

The Revolutionary, Science-Based  
Alcoholism and Addiction Recovery Program

# Healing<sup>the</sup> Addicted Brain

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*To my wife, Christi, and two sons, Chance and Carr, for encouraging  
me to write a book that would really make a difference.*



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# Introduction

Addiction is a lifelong disease, and to many who are caught in its web, it can seem like finding the right treatment takes just about as long.

If you're struggling with addiction, there's a good chance you've already seen several physicians and psychologists, have been through an inpatient or outpatient ("at home") treatment program, and have had exhaustive rounds of "talking therapy," which you were told was the state-of-the-art approach to curing addiction. Despite all this treatment, you are still addicted. Your work performance is suffering and family relations fraying; you either have screaming fights with your spouse/significant other or have retreated into a sullen, secretive silence. You're still spending much too much money on your habit, and your children are still at risk of physical and emotional damage.

If you're a member of an addict's family, or perhaps a close sober friend, you feel as if you've heard too many failed promises to sober up, covered up too much bad behavior, watched the family be pulled apart and the finances drained, and stood by helplessly as dreams were shattered and the life of the addict slowly slipped away. You've been through the emotional wringer too many times and seen the latest "guaranteed treatment" fail repeatedly. Sometimes you wish you could just walk away from it all—but you know you can't and feel absolutely stuck.

Through it all, whether you're the addict or the family member, you've wondered if there is any point to treatment. Why have your hopes been dashed over and over again? Why not just accept the obvious fact that an addict is an addict, and addiction is ultimately untreatable?

Before they came to me for help, many of my patients and their families feel that way, with good reason. Traditionally, the success rate for addiction treatment was abysmally low. A few of the medicines we had available were effective, but their use was limited or restricted for various reasons. The treatment most health experts pinned their hopes on, talking therapy, was not very successful. As a result, most addicts, their families, and friends were repeatedly disappointed. Understandably, many simply gave up.

I'm here to tell you that you no longer have to feel helpless and hopeless. There *is* hope, new hope that stems from a new scientific understanding of the nature of addiction plus novel medicines that finally allow us to control cravings and fix the physical damage to the brain caused by addiction. We now know that addiction is a chronic brain disease, that brain damage interferes with the addict's ability to respond to talking therapy, and that once the physical brain damage has been repaired, talking therapy and other elements of traditional treatment can be very successful.

We're at the beginning of a new era in addiction medicine, armed with a fresh view of the disease plus high-tech medicines and other treatments that will allow success for up to 90 percent of those who seek help. This is not just a tremendous improvement in the treatment rate; it represents a paradigm shift that will help us to turn the understanding of addiction from a shameful habit that destroys lives into a treatable illness.

I know you may have been disappointed before, but I can tell you that there is good reason for hope. The ideas and treatment concepts described in this book can help you regain your life or that of your loved one.

This book offers a comprehensive look at the new understanding of addiction and its treatment. Reading through it will arm you with the latest treatment information and ideas to help you to get the most from your recovery program—or help a loved one through treatment. However,

space limitations prevented me from providing the many checklists, inventories, worksheets, and even some ideas that I normally make available to my patients. If you would like to see these documents, and learn even more about the latest addiction treatments, look for this symbol throughout the text: . This indicates that there are checklists, inventories, or worksheets, or perhaps additional information, to be found at [www.EnterHealth.com/HealingtheAddictedBrain](http://www.EnterHealth.com/HealingtheAddictedBrain), a state-of-the-art website I developed to provide education and support for alcoholics, addicts, and their families.

The “secret sauce” in this book is science. Through this book, the EnterHealth.com website, the Urschel Recovery Science Institute, and my lectures, I continually strive to introduce the latest scientific research findings into everyday clinical practice. The National Institutes of Health spend hundreds of millions of dollars a year looking for new methods and medications to treat addiction. Unfortunately, the findings from this research rarely make their way into clinical addiction treatment programs. My goal is to change that, immediately and forever. The latest and best research findings on heart disease, diabetes, and other chronic diseases are regularly and rapidly translated into improved clinical practice; it’s time for that to happen in addiction treatment as well.

It’s because of my emphasis on the science of addiction treatment that I call my concepts Recovery Science. As I take you through each of the major topics you need to understand and apply to your own or a loved one’s recovery program, I will interject the latest scientific research into my discussions.

I want to finish this introduction with an important warning. Although you will get the latest information on understanding and treating addiction in this book, it is specifically designed to be used in concert with a real-life treatment program, or the education and support that you will find on [www.EnterHealth.com/HealingtheAddictedBrain](http://www.EnterHealth.com/HealingtheAddictedBrain). You can no more cure addiction with this book alone than you can treat diabetes successfully just by reading a book on that disease. Medicine is a science, but it is also an art that requires applying a variety of important “rules” to different people

with different individual needs. You will learn the overarching treatment concepts and topics in this book, but each person is unique and must be guided by a healthcare provider, therapist/coach, and sponsor who can create a successful addiction recovery program. Learn from this book, share it with your family, sponsor, and healthcare provider, but allow them to help you beat this life-threatening illness. If you do this, your chances of recovery approach 90 percent—an amazing number for any chronic illness.

