

CHAPTER SIX

THE ROAD TO EXCESS

Our environment has dramatically changed, but our reward circuitry and mammalian brain have lagged behind. The capacity to binge on food and sex evolved when sugary foods and sexual opportunities were scarce.

Now we face an array of superstimuli, which tamper with our reward circuitry, leading to withdrawal symptoms, cravings for more stimulation, and, sometimes, more permanent brain changes.

Low dopamine is behind withdrawal symptoms, but it spikes when we see a cue we associate with relief. Intense cravings, and often compulsions, can result. They make the return to equilibrium very challenging.

We have lost many of the rewards of close companionship that our ancestors enjoyed, which makes us more susceptible to overindulging, addictions, and compulsions.

In the last chapter we looked at the normal, often subtle, two-week passion cycle, which follows masturbation or intercourse. Now we shift from those ordinary highs and lows to the sexual equivalent of a super-size roller coaster—with mind-buzzing heights and unnerving drops. Extreme erotic stimulation carries a special risk: compulsion. Once we begin whizzing around on a monster coaster, we may need longer than two weeks to restore equilibrium.

CUPID'S POISONED ARROW

The difference between sexual roller coasters is entirely subjective. One person may find glimpses of something forbidden more exciting than someone else finds a threesome. What matters is how intensely something gets *you* going, whether it's fine footwear, viewing erotic combos you hadn't realized were humanly possible, or sex with prostitutes. The only constant is the dopamine soaring, and plummeting, in the mammalian brain.

YESTERDAY'S GENES

As we have seen, mammals are programmed to mate like mad as dopamine surges—and then, when it drops, go about other activities until their libido recovers naturally. However, males are equipped to override this natural cycle automatically under a single set of circumstances: exposure to a novel mate.¹⁵⁸ Dangle a receptive female before a sexually satiated male rat, and he will valiantly rise to the occasion. (Female mammals also appear to perk up around new sperm donors.) This is the Coolidge effect, but you may want to think of it as “the Sooty effect”:

Romeo Guinea Pig Causes Baby Boom:

A guinea pig called Sooty enjoyed a night of passion with twenty-four females after fooling his way into their cage in south Wales. Sooty wooed the lady guinea pigs, one by one, and has now become the proud father of forty-two baby guinea pigs. . . . “He was absolutely shattered. We put him back in his cage and he slept for two days.”¹⁵⁹

Think some vestige of this program is still encoded in *human* brains? What about polyamorous hunter-gatherer men and women, sultans with harems, porn users in search of the next novel image, and today's revolving-door marriages?

Where is this program pushing us these days? Not only where our genes want us to go—exploitation of the occasional chance to fertilize multiple mates—but often beyond, into empty compulsion. And all because times have changed.

The mammalian brain is designed to capitalize on short-term opportunities. This is why we have the dubious ability to gorge when presented with high-calorie food—and store it as spare tires and thunder thighs. In

THE ROAD TO EXCESS

the days before refrigerators and reliable food supplies, it made sense to binge and convert surplus food to a bit of extra fat for easy transport.

Similarly, if, like Sooty, you find yourself in a cloister of lonely hearts, you could (theoretically, of course) amaze yourself with your prowess. Or, if female, your ability to gather competing sperm. Think mating season.

Speaking of getting it while you can, both the fat-storage and sexual satiation-override programs evolved when high-calorie food and novel potential mates were Big Events, not daily occurrences. Our ancestors' reward circuits lit up brightly and our genetic programs are the result. One reason that intense "go for it!" signals once worked in humanity's favor in the case of high-calorie food and sexual opportunity is that our stark environments *also* regulated us.

Chantek is a smart, lovable orangutan who lives at the Atlanta zoo. Trained in sign language, he has a vocabulary of more than 150 words, and he is considered a decent artist. . . .

Growing up in this human setting, Chantek became REALLY FAT, weighing in at five hundred pounds, roughly three times his ideal size. Afraid that the massive bulk would collapse his lungs, scientists placed him on a strict diet. Formerly five hundred pounds of fun, he became four hundred pounds of anger. During the diet, his favorite sign language symbol became "candy." He refused to draw and instead ate the crayons given for his artistic use.

While on his diet, Chantek even pulled off an escape. . . . He was eventually found sitting next to the up-ended food barrel, using all four limbs to stuff monkey chow into his mouth.

Chantek is unique, not only for his human contact and his linguistic and artistic abilities but also for his weight. You see, there are no fat orangutans outside zoos and research centers. Wild orangutans, despite sharing Chantek's genetic zest for a fine meal, maintain a svelte 160 pounds or so because food is relatively scarce and difficult to obtain in the jungles of Borneo.¹⁶⁰

As Terry Burnham and Jay Phelan explain in *Mean Genes: From Sex to Money to Food, Taming Our Primal Instincts*, our environment has changed, leaving our reward circuitry very vulnerable. Like Chantek, we are *molded to meet conditions that prevailed during our brain's millions of years of*

CUPID'S POISONED ARROW

development. Honey and ripe fruit were rare sources of concentrated sugar, and cave girls were no doubt cute, but their erotically posed images weren't airbrushed to perfection and projected over every visible surface. There was less opportunity for hooking up with exciting new mates you barely knew. No singles bars, no tantra weekends, and no schools with hundreds of cute strangers of the opposite sex.

Here's the danger in our modern circumstances: When a mammal's brain hasn't adapted to the intensity and quantity of a stimulus, that stimulus registers as a *superstimulus*. The examples at the end of the preceding paragraph can be superstimuli for our hunter-gatherer brains. Internet porn is an *extreme* superstimulus. It's on tap twenty-four/seven, free of social constraints, and always novel.

Exposure to supranormal, i.e., above-normal, stimulation evokes *especially powerful* "This is great; pay attention!" signals in the brain, thanks to surging dopamine. In such circumstances, we are designed to override our satiety mechanisms, so, like Sooty the guinea pig, we don't miss an apparent golden opportunity. Alas, a potent "Focus on this!" command doesn't guarantee that the activity or substance is actually worthy of our exaggerated attention (and our consequent *inattention* to other things or people in our life).

MEMORIES THAT PACK A PUNCH

Intensely stimulating activities and substances are easy to sell. That's why they're big business. They give our reward circuitry a buzz, and we easily say "yes!" to them without using our rational brain to weigh their long-term value to us (if any). Our brains are actually more tuned for *wanting* than *liking*. Researcher Kent Berridge summed it up this way: "We all are inherently susceptible to wanting more than we'll actually enjoy, at least in certain situations."¹⁶¹ Dopamine is the "wanting," or craving. It's why we can still eat dessert when we're full, and fantasize about another partner when we're happily married.

Opportunity may knock only once, but temptation leans on the doorbell.

—Anonymous

Our brain is also designed to remember—and react to—everything *associated with* intense stimulation. Scientists call these associated things *cues*. Do you think Sooty, the Romeo guinea pig, will ever

THE ROAD TO EXCESS

forget the location of the ladies' cage, how he broke into it, or their welcoming squeals of delight? Do you think his genes *want* him ever to forget any of the cues related to a bonanza like that? Certainly not. He stores this type of information by linking it to surges of dopamine in his reward circuitry. When next mating season rolls around, Sooty will find that every cue related to his Big Night is burned into his brain.

The mammalian brain reacts powerfully to cues associated with past rewards. This is how squirrels remember where their acorns are buried, and how bears recall which streams have salmon runs. It's also how our nomadic forebears remembered where they found food and resources. Today, MacDonald's golden arches are a cue for the reward of a quick, flavorful snack—and the image of a naked stranger in heels is a cue for the excitement of sex with a novel partner.

Of course, we don't always react by dropping what we're doing to pursue such things. Yet we are sometimes *very* susceptible to cues, even when we know something is not in our best interests. Why? Here's a clue: Even if an alcoholic can't find her car keys or checkbook, she always remembers where she hid her bottle.

