

# COCAINE & CRACK: A Craving for More

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## INTRODUCTION

**A molecule of cocaine—17 carbon atoms, 8 hydrogen and 4 oxygen—at present impossible to synthesize.**

**In a laboratory test for purity it crystallizes into a characteristic snowflake pattern, a rather innocent design.**

**One ounce of pure cocaine can be extracted from seven or eight pounds of coca leaf, the source of cocaine.**

**There are two species of coca plants. One is grown mainly in the Colombian part of the Andes Mountains in South America and the other is found in Bolivia, Peru and in the jungles of the Amazon Basin.**

**In 1970 only 4 or 5 tons of cocaine were smuggled into the United States. By 1985 the figure had grown to over 100 tons. At the beginning of the twenty-first century over 250 tons were being consumed each year. The increased supply of cocaine has made the smuggling dangerous and the street marketing aggressive.**

*Steven: “I can remember having someone hold a gun to my head and take my money instead of giving me cocaine. At that point I had to go back to the bank, withdraw money, and go right back to the same location hoping that the same person with the gun would not be there.”*

**Most headlines about cocaine lean to the sensational or the dramatic. In contrast what we wish to do is:**

- \* examine the physiological mechanisms that affect the body's energy supplies and the brain's reward reinforcement center;**
- \* look at the physical and neurochemical effects of chronic or high-dose use;**
- \* study the reasons why compulsion can develop, particularly with crack cocaine;**
- \* and review treatment strategies when users want to recover.**

*Recovery group: “. . . to gain control of my life, to tell the world my story, to stop lying, to be honest with myself, to accept who I am, to feel my real feelings, to feel my pain, to forgive myself and to forgive others, to practice rebirth and new life, to live my spirituality, and to love and support my brothers and sisters.”*

# HISTORY

Evidence of the coca leaf's use as a stimulant dates back 5,000 years. Over the centuries the Inca Indians, among others, chewed this light green leaf to pep them up, increase their endurance, dull their hunger, and control altitude sickness.

Chewing the leaf was the only means of use until 1859 when Dr. Albert Nieman isolated the active ingredient in coca, the alkaloid cocaine.

This discovery coupled with the development of the hypodermic needle enabled high concentrations of cocaine to be injected directly into a vein.

*Caroline: "If you mainline, it's instantaneous. It's like whoosh! It's just a rush all over your body. Your body gets warm, your heart starts beating really fast, you're sweating, your eyes are big. It's just like instantaneous rush."*

The easy solubility of the refined cocaine made it a popular additive for all sorts of patent medicines, tonics, and coca wines in use at the end of the nineteenth century.

In the early part of the twentieth century various prohibition laws made cocaine scarce. Snorting became the primary means of illegal self-administration.

When snorted, cocaine is absorbed by the vessels lining the mucous membranes in the nasal passages.

*Tina: "I felt it affecting me as soon as I snorted it instead of just snorting it. It would go away five minutes later and I would have to do it again but my nose would get real numb, and my teeth would get real numb, and I would get a little antsy."*

In the 1970s a couple of street chemists discovered freebasing, a way to lower the melting point of cocaine through a simple chemical process so it could be efficiently heated, vaporized, and smoked.

The lungs are the transfer point for oxygen to enter the bloodstream by way of tiny air sacs called "alveoli," which are located at the ends of the bronchi. When cocaine is smoked, it is transferred into the blood along with the oxygen.

A cheaper, simpler, and less dangerous method of making freebase cocaine, using baking soda, was developed in the 1980s. This intense form of the drug became known as "crack," and its use spread quickly.

*Steven: "It would have an immediate and overwhelming effect on me. It wouldn't be like I would have to smoke it for you know 10 or 15 minutes."*

Snorted cocaine takes 3 to 5 minutes to reach the brain; however the major effects last about 40 minutes to 2 hours.