I won't say it will be easy for you to maintain sobriety, but following the Recovery Science principles and recommendations, it is *doable!*

# It's a Disease!

*Everything you know about addiction treatment is wrong.*

I can safely make this statement to most laypeople—plus an alarmingly large number of health professionals—without fear of being contradicted. Why? Because most people know very little about addiction, and what they *do* know (or think they know) boils down to this: addicts can quit if they really want to; all they have to do is commit wholeheartedly to their treatment, which consists largely of “talking therapy”—individual or group psychotherapy or 12-step programs like Alcoholics Anonymous.

That's the sum total of most people's knowledge of addiction treatment. But it's dead wrong. And it's the main reason that the success rate for addiction treatment is currently only 20–30 percent. This means that 70–80 percent of the participants in any given addiction treatment program will *not* be successful. No wonder people think that alcohol or drug addiction treatment doesn't work!

Fortunately, recent scientific research has discovered new avenues of treatment by showing conclusively that addiction is *a chronic physical disease* that attacks the brain, damaging key parts of the cerebral cortex

and limbic system. This brain damage cannot be reversed by talking therapies; only select new medications and continued sobriety can do that. But when used together, these new medicines and talking therapies can literally work wonders.

In this chapter we'll look at the new scientific research on addiction and its effects on the brain. (Throughout the book I'll use the word "addict" to refer to both alcoholics and drug addicts, and "addiction" to refer to both alcohol and drug addiction, unless otherwise specified.) You'll learn what happens inside the brain of a person with an addiction, why talking therapy alone doesn't usually work, and how medications can help the brain repair itself, pushing the treatment success rate up as high as 90 percent!

## Myths That Lead to Unsuccessful Treatment of Addiction

Addiction is a serious brain disease that has reached epidemic proportions in the United States. The shocking statistics say it all:

- According to the 2006 National Survey on Drug Use and Health, about 22.6 million Americans aged twelve or older abused or were dependent on a substance during the previous year (9.2 percent of the population aged twelve or older).
- Of these, 15.6 million abused or were dependent on alcohol but not illegal drugs.
- 3.8 million abused or were dependent on illegal drugs but not alcohol.
- 3.2 million abused or were dependent on *both* alcohol and illegal drugs.
- Approximately 9–10 percent of children ages twelve to seventeen use illegal drugs, and about the same percentage report binge drinking.
- Each year, well over two million adults use pain relievers for non-medical reasons.

- Over ten million full-time workers between the ages of eighteen and sixty-four abuse or are dependent on alcohol.
- There are roughly one million drug-related visits to U.S. emergency rooms every year.
- Americans spend close to \$20 billion a year on treatment for alcohol and drug problems.
- Seventy-five percent of alcoholics never enter a treatment program.
- Of those who do seek treatment for addiction, 70–80 percent suffer a relapse soon after “graduating” from these programs.

But perhaps the most frightening statistic of all is the death toll. *Alcoholism is the third leading cause of death in the United States, right on the heels of heart disease and cancer.* And although no one knows exactly how many additional lives are lost to the abuse of and addiction to drugs, the figure is surely in the tens of thousands per year.

*Forty-five-year-old Simon, a high-level chemist at a Dallas-based manufacturer, was referred to me by a drug court judge when he was charged with his second DWI and facing a ten-year prison sentence. His life was in shambles. Alcoholism had put Simon's career in jeopardy and played a major part in the dissolution of his twenty-five-year marriage three years earlier. Since that time, Simon's drinking had progressed significantly. Of his three children, only his son was still speaking to him. Both of his daughters had banned him from their homes after he repeatedly showed up intoxicated and frightened their children. And alcoholism was beginning to take a toll on his health. His blood pressure and cholesterol levels were dangerously high, two classic signs of heart disease. And the whites of his eyes had taken on a yellowish tinge, indicating malfunction of the liver. All of these problems, his doctor told him, were directly related to his alcohol use. And yet he had never sought or received any treatment for his alcoholism.*

Simon's story is not unusual. A full 75 percent of alcoholics are *not* in treatment for an illness that causes nearly as many deaths as heart disease or cancer. Why isn't our current treatment system working? At the inception, our ability to prevent and treat addiction is drastically hampered by two myths.

- **Myth #1:** *Addiction is a kind of "personality disease."* People with addictions are often branded losers, sinners who refuse to face up to their evil ways, or weaklings who can't "suck it up" long enough to throw off their bad habits. The media does much to contribute to this belief. We've all seen the endless parade of stories about Lindsay Lohan, Robert Downey, Jr., Liza Minnelli, and countless other celebrities who bounce in and out of treatment programs. But after spending \$80,000–\$100,000 a month for treatment, they all seem to race right out to a bar or to meet their dealers, diving head first back into old destructive behaviors. Since they appear to be getting the best possible (or at least most expensive) treatment available, the perception is that it must be their own fault that they can't stay sober; they must not be trying hard enough.
- **Myth #2:** *"Talking therapy" is the only significant treatment.* Talking therapy is a series of discussions through which the addicted person learns the coping skills needed to deal effectively with stress and other issues related to the addiction. Most health professionals—physicians, psychiatrists, psychologists, and addiction counselors alike—believe that the best possible treatment for alcohol or drug addiction is some sort of talking therapy, such as group therapy plus individual counseling, coupled with participation in an ongoing 12-step program. Unfortunately, this approach works for only a meager 20–30 percent of patients, a fact that has convinced most healthcare providers that addiction is not treatable.

For decades these two fallacies have put a stranglehold on the development of effective new therapies for addiction. They've robbed

addicted people and their families of hope and have cost our country millions of lives and hundreds of billions of dollars.

