



STOP NEGATIVE
THOUGHT PATTERNS
— BY —
CHANGING YOUR
BRAIN CHEMISTRY

THE SCIENCE OF POSITIVITY

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DEDICATION

For my children, Lauren and Kyle, who helped me learn about the
brain from the bottom up.

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INTRODUCTION

Anyone can feel positive. Anyone can enjoy the happy brain chemicals that positivity unleashes.

That may seem foolish because the bad in the world is so obvious. Negativity may seem like an intelligent response to the world around you. But when you know how your brain creates that response, you have the power to create a new one.

We have inherited a brain that's inclined to go negative. It's not that we want to feel bad—on the contrary, our brain evolved to seek good feelings. We go negative because our brain expects negativity to feel good. This paradox makes sense when you know the operating system we've inherited from our animal ancestors. All mammals have the same brain chemicals controlled by the same basic brain structures. Your mammal brain rewards you with good feelings when you do things that promote your survival. But your brain defines survival in a quirky way. This is why we end up with patterns that feel bad in our quest to feel good.

You can transcend your natural mammalian negativity. You can train your brain to go positive. This book shows how to rewire yourself for positivity in six weeks, in just three minutes a day. Positivity does not mean ignoring the realities of life. It means adjusting for the brain's natural tendency to ignore the positives of life. Whether you're frustrated by your own negativity or the negativity of others, ***The Science of Positivity*** can help.

First, we'll explore the negative and positive chemicals that control your brain. Then you'll learn how to PARE negativity with **P**ersonal

Agency and Realistic Expectations. You can build a positive thought habit that lets in all the good that your inner mammal overlooked.

You may find it hard to believe that there are good things you've missed. It's easy to think your internal responses are caused by external facts because that is what the verbal part of your brain says. But your mammal brain doesn't process language so your two brains are literally not on speaking terms. Your internal responses rest on neural pathways paved by your early neurochemical ups and downs. The electricity in your brain flows into those old pathways unless you carve new ones. This book shows you how to build new pathways and give your electricity a new place to flow!

CHAPTER 1



WHY YOUR BRAIN **GOES** **NEGATIVE**

*Negativity feels good to your old circuits, but
you can build new, positive circuits.*

Do you get a bad feeling when you look at the world around you? Are you surrounded by people who only seem to focus on what's wrong? Do you wish you could enjoy more positive responses but fear that may be unwise or impossible?

Your response to the world is a learned habit. Our habits are hard to notice because they're just physical pathways in the brain. These pathways channel electricity from your information inputs to your positive or negative brain chemicals. Your pathways were built from your unique life experience. The positive and negative experiences of your past paved neural pathways that channel your electricity today.

Negative thought patterns do not mean something is wrong with you. Negativity is natural. The science of positivity shows you why your mammal brain tends to go negative unless you build in a simple adjustment. This book will not tell you what to feel positive about—that's for you to decide—but it will explain how your old pathways got there and how you can build new ones. Anyone can do it!

In this chapter, you'll meet the inner mammal whose ups and downs are explained in depth later on in the book.

OBSERVING YOUR LENS ON LIFE

You may be thinking, “the bad things I see are quite real.” But this simple anecdote shows how easily our brain goes negative: Dog poop was a common sidewalk hazard when I was young. It was normal to let your pet mess in public and we couldn't imagine a world in which people routinely cleaned up after their pets. Today, most streets are

gloriously free of dog poop. Did that make anyone happy? Not a bit. We rage at the occasional oops instead of noticing the enormity of the accomplishment. Wailing over one “jerk” who fouls the sidewalk seems more normal than celebrating the myriad sanitary successes. This “normal” thought habit does not leave you with a more accurate view of the world. It just leaves you feeling, well, shitty.

