Digital Addictions Are Drowning Us in Dopamine

Rising rates of depression and anxiety in wealthy countries like the U.S. may be a result of our brains getting hooked on the neurotransmitter associated with pleasure

By Anna Lembke /// Aug. 13, 2021

A patient of mine, a bright and thoughtful young man in his early 20s, came to see me for debilitating anxiety and depression. He had dropped out of college and was living with his parents. He was vaguely contemplating suicide. He was also playing videogames most of every day and late into every night.

Twenty years ago the first thing I would have done for a patient like this was prescribe an antidepressant. Today I recommended something altogether different: a dopamine fast. I suggested that he abstain from all screens, including videogames, for one month.

Over the course of my career as a psychiatrist, I have seen more and more patients who suffer from depression and anxiety, including otherwise healthy young people with loving families, elite education and relative wealth. Their problem isn't trauma, social dislocation or poverty. It's too much dopamine, a chemical produced in the brain that functions as a neurotransmitter, associated with feelings of pleasure and reward.

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When we do something we enjoy—like playing videogames, for my patient—the brain releases a little bit of dopamine and we feel good. But one of the most important discoveries in the field of neuroscience in the past 75 years is that pleasure and pain are processed in the same parts of the brain and that the brain tries hard to keep them in balance. Whenever it tips in one direction it will try hard to restore the balance, which neuroscientists call homeostasis, by tipping in the other.

As soon as dopamine is released, the brain adapts to it by reducing or "downregulating" the number of dopamine receptors that are stimulated. This causes the brain to level out by tipping to the side of pain, which is why pleasure is usually followed by a feeling of hangover or comedown. If we can wait long enough, that feeling passes and neutrality is restored. But there's a natural tendency to counteract it by going back to the source of pleasure for another dose.

If we keep up this pattern for hours every day, over weeks or months, the brain's set-point for pleasure changes. Now we need to keep playing games, not to feel pleasure but just to feel normal. As soon as we stop, we experience the universal symptoms of withdrawal from any addictive substance: anxiety, irritability, insomnia, dysphoria and mental preoccupation with using, otherwise known as craving.

Our brains evolved this fine-tuned balance over millions of years in which pleasures were scarce and dangers ever-present. The problem today is that we no longer live in that world. Instead, we now live in a world of overwhelming abundance. The quantity, variety and potency of highly reinforcing drugs and behaviors has never been greater. In addition to addictive substances like sugar and opioids, there is also a whole new class of electronic addictions that didn't exist until about 20 years ago: texting, tweeting, surfing the web, online shopping and gambling. These digital products are engineered to be

addictive, using flashing lights, celebratory sounds and “likes” to promise ever-greater rewards just a click away,

Yet despite increased access to all of these feel-good drugs, we’re more miserable than ever before. Rates of depression, anxiety, physical pain and suicide are increasing all over the world, especially in rich nations. According to the World Happiness Report, which ranks 156 countries by how happy their citizens perceive themselves to be, Americans reported being less happy in 2018 than they were in 2008. Other wealthy countries saw similar decreases in self-reported happiness scores, including Belgium, Canada, Denmark, France, Japan, New Zealand and Italy. The Global Burden of Disease study found that the number of new cases of depression world-wide increased 50% between 1990 and 2017, with the highest increases in regions with the highest income, especially North America.

It’s hard to see cause and effect when we’re chasing dopamine. It’s only after we’ve taken a break from our drug of choice that we’re able to see the true impact of our consumption on our lives. That’s why I asked my patient to give up videogames for a month, enough time to allow his brain to reset its dopamine balance. It wasn’t easy, but he was motivated by the counter-intuitive idea that abstaining from the thing that made him feel good in the short-term might actually make him feel better in the long-term.

To his surprise, he did feel better than he had in years, with less anxiety and less depression. He was even able to return to playing video games without negative effects, by strictly limiting his playing time to no more than two days a week, for two hours a day. That way he left enough time in between sessions for the brain’s dopamine balance to be restored.

He avoided video games that were too potent, the ones that he couldn’t stop playing once he started. He designated one laptop for gaming and a different one for school, to keep gaming and classwork physically separated. Finally, he committed to playing only with friends, never with strangers, so that gaming strengthened his social connections. Human connection itself is a potent and adaptive source of dopamine.

Not everyone plays video games, but just about all of us have a digital drug of choice, and it probably involves using a **smartphone—the equivalent of the hypodermic needle for a wired generation.** Reducing phone use is notoriously difficult, because at first it causes the brain’s pleasure-pain balance to tilt to the side of pain, making us feel restless and cranky. But if we can keep it up long enough, the benefits of a healthier dopamine balance are worth it. Our minds are less preoccupied with craving, we are more able to be present in the moment, and life’s little unexpected joys are rewarding again.

Dr. Lembke is a psychiatrist and professor at Stanford University. This essay is adapted from her new book “Dopamine Nation: Finding Balance in the Age of Indulgence,” which will be published on Aug. 24 by Dutton.

Appeared in the August 14, 2021, print edition.