“WHERE'S MY TRIBE?”

The more intense the stimulation, the greater the subsequent discomfort. Most of us learn this fairly early by drinking too much alcohol. So why do we keep reaching for empty temptations that leave hangovers? Usually because we aren't getting enough of the other rewards our brain finds gratifying. Let's look at what we're missing.

While we can't know exactly what our hunter-gatherer ancestors' daily lives looked like, we have some idea based on anthropologists' accounts. Typically, we would have spent our lives among one, or two, relatively small groups of people whom we knew well. Although courtship and sex would have been two of life's most intense pleasures, we would also have enjoyed other rewarding activities: the thrill and satisfaction of a successful hunt, eating simple foods with no refined sugar, interacting with others through ceremonies and daily tasks, and, of course, bonding with our parents, offspring, and extended family. As children we would have received on-the-job training (and teasing) from our friends and relatives.

CUPID'S POISONED ARROW

There was also probably a good bit of leisure time. For example, Africa's Bushmen hunt and gather for only a few hours a day. They spend the rest of their time hanging out socializing.¹⁶² As we will see in later chapters, social interaction with those we trust is one of the best forms of health insurance.

Contrast that lifestyle—the one for which our brain is well equipped—with today's. At every turn we are confronted with intense stimulation. There are millions of diverse Web sites, thousands of stores, and hundreds of TV channels clamoring for our attention. We're constantly tempted with empty-calorie, high-sugar snacks, risk-taking opportunities, high-action video games, sexually stimulating images, and, often, opportunities to hook up for orgasms without emotional ties. All promise exciting dopamine surges, which means that many of us suffer withdrawal symptoms, mild or severe, a lot of the time.

Is it any wonder that porn use is growing exponentially? Or that obesity in the U.S. has increased to the point that, for the first time, our life span is predicted to be shorter than that of our parents?

Sexual stimulation for its own sake sounds good, and the urge to grab it when it's offered is certainly natural. But one reason it's *so* enticing these days is that many of life's *other* rewarding pleasures are hard to come by. Those age-old rewards of playing, working, learning, and facing challenges with lifelong companions are both comforting and healthful.

Food has replaced sex in my life. Now I can't even get into my own pants.

In contrast, today's parents often have little time for social rewards. Mothers return to work soon after a child arrives. Many do not live near extended families, so kids are separated from their clans and placed in daycare, then school, with strangers. There they face the stress of sitting all day, testing, worrying about grades, bullies, cliques, social rejection, and even violence—all without their natural companions or lifestyle. For example, recent research suggests that ADHD is not a pathological condition—for a hunter-gatherer. He *needs* to be impulsive, energetic, and easily bored.¹⁶³


As adults we're glued to computers in cubicles or factory slots, and seldom have the satisfaction of working face-to-face to meet common challenges. Ceremonies may be few, and there is often little time for chewing the fat with friends or helping each other with life's trials. Tasks that would once have registered as enjoyable, such as preparing our children for adult-

THE ROAD TO EXCESS

hood, now register as exhausting. At the same time, our inherent tendency to find novel mates compelling is resurging—due to greater opportunity and, often, shorter, less comforting relationships.

How well suited are we to this lifestyle of lots of stress countered by so little reliable affectionate interaction? Our mammalian brain is designed to seek what is pleasurable and avoid what is (harmfully) stressful. What pleasures can it find today? Not many of the once familiar, life-enhancing, comforting connections with others. Instead, we often believe we have to seek pleasure among the more selfish, often solitary, thrills of high-calorie snacks, shopping, pursuit of orgasm, and chances to win money. Also, companionship must be cultivated, while many solitary indulgences seem to offer easy pleasure—until we overdo them, and want off of the roller coaster.

No wonder many of us grab for available pleasures with such determination. But there is a hidden risk. Research suggests that the absence of friendly interaction makes us *more susceptible* to addiction.¹⁶⁴ In this chapter, we'll look at this phenomenon from various angles.



Q: How did Pinocchio discover he was made of wood?

A: His hand caught fire.

THE AGONY OF EXCESS

Imagine a “stimulation gauge” that looks something like a tachometer (the instrument in your car that registers revolutions per minute, or RPMs). After dopamine surges into the “red zone” during intense stimulation, it drops even lower than normal. It can then fluctuate for a while during the return to homeostasis—as your tachometer does when you shift through the gears.

Every deep dip in dopamine can leave you aching for relief—and ready to pounce on any promising activity or substance. When is your mouth most likely to water in response to the smell of something appetizing? After a big meal? No, your dopamine gauge won't budge. If someone offers you more, you're likely to say to yourself, “no way!” But what about when you work late, skip dinner, and smell a grilling burger? Your body lets you know (with surges of dopamine) that you need to make eating a *top priority*.¹⁶⁵

The more uncomfortable you are, the more urgently your mammalian brain scans for something to relieve your misery. When it lights on a cue

CUPID'S POISONED ARROW

it associates with relief, it sends your dopamine needle into the red zone of your inner gauge. You experience an intense craving. A candy bar may look so vital to your reward circuitry that your rational brain will temporarily ignore your expanding waistline. This mechanism worked fine for your distant ancestors. All their options for relief were reasonably healthy ones, and their frugal environments made bingeing a rare occurrence.

In contrast, our lifestyle doesn't protect us from overindulgence. Too much stimulation, followed by frequent lows, means we are riddled with unusually intense cravings for relief. Superstimuli keep us *out of balance*, making us better consumers, but less satisfied overall. Our recurring, urgent sense of lack heavily influences the choices we make—without our conscious awareness.

SACCHARIN AND THE SHAKES

Consider the following experiment. Researchers withheld food from rats for twelve hours and then gave them nutritionally balanced food, plus a heavy dose of sugar (glucose) water. This created a cycle of bingeing. When researchers cut off the sugar water after only ten days, the rats showed signs common to drug withdrawal, such as anxiety, chattering teeth, and tremors, as well as craving and relapse (evidence of long-lasting effects in their brains)¹⁶⁶

Scientists then measured the rats' dopamine levels. They found that the levels were “qualitatively similar to withdrawal from morphine or nicotine,” which suggests that the rats were indeed addicted to sugar.¹⁶⁷

What does this tell us? That we are really mean to little white rats. But it also tells us that mammals can become addicted, and suffer withdrawal (hangovers), from *natural* substances and experiences—if they indulge in a way that throws their dopamine levels out of kilter. Unlike alcohol or nicotine, glucose (sugar) is not a drug. The body automatically keeps blood glucose within rather narrow ranges no matter how much sugar you eat, or don't eat. In other words, a “sugar high” (and low) comes from a big spike in dopamine when you taste (or later crave) something intensely sweet. It doesn't come directly from the sugar itself going into your blood and acting on your brain.

THE ROAD TO EXCESS

Glucose itself can't create a long-tailed glucose junkie; dopamine highs and lows can. Intense stimulation (sweetness) is the key factor. We know this because scientists repeated the same experiment using the artificial sweetener saccharin, and guess what? They ended up with rat saccharin addicts (yuck).¹⁶⁸ It is the superstimulation of *excess* that sets up the potential for addiction by overactivating the reward circuitry. In the case of saccharin, a fake substance with no nutritional value, the intake of which does not increase our chances of survival, fools the reward circuitry—leading to addiction and withdrawal misery. Obviously the mammalian brain associates sweet with “ripe.” It never had to contend with saccharin. Eventually the body figures out that saccharin isn't as satisfying as sugar, which is why you may reach for even *more* food than usual if you use artificial sweeteners.¹⁶⁹ But the cycle that can lead to withdrawal symptoms is triggered by sweetness, not sugar.

Let's see. How else can our reward circuitry become highly activated without any payoff for us or our genes?

