

Addiction, the Brain, and Recovery: From Seeking Escape to Seeking Healing and Happiness

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Introduction

What are the goals of this handout? One is to give some basic information about your brain – information that makes sense to you, as a human being and a unique individual, and that helps you make sense of your life. Another is to provide, based on knowledge of how our brains work, guidance for recovering from addiction and finding the happiness that you want and deserve.

The human brain is the most complex organ in the body. It enables us to interpret and respond to everything happening in the environment and in our bodies. It underlies our emotions and thoughts, our habitual behaviors, and our abilities to choose healthy or unhealthy actions.

Addiction, whether to substances or to behaviors, affects brain circuitries that are essential to learning, having emotions, making decisions, being healthy and happy – or unhealthy and suffering. (“Circuitry,” the only technical term here, just means collection of brain areas that work together to do certain things.)

Key Brain Systems Affected by Addiction

The Emotional Brain. This collection of brain circuitries plays the biggest role in generating our emotions and behaviors, since most of our behaviors are habits of avoiding what we don’t want and seeking what we do want. The emotional brain includes **four key interconnected brain circuitries**:

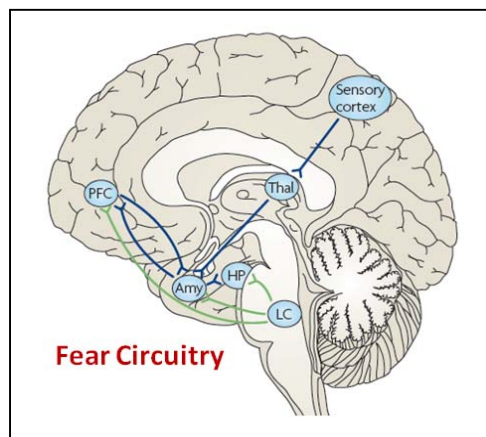
1. **Fear Circuitry.** This circuitry, especially a structure called the amygdala, causes fear to arise. It also triggers fear responses, including adrenaline release and a pounding heart, and fear reflexes like freezing or spacing out.

It’s the fear circuitry that runs the show when bombs start falling or bullets start flying. It’s the fear circuitry that drives behavior when someone is being attacked or beaten, or when something about a sexual experience, even with a person who is loving and safe, triggers a memory of childhood sexual abuse that causes one to suddenly disconnect and “shut down.”

Important: The fear circuitry isn’t only for what terrifies and traumatizes us. It’s triggered by anything we find unpleasant and want to avoid. In fact, our brains are constantly, automatically – and mostly without our awareness – “tagging” things as unpleasant and unwanted, thus things to escape.

When unwanted and feared emotions like sadness, loneliness or shame get triggered, even if we barely notice them, our brain may seek to escape into addictive experiences.

Many people have been hurt in important relationships, especially as children – for example, repeatedly having hopes dashed that someone would not abandon or betray them. When



What do you want to avoid?

Which feelings? Which thoughts?

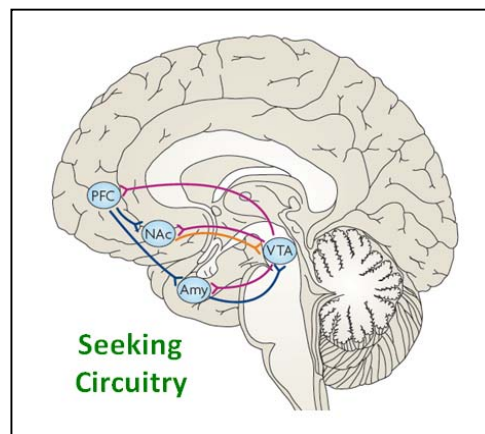
Which memories? In relationships?

When you think about your life?

that's the case, even "positive" experiences with other people, like being praised or reached out to in a caring or loving way, can be scary and unwanted and send the fear circuitry into action.

2. **Seeking Circuitry.** This is part of the brain's "reward circuitry," which plays a central role in addiction. It's what enables us to expect, want, and seek anything. That could be the next hit of crack, the next pain pill or injection of heroin, the next beer, glass of wine or mixed drink, or the next porn video. It could be the next affectionate comment from a girlfriend, boyfriend, spouse or partner, the next praise from a co-worker or supervisor, or the next big goal in our lives. When we strive to fulfill our highest moral, religious and spiritual values and goals, this circuitry helps us do it.

