

NEUROPSYCHE
NETWORK

SCARCITY BRAIN



WHAT'S IN IT FOR ME?

Understand the always-more mindset.

“Has modern life left you feeling unfulfilled? Do you feel like you're constantly chasing more? Many people today find themselves trapped in vicious cycles of desire, habit, and dissatisfaction.

In this Neuropsyché short, we'll explore the psychological forces that ensnare us in these harmful patterns. You'll gain insight into the hidden drivers of compulsive behaviors including overeating, gambling, and social media addiction. Equipped with this knowledge, you can start making subtle yet powerful changes to your habits and mindset.



THE SCARCITY LOOP

Can Las Vegas casinos teach us something about life in the modern age?

In the 1970s, slot machines were seen as a boring novelty and rarely played. But today, slot machines are a multi-billion dollar industry, bringing in 30 billion dollars per year in the United States alone. They're found in casinos, bars, restaurants, and even grocery stores.

What happened? How did slot machines evolve from a lackluster amusement to such a popular mainstay?

In the 1980s, an entrepreneur named Si Redd revolutionized slot design. Redd replaced the physical reels and mechanisms with digital machines and screens. Moreover, he began redesigning the machines to take advantage of some quirks in the human brain – what the author calls the scarcity loop.

The scarcity loop refers to a cycle of behavior that can compel people in a near-addictive manner. It has three key components – opportunity, unpredictable rewards, and quick repeatability.

First, there needs to be an opportunity to obtain something valuable – something that could improve one's life, like money or status. Second, the rewards offered must be delivered unpredictably, creating a sense of anticipation and suspense that pulls us in. Finally, there must be the ability to quickly repeat the behavior – this greatly strengthens the effect. When all three elements are present, the scarcity loop creates an obsessive behavior cycle that's tough to break. We keep chasing the opportunity for more unpredictable rewards by repeating the behavior again and again.

To see how this works in practice, let's look at how Redd – and the game engineers that followed him – transformed slot machines.

The old mechanical slot machines only allowed betting on a single row of symbols per spin, so the odds of winning anything were slim. With such visibly poor odds, players quickly lost interest.

With Redd's new slot machines, players could bet on multiple lines per spin, creating both less predictability and potentially bigger rewards. Redd programmed rare but alluring jackpots that enticed players with the possibility of a huge windfall, or opportunity. Unpredictable rewards come from engineering frequent near misses and "losses disguised as wins." Here, a player wins something – but they win back less than they originally wagered. For example, betting \$1 and then winning 50 cents. Redd's machines also added features like flashing lights, upbeat sounds, and exciting graphics to make playing more fun. This unpredictability of small wins and losses keeps people emotionally invested. Quick repeatability is built in by allowing rapid continuous play and instant spinning at the press of a button.

Though a net loss occurred, these small wins, presented vividly, trigger the brain's reward system in a way similar to how a genuinely significant win would. The excitement of seeming to win keeps players motivated despite the poor overall odds. Redd leveraged this psychological trick to entice continued gambling.

And game engineers today use math and psychology to further refine the art. By tapping into these powerful features of human behavior, Redd and his successors have turned slots into the massively popular and addictive experiences they are today.

But of course, these innovations have hardly been contained to the casinos and slot machines. Today, scarcity psychology is embedded in many of our most addictive everyday technologies and activities. Social media notifications, online shopping, smartphone apps, video games – they all employ the same trio of opportunity, variable rewards, and speedy repetition. The algorithms of tech giants like Facebook learn exactly what content keeps us staring at screens, ceaselessly scrolling for that next enticing piece of information or entertainment.

These experiences prey on our innate craving to maximize our opportunity, yet leave us unsatisfied, always wanting the next hit. They override our rationality and fuel obsessive repetition. Understanding how the scarcity loop works offers insight into how experiences become habit-forming and difficult to resist.



SCARCITY AND EVOLUTION

In the 1940s, the influential psychologist B.F. Skinner noticed that rats obsessively pressed a lever for food rewards when the rewards were unpredictable. In the 1960s, Thomas Zentall expanded on this observation, showing that an array of animals, from pigeons to monkeys, will irrationally “gamble” for uncertain rewards even when a predictable reward brings objectively more benefits.