*Jason, a fifty-five-year-old welder, tried to get help for his alcoholism after he went through his third divorce. At the time, he was putting away about a quart of vodka a day and knew it was seriously affecting his work and his personal life. So one day at lunchtime, Jason showed up at an AA meeting around the corner from where he was working. But within ten minutes he had categorized those at the meeting as a bunch of hopeless loser alcoholics who were nothing like him. Jason assured himself that he could give up alcohol on his own; he didn't need any help. But after just one alcohol-free evening, Jason awoke to trembling hands and legs and a strong urge to drink. He decided that it would be okay to have just one small drink to steady his nerves. Naturally, this was only the beginning, and his "quart a day" habit was quickly reinstated. About six months later, after being charged with his first DWI, Jason checked himself into rehab for a weeklong inpatient detoxification. When he left rehab, he was supposed to attend classes on alcohol education and go to AA meetings regularly. But just six days after he went home, Jason started drinking again.*

What's wrong with our current ways of treating addiction? Why do they fail so often and so miserably? Obviously, we need to take an entirely new approach. We need a paradigm shift, a new approach that will do for the treatment of addiction what insulin did for diabetes, what Prozac did for depression, and what Viagra did for erectile dysfunction.

Fortunately, science has recently provided some brand-new insights into addiction. Now we can definitively say that it is a chronic medical illness, a disease of the brain that *can and must* be treated like other chronic medical illnesses—such as diabetes, hypertension, or asthma—that alter the physiological workings of the body.

## Birth of an Addiction

Many patients ask me why this is happening to them. “Everybody I know drinks,” they’ll say. “How come they can drink a little and stop, but I can’t?” Others note that their friends smoke some marijuana or snort a few lines once in a while but “keep it under control,” while they become full-fledged addicts.

We can’t say exactly why you became addicted to alcohol or drugs, but we do know that there are certain risk factors making one person more susceptible to addiction than another. These include:

- *Genetics*—Certain genetic factors may increase your vulnerability to addiction.
- *Emotional state*—High levels of stress, anxiety, or emotional pain can lead some people to use alcohol or drugs in an attempt to “block out” the turmoil. The levels and persistence of certain stress hormones may be associated with an easier slide into addiction.
- *Psychological factors*—Suffering from depression or low self-esteem may make you more likely to use alcohol or drugs excessively. Adults with attention deficit/hyperactivity disorder also may be more likely to become dependent on alcohol or drugs.
- *Social and cultural factors*—Having friends or a close partner who drinks or uses regularly—even if not to the point of addiction—could promote excessive drinking or use on your part. It may be difficult for you to distance yourself from these “enablers,” or at least from their drinking/using habits. In addition, the glamorous way that drinking alcohol is portrayed in advertising and in the media may send the message that it’s okay to drink excessively.
- *Age*—People who begin drinking at an early age, by age sixteen or earlier, are at a higher risk of alcohol dependence or abuse.
- *Gender*—Men are more likely to become dependent on or abuse alcohol than are women.

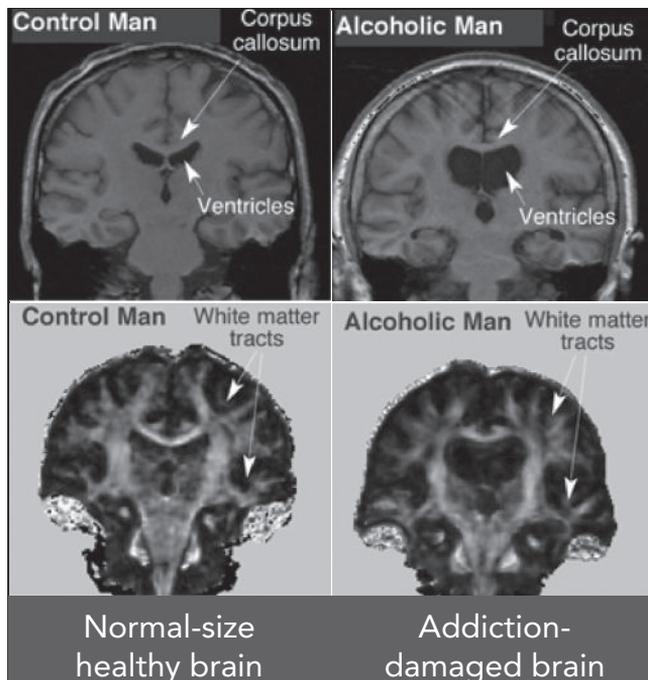
- *Family history*—The risk of addiction is higher for people who had a parent or parents who were addicts.

These factors offer rough guidelines as to who is more likely to become addicted, and may help to explain why you became an addict.

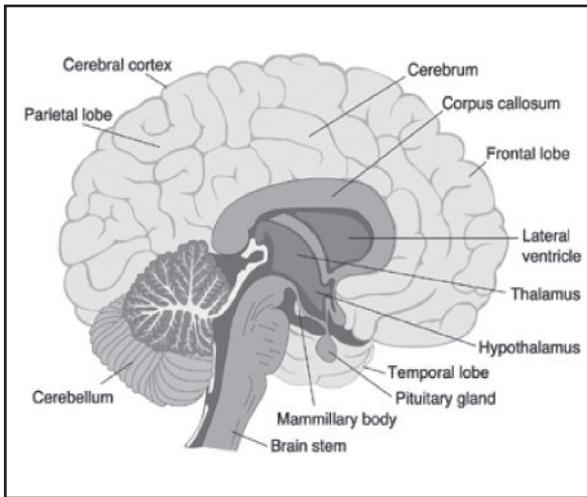
## How Alcohol Harms the Brain

In the not-too-distant past, it was necessary to wait until an addict died before physically inspecting his or her brain, before weighing, measuring, and looking for damaged areas. This information was helpful but limited, for there's only so much to be learned from a dead brain.