You may think anger was necessary to create that change. You may think negativity gives you power. But negativity is often just a habit. Historical perspective helps us see that, so here’s a great example. In 1896, the *London Spectator* reported that society would be ruined by the invention of the bicycle. According to the agonizers of the day, the bicycle would end serious conversation by freeing people to flit in and out of more distant social groups instead of lingering for long talks with one group. Meaningful conversation would also be destroyed by the early bedtimes that extra exercise would provoke, it was reported. Behold the human brain at work, busily searching for negatives. You may think you would not have bought into such old rubbish, but you may be buying into new rubbish.

Most people pride themselves on their keen sense of the world’s flaws, so it’s hard to think of your indictments as a neural network that can simply be replaced. But you see things differently when you understand the operating system we’ve inherited from our animal ancestors. The brain chemicals that make us feel good (such as dopamine, serotonin, oxytocin, and endorphin) are inherited from earlier mammals. They motivate a mammal to promote its own survival by rewarding survival behaviors with a good feeling. When you know how your happy chemicals work in the state of nature, negativity makes sense. Before we explore that, let’s define “negativity.”

The **Mammal Brain** Says . . .

The brain chemicals that make us feel good (such as dopamine, serotonin, oxytocin, and endorphin) are inherited from earlier mammals.

NEGATIVITY AND CYNICISM

Negative thought patterns come in many varieties, but let's use one very general negative thought pattern for purposes of illustration: cynicism. This habit of thinking "something is wrong with the world" or "it's all going downhill" is widespread. If you do not share this habit, you probably know many who do.

I was sitting in a café in Albania when cynicism suddenly made sense to me. I was being interviewed by an Albanian journalist about my book on resisting bribes. She had a translator with her, and I had a translator with me, so everything we said had to travel through many brains. When I used the word "cynicism," the three Albanians began a flurry of debate. I couldn't understand it, but I heard the word "pessimism" spoken in English.

"No!" I interrupted. "Cynicism is not the same as pessimism!" Then I froze. How could I explain the difference in a way that would survive this tortured communication chain? The answer came to me when I remembered the curious smiles I see on people's faces when they say, "The world is going to hell in a handbasket." Pessimism is distinctly unhappy, but people sound oddly happy when they proclaim their cynicism.

I wanted to know why, so I started discussing cynicism wherever I could. I usually got the same response: "Which kind of cynicism do

you mean?” People seem to make a strong distinction between “good” cynicism and “bad” cynicism, but they seem to define good in a way that means “my social allies” and bad in a way that means “my social rivals.” So they see cynicism as abhorrent selfishness on the part of “them,” but essential realism on the part of “us.” This book has no implied “them” or “us.” It takes no position on the relative virtue of one group of people or another. That may seem wrong, because we all have strong feelings about the superiority of our own ethics. But this simple thought experiment helps us transcend that.

Imagine you’re at an intersection with a four-way stop sign. Another guy rolls through his stop and you think, “That’s outrageous! He could have killed someone. Where are the police? What is wrong with this world?” But the next day, you roll through a stop sign. The police are there and you get ticketed. This triggers your cortisol, which lights up the circuits that tell you: “Everybody does it! Why did *I* get punished? The system stinks! What’s wrong with this world?”

Confidence in your own righteousness leads to a lose-lose response to this situation, where you feel endangered on the road and wronged by the rules. A positive lens on life would generate a different response. You would notice that traffic laws protect you from harm. You would realize that no enforcement system can catch every violation, but you volunteer for punishment when you choose to violate the rules. You can enjoy the win-win feeling that laws protect you from speeders and controlling your speed protects you from traffic tickets.

You will not see the good if you are looking for the bad. It’s natural to look for the bad because the mind doesn’t waste energy keeping track of what goes right. We don’t appreciate the daily miracle of

heavy-metal projectiles passing each other at high speeds in safety. We don't applaud the enforcement system when it runs without bribery, graft, and tribalism. Our minds zero in on threats.

Each brain sees right and wrong through the lens of its survival needs in each moment. We tend to invoke the greater good to explain our own survival efforts, while condemning the efforts of our rivals as "cynical." The good intentions of your social allies seem obvious, and the bad intentions of your social adversaries seem obvious, too. (Psychologists call this "fundamental attribution error.") In this book, we will avoid presumptions about good guys and bad guys to focus on what we have in common: a brain built by natural selection.

