



Snake Oil- Why the Brain Seeks Fast Relief and What We Can Do About It

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Snake oil was literally bottled in centuries past, and people bought it because the urge to relieve distress is so strong. Today we have new ways to relieve distress, but the same brain mechanism is at work: the natural urge to repeat behaviors that relieve cortisol. This paper explains why the brain wires in whatever brought relief in one's past and shows how these pathways can be rewired.

The Urge to Escape from Threat

Our ancestors lived in a dangerous world, so we've inherited a brain good at scanning for threat. Cortisol is released when we see a potential threat, and that motivates fast action to protect ourselves. Cortisol promotes survival by making you feel so bad that you do what it takes to relieve it.

A baby's cortisol turns on when its blood sugar falls. It responds by crying— one of our few innate survival skills. Crying brings food, which relieves the cortisol of hunger. Before a baby knows what food is, or what a mother is, it knows how to take action to relieve a threat.

Over time, we learn more ways to relieve cortisol so we don't have to cry. This learning happens without conscious intent because the brain learns from what works. Each time a need is met, the bad feeling of cortisol is replaced by the good feeling of dopamine. Neurons connect when dopamine flows, which wires a young brain to anticipate relief when it perceives something linked to that moment. These pathways aren't built from logical analysis. The brain simply connects every neuron active at the moment when the relief happened.

For example, when a baboon smells a lion, cortisol motivates survival action. If the baboon saves itself by running up a tree, relief sparks dopamine, which wires it to scan for trees the next time it smells a lion. Each baboon gets wired to escape cortisol in ways that worked in its past.

The joy of relief does not necessarily depend on solving the underlying problem. A baboon cannot rid the world of predators, but it enjoys a rest and a snack once it escapes from a predator. In the state of nature, underlying problems cannot always be solved, but good feelings can be sparked by meeting immediate needs. This is how the mammalian limbic system works.

Humans have a big cortex on top of a mammalian limbic system. Our cortex is capable of creating abstractions. We can imagine threats that are not actually present, and these internal constructions feel real enough to trigger cortisol. We can end up

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seeking relief a lot. And we can imagine relief in ways that feel real enough to trigger dopamine.

For example, imagine your great-grandparent with a toothache. In the past, people had to wait for the tooth to rot enough to fall out. Months of pain lay ahead, so any form of relief was attractive. Snake oil was a popular solution. Imagine that your great-grandparent hears about snake oil from a friend who got relief. Our brain has mirror neurons that respond to the ups and downs of others. Dopamine turns on when you see others enjoy a reward. It's only a drip of dopamine, but that's enough to spark action when you don't see alternatives. So your ancestor considers buying snake oil.

They check the cookie jar for money to buy snake oil. If they find enough money, more dopamine is released and they plan a trip to the market. That triggers more dopamine. They feel better already.

Our brain evolved to promote survival, not to make us happy. Any shift from a bad feeling to a good feeling is urgent survival information. A big dopamine surge paves a big neural pathway. The electricity in the brain flows like water in a storm, finding the paths of least resistance. It flows easily into the pathways created by past moments of relief.

We're not aware of our own neural pathways, so we look for external cues to explain our emotions. We presume the snake oil caused the good feeling. The conscious human cortex is always trying to help by finding information with survival value. It looks for "evidence" on the value of snake oil, and it's good at finding what it looks for.

Make It Stop

Cortisol makes you feel like you'll die if you don't make it stop. The bad feeling promotes survival by motivating a gazelle to run when it would rather keep eating. A gazelle only turns on the cortisol when a predator comes close, but the big human brain can imagine threats that are not immediately present. We end up with a lot of cortisol.

Our hunter-gatherer ancestors would have starved to death if they refused to go out until the world was completely safe.

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Hunger motivated them to forage despite potential threats. Dopamine rewarded them when they found food. Today, food is widely available so we don't get much dopamine from a quest for it. We find other quests. When physical needs are met, we look to social needs to spark dopamine. We look for support and recognition from others.

But we don't always get it. Cortisol makes this feel like a survival threat, even though we don't consciously think that. It's important to know why disappointment triggers cortisol. Imagine you're a lion chasing a gazelle. You see the gazelle start to get away and you have to decide whether to keep chasing it. You hate to give up because you're close and you're starving. But you if keep chasing gazelles that got away, you will never fill your belly. Your survival depends on giving up when necessary. The mammal brain motivates this with a huge cortisol spurt. The cortisol of disappointment has to be worse than the cortisol of hunger in order to make you give up. Disappointment must feel worse than the original threat in order to motivate Plan B. This is why disappointment feels so bad.

