Breaking *the* GRIP *of* Addiction

HOW IS DRUG ADDICTION STARTED, SUSTAINED, AND STOPPED?

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The names and minor details in personal accounts provided in this book were changed to protect the anonymity of the subjects. Except for the encounter noted in chapter 3, the references to specific people recount encounters with real people and not a composite representation. Quotations from personal conversations represent reconstructed communications based on the author's recall. Some of these quotations were recorded shortly after the conversations, others many years after the interactions took place. They are, therefore, subject to the common fallibility of human memory, but the author believes they accurately reflect what was communicated at the time. References for quotations from published works are provided in the notes, along with supporting literature for research studies discussed in the respective chapters. The notes also contain some references for suggested readings on select topics.

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Preface

Officials from the county coroner's office rarely bring good news. When two appeared at my university office, I was nearly frozen by a foreboding anticipation at the expected message. As they showed me photos of the body of my youngest child, I knew a long-held fear had become reality. Grief quickly overwhelmed me—a torture of the soul words cannot express. Driving home through a torrent of tears, I dreaded breaking the news to my wife. This was how, just one month after his thirtieth birthday, my wife and I were confronted with the terrible reality that our son's fifteen-year journey into the destructive life of substance abuse had come to a tragic end.

Paramedics resuscitated our son several times after drug overdoses. He was hospitalized on multiple occasions for serious ailments resulting from his drug use. We long feared his death would precede ours. Yet anticipatory fear cannot compare to the reality when it strikes home. We struggled not only with the loss, but also with the anguish of wondering if there was something more we could have done to get him off the destructive path he traveled. We walked with him through many intervention programs—residential programs, halfway houses, and outpatient programs. Some were court ordered, others were not. We sat with him through group therapy meetings of different kinds and consulted with counselors, probation officers, and medical personnel. Nothing led him to a different road. And I had more to offer than the average parent of an addict.

I earned a doctorate in clinical pharmacy and another in the pharmacological sciences. I spent several years in

drug abuse education, speaking in primary and secondary schools, as well as lecturing public school teachers, on drugs of abuse. Working for several years in a poison center, I was involved in managing acute problems with drug abuse and have taught overdose management to pharmacy and medical students. I had limited experience in a methadone maintenance clinic and a community of jailed addicts seeking help. My professional life has been devoted to researching and teaching about how drugs act in the body. For the last ten years of our son's life, I served as dean of one of the top pharmacy programs in the nation. My son's journey sent me back to where my early professional life began: reviewing the literature to learn all I could on this ailment we call addiction. But my expertise, experience, and professional network were not enough to find a way to drag my dear son out of the mire of addiction.

Our experience is hardly unique. Across the globe family members of addicts live with a sense of helplessness as they watch a loved one morph into a person who is almost unrecognizable to them. Some have placed themselves on the verge of bankruptcy in an aggressive effort to find a program to break the vicious cycle of addiction consuming their loved one. Far too many families have met with a similarly tragic ending as we did, and their numbers have dramatically increased in recent years.

The endless statistics quoted in the press about overdose deaths and those affected by addiction mask the real tragedy. For these are not abstract statistics or points on a colorful infographic. They are our sons and daughters, our granddaughters and grandsons. They are our brothers and sisters. Some are our parents. Others are our neighbors and coworkers. They are always fellow humans whose tragic plight should concern us all.

What if we hold an erroneous understanding of this malady? What if the high failure rate of current interventions

is due, at least in part, to wrong views about addiction—its cause and cure? Could some of our programs be making matters worse? What if many of the current or promoted laws and regulations reflect errant notions of addiction and lead to more harm than good? What if the emphasis of our efforts is misplaced? Are we even willing to consider these possibilities?

This book reflects my journey to challenge the validity of dominant views about and interventions for addiction. Current interventions, public policy, and untold millions of dollars in biomedical research are predicated on the assumption addiction is a chronic disease akin to diabetes and schizophrenia. Does this model withstand scrutiny, or will it falter in the face of the best evidence? Has it served us well in responding to this national crisis? I am not alone in asking hard questions about prevailing views on addiction. But I believe I bring a different voice to the challenge, blending professional expertise and a personal journey that has given me a different vantage point. I am neither a neuroscientist nor an addiction specialist. But I am a drug expert. Critically reviewing biomedical literature has been a part of my professional life for over four decades. I am also someone who has lived up close and personal with an addict and his associates. I have seen the insides of prevailing approaches to addiction. My wife and I have worked with the homeless in our community—among whom the rate of addiction is high—for over a decade. I understand the need to get it right. Lives are at stake. One most precious to me has been lost, and I long to see others spared this painful loss.

