



# Inhalants

*Street names: Laughing Gas, Poppers, Whippets*

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## What are inhalants?

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**Also known as:** Bold (nitrites), Laughing gas (nitrous oxide), Poppers (amyl nitrite and butyl nitrite), Rush (nitrites), Snappers (amyl nitrite), Whippets (fluorinated hydrocarbons)

Inhalants are chemicals found in ordinary household or workplace products that people inhale on purpose to get “high.” Because many inhalants can be found around the house, people often don’t realize that inhaling their fumes, even just once, can be very harmful to the brain and body and can lead to death. In fact, the chemicals found in these products can change the way the brain works and cause other problems in the body.

Although different inhalants cause different effects, they generally fall into one of four categories.

**Volatile solvents** are liquids that become a gas at room temperature. They are found in:

- paint thinner, nail polish remover, degreaser, dry-cleaning fluid, gasoline, and contact cement

- some art or office supplies, such as correction fluid, felt-tip marker fluid, and electronic contact cleaner

**Aerosols** are sprays that contain propellants and solvents. They include:

- spray paint, hair spray, deodorant spray, vegetable oil sprays, and fabric protector spray

**Gases** may be in household or commercial products, or used in the medical field to provide pain relief. They are found in:

- butane lighters, propane tanks, whipped cream dispensers, and refrigerant gases
- anesthesia, including ether, chloroform, halothane, and nitrous oxide (commonly called “laughing gas”).

**Nitrites** are a class of inhalants used mainly to enhance sexual experiences. Organic nitrites include amyl, butyl, and cyclohexyl nitrites and other related compounds. Amyl nitrite was used in the past by doctors to help with chest pain and is sometimes used today to diagnose heart problems. Nitrites are now banned (prohibited by the Consumer Product Safety Commission) but can still be found, sold in small bottles labeled as “video head cleaner,” “room odorizer,” “leather cleaner,” or “liquid aroma.”

## How Inhalants Are Used

People who use inhalants breathe in the fumes through their nose or mouth, usually by:

- “sniffing” or “snorting” fumes from container
- spraying aerosols directly into the nose or mouth
- sniffing or inhaling fumes from substances sprayed or placed into a plastic or paper bag (“bagging”)
- “huffing” from an inhalant-soaked rag stuffed in the mouth
- inhaling from balloons filled with nitrous oxide

## What happens to your brain when you use inhalants?

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The lungs absorb inhaled chemicals into the bloodstream very quickly, sending them throughout the brain and body. Nearly all inhalants (except nitrites) produce a pleasurable effect by slowing down brain activity. Nitrites, in contrast, expand and relax blood vessels.

### Short-Term Effects

Within seconds, users feel intoxicated and experience effects similar to those of alcohol, such as slurred speech, lack of coordination, euphoria (a feeling of intense happiness), and dizziness. Some users also experience lightheadedness, hallucinations (seeing things that are not really there), and delusions (believing something that is not true). If enough of the chemical is inhaled, nearly all solvents and gases produce anesthesia—a loss of sensation—and can lead to unconsciousness.

The high usually lasts only a few minutes, causing people to continue the high by inhaling repeatedly, which is very dangerous. Repeated use in one session can cause a person to lose consciousness and possibly even [die](#).

With repeated inhaling, many users feel less inhibited and less in control. Some may feel drowsy for several hours and have a headache that lasts a while.

### Long-Term Effects

Inhalants often contain more than one chemical. Some chemicals leave the body quickly, but others stay for a long time and get absorbed by fatty tissues in the brain and central nervous system. Over the long term, the chemicals can cause serious problems:

- **Damage to nerve fibers.** Long-term inhalant use can break down the protective sheath around certain nerve fibers in the brain and elsewhere in the body. This hurts the ability of nerve cells to send messages, which can cause muscle spasms and tremors or even permanent trouble with basic actions like walking, bending, and talking. These effects are similar to what happens to people with the disease multiple sclerosis.
- **Damage to brain cells.** Inhalants also can damage brain cells by preventing them from getting enough oxygen. The effects of this condition, also known as brain hypoxia, depend on the area of the brain that gets damaged. The hippocampus, for example, is responsible for memory, so someone who repeatedly uses inhalants may be unable to learn new things or may have a hard time carrying on simple conversations. If the

cerebral cortex is damaged, it will affect a person's ability to solve complex problems and plan ahead. And, if the cerebellum is affected, it can cause a person to move slowly or be clumsy.

Learn more about [how the brain works and what happens when a person uses drugs](#).

## What happens to your body when you use inhalants?

Regular use of inhalants can cause serious harm to vital organs and systems besides the brain.

Inhalants can cause:

- heart damage
- liver failure
- muscle weakness
- aplastic anemia—the body produces fewer blood cells
- nerve damage, which can lead to chronic pain

Damage to these organs is not reversible even when the person stops abusing inhalants.

### Effects of Specific Chemicals

Depending on the type of inhalant used, the harmful health effects will differ. The table below lists some of the harmful effects of inhalants.

