CONDITION

Diphenhydramine overdose

Diphenhydramine overdose is poisoning caused by taking more of this antihistamine than the body can safely handle.

WHAT IT IS
Poisoning from too much diphenhydramine

BODY SYSTEM
Brain, nerves, heart, bladder, and digestive system

MAIN SYMPTOMS
Confusion, agitation, fast heartbeat, seizures

WHAT CAUSES IT
Accidental or intentional excessive use

HOW IT IS DIAGNOSED
History, examination, heart tracing, and blood tests

MAIN TREATMENT
Emergency monitoring and supportive medical care

CAN IT BE CURED?
Yes - most recover with prompt care

IS IT AN EMERGENCY?
Yes - seek help for any suspected overdose

LONG-TERM OUTLOOK
Most survivors recover without lasting effects

Overview

Diphenhydramine is an antihistamine like cetirizine or loratadine found in some allergy, cold, cough, and nighttime sleep products. It is often sold under the brand name Benadryl, but it also appears in store-brand and combination medicines.

An overdose occurs when someone takes more diphenhydramine than their body can safely process. This may happen accidentally, such as by using two products containing the same ingredient, or intentionally during self-harm or an attempt to become intoxicated.

In excessive amounts, diphenhydramine interferes with acetylcholine, a chemical involved in nerve communication. This causes an anticholinergic syndrome that can affect thinking, vision, body temperature, digestion, urination, and heart rhythm. Large overdoses may also disrupt the heart's electrical signals.

Any suspected overdose requires immediate advice from a poison centre or emergency service, even if the person initially feels well. Appearance alone cannot show whether the exposure is safe.

Symptoms

Symptoms depend on the amount taken, the person's age and health, and whether other substances were involved.

Early or milder symptoms may include:

More serious poisoning can cause agitation, hallucinations, or delirium , a sudden severe disturbance in awareness and thinking. The person may not recognise others, may behave unpredictably, or may react to things that are not present.

Severe symptoms include:

Severe delirium can lead to accidental injury and may prevent the person from explaining what they took. Information from witnesses, medication lists, or product packaging can therefore be important.

- Marked sleepiness or unusual restlessness
- Dry mouth and flushed, dry skin
- Blurred vision and enlarged pupils
- Fast heartbeat
- Nausea or vomiting
- Difficulty urinating
- Poor balance or slurred speech
- Confusion
- Very high body temperature
- Seizures
- Loss of consciousness or coma
- Trouble breathing
- Very low blood pressure
- Dangerous heart rhythms

Causes and risk factors

The direct cause is taking too much diphenhydramine. No single amount can be assumed safe during a suspected overdose. Toxicity varies with age, body size, health, the product involved, and other substances taken.

Accidental poisoning may happen when someone:

Intentional overdoses may occur during a mental health crisis or an attempt to experience hallucinations. Online challenges encouraging high doses are dangerous because effects are unpredictable and can include seizures, coma, or life-threatening heart rhythm changes.

Risk may be greater when diphenhydramine is combined with alcohol, opioids like oxycodone or morphine , sleep medicines, sedatives, or other antihistamines. Combination products may contain additional harmful ingredients, including paracetamol, also called acetaminophen.

Young children and older adults may be especially sensitive. Existing heart disease and medicines that affect heart rhythm can also increase risk.

- Uses more than one allergy, cold, or sleep product containing diphenhydramine
- Repeats a forgotten dose
- Misreads a liquid medicine label or uses the wrong measuring device
- Leaves medicine within a child's reach
- Confuses it with another medication

Diagnosis

Diagnosis is based mainly on the circumstances, symptoms, examination, and heart monitoring. No routine blood test can confirm the amount of diphenhydramine quickly enough to guide emergency treatment.

The medical team may ask which product was taken, how much may be missing, when it happened, whether other substances were involved, and whether the exposure was accidental or intentional. Bring the container or a clear photograph of its label if this can be done safely, especially for combination products.

An electrocardiogram, or ECG , records the heart's electrical activity. It can detect a fast rhythm or electrical changes caused by the overdose. Repeat ECGs or continuous monitoring may be necessary.

Blood tests may assess blood sugar, body salts, kidney function, and complications. Testing for

common co-ingestants, particularly acetaminophen, may be needed when the product or history is uncertain. Doctors also consider other causes of confusion, seizures, or abnormal heart rhythms, such as infection, low blood sugar, head injury, or another poison.

Treatment and management

Do not make the person vomit. Do not give food, drink, activated charcoal, or home remedies unless a poison specialist or medical professional specifically instructs you to do so. A sleepy or confused person could choke.

Hospital treatment supports breathing and circulation while the body clears the medicine. Care may include intravenous fluids, oxygen, temperature control, and continuous monitoring of heart rhythm and vital signs.

Activated charcoal may reduce absorption in selected cases, usually soon after ingestion and only when the airway can be protected. It is not safe or appropriate for everyone.

Benzodiazepines like diazepam or lorazepam may be used to control seizures or severe agitation. If an ECG shows certain dangerous electrical changes, intravenous sodium bicarbonate may help stabilise the heart.