*A new study found that male monkeys will give up their juice rewards in order to ogle pictures of female monkeys' bottoms. The way the experiment was set up, the act is akin to paying for the images, the researchers say.*¹⁷⁰

Pornography!* And which is strongest: the urge to eat ripe fruit, or the urge to fertilize a novel mate? Blast your built-in sexual eagerness with images, videos, and activities that *you* find intensely arousing, and you can slip into a sexual binge. Porn is as empty as saccharin, in that there's no real value, no one to impregnate, and no rewarding, comforting interaction with another human being.

After your dopamine goes really high in response to a superstimulus, it drops unnaturally low. Frequent orgasm (even without porn) can *also* lead to chronic bouts of low dopamine, because you aren't waiting out the recovery period of the

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A lot of addiction is the result of experience . . . repetitive, high-emotion, high-frequency experience.

—Howard Shaffer,
psychologist

*Much of this chapter applies to any habit of seeking intense sexual stimulation detached from the balancing properties of trusted companionship.

CUPID'S POISONED ARROW

passion cycle. (Remember how fried Sooty was after his night of passion?) Withdrawal symptoms, such as restlessness, irritability, frustration, desire for isolation, and apathy are signals your full vigor hasn't yet returned.

So why the massive libido? During recovery, you're very susceptible to cues that promise rapid relief from your discomfort. When you spot one, your reward circuitry starts yapping and bouncing around like a crazed Jack Russell terrier. It's hard to ignore, so you want to "feed it," just to shut it up. Yet if you climax now, you can easily remain in an accelerating passion-cycle orbit, medicating yourself with orgasm every time you get especially uncomfortable.

Within about ten minutes after orgasm I am cloudy-minded, light-headed, disoriented, and anxious, although the duration and intensity of the different symptoms has varied quite a bit over the years. Orgasm was not only the cause of these problems but also seemed like the CURE. I would have orgasm when feeling affected. Sometimes I would do it twice if the first one didn't work. But after awhile, I found I needed to do it more and more often to relieve the symptoms. Eventually I was up to five times a day. This was exhausting, and cutting back had strong withdrawal effects.—Dustin

Strapped onto this roller coaster of peaks and drops, you may forget entirely what balance feels like. (And if circumstances caused you to start masturbating early enough, severe mood swings may be part of your self-image.) However things went out of kilter, you unfortunately have to go all the way through the passion cycle to experience balance again. There are no shortcuts, and if you're seriously hooked, you may need longer (more on that in a moment). When back in balance, you can contemplate sex without feeling horribly deprived . . . or manic. However, like the rest of us, you will not be immune to the post-orgasm passion cycle in some lesser form.

When I was growing up Playboy was porn, but the "new thinking" about masturbation was very much in vogue. It made my escalating porn/masturbation addiction seem "normal" to me for years. I can't imagine the long-term effects on society brewing in the generations behind me. What if Internet porn had been available to me when I was

THE ROAD TO EXCESS

fourteen? I shudder to think of the consequences of being exposed to such things when your sexuality is developing. Ugh. I, at least, formed healthy crushes during my teen years and experienced romance. I don't think I would have had those experiences if I had had easy access to Internet porn. It's a few months since I quit masturbating, and I am just getting back in touch with those romantic feelings I had as a young man. But what if I had never had them to begin with? That is what makes me feel bad for younger people facing this problem.—Glen

PORN'S SURPRISING LESSON

Mere orgasm can set off a cycle of discomfort, so it shouldn't be a surprise that bingeing on porn, a limitless supranormal stimulant, can create intense withdrawal symptoms. Yet I learned this by accident. I was all for freedom of speech, and a staunch member of the "to each his own taste" club. However, I had created a Web site that discusses the highs and lows of sexual satiety in terms of the highs and lows of the typical addiction cycle and the parallel wisdom found in historical texts.

To my surprise (and theirs, I'm sure), men from all over the world showed up in *my* Web site's forum complaining of addiction to porn/masturbation, and seeking to regain their free will. They were stuck on a dopamine elevator going between penthouse and basement, without ever being able to explore the floors in between. It seemed that information about how orgasm can become compulsive was so scarce that even a site grounded in ancient wisdom about managing sex was filling a void. (Gee thanks, Google!)

At first it was painful reading their stories. These guys were constantly overheated—due to the many virtual mates that their mammalian brains perceived as genetic opportunities. Unlike Sooty, however, they could *never* rest. Their fertilization duties were never done. There was always another enticing image just a click away, and their mammalian brains were determined to leave no picture unfertilized. Their issue wasn't shame; it was addiction. When they tried to unhook themselves, they faced intense withdrawal symptoms that fluctuated in intensity for weeks:

CUPID'S POISONED ARROW

First guy: Today the whole day I have been shaking with jitters similar to how it felt when I quit smoking. My body has been jolted with what felt like unusually intense energy, especially in my spine. I feel tense and stiff for a while and then as if my spinal bones are being popped and a big relief and then tension and then relief. It just came out of the blue and has been subsiding.

Second guy: Here are the withdrawal symptoms I have experienced: intense bouts of anger leading to interpersonal difficulties, aggressive demeanor, easily stressed out (I'm inexperienced confronting the real world without that soup of post-orgasmic chemicals sedating me), suicidal ideation, severe depression, violent dreams while sleeping (I actually enjoyed these, however others might consider them nightmares), insomnia, hallucinations (jumped out of bed screaming because I felt a "presence"), felt like insects were crawling all over me when going to bed, shakes, mania (energy far in excess of my ability to use it constructively), and inability to concentrate.

Third guy: *Bored?* Masturbation. *Angry?* Masturbation. *Sad?* Masturbation. *Stressed?* Masturbation. I went from being the first of my class to the very bottom, until I dropped out for good. I ended up working on the Web, making good money and having my porn one click away. This was my life, and I didn't recognize I had an addiction until I had surgery and masturbation was out of the question for fifteen days. On day three, I was literally shaking, and I began to connect the dots. My other symptoms are: irritability, inability to focus ("staring at walls syndrome"), mood swings, headaches (sometimes quite strong), sense of pressure in my genitals, pictures of movies/starlets popping out in my mind, paranoia, self-defeating thinking, depression, sense of hopelessness ("I lost so many years of my life". One example: I painstakingly created 250 DVDs with twenty to thirty porn scenes each, meticulously cataloged . . . and now destroyed.), and fear that I will never be able to have sex because I have not learned any social skills since I delved into porn eight years ago as a teen.

THE ROAD TO EXCESS

My husband, Will, and I thought we were the only ones making the connection between experiences like these and the addiction cycle of high-low dopamine. Then we found the words of Princeton's longtime reward-circuitry researcher, Bartley Hoebel:

Highly potent sexual stimuli [and junk food] are the only stimuli capable of activating the dopamine system with anywhere near the potency of addictive drugs.¹⁷¹

“TOO MUCH OF A GOOD THING . . . IS EVEN BETTER!”

So said the witty Ms. Mae West. However, too much intense stimulation of the reward circuitry is not better. It's worse. As we've seen, the risk isn't hairy palms or going blind. It's ending up on a high-speed treadmill, trying to stay ahead of withdrawal symptoms. Incidentally, too much ejaculation also has physical repercussions beyond changes in the reward circuitry. When men engaged in a “ten-day depletion experience,” ejaculating an average of 2.4 times per day, their sperm output remained below pre-depletion levels for more than five months.¹⁷² What other subtle changes might accompany this measurable one—especially in the brain, where the experience of orgasm occurs, and where the controls for testosterone and sperm production lie?

