

# Your brain's guide on how not to screw up your life

By Irene Smith (aka The Brain)

Hello! Your brain here! There is some stuff you really need to know about me.

First of all, I'm the most important body part you've got; yep, even more important than the other one you're thinking of right now.

I know that sounds pretty *narcissistic*, but basically I control everything about you.

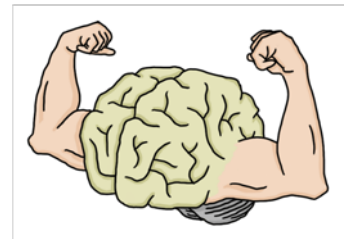
I can make you stop breathing, stop thinking, stop communicating, stop feeling. Sometimes that might seem pretty nice when you are feeling really down, but it's not, I promise.

The world is full of great opportunities for you. If you allow me, I will show you the best scents to breathe in, I can work with you to think up lots of amazing things and help you to recognize and understand important ideas, concepts and emotions. I will protect you from danger. I can help you compose powerful ideas and help you say things that influence others.

Although I help you feel pain and sadness, I also help you feel powerful, accomplished and joyful and amazing. You've got a lot of that good stuff ahead of you if we work together to design and build your life story.

If you hurt me, you will lose control of something, you could even destroy your ability to control your own life. My power to give you a happy life depends on some basics in brain care. That's why I wrote this book.

## I'm the best



Narcissistic= being in love with yourself or obsessed with your own awesomeness.

*In Greek mythology Narcissus was a hunter who was super proud of his good looks and rude to others who loved him. He ended up starving to death because he couldn't bear to stop staring at his own reflection in a pool of water. He had a self image problem! Ha Ha, get it? I did, so you must have.*



*The Narcissus flower grows near water. Echo was a nymph who fell in love with Narcissus and hid out in a cave after he rejected her. That's why if you call out Echo in a cave, she answers you. Sad life....*

Unlike yours. **If you consider my advice, together we will write your life story, preferably with a happy ending.**

# How my system works

I have three basic parts + a communication network that connects everything:

1. **The brain stem**, is what I use to keep our heart beating, our lungs breathing, and for sleeping. These things happen pretty much *automatically*, which is a good thing, cause it would be tough if we “forgot” to breathe or keep our heart beating!
2. **My cerebral cortex (or neocortex,)** the gray loopy looking stuff, has different areas for different jobs. Different areas take care of different information from our senses- seeing, hearing, tasting, touching, smelling, feeling, etc.

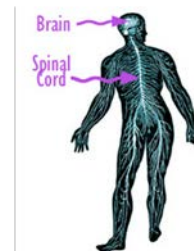
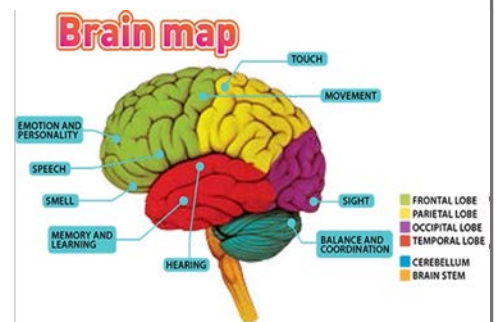
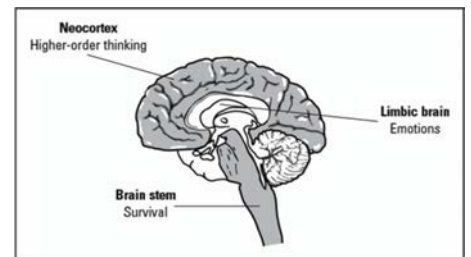
The front part of my cortex powers our ability to think things through, to plan, to solve problems and make decisions. It’s the logic center that helps us be in charge of your life.

Also, below the cortex, our **cerebellum** keeps us from falling over and helps us in sports; it controls our movements and balance.

3. Finally, our **limbic system** has our reward/pleasure controls. It’s deep inside the cortex, and it hooks parts of the brain together to police and orchestrate our ability to feel gratification. **Pleasure motivates us to repeat activities that are *critical* and have importance** - eating and forming caring relationships, for example. It’s the carrot from the carrot and stick story. This system controls how we feel

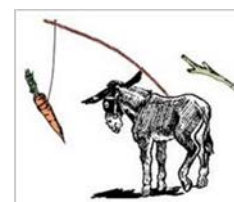
## My different parts

Automatic= happening without control from another source. You don’t have to think about it. It just happens on its own.



Critical= so very important, that without it, disaster (possibly DEATH) happens!