We humans end up with a lot of cortisol in our quest to meet social needs. We can end up feeling quite threatened though our lives are far safer than our ancestors'. It's hard to believe we are causing these feelings with our own disappointed expectations. It helps to understand the learned aspect of threatened feelings. Imagine you're a baby gazelle. You need milk quite often to avoid hunger and thirst, so your cortisol surges when you get separated from your mother. Neurons connect when cortisol flows, which wires you to watch your mother constantly and avoid separation. She runs when the herd runs, so you do that too. The smell of a lion is reaching your brain at that moment, so it gets connected to your cortisol. You get wired to run from the smell of a lion without conscious knowledge of the threat.

Cortisol is triggered by pain, but if young gazelles had to feel the pain of a lion's jaw before they learned, few would survive. Natural selection built a brain that learns from emotional experiences during the early years of peak neuroplasticity. Today, we're quick to condemn this early fear learning, but it's important to recognize its value. We don't get run over by cars because we wire in a sense of threat without having to get run over.

But we do end up with a lot of cortisol pathways and thus a lot of relief-seeking. And as soon as we relieve one potential threat, our future-oriented cortex anticipates the next potential threat. We think we can't feel good unless we eliminate each threat entirely. This quest leads to disappointment and more cortisol. So we find ourselves tempted by fast, easy ways to get relief.

Distraction Works

Distraction relieves cortisol. It doesn't solve underlying problems, but when the lion is created in your mind, distraction relieves the threat. Each time a distraction shifts a bad feeling to a good feeling, it builds the pathway that expects relief. Distraction is popular because it works.

A familiar example is video games. When you're playing a game, your cortex is too busy to activate the threats that you've wired in. And you enjoy a steady stream of dopamine because games give you a way to keep reaching rewards. Your inner mammal notices the nice shift from a bad feeling feeling to a good feeling. Relief! Neurons connect, and the next time you feel bad, you have a curiously strong urge to play a video game.

Let's return to the ancestor with a toothache. Once they put their faith in snake oil, their attention focuses on the quest for snake oil instead of anticipating months of pain. Each time distraction works, the pathway gets stronger. If one brand of snake oil doesn't work, they try another because the pathway is there.

Distraction can do more harm than good sometimes. If you fail a math test, a video game allows you to feel good in the short run without the studying in the long run.

Short-run solutions are popular when we don't see a long-run solution. For example, a child hearing conflict between their parents may pick up a video game. Each time it works, the pathway builds. Looking for distraction becomes a habit. Looking for solutions does not become a habit, so when solutions exist, the person doesn't notice.

The word "addiction" may come to mind. It is not used here because it has taken on medical and legal connotations. What matters is the neural pathway that anticipates relief. It is built from lived experience, so anything can be addictive. Jigsaw puzzles. Detective stories. Butterfly collecting. Anything that interrupts a distressing thought builds a pathway that invites you to go there the next time you have a distressing thought.

Some addictions have harmful side effects, alas. The behavior is repeated despite the harm because the reward pathway is so well developed. It's hard to believe that old pathways have so much power, and when we ignore our old pathways, it's even harder to find our power over them. We are not robots that just run on fixed circuits, but leaving old pathways is harder than we expect it to be. Let's look under the hood to see why.

The Spaghetti Under the Hood

Our brain is designed to wire itself in youth. Each of us sees the world through the lens of our own early experience. This is often seen as a weakness or flaw, so we need to know why it's natural and normal.

We humans are born with billions of neurons but very few connections between them. Connections build from experience. No conscious thought is needed because the chemicals of emotion work like paving on our neural pathways. Happy chemicals and threat chemicals are the brain's signal that information is relevant to survival. Our brain is designed to learn survival skills by connecting neurons when these chemicals turn on.

The biggest pathways in the brain are built in youth because that's when we have a lot of myelin. It coats a neuron the way insulation coats a wire, so it conducts electricity a hundred times faster. Myelin peaks before age eight and during puberty, so experience in those years builds the brain's core network. We use these myelinated neural pathways for life because they're so efficient. We don't consciously remember the early experience when we flow into them. We think we're just seeing the facts.

We flow into old pathways so easily that we don't notice we've made a choice. The effortless flow of electricity into an old pathway gives you the feeling that you know what is going on. When you try to blaze a new trail through your jungle of neurons, it's so hard that it feels wrong even when you know it's right. This is why we all tend to repeat ourselves, and why we return to harmful distractions despite a conscious intent not to.

It's hard to believe that we're running on neural pathways built

in youth. We tend to think we discarded that early training and figured everything out for ourselves after we left home. Some animal examples can help us understand why old pathways have power.

A turtle runs away from home the minute it cracks from its egg, and if it doesn't leave fast enough, a parent eats it. A newborn turtle can make its way in the world because its survival skills are hard-wired at birth. We humans have almost no hard-wired skills. This frees us to learn from our own lived experience instead of running on the experience of distant ancestors.