YOUR INNER MAMMAL

The mammalian survival system is simple: A chemical that feels good is released when the brain sees something good for its survival, and a chemical that feels bad is released when it sees a survival threat. Positive chemicals motivate a mammal to move toward things that stimulate them and negative chemicals motivate a mammal to avoid things that stimulate them. A mammal survives by seeking what feels good and avoiding what feels bad.

The **Mammal Brain** Says . . .

Positive chemicals motivate a mammal to move toward things that stimulate them and negative chemicals motivate a mammal to avoid things that stimulate them.

You may think that you are too evolved to care about your own survival. You may have been told that it's wrong to focus on mere survival. But you think this with your verbal cortex, which does not control your happy chemicals. If you want to feel good, you have to make peace with your mammal brain. That term is used here to refer to the brain structures present in all mammals, including the hippocampus, amygdala, hypothalamus, and the lower parts often called the "reptile brain." All mammals have a cortex too, but size matters when it comes to the cortex. The huge human cortex gives us huge access to associations between past, present, and future. You can draw on these associations as you navigate toward the good and away from the bad. But you cannot ignore your mammal brain. It connects your higher brain to your body, so a neurochemical response from your mammal brain is necessary for action to happen. Our two brains are designed to work together.

Your mammal brain does not report its responses to your cortex in words because words are abstractions and the mammal brain is not designed for abstractions. When you talk to yourself, it's all in your cortex. You can get the idea that your verbal inner voice is the whole story, but a lot more is going on. Animals are constantly making survival decisions without ever putting things into words. Exploring animal behavior helps us understand the positive and negative signals produced by our inner mammal.

Imagine you are a zebra enjoying some juicy green grass. Suddenly, you smell a lion. What do you do? If you run, you miss out on the badly needed food. But if you stay, the bad feeling that surges is much worse than hunger pain. Fortunately, the mammal brain is designed for just such dilemmas. It notices that the lion is a safe

distance away. The zebra knows it can eat as long as the lion remains at that distance. So it constantly watches the lion while it eats, and has eyes at the top of its head for just this purpose! We don't have those big eyes, but we have a big cortex to monitor potential threats. Like the hungry zebra, seeing a threat can feel safer than not seeing it. You can easily get into the habit of watching a threat. You feel good when you see the threat because it means you can safely go back to meeting your needs.

You have inherited your brain from individuals who survived. That may sound obvious, but it's almost miraculous when you think about it. Survival rates were low in the state of nature, yet your ancestors, going all the way back, managed to do what it takes to create offspring who survived to create offspring. You've inherited a brain that promotes survival by making it feel good.

Meeting a need feels good, but relieving a threat feels even better. This makes sense because a threat can wipe you out in an instant, but you can usually survive a bit longer without meeting needs. The pleasure of relieving a bad feeling is huge, whether it's escaping from a criminal or finding your cell phone. It's not surprising that threats get priority in our brain.

Good feelings mask your sense of threat, but they are not designed to be "on" all the time. Good feelings evolved to turn on in short spurts when you do something to meet a need. Then they turn off and you have to do more to get more. When a happy chemical spurt ends, potential threats get your attention again. It may feel like something is wrong, even though your brain is just resetting to neutral. If you recognize the happy chemical droop as nature's reset, you know it's not a crisis. But if you expect your happy chemicals to surge all the time, you will feel like something is wrong a lot. You may feel an

urgent need to “do something” to make it stop. You may even rush into something that leaves you less safe in the long run. You are much better off knowing your happy chemicals are meant to alert you to things that promote survival rather than to flow for no reason.

The mammal brain defines survival in a quirky way, alas, and that makes life complicated. Your inner mammal cares about the survival of your genes (even though you don't consciously think that), and it relies on the neural pathways you built in youth. This makes sense in the state of nature, where things that feel good are good for the survival of your genes. But a mammal is not born with the survival skills of its ancestors. It builds the pathways that turn its neurochemicals on and off with each experience. By the time a young mammal's elders are gone, it has the neural network it needs to meet its needs.