The scarcity loop runs deep into our evolutionary past. It's rooted in our evolutionary history when our ancestors needed to persistently search for food despite uncertain rewards. The biology of our brains still reinforces falling into this loop today, even though survival is much easier in modern times. Hunting and foraging was like playing slot machines – endless pulls of the lever seeking a jackpot. This persistent searching for survival amid uncertainty shaped our brains.

It's all connected to dopamine. And yet dopamine isn't “the pleasure chemical” as some people have described. Rather, dopamine drives the pursuit of rewards, especially uncertain rewards. Zentall explained that when rewards are unpredictable, the anticipation excites the brain's dopamine system. When our ancestors occasionally found an abundance of food after persistent searching, dopamine surged. This conditioned the brain to release dopamine in anticipation of possible rewards during uncertainty. The chemical helps ingrain motivations and associations.

Just as hunting near misses, like prey escaping, further incentivized our ancestors' persistence, modern near misses like slot machines landing adjacent jackpots condition our brains through uncertainty. Small wins resembling losses, like finding a berry bush with just a few berries after an arduous search, also compelled persistence. Unpredictable “near misses” and near wins draw us into the scarcity loop's vortex.

Evolution has wired our brains for scarcity. While the scarcity loop was once evolutionarily advantageous, it causes problematic behaviors today. Today we live in a world of abundance, at least materially speaking. But our Stone Age brains haven't caught up. We habituate to any new surplus – we never seem to have enough – even when we have too much.



MORE, MORE, MORE

Thoughts are nouns: they're something you have, not something you do. They're effortless and spontaneous – they simply happen. Thinking, on the other hand, is a verb: it's something you do. Essentially, it's the act of thinking about your thoughts. Thinking is energy-intensive, requiring effort and willpower, both of which are finite resources.

Let's try a little thought experiment to make this distinction easier to grasp.

All you have to do is name your dream annual income. Don't overthink it – just let the number appear in your mind. Got it? Okay, now multiply it by five. Notice anything?

If you're like most folks, the first number popped into your mind without much prompting. Chances are, it felt good – you might have even experienced a little rush of exhilaration. The second number was probably different, though. Did you suddenly find yourself worrying and fretting? Did you question how you could earn that much money or whether you deserved to? If your answer is yes, you've just experienced the transition from thought to thinking. As you can see, the latter is an emotional roller coaster; it hurtles you onto the crests of anxiety and anger, and plunges you into the depths of self-doubt, guilt, and unworthiness.

So, what does this little thought experiment tell us? Well, simply put, it's thinking about thoughts, not the thoughts themselves, that are at the root of psychological suffering. Thoughts are simple and easy; they require no great effort and trigger little resistance. But things go wrong when you start to process and judge those thoughts.

But here's the thing: you don't have to engage with your thoughts. You don't have to think about them and you don't have to judge them.

Thoughts are creative and positive – they tell you what you truly desire and care about. Thinking is neither of those things – in fact, it's downright destructive and negative. As soon as you start thinking, you begin casting your limiting beliefs, judgements, criticisms, programming, and conditioning onto your thoughts.

The question is, how can you stop negative programming from tarnishing your thoughts? The first step, as always, is recognition. Since you only feel what you're thinking, feelings are like an internal dashboard telling you whether you're in your head. If you're experiencing lots of negative emotions, you're probably overthinking things. Let's have a look at what you can do, when you find yourself stuck in this loop.

FROM FAMINE TO FEAST

Nowhere does the contrast between scarcity and abundance loom so large as with what we eat.

For over 99 percent of human evolution, food was scarce and unpredictable. Our hunter-gatherer ancestors spent much of their day searching and working to obtain enough calories and nutrients to survive. They depended on starchy plant foods like tubers, roots, and grains as their dietary staples, supplemented by vegetables, fruit, nuts, and only occasional portions of meat or fish. Fatty, sugary, salty, or calorie-dense foods were rare treats.

As we now know, that's where the scarcity brain came in. After all, back when famine was a constant threat, it promoted survival. But now, with unlimited food available 24/7 in stores and restaurants, it leads us to overeat.

Several evolutionary factors underlie our tendency to over-consume. First, we are wired to crave caloric density. Foods high in fat, salt, and sugar have more calories per bite. Our brains evolved to find them delicious and motivating precisely because such foods were scarce yet provided critical energy. But now that these foods are abundant, we're driven to consume them to excess.