Quick fixes. For people with addictions, the brain's seeking circuitry gets overly focused on – even enslaved to – "quick fixes." These fixes can be intoxicated states or any experience that is sought to escape from suffering. Unfortunately, as anyone who's struggled with addiction knows, such escapes tend to be brief, not fulfilling in a lasting way – and cause more problems than they solve.



Addictive substances can have directly harmful effects on this circuitry. These include making it less responsive to the addictive substance (i.e., tolerance) and highly responsive to anything related to the substance and its intoxicating effects (i.e., triggers of craving like seeing a beer or a bar).

Dopamine is the key brain chemical in the seeking circuitry.

The pleasure of seeking. The seeking circuitry is involved in the pleasures of seeking and expecting, and the excitement of both. But such "anticipatory pleasure" is only one kind of pleasure; it's very different from the pleasure of satisfaction from getting what we've sought. There's a difference between the pleasure of anticipating eating a hot fudge sundae and the pleasure of actually eating it. As you know, the same is true for any addictive substance or behavior. However, some substances (e.g., cocaine, meth) and behaviors (e.g., gambling) are addictive precisely because they increase anticipatory pleasure or the pleasure of seeking itself, whatever one happens to be seeking while high (e.g., fun, sex, power, praise, etc.).

What are you seeking?

For real, in what you do every day.

Quick fixes to escape the bad stuff?

What can bring lasting happiness?

Love? Serenity? To be a better __?

Things you're ashamed of?

Your highest values and goals?

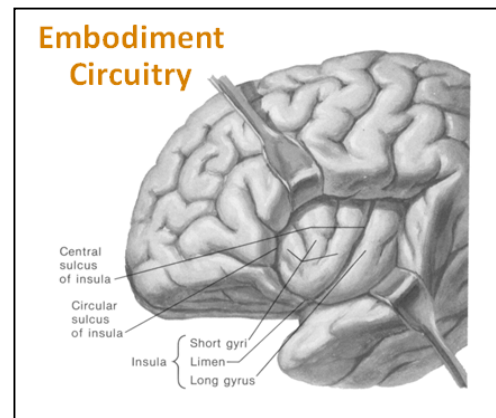
Seeking imaginary rewards. Stop reading this and stop thinking about what you're reading. Notice what you start thinking about, automatically, without even trying... Did you think about things that are going on in your life? Things you want to happen? Things you don't want to happen? Did you run through scenarios and plans in your head? We all do this, all the time. Brain researchers call it the "default mode" of the human brain, because it's what our brain's do when they're not fully absorbed in something else. When we step back and look at those thoughts and images of our daydreams, memories and plans, we can see what they revolve around: Seeking hoped for and imaginary rewards – of escape from things we don't want to happen or wish hadn't already happened, and of getting things we do want to happen – in our personal and school or work lives.

In short, the seeking circuitry is constantly active, often in response to the fear circuitry getting triggered. It's constantly driving our thoughts, feelings and behaviors.

3. **Satisfaction Circuitry.** This is the other key component of the brain’s “reward circuitry,” which is just as important as the seeking circuitry – especially in addictions. This circuitry is responsible for feelings of satisfaction and contentment. It enables us to feel safe and truly connected with another person. When life is going well, this circuitry gives us the deeply fulfilling pleasures of feeling loved and happy in truly satisfying ways. Any time we feel satisfied in a contented way, this circuitry is involved.

Opiates are the key brain chemicals in this circuit. They are produced by the brain itself, as in the “endogenous opiates” of “runner’s high” (and feeling loved). But opiates from outside the body – whether injected, snorted, or in pain pills – also act directly on this circuitry. That’s why the highs of opiate drugs involve intense (if short-lived) feelings of great satisfaction and well-being, even bliss.