Our current approach to addiction has not halted the growing numbers of those joining its ranks. More addicts are dying than ever before. The destructive swath brought by addiction is enveloping every socioeconomic class among our citizens. To stem this rising tsunami of lives devastated by addiction, we need to understand its cause and cure. Is our prevailing approach on the right track? In the pages ahead, I

will make the case that it is not. I believe seeing addiction as a brain disease is erroneous and contributes to our low success in preventing and treating this affliction.

In contrast, I will argue that the natural history of addiction provides strong evidence that addiction is *primarily*, though not exclusively, an acculturation phenomenon. Acculturation is a process by which an individual gradually adopts the rituals, customs, and practices of a new culture. Studies of the natural history of heroin addicts demonstrate the phased process whereby drug users increasingly adapt into a drug-using culture that promotes escalating use and, ultimately, addiction. The ritual elements of drug use among peers creates important cues associated with this use, much like the smell of a specific food provokes memories of the warmth of family gatherings.

The deeply embedded cues laid by this acculturation explain why addicts return to drug use long after physical symptoms of withdrawal have passed—sometimes years. It helps us understand why it is so difficult for those deeply enmeshed in the drug culture to extract themselves from that lifestyle. This perspective also explains why biological approaches, such as medication-assisted therapy, demonstrate limited success in helping addicts. Moreover, evidence convincingly demonstrates that external forces—such as shifting cultural norms and economic factors—are key drivers in acculturating to drug use. Drug use is subject to the same market forces that drive the use of other commodities. These external forces can serve as important levers that society can use, and in cases has used, to alter the prevalence of addictive substance use. Alternatively, uncontrolled market shifts or ill-conceived public policy may exacerbate an ongoing drug problem, such as is seen with the recent escalation of opioid overdoses in America.

Though addiction is a complex disorder defying simple solutions, we can do better in preventing its development and

helping those who feel trapped by their craving for addictive substances. Indeed, we must do better. But to achieve this noble aim, we must critically assess our current views on addiction and our response to it. That is the goal of the pages ahead.

CHAPTER 1

Do Drugs Have Power over People?

The grip of addiction seized John Jackson on an early Saturday night in a community pharmacy in his sleepy West Virginia town. Pharmacist Libby Cunzman was preoccupied compounding a special ointment for a longtime patient when John entered the pharmacy. Libby's heart quickened at the sight of an eerie blue mist coming from a prescription bottle on the shelf behind her. The mist poured over the counter and down the middle aisle, engulfing John as he stood looking at nonprescription pain remedies. From this moment on, John showed an insatiable desire for OxyContin—a powerful narcotic analgesic. His life entered a downward spiral due to his all-consuming pursuit of this addictive drug. John never saw it coming.

The previous paragraph is fiction. Such an event has never occurred in a community pharmacy anywhere. Yet the way addicts, their family members, and even some in the medical community speak, you would think such was commonplace. Individuals make statements like:

"The drug had me in its clutches from the first time I tried it."

"I took the drug as prescribed by my physician. But soon, I was in its grip and unable to go without it."

"These drugs are a powerful force in our community. We need to get them off our streets before they ruin more lives."

"This drug is pure evil. It will grab you like nothing else."

"That drug stole my child."

"Addictive drugs hijack the normal circuitry of the brain."

Attributing an almost supernatural power to drugs is common in descriptions by addicts and those who care about them. Even law enforcement personnel, neuroscientists, and public health officials succumb to ascribing remarkable power to drugs misused for recreational purposes. These descriptions are not limited to recent times. Writing in 1867, one physician-author declared, "The terrible grip wherewith opium fastens upon its devotees is the main source of its ruinous conquests."

In reality, however, drugs are inanimate objects possessing no power to overtake or control anyone. Drugs have no intellectual powers by which to plan a stealth assault on the human brain. So, why do people speak of drugs as having a dominating influence? Why do individuals use words suggesting something outside them overtook their lives? Why do public officials often refer to addictive drugs as a force with great impact on our communities? Even more significantly, how does speaking and thinking in this way affect our ability to address our escalating drug addiction problem?