Today, high-tech tools—including MRI (magnetic resonance imaging), DTI (diffusion tensor imaging), and PET (positron emission tomography)—allow us to see the brain in unprecedented new detail while it is alive and functioning. We can literally watch the brain in action, measure its ability to function, and track both damage and repair as they occur.



Because of these scientific advances, in just a few years we have learned a great deal about how the excessive ingestion of alcohol damages the brain over time. Perhaps the most obvious damage is shrinkage caused by the destruction of brain cells. Months, years, or decades of excessive alcohol consumption cause a healthy, normal-sized brain to shrivel. Thus, alcoholics/heavy drinkers literally have less brain matter to work with.



This is a fact that has been documented many times.

Much of the shrinkage of the brain occurs in the cortex of the brain's frontal lobe. The cortex is the outer layer of the brain, a heavily folded area full of canyon-like grooves that wraps around and over the

brain. The frontal lobe, which is located just behind the forehead, plays an important role in memory, judgment, impulse control, problem solving, and other intellectual skills, and also influences the regulation of social and sexual behavior. Damage to this area of the brain makes it difficult, if not impossible, for the addict to understand why getting “blitzed” all the time is so dangerous and why it’s important to pay attention to things like work, family, and health. Not surprisingly, the damaged brain can find it nearly impossible to focus on recovery from the addiction.

The frontal lobe is not the only part of the brain that alcohol damages. The cerebellum and other parts of the cortex also shrivel when awash in alcohol. Together, these parts of the brain help regulate thinking, reasoning, planning, organizing, balance, coordination, walking, running, dancing, and all other kinds of movement.

### *Altering the Brain's Communication System*

Alcoholism also harms the brain in more subtle ways that disrupt the brain's communication system.

Essentially, the brain is a communication, data interpretation, and storage device. Brain cells receive data from inside the body (for example, the skin temperature of the big toe, the fullness or emptiness of the stomach) and from outside the body (for example, what the boss is saying, the color and size of the clouds in the sky). This information is analyzed and interpreted by certain brain cells, which send action instructions to other brain cells, which forward these orders to the body. All of the incoming and outgoing information is communicated by and stored within appropriate brain cells.

In order for this complex system to work, the billions of brain cells in your head must be able to "talk" to each other instantly and easily. They do so via long rods (called axons and dendrites) that extend from the center of a nerve cell. The rods don't actually touch each other; instead, the end of one comes right up to the end of another, leaving a tiny gap between the two. When Cell #1 wants to "say something" to Cell #2, it secretes a specific communication chemical called a neurotransmitter that travels from one rod to another. Which neurotransmitter is chosen will depend upon what Cell #1 wants to communicate.

Sliding across the gap between the rods, the neurotransmitter will slip into a little area called a receptor on Cell #2's rod, but not just any receptor. It only fits into a certain kind of receptor, just as a key only fits a certain lock. Once the neurotransmitter settles into the receptor, it triggers a flash of recognition in Cell #2; the presence of that specific communication chemical in that particular receptor tells this cell exactly what it is supposed to do in response. Depending on Cell #2's job in the brain, the response might be to order the heart to beat faster, the mouth to deliver an apology, the left hand to swat a mosquito, and so on.

This explanation may seem simple, but the brain's communication system is very complex. In order for it to work properly, the right kinds and

amounts of chemical messengers must be secreted by the “talking cells” at exactly the right times. There must also be just the right number and right kinds of receptors on the receiving cells. Think of what might, in a very simplified sense, go wrong:

- If the “speaking cell” doesn’t have enough of the necessary neurotransmitters, it will only be able to “whisper” its message, or perhaps it will become completely mute.
- If the “speaking cell” has *too much* of a certain kind of neurotransmitter, it may be encouraged to say things it doesn’t mean.
- If the “listening cell” doesn’t have enough of the necessary receptors, it won’t be able to hear the message, or will hear it only faintly.
- If the “listening cell” has *too many* of a certain kind of receptor, it can listen desperately for one particular message, perhaps ignoring others.

Suppose every time your good friend tried to say, “Set the drink down, and go home,” his voice became a barely audible whisper. Or what if your ears could only hear people shouting, “Party! Party!” and nothing else? That’s what it’s like in your brain when the neurotransmitter system isn’t working properly.

Chronic alcohol ingestion can throw a monkey wrench in the brain’s internal communications by altering the amounts, types, and ratios of neurotransmitters, as well as the numbers, kinds, and ratios of neurotransmitter receptor sites. For example, chronic consumption of alcohol causes the release of overly abundant amounts of the neurotransmitters serotonin and dopamine. These two “pleasure” messengers contribute to the feeling of being high—and make you want to get high again. Having large amounts of serotonin and dopamine in circulation is like having millions of little people in your brain, all of whom are drinking, having a good time, and offering you a beer.

Excessive alcohol ingestion can also work the opposite way, causing

brain cells to “close down” receptors for a messenger called GABA (gamma-aminobutyric acid). GABA inhibits agitation and helps to keep you calm. With too little GABA, even when the thought “I’ve had enough” does enter your brain, it may not be heard well, because there aren’t enough “ears” listening for it.