4. **Embodiment Circuitry.** This circuitry allows us to know what it feels like to be in our bodies. Even if we’re not aware of body sensations – including not aware of the sensations that go with emotions, which is true for many people with addictions – this circuitry still registers body sensations. It also triggers brain responses to those body sensations, especially in the fear and seeking circuitries. A key part is the insular cortex or insula (pictured on right), the only brain area that brings together all information coming to the brain from the body (e.g., sensations of movement, touch, tension, pain, pleasure, etc.).



Body sensations drive craving. That information from the body includes unpleasant and unwanted sensations – like those of anxiety, sadness, shame, and of course, withdrawal from an addictive substance. Such sensations are big drivers of craving, both to use substances and to engage in addictive behaviors, which can involve things like sex, food, gambling, playing video games, or work. For example, scientists found that when people addicted to cigarettes suffered brain damage, damage to the insular cortex (but not other brain areas) led to quitting smoking – suddenly, completely, and *without even trying*. Asked why, those with damage to this key part of the embodiment circuitry said things like, “My body forgot the urge to smoke.”

Fearing body experiences. Clearly addiction involves this circuitry. People who struggle with addictions tend to fear – and not be aware of – much of what’s happening in their bodies. This can especially be the case when something triggers an unwanted emotion like fear, sadness, or shame.

How is it being in your body?

Do you notice much? When?

Unpleasant? Scary? Miserable?

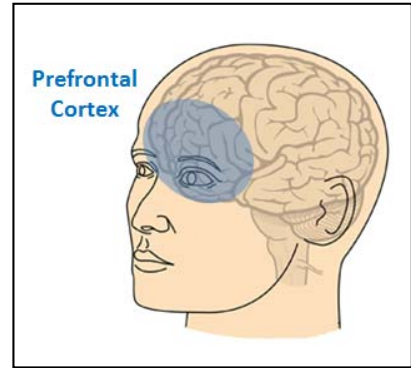
Pleasant? Safe? Playful? Joyful?

Seeking escape. People struggling with addictions seek to escape such unwanted sensations and feelings in their bodies, often in temporary ways that end up causing more problems. Lacking the right combination – for them, as unique individuals – of safety, support and skills, they don’t focus their seeking circuitry on understanding and transforming feared emotional experiences in their bodies. Many don’t even realize that’s possible. But it is.

Seeking healthy, satisfying and happy embodiment. It is possible to transform how you experience your body. You can have safe, satisfying, even loving and joyful experiences of being in your body. The answer isn’t shutting down or blocking out that circuitry, by seeking escape from unwanted body experiences. The answer is to occupy your embodiment circuitry, more and more, with “the good stuff” – the body experiences of health, satisfaction, and happiness. This is a key to overcoming addictions of all kinds.

Prefrontal Cortex. This brain area allows us to think, plan, solve problems, imagine the future, remember our highest values and goals, and make decisions. It's connected to the four circuitries described above, and plays a big role in emotional experience and behavior.

When we feel safe, and have enough support and skills, our prefrontal cortex allows us to tolerate, understand, and manage painful and unwanted feelings. It also helps us resist and overcome unhealthy habits and impulses.



These are called “self-regulation capacities,” and we need them to recover from addiction. We develop – and can increase – these prefrontal cortex abilities in relationships. For example, we first learn how to manage our fears and cravings from how our parents manage theirs, and how they relate to our feelings and behaviors. Those and other important relationships (however healthy or unhealthy) determine the capacities and the habits of our prefrontal cortex.

Unfortunately, some addictive substances damage this brain area. Fortunately, because the human brain has an amazing ability to rewire and heal, in most cases such damage is only temporary. Either way, we may have a lot more to learn. That's why therapy, counseling, 12-step programs, and other ways of learning self-regulation skills can be so important.

Why Do Different People Get Addicted to Different Substances and Behaviors?

Different people have different genes that shape their brains, different personalities, and different childhoods. They have different kinds of pain and suffering that they want to escape. They have different kinds of positive experiences that they like more than others. So different people's seeking circuitries can get overly focused on escaping certain kinds of pain and suffering, in certain ways.

For example, some people's parents were overwhelmed and unable to provide them with much affection or love. That can lead to extreme feelings of dissatisfaction with relationships and with life itself, or lots of anger at themselves, or anger about how life feels so bad for them. This can make the highs from heroin or prescription opiate pills – with their great satisfaction, and calm and soothing feelings – very appealing.