HOW YOUR NEURAL NETWORK GOT BUILT

Humans are born with billions of neurons but very few connections between them. We build those connections from life experience, starting from the moment of conception. We don't need to remember those experiences for them to have power over us. The electricity in your brain flows like water in a storm, finding the path of least resistance. Good and bad feelings are like paving on your neural pathways. Whatever felt good or bad in your past connected all the neurons active at that moment. Now, electricity can rush down that pathway and tell you how to get more of those good feelings or avoid whatever caused the bad feelings.

The **Mammal Brain** Says . . .

Whatever felt good or bad in your past connected all the neurons active at that moment. Now, electricity can rush down that pathway and tell you how to get more of those good feelings or avoid whatever caused the bad feelings.

Some neural pathways become the superhighways of your brain, thanks to a substance called “myelin.” It coats neurons the way insulation coats a wire, allowing electricity to flow at super speeds. Anything you do with myelinated neurons feels natural and easy. Anything you do with unmyelinated neurons feels labored and uncertain. Myelin is abundant in your brain before age 8, and during puberty. Thus, you end up looking at the world through a lens shaped in high school, and so does everyone else. You add to it, of course, but we tend to add leaves to our neural trees rather than replace the branches. When you look at the world through your myelinated lens, you can often end up feeling like something is wrong.

THE PROBLEM WITH HAPPY CHEMICALS

Your happy brain chemicals are always going up and down. That’s how they do their job. When they go up, you feel like your needs will be met and all is right with the world. But when they droop, you feel like you will be in big trouble unless you do something urgently. Here’s a quick look at what turns on each of the happy chemicals, and why they naturally droop after they spurt.

Dopamine

The excitement of dopamine is released when you expect to meet a need. Your prehistoric ancestors had to forage constantly to survive, and dopamine made it feel good. When your ancestors saw a tree full of ripe berries in the distance, their dopamine surged and they moved toward it. Dopamine releases energy when a reward is expected, and it also connects neurons that tell you how to find more of the reward in the future.

But finding a berry tree didn't make your ancestors feel good forever. Their dopamine drooped when they reached the tree because it had already done its job. The brain doesn't waste dopamine on old information. Your ancestors had to find a new way to meet a need to enjoy more dopamine. Life is challenging because our brain takes what you have for granted and saves the dopamine for "new and improved." You may blame this on "our society." I did that and so did everyone around me. But when you understand the mammal brain, you can build realistic expectations. Otherwise, you are likely to think something is wrong with the world every time your dopamine droops.

Oxytocin

The good feeling of oxytocin is released when you find social support. Mammals seek safety in numbers because oxytocin makes it feel good. But life in a herd of mammals is not all warm and fuzzy. Your herd-mates often get in the way of the food or mating opportunity you have your eye on. If you leave them, your oxytocin falls and your cortisol surges. You feel like something very bad is about to happen. In the state of nature, this motivated animals to stick with

the herd and avoid instant death in the jaws of a predator. Today, it causes anxiety when you think you lack social support. You can relieve that anxiety by attaching yourself to one herd or another, but it often fails to feel as good as you expect. So you end up frustrated when you're with a herd and frustrated when you're not. You imagine a better herd that makes you feel safe all the time, but you never seem to find it. It feels like something is wrong with the world. But when you understand your inner mammal, you can build realistic expectations about oxytocin droop.

Serotonin

The good feeling of serotonin is released when you find a way to get ahead. You may blame competitive urges on “our society,” but hierarchical behavior is part of every animal’s daily life. Living in groups forces weaker mammals and stronger ones to live side by side. When one sees a juicy bit of food or a mating opportunity, another sees it too. Natural selection built a brain that constantly compares itself to others. If a mammal sees that it’s weaker than the individual next to it, it restrains itself to avoid the pain of conflict. If a mammal sees that it’s stronger than the individual next to it, serotonin is released and it feels good. Serotonin is not aggression, but the nice feeling that it’s safe to act on the urge to meet your needs.