Alcohol also increases the number of glutamine receptor sites, which, among other things, play a role in seizures. If they aren’t kept “full” of alcohol-driven chemical messengers, they can rev up your entire system and may even trigger seizures. We know of at least forty other major neurotransmitter systems in the brain, all of which are disrupted by chronic alcohol use.

These and other brain changes make it incredibly difficult for the alcoholic to ignore the “bad” messages and hear the “good” ones. Can you imagine how difficult it is to achieve and maintain sobriety with a shrunken brain that’s hammered with messages like, “Gotta feel good, gotta drink!” all day long? When any thought of giving up drinking comes across as a whisper? When the brain is full of activating/stimulating signals that, if not satisfied by the presence of sufficient alcohol, may trigger a seizure?

What happens when you stop drinking? Suddenly, the substance that both damaged your brain and flooded it with harmful messages disappears. But everything is *not* all right—far from it. Your brain does *not* right itself overnight; it does not eliminate the extra “get drunk!” messages and remove the excess “love to party!” receptors. It does *not* immediately manufacture additional “pay close attention to your counselor while sipping tea” messages, or construct new “being calm is pleasant” receptors. The brain—down to the last cell—still desperately wants its alcohol. It does *not* want to change; it likes things exactly the way they are. *That’s why addiction is considered a disease. It’s not a character flaw or moral failing, not a result of laziness or selfishness, but a long-term illness caused by measurable physical damage to the brain.*

And that’s why most addicts can’t just give up their drug of choice, follow a carefully reasoned argument explaining why it’s better to be sober, stop

thinking about getting high, or stop blowing the family's money on drugs. *They can't do these things because the disease has damaged their brains*, just as the disease of hypertension damages the arteries and the disease of diabetes damages the kidneys. You wouldn't put your face to the belly of a diabetic and shout, "Hey, you kidneys in there! Quit slacking off! Start processing the urine properly, right now!" The kidneys are not capable of hearing or responding to your command. Neither is the damaged brain of the alcoholic or addict.

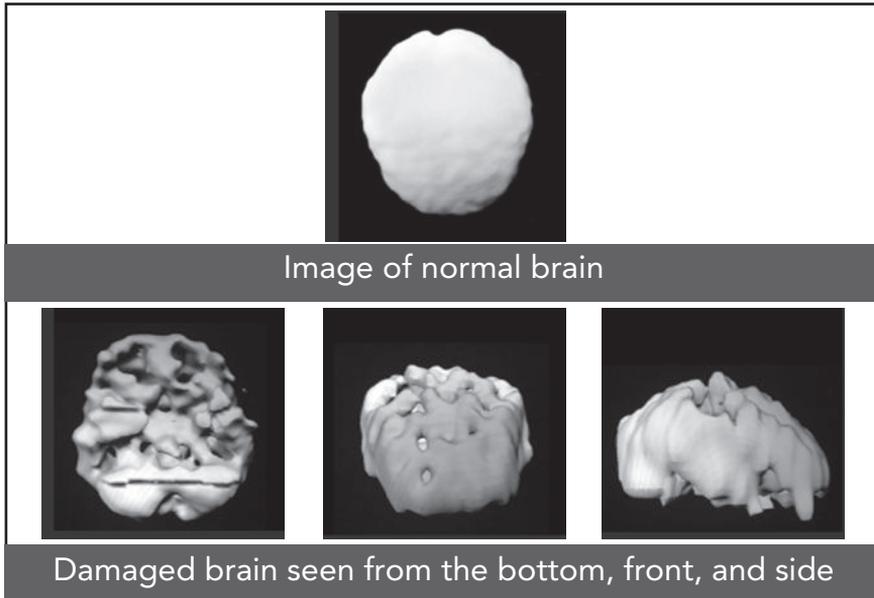
Luckily, the "I've got to have it!" messages fade with time, and the brain does repair itself (a fact that scientists have only recently discovered). This is true even in older people. But at any age, it takes a long time to restore the brain to its original, sober form—and in many cases, it doesn't completely return to its original, pre-addiction state.

## A Graphic Look at the Brain Damage

Another way to understand how alcohol damages the brain is to track the use of glucose, the "brain fuel." Brain cells use glucose exclusively for the energy they need to function. By measuring the amount of glucose used by cells in various areas of the brain, scientists can tell which cells are working properly and which ones have been impaired by alcohol or drug use.

Damage, in the form of changes in the kinds and amounts of neurotransmitters and receptors, alterations in glucose usage, and other differences, occurs in many areas of the brain, including the following:

- *Cortex*—the outer area of the brain, which contains the most highly evolved cells, where abstract thinking and higher cognitive processes occur, allowing us to think, learn, and understand.
- *Limbic region*—a structure deep inside the brain that controls desires and the body's basic drives. Powerful behaviors such as eating, drinking, and sexual behavior are housed in this area, which is filled with intertwining emotional circuits that give these drives irresistible emotional power.



- *Hippocampus*—an area adjacent to the limbic region where many long-term memory cells reside, all of which are “plugged in” to the limbic region’s emotional circuits.

The upshot is a damaged brain that’s programmed to do the wrong thing, over and over again.