What about people who are usually depressed and unable to get excited or motivated about anything? They may love the cocaine high or meth high, with the exciting and energizing “I-can-do-anything” feelings of power and effectiveness. They may like how those drugs can super-charge sexual and other experiences, which are otherwise unappealing or a let-down. What about someone who's usually in a “go-go-go” state, seeking thrills or accomplishments? He or she may seek cocaine or meth to avoid losing that experience (and becoming depressed).

People use alcohol in different ways, in attempts to “solve” different problems and seek out different things. Someone who feels very anxious and afraid of being social, or getting close to other people, may use alcohol to reduce their fear and loosen up. Another person may struggle with terrible memories and feelings about past traumas (e.g., child abuse, a bad accident, domestic violence) or about past losses (e.g., a loved one or a good job). If so, they may get extremely drunk, even black out, to “forget about their problems.”

Marijuana too can serve different purposes for different people, giving them experiences of escape that they addictively seek. Some people like the way marijuana lets them get totally absorbed in music, video games, television, or whatever – so they can escape from their usual worries and bad feelings. Others like

the way marijuana lets them get lost in all kinds of “great ideas” and insights (although once the high wears off, few of those ideas may be remembered or, even if they are, be that great after all).

Everyone struggling with addiction is different. All have things in common, of course, like seeking to escape their own unique pain and suffering. Everyone with an addiction has sought escape in particular ways, and sought particular wanted experiences, whether with substances and/or behaviors.

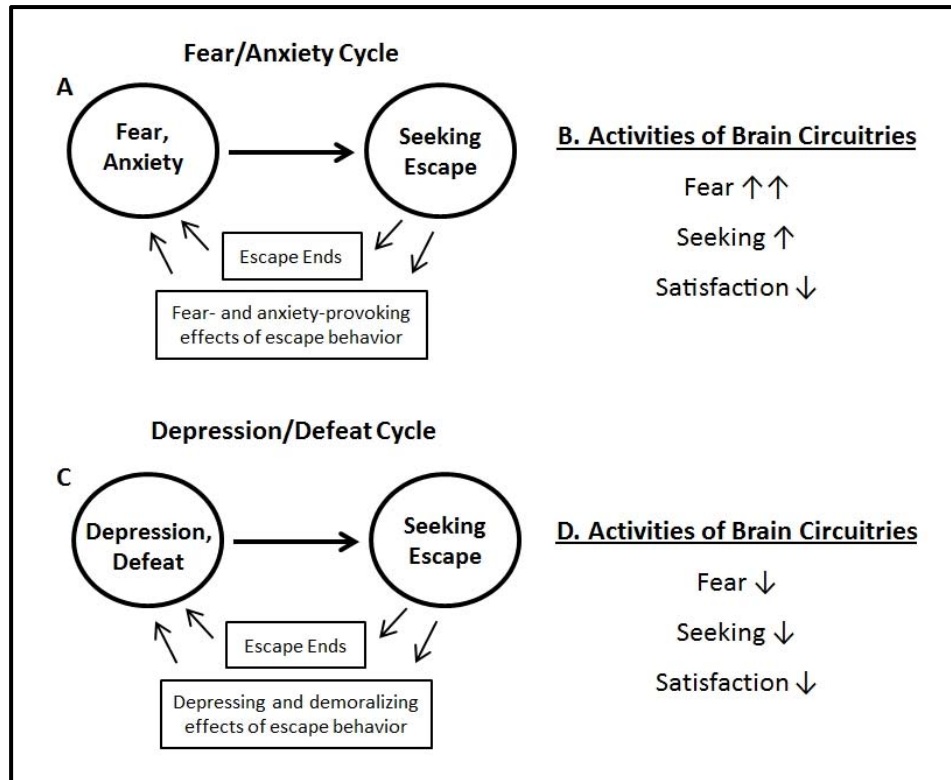
The Cycle of Suffering and Addiction

Everyone caught in the cycle of addiction is also caught in a cycle of suffering: Attempting to escape suffering with quick fixes that don’t really address problems, let alone bring genuine and lasting satisfaction and happiness. In addition to not solving one’s problems, the addiction ends up causing more problems and suffering, followed by seeking escape with an addictive substance or behavior...