Each serotonin spurt is quickly metabolized, however, so the brain is always looking for another way to stimulate the good feeling. Getting the one-up position helped a mammal spread its genes. In the modern world, we are not trying to spread our genes. We struggle to find ways to enjoy serotonin without the harmful consequences of being seen as “a jerk.” Feeling morally superior to others is a popular

solution. But the serotonin you stimulate is soon processed and you have to feel superior again to get more. If you don't understand the brain's natural urge for social dominance, you are likely to feel that something is wrong with the world.

Endorphin

The good feeling of endorphin is released when you experience physical pain. It's often associated with "runner's high," but runners only get it if they run to the point of pain. Endorphin masks pain with a good feeling, which enables an injured mammal to do what it takes to seek safety. The endorphin soon passes because pain is vital information. It tells you not to touch a hot stove or run on a broken leg. Endorphin evolved for emergencies, not for us to inflict pain on ourselves to enjoy it. Anyone who seeks it discovers that the brain habituates and it takes more and more pain to feel good. This is a very bad survival strategy. We are better off just being glad to have it for emergencies. But humans find various ways to seek endorphin, and tragedy often results. Endorphin is not further addressed in this book because we are not meant to stimulate it intentionally.

WHAT ABOUT CORTISOL?

Pain is caused by cortisol. In the modern world, cortisol is known as the "stress chemical." Stress is the anticipation of pain from your inner mammal's perspective. A small brain makes the small link between the smell of a lion and the pain of a lion's jaws. A big brain

can anticipate a huge range of inputs leading to potential future pain. Social pain is produced in the mammal brain when it sees a potential future threat to meeting its social needs. When your world is relatively free of physical pain, social pain gets your attention.

Cortisol is nature's emergency broadcast system. Neurons connect when cortisol flows, so anything that ever caused you pain built a neural pathway in your brain. That makes it easy to turn on the cortisol alarm when you see anything similar in the future. A big brain can see similarities in huge clusters of detail. You can end up with a lot of cortisol, even in a rather good life. It motivates you to scan urgently for ways to relieve it. Whatever relieved your cortisol in the past connected neurons that trigger expectations of relief in your future.

Telling yourself, "something is wrong with the world" brings surprising relief. It helps relieve cortisol by offering a threat to monitor. It stimulates your serotonin, as you feel superior to those who fail to get it. It stimulates your oxytocin by helping you bond with those who share your concern. It stimulates your dopamine by helping you focus on new rewards. Alas, the good feelings are soon metabolized and you have to feel bad about the world again to stimulate more. You can easily wire in the habit.

WIRING YOURSELF FOR POSITIVITY

When you have a sense of crisis, it feels like external evidence is the cause. But when you know the internal causes of negativity, you can create positivity instead. A simple method for doing that is presented in Chapter 6. It shows how to PARE your negativity with **P**ersonal

Agency and Realistic Expectations. Personal Agency is the awareness that you can meet your real needs through your own actions. Realistic Expectations are the knowledge that rewards are unpredictable, and frustration is not a survival threat. When you PARE, you will REAP, because **Realistic Expectations** lead to **Acting Personally**. With realistic expectations about the brain chemistry we've inherited, you act personally to meet your needs instead of expecting the world to meet them for you. You don't always get what you seek, but you enjoy being your own agent instead of lamenting the world's failure to meet your expectations.

Chapter 6 provides a simple exercise that takes 3 minutes a day and will rewire you in six weeks. You can start today. You don't have to wait for the world to change. You don't have to wait for the people around you to approve. You only have to focus on the good all around you until your electricity has a new place to flow. Chapter 7 helps you see what the world looks like when you take off the crisis goggles.