**IV cocaine takes 15 to 30 seconds and gives the most intense initial rush while the high usually lasts 20 minutes to an hour.**

**Smoking crack takes just 5 to 8 seconds with a short but intense initial rush but the high lasts only 15 to 20 minutes.**

## **LOW-TO-MODERATE DOSE EFFECTS**

**In the late 1800s cocaine was discovered to be the only naturally occurring topical anesthetic. It is still occasionally used as a nasal and throat spray to deaden pain.**

**Cocaine has an immediate effect on the cardiovascular system. It constricts blood vessels and slows blood flow throughout the circulatory system. This constriction along with increased cardiac output can raise the blood pressure 20 to 30 points or more.**

*Betty: “I’d take one hit and it gives me this real too fast of a rush. It would like make me nervous, make me trembly, and it would sometimes make my heart start fluttering.”*

*Dr. Irwin Weinreb: “Usually with small amounts you may just develop a fast heartbeat. If they are sensitive to the drug or they are taking larger amounts, they can start to get extra heartbeats. Those who may be extra sensitive or if they are taking larger amounts can develop ventricular tachycardia, which is a very rapid, chaotic, but regular beating of the ventricle.”*

**As cocaine circulates through the body it affects every organ but the greatest effects will occur on the central nervous system, the brain, and spinal cord.**

**The central nervous system exerts its control over the entire body through a combination of electrical and chemical messages sent and received through a network of 100 billion nerve cells and 100 trillion connections.**

**Normally a message (or nerve impulse) travels electrically to the minute junction between nerve cells called a “synapse.” It is here that the tiny bits of neurochemicals, called “neurotransmitters,” are propelled out across the gap where they then slot into receptor sites on the adjacent cell, triggering an electrical relay of the signal to the next synapse where the process is repeated. The neurotransmitters, which have returned to the holding sacs, fire again. The signal is triggered up to 200 times a second. It is at this microscopic level that cocaine will have its greatest impact— first on the energy system and second on the reward system.**

### **Extra Energy**

**When cocaine passes through the blood brain barrier, its molecules force the release of adrenaline-like neurotransmitters, called “epinephrine” and “norepinephrine,” that amplify the signals for extra energy.**

**In addition cocaine blocks the reabsorption of those energy neurotransmitters by the transporters in the sending neuron, further increasing the amount available. Suddenly there's all this unneeded extra energy. So a user becomes busier, more energetic, restless, overly confident, agitated, or even aggressive.**

*Dorothy: "I felt like I was invincible and I could do whatever I wanted to do. I felt like no one could stop me. That's what it made me feel like. I felt like I could clean the whole house three times in a row, you know, within an hour and I wouldn't be tired when I was finished."*

## **Reward/Reinforcement Center**

**Besides increased energy, the other main effect of cocaine is on the reward/reinforcement center—part of the body's survival system. Normally this reward mechanism tells us when we're doing something that's good for us.**

**For example, if you need food and then eat to satisfy that hunger, the reward center is stimulated, telling you to "keep eating."**

**If you're thirsty and we drink some water, it says "You're thirsty, keep drinking."**

**If you have sex, it again rewards you with the feeling, "this is good."**

**It not only gives a feeling of reward but it also says to continue until another part of the brain says, "Okay, that's enough, you've satisfied that need."**

**What cocaine does is force the release of dopamine and other neurotransmitters that artificially stimulate the reward/reinforcement system, particularly a part called the "nucleus accumbens."**

**This protracted stimulation from dopamine tells the brain**

- \* that it is satisfying its need for food though nothing has been eaten;**
- \* that it is hydrating though no liquids have been drunk;**
- \* and that it is being sexually satisfied though no intercourse has taken place.**

*Gus: "Psychologically it makes me very horny but then I can start the performance but sometimes can't finish the performance because what happens is my mind goes from the sex area right into the crack area, next hit, next hit, somebody's getting more than me."*

**Cocaine has chemically coerced the reward/reinforcement center into feeling that all these actions necessary for survival are taking place.**

## **HIGH-DOSE & CHRONIC USE**

**Once users have exposed themselves to the stimulation of cocaine, especially with larger doses and over a longer period of time, their reward/reinforcement center tells them to use it again and again and again. This is because the on/off switch—the satiation switch—the switch that tells one to stop—is disrupted by the drug.**

*Reggie: “The only thing I wanted to do was smoke and smoke and smoke and smoke. You understand me? I got sick and tired of it. So each time I’d go up and get me some dope I said ‘Lord I don’t want this no more, Jesus, but I’m going to get some now.’ I said, ‘You’ve got to help me, You’ve got to help me, You’ve got to help me.’ But each time I was saying this, I am still going to buy these drugs. I ain’t stopping.”*