Carrot and stick:



Donkey walks toward the carrot and away from the stick.

emotions, both the good ones and the bad ones. We tend to avoid what causes us discomfort and repeat what brings us joy. Often this learning happens at a subconscious level. We don't even realize why we are doing what we are doing. My limbic system can be high-jacked by compulsive behavior.

Finally, it's important to understand the concept of plasticity. Every experience/moment we have triggers changes in our neurons, affecting how they connect to one another. Plasticity means that I, your brain, am literally made up of memories, constantly changing, adding, relating, and remaking me. **Plasticity means I am ever changing/evolving/becoming different by what we experience.**

**The Communication Network:** For my different brain parts to communicate with each other, I have billions of *neurons* (nerve cells) connected to each other to pass messages back and forth between my brain parts, our spinal cord, and nerves throughout our whole body.

Our **nerve network** coordinates everything we think, feel, and do. Pinch yourself and your nerves will react. Do it! Ouch!

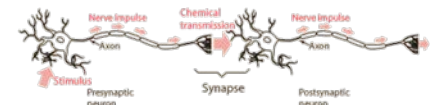
It's amazingly fast. Each brain neuron sends and receives messages, electrical and chemical signals. *Neurotransmitters* send chemical messages between neurons.

**Yep, your body is full of electricity and chemicals!**

*Receptors* and *Transporters* are also part of the system.

All of these things work together in a highly complicated and not fully understood way.

You are full of it!



**Neurons**= You have billions of these nerve cells in your body that are all connected to each other.

**Neurotransmitters**= Chemical messengers that move signals through the body.

**Receptors** get the messages and send them to the right location in the brain.

**Transporters** carry the message and turn everything off when it's been delivered.



**Intricate**= having many small and complicated parts

Check me out! I am amazing, *intricate*, and beautiful.

Some of my natural brain molecules/chemicals that we like a lot are:

**Dopamine**- responsible for helping us feel rewarded and feel pleasure. You naturally have dopamine released when you set goals for yourself and reach them. Video games and gambling flood me with dopamine as you increase levels or win something. Cocaine and Meth force dopamine to stay in users' systems longer, giving them a false sense of being rewarded, but users require more and more over time in order to get the same "high." It's a terrible trap!

**Endorphins**: These are released when a person is physically active and when they are having sexual activity and even through acupuncture.

**Oxytocin**- is directly related to human connections, trust and loyalty. It is released when people have affection for each other and is increased by skin to skin contact. The release of oxytocin helps us feel happy and empathetic. Texting and connecting on technology does not release oxytocin in the same way as being with friends and loved ones.

**GABA**- is a molecule that slows neuron responses and creates a sense of calmness. You get it naturally from yoga and meditation. It's a great way to help you get over anxiety without needing drugs that may cause dependency.

**Serotonin** is the confidence molecule. It plays many different roles in our body. It helps us feel a sense of worthiness and belonging. The best way to increase serotonin is to challenge yourself with things that help you feel accomplished and provide a sense of purpose. Doing kind things for others, like providing service in our communities, can reward us with a release of serotonin. When our serotonin levels are too low we feel depressed and tired.

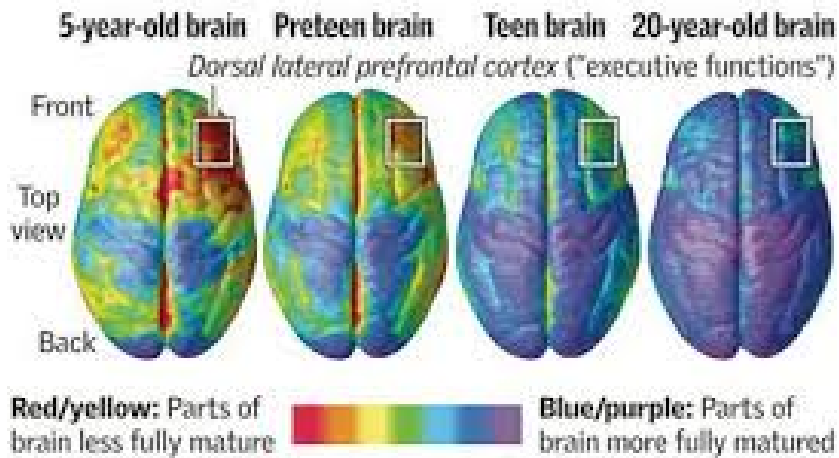
**Adrenaline=epinephrine** causes us to feel excited and gives us a surge of energy. It increases our heart rate and blood pressure and sends blood to larger muscles. We experience it in scary or risky situations and it chases away boredom. It's meant to save us from danger, but some people do stupid things in order to feel its effects. Exciting games can stimulate the release of adrenaline, but too much adrenaline is actually harmful for our bodies.