The pictures above show some of the physical damage to the brain that’s caused by excessive alcohol consumption. The top image, which comes from an imaging test called a SPECT, shows a normal brain. The other three images are views of the brain of a thirty-eight-year-old who drank heavily on weekends for seventeen years. The images of the alcohol-damaged brain show obvious physical injury, plus a marked decrease in overall activity. In nontechnical terms, the damaged brain looks like a big chunk of polar ice that’s half-melted and full of crevices.

These images say it all. Alcohol and addictive drugs physically damage and transform the brain, in the same way that other chronic diseases damage other parts of the body.

## Addiction Is a Chronic Medical Illness

We're accustomed to having our ailments alleviated. Infections are typically cured with antibiotics in a few days, while depression may be lifted by Prozac in a few weeks. Even failing kidneys and damaged joints can be replaced, restoring pain-free movement in a few weeks or months.

Thanks largely to our latest, excellent medicines and surgical procedures, many of our current ailments and diseases are acute, which means they come on fast, rise to a peak, and then vanish rapidly. You notice a throbbing pain in your forehead at 11:00 a.m., take an aspirin, and before you sit down to lunch, the pain is gone. You cut your hand and develop an infection on Monday, by Wednesday you're at the doctor's office receiving a prescription for antibiotics, and by Friday the problem is resolved.

Unfortunately, addiction-related brain damage is not a "quick come, quick go" disease. It takes quite a while for the brain damage to become evident and an agonizingly long time to repair it. And from the early stages of brain damage through to the very end of the long repair process, the addict is caught in the clutches of a very powerful, life-threatening illness. Even after the brain has been fully repaired—if it is ever fully repaired—the addict may still be at greater-than-average risk of sliding back into drinking or using again, thanks to the factors that encouraged the addiction in the first place.

*Arthur, a twenty-seven-year-old musician addicted to alcohol, heroin, and cocaine, had been in four different residential treatment programs during the previous five years. Still, his longest period of sobriety was only thirty days. As a result of his use, Arthur had been in multiple accidents resulting in a significant amount of pain, the most recent being a motorcycle accident that fractured his neck. He treated a great deal of his pain with alcohol and recreational drugs and also used these substances to calm his ADHD. Arthur had tried AA and NA in the past but couldn't seem to stick with the program. His loved ones were*

*exasperated and no longer interested in paying for rehab. After all, what was the point? Treatment just didn't work.*

Like diabetes, asthma, and other chronic diseases, addiction is a life-long illness. Your diabetes is not cured simply because you're taking your medicine and watching your diet; it may be controlled, but it's still present. It's the same with the disease of addiction; it can be controlled but never completely eliminated.

The length of the repair process depends on many factors, including the substances that were abused, the length of use, the extent of the abuse, and the individual's genetic and biochemical makeup. As a general rule, it takes at least six to ten months of sobriety before significant brain repair is achieved.

There are no quick fixes for the disease of addiction, which is why addicts deserve sympathy and support, even when they lapse. We don't condemn a diabetic for having a sugary dessert or forgetting to take his or her medicine; we don't revile the person with hypertension who gains weight instead of losing it. Instead, we sympathize with and understand the inner urges that caused them to "oops," and we encourage them to take their medicines regularly and stick to a health-enhancing eating and exercise plan. We are understanding, in spite of the fact that people with critical diseases such as diabetes, asthma, and elevated blood pressure often *do* neglect to follow their doctors' orders. Less than 50 percent of patients with these diseases take their medicines as prescribed, and less than 30 percent comply with lifestyle changes recommended by their doctors. The relapse rates for these three illnesses—measured by the number of people who have to go to emergency rooms, the hospital, or their doctors' offices on an emergency basis—is 40–60 percent a year. And these frightening statistics are for people who do *not* have a chronic brain disease. Think how difficult it must be for those who do have addiction-addled brains to follow their doctors' orders! Why should we treat addicts differently, and so much more harshly, than we do other people with chronic illnesses?

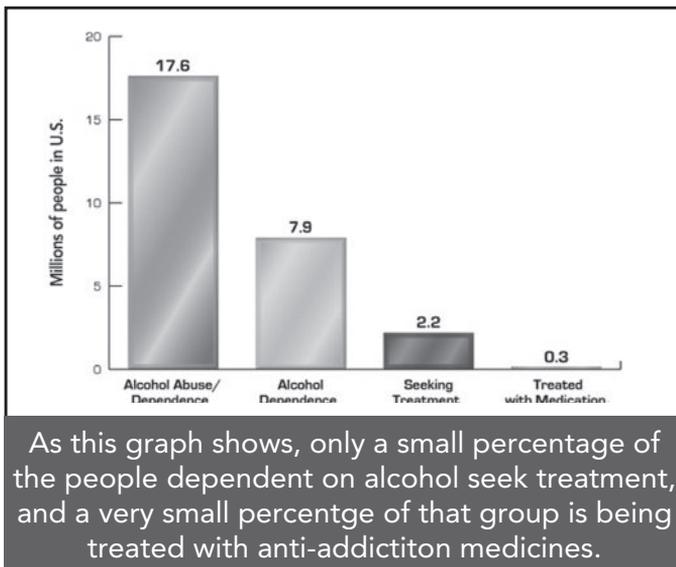
## Is Anyone Listening?

Unfortunately, we *do* treat addicts differently. We beg, plead, nag, and try to bully them into improving their ways, which is about as helpful as ordering a diabetic kidney to work better.