**What happens physically, emotionally, and mentally if compulsive use develops?**

**Normally there is a limit to the amount of energy reserves in the body. When that limit is reached, the body has to shut down, giving itself a chance to recover.**

**High-dose or chronic use of cocaine will cause the same exhaustion but it does it chemically not naturally. Repeated use can squeeze almost every molecule of energy neurotransmitters from the nerve cells.**

*Renee: “The crack kept me going, you know? No matter how tired I was or how much I wanted to sit down I wouldn’t do it until I passed out with the pipe in my hand.”*

**Cocaine continues to suppress the appetite for food and water, resulting in weight loss and dehydration.**

*Andrea: “It is all you want, it is all you think about. It is all you think you need and you didn’t care about anything else, your health. I barely even drank any water when I was out there to stay alive. I just wanted more crack!”*

**Although the brain can have an insatiable craving for cocaine, the body’s capacity to withstand the constant insults of repeated use is limited.**

*Kris: “I developed a hole through the center of my nose, so now if I snort anything it just goes from one side to the other and burns the entire nasal cavity.”*

*Renee: “If you keep shooting drugs, it would clot up one of the arteries from the cut in the coke. I got a bad heart murmur from shooting coke. That is basically how it affected my heart.”*

*Kathie: “I was smoking so much that I burned my lungs or I would really take in those gases and it would scorch my lungs and I would cough up some blood.”*

## **Neurotransmitter Imbalance**

**The continued use of cocaine coupled with the lack of nutrition will unbalance other neurotransmitters.**

**For example, when cocaine releases too much dopamine it causes the user to become overly suspicious, paranoid, or even delusional.**

*Esther: “There was these little nail holes in the door and he swore up and down someone was looking at us through them. I put my feet down on the bed and just do something like this and he*

would slap the shit out of me, ‘Bitch who you signaling?’ What? He would get on his knees and look under the bed.”

**Behaviors such as these are indicative of cocaine psychosis.**

*Pablo Stewart, M.D.: “Dopamine is implicated in causing psychotic symptoms in diseases like schizophrenia, for example, where you have relative imbalances to having too much dopamine available in the brain.”*

*Bruce: “The paranoia is so extreme, the hallucinations and you lose all concept of reality. From peeking out of doors for hours, under door cracks because there are two people with guns waiting for you for hours all night. That is just one of the behaviors—hearing voices, seeing people actually that weren’t there, talking to them.”*

**When the cocaine leaves the body the paranoia and the psychosis will probably disappear although other mental and emotional problems can linger.**

*Dorothy: “I was all alone and wanting to kill myself with a razor but being too scared to. I remember I was in the bathtub a couple of hours wanting to kill myself. I was so suicidal and depressed I didn’t want to live and I couldn’t stop using the crack.”*

## **METABOLISM, TOLERANCE, WITHDRAWAL, & CRAVING**

**Because cocaine is metabolized so quickly a person must continue using to stay high.**

*Esther: “It tastes like more because that is all you want, more. Not like if you smoke a joint, you high. You ain’t looking for no more but this, this is a trip because that little itty bitty thing that costs \$20 is gone in three minutes, maybe five.”*

**Increased cocaine use rapidly produces tolerance, which means that the brain’s neurochemistry adapts to handle the drug, so more must be used to get the same feeling.**

*Billy: “It stopped working. It just stopped working. No matter how much I would snort, smoke, shoot up, I never got the same high anymore. It just wasn’t satisfying.”*

**When the chronic user does stop, withdrawal symptoms appear.**

*Bruce: “The depression lingered after the drug use for long periods of time; depressions that I could not get out of. It was like I was tied down in bed with a 500-pound weight on my back. I could not get out of bed.”*

*Pablo Stewart, MD: “There is a very definite withdrawal syndrome associated with cocaine use. It can last up to 10 weeks and is associated with depression, anxiety, sleep disturbance, suicidal ideation, lethargy, fatigue, general agitation as well as cravings.”*

