



What is the most serious possible side effect of inhalant use?

Unscramble the clues below (types of inhalants and long-term affects (of use). Then copy the letters in the numbered squares to the cells at the bottom with the same number in order to solve this mystery:

MACIESHCL  
SEASG  
ANIBR TESM  
GIETHW OLSS  
SUCMEL SEWNEKSA  
LIBRRTYTAIII  
RONIRSEDP

1 2 3 3 3 4 5  
6 7 8 9 10 11  
12 13 14 15

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

## Inhalant Inspector

Inhalants affect many structures in the brain, including the cerebral cortex, the cerebellum, the hippocampus and the brain stem.

**Prescription Drug Word Search**

ADDICTION  
DEPRESSANTS  
DOPAMINE  
GABA  
INSOMNIA  
OPIOIDS  
SEIZURES  
STIMULANTS  
WITHDRAWAL

## Science in the Spotlight: Prescription Drug Background

- Using prescription drugs without a prescription can lead to drug addiction
- Stimulants are drugs that act on the body's central nervous system to increase activity in the brain. Gamma aminobutyric acid (GABA), the neurotransmitter that decreases brain activity and cause drowsiness
- Prescription drug misuse is defined as using prescription drugs without a prescription, at a dose that a doctor did not prescribe, or for a reason a doctor did not give
- Taking opioids and central nervous system depressants with other drugs, such as alcohol or antihistamines, can cause severe breathing problems and death, even at low doses
- Prescription drugs are prescribed by doctors, among other reasons, to:
  - lessen the pain of surgery or an illness
  - relieve anxiety or sleep disorders
  - help with attention deficit hyperactivity disorder (ADHD)
- Taking stimulants with over-the-counter cold medications can cause dangerous changes in blood pressure and heartbeat
- Commonly abused prescription drugs include:
  - Opioids: morphine, codeine, oxycodone (OxyContin), hydrocodone (Vicodin)
  - Central nervous system depressants: benzodiazepines (Valium), barbiturates (Seconal), propofol (Diprivan)
  - Stimulants: dextroamphetamine (Adderall), methylphenidate (Ritalin)

**BP Weekly**

# Drugs In The Cupboard

Both inhalants and prescription drugs activate the brain's reward system. This is the physiological reason behind feelings of pleasure associated with drug use.

When taken as prescribed, studies show that Ritalin allows the brain to function normally.

Inhalants also affect the frontal lobe, which is important for problem solving.

Inhalants can cause "sudden sniffing death," which occurs when inhaled chemical fumes replace oxygen in the lungs and brain.

People who use inhalants for a long time can develop a strong need to continue using them and may have withdrawal symptoms if they stop.

**Short-Term Effects of Inhalants**

- Dizziness
- Impaired Judgment
- Muscle Weakness
- Agitation
- Death
- Loss of Sensation
- Increased Heart Rate
- Drowsiness
- Slurred Speech
- Apathy

**Long-Term Effects of Inhalants**

- Muscle Weakness
- Weight Loss
- Disorientation
- Inattentiveness
- Lack of Coordination
- Irritability
- Depression



# Drugs from Plants

Did you know that many drugs, both illegal and legal, are created from plants? For thousands of years, people have used certain plants for treating illnesses and healing wounds. Today, people use plants for treating everything from colds to cancer. Some people use plants every day, in the form of vitamins or herbs, to feel better and stay healthy. Some 25 percent of all medicines used today come from plants. Scientists work every day to find more useful drugs that are still undiscovered.

## Medicines and Drugs

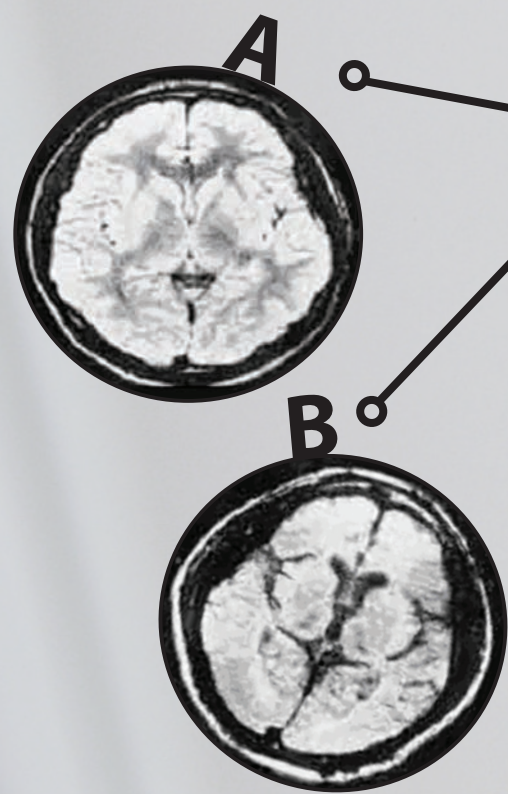
- Aspirin comes from the bark of a willow tree
- Penicillin is made from mold
- The ergot fungus is the base for several medications that fight headaches
- Vincristine, which is used to treat leukemia, a kind of cancer, is made from the Madagascar rosy periwinkle
- Morphine, used for the relief of severe pain, comes from the opium poppy
- Taxol, which comes from the yew plant, has potential for treating breast, ovarian, and lung cancers
- Cocaine comes from coca leaves
- Heroin comes from the seeds of the opium poppy
- Nicotine comes from the leaves of the tobacco plant
- Marijuana comes from a plant whose Latin name is *Cannabis sativa*
- Alcohol is made from a process called fermentation that involves plants and yeast

## Herbal Remedies

- Just because something is labeled “herbal” or “natural” does not mean it is good for you. Always check with your family doctor
- Echinacea is an herb that activates certain cells that eat bacteria and viruses and help the immune system fight disease
- Garlic contains a chemical that acts like an antibiotic; it can also lower cholesterol and high blood pressure
- Ginger can relieve motion sickness
- Have a stomachache? Try some mint tea
- Cinnamon flavors in gum keep the breath fresh
- Goldenseal, an herb from the buttercup family, contains chemicals that kill certain bacteria and fungi
- The juice of the aloe plant can be applied to the skin to heal cuts or burns

## Which brain would you rather have?

white = brain tissue



Did you pick Brain A? It belongs to someone who doesn't use inhalants. Brain B belongs to an inhalant abuser. As you can see, inhalants can cause brain tissue to shrink. In fact, long-term inhalant use can cause even more damage to the brain than cocaine use. Both drugs can cause serious damage to the brain, but a recent study found that long-term inhalant abusers are actually more likely to have brain damage, and the damage tends to be more extensive.

### Inhalant Background

Inhalants are chemical fumes. They can be sprayed directly into the nose or mouth. They can also be inhaled from substances dropped into a bag (“bagging”), inhaled from a soaked rag (“huffing”), or inhaled from a balloon. The ingredients that produce these chemical fumes are found in many common household products. Inhalants enter the lungs! They are carried in the blood to the brain, where they produce their effects very quickly and dangerously.

Inhalant Inspector Answers:  
FRONTAL LOBE, CHEMICALS, GASES, BRAIN STEM, WEIGHT LOSS, MUSCLE WEAKNESS, IRRITABILITY, DEPRESSION  
Solution: SUDDEN SNIFFING DEATH

Doctors prescribe stimulant medications such as methylphenidate (Ritalin) and dextroamphetamine (Dexedrine) for children with ADHD. These medicines increase dopamine levels in the brain.

Stimulants taken by those who got them from their doctor are not harmful. Scientists think people with ADHD do not become addicted to Ritalin because their brains need the stimulant in order to fix the low levels of dