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**UNDERSTANDING
ADDICTION *to*
CRYSTAL METH**

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UNDERSTANDING ADDICTION TO CRYSTAL METH

The History of Amphetamines

Amphetamine, originally dubbed phenylisopropylamine, was first discovered in a German laboratory in the late 1880s; methamphetamine was discovered soon after, by a Japanese chemist in 1893. What we usually refer to as “crystal” meth – methamphetamine hydrochloride – was first synthesized by another Japanese chemist in 1919. But it wasn’t until 1927 that the stimulant properties of amphetamines were noticed, and by 1934 the first amphetamine pharmaceutical was sold under the brand name Benzedrine.

Benzedrine’s popularity and effectiveness meant that as the Second World War dawned, militaries on both sides looked into using amphetamines as battlefield stimulants; Allied forces usually used amphetamines like Benzedrine, while Axis soldiers took various forms of methamphetamine, such as the “flyers’ chocolate” and “Panzer chocolate” used by German tank crews and aircraft pilots. Amphetamines are still even used today by modern militaries, usually still by fighter or bomber pilots on long flights.

After the boom in amphetamine production necessitated by World War II, however, authorities quickly began to lose control of both the use and production of the

drug. In both the United States and Japan, criminal organizations quickly began producing and distributing illicit methamphetamine, and by the 1970s all forms of amphetamine were heavily restricted by both US and UN law. By the 1990s, over 180 nations had signed on to the UN regulations. Unfortunately, in countries like the US, that only caused an increase in the black market trade.

As it currently stands, methamphetamine is on Schedule II of the US Controlled Substances Act and the UN Convention on Psychotropic Substances...

As it currently stands, methamphetamine is on Schedule II of the US Controlled Substances Act and the UN Convention on Psychotropic Substances, meaning that while it does have some legitimate medical usage – it is prescribed under the trade name Desoxyn for treatment of ADHD or exogenous obesity – its potential for abuse is recognized, and thus prescriptions for it are highly monitored. Regular amphetamine is also in the same legal category, although it's most common medical formulation, Adderall, is easily acquired both legitimately and illicitly. Amphetamine is usually prescribed for the treatment of ADHD or narcolepsy, or more rarely for depression or obesity.

Illicit methamphetamine production – recently brought

into the public eye by the smash hit TV series *Breaking Bad* – is a constant worry for law enforcement agencies nationwide for multiple reasons. Aside from the obvious correlation between illicit production and the increase of black market meth in an area, authorities pay close attention to potential meth labs due to the highly combustible and toxic nature of the processes involved in creating meth. Many an aspiring meth cook has wound up on the wrong end of a lab accident, the results of which can range from a simple chemical burn to a massive – and likely fatal – explosion.

Street Names for Amphetamines

- Crystal meth
- Meth
- Speed
- Crank
- Crystal
- Ice
- Shards
- Shabu
- Tweak
- Rock
- Tina
- Yaba
- Cold
- Glass

The Science of Amphetamines

“Amphetamines” are an entire category of chemicals, all of which act as major stimulants on the human central nervous system. Not all of them are as notorious as crystal meth; in fact, some of them have been in use for several thousand years. The compounds ephedrine and pseudoephedrine are both found in the leaves of the Ephedra plant, and have been used as antiasthmatics and stimulants as a part of traditional Chinese medicine since at least 200 BCE. Today these chemicals are common components of over-the-counter allergy and cold medicines, such as Sudafed or Benadryl, although there is some amount of government oversight over their sale, as they can be used to illicitly manufacture methamphetamine. The amphetamine class also includes illegal stimulants like MDMA and methcathinone (“Molly” and “bath salts,” respectively).

Neurological Effects

All amphetamines act on the human central nervous system by interacting with the production and activation of monoamine neurotransmitters. Crystal meth is particularly effective in comparison to other drugs in this class, which is part of the reason it is considered to be the most dangerous. The drug increases production of the major neurotransmitters dopamine, serotonin, and

norepinephrine, which results in crystal meth's major effects. The excess of dopamine is responsible for meth's addictive nature, as dopamine is a core component of how the brain processes pleasure and reward. The serotonin is responsible for most of the effects that meth users are looking for, such as euphoria and increased libido. Finally, the spike in norepinephrine stimulates the adrenal glands, resulting in a wide variety of physiological reactions.

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There is a heated debate in the scientific community as to just how harmful this flood in monoaminergic production is. Many scientists have quickly labeled methamphetamine as a neurotoxin, and there is certainly evidence that extended use of crystal meth can cause permanent damage to the central nervous system and to the chemistry of the brain. The excess of serotonin, specifically, can in some cases trigger what is known as “serotonin syndrome” or “serotonin toxicity” – a state where the level of serotonin freely acting on the CNS is actually poisonous and potentially lethal. Still, the specific interactions of methamphetamine

and neurotransmitters are only vaguely understood, and there has yet to be a unified approach to studying them; although there have been many studies focused on one aspect or another of the issue, there is little standardization or attempt to accurately create models based on the actual amounts of methamphetamine used by addicts. As a result, many of the reports of crystal meth's toxic effects, both from the scientific community and the news media, are subject to sensationalist exaggeration, much akin to how crack cocaine was treated in the 1980s.

