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# Diagnosis of Methamphetamine Use

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## The Symptomatic Patterns

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The clinical symptoms of methamphetamine use are primarily sympathomimetic in nature and are well documented in the literature on humans and animals (Tadokoro and Kuribara, 1986; Rothrock et al., 1988; Sachdeva and Woodward, 1989; DeVito and Wagner, 1989; Tohhara et al., 1990; Beebe and Walley, 1995; Ando et al., 1996; Ashizawa et al., 1996; Chuck et al., 1996; Logan et al., 1996; Peltier et al., 1996; Wolkoff, 1997). At low doses, methamphetamine causes generally positive effects, such as increased alertness, energy, euphoria, elevated self-confidence, persistent activity and work, increased talkativeness, increased sexual pleasure and hypersexuality, a sense of well-being, increased strength, and a loss of appetite. The ego-syntonic, pleasurable nature of methamphetamine intoxication explains its persistence as well as the addictive cycle that usually emerges.

Table 7.1 depicts methamphetamine intoxication and its general effects on violence potential and reality testing. The increase in violence potential and the decrease in reality testing are associated with increasing dosages. Note that reality testing in homicides may be preserved under mild effects of methamphetamine, but that delusional homicides are the hallmark of severe impairment as a result of this drug.

Higher doses of methamphetamine may result in negative symptoms such as disorganized or purposeless physical activity, tremors, muscle tics, slurred speech, muscle spasms (hyperflexia), motor instability, incoordination, gait ataxia, bruxism (i.e., teeth grinding), and athetosis (e.g., strange motor movements). Affective symptoms include agitation, restlessness, rage, panic, and anxiety. Somatic sensations include numbness of the skin and limbs. Hallucinations may occur as well as strong feelings of paranoia with

**Table 7.1 Impact of Changing Dose of Methamphetamine Across Several Dimensions**

Duration/Dose	Methamphetamine Intoxication	Methamphetamine Delirium	Violent Potential	Methamphetamine Delusions	Impairment Reality Testing
Low dose	<p>Euphoria</p> <p>Initial decreased anxiety Disinhibition Heightened interest in the environment</p> <p>Feelings of increased competence Increased self-esteem Clear sensorium without cognitive confusion or hallucinations</p>	<p>Anxiety and irritability increases sometimes resulting in extreme paranoia or panic-like delirium</p>	<p>Violent increases as a function of dose</p>	<p>Occurs in many chronic users</p> <p>Note that paranoid delusions can be experimentally induced by prolonged amphetamine administration</p>	<p>Impairment increases as a function of dose</p>
Medium dose	<p>Extreme impulsiveness including violence</p>	<p>Panic attack sympathetic discharge with fear of impending death</p>			

Irresponsibility or  
disinhibition

Delusions are related to amount  
and duration rather than  
subjects' predisposition to  
psychosis

Impaired judgment  
Grandiosity  
Atypical generosity  
Hypersexuality

Disorientation similar to  
organic delirium with  
alternate in perception of  
time, place, and person

Hypervigilance

Reality testing may be preserved  
if the effect is mild but  
delusional homicides do exist  
when reality testing is severely  
impaired

Compulsive repetitive  
actions  
Mania  
Psychosis or Bipolar  
Affective Disorder

Delusions last longer than for  
cocaine, often for several days

Stimulant overdose

High dose

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Source: Adapted from Gabbard, G.O., Ed., *Treatment of Psychiatric Disorders*, 2nd ed., Vol. 1, American Psychiatric Press., Washington, D.C., 1995, 706–720.

a severe amphetamine-induced psychosis. Most high doses of methamphetamine are associated with a clear sensorium. Violent behavior toward others with increased risk-taking behavior has been observed frequently. Hyperthermia (extreme rise in body temperature) is common. At high dosages, difficulty with urination, irregular heartbeat, convulsions, stroke, coma, and death have occurred.

The period following intoxication (“coming down” or “on the crash”) is characterized initially by restlessness, irritability, and a craving for the drug, along with fatigue and long periods of sleep. Confusion, disorientation, and hunger are common during this period.