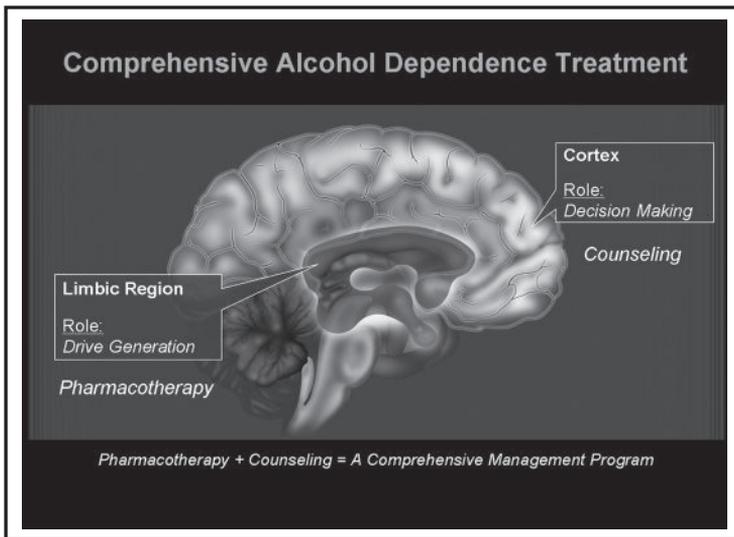
For the past several decades, the primary treatment for addicts in various types of inpatient and outpatient programs has been a combination of detoxification, some form of “talking therapy,” such as cognitive behavioral psychotherapy, and 12-step referrals.

Talking therapy is designed to influence the cells in the higher cognitive centers of the cortex. It can and does work, but *only* if the brain is willing and able to pay attention, listen, and remember. Yet most addicted brains are physically incapable of generating the focus and cooperation necessary for this type of therapy to work. Until the damage has been at least partially repaired, most brains are in no condition to absorb and digest these new ideas.

A great deal of the alcohol- or drug-induced brain damage takes place in the prefrontal cortex—where planning, abstract thinking, and the regulation of impulse behavior, drives, and compulsive repetitive behaviors occur—and in the limbic region, an area deep inside the brain that is responsible for powerful, primal drives such as hunger, thirst, the need to bond, and the



need for sexual contact. Talking therapy can help correct problems in the cortex, but it cannot influence the limbic system or other structures found deeper within the brain. This means that until recently there's been no way to reach the limbic system or these other brain structures that deal with emotions and very powerful specific memories. Yet these parts of the brain have created deep emotional connections between using and pleasure that the brain "remembers" very well. This means that even if the addict is able to listen to and understand the therapy, that nearly irresistible emotional drive to get high will remain intact. No matter how much an addict might "get" the don't-get-high argument, it continues to be very difficult to "just say no"



to these powerful, primal urges. As difficult to resist, in fact, as the urge to drink filthy, polluted water after wandering through the desert for several days without a drink, or the urge to turn to cannibalism after being stranded on a deserted island with no other food.

That's why so many addicts relapse early in the recovery process; they simply cannot "get" what their well-intentioned counselors want them to understand. And even if they do, they are hard-pressed to set aside the very powerful emotional and physical drives to get high. It's no wonder that the

success rate for standard addiction treatment is generally acknowledged to be only somewhere between 20–30 percent. In light of these dismal statistics, health professionals and laypeople alike can't be blamed for concluding that addiction simply isn't treatable. Perhaps that's the reason that only 2.2 million of the estimated 17.6 million Americans suffering from alcohol abuse or dependence actually seek (or are pushed into) treatment programs.

## New Understanding, New Medicines, New Hope

The good news is that, armed with this understanding of addiction as a brain disease requiring medical treatment, we are in a much better position to tackle the problem effectively. A key component of the new addiction treatment is the new anti-addiction medications designed to rebalance the brain's biochemistry. These medications in many cases make it almost impossible for those with addictions to experience a high, no matter how much of the addictive substance they ingest, inject, or inhale. They help correct imbalances in dopamine and other essential neurotransmitters and accelerate healing of the physical damage in both the limbic region and the cortex. Once this damage has been repaired, a person with addictions will find it much easier to learn, remember, and focus on the cognitive and behavioral changes used in talking therapy and achieve longer-lasting sobriety. These medications have been scientifically proven to reduce substance use substantially. For example, in alcoholics the use of a form of naltrexone known as Vivitrol was able to reduce the median number of "drinking days" per month from 15.2 to 0.2.

## The New Paradigm: Recovery Science

Thanks to modern medical science, we can take a much more effective approach to the problem of alcohol and drug addiction—a scientific approach that I call Recovery Science.

The key elements of Recovery Science include the understanding that addiction is a chronic brain disease which causes physical changes in the brain that sorely hamper therapy and that new medications can be used to augment therapy. But let me be perfectly clear about one thing: I'm not

saying that the new medicines are a magical cure or that we can forget the other treatments. Talking therapies (including the 12-step programs) are still essential to the recovery process, as are mastering new coping skills and making permanent lifestyle modifications. Insulin alone isn't the solution for a diabetic, who must also learn how to eat a healthful diet, exercise regularly, remain slim, check his feet for cuts and sores that may become infected, and otherwise adhere to a good-health program. Neither are the new medications a simple solution to addiction. Addicts must learn to handle cravings, attend 12-step meetings regularly, and otherwise revamp their thinking, behavior, and lifestyle. However, the judicious use of new anti-addiction medicines can greatly enhance the ability to focus on and benefit from group and individual therapy and follow a 12-step program.