This cycle may take various forms, but when it comes to the brain, it’s the same circuitries doing the same basic things. So long as one’s seeking circuitry is focused on escaping pain and suffering that one fears, rather than on seeking experiences and goals that are truly satisfying and fulfilling, one is caught in the cycle of suffering.

Missing from the diagram, of course, is the satisfaction circuitry, because there’s little satisfaction – of love, serenity, play, joy – in the suffering cycle.

There are paths out of this cycle. Many others have traveled those paths. You can too.



Cycles of Recovery and Healing

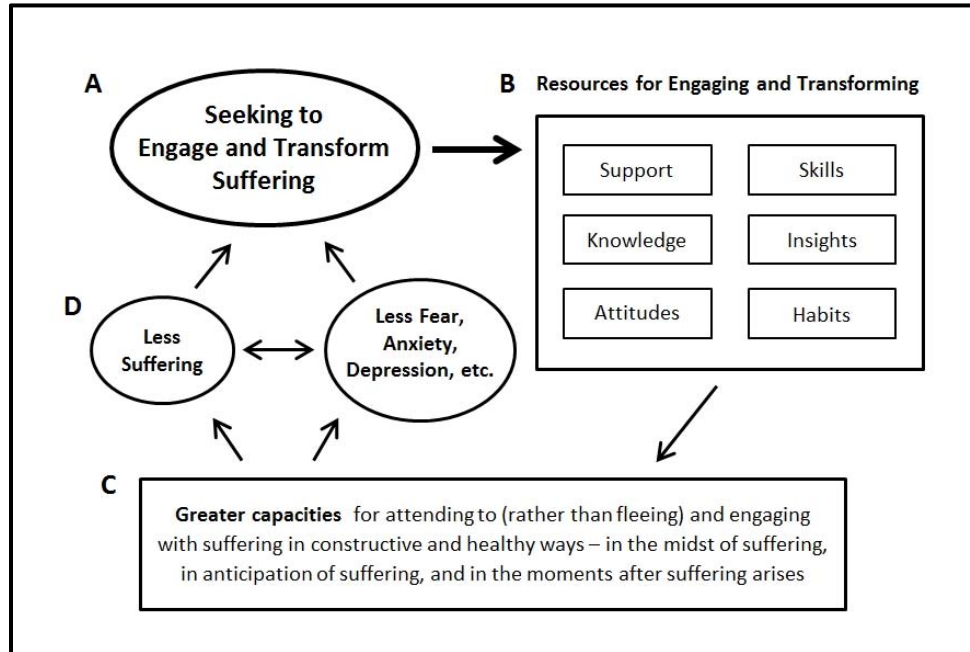
The keys to recovery and healing are focusing one’s seeking circuitry on pursuing things that are genuinely healing and things that are truly satisfying and fulfilling.

This requires support, and skills, that are right for each unique person struggling with addiction. It requires inspiration and hope. It requires getting back on track, by making one’s highest values and goals one’s highest priorities.

From the brain perspective, there are two key cycles of healing. Both are about where the seeking circuitry gets focused, and how that changes relationships among the seeking, fear, satisfaction and embodiment circuitries.

Healing cycle: Transform suffering. The first brain-based healing cycle is about seeking to know, tolerate, understand, and make positive use of pain and suffering.

What this means for anyone in particular will always be very individual. For some, seeking to know and understand their suffering means lots of work with a therapist or counselor. For others, it's about sharing with family and friends, with members of Alcoholics Anonymous or Narcotics Anonymous, or with a sponsor. For others it means