Chronic symptoms of methamphetamine use include motor problems, depression, irritability, fatigue, exhaustion, and formication (delusions of insects crawling on the skin). Persisting neuropsychological symptoms associated with chronic methamphetamine use have been noted in animal and human investigations. Such symptomology includes visual-spatial disturbances, memory encoding and retrieval problems, lowered attention and concentration (especially selective attention), and executive dysfunction such as delayed responses and perseveration. A long-lasting amotivational syndrome, probably associated with dopamine depletion, often sets in. Circadian variations upset the sleep–wakefulness cycle. Flashbacks associated with threatening stimuli have been noted. Symptoms similar to paranoid schizophrenia, a disorganized lifestyle, persistent delusions, poor judgment, and irresponsibility have been observed. As discussed earlier, the user may realize that visual and auditory hallucinations stem from methamphetamine use, but will continue with the pathological behavior anyway. A diminished social life with compromised coping abilities is a natural consequence. Fatal liver, heart, kidney, and lung disorders, as well as brain injury due to cerebral bleeds and other factors, have been implicated. There is a lowered resistance to disease. Acne, sores, corneal ulcerations, and skin disorders such as dry, itchy skin may occur. As alluded to earlier, a chronic reverse tolerance (i.e., sensitivity) to a variety of chemicals including cocaine, ephedrine, L-dopa, and morphine often ensues. Relevant to forensic issues, methamphetamine users may use such drugs as a substitute for methamphetamine and amphetamine psychosis may be induced or exacerbated by such drugs (Tadororo and Kuribara, 1986). Weight loss is usually striking, along with malnutrition, avitaminosis, and other problems in nutrition and appetite.

Table 7.2 presents the symptoms of methamphetamine withdrawal. The effects on the user’s mood during this period are considerable. Violence potential is increased during withdrawal, furthered by an entrenched delusional system and compromised ability to cope.

**Table 7.2**

Duration and Dose	Acute Withdrawal: the Crash	Chronic Withdrawal and Mood Dysfunction <sup>a</sup>	Violence Potential
Low dose	Recovery in most low-dose first-time users	Decreased capacity to perceive reward or pleasure Follows several hours to 3 days after the crash after a period of hypersomnolence	Violent potential increases as dose increases
	Mildly depressed mood and anxiety	Increased anxiety	
Medium dose	Craving with sometimes commission of crimes to obtain money	Inactivation Irritability	
	A wish to escape from the hyperstimulated dysphasia with increased use of sedative drugs and alcohol to induce sleep	Restricted feelings of pleasure in drug-free life High anxiety	
	Hypersomnolence and hyperphagia	Severe depression Loss of temper	
High dose	Unipolar depression in some, withdrawal and chronic mood dysfunction in chronic abusers	Mood disorders	

<sup>a</sup> Methamphetamine is physiologically as well as psychologically addictive but the symptoms are primarily expressed psychologically.

Source: Adapted from Gabbard, G.O., Ed., *Treatment of Psychiatric Disorders*, 2nd ed., Vol. 1, American Psychiatric Press., Washington, D.C., 1995, 708–720.

## Diagnosing Methamphetamine Syndromes

Terms used by mental health experts have diverse meanings and one should not assume that one understands the meaning of expert testimony unless those terms are defined explicitly. The expert should employ the *Diagnostic and Statistical Manual*, Fourth Edition (DSM-IV, American Psychiatric Association, 1994) classification system to differentiate among methamphetamine

intoxication, abuse, dependence, and withdrawal or other special symptoms of methamphetamine-induced conditions.