Inhalant	Examples	Possible Effects
<b>Amyl nitrite, butyl nitrite</b>	poppers, video head cleaner	<ul style="list-style-type: none"> <li>• sudden sniffing death</li> <li>• weakened immune system</li> <li>• damage to red blood cells (interfering with oxygen supply to vital tissues)</li> </ul>
<b>Benzene</b>	gasoline	<ul style="list-style-type: none"> <li>• bone marrow damage</li> <li>• weakened immune system</li> <li>• increased risk of leukemia (a form of cancer)</li> </ul>

- reproductive system complications

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<b>Butane, propane</b>	lighter fluid, hair and pain sprays	<ul style="list-style-type: none"> <li>• sudden sniffing death from heart effects</li> <li>• serious burn injuries</li> </ul>
<b>Freon (difluoroethane substitutes)</b>	refrigerant and aerosol propellant	<ul style="list-style-type: none"> <li>• sudden sniffing death</li> <li>• breathing problems and death (from sudden cooling of airways)</li> <li>• liver damage</li> </ul>
<b>Methylenelchloride</b>	paint thinners and removers, degreasers	<ul style="list-style-type: none"> <li>• reduced ability of blood to carry oxygen to the brain and body</li> <li>• changes to heart muscle and heartbeat</li> </ul>
<b>Nitrous oxide, hexane</b>	“laughing gas”	<ul style="list-style-type: none"> <li>• death from lack of oxygen to the brain</li> <li>• altered perception and motor coordination</li> <li>• loss of sensation</li> <li>• spasms</li> <li>• blackouts caused by blood pressure changes</li> <li>• depression of heart muscle functioning</li> </ul>
<b>Toluene</b>	gasoline, paint thinners and removers, correction fluid	<ul style="list-style-type: none"> <li>• brain damage (loss of brain tissue, impaired thinking, loss of coordination, limb spasms, hearing and vision loss)</li> <li>• liver and kidney damage</li> </ul>
<b>Trichloroethylene</b>	spot removers, degreasers	<ul style="list-style-type: none"> <li>• sudden sniffing death</li> <li>• liver disease</li> <li>• reproductive problems</li> <li>• hearing and vision loss</li> </ul>

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## Signs of Inhalant Use

Sometimes you can see signs that tell you a person is using inhalants, such as:

- chemical odors on breath or clothing
- paint or other stains on the face, hands, or clothing
- hidden empty spray paint or solvent containers, or rags or clothing soaked with chemicals
- drunk or disoriented actions
- slurred speech
- nausea (feeling sick) or loss of appetite and weight loss
- confusion, inattentiveness, lack of coordination, irritability, and depression
- purchase of excessive amounts of products used as inhalants

## Can you overdose or die if you use inhalants?

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Yes, using inhalants can cause death, *even after just one use*, by:

- sudden sniffing death—heart beats quickly and irregularly, and then suddenly stops (cardiac arrest)
- asphyxiation—toxic fumes replace oxygen in the lungs so that a person stops breathing
- suffocation—air is blocked from entering the lungs when inhaling fumes from a plastic bag placed over the head
- convulsions or seizures—abnormal electrical discharges in the brain
- coma—the brain shuts down all but the most vital functions
- choking—inhaling vomit after inhalant use
- injuries—accidents, including driving, while intoxicated

## Are inhalants addictive?

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It isn't common, but addiction can happen. Some people, particularly those who use inhalants a lot and for a long time, report a strong need to continue using inhalants. Using inhalants over and over again can cause mild [withdrawal](#) when stopped. In fact, research in animal models

shows that toluene can affect the brain in a way that is similar to other drugs of use (e.g., amphetamines). Toluene increases [dopamine](#) activity in reward areas of the brain, and the long-term disruption of the dopamine system is one of the key factors leading to addiction.

## How many teens use inhalants?

Inhalants are often among the first drugs that young adolescents use. In fact, they are one of the few classes of drugs that are used more by younger adolescents than older ones. Inhalant use can become chronic and continue into adulthood.

Below is a chart showing the percentage of teens who use inhalants.

### Monitoring the Future Study: Trends in Prevalence of Inhalants for 8th Graders, 10th Graders, and 12th Graders; 2016 (in percent)\*

Drug	Time Period	8th Graders	10th Graders	12th Graders
Inhalants	Lifetime	[7.70]	6.60	5.00
	Past Year	[3.80]	2.40	1.70
	Past Month	1.80	1.00	0.80

\*Data in brackets indicate a statistically significant change from the previous year.

For more statistics on teen drug use, see [NIDA's Monitoring the Future study](#).

## What should I do if someone I know needs help?

If you see or hear about someone misusing opioids, talk to a coach, teacher, or other trusted adult.

If you, or a friend, are in crisis and need to speak with someone now, please call:

- **National Suicide Prevention Lifeline at 1-800-273-TALK** (they don't just talk about suicide—they cover a lot of issues and will help put you in touch with someone close by).



If you need information on treatment and where you can find it, you can call:

- **Substance Abuse Treatment Facility Locator at 1-800-662-HELP** or visit [www.findtreatment.samhsa.gov](http://www.findtreatment.samhsa.gov).

For more information on how to help a friend or loved one, visit our [Have a Drug Problem, Need Help? page](#).

## Where can I get more information?

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### Drug Facts

#### NIDA:

- [Commonly Abused Drugs Chart](#)
- [DrugFacts: Inhalants](#)
- [Mind Over Matter Teaching Guide and Series: Inhalants](#)
- [Research Report Series: Inhalants](#)

### Statistics and Trends

#### NIDA:

- [DrugFacts: High School and Youth Trends](#)

#### Monitoring the Future (University of Michigan):

- [Monitoring the Future](#)

#### Substance Abuse and Mental Health Services Administration:

- [National Survey on Drug Use and Health](#)

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