Second, we favor variety. While hunter-gatherers had access to a certain variety of foods, today we face an endless buffet of food choices. This extreme variety encourages us to keep eating. So for example, we're accustomed to eating savory foods and then a sweet dessert. Our brains perceive each novel flavor or texture as a new potential source of calories and nutrients.

We also use food as a reward, and a quickly repeatable one. Snacks, fast food, vending machines, and so on provide frequent bites that light up the brain's reward pathways. This reinforces overeating through the scarcity loop.

Modern food processing concentrates calories. Products like chips and candy are engineered to have far more calories than their original plant or animal sources. Hunter-gatherers didn't fry foods in oil or bake goods with sugar and wheat flour. Modern cooking methods like frying or breading add fat and crunch – textures that trigger sensory pleasure and over-consumption.

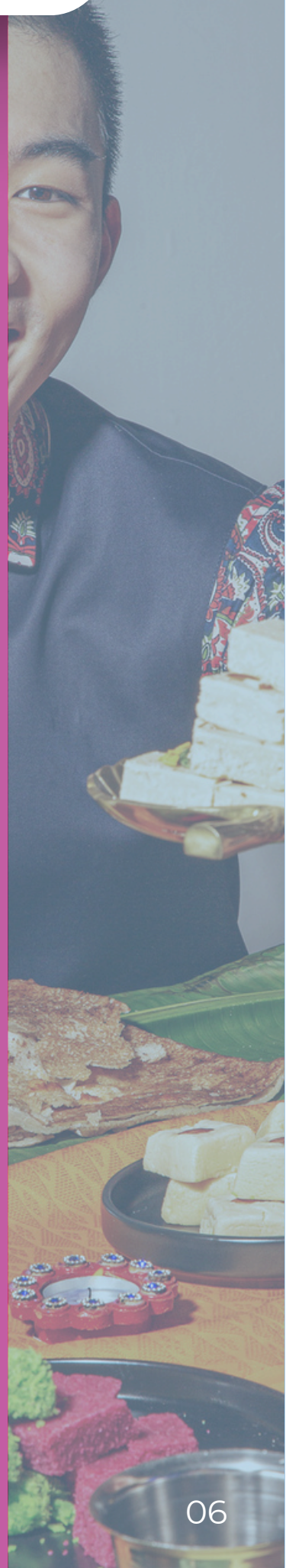
So, what is to be done? We don't need to completely reject modern processed foods. After all, flavor and variety are some of the joys of modern life. But we should strive for moderation and balance. Here are some practical tips.

Base meals around minimally processed staple foods like whole grains, beans, lentils, potatoes, and sweet potatoes. These provide bulk, fiber, and nutrients to fill up on. Load half your plate with non-starchy vegetables to add nutrients, chewing time, and bulk. Choose lean proteins like chicken, fish, and low-fat dairy over fatty red meats. Enjoy ultra-processed treats occasionally, not daily – and limit portion sizes at restaurants. Drink water instead of caloric beverages like soda or juice.

When it comes to approaching eating, slow down and savor the flavors instead of continuing to snack quickly. Stop when you're full – don't overstuff yourself just to clear your plate.

Lastly, take care to get seven to nine hours of sleep per night. Lack of sleep alters hunger hormones and changes our eating patterns for the worse.

Making these simple shifts can help us eat in better alignment with our brains and bodies. By recreating that balance, you can achieve a healthy weight while still enjoying modern culinary pleasures. Our goal should simply be to find "enough" for our needs.



FINAL

SUMMARY

“ In the modern age of abundance, we find ourselves stuck in a mindset that doesn't serve us – the scarcity mindset. Though once evolutionarily advantageous, these instincts now lead us to overindulge and become trapped in vicious cycles of desire and dissatisfaction.

Rather than relentlessly pursuing quantity, variety, and instant gratification, we should focus instead on quality, depth, and activities that provide enduring fulfillment. Subtraction is a powerful tool for improvement – sometimes less is more. By stripping away clutter and distraction, we reveal what is most essential.

In the end, we have a choice. Will we live reactively, allowing primitive drives and sophisticated marketing techniques to determine how we spend our precious time? Or will we live with intention, directing our energies consciously toward what matters most?

The path of fulfillment lies in breaking free of scarcity and embracing “enough.”