Those reading this book have probably heard or read many summaries of the alarming statistics regarding this public health crisis. The Centers for Disease Control and Prevention estimates that opioids were involved in nearly 50,000 deaths in the US in 2019. The National Institute on Alcohol Abuse and Alcoholism estimates there are nearly 15 million people with alcohol use disorder. A national survey conducted by the National Institute on Drug Abuse (NIDA) estimates over 600,000 people abuse heroin, while cannabis use disorder afflicts 6 million Americans. We are losing young people of promise due to the consequences of drug addiction. Families have been shattered through the destructive impact of the choices made by those addicted to drugs. Neighborhoods serving as a nexus for drug dealing have become battlefields among combatants for control of the drug trade. Using words like *plague* to describe the present state of affairs communicates the frightening and devastating results of

drug addiction in our society. It is a problem requiring our collective effort to mitigate.

At the same time, to battle this public health crisis, we must understand the true nature of drug addiction. Previous public health crises showed that successful treatment and prevention requires understanding the underlying causes for diseases. For example, generations of people thought malaria, yellow fever, typhoid, and cholera originated from bad air. Each represented a serious public health disaster striking communities with disturbing frequency. Progress in combating these afflictions required dispelling mistaken notions of their causes.

How should we view addiction? Is addiction like lung cancer caused by cigarette smoking? In this case, repeated choices over many years have damaged the body and resulted in disease (lung cancer). While originating from choices by patients (specifically, the choice to smoke), once the disease has developed, we must manage it medically. These patients have developed a disease likely to take their life. The individual cannot snap their fingers and walk away from the consequences of decades of choosing to smoke. Is addiction something that, while caused by choices of repeated drug use over time, is out of the patient's control once it develops and therefore requires a therapeutic approach?

Perhaps addiction is better understood as an unusual (or idiosyncratic) drug reaction. A small portion of patients who take sulfa antibiotics respond with a serious skin rash or liver damage. Something was awry in their bodies before they took the drug, so when they're exposed to it, they react different from most people. Do addicts have a fundamental flaw in their biology, meaning addiction arises through no fault of their own once exposed to certain drugs, like opioids? Is their addiction an inevitable consequence of their exposure to drugs capable of producing physical dependence? Does this mean medical management is the best and only treatment path?

Alternatively, is addiction a learned response to the pleasurable sensations produced by the drug—or the discomforting feelings from its absence? Does managing addiction require learning more productive responses to these sensations, and—perhaps more significant—does treatment require an environment conducive to new learning? If so, is it possible to compel new learning against the addict's will?

Maybe none of the preceding models is correct. Is addiction a unique situation requiring a different understanding from any other human condition? Does it stand apart from the models serving us well in developing treatment strategies for other ailments? Are addictive drugs in a class by themselves, needing novel approaches to these agents?

How we answer these questions should not alter the view of addiction as an affliction deserving compassion. It does not change the appropriateness of our efforts to help people overcome their addiction. Whatever the cause, addiction results in human suffering—for both addicts and their families. The impact bleeds over into our communities and places a tremendous burden on our social safety net. Like other forms of human suffering, we should work toward alleviating the consequences of addiction. The underlying cause of addiction does not change the merit of finding solutions for those so afflicted. However, the cause must inform *how* we help addicts.

Federal and state governments are investing huge sums of money into addiction treatment. Judicial systems are choosing a path of treatment over incarceration for drug-related offenses. Professional licensing boards are providing treatment opportunities rather than licensure removal for professionals found to be abusing drugs. Yet these presume our approach to treatment merits such choices. They rest on the conclusion we understand and have developed effective ways to tame this ailment afflicting an increasing number of our fellow citizens. But do we and have we?

This book seeks to assess the critical questions surrounding addiction—its causes and treatment. As discussed in subsequent chapters, it is clear most addicts remain unchanged by our current approaches to addiction. Our failure to hold this crisis at bay should provide reason enough to test the validity of our understanding of the nature and treatment of addiction. However, a dispassionate consideration of these issues is difficult. For there are many who stand to gain or lose based on the type of interventions supported by federal, state, or private resources.

Drug addiction treatment is a growing and profitable business, an industry estimated to exceed $35 billion annually. The foundation of many treatment centers rests on a medical management approach to addiction—based on the assumption that addiction is a disease, similar to diabetes or schizophrenia. Like any industry whose financial well-being is threatened, drug addiction treatment centers will defend the medical management model on which they have built their business—despite that a large portion of these treatment centers' approaches is not based on evidence-based practices for addiction treatment.