One unwelcome side effect of frequent supranormal stimulation is that normal pleasures—the kinds of simple things that would have delighted our ancestors—gradually lose their capacity to delight us. As biologist Robert Sapolsky remarked:

Unnaturally strong explosions of synthetic experience and sensation and pleasure evoke unnaturally strong degrees of habituation. This has two consequences. As the first, soon we hardly notice anymore the fleeting whispers of pleasure caused by leaves in autumn, or by the lingering glance of the right person, or by the promise of reward that will come after a long, difficult, and worthy task. The other consequence is that, after awhile, we even habituate to those artificial deluges of intensity. . . . Our tragedy is that we just become

CUPID'S POISONED ARROW

hungrier. More and faster and stronger. "Now" isn't as good as it used to be, and won't suffice tomorrow.¹⁷³

Recovering cocaine addicts report that they do not feel pleasure in anything for a while after they stop using.¹⁷⁴ Porn addicts report similar experiences:

Porn was easy excitement. I didn't interact with others because it took too much work, I had to think too hard, and interaction was "boring." I was numb and my senses were dulled. And I feared they would continue to be that way even after I quit using porn.

I'm dating a woman now for the first time since quitting (months ago). It's amazing! I am finding her so attractive, just as she is. She's in her thirties, has two kids, and an average body. She's not supple and "perky" like the girls in the videos, but I'm more attracted to her real body than I ever was to porn. I never imagined that would happen, and it is so exciting. I had to stop orgasming, and keep off of porn for an extended period of time. That got easier. Eventually I looked around and realized that the colors were back in my life!

Porn users also complain that sex with a partner just doesn't seem as exciting as it once did (perhaps accounting in part for Viagra's current popularity). What is going on? The situation can be compared to that of heavy cocaine users who, when responding to sexual stimulation, show measurably less brain activation than control subjects.¹⁷⁵

Even though we're designed to find relationships rewarding, their subtler, healthier rewards don't generate the supranormal stimulation of an afternoon of vivid erotic imagery—especially not after we have dulled our senses. Pursuit of supranormal stimulation can change perception. A recent study showed that mere exposure to images of sexy females could cause a man to devalue his real-life partner. He rated her lower not only on attractiveness, but also on warmth and intelligence.¹⁷⁶ Other experiments show that porn causes men to devalue marital fidelity and makes them more likely to believe that women like rough sex.¹⁷⁷ These shifts set off a downward spiral, making partners less likely to engage in the generous affection that actually bonds them and lets them enjoy each other.

THE ROAD TO EXCESS

CROSS-TOLERANCES

Another risk of supranormal stimulation is what scientists call *cross-tolerance*. That is, one kind of intense stimulation (or its aftermath) can make someone more likely to reach for *other* potent stimuli, such as recreational drugs, alcohol, gambling, junk food, or reckless shopping. Stimulation primes the pump, or in this case, the reward circuitry. Potent sexual stimulation, gambling, and cocaine can all offer an addict short-term relief, because they activate dopamine production.

I feel like this addictive impulse has mass, like a balloon, and when I squeeze it in one place by cutting back on porn, it grows larger elsewhere, as in drinking or using drugs.—Matt

Since one addiction lowers the threshold for developing another, sex addicts are more likely to have problems with other addictive behaviors (alcohol, gambling, and so forth).¹⁷⁸ Interestingly, teens who are sexually active also use more recreational drugs than those who are not.¹⁷⁹ One might argue that teens make these choices due to personality, parenting, or other factors—and they may. However, researchers also found that *hamsters* that have previously mated are more likely to use amphetamines than are virgin hamsters. Something about sexual activity made the little critters more likely to dabble in drugs, without any peer pressure or lousy parenting.¹⁸⁰ Sexual experience, like repeated drug use, produced long-term changes in their brains,¹⁸¹ and sensitized dopamine pathways.¹⁸² In fact, the more sexual encounters they had, the more their dopamine rose during sex.¹⁸³

Sugar, by the way, can also affect the brain this way, producing cross-tolerance with drugs of abuse.¹⁸⁴ Feed rats oodles of sweets for weeks and they become more sensitive to other psychostimulants, such as alcohol, amphetamine, or morphine, than rats on a normal rat diet. Changes in dopamine (and opioid) receptors are thought to be the culprit. Similar changes are seen in the brains of rats on cocaine and heroin.¹⁸⁵

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Our work provides links between the traditionally defined substance-use disorders, such as drug addiction, and the development of abnormal desires for natural [stimuli].

—Bart Hoebel, neuroscientist

Whatever the precise mechanism, an excessive reward stimulus primes your brain for a second experience or substance. Your reward circuitry is

CUPID'S POISONED ARROW

on that escalating neurochemical roller coaster, seeking satisfaction, but too shortsighted to realize that more stimulation will soon leave you profoundly *unsatisfied*. In contrast, affectionate social interaction, which *also* activates the reward circuitry—meaning it, too, feels good—does just the opposite. It is soothing enough to help *protect* you from the urge to reach for another stimulating fix. Friendly social interaction therefore leads to greater satisfaction. We'll look at how it does this in later chapters.

Unfortunately, as we saw in Chapter Five, low dopamine is associated with social anxiety. Thus frequent masturbation can keep you from pursuing your healthy longings for the good feelings of socializing. Orgasm's greater intensity seems more valuable to your mammalian brain, because it responds so unerringly to supranormal stimulation.

The interesting part is the mind-shift that is taking place since I cut back on masturbation. I've gone three to four weeks now. I feel I'm working with a "new neurochemistry," in which I interact with other people on a whole new level, because I NEED to. I absolutely NEED to. Exercise, low-key healthy diet (no hormone-polluted beef, etc.), and meditation helped ease the transition, but the "cure" is human contact, showing love and receiving it back. I admit that during the recovery period, I sometimes felt like, "Okay, now I have to ejaculate, or semen will either pour out of my ears, or I'll go crazy." But somehow I resisted, and the craziness and depression of the first couple of weeks have changed to a calm, serene state of mind. The urge has dissipated, and my satisfaction from interacting with people is much greater.—Max

Could achieving balance in our sex lives be especially helpful in soothing all cravings? Was Freud right that masturbation addiction is close to the heart of all addictions?¹⁸⁶

THE PLASTIC BRAIN

In a moment we'll consider the experience of the men who left their compulsive porn use behind in more detail, but first let's look at why it is so challenging to change directions.

THE ROAD TO EXCESS

Your brain is not a machine or a computer. It's as malleable as clay, not only when you're young, but also long after your hair turns gray. You constantly construct new brain circuits. This is both bad news and good news. It's bad news because you can reinforce unhealthy behaviors until they become bad habits, or even compulsions. It's good news because you can leave those habits behind and consciously steer for behaviors you want. In fact, each memory, experience, and insight leads to a corresponding change in the structure and functioning of your brain.

As you will recall, a neural pathway, or circuit, consists of a group of interconnected nerve cells. Some pathways are hard-wired, such as the reward circuit and reflexes. Place honey on a human tongue and the reward circuit lights up. Shine a beam of light into an eye and the pupil is bound to constrict. These pathways are pretty much the same in all of us.

We form other pathways from scratch as we learn and create memories. Climb on a bike for the first time and the nerve cells throughout the brain that control movement and balance come alive with electrical impulses. They spurt neurochemicals into the synapses with the message "Let's form a strong pathway!" Relevant nerve cells sprout branches, which reach out to each other and create efficient communication at their synapses. The more you work at balancing on two wheels, the stronger the connections between the intertwining vines of nerve cells. Years later you can jump on a bike, activate that circuit, and zip down the road without thinking. As the saying goes, "Nerve cells that fire together wire together."

Learning and memory are pathways of connected nerve cells—whether they consist of a few connected nerve cells, or millions. When enough neurochemicals are released into the synapses between cells, communication between nerve cells can become a scream: "Tighten up these connections. We have to remember this. It's important!"

Some learning does not involve repetition. A circuit will form instantly if an event has a lot of significance or emotional impact. If a child burns




The same surge of dopamine that thrills us also consolidates the neuronal connections responsible for the behaviors. . . . [Internet porn users get] massive amounts of practice wiring these images into the pleasure centers of the brain, with the rapt attention necessary for plastic change.