I had a great positivity experience at the Valley of Monkeys (La Vallée des Singes in France). It was feeding time at the mandrills, and a keeper was explaining how the female mandrill strives to mate with the male whose colors are brightest. Male mandrills have rainbow-striped fur on their faces and derrière. They can't control their fur color directly but their bodies evolved to produce brighter colors when they dominate their group-mates. The harsh facts of animal competitiveness are uncomfortable for many people. You might prefer to imagine nature as pristine and egalitarian. It's painful to think of drab gray males sitting around watching the more colorful guys get all the action. It's sad to think of female mandrills ending up alone because they've all gone for the same guy. But there was a big positive behind this. I asked the keeper about mandrills' relationship

to baboons because I noticed many similarities. She said that mandrills are less violent. Baboons compete for females with direct physical conflict, but mandrills rarely engage in physical violence because they compete on appearances. What a fabulous insight! When competition over appearances frustrates us in daily life, it's great to know that appearances are an evolved substitute for violence.

The keeper explained that wild mandrills have much brighter colors than the ones we see at the zoo. In the wild, mandrills live in large groups where competition is more intense than in small groups. This stimulates more hormones, which leads to more dramatic sexual signaling. The females are as much a part of this competitiveness as the males. Stronger females strive to get better genes for their children who will thus have brighter fur and make more copies of mom's genes. Of course, mandrills don't think conceptually about conception. They just do what it takes to stimulate happy chemicals in the brain built by natural selection.

You may condemn all competition with your verbal brain, but your inner mammal cares about your survival. With realistic expectations, you would see that it's normal for others to have the same desires that you have. If you want the room with the view, it's not surprising that others want it, too. You may deride those who strive for the "good room" while overlooking your own striving for it.

Condemning the world around you is a waste of your energy. A mandrill doesn't waste energy condemning "the system," though its life is far harsher than yours. If you were a male mandrill, your fur would be judged all the time and you would need to jockey for social status to stimulate those hormones. As a modern human, you get to choose when and how you compete. You can view mammalian social rivalry through the lens of Personal Agency and Realistic Expectations. You can PARE your cynicism and feel good in the world as it is!

Cynicism is pervasive in the world around us. People insist that things are bad and getting worse. They say our leaders are bad, our culture is bad, our health is bad, our species is bad, our planet is going downhill, the last century was the worst ever, and this millennium is already shaping up to be a bad one. When I hear this, I remind myself that the brain goes negative because it expects that to feel good.

Science Summary

The mammal brain promotes survival by looking for ways to stimulate positive brain chemicals and avoid negative brain chemicals.

- Your positive brain chemicals (dopamine, serotonin, oxytocin) motivate you to seek things that stimulate them. Your negative brain chemical (cortisol) motivates you to avoid things that stimulate it.
- Happy chemicals are not meant to be on all the time. They're released when you meet a need. Then they droop and you have to do more to get more.
- Neurons connect when your brain chemicals flow, which wires you to seek things that stimulated your happy chemicals before and avoid things that stimulated your cortisol.
- Relief from threat is the brain's top priority. Anything that relieved a threat in your past built a pathway that triggers positive expectations about similar cues for the future.
- All mammals have the same brain chemicals managed by the same core brain structures.
- Humans also have a large cortex that enables us to manipulate abstractions, such as words. The mammal brain does not process language and does not report in words why it turns the chemicals on and off.
- Negativity feels good when old pathways connect it to the expectation of happy chemicals or the relief of cortisol.
- Myelin insulates neurons the way plastic insulates wires, transforming some neural circuits into superhighways with huge processing speed (like optical fiber as compared to old-fashioned copper wire). The neural networks you myelinated in youth tell you instantly what is good for you

and what isn't. The world makes sense effortlessly when information flows through your myelinated circuits.

- The electricity in your brain flows like water in a storm, finding the paths of least resistance. Your electricity will keep using old pathways unless you build new ones.
- Personal Agency is the awareness that you can meet your real needs through your own actions. Realistic Expectations are the knowledge that rewards are unpredictable, and frustration is not a survival threat. You can PARE your negativity and enjoy the act of meeting needs instead of lamenting the world's failure to meet them for you.