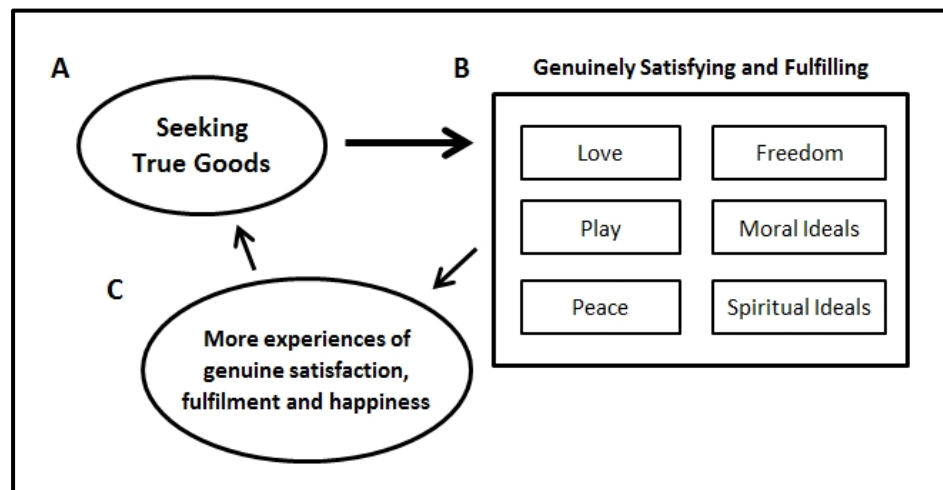
writing about their experiences of pain and suffering, or expressing them artistically in some way.

Whatever works for you, it's about seeking to engage with pain, suffering and unwanted experiences *in healthy and healing ways that decrease suffering and addiction*. It does take support. It requires learning new skills, especially by developing and habitually using the self-understanding and self-regulation capacities of your prefrontal cortex.

Yes, it's difficult and painful at times. But the payoff is huge. You can live in much less fear. You can find courage and strength inside that you didn't even realize were there. You can free up your brain's seeking circuitry to go after much more satisfying and fulfilling things in life, which will bring more happiness and health than you ever dared to dream was possible. Which brings us to...

Healing cycle: Seek true goods. Fortunately, recovery and healing aren't all about seeking to deal more effectively with pain and suffering. That wouldn't be very appealing or inspiring, would it?

The second key healing cycle is about harnessing that brain circuitry of seeking, which is such a powerful driver of our thoughts and behaviors, to seeking out the truly "good things in life." We're not talking about nice or expensive things you see on TV or can buy with lots of money. We're talking about love, peace, serenity, playfulness, and joy. We're talking about the kind of happiness and satisfaction that come



from being a good friend, a good spouse or partner, a good parent, a competent and successful worker or contributor to one's community.

Each person needs to sort out what truly makes them happy. What they find to be the greatest goods in life, the things they most deeply value and find the most satisfying to experience. It may take some time. It will take the support of others, especially people who don't judge your values or push you to adopt theirs, but instead give you the space, as well as the inspiration, to sort things out for yourself.

But as you see in the diagram above, it's about realigning your brain's seeking circuitry with your deepest needs and longings. It's about seeking what's genuinely satisfying and fulfilling for you, and spending more and more time experiencing that satisfaction and fulfillment.

The more you activate the brain's satisfaction circuitry, and have the healthy and happy *body experiences* that go with that activation, the less power the fear and seeking circuitries will have over you. The activity of those circuits will actually be reduced. They'll have less of a grip on your brain. You won't be enslaved to fearing and seeking, to the cycle of suffering and addiction.

Instead, with increasingly supportive and loving relationships, and increasing satisfaction with your life (despite the inevitable setbacks), you'll put naturally arising fear and seeking to good use: Avoiding what brings suffering, and pursuing what reduces suffering and brings true health and happiness.

Worksheet: From Seeking Escape to Seeking Healing and Happiness

What are your favorite addictive substances, and why?

What are your favorite addictive behaviors, and why?

What are you fearing and avoiding – seeking to escape?

Which individual people and groups give you the most and best support for recovery and healing? How?

What kinds of skills do you most need to deal with pain and suffering in healthy ways? To manage your fears and cravings?

If you are (to some extent) not sure what skills you need, who can help you find out? Who can help you to develop those skills?

What will really make you happy? What is most important to you? What will bring more love into your life? More playfulness? More peace? More acceptance? (And reduce your fear and craving for escape?)

What do the images of “healing cycles” mean to you?