Once we begin treating addiction as a chronic brain disease, we'll see a tremendous rise in the treatment success rate. Our new approach will bring alcohol and drug addiction out of the closet, washing away the "stain of sin" and identifying it as a medical illness in need of treatment. With the stigma removed, more people will be willing to admit they need treatment, and the treatment they do receive will be much more likely to solve the problem.

## Enter into Health

In the chapters that follow, you'll learn more about the effects of addiction and the optimal methods for treating it. This book is based on the Recovery Science anti-addiction program detailed on my [EnterHealth.com](http://EnterHealth.com) website. Space limitations prevent me from going into as much detail about certain topics as I'd like, but at [EnterHealth](http://EnterHealth.com) you'll find in-depth explanations of many of the topics covered in this book, as well as printable worksheets that will help you put the Recovery Science principles into practice. Utilizing the results of the latest research on clinical addiction treatment, [EnterHealth's](http://EnterHealth.com) Advanced Recovery program offers ongoing personalized addiction education and treatment for people at any stage of recovery. This means that by accessing the website you can customize the information in this book to your own situation—a very powerful tool for

recovery. Then, EnterHealth's Life Care program will show you how to apply these concepts to the lifelong process of recovery.

Simply go to [www.EnterHealth.com/HealingtheAddictedBrain](http://www.EnterHealth.com/HealingtheAddictedBrain) and begin exploring the educational area dedicated to this book. There is also a comprehensive area of the site where you can access innovative e-learning tools that provide in-depth addiction education and support to complement any treatment program. The website is also extremely helpful to family members of alcoholics and addicts who want to understand and support their loved ones' recovery.

In the chapters that follow, I'll take a detailed look at the disease of addiction, including the way the brain damage it causes distorts thinking in such a way that continuing to drink or use makes perfect sense to the addict. Chapters Two and Three introduce tools for identifying and converting the pro-addiction thoughts into pro-recovery thoughts, as well as techniques for extinguishing triggers and controlling cravings.

In Chapter Four I look at the new medicines that are revolutionizing addiction treatment, and in Chapter Five I discuss 12-step programs, one of the strongest tools for maintaining sobriety. You may be tempted to skip to Chapter Four to read about the medicines. That's understandable, but remember: even though the use of these medications can push the successful treatment rate up to 90 percent or more, they are only one element of the program. It is equally important to learn about lapses, dual diagnoses, family and health issues, 12-step support, and all the other components.

Chapters Six and Seven present ways to handle the anger, depression, and other problems that typically accompany addiction, while Chapter Eight offers ideas and encouragement for the families of addicts. Chapter Nine concludes discussion of handling addiction-related problems by presenting tools for preventing or dealing with lapses and relapses. The final three chapters look to the future, discussing ways to learn to enjoy sober life again, use food and nutrition to improve your health, and start living a truly recovered life, in which you can maintain your control over your addictive behaviors.

There are many ideas to absorb and new skills to master in recovery. It may seem like a lot to handle all at once. Yes, it can be overwhelming. *But I've seen many people break through to permanent sobriety when they follow all of my recommendations.* Take it step by step, day by day. Expect the occasional setback; when it happens, remind yourself that you're human. Always keep your eye on the goal—there's an excellent chance you'll get there!

### Key Points Review

- Addiction is a chronic medical illness that attacks the brain, damaging key parts of the cerebral cortex and limbic system.
- With standard treatment, the chance of recovering from addiction and maintaining that recovery is 20–30 percent.
- With the new Recovery Science approach to treatment, the chance of recovering from addiction and maintaining that recovery can approach 90 percent.
- Seventy-five percent of alcoholics are not in treatment, even though alcoholism is nearly as life threatening as heart disease and cancer.
- Two myths have put a stranglehold on the development of effective new therapies for addiction: *addiction is a kind of "personality disease,"* and *"talking therapy" is the only significant treatment.*
- Addiction is not an "acute" (short-term) illness with a short-term solution.
- Like diabetes, asthma, and other chronic diseases, addiction can be controlled but never eliminated.
- Excessive ingestion of alcohol causes a healthy, normal-sized brain to shrivel.
- Much of the shrinkage of the brain occurs in the frontal cortex,

an area that plays an important role in memory, judgment, impulse control, problem solving, and other intellectual skills.

- Damage also occurs in the limbic region, a structure deep inside the brain that controls desires and the body's basic drives.
- Many of the forty different major neurotransmitter systems in the brain are disrupted by chronic alcohol or drug use.
- Chronic consumption of alcohol or drugs causes the release of overly abundant amounts of the neurotransmitters serotonin and dopamine, which contribute to the feeling of being high and make you want to get high again.
- Talking therapies work, but *only* if the brain is willing and able to pay attention, listen, and remember. They do nothing to address the chronic brain damage.
- New anti-addiction medicines can help repair the addiction-inflicted brain damage and greatly enhance one's ability to focus on and benefit from group and individual therapy and follow a 12-step program.
- Sometimes medication works so well and so quickly that it seems like a "quick cure," but the individual will still need to follow through with traditional treatment and 12-step programs in order to make lifestyle changes and learn new coping skills necessary to maintain sobriety.
- You can use [www.EnterHealth.com/HealingtheAddictedBrain](http://www.EnterHealth.com/HealingtheAddictedBrain) in partnership with this book to personalize the concepts presented here.