*Reggie: “I got shot in the leg. I have a bullet in my leg now. I was bleeding to death and the only thing I wanted to do was smoke. I told my buddy, ‘Come on give me a hit, give me a hit.’ I am smoking the pipe, the pipe is full of blood, it is full of blood. But I am smoking, trying to get high and here I am about to bleed to death.”*

## **Overdose**

**An overdose can occur whether snorted, injected, or smoked. The hyperstimulation can occur from too much cocaine or from an allergic reaction to the drug.**

*Renee: “My body was moving so much and I couldn’t stop my body from moving and they had to give me Ativan with an IV and they had to give it to me a couple of times to keep my body from moving because I would be hurting myself. I wasn’t able to stop moving.”*

**An overdose can cause gasping, irregular breathing, muscle spasms, and a raised body temperature. It can also cause convulsions, delirium, fainting, cardiac arrhythmia, and respiratory collapse.**

*Jeff: “I was convulsing and needed oxygen to breathe again.”*

## **Polydrug Use**

**Few people use cocaine exclusively. They use it in combination with other drugs. Cocaine is so stimulating that downers like heroin, Xanax, Oxycontin, and especially alcohol are used to take the edge off the high or just to get the user to sleep after a cocaine binge.**

*Esther: “Crack was my drug of choice, I would have to drink to mellow myself out. If the drink wouldn’t do it, I would go get me some hop heroin and snort it. It would make me come down but it would be a whole different high and it would make me sick.”*

**The other drugs can be more of a problem than the cocaine itself.**

*Steven: “I cured my alcoholism with crack cocaine. I no longer had a desire to drink until I ran out of crack cocaine and was all buzzy and jittery and then I wanted to drink.”*

*Renee: “I used to make speedballs, heroin and coke, and I would also crack up heroin with coke and make a Belushi rock.”*

*Bob: “The more speedballs I do, the more kind of manic depressive I became. It hasn’t been fun anymore.”*

*Darryl Inaba, Pharm.D. : “Most often heroin and cocaine are mixed together in a classic speedball and that combination has led to a lot of death.”*

## Violence

**Cocaine, in and of itself, can affect the nervous system, particularly the fright, flight, or fight center of the brain, creating situations where people become angry, aggressive, and can act out violently.**

*Flynn: “I found that using cocaine, mainlining it straight to the nervous system, it’s like I want to kill people. It is a very unhealthy state of mind.”*

**There is a high incidence of domestic violence among cocaine abusers and their domestic partners.**

*Hatty: “When my mate hallucinated from smoking too much, thinking I was trying to do his brothers and I got my face damaged badly because of the hallucinations. He slammed my face into concrete.”*

**The use of alcohol with cocaine induces greater agitation, euphoria, and violence than just cocaine alone because the two drugs form the metabolite cocaethylene that is associated with anger and violence and lasts three times longer than the cocaine alone.**

*Grace: “On New Year’s Eve I popped a guy. He left me there in the pouring rain on New Year’s Eve, so I just turned around and popped him and broke his nose. I popped a lot of guys. I can break doors with my foot. It is not just a guy thing.”*

*Pablo Stewart, MD: “So now you’ve got a person taking cocaine, which can cause aggressive violent behavior through the dopamine mechanism and now you have someone who is using cocaine and drinking, which is a very common combination of substances. Now you have a disinhibited person who has huge amounts of dopamine that both contribute to their aggressive violent behavior.”*

## High-Risk Sexual Activity & Pregnancy

**Many of the women who use cocaine during pregnancy were sexually and physically abused as children. They use cocaine because it gives them a sense of relief from their trauma and continue to use if they become pregnant.**

*Linda: “Had problems catching tricks, had problems with people not wanting to sell me dope. Had problems with my ex going around telling people not to sell me dope because I was pregnant. I had problems fitting into my short provocative clothing. Stuff that allowed me to catch men and, you know, exchange sexual favors for either money or cocaine or whatever it was I thought that I needed. I had a problem loving this baby that was inside of me.”*

**Cocaine is of particular danger to the fetus of a pregnant woman. Like other psychoactive drugs cocaine will easily cross the placental barrier the membrane separating the baby's**



**and the mother's blood, so when a pregnant woman smokes or injects cocaine, within seconds her baby will also be exposed to the drug.**

