CONDITION

Methamphetamine overdose

Methamphetamine overdose is acute poisoning that can dangerously affect the heart, brain, breathing, and body temperature.

WHAT IT IS
Acute poisoning from methamphetamine's stimulant effects

BODY SYSTEM
Brain and nerves, heart and circulation, whole body

MAIN SYMPTOMS
Severe agitation, chest pain, overheating, fast heartbeat

WHAT CAUSES IT
Toxic methamphetamine exposure

HOW IT IS DIAGNOSED
Clinical assessment, vital signs, ECG, and blood tests

MAIN TREATMENT
Emergency supportive care and control of dangerous symptoms

CAN IT BE CURED?
Sometimes - severe organ injury may persist

IS IT AN EMERGENCY?
Yes - any suspected overdose needs emergency assessment

LONG-TERM OUTLOOK
Often full recovery; severe cases may cause lasting injury

Overview

Methamphetamine is a powerful stimulant like methylphenidate or lisdexamfetamine . It speeds up activity in the brain and body. An overdose happens when its effects become toxic and begin to interfere with vital functions such as heart rhythm, blood pressure, body temperature, or brain activity.

An overdose does not always cause unconsciousness. A person may instead be awake but extremely restless, confused, frightened, overheated, or in severe pain. The informal term "overamping" is sometimes used for distressing stimulant effects, but it can overlap with a medical emergency.

There is no single amount that causes an overdose in everyone. Illicit methamphetamine can differ greatly in strength and may contain other substances. A person's health, tolerance, route

of use, surroundings, and use of other drugs also affect the risk.

Methamphetamine overdose can cause a heart attack, stroke, seizure, or dangerous overheating. Prompt emergency care can reduce the risk of lasting injury.

Symptoms

Symptoms can develop quickly or build as methamphetamine is taken repeatedly. Because the drug can act for many hours, symptoms may continue or worsen after use has stopped.

Possible symptoms include:

A person may have a stroke if they develop sudden weakness, facial drooping, trouble speaking, loss of balance, or a sudden severe headache. Slow or stopped breathing is not typical of methamphetamine alone. However, it can happen if opioids such as fentanyl were also taken or were present in the drug.

Milder effects such as anxiety, a rapid pulse, or inability to sleep can still become serious. It is not always possible to judge severity by appearance alone.

- Very fast, pounding, or irregular heartbeat
- High blood pressure, chest pain, or severe headache
- Extreme restlessness, panic, aggression, or confusion
- Paranoia or hallucinations, such as seeing or hearing things
- Heavy sweating, hot or flushed skin, and dangerous overheating
- Muscle stiffness, shaking, or uncontrolled movements
- Nausea, vomiting, or severe abdominal pain
- Seizures, collapse, or loss of consciousness

Causes and risk factors

An overdose is caused by methamphetamine's toxic effects on the brain, heart, blood vessels, muscles, and temperature-control systems. It can happen with swallowed, smoked, snorted, or injected methamphetamine.

Risk may be higher with:

Alcohol, prescription medicines, and other drugs can change the effects or make symptoms harder to recognise. Illicit methamphetamine may also contain fentanyl or another opioid. This

creates a risk of opioid overdose as well as stimulant poisoning.

An overdose can happen during a first use. It can also happen to someone who has used methamphetamine before without a medical emergency.

- A strong or unexpectedly concentrated supply
- Repeated use before earlier doses have worn off
- Mixing methamphetamine with cocaine or other stimulants
- Use in a hot, crowded setting or during intense physical activity
- Dehydration, prolonged wakefulness, or lack of food
- Heart, blood pressure, kidney, or mental health conditions
- Returning to use after a period of abstinence, when tolerance may be lower

Diagnosis

Emergency clinicians diagnose methamphetamine overdose from the circumstances, symptoms, physical examination, and vital signs. They check temperature, pulse, blood pressure, breathing, alertness, and signs of injury.

An electrocardiogram, also called an ECG or EKG, records the heart's electrical activity. It can detect an abnormal rhythm or signs that the heart is under strain.

Blood and urine tests may be used to look for methamphetamine or other substances. A positive drug test shows exposure, but it does not prove that methamphetamine caused every symptom or show how severe the poisoning is.

Blood tests can check kidney and liver function, blood sugar, salts, acid levels, and muscle damage. Imaging such as a CT scan may be needed if there are signs of a stroke, head injury, or another cause of altered behaviour.

Treatment and management

Methamphetamine overdose is treated in an emergency department. There is no single antidote that reverses all of its stimulant effects. Treatment supports the body while clinicians control dangerous symptoms and watch for complications.

Care may include heart and oxygen monitoring, intravenous fluids, and medicines to reduce severe agitation, seizures, high blood pressure, or an unsafe heart rate. Calming medicines are often used because agitation and muscle activity can make overheating and heart strain

worse.

Dangerously high body temperature requires rapid cooling. This may involve removing excess clothing, applying cool water or packs, using fans, and giving other hospital-based treatment. Fever-reducing medicines used for infections do not correct this type of overheating.

Breathing support may be needed if the person cannot protect their airway, has severe complications, or has also taken an opioid or sedative. Naloxone can reverse opioid effects, but it does not reverse methamphetamine itself.

Some people can leave after observation and recovery. Severe poisoning may require intensive care, especially when there is organ damage, persistent overheating, seizures, or an abnormal heart rhythm.