—Norman Doidge, *The Brain that Changes Itself*

CUPID'S POISONED ARROW

her hand on a hot stove, the synapses are so overwhelmed that the event is etched into her brain. As the saying goes, once is enough. Other examples might be a birth, a car accident, or sexual abuse.



Habits are at first cobwebs,
then cables.
—Spanish proverb

For our purposes, however, we can imagine circuits in the brain as footpaths. If you decide to take a shortcut to the movie theater through a field of tall grass, you may find it heavy going at first. Yet if you keep trampling down the grass, you need less and less effort. Eventually the path is just dirt, or maybe even a rut (if you're watching too many movies). These pathways are the memories, skills, and habits we cultivate.

IN A RUT

The significance of the brain's plasticity is that consciously or unconsciously, we are always learning behaviors that strengthen neural connections and mold our brain. It matters where we seek our stimulation in the present, because those things automatically direct our *future* attention.

Learning is great when we use it constructively to master a skill we want to have such as playing an instrument or learning a language. However, we can use the same process to lay down damaging pathways, such as chewing our fingernails when nervous, cutting ourselves when anxious (it releases endorphins, an opiate-like substance), or smoking a cigarette after every meal.

Pathways can lead to other pathways. For example, if I'm walking with a friend and we meet a panting Doberman, I may freeze with my heart racing and turn pale, while she runs up to the dog and pats it. My "Doberman pathway" leads to my innate *fight-or-flight* pathway because I once had a bad experience with a Doberman. In contrast, her childhood pet was a Doberman, so her "Doberman pathway" leads to her *reward* circuitry. Our individual neural "ruts" can thus trip the switches of our fundamental drives.

The mammalian brain's job is to seek what is pleasurable and link it with a reward response, and avoid what is potentially harmful by linking it with a defensive response. It is always asking the basic question, "Is this agreeable or disagreeable?" The rational brain helps to shape the answers to that question by analyzing our circumstances. Trolling the shopping mall

THE ROAD TO EXCESS

might not connect with my husband's reward circuitry at all (except for the lingerie store display). Yet for some shoppers, even the thought of a trip to the mall activates a string of neurons firing right into the reward circuitry.

In essence, addiction is merely learning. (So is recovery!) The phenomenon of addiction is complex, but dopamine and the reward circuit are central to understanding it. Some things, such as cocaine, methamphetamine, or an electrode, act directly on nerve cells in the reward circuit. Other experiences and behaviors activate circuits that have formed strong connections to (and light up) the reward circuit. Each "stream" flows into its specific river. Heavily reinforced pathways—and the sensory cues that turn them on, such as hearing slot machines for gamblers or spotting a suggestive image for porn addicts—flip on intense desire via the reward circuit.

As we have seen, overstimulation can set off a lingering, or recurring, drop in dopamine, a decline in receptors, or both. The addict's reward circuitry is stuck idling when it needs to be in gear for him (or her) to feel normal. Very little electricity is flowing along this critical circuit.

How did the addict get to this point? His brain initially registered a behavior as intensely rewarding and created pathways to remember the actions leading to it. The more enticing or exciting (extreme or shocking) his destination, the bigger the brain's motivation to get out the weed-whacker and mow a path, and then wear down a rut, so he visited as often as possible.

At some point, the addict's rut became the path of least resistance. His mammalian brain had learned that it led to an infusion of dopamine, but it couldn't factor in the ultimate cost of that short-term relief (withdrawal misery). Only his rational brain could do that, and he could hardly hear it over the "noise." Especially when tired, under stress, or suffering from withdrawal discomfort, his mammalian brain automatically shoved him back on the coaster.

Now, paths that once led to other rewarding aspects of his life—such as time with family and friends, playing ball, or even leisurely

Once the brain becomes less sensitive to dopamine, it "becomes less sensitive to natural reinforcers" such as the "pleasure of seeing a friend, watching a movie, or the curiosity that drives exploration."

—Nora Volkow, Director of the National Institute on Drug Abuse

CUPID'S POISONED ARROW

foreplay—fell into disuse, because his inner compass had increasing difficulty resisting the ready relief of his addiction. Grass and weeds filled those other paths. The connections between relevant nerve cells weakened. *His priorities rearranged themselves without his conscious choice.*

Addiction results from persistent changes in brain structures and function. Both drugs and behaviors can create ruts. What matters is not *type of stimulus*, but rather *strength of pathway*. So gambling and porn use can be as addictive as abused substances if the pathways are strong enough.¹⁸⁷ Whatever the stimuli, addiction is a brain disease that shows up as compulsive behavior.¹⁸⁸

Again, once your “beast brain” registers something as valuable, it hijacks the rational part of your brain to rivet your attention on associated cues. When most of us walk down the street, we notice the people we pass, the dogs, or the red Corvette. When an alcoholic walks down the street, she notices the bar. If she hears familiar sounds (cues) as she nears it, the pathway to her reward circuitry lights up and she may think “Just one drink won’t hurt.” She is in a slightly altered, high-dopamine state, as heavily reinforced neural pathways fire up.

I don't need to look at pornographic images; they are all hardwired into my brain. Even though I haven't used porn for weeks, I still see vivid images when I close my eyes and it makes abstinence from masturbation very difficult. Still having wet dreams, too.—Victor

Research shows that some of us are especially sensitive to the dopamine signals that encourage excess. Greater impulsivity, fewer dopamine receptors (possibly genetic), and childhood stress have all been associated with susceptibility to addiction or dysregulation of the dopamine system.¹⁸⁹ (“Dysregulation” is scientific jargon for “out of whack.”) When researchers used PET scans to view dopamine receptors in healthy humans, they found that those who scored higher on novelty-seeking had decreased dopamine receptor availability, but greater dopamine reaction to stimulation. It was not clear from a press release whether the diminished receptors were genetic, or due to the novelty-seeking behavior of the subjects.¹⁹⁰

THE ROAD TO EXCESS

DECEPTIVE CUES


So it is that the more often you pursue supranormal stimulation, the harder it is to change course. After all, your brain is literally rewiring itself to focus more and more of your future attention on it.

The real danger of cues is not their power to grab your attention; it's their power to grab your *controls* with a spike of dopamine in your reward circuitry. High dopamine can put you in a sort of altered state of strong motivation—but impaired judgment. (More on that in a moment.) Cues are especially powerful when your dopamine is in the low part of the passion cycle. If you're feeling miserable, and you get wind of an apparent way to feel good again, your dopamine will flare even higher than it did during the stimulation that initially hooked you.¹⁹¹ This makes sense. When you first flirted with your superstimulus, you were merely seeking pleasure, right? Now you're downright uncomfortable, too, and your brain seriously wants *relief*.

If you now feel like engaging in a frenzy of orgasm, don't assume your underlying libido has actually increased. More likely, your mammalian brain is just screaming for "medication" (which will ease the short-term symptoms, but trigger another cycle). In short, your addiction is escalating. It may seem hard to believe, but you won't remember what balance feels like until you step off of the orgasm roller coaster for an extended period.

The low part of the passion cycle is the biggest barrier to both unhooking from compulsive orgasm and learning karezza. Confusing mood swings are common and each cue (spike in dopamine) will convince you that you are unbearably horny. It takes enormous will power to ignore these urgent messages, and wait for your body to return to equilibrium naturally.

Boiling loins. Battle is joined in earnest now. Constant "home movies" in my skull. The withdrawal is really intense. I am physically ill right now. I have averaged maybe four hours or less of sleep a night since beginning the process of kicking this habit.—Gavin



Sensitization [change in the addict's brain] makes dopamine-related brain systems overreact to cues subsequently, and this can persist for years.