*Tina: “During my pregnancy is when I used crack with him. It would make him ball up real tight, it would make me contract. My stomach would go into contractions and he would move and he would kick. It would feel like he was coming out. I went into labor early. I went into labor two months early with him. He was only three pounds four ounces when he was born.”*

**The increased blood pressure and constriction of the blood vessels can cause the placenta to prematurely separate from the wall of the uterus, causing a miscarriage or premature delivery.**

**At birth, if the mother is still using, increased respiratory rates, hyperactivity, and agitation are common. There is also a five-to ten-fold increased risk of crib death. In addition babies also suffer withdrawal symptoms that can last anywhere from several days to weeks even months.**

*Sarojini Budden, MD : “This is a little boy that we have seen and he is seven and a half months there and he is withdrawing from amphetamines and cocaine and you can see that he has so much difficulty even rolling over and they tend to be really quite stiff.”*

**The long-term physical effects in children who were exposed to cocaine in utero are not well-known by scientists; however adoptive parents report have more learning disabilities and psychological problems.**

*Social worker: “Does rabbit have a name?”*

*Girl: “Umm, ah?”*

## **IV Drug Use & Infections**

*Linda: “You know my Mom passed away last year in February from AIDS, which she contracted through IV use and prostitution herself.”*

**The incidence of HIV infection among IV cocaine users drug users is extremely high. Re-use of infected needles is the most common method of transmission but unsafe sex, trading sex for coke, or using contaminated paraphernalia are also common.**

*Rob: “People like me that would snort coke and you’d share a straw and those straws cut. You wind up having those straws cut into your nasal passage and there is some blood involved and that is enough for a lot of people to actually pass on infections, nevermind the fact that being high on cocaine loosens you up and leads to possible unsafe behavior.”*

**Besides AIDS there are any number of infections that can occur in the IV cocaine user, particularly IV users. These include abscesses at the site of injection, cellulitis, tuberculosis, and endocarditis.**

*Mike: “I was told I have a ruptured heart valve from endocarditis the second time I got it. The coke is causing it and actually making it worse and worse. I could have a heart attack any time I do it.”*

**The most common infection in IV drug users and one of the most dangerous is hepatitis C, a liver disease. Currently over 4 million Americans have hepatitis C.**

*Amanda: “I just recently found out that I have hep C which is from my last relapse. It effected me really bad from being out on the streets because I don’t take, I don’t eat enough. I also drink a little too much and from using coke and what not.”*

**Hepatitis C can lay dormant for years but when active it inflames the liver and if left untreated leads to scarring or cirrhosis, often to the point of liver failure. In some IV drug-using populations, up to 80% have infected themselves with the hepatitis C virus.**

*Billy: “I didn’t think twice about keeping on doing cocaine and drinking. I thought I had the flu. I knew I had hep. I was yellow. Everybody told me I was yellow. I didn’t want to believe it. I wanted to keep on getting high and if I didn’t go to the hospital I would have died.”*

## **THE PATHWAY TO ADDICTION**

**Prolonged use of cocaine will produce mental and physical signs and symptoms that will often identify a compulsive user. The major hallmark of compulsive use is continued use despite adverse consequences.**

*Andrea: “One second I’d be happy and think I had everything if I had my drugs and in the next second I’d be depressed and angry and thought that the whole world was out to get me. But near the end as it progressed I didn’t feel anything. I couldn’t tell if I was high or not anymore. I was completely empty, my soul was taken from me.”*

**Some people are more susceptible to cocaine and other drug use because their genetic neurochemical makeup causes them to react more intensely to it.**

*Billy: “On both sides of my family there is addiction, very heavily. I have a half brother doing 15 years to life in prison, I have four half sisters that are in recovery. I have two sisters who are deceased—one murdered over drugs, one Od’d over drugs.”*

**Another reason for compulsive use is that their environment caused them physical, emotional, and sexual trauma and they use cocaine to help them obliterate those painful experiences.**

*Renee: “Being sexually molested and abused physically and I have a whole history of that when I was growing up from childhood. So now it affects my life because I have to take medication.”*