Absent combinations of drugs (e.g., polysubstance dependence), the possibilities for methamphetamine-related diagnoses in DSM-IV (listed under Amphetamine or Amphetamine-like disorders because of common properties and general arousal effects) are as follows:

Code	Term
304.40	Amphetamine Dependence
305.70	Amphetamine Abuse
292.89	Amphetamine Intoxication
292.0	Amphetamine Withdrawal
292.81	Amphetamine Intoxication Delirium
292. xx	Amphetamine-Induced Psychotic Disorder
	.11 With Delusions
	.12 With Hallucinations
292.84	Amphetamine-Induced Mood Disorder
292.89	Amphetamine-Induced Anxiety Disorder
292.89	Amphetamine-Induced Sexual Dysfunction
292.89	Amphetamine-Induced Sleep Disorder
292.9	Amphetamine-Related Disorder Not Otherwise Specified (NOS)

Only two of these conditions (Codes 292.89 and 292.81) denote methamphetamine intoxication at a particular time. An expert's diagnosis of methamphetamine abuse or dependence for the time of an alleged offense, for example, does not imply that the affected person was methamphetamine intoxicated before or during the commission of that alleged crime. Both abuse and dependence refer to the emergence of a maladaptive pattern within a 12-month period but, as has been seen, that pattern may be triggered by short-term usage.

As a caveat, although these diagnoses are helpful, they can imply greater precision than is, in fact, present. Standards should be improved to specify the degree of change and to separate normal alterations of consciousness from pathological states. Until that occurs, we are left with a rudimentary classification system. Using DSM IV criteria, a diagnosis of methamphetamine intoxication for a particular time requires that the following occur:

- A. Methamphetamine use shortly before or during a relevant event. An altered state of consciousness must be present, even though metabolites may still be in the body from previous methamphetamine use or from other substances.

- B. Clinically significant maladaptive behavioral or psychological changes (e.g., euphoria or affective blunting; changes in sociability; hypervigilance; interpersonal sensitivity; anxiety, tension, or anger; stereotyped behaviors; impaired judgment; or impaired social or occupational functioning) that developed during, or shortly after, ingestion of methamphetamine.
- C. Two (or more) of the following, developing during, or shortly after, ingestion of methamphetamine:
  - (1) Tachycardia or bradycardia
  - (2) Pupillary dilation
  - (3) Elevated or lowered blood pressure
  - (4) Perspiration or chills
  - (5) Nausea or vomiting
  - (6) Evidence of weight loss
  - (7) Psychomotor agitation or retardation
  - (8) Muscular weakness, respiratory depression, chest pain, or cardiac arrhythmias
  - (9) Confusion, seizures, dyskinesias, dystonias, or coma
- D. The symptoms are not due to a general medical condition and are not better accounted for by another mental disorder.

According to DSM-IV, the diagnosis should specify whether delusions or perceptual disturbances (e.g., hallucinations, sensory illusions) occurred in the absence of delirium. Again, these are not precisely separable from normal levels of suspicion or normal mild sensory distortion. Sensory interpretation — including distortion — is fundamental to all perception. By convention (and assuming the accuracy of the defendant's report), intact reality testing means that the accused knew that the perceptual disturbances were induced by methamphetamine.

When perceptual disturbances occur in the absence of such knowledge, a diagnosis of Methamphetamine-Induced Psychotic Disorder, with Hallucinations (or sensory illusions) should be made, as methamphetamine psychosis closely resembles paranoid schizophrenia. The clinical experiences of some of the reviewers of this book (see Appendix II) indicate that delusions and hallucinations are not the equivalent of loss of contact with reality (e.g., many schizophrenics and methamphetamine abusers suffering from psychotic symptoms can shift immediately from delusional and/or hallucinatory activity to respond to the realistic requirements of a situation).

The diagnoses of Methamphetamine-Induced Psychotic Disorder, Mood Disorder, Anxiety Disorder, Sexual Dysfunction, Sleep Disorder, and NOS conditions (as in other symptoms not included in the above conditions)

imply intoxication or withdrawal from methamphetamine when the symptoms are in excess of those usually associated with the intoxication or withdrawal symptoms but only when the symptoms are sufficiently severe to warrant independent clinical attention. For clarity, the evaluator must specify whether those methamphetamine conditions occurred with onset during intoxication or with onset during withdrawal.

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