Scientists receive grant funding on the premise that addiction is a disease requiring a medical approach to treatment. They have a stake in sustaining a model providing money for their research programs. Insurers are facing demands to provide coverage for addiction treatment, which impacts their cost-profit margins. For this reason, insurers possess incentives to support approaches to addiction that will reduce their financial liability. Opponents of the federal budget's growing fraction devoted to healthcare have an interest in reducing the reliance on medical approaches to addiction—as these approaches add to the swelling financial liabilities of our Medicaid programs. Those alarmed by the staggering number of people incarcerated in the US will advocate for nonjudicial approaches to the drug problem as a matter of principle. This

inclination is understandable, especially recognizing the disproportionate impact of addiction on African American and other minority communities.

These interests of various stakeholders can introduce bias into discussions about the nature and response to drug addiction. It is an issue charged by politics and emotions. As an author, I am not free of such bias. Walking a difficult fifteen-year journey with a son whose substance abuse led to myriad interventions—inpatient and outpatient, voluntary and involuntary—has left me with a certain perspective on the approaches used in treating addiction. My son's tragic death and failure to experience victory over addiction would lead me to question the effectiveness of approaches he experienced. Without doubt, such anecdotal experiences neither invalidate nor validate specific interventions. Nevertheless, the bias will exist.

As a pharmacologist, I am inclined to understand drug effects at the biochemical and molecular level. The mechanistic explanations underpinning the response to drugs fascinate me, and I tend to see biological explanations as the driver for drug use problems. I have spent much of my professional life educating future pharmacists, nurses, and physicians on how drugs act in the body and applying this knowledge to selecting the right drug and right dose for given patients. It is only natural for me to seek pharmacological solutions for what, on the surface at least, appears to be a pharmacological problem.

These inherent biases and self-interests make a critical assessment of the nature of addiction a challenge. Nonetheless, our current addiction crisis makes such an assessment essential. Some in the biomedical community believe this is settled knowledge. "What we need is more resources to deploy what we know works!" However, the claim that current approaches work is dubious—as I will discuss in later chapters. Indeed, as noted by authors writing

in the prestigious journal *Nature Reviews Neuroscience*, "The humbling truth is that the neuroscience of addiction has yet to have a marked impact on clinical treatment." Moreover, such responses are counter to the fundamental principles of science. Science is never settled. We are always learning and should seek to do so. The work of science focuses on challenging current conceptions of the world.

History shows that consensus opinion in science is sometimes wrong, including our understanding of the nature of diseases. While a student, I learned peptic ulcers resulted from spicy food and stress. It took the courage of Australian gastroenterologist Barry Marshall, faced with tremendous opposition, to overturn this received knowledge and prove the cause is a bacterial infection in the stomach lining best treated with antibiotics. As I wrote this chapter, researchers published an article in a prominent medical journal that has cardiologists rethinking a common procedure—for its results called into question the widespread practice of placing stents in the coronary arteries of patients with stable ischemic heart disease. The best research evidence suggests much of what we have been told about dietary fat for several decades has been wrong. Other examples of overturning long-standing medical practice and belief are accessible in medical journals. Suffice it to say, we must remain open to challenging questions about our understanding of disorders and their treatment. Failure to do so will lock us into misconceptions not serving the human condition well. The current addiction crisis and dismal success rate of recovery among many groups of addicts (with short-term relapse rates of two-thirds or greater among addicts receiving treatment) begs the question—is the crisis and/or the high rate of treatment failure due, in part, to misconceptions about addiction? This book explores this question.

This book is written for those who wish to understand this complex affliction we call addiction. You may be moved to

do so because addiction has touched you personally. Perhaps you or someone you love has struggled or is struggling with addiction. You may be trying to understand what has led to this destructive path and how you can help them onto a better road. Alternatively, you may be driven by professional interests, as your responsibilities bring you into contact with those in the grip of addiction. Or perhaps you are driven by an interest in or responsibility for public policy and are concerned whether our current approaches are helpful. Whatever drives your interest, the pages ahead will provide a critical, yet concise, analysis of this malady that afflicts so many of our fellow citizens on this earth. I do not pretend to have all the answers, but I do believe that challenging the current paradigm is essential if we are to help those living in the grip of addiction. That, in the end, is the goal of the pages ahead.

