research supports the reasoning behind each element. It doesn't show that the combination works, or how much each element contributes. The figures in Table 5 are our evidence for the combination, with the limits stated above. A controlled evaluation would need independent outcome assessment, ideally with play data, a comparison condition and follow-up beyond six months. We would welcome one.



The definition, stated once more

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

Section 17

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

In brief

See a doctor if gaming has been covering low mood, anxiety or attention problems, if you also drink heavily or take prescription drugs, and get help straight away if you're thinking about harming yourself. The program is not therapy, medical treatment or a crisis service.

See a doctor if you think gaming has been covering depression, anxiety, ADHD or another condition. These often come with gaming problems[23, 24], and when the game stops, whatever it was covering can feel worse for a while. That's a reason to have it looked after properly, not a reason to go back to the game. If you also drink heavily every day, or take benzodiazepines or other prescription drugs, stopping those suddenly can be dangerous, so plan any change with a doctor. Get help straight away if you have thoughts of harming yourself or ending your life. Contact emergency services or a crisis line: in the US, call or text 988; in the UK and Ireland, Samaritans on 116 123; in India, Tele-MANAS on 14416.

Safety note

Stopping gaming has no dangerous physical withdrawal. If you're thinking about harming yourself, contact emergency services or a crisis line now: 988 in the US, Samaritans on 116 123 in the UK and Ireland, Tele-MANAS on 14416 in India. If gaming has been covering low mood, anxiety or attention problems, see a doctor. Don't stop heavy daily drinking or prescription drugs suddenly without one.

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

Some of the program's physical practices carry ordinary risks of their own. Cold and heat exposure and starting a training program aren't 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 isn't suitable as the only support for someone with a serious mental health condition or someone at risk of harming themselves or others. 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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