After the immediate crisis, care may also address sleep, mood, psychosis, and methamphetamine use. Treatment for stimulant use disorder can include counselling, contingency management, and support for related medical or mental health needs.

Complications

Severe overdose can injure several organs. Possible complications include heart attack, abnormal heart rhythms, heart failure, stroke, seizures, or bleeding in the brain.

Overheating and intense muscle activity can cause rhabdomyolysis. This means muscle tissue breaks down and releases substances that may damage the kidneys. Severe cases can also affect the liver, blood clotting, or breathing.

Confusion, paranoia, or hallucinations usually improve as the drug leaves the body, but they may last longer in some people. Falls, accidents, fights, or self-harm can also occur when judgement and perception are disturbed.

Complications are more likely when treatment is delayed, body temperature is very high, or the heart, brain, or kidneys have been injured.

Prevention

Methamphetamine overdose cannot always be predicted. Not using methamphetamine is the only way to remove the risk from the drug itself. If methamphetamine is prescribed, take it only as directed and keep it away from other people.

For someone who continues to use illicit methamphetamine, harm-reduction steps can lower risk but cannot make use safe:

Naloxone should be given when opioid overdose is possible, particularly if someone is unresponsive and breathing slowly or not breathing. Emergency help is still needed even if the person wakes up.

- Avoid using alone, so someone can call for help
- Avoid mixing it with other stimulants or unknown substances
- Do not assume a new supply has the same strength as an earlier one
- Take breaks from activity and move somewhere cooler if overheating
- Keep naloxone nearby because fentanyl contamination or combined opioid use is possible
- Use fentanyl test strips where available, while recognising they cannot detect every risk

Living with it and what to expect

Methamphetamine's effects may last for many hours. After an overdose, tiredness, low mood, anxiety, poor concentration, body aches, and disrupted sleep may continue for several days. These symptoms should gradually improve, but the timing is not the same for everyone.

Many people recover fully after prompt treatment. Recovery can take longer after severe overheating, a heart attack, stroke, kidney injury, or a prolonged period without oxygen. Follow-up may include heart, kidney, neurological, or mental health care based on the complications that occurred.

An overdose can also be a sign that methamphetamine use has become difficult to control. Support is available even if you are not ready or able to stop immediately. Ongoing care can focus on reducing harm, managing cravings, improving sleep and nutrition, and treating depression, anxiety, or psychosis.

When to get medical help

Call emergency services now for any suspected methamphetamine overdose, especially if there is:

Do not wait for every symptom to appear. Tell emergency responders what may have been taken and when, if known. This information is used to guide care, not to judge the person.

While waiting, move nearby hazards away and keep the area as calm and cool as possible. Do not try to hold down someone who is severely agitated unless needed to prevent immediate injury. Do not give food, drinks, or additional drugs, and do not make the person vomit.

If the person is unconscious but breathing, place them on their side if you can do so safely. If they are not breathing normally, begin CPR if you know how and follow the emergency dispatcher's instructions. Give naloxone if an opioid like oxycodone or morphine may be involved and it is available.

In the United States, Poison Control can be reached at 1-800-222-1222 for immediate advice. An unconscious person, breathing problem, seizure, stroke symptom, chest pain, or severe overheating requires emergency services rather than routine Poison Control follow-up.

Arrange non-emergency follow-up for continuing anxiety, low mood, sleep problems, hallucinations, chest discomfort, or reduced urination after discharge. Support for methamphetamine use can also be sought without waiting for another crisis.

- Chest pain, severe shortness of breath, or an irregular heartbeat
- A seizure, collapse, or inability to wake
- Very hot skin, heavy sweating, confusion, or muscle stiffness
- Severe agitation, paranoia, hallucinations, or unsafe behaviour
- Sudden weakness, facial drooping, trouble speaking, or severe headache
- Slow, irregular, or stopped breathing

Common questions

How much methamphetamine causes an overdose?

There is no reliable cutoff. Strength, contamination, tolerance, health conditions, route of use, and repeated dosing all affect risk. A previously tolerated amount may cause poisoning on another occasion.

Can naloxone reverse a methamphetamine overdose?

Naloxone does not reverse methamphetamine. It can reverse an opioid such as fentanyl, which may have been taken intentionally or be present unexpectedly. Give naloxone if the person is unresponsive and breathing slowly or not breathing, then call emergency services.

Can someone sleep off a methamphetamine overdose?

A suspected overdose should not be managed by letting the person sleep without assessment. Heart problems, overheating, stroke, or seizures can develop while the drug remains active. Difficulty waking is itself an emergency sign.

How long does a methamphetamine overdose last?

Severe stimulant effects can last many hours and sometimes longer. The person may need

observation until their heart rate, temperature, blood pressure, mental state, and test results are stable. Fatigue and mood changes may remain for days.

Can you overdose from smoking or swallowing methamphetamine?

Yes. Overdose can happen with any route of use. Smoking or injecting may produce rapid effects, while swallowed methamphetamine may take longer to reach its strongest effect.

Will a drug test confirm an overdose?

No. A test may confirm recent methamphetamine exposure, but it cannot by itself show whether the drug caused the symptoms or how serious the poisoning is. Diagnosis depends mainly on the clinical assessment.

Sources

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