This is not to say that crystal meth is not potentially toxic or dangerous – merely that sensationalist news reports and bad science only serve to exaggerate the issue at hand, making it that much harder to deliver helpful and scientifically accurate information to the people who need it most.

Physiological Effects

Methamphetamine is a stimulant, and as a result users find themselves with a surplus of energy, as well as feelings of euphoria, alertness, curiosity, wildly increased libido and self-esteem, and also sometimes excess aggression. The increased levels of norepinephrine in the brain also trigger the adrenal glands, resulting in an excited cardiovascular system (increased or irregular heart

rate, increased blood pressure), hyperthermia, muscle tremors, and stomach cramps.

Another debated aspect of crystal meth use is what is colloquially known as “meth mouth” – a situation where the user’s teeth and gums rapidly decay. Media reports frequently consider this to be an actual side effect of methamphetamine use, but considering that methamphetamine has a nearly identical chemical structure to regular amphetamine, and taking into account the massive number of people in the United States on legally prescribed amphetamine, then if “meth mouth” were a direct symptom of amphetamine usage, it would be far more prevalent than it actually is. Instead, researchers believe that “meth mouth” is just an exacerbated version of xerostomia and bruxism – that is, dry mouth and teeth-grinding. Studies taking into account sociological factors have noticed that most meth users live in low-income areas and have limited economic liquidity, forcing them to mostly subsist on cheap, high-sugar foods and drinks, with one study interestingly pointing out Mountain Dew as a particularly common choice among meth users. The combination of large amounts of sugar, dry mouth, and grinding of teeth results in severe damage to tooth enamel and gums, resulting in meth mouth.

Common Methods of Methamphetamine Abuse

Crystal meth is most commonly smoked or injected intravenously. Each method of use has different risks, with injection being the most risky, but also providing the quickest and strongest high. The health risks of injection stem more from the hygiene problems common to every form of intravenous drug use – contaminated needles, exposure to blood-borne pathogens like HIV or hepatitis, or infections at the injection sites.

“Smoking” crystal meth is somewhat of a misnomer, as the pipes used are technically designed to vaporize the drug so that the fumes can be inhaled, as opposed to inhaling smoke from directly burning it. Meth pipes can be made from a wide range of household objects, even light bulbs.

Meth can also be snorted in a manner similar to cocaine, ingested orally, or taken as a suppository. Ingested meth is usually “bombed,” or crushed into powder and then wrapped in a tissue before being swallowed, although some users manage to acquire meth in pill form, such as the aforementioned prescription formulation Desoxyn. Little is known about suppository use of methamphetamine, as few researchers have looked into its use, and thus most information about it is purely anecdotal. Still, studies show that anal or vaginal suppository use does have an impressively quick rate of action, and it is possible that users desperate

enough for a comparatively clandestine method of getting high may turn to suppository meth usage.

The Signs and Symptoms of Meth Addiction

Although crystal meth addiction is most common among the lower strata of America's economy, the ubiquity of the drug and the ease with which aspiring meth cooks can start up a meth lab means that meth addiction can be found in communities in the country.

Meth addiction has some of the most severe behavioral impacts on its victims, much like crack cocaine or heroin.

Meth addiction has some of the most severe behavioral impacts on its victims, much like crack cocaine or heroin. Meth users tend to go on extended use binges, during which they are likely to engage in risk-seeking behaviors in order to prolong their high.

Unlike other drug use cultures, crystal meth users have a particularly dangerous tendency to trade sex for more drugs. This is common both in heterosexual and homosexual communities, with a particularly worrying frequency among HIV-positive gay and

bisexual men in major cities. Men in these communities tend to have turned to methamphetamine for intensely personal reasons, such as low self-esteem or to cope with the stress and dread that comes with a positive HIV diagnosis. This kind of self-destructive behavior is not limited to gay communities, however; in a study conducted of heterosexual meth users in San Diego, California, women were more likely than men to have traded sex for meth. In general, meth users who are willing to trade sex for more drugs, whatever their gender or sexual orientation, tend to be in extremely dire straits, whether they are suffering from extreme poverty or homelessness or psychological issues. Unfortunately, the numerous health hazards associated with meth use in these circumstances rarely allow users a chance to recover on their own.