—Kent Berridge,
biopsychologist

CUPID'S POISONED ARROW

Cues are the reason that addicts who are trying to change direction have to avoid anything that reminds them of their former habit. What happened to Pavlov's dogs when they heard that bell? They salivated—whether or not the food showed up. Anyone determined to overcome a porn/masturbation addiction, will make more progress by avoiding both orgasm *and* porn for a while. Each is a cue for the other. Would a recovering alcoholic find it easier to avoid alcohol by staring at open bottles or hanging out in bars? Talk about white knuckles and sweaty palms.

DOPAMINE AND DISTORTED PERCEPTION

A liaison with Monica Lewinsky no doubt seemed to Bill Clinton's mammalian brain like an excellent idea. His rational brain probably had an entirely different view—just like the rational brain of a retiree who, in an altered state of intense anticipation, feeds her scarce resources into a slot machine.

Are You Hooked?

One of the most widely used measures of addiction is known as the DSM-IV criteria, devised by the American Psychiatric Association. To be addictive, a substance [in this case, an activity] has to meet at least *three* of the following criteria:

- [Used] Taken in larger amounts or over a longer period than intended
- Persistent desire or unsuccessful efforts to cut down or control use
- A great deal of time spent seeking the [activity] substance out, using it, or recovering from its effects
- Important social, occupational, or recreational activities given up or reduced because of substance use
- Continued use despite knowledge of harmful consequences
- Increased tolerance with use [need more stimulation over time]
- Withdrawal symptoms

The dramatic power of dopamine to interfere with free will and create sexual (and other) compulsions became clear when patients took drugs that imitate dopamine. For example, a Frenchman who took such a drug to control Parkinson's symptoms recovered a large settlement from a pharmaceutical company after the medication temporarily gave him compulsive homosexual urges. (He was straight when not on the meds.)¹⁹² Another Parkinson's patient suddenly found himself cross-dressing after seventy years of uneventful heterosexuality. When doctors decreased his dosage of the dopamine-like drug, the urge to put on his deceased wife's clothing evaporated.

The researchers hypothesized that excess, or sensitivity to, dopamine may be behind both paraphilias (fetishes) and hypersexuality (including an


THE ROAD TO EXCESS

abrupt yen for anal sex).¹⁹³ Scientists also found that fruit flies will attempt to mate with other males if their dopamine levels are raised.¹⁹⁴ Yes, even the lowly fruit fly experiences startling behavioral changes when his dopamine is jacked up.

Maybe men like U.S. Senator Larry Craig, who insist that they aren't gay, yet engage in homosexual sex, are simply hooked on risky, high-dopamine encounters. (For the ultimate thrill, maybe Craig should try it while skydiving!) As one man explained, bathroom sex isn't really about gender orientation.

The transgression and fear of being caught add an extra thrill to the experience . . . and no one cares about your "orientation" in a lavatory—in there, it's all business. . . . Having a secret, perhaps double, life gives you a sense of importance, of life as drama, a sense you'll probably relish if you find yourself elected governor of New Jersey. Sex feels otherworldly, forbidden and scary, like you've gone so deep into the closet that you've arrived in Narnia.¹⁹⁵

Although we may *choose* the behaviors that cause us to become hypersensitive to cues, once that happens, we're captive. When we experience sex as a superstimulus, we give our mammalian brains the power to override our free will, and set our priorities in ways that may even shock *us*. In New York City, HIV cases in gay men under thirty have jumped thirty-three percent since 2001.¹⁹⁶ The cause is widespread "barebacking"—sex without a condom. Their reward circuits have learned to value risky sex more highly than safety, at least while dopamine is flaring. Sadly, as we're about to see, many people—straight and gay—have had help in becoming highly sensitive to intensely stimulating erotic cues.



Inordinate desire takes possession of the sensory forces of the body. It is habit forming.

—Edgar Cayce, healer

JACKING UP DOPAMINE

As we've seen, it's possible to jack up dopamine quite unwittingly—simply by pursuing superstimulation to the point where the cues for it begin to rule us (especially when we're feeling low). But a lot of us have *help* in training ourselves to become oversensitive to sexual cues. Such "help" comes

CUPID'S POISONED ARROW

in forms such as “laced” porn, teachings about the “sinfulness” of sexual stimuli, and sexual abuse as a youngster.

Guys like looking at girls, and I found it endearing when a male friend once said to me, “When I saw my first picture of a naked woman I thought, ‘this is just wonderful!’” However, a lot of today’s porn is different. Just as cigarette manufacturers sometimes add extra nicotine to their products to make them more addictive, so porn makers spike their products to increase their drug-like effects. They know what overstimulates the mammalian brain, and they steer right for the images that send dopamine flares skyrocketing. Today’s porn doesn’t just supply an instant harem; it supplies a harem trained to cause rapid sexual surfeit using the most shocking images porn makers can conjure up.

This combination constitutes a stimulant that did not exist in a hunter-gatherer environment, which means we have not necessarily inherited the fortitude to resist it easily when exposed to it. And bingeing leaves us even more defenseless.

Not only does your mammalian brain increase dopamine when you come across something novel or erotic; it gives you a similar dopamine jolt for “shocking,” “painful,” and “risky.” Domination themes also arouse the mammalian brain, perhaps because of their effects on testosterone (which raises dopamine). Such images excite the brain in a way that images of cuddly affection do not. This is why so many television shows and films revolve around sex and violence.¹⁹⁷ Such images put you in an altered state that makes you more susceptible (to advertising in the case of TV, or to compulsion in the case of porn). They induce cravings because they raise dopamine.

I'm twenty-five and started watching porn when I was eleven years old, masturbating up to five times daily. During all this time, I was easily aroused and always excited to have sex with women. Gradually, though, my porn tastes escalated to extreme fetishes. Sometimes I felt I was even forcing myself to watch it because I needed a new “kick” or “thrill” to my porn habit. I didn't really have any problem with these new tastes until I began losing sexual interest in real women. This has destroyed my confidence and sense of identity since I always thought I would marry a woman.—Bruce

THE ROAD TO EXCESS

In effect, porn sites don't just cater to colorful tastes; they, like advertisers, *create* them. They also exploit users' innate tendency to move from one novel image to the next in search of more stimulation for the brain. The brain produces more dopamine and stronger brain pathways in response to novelty.¹⁹⁸ (Think slot machine.)

There's a second way to make images register as more outrageous (that is, make the peaks of the roller coaster higher). Paradoxically, it is well intentioned. Religious authorities often attempt to protect their followers against reckless sexual behavior with the use of guilt, shame, or moralizing. Inadvertently, they are making the challenge *more* difficult for many.

You can tell someone you are an alcoholic or a drug addict, and people may feel sorry for you or want to help you—but if you admit publicly to a PORN addiction, the pitchforks come out. Somehow you must be a deviant, a perv, and maybe even a sex offender or child molester! It is easier to shun, than to comfort, a porn addict.

Add to that the fact that before people can fully recover, they have to admit their addiction, that they are powerless with regard to it, and “give it up” to a higher power to pull them through. This process is accompanied by great shame, disgust, and self-loathing. “How did this happen to me? I’m normal (?). I can handle this by myself! No one can find out. I need to stop this NOW! How gross am I? How pathetic am I that I can’t just turn the computer off????” and on and on. It is just easier to give in.—Wilt

Few things can make sexual stimuli more risky and exciting (and more stirring at a neurochemical level) than a conviction that its use is “forbidden,” “sinful,” or will lead to eternal damnation. In fact, someone who is coached to believe that potent sexual stimuli are a path to the Fiery Furnace may find them even more dicey (and thrilling) than condomless anal sex. “Erotic + risky” increases both dopamine and adrenaline (*fear*). Adrenaline is an especially powerful memory-enhancer (neural pathway creator). A dangerous, frightening event, in effect, burns the brain. This may be why philandering church leader Ted Haggard raised his dopamine with methamphetamine use *and* sex with a male prostitute—when he wasn't railing against homosexuality from the pulpit.