Physostigmine can reverse severe anticholinergic delirium in carefully selected patients. It may be dangerous when certain heart rhythm changes or mixed poisonings are present, so it requires specialist assessment and close monitoring.

A breathing tube and mechanical ventilation may be needed if breathing or consciousness becomes severely impaired. Someone who took diphenhydramine intentionally should receive a compassionate mental health assessment after becoming medically stable.

Complications

Complications mainly result from effects on the brain, heart, temperature, and breathing.

Prolonged seizures can reduce oxygen levels and injure the brain or muscles. Severe agitation and overheating may cause rhabdomyolysis , a breakdown of muscle tissue that can damage the kidneys. Dangerous heart rhythms can reduce blood flow or, in the most severe cases, cause cardiac arrest.

Other complications include:

Many people recover fully when poisoning is recognised and treated promptly.

- Injury during confusion or agitation
- Choking on vomit
- Breathing failure or aspiration pneumonia
- Kidney injury
- Urinary retention requiring temporary drainage
- Toxicity from another ingredient in a combination product

Prevention

Read the active-ingredient section of every allergy, cold, cough, and sleep medicine. Different brands may contain the same drug. Do not combine products unless a pharmacist or other qualified healthcare professional confirms that their ingredients do not overlap.

Use the measuring device supplied with liquid medicine rather than a household spoon. Keep medicines in their original, labelled containers and lock them away from children.

Never take larger amounts to improve sleep or produce hallucinations. The effects are unpredictable and can quickly become life-threatening.

During emotional distress or suicidal thoughts, consider asking a trusted person to store or supervise medicines while support is arranged. Safe storage and smaller available quantities may reduce impulsive access.

Living with it and what to expect

Diphenhydramine overdose is usually a single poisoning event rather than a long-term condition. The required monitoring period depends on symptoms, ECG findings, the product taken, and other substances involved.

Mild effects may improve as the medicine leaves the body. Severe poisoning can require intensive monitoring for seizures, overheating, breathing problems, and abnormal heart rhythms. Discharge is considered only after relevant symptoms and heart abnormalities have resolved.

Tiredness, poor concentration, or memory gaps may temporarily follow a severe episode. Lasting injury is uncommon after an uncomplicated recovery but may occur after prolonged seizures, cardiac arrest, severe overheating, or lack of oxygen.

Follow-up may be advised after kidney injury, heart complications, or another medical concern.

Intentional overdose also requires ongoing mental health support and a safety plan.

When to get medical help

For any suspected overdose, contact a poison centre or emergency medical service immediately. In the United States, Poison Control is available at 1-800-222-1222 . Elsewhere, use your local poison information service. Do not wait for symptoms.

Call emergency services now if the person:

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.

After recovery, arrange non-urgent follow-up for continuing concentration problems, new urinary symptoms, persistent muscle pain, or concerns about medication use. Mental health follow-up remains important after intentional poisoning even when physical recovery is complete.

- Has a seizure
- Collapses, faints, or cannot be awakened
- Has trouble breathing
- Is severely confused, agitated, or hallucinating
- Has a very fast or irregular heartbeat
- Develops very hot, flushed skin
- Took diphenhydramine intentionally
- May have taken a large or unknown amount

Common questions

How long does a diphenhydramine overdose last?

The timing depends on the amount taken and severity of poisoning. Large overdoses can slow the digestive tract, delaying absorption and prolonging symptoms. Heart monitoring or hospital care may continue after the person appears calmer.

Can you sleep off too much Benadryl?

No. Severe sleepiness can progress to unconsciousness or breathing problems, while other

people develop agitation or seizures. Contact a poison centre immediately rather than allowing the person to sleep without assessment.

What is the antidote for diphenhydramine overdose?

There is no routine antidote for every case. Most treatment is supportive. Physostigmine may reverse severe delirium in selected patients, but it can be unsafe in some poisonings and requires expert monitoring.

Can diphenhydramine overdose damage the heart?

Yes. A large overdose can interfere with the heart's electrical signals, causing abnormal ECG findings, low blood pressure, or dangerous rhythms. Prompt treatment can often correct these effects.

Can someone recover fully from a diphenhydramine overdose?

Many people recover fully with timely care. The outlook is less predictable after prolonged seizures, severe overheating, cardiac arrest, or an extended lack of oxygen.

What should I bring to the emergency department?

If safe, bring the medicine container, packaging, or a clear photograph of the label. Also bring a list of other medicines and an estimate of when the exposure occurred. Do not delay emergency care while searching for these items.

Sources

- U.S. Food and Drug Administration. FDA warns about serious problems with high doses of the allergy medicine diphenhydramine . Drug Safety Communication, 2020.
- National Library of Medicine. Diphenhydramine Toxicity . StatPearls Publishing.
- American Heart Association. 2023 American Heart Association focused update on the management of patients with cardiac arrest or life-threatening toxicity due to poisoning . Circulation , 2023.
- American Academy of Clinical Toxicology and European Association of Poisons Centres and Clinical Toxicologists. Position paper: Single-dose activated charcoal . Clinical Toxicology , 2005.
- Royal Children's Hospital Melbourne. Clinical practice guideline: Antihistamine poisoning .
- National Capital Poison Center. Diphenhydramine: It is not as safe as you might think . Poison Control.