# It's all about BALANCE.



If you want to feel good, you have to keep my chemistry in balance! It's not that hard. You just have avoid going overboard on things. **ARE YOU STILL LISTENING** or did all that chemistry technical mumbo jumbo make you tune out?????????

Because you are young, my prefrontal cortex is still in the process of developing, and that's pretty important because it is in that area where you will make choices that have a lot of importance for your life. **As a younger person, you are more likely to be ruled by emotions and feelings than by logically thinking things through**, so I'm going to help you help me, in hopes that you are less likely to do something stupid that hurts both of us.



Sources: National Institute of Mental Health; Paul Thompson, Ph.D., UCLA Laboratory of Neuro Imaging

Thomas McKay | The Denver Post

## The elephant and the rider

It's kind of like a person riding an elephant. The elephant is emotions and the rider is logic. It's best when the rider and the elephant work together to go somewhere, because if the elephant takes off there isn't much the rider can do but hang on!



Logic means examining something without getting over emotional, weighing the pros and cons.

Pros are the positives, the reasons FOR something.

Cons are the negatives, the reasons AGAINST something.

**BE HONEST!** When is the last time you said something you didn't mean to say and hurt someone's feelings because you were being emotional? Maybe it was to your mother, "I want that cookie! I hate you! You never let me have any fun!" In that instance, your elephant got away and emotion ran away without logic slowing it down.

Time to start growing up and helping me grow that prefrontal cortex. It will help you avoid regret.

## THINK ABOUT IT!

When you use brilliant me to think things through logically, you usually make the right choice. That's why it's important to have all the information you can about something.

Let's use **smoking** cigarettes as an example.

The **Pros** for smoking might be:

Some people think it looks cool. It's a way to relax. If your friends are smokers, it's a way to connect with them. Smoking can cause you to lose weight.

The **Cons** for smoking (even e cigarettes) are:

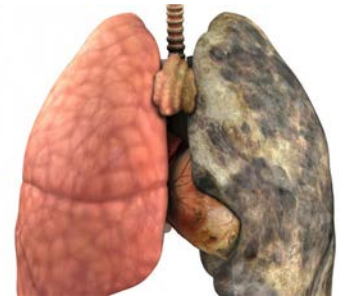
It causes cancer. It smells bad. Many people don't want to be around it. It makes teeth yellow. It gives the smoker bad breath. It's highly addictive.

Most people would feel that the seriousness of the cons outweighs the pros when it comes to smoking.

Especially since a cigarette addiction makes it very very difficult to quit. When you can't quit something even when you really want to, that's an addiction.

Dictionary.com says that an addiction is the state of being enslaved to something. Slavery!

Weigh your options



Which do you think is the healthy lung and which do you think is the smoker's lung?



If you were only using the emotional part of me, your brain, and a good friend wanted you to share a cigarette, you might decide that trying cigarettes is worth the risk. After all, it's hard to say no to a friend. Emotionally, we sometimes worry about what others might say or whether we could lose them from our lives. Sometimes making the logical choice is not as exciting. However, the logical choice is almost always the smartest/best choice.

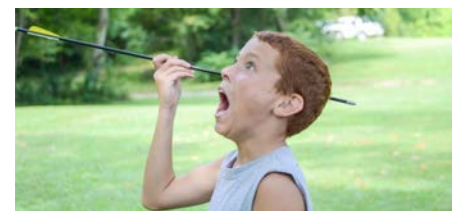
There are lots of true stories of young people who made the emotional (chemically exciting) choice to try something foolish and either hurt their brains or ended up dead. A 15 year old boy was killed playing "dodging arrows" (real arrows shot from a bow held by a "friend") and was shot in the head. I credit myself that you will use me more effectively than he apparently did.

I'm not saying you shouldn't take some risks- try things that are difficult, learn a new sport, make yourself vulnerable in the arena of love with someone who has earned your trust.... However, risks with your body can have super long term consequences, so I want you to have all the facts about some of the big risks to you and me. The big risks are not worth taking.

### COMPULSIVE BEHAVIOR and ADDICTION

As I mentioned before, addiction is something you want to avoid. It's something we brains are most afraid of. *Compulsive behavior* is something that you feel like you have to do. **Addiction means that the control center becomes overcontrolling.** No matter how bad you might want to stop doing something, your brain tells you that you have to keep doing it. You can ruin your health, your friendships, your love life, everything and hate yourself for it, but you still can't stop yourself.