CHECKLIST:

Possible Signs of Meth Addiction

- Punding (compulsion to perform repetitive mechanical tasks)
- Formication (hallucinating that insects are crawling on or inside the user's skin)
- Psychotic periods
- Severe or rapid weight loss
- Paranoia
- Deteriorating physical health
- Increase in risk-seeking behaviors
- Unsafe sexual activities
- Severe financial problems

Meth's Common Health Hazards

Excessive meth use, especially when combined with the impoverished conditions of many meth users, can lead to a number of problematic health conditions. Meth's stimulation of the user's adrenal glands usually means that they are constantly in a state of increased or irregular cardiac activity. The poor eating habits that emerge during a meth binge, especially in combination with the low nutritional value of most foods available to America's poor, frequently results in hyperglycemia, or even diabetes. Meth's interference with the release and absorption of neurotransmitters can even lead to strokes.

Meth's Health Risks

- Hyperthermia
- Psychosis
- Increased heart rate and blood pressure
- Vasoconstriction
- Stroke
- Hyperglycemia

One of the most terrifying risks of chronic meth use is the possibility that the user will develop Methamphetamine-Associated Psychosis.

One of the most terrifying risks of chronic meth use is the possibility that the user will develop Methamphetamine-Associated Psychosis. Although the specific cause of this disorder is still unknown, studies show that it may have a genetic component, and that a person's previous mental health history may also contribute in some way. Whatever the cause, MAP is an extremely unsettling disorder that can stay with the victim, even for months after they have stopped using amphetamines. MAP usually progresses in stages, beginning with an initial phase of psychometric effects like a heightened sense of concentration, then progressing to delusions, and then finally to a full psychotic break, complete with hallucinations. A complete understanding of MAP is still beyond even current medical science, and thus it is best assumed that any extended use of methamphetamine could lead to this kind of psychosis. Anyone exhibiting the signs of MAP should be immediately placed in psychiatric care, as they may harm themselves or others.

Identifying Methamphetamine Psychosis

- Delusions of persecution
- Auditory hallucinations
- Psychomotor retardation
- Poverty of speech
- Schizophrenic behavior
- Formication

Treating Meth Addiction at Behavioral Health of the Palm Beaches

Meth Withdrawal and Detox

Overcoming an addiction to meth requires going through withdrawal – the period where the user’s body, which has come to rely on the drugs to function, must return to a state of homeostasis, purging any remaining quantities of toxins still present. This process is usually painful, and involves a whole list of symptoms that are almost impossible to handle without outside assistance. Addicts who attempt to go through withdrawal on their own inevitably relapse, which usually leads to an overdose; relapsing addicts will resume using meth in

the same quantities they were used to before beginning withdrawal, but during the withdrawal period their tolerance for the drug will have gone down, and thus what before may have only gotten them a little high can now possibly result in a seizure or cardiac arrest. This is why medical supervision is so important, especially during the withdrawal process. Properly trained recovery specialists can administer medications to help ease the pain of withdrawal symptoms, as well as provide counseling and assistance with any psychological issues that may arise.

Common Symptoms of Meth Withdrawal

- Dysphoria
- Oversleeping or insomnia
- Anxiety
- Paranoia
- Craving more meth
- Suicidal ideation
- Inability to concentrate on basic tasks
- Depression

Residential Rehabilitation

Successfully recovering from crystal meth addiction means getting help from the right people – people like the staff at Behavioral Health of the Palm Beaches. Once you've checked into a recovery facility, you will be placed in a detoxification program so that you will have the necessary medical assistance and supervision as you go through withdrawal. You will also enter an inpatient residential rehabilitation program.

In a residential rehab program, the patient is removed from whatever circumstances may have influenced their addiction, and by no longer being exposed to that environment they can more easily undergo the process of recovery. For most patients, this kind of program lasts for thirty days, during which they stay in a supervised facility and attend therapy sessions and workshops to address the root causes of their addiction.

Residential programs like those at Behavioral Health of the Palm Beaches provide both medical supervision and emotional support to patients at this vulnerable stage in their recovery.

For patients in need of greater support, Behavioral Health of the Palm Beaches offers a long-term residential rehab program that can last from two to twelve months. This program is focused on giving patients a new perspective on life, which can be extremely helpful for people who have spent many years grappling with addiction, as the effects of long-term amphetamine abuse on a person's brain chemistry are extensive.

Alumni Programs

After a patient has finished their treatment program at Behavioral Health of the Palm Beaches, their recovery is by no means finished. Maintaining sobriety can be a difficult task after returning to the pressures of everyday life, and that is why Behavioral Health offers a supportive community for alumni of their programs, as well as for the friends and loved ones of those alumni. Through the Behavioral Health Alumni website, former patients can maintain an open dialogue about their progress and their successes, chat with other fellow alums, and organize in-person events. It can be impossible to maintain recovery alone, but with the help of the Behavioral Health alumni community, there will always be someone to talk to who is personally invested in your success.

Staying Clean and Staying Healthy

Recovery is a continuous process; even after you've finished detoxification and rehabilitation, there will still be hardships to overcome. But Behavioral Health's program will give you the tools and the strength to get through those hard times.

There is hope. We can help.

Resources

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