But it takes a long time to wire from experience. A human childhood is far longer than animals'. Elephants can walk as soon as they're born because that's how they got to mother's milk. Baby gazelles can run with the herd the day after they're born. Monkeys quickly learn to find their own food because their elders never fed them except for milk. Humans take a very long time to learn survival skills, by contrast.

Genes control our wiring much less than is widely believed. Genetics research is well funded so we end up with a lot of information on genetic factors. The role of early experience is hard to research, so we hear much less about it. We end up believing that our emotions are controlled by some optimized genetic blueprint. Unwanted emotions are seen as genetic "disorders" that can be "treated." When this doesn't work, we blame the "treatment" instead of recognizing the false belief.

It's hard to believe that our brain is designed to wire itself from a random set of childhood experiences. It's uncomfortable and even embarrassing. But once we know the facts, we can find our power to update that wiring.

Rewiring The Natural Urge for Relief

Our brain has billions of extra neurons just waiting to build into new pathways. But it's hard once your myelin years are over. It's like trying to divert a river into a soda straw.

It's hard but it's possible- just like learning a foreign language. We all know it's possible to learn a foreign language in adulthood, but most people don't because it takes so much repetition. We learned our native language in childhood without conscious effort, so it's hard to accept the repetition necessary to learn a new language. It's the same for our native emotions: it's possible to learn new responses, but it takes so much work that most people don't.

Anyone can build a new neural pathway by repeating a new choice until the neurons connect. Anyone can build a new habit for shifting a bad feeling to a good feeling. It's a skill learned from practice, like riding a bicycle.

If you repeat a new way to relieve cortisol enough, you stop flowing toward your usual snake oil. That's a big "if," of course. How can you get yourself to repeat a new choice while you're still running on the old pathway?

Animal trainers have solved this problem. They give a tiny reward for a tiny step, over and over. The brain links the good feeling of the reward to the step you want to take. You are motivated to repeat the new step because you've learned to expect it to feel good.

A dog cannot be trained to do a flip by promising it a steak because a dog does not know what a flip is. But if you give it a

small treat when it moves toward a flip, it repeats that move to get more treats. Professional trainers carefully reward moves in the right direction, and the animal ends up executing complex behaviors without a conscious conception of the end goal. Animals are eager to participate in trainings because they know that rewards are coming.

You may object to the idea of training yourself like a dog. And you may prefer to think dogs jump for joy rather than for greed. We like to think animals are motivated by higher values, and we like to think of ourselves that way too. But the brain is always learning from rewards whether or not we consciously approve.

People often reward themselves with their snake oil of choice when they've had a bad day. This trains the brain to have a bad day in order to enjoy some snake oil. Without conscious intent, you focus on evidence of a bad day because your brain has linked that to a reward. Each time you give yourself permission to indulge, the pathway grows. Your verbal brain tries to help with virtuous-sounding logic. We think it's rational, but it's rationalizing.

When we accept our mammalian limbic system, we can rewire it by rewarding new steps.

You may say, "if it were that simple, I would have done it already." But it's not simple. It only works if you break a new choice into tiny steps and attach tiny rewards. Here's how.

Simple Steps to Rewire

We are always choosing our own rewards, so we are capable of designing a new reward structure for ourselves. With three small steps, we can build a new relief habit to replace an unwanted relief habit.

1. Identify the cortisol moment.

It's hard to notice when a bad feeling triggers the urge for snake oil because we escape bad feelings so quickly. But we can learn to notice the bad feeling before we flow into the snake-oil habit. It's like building a new exit ramp on an highway. The old road will still be there, but you can train yourself to get off and give the electricity in your brain a new place to flow. It starts with noticing bad feelings before you fuel them with "evidence." You don't have to see the bad feeling as a real emergency when you know how you created it. This takes some detective work. First, find the pattern in the situations that trigger bad feelings, and then look for that pattern in your early experience. Each time you notice your cortisol turning on, you build the exit ramp.

2. Design an alternative relief habit.

Alternatives can be anything that's less harmful than your existing habit. The famous example is donuts and coffee at addiction-recovery meetings. The alternative needs to be something you like so a positive feeling gets linked to your new choice. This seems obvious, but we're often pushed toward "good-for-you" alternatives that we don't like. We deprive ourselves of the dopamine reward when we do that. For example, a person could stop smoking by listening to comedy in the time they would have been smoking. They may think they should do push-ups instead, but that plan rarely works. Sometimes, it takes two steps to rewire a big habit. Shifting from video games to studying math is too big a step, so a person could build one new relief habit to stop gaming and then build the habit of studying.