Weigh your options



It's only funny when it's not real.

**Compulsive:** Being trapped in a pattern of repetitive and senseless thinking with behaviors that are difficult to overcome.



I'm not perfect. I do hate to admit that. Certain things can make me a bit defective. As your brain, I need you to be aware that there are certain things that are easy to become dependent on and possibly even become addicted to. Some addictions happen rapidly because of their chemical nature. Other addictions can happen over time when we form habits, spending a lot of time with something that gives us a chemical response. I become used to using certain items or doing certain activities to comfort myself or make myself feel good or excited, and it can make me want to keep repeating it, even when I have discovered that it is hurting us. Some things are more likely to lead to compulsions and addictions.

Remember how I told you that there is a pleasure center in our limbic system that controls our motivation to do things by rewarding us with good feelings so we repeat those things that are critical for our survival?

Food is necessary. The pleasure we get from eating it helps keep us alive, but it can also cause us to eat too much. Too much of certain foods can lead to a food addiction, or maybe just to forming really bad, unhealthy habits. Certain foods, particularly **sugars and fats** are more satisfying to eat because they affect certain nerve cells in our cerebral cortex.

Research on rats shows that when a rat gobbles down a Oreo, this group of nerve cells gets soaked in dopamine (the neurotransmitter that sends you that feel-good message.) Too much dopamine, unfortunately, can lead this system to become overwhelmed and then it shuts down, mainly by shutting down receptor cells for the dopamine. That means the rat (or the person) needs more and more Oreos in order to feel the same amount of satisfaction. (By the way, rats like to take apart their Oreos and eat the middle part first. Can't you just picture how adorable that is?) Fortunately, food addictions or bad food habits don't seem to lead people to steal and cheat the way some other addictions do, but the damage they do to people's bodies is very real.

If you listen to my advice about eating healthy and avoiding too many fats and sugars, you probably won't become a giant fat person, and your heart will like me better. Since your heart gives me love in the form of oxygen, I'd like to stay on her good side.

**Addictions can be to things we take into our bodies, like drugs and alcohol. But they can be to other things too, stuff that we enjoy doing, like gambling, sexual**



**activity, computer games, Internet use, shopping, and exercise.** Exercise addictions don't usually bother other people the way some expensive addictions do, but being obsessed with how your body looks could become a problem. Remember, the key is balance.

Some people are more likely to have trouble with certain things and others aren't as much at risk. There seems to be a genetic link to some addictions.

It used to be that people only considered certain substances to be addictive because they would get into the blood stream and temporarily change the chemical balance of the brain (stuff like alcohol, tobacco and some drugs.)

The list of addictions has grown because psychologists now know that our own body chemistry can be used to make us addicted to things without our ever having used any extra drug or chemical. **Becoming dependent on a substance or an activity can ruin our life if it becomes harmful to our body or causes feelings of guilt, shame, fear, embarrassment, or hopelessness because we can't easily stop it. Instead we have become dependent on it to cope with life.** Yep, that's slavery.

Unfortunately, advertisers and game makers know how to get us to buy and use their products. If you are addicted to something, say coffee or World of Warcraft, you are making someone somewhere some money. They know this and use brain research to increase their profits. **You are a target** unless you recognize how to avoid addiction. We are too smart for you to be sucked into their trap!

Remember how I mentioned brain chemistry and survival? I know you probably don't want me to bring this up. In fact, when your mother tried to mention it, you both got all red faced and awkward about it. The fact is sex is a survival instinct. There, I said it. Sexual activity is how humans keep adding more humans to the earth. If it wasn't fun, people wouldn't be doing so much of it. However, sexual activity has strong brain chemistry associated with it.

Your body is awesome, and you should never be ashamed of what we are encased in. However, brain chemistry is activated when you see something sexually stimulating- lots of exposed skin for example. That is completely healthy and natural. What becomes a problem is when you develop a compulsion. You begin thinking about it over other things that are more important to day to day life.

Unfortunately, spending time with those sexual feelings associates the other parts of me, your brain, with what is getting those chemicals going. So, if you are looking at a photograph or watching a video, you get the brain chemicals for pleasure but not the brain chemicals that satisfy our need for love and caring. In fact, the chemistry is so powerful, you can start feeling like you need to see more and more sexual images. Your tolerance to what you are seeing builds up (which means you get less pleasure out of the experience) and then you might start wanting to see images that are more extreme, possibly containing violence or illegal activity. Stuff that is shocking adds to the brain chemicals that flood in.

