



What Is Crystal Methamphetamine and How Does It Work?

Methamphetamine is a white or yellow crystalline substance that is usually in powder form that can be snorted, smoked, or it can be mixed with water and injected intravenously or squirted in the rectum.

The original term “crystal” used to refer to a highly potent form of methamphetamine in larger crystals, but now it is commonly used to refer to any form of the drug. Methamphetamine is a stimulant that works primarily on the neurotransmitter dopamine, as well as norepinephrine. Dopamine is a chemical with activity not just in the brain, but also throughout the entire body, including the heart, lungs, muscles, kidneys, stomach, intestines, and the blood vessels that supply oxygen to all these organs.

Dopamine has various functions depending on where in the body it acts. Crystal causes a dramatic increase of dopamine in the brain by inducing brain cells to release their dopamine stores and blocking re-uptake transporters that recycle dopamine for later use. The effect is an extremely high accumulation of dopamine, with intense mood and physiological effects.

The chemical structure of crystal is similar to other stimulants, such as amphetamine (Dexedrine and Adderall), methylphenidate (Ritalin, Concerta, Metadate, Focalin), pemoline (Cylert), as well as the hallucinogen methylenedioxymethamphetamine (MDMA, commonly known as ecstasy). Various over-the-counter and herbal remedies, such as caffeine, ephedra (also called ma huang), ephedrine, pseudoephedrine, guarana, and ginseng have stimulant properties. Though herbal medicines are touted as “natural remedies,” their stimulant effects function in the same way as pharmaceutically produced drugs, and they are not necessarily any safer.

Methamphetamine is a particularly potent stimulant because it increases dopamine in the brain much more than any other stimulant: while cocaine increases dopamine transmission in the brain by 400 percent, methamphetamine increases transmission by 1500 percent. The nucleus accumbens, an area of the brain highly associated with addictive drugs, uses dopamine to communicate with another area called the ventral tegmentum. The connection between these two regions is called the mesolimbic pathway, nicknamed the “brain-reward circuit.”

This circuit is strongly associated with pleasure and can cause compulsive repetition of behaviour - in its extreme, compulsive repetition can become out-of-control, leading to addiction. The more directly a drug stimulates this pathway, the more addictive the drug tends to be. Crystal stimulates this pathway more intensely than any other known drug. The supraphysiologic release of dopamine is associated with the production of free radicals, chemically reactive particles that cause cellular damage. Free radicals cause genetic mutations, cancer, cell death, and aging in the body. In the same way, free radicals produced during crystal use damages brain cells, particularly in the basal ganglia and connections to the prefrontal cortex.

These areas affect movement, memory, attention, and even the basic decision-making and impulse control that are needed to stay sober. The structural brain changes that result from crystal use make the tasks of relapse prevention and resisting cravings much more difficult.

What Is It Like to Use Crystal?

Each person's response to crystal may differ: with some feel intense pleasure, while others feel only alertness and anxiety. Some may feel instantly compelled to use the drug again, though the vast majority of crystal users develop an addiction gradually over years, beginning with rare to occasional use, which surreptitiously increases to frequent heavy binges or daily use.

Despite some variability, certain experiences are common and shared by most people using crystal. Crystal often causes an initial rush of euphoria, followed by a strong sense of well-being and boosted self-confidence. Mood is elevated, and if someone is feeling depressed, crystal can bring rapid relief. Senses are heightened, so sights and sounds may seem sharper and more vivid. On the other hand, some people can feel too stimulated and become jittery, anxious, or panicky. In general most people feel a tremendous boost of energy and confidence. Those who are socially withdrawn can become outgoing and charismatic. Thoughts flow more quickly, and grandiosity makes the ideas seem brilliant. Speech can also become more rapid, trying to keep pace with rapid thoughts.

Like other stimulants, methamphetamine helps people to concentrate and even enjoy ordinarily mundane activities. This may seem ideal for the tired worker who has too many things to do but not enough time in the day to do them. In the extreme, people high on crystal become caught in repetitive behaviour, whether it is a simple movement, like rocking, grinding teeth, or tapping feet, or more complex activities like cleaning the entire house or dismantling a computer completely into its little components. From the outside the behaviour may appear illogical, though the crystal user usually feels a strong sense of purpose.

Like other stimulants, methamphetamine is a powerful anorectic. People lose their appetites, and they may become so focused on an activity that they forget to eat completely. Many chronic crystal users suffer significant weight loss. Crystal also causes dry mouth, tooth grinding, and osteoporosis secondary to malnutrition - a combination that destroys teeth, earning the nickname "meth mouth."

In many people, crystal causes an intense compulsion to have sex. Initially, the combination of sex and crystal were more commonly associated with gay men. In the gay community, crystal was first introduced to the nightclub and circuit party scene, which is a highly sexualized environment. It later spread to sex clubs, sex parties and Internet sex hook-ups. Because of this manner of introduction, crystal is often used in the gay community in sexual contexts. Early studies showed that heterosexual users had different behaviour patterns, though recently there have been reports of hypersexual activity among heterosexual users, possibly resulting from the increased visibility of ad campaigns warning gay men of the dangers of sex with crystal. Once a crystal user, whether homosexual or

heterosexual, begins to have regular sex with crystal, this becomes an extremely difficult behaviour to stop. Sex while high on crystal is incomparable to “sober sex.” The sex drive becomes so strong that some people have continuous sex lasting several hours to days. Pursuit of sexual gratification can become such an overpowering, irresistible compulsion that protection against HIV seems like an annoying hindrance to the much stronger need for sexual gratification. Though the gay community is only a minority of the crystal users in the U.S., they have been the most vocal in addressing crystal addiction because of its effect of perpetuating the transmission of HIV. However, sex with crystal is becoming more prevalent in heterosexuals, as well. For any person who pairs crystal with sex, this is a crucial issue to address in addiction treatment and managing triggers for relapsing. A significant concern about the strong connection between crystal use and hypersexual activity is the effect that crystal has on the spread of HIV, as well as other sexually transmitted diseases, including hepatitis B and C, as well as others.

This effect has been documented in numerous studies and anecdotal reports from HIV agencies. In addition, crystal methamphetamine has been shown to impair immune function in both in vitro (test tube) and in vivo (animal) studies, further weakening the health of crystal users who already have HIV and hepatitis.