Sadly, some approaches to addiction reflect views that do not arise from our better selves. Policies too often reflect prejudicial views of the inherent worth of individuals addicted to drugs and reveal a willingness to discard a troubled segment of our community. But every drug addict is someone's son or daughter and grandson or granddaughter. Addicts are members of our families, our communities, and our nation. They are part of us and deserve our compassion, not our disdain.

The troubling truth is that an honest study of the history of legislation surrounding illicit drug use in our country reveals strong undercurrents of racial and social-class prejudices. Enforcing prohibition of drug use also disproportionately impacts minority communities. Deeply seated prejudices have too often rejected compassionate approaches to the problem of addiction, leading instead to policies causing more harm than good. Such approaches betray the noble view of our fellow citizens expressed in our own Declaration of Independence. We can and must do better. To do so

requires us to understand this complex human condition we call addiction.

Critically evaluating a complex disorder like addiction is no simple task. It requires considering the breadth of factors that determine how, why, and when people use recreational drugs—and what leads them down the path of occasional use to addiction. To understand what we know about addiction requires a journey into literature that spans genetics, pharmacology, clinical medicine, and behavioral and social sciences, as well as economics and history. It involves not just determining what has been published but also determining the quality of that literature. This journey has taken me years and remains an ongoing effort. My first note for research on this book is dated July 7, 2015—and that was after considerable months of reading and developing a tentative content outline that led me to decide to undertake the project. Distilling such a variety of sources into digestible summaries has been an arduous, though rewarding, task. Fairly and accurately representing the current state of our knowledge, without excessive detail, has been a guiding principle to each chapter. Others must be the judge of how well I have met this goal.

This book is divided into two sections. The first focuses on the causes of addiction, while the second focuses on approaches to break the cycle of addiction. The prevailing view of addiction today is that its roots are biological and our approach to this ailment should be the same as that of any other chronic disease. In particular, it is argued that efforts must be focused on medically treating abnormalities in the brain that result from drug use. There is no question biology plays a role in developing and sustaining addiction. Chapter 2 provides a simple introduction to how biology plays a role in developing habitual drug use. There are real changes in the brain of addicts caused by drugs. Yet these are normal adaptive changes and not evidence of disease. But addiction is far more than biology, as both chapters 2 and 3 will explain.

Addiction does not just happen; individuals make clear choices that lead to addiction. Likewise, these choices sustain the cycle of addiction even in the face of negative consequences. Chapters 4 and 5 focus on two factors many believe increase the risk of addiction: genetic traits and mental health disorders. While the best of evidence suggests both may play a role in addiction, neither actually determines who becomes addicted. Indeed, the best evidence suggests genetics play a very minor role in addiction and most addicts do not have an underlying mental health disorder (and most people with a mental health disorder are not addicts). Chapter 6 then looks at the underlying premise of the brain disease model: Are the brains of addicts damaged? I will contend they are not. The adaptive changes occurring in the brains of addicts actually demonstrate the brain is functioning as designed. After considering the question of whether addiction is a lifelong ailment in chapter 7, the first section closes with two chapters discussing what drives drug use—including factors contributing to the choice to use drugs and sustain drug use, as well as factors that lead to stopping it.

The second section focuses on responses to drug addiction. Chapters 10 through 12 address the important question of whether our current approaches to treatment work. These chapters reveal the unfortunate reality that most addicts remain unchanged by our current approaches. Chapter 13 assesses the implications of one intervention shown to make a difference in addicts: financial and other incentives. The studies discussed in this chapter reveal, contrary to common statements, that addicts retain the ability to choose whether to use drugs. In chapter 14, I will discuss the controversial issue of whether legal prohibitions work to prevent or control illicit drug use. Finally, the last chapter closes with a set of recommendations for a better path to both preventing and responding to addiction.

Before proceeding to these issues, it is important to note a commonality among those with competing views of this ailment we call addiction. While we may disagree—quite strongly at times—in our understanding of addiction and the best approach to treatment, I believe those in various camps are unified in the honorable goal of reducing the plight of those afflicted with addiction and preventing others from entering this path. We must never lose sight of this common goal among us. We may differ on the wisdom of specific policy initiatives or the appropriate focus of resource investment, but we all want to help addicts and their families. May we never become so entrenched in our conceptual frameworks that we lose sight of our agreement of needing to compassionately address this ongoing public health crisis.