**Finally, repeated exposure to drugs, especially one as reinforcing as cocaine, can further alter brain chemistry and put users into an addictive cycle where the use of cocaine becomes the focus of their lives.**

*Kris: “The first time I shot coke I was 12 years old. I am forever going to be chasing that one single high that I will never get back.”*

**Addiction is almost never caused just by heredity, just by environment, or just by the use of cocaine. These three factors work together to cause a condition that is characterized by an obsession to have and use the drug. Addiction leads to a way of life characterized by loss.**

*Hatty: “I lost my mental sanity, I lost my self-esteem and crack takes your teeth. I lost my teeth.”*

## **TREATMENT & RECOVERY**

**Though there are many models for recovery, most agree that because of the compulsive nature of cocaine and other drugs, a focus on abstinence and lifestyle change is the only sensible long-term approach.**

*John: “You know, both of us have been through too much bullshit about allowing other people to tell you about yourself, you and I; from family members on down. You’re no good, you’ll never be nothing, you ain’t shit! Dat, dat, dat, dat, dat dat! Somewhere in your life you said, ‘Ok. Ok, I’ll fix all of you, just like I did. I’m going to fix you. I’m not going to be nothing, I’m not going to do nothing, be nothing, now what?’ But the problem is it didn’t hurt no one but yourself and that is what I did.”*

**Treatment can involve 12-step groups, facilitated groups, or individual counseling.**

*George: “How do you feel about drugs now after what you’ve gone through?”*

*Lenny: “If I had to do it all over again and get a fresh start, I would choose different. I would because being hungry, homeless, cold, craving for drugs, that is no life for anyone to live. It is a hard life, it is a terrible life .The things that you do, the things that you think you wouldn’t do, that are not in your character. It will bring out the worst in you.”*

**The biggest barrier to abstinence is craving often brought on by triggers or environmental cues that overwhelm the best intentions.**

*Darryl Inaba, Pharm.D. “Environmentally triggered craving is a sort of like a post traumatic stress phenomena. A person’s brain has bits of memory, their withdrawal about the high, about the use, all about their interactions with cocaine. What happens is any kind of sensory input, a*

*sight, a smell, a person who used to use in the neighborhood, anything that stimulates those bits of memory can evoke a whole response.”*

**If one wants to avoid relapsing into addiction, there are three main steps that can be used to achieve a drug-free philosophy.**

**First is getting the drug out of the system.**

*Ben: “If I was still doing drugs, I wouldn’t be here at all. There would be no purpose for me to be here. I would just want to be doing more, especially if I was doing coke. I’d be sitting at my house thinking someone was watching me, looking out the window and being paranoid. I am glad that I don’t have those days anymore.”*

**It takes about a week to detoxify from the drug and perhaps another four weeks to three months, sometimes even more, until the body chemistry settles down.**

*Alice: “All I could do at a month clean was get my ass to a meeting. That was it! I couldn’t pick up the telephone and call them to say I am here. All I could do was get to a meeting; that was it and that was all. I couldn’t work a job, I couldn’t go to nobody’s party, I couldn’t go to nobody’s function. Don’t even ask me, you know, because I wasn’t there yet. It just sounds to me you’re still kind of playing with this program, you’re playing with your life really.”*

**Next is building a support system that will give continuing advice, help, and information when the user returns to his home and job and is subject to all the pressures and temptations that made him abuse the drug in the first place.**

*Glen: “I didn’t hear in your share that you felt empowered to walk away from that situation. It seemed like you were manipulated and victimized and all of those other things that I am feeling from you; that’s early recovery man. You know if you are going to have more than a month of recovery, you’re going to have to adhere to the program and part of that is surrendering your power, your personal power.”*

**Finally, and most importantly, it’s restructuring the users’ lives and finding things they enjoy doing, that give them satisfaction, that give them the natural highs they came to seek through drugs.**

*Steven: “What happened to me in my case is that I actually found a way of life that was more emotionally satisfying than I had before. More emotionally satisfying than I had, more emotionally satisfying than at any time in my life. And that, I can’t really improve on.”*

*Martha: “I appreciate everything because recovery is like, you got to hustle for it like you hustle for your dope, you got to hustle for your recovery. Whatever you put into it you are doing to get out.”*

