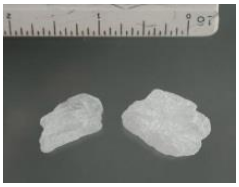
# Amphetamines/ Methamphetamine



- **Amphetamine Common Names**: Bennies, hearts, pep-pills, dex, beabs, benn, truck-drivers, ice, jolly beans, black beauties, crank, pink football, dexies, crosses, hearts, LA turnaround)[3]
- **Methamphetamines Common Names:** Crystal Meth, speed, meth, uppers, crystal, shit, moth, crank, crosses, methlies quick, jib, fire, chalk, glass, go fast, tweak, yaba[3]

## Characteristics (Stimulant)

**Amphetamines**

- Cause the release of amines dopamine, norepinephrine and serotonin (DA, NE, 5-HT) from central and peripheral neurons[3]
- Onset of action is 30 minutes after oral ingestion[3]
- Tolerance and psychic dependence occurs with chronic use[3]
- Usual dose is 10 to 30mg up to 2000mg/d for tolerant individuals[5]
- The half-life is very variable and depends on the urinary pH: it varies between 7 and 34 hours[5]
- Amphetamines are usually detected in the urine from 1 to 3 days to a maximum of almost 9 days[5]

**Methamphetamines**

- Synthetic drug chemically related to amphetamine and ephedrine that can be manufactured in "home laboratories" from common household items[3]
- It enhances the release of DA, NE, 5-HT [3]
- Crystal "ice" refers to methamphetamine washed in a solvent to remove impurities- smoked in a glass pipe, "chased" on aluminum foil, or injected
- Onset of action is very rapid and can last 10-12 hrs
- A "run" refers to the use of the drug several times a day over a period of several days[3]
- Usual dose is 5 to 10mg, but can be much higher for individuals who are tolerant.[5]
- Half-life varies between 10 and 30 hours
- 22mg of "ice" can be detected in the urine for up to 60 hours[5]

## Presentation during intoxication

**Common signs and symptoms of intoxication may include [2,3]**

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| Constricted pupils | Sweating | Nausea |
| Euphoria | Anxiety | Watery eyes |
| Excitation | Alertness | Hallucinations |
| Paranoia | | |

**Extreme intoxication signs and symptoms may include [2,3]**

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| Aspiration due to depressed consciousness | Hallucinations |
| Convulsions | Agitation |
| Increased body temperature | Stroke |
| Possible death | |

## Monitoring and Interventions during intoxication

**Goal [10]**

- Reduce risk of injury

**Monitor[3,10]**

- Assess level of disorientation and if possible time of last ingestion and amount consumed
- Monitor for falls risk
- Monitor vitals every 15 minutes initially and less frequently as acute symptoms subside
- Monitor respiratory pathways

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| **Monitoring and Interventions during intoxication (con't)** | • Monitor risk for seizures<br>**Supportive Interventions**[3,10]<br>• Provide reassurance and supportive care<br>• Provide privacy if possible to preserve dignity and ensure safety<br>• Institute seizure precaution strategies<br>• Antipsychotics and minor tranquilizers may be used. Antipsychotics should be administered with caution due to their propensity to lower seizure threshold.<br>• Repeated seizures may be treated with intravenous diazepam |
| **Withdrawal presentation** (Withdrawal effects peak in 2-3 days) | **Withdrawal Symptoms**[3,4]<br>Psychosis; Preoccupation with one's own thoughts; Distorted sleep; Difficulty concentrating<br>Paranoia; Auditory/visual hallucinations; Anxiety; Depression<br>Picking at skin; Agitation; Chronic fatigue; Suicidal/Homicidal Ideation<br>Nausea; Diarrhea; Anorexia; Hunger<br>Myalgias; Diaphoresis; Convulsions; Headache |
| **Monitoring and interventions during withdrawal** | **Goal**[10]<br>• Reduce drug cravings and manage depression<br>**Monitor**[3,10]<br>• Mental status (including suicide risk and agitation)<br>• Physical status (including hydration, electrolytes, seizures and possible serotonin syndrome)<br>**Interventions**[3,10]<br>• Provide a calm and quiet environment<br>• Allow client to eat and sleep as much as desired<br>• Use calming techniques/ reassurance/ supportive measures<br>• Suicide precautions may need to be instituted<br>• Supportive care of excessive sympathomimetic stimulation may be required<br>• Antipsychotics have been used for psychotic symptoms<br>• Antidepressants have been used for depressive symptoms<br>• Dimenhydrinate and Loperamide have been used for GI distress |
| **Potential Complications**[3] | • Psychosis can sometimes become chronic<br>• Strokes may occur<br>• Retinal damage may occur due to intense vasospasm<br>• Vasculopathy with or without parenchymal infarction<br>• Hypertensive encephalopathy<br>• Hemorrhage<br>• Chronic intoxication may result in a psychotic state with delusions, hallucinations, and delirium |
| **Drug interactions** | **With Antidepressants (SNRIs and SSRIs)** [6,7]<br>• May enhance general antidepressant effects<br>• May enhance the stimulant effects of tricyclic antidepressants.<br>• Risk of Serotonin syndrome<br>• Most antidepressants inhibit CYP2D6, increasing amphetamine effects (Fluoxetine especially)<br>**With Varenicline**[8]<br>• Reduced effectiveness of varenicline<br>**With Moclobemide**[6]<br>• Hypertensive Crisis<br>• Serotonin Syndrome<br>**With Sodium oxybate**[8]<br>• Seizures<br>**With Procarbazine**[8]<br>• Hypertensive crisis |

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| **Drug interactions** (Continued) | **With Amitriptyline/TCAs[6]**<br>• Serious risk of arrhythmias and acute elevation in blood pressure<br>• May enhance the stimulatory effect of amphetamines[8]<br>**With MAOIs[6]**<br>• Hypertensive Crisis<br>• Serotonin syndrome<br>**With Antipsychotics[3]**<br>• May decrease the effects of both agents<br>**With Anticonvulsants[8]**<br>• Lowers seizure threshold and may cause<br><br>**With Lithium[6]**<br>• Decrease in amphetamine effect seizures<br>**With Ketamine[8]**<br>• Increases hallucinatory behaviour<br><br>**With Guanethidine[8]**<br>• Reduced neuronal blockade<br>**With Ritonavir[9]**<br>• Ritonavir may inhibit CYP2D6-mediated methamphetamine metabolism, increasing risk of toxicity<br>**With Cannabis [3]**<br>• Increased heart rate<br>• Blood pressure increased with high doses of both drugs<br>• Increased plasma level of cocaine<br>• euphoria<br><br>**With Alcohol[5]**<br>• May reduce subjective effects of ethanol and may increase blood pressure |
| **Psychiatric effects** | • Stimulants can cause euphoria, exhilaration, alertness, improved task performance, and exacerbation of obsessive-compulsive symptoms[3]<br>• Amphetamines can cause nervousness, anxiety, insomnia, irritability, restlessness, panic, impulsive or aggressive behaviour[3]<br>• Methamphetamine may induce anxiety, agitation, confusion, insomnia, delirium, hallucinations, paranoia, and aggressive behaviour[3] |

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