CUPID'S POISONED ARROW

Folks who want to stay on the straight-and-narrow can do so a lot more easily if they understand how supranormal stimulation can pull their strings, and which activities do a better job of promoting lasting good feelings (more on those in the next two chapters). Meanwhile, if one chooses to step off of the roller coaster onto solid ground, it is more effective to view an unwelcome habit as a soon-to-fade brain pathway than as a “sin,” and set about retraining the brain.

A third way to create hypersensitivity to sexual cues is through unusually intense sexual stimulation early in life. In this critical period, we more easily acquire sexual inclinations. They get wired into our brains and have a powerful impact for the rest of our lives. The young mind is especially plastic. Children don't have much sexual experience, or even the rational-brain development to put an event in context or recognize the drawbacks of excess.¹⁹⁹

My older brother would look at our dad's porn magazines and then come into my room and lie on top of me. I was about five or six. When I eventually announced my homosexuality, he called me a “fag.”
—Jerome

Unusually intense sexual stimulation may, of course, come about quite innocently (as by stumbling upon an adult porn cache, or receiving tuition from an older sibling who can't wait to demonstrate). However, eighty-one percent of sex addicts seeking treatment reported having been sexually abused.²⁰⁰ It may be that, in addition to all the other damage child sexual abuse does, it can also sensitize victims to particular cues, such as risky, kinky, or forbidden sex. This brain training then shapes future choices in unsuspected ways, and makes the search for superstimulation more likely in the future.

Psychiatrist Wilhelm Reich spoke of witnessing the family's maid having intercourse with her boyfriend, and later asked if he could “play” the part of the lover. He said that, by the time he was four years old, there were no secrets about sex for him.

—Myron Sharaf, *Fury on Earth: A Biography of Wilhelm Reich*

Plain old vanilla masturbation or intercourse, which are normal and have only short-term repercussions, take on lives of their own with long-term consequences when supranormal stimulation enters the equation. However it comes about, a neural pathway that negates our free will, or even impairs

THE ROAD TO EXCESS

our judgment, changes the picture. The revealing question is, “Does this activity or substance—the way I’m using it—absorb my attention in such a way that it is dictating my choices?”

REWARD CIRCUITRY OVERLOAD

Frenzied orgasm to the point of sexual exhaustion (followed by full recovery) is normal, in the sense that Sooty’s once-in-a-lifetime escapade was normal, or gorging at a feast is normal. We have the capacity for excess, but excess as a steady diet is more than just good fun. Today an Internet user or adult-store patron can encounter more nubile virtual females (or whatever gets him going) in a few minutes than a hunter-gatherer would have met in his entire lifetime. We hear a lot about how the human brain is not equipped to handle “information overload.” Today’s erotic stimuli often constitute “reward circuitry overload.” Our nervous system may simply not be designed to handle this deluge—apart from any debate about free speech.

Of course, individuals are not all equally susceptible to addiction, but the fact remains that given the way our brains learn, the risks of supranormal stimulation are real—and largely unacknowledged. As psychiatrist Norman Doidge recounts in *The Brain that Changes Itself*, adults have no sense of the extent to which pornography reshapes their brains. His patients report increasing difficulty in being turned on by their actual sexual partners, spouses, or girlfriends, though they still consider them objectively attractive. They try to persuade their lovers to act like porn stars, and they are increasingly interested in “fucking” as opposed to “making love.”

Humanity is running a massive, uncontrolled experiment, and we don’t yet know the results. However, there’s increasing evidence that there’s no free lunch. Prolonged elevation of dopamine not only rewires our desires; it also appears to promote depression and anxiety (low dopamine). Mice exposed to protracted elevated dopamine later behaved like they were depressed in response to stress, and became desensitized to certain drugs.²⁰¹



Pornographers promise healthy pleasure and relief from sexual tension, but what they often deliver is addiction, tolerance [the need for more extreme stimulation], and an eventual decrease in pleasure. Paradoxically, the male patients I worked with often craved pornography but didn’t like it.

—Norman Doidge, psychiatrist

CUPID'S POISONED ARROW

Similarly, rats that have been bingeing on sugar show signs of anxiety and brain changes (decreased dopamine).²⁰²

A visitor to our site suggested another possible long-term effect of chronic overstimulation:

I believe there is a correlation between porn viewing and erectile dysfunction. I am sure that if a study were actually done with honest men, we would see significant results. This is the type of issue people don't talk about. I think the porn industry takes advantage of the uninformed public and makes billions. Then the pharmaceutical companies sell us costly sexual enhancement drugs to treat the side effects and make billions.

Not only are pharmaceutical companies selling sexual enhancement drugs; they are also proposing drugs we can buy to attempt to treat porn addiction itself.²⁰³ (Maybe it will turn you on only when your computer is turned off.) Yet why buy a drug that is likely to have unintended side effects rather than learn how to manage the brain's reward circuitry naturally? We can retrain our brains to delight again in less extreme forms of pleasure.

BRAIN TRAINING

Our reward circuitry is a primitive, subconscious apparatus. It can't perceive its limitations as an inner compass. It only knows how to urge us to seek pleasurable stimulation or avoid pain. Once we're in an addictive cycle, that simplistic formula backfires. We can't "medicate" our pain without initiating more.

The men who visited our site figured this out for themselves. They realized that if they didn't give up orgasm *and* porn entirely for long enough to return to equilibrium, they would continue to suffer severe withdrawal symptoms after every orgasm. They already knew withdrawal was hell, and they only wanted to go through it *once* more.

I have given up orgasms for about six weeks, and the withdrawal, as it turns out, was harder than cocaine, opiates, booze, or nicotine. I spent a solid week weeping every night after returning from the uni-

THE ROAD TO EXCESS

versity where I teach. I couldn't sleep, and I had almost zero appetite. The thought of dating made me want to curl up into a ball and quit. But here I am. I feel free.

[Six months later] I have fallen in love just this month. We are taking things slower than I've ever done before in my life, which is totally rewarding on all levels of my being!—Andy

Most of the men had to make several attempts, and some haven't made it yet. For those who persevered, however, the worst was over in four to eight weeks of consistent abstinence from porn and masturbation. Interestingly, an addiction researcher has found that a protein called Δ -FosB sticks around in the reward circuit for a month or two after repeated exposure to a stimulant. It causes brain changes that persist after a user stops, and renders mammals more prone to addiction by making them more sensitive to cues. If injected, it can induce relapse.²⁰⁴ Δ -FosB also works its "spell" in the case of compulsive behavior (nondrug addictions),²⁰⁵ which may explain why porn addicts need so long to recover, and remain sensitized to cues for a long time.

For most, the initial weeks were hellish, but there were joyful moments, too.

The withdrawal symptoms are incredible; it's incredible how real this is and how it **MUST** be an addiction if the symptoms are like this. Yesterday (day twelve) I was all shaky and anxious and feeling fidgety like a crack addict. I lay down on my bed and just wrestled with my covers out of frustration, burying my head in the covers and mumbling incomprehensible gibberish while rocking

Sp

First Aid

One measure that can help whenever compulsion strikes is to tell yourself that you won't act on your urge for at least five to ten minutes. Take some deep, slow breaths. Now, turn your *rapt* attention to a pre-selected activity. Choose something constructive, such as a breathing exercise, a stretching routine, gardening, pet training, practicing a skill, vigorous exercise, or recording thoughts in a journal. Can't? Then simply *visualize* yourself engaging in such an activity, vividly picturing the details. Also imagine how it *feels* to exercise your will, and what it is like to have a whole team of people you admire congratulate you on your success. When you consciously redirect your attention, you make it easier to do so again in the future. You are rewiring your brain—strengthening the new pathway and weakening your former compulsion.²⁰⁶ Prepare your mind in advance so you are ready for recurring crises.