I wouldn't want to cause you trouble, but the chemistry is just too powerful. It affects how you look at others. You may begin staring at people's body parts and instead of thinking about them as people who deserve respect, instead you consider them objects for your own sexual stimulation, and that's just rude! Plus it hurts relationships down the road when addicted individuals find themselves unable to relate or get the appropriate feelings of love, connection and pleasure when they are with a real person. People with sexual compulsions or addictions often find themselves critical of the people around them and irritated by their other previously enjoyable activities.

You should postpone sexual activity until you are old enough to consider the big questions like: Is my heart/age ready for the powerful emotions and chemistry associated with sex? Am I ready for the big decisions that come with baby-making activities? Do I know how to protect myself from someone who wants to use me?

I know it's hard to avoid sexual images and references. You live in the Internet age! Plus people tend to push stuff in your face when they want to appear "mature" and "edgy" and "cool." If you are careful about this stuff, call it what it is, "No, that's pornography and I'm not interested," and move on, you can keep yourself ready for that joy of holding hands and touching someone you love who loves you in return. I'd love to keep all that great chemistry ready to work properly for the right moments.

# Avoiding Addiction

**Balance.** Avoiding addiction can be as simple as remembering the balance idea we talked about earlier. The ancient Greeks encouraged people to avoid excess (too much of anything.) I love it when you and I find something interesting and exciting. When we are having fun. There's lots of stuff we can do. Physical activities like sports or just getting outside, preferably in nature, is something our body craves.

When you focus on one thing all the time, like gaming, for example, you create a deep pathway in me that has you thinking about that one thing all the time. You need to create different, additional pathways that prevent that one thing from taking over your thinking.

**Emotional regulation.** Get yourself together! Sometimes you get on that rampaging elephant and let your overwhelmed, sad or hurtful thoughts take over. You freak out, imagining the worst, calling yourself and others names, and generally making mayhem. It's important to manage stress and anxiety in a healthy way. That isn't the healthy way.

The way to deal with stress and anxiety is to deal with them before they get too intense. Pay attention to your needs and feelings. Calm yourself in a healthy way before things get too bad. You have to use the thinking side of me and get out of the limbic system. BLAST it! What I mean is: When you are Bored, Lonely, Angry, Stressed, or Tired, you are more vulnerable. Also, when you are hungry. And let's face it. You are usually hungry. So you need to do something about those feelings early. First you have to notice what you are feeling. Identify it. Then do something about it.

When you are just beginning to feel stressed or you are in a stressful situation (like taking a test,) stimulating one or more of your senses (Touch, Smell, Vision, Hearing, Taste) is a way to deal with it.

Fidgeting items are great for stimulating your sense of touch (clicking a pen, squeezing a stress ball, rubbing a rock or fleece fabric.) Listen to calming music. Breathe deeply and concentrate on your breaths. Think about calming places or people. Read something that provides lots of ideas and good questions. Do

something nice for someone else so I'm not spinning around thinking about us and our problems. Find things you care deeply about.

Unfortunately, when dealing with stress it's easy to find solutions that actually can lead to addiction. Gaming is a great way to forget your troubles and it stimulates several senses. Unfortunately, unless you remember the Balance idea, above, you can get yourself into trouble. Don't always keep doing the same thing to cope or you'll create that deep pathway that leads to addiction. Most compulsions and addictions start as a way of coping with stress.

**Talk with supportive people.** The connections we make with people who care about us are pretty important. Feeling isolated and alone is physically painful but is also a normal part of life that needs to be dealt with. It's important to find others you can trust, with whom you can be vulnerable. Being a caring, trust-worthy person yourself makes it easier to find those kind of relationships. Having others in your life may bring you problems sometimes (like that pesky sister or that friend who chews with his mouth open,) but they are totally worth it. Those relationships provide the feel good, healthy chemistry I love.

**Don't hide what you are doing from others.** Keeping secrets and hiding activity leads to shame and shame can be a huge factor in addiction. If you are uncomfortable with choices you are making, it's best to talk to someone you trust about that. Everyone eats too much sometimes, or does something awkward or uncomfortable. When we admit that we have made mistakes, it can actually make other people feel more comfortable around us, and it keeps that "secret" from damaging us.

**Get help if you feel like you are out of control.** Everybody has stuff that is out of balance. We have some stuff we like better than other stuff. Cookies are better than liver. Given a choice between the two, I'm taking the cookies, even if I know they are going to make me fat. But most choices aren't like that. Most of the time, we have lots of options.

Out of control stuff can be put back in control, especially if you catch it soon enough.

Take it from me, we are going to have a great future!

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