3. Reward forward steps repeatedly.

You can plan small rewards for small daily repetitions of your new choice, and bigger rewards after a week and a month of the new choice. The brain quickly habituates to rewards, so keep varying the rewards to stay motivated. A reward must be something you can access reliably. Calling a friend does not work if the friend does not answer or does not say the comforting words you are looking for. Consuming does not work if it leads to more cortisol. You can design healthy ways to reward yourself. For example, you can take a small step before your morning coffee and another step before your evening dessert. You can bake healthy cookies and take one out of the freezer at a time. It bears repeating that a reward must be something you actually enjoy rather than something recommended by “experts.” If you hate yoga, it is not a reward. If you walk in the park and think angry thoughts the whole time, it is not a reward.

Everyone needs to update their operating system because we’re all weak and vulnerable in our early years. Everyone learns one kind of snake oil or another to relieve their early fears. Youthful experience can never be a perfect adult survival guide. We all build some cortisol circuits that misrepresent real-world threats and some dopamine circuits that misrepresent real-world rewards. Rewiring is the challenge that comes with the gift of life.

It’s easier to do this if you think of yourself as a rider on a horse. If you train the horse well, its huge power will take you where you want to go. If you don’t train it well, it will run panic at every loud noise. It may refuse to leave the barn and never know its potential to jump hurdles and win prizes.

Wild horses learn to face their fear because they need to find food. In the modern world, we are like domesticated horses that can eat without leaving the barn. We must learn to manage our cortisol in order to enjoy the world’s rewards.

Why Don’t They Teach This?

No one is born with insight into their neurochemical operating system, so everyone needs to be taught. Why isn’t this taught in school and in wellness programs?

Why aren’t we told that our natural alarm system is designed to seek fast relief? Why aren’t we taught that the superhighways of the adult brain are built by the rewards of youth? Why don’t they teach us that rewiring is possible but takes a lot of repetition?

We are often taught the opposite. They tell us that “normal” people feel good without effort, and if you’re not one of the lucky ones, the healthcare system can fix you. We are taught that a good society would make everyone happy, so we can’t be happy unless we change society. And we’re constantly hearing that one kind of snake oil or another will make us happy. These beliefs are profoundly disempowering. The greater good may be invoked, but no greater good is served by teaching people that they are not responsible for their emotions.

Stop Blaming the Snake Oil Salesman

It’s tempting to blame whoever is selling the relief habit you’ve wired in. But blame perpetuates the disempowering mindset by obscuring your power to choose.

The disempowering mindset lures us because it’s easier to blame external forces than to build internal power. Staying in the barn is more comfortable than being your own trainer. But

once you recognize your power to leap over obstacles with grace, you can do it despite all the snake oil salesmen.

Good feelings evolved to reward survival action, not to flow all the time for no reason. Our ancestors had to take survival action constantly, and dopamine rewarded their steps. The dopamine stopped as soon as they met a need, and that motivated them to go out and meet another need. We can do the same when we know how our brain works.

We miss out on this natural dopamine when we believe that good feelings should be on all the time for no reason. The false view is hard to avoid because it’s entrenched in our culture and education system. No one tells us that our dopamine is sparked by action to meet our needs. On the contrary, we’re told that it’s selfish and greedy to focus on our own needs. The natural path to dopamine becomes taboo, which leaves us more reliant on snake oil. The natural drop of dopamine once a need is met is not understood, which makes snake oil even more tempting.

The popular view of emotions is hard to question because it’s accepted as “THE Science.” It’s hard to believe that so many people could be disempowering themselves. It helps to know the history of the disempowering mindset. Almost three hundred years ago, Jean-Jacques Rousseau said that nature is happy and civilization is the cause of unhappiness. Scholars embraced this view, so generations have been schooled in the belief that happiness is the default state and unhappiness is society’s fault. Life passes us by as we wait for society to make us happy instead of building power over our brain.

We have been trained to think animals are always happy, children are always happy, and hunter-gatherers are always happy. The flaws in this view are obvious. Animals have a lot of conflict in their herds and packs and troops. Toddlers have plenty of conflict, and urgently seek the toy in another toddler’s hands. Hunter-gatherers have a lot of conflict, as evidenced by the journals of early explorers. We have learned to ignore the conflict that the mammal brain creates, despite all this evidence. Without conscious thought of Rousseau, we learn to blame our negativity on society instead of finding our power to fix it. That leaves us vulnerable to whatever snake oil is available.

Instead, you can train your two brains to work together like Olympic equestrians. A rider cannot manage a horse by yelling at it, or reciting poetry to it, or ignoring it. A rider needs to understand the horse in order to guide it.

For millennia, people guided animals with carrots and sticks. We can learn to use carrots and sticks to motivate our inner mammal. Today’s culture has made the carrot-and-stick approach taboo. We’re told that higher values should motivate us and withholding rewards is cruel. This has led us to abandon a tool that actually works.

Each of us can train our inner mammal to jump obstacles with the method of carrots and sticks. If you think you’re too enlightened to care about carrots, you can learn to notice the carrots you are already using. If you think it’s too cruel to withhold rewards, you can learn to notice the unwanted habits you learned because you rewarded them.