—Mary Sharpe, *Sharpe Thinking*

CUPID'S POISONED ARROW

back and forth. An hour later I felt better. For the most part, though, my life feels totally different. I treat people differently. Things are MUCH, MUCH, MUCH better socially for me now. It's easier to joke around with people at work. I'm becoming popular—that's how different things feel for me all of a sudden! I'm happy ALL DAY LONG instead of just for a few minutes each day.

To the men's relief, the once-familiar feeling of having "both feet on the ground" began to resurface. As they returned to balance and their true (calmer) libido levels, these guys were noticeably happier. At that point the occasional orgasm didn't (usually) throw them back into compulsion—even if they did experience the effects of the passion cycle. When they made love again, they could do so in search of mutual pleasure—not simply in search of relief by the fastest route. They were actually reassured that they didn't *need* all those orgasms, which had once been the center of their world.

Every time porn thoughts intruded, I rapidly substituted a neutral movie of myself configuring a computer modem. I concentrated totally, actually imagining my arms touching the cables, typing into the keyboard, and so on. Within ten seconds I lost the erection and the image was gone. There was no "will power" involved. I worked with the natural processes of my brain, not against them. It always succeeded.
—Takahiro

Reaching out to others and receiving encouragement helped those in recovery as much as anything else. Caring contact registered as rewarding—and therefore soothing. (We even set up a Courty Companion program on the site to recruit anonymous pen pals for them.) They taught themselves to value contact with others above using superstimulation to shift their uncomfortable feelings. In fact, in the process of recovery, they actually became stronger, wiser, and better mates. Many found that exercise, creative projects, and meditation also helped.

As the grass grew over their disused compulsion pathways, earlier pleasures were vivid again. Their sparkle and optimism returned. Some were joyful:

THE ROAD TO EXCESS

I'd always just accepted that I was below average socially. It wasn't even an issue anymore, but turns out, after two weeks without orgasm, my voice has gotten bigger and richer, I've been laughing and cracking jokes almost nonstop, and talking to people has been fluent and easy. Now I'm the chatty one. It's something to get used to.

These visitors have brought many gifts in addition to their humor, honesty, and courage. They've also confirmed that the passion cycle can profoundly influence perception and make healthy discipline extremely difficult:

My counting of days suddenly got a whole lot easier as I now am back to "day one." Did I invent a time machine, you ask? NO, I just deactivated the higher functions of the brain and let my mammal brain show me its moves. Impressive as they may be, they are not very suited for this semen-retention business. In the aftermath, I can appreciate how much difference these last six days [of abstinence] made. My urge to masturbate now is WAY more intense than it was before the "slipup," and my apathy has worsened a great deal. I don't feel like doing my tai chi; I just want to find some nasty porn and get on with it. All feelings and thoughts point in the wrong direction.

My visitors have also taught me that sexual compulsion isn't a character defect. Nor is it healthy. The monster roller coaster is simply another destination on the Dopamine Superhighway. All you have to do to end up there is allow your mammalian brain to set your priorities. What would the world look like if the men currently hooked on porn were once again operating on free will?

There are plenty of people who can masturbate in moderation. I am just not one of them, so I made the decision to stop entirely. After six months, I could write a book on how much better my life is. The amount of time I wasted each week was substantial—not just jacking, but staring at the tube, worn out. Now I am doing all the things I only thought about, and it is awesome. Hobbies, reading, social

CUPID'S POISONED ARROW

contact. I even have a dog. With the money I saved, I just bought a new iPod as a “reward.” The best change is a far improved self-image and much better self-esteem. People ask me what have I changed because I am so much more outgoing. I have never, NEVER been more confident or motivated about approaching and engaging actual women. (And I’m actually getting real sex now!) The severe performance anxiety I had during sex, while consuming porn and beating off, is gone. Steps I took:

- *Cancelled my “porn” credit card*
- *Cleaned my computer with an adware removal program*
- *Deleted all links*
- *Purchased and installed a comprehensive porn blocker*
- *Kept a journal for the first three months, just typing my feelings and logging improvements*
- *Called friends and family nightly, even old friends. Engaged people socially. Went to a corner coffee shop. Stopped watching the tube or biting my nails and did something!*

After a few days I noticed increased energy, increased attention, and higher self-esteem. After a month—although it took several tries to get there—those improvements were all through the roof. And before the second month was over, I had had real sex for the first time in ages. The porn I used is all a blur now. It is nice to get aroused by little things, like a revealing blouse or just a woman’s flowing, shiny hair and fragrance. All this makes my complete abstinence from “burping the worm” SO WORTH IT.—Jed

As William Blake aptly put it, “The road to excess leads to the palace of wisdom . . . for we never know what is enough until we know what is more than enough.” Men who voluntarily leave porn behind have been through boot camp, and if they choose to add karezza to their repertoire they will find it easily achievable. (And should they find that extensive overstimulation has left indelible brain changes,²⁰⁷ which make orgasmic sex a trigger for unwanted flashbacks and cravings, karezza offers an alternative for maintaining a satisfying, harmonious love life.)

Meanwhile, no one should be made to feel guilty for being attracted to casual pursuit of orgasm—any more than one should feel guilty about

THE ROAD TO EXCESS

wanting sweets or petting a dog. All are predictably appealing urges, given the way our brains evolved over millions of years. Yet superstimulants like refined sugar and intense sexual stimuli have the potential to become unhealthy addictions because of our primitive reward circuitry. We can easily begin to undervalue healthy foods and live companions. In short, supranormal stimulation is not necessarily harmless even when it's arguably natural.

Using porn and engaging in risky or kinky sex are like jumping on a bike with no brakes. Maybe you can stop, maybe you can't. One thing is certain, the longer you coach your brain to seek relief through intense sexual stimulation, the harder it will be to stop. Your brain is always in training.

A few words on how life is after almost a month without orgasm. I am amazed! I feel more confident than ever especially at work, with its many demands and stress. I have been able to keep lucid and cool, despite a heavy workload and pressure recently. I manage to socialize effortlessly, while normally doing so is effortful for me. In general, I feel as if the world at large is nicer to me; people tend to respond to and interact positively with me.—Stan

HOW DOES IT FEEL TO BE A GUINEA PIG?


Oxford evolutionary biologist Richard Dawkins says the content of our genome (our full DNA sequence) is information about how our *ancestors* survived and reproduced successfully. Past genetic success, however, is no guarantee that our preprogrammed instincts serve *our* well-being.

To the extent that present day conditions are different from ancestral conditions, the ancestral genetic advice will be wrong.²⁰⁸

Conditions *are* different. Our distant ancestors weren't battered on all fronts with abnormally stimulating triggers goading them to binge on food or sex and throw their subconscious decision-making circuitry out of kilter. Sure, they liked orgasm and high-calorie treats as much as we do, but their less abundant lifestyles dictated a degree of restraint that we cannot count on to regulate our neurochemistry.

CUPID'S POISONED ARROW

In a radio interview, Dutch scientist Gert Holstege said: “We are addicted to sex as you know, as everybody is.” He pointed out that people who are injured, so that their rational brain isn’t working right, go for orgasm all the time.²⁰⁹ Without our ancestral scarcity to protect us, we have very little between mammalian impulse and action except our rational brain. For decades our culture has pushed us to let our rational brains interfere with our pursuit of sexual satiety as little as possible.


If love is blind, why is
lingerie so popular?
—George Carlin

Many of us have ended up on the Superstimulus Roller Coaster. Remember the rats that were addicted to sugar? The researcher pointed out that withdrawal symptoms and dips in dopamine levels aren’t evident when meals are moderate and regularly scheduled—that is, no sugar-dopamine flares.²¹⁰ This suggests that regular occasions of gentle intercourse, without orgasm-dopamine flares, may help us restore balance. In the next few chapters we’ll look at how this can be experienced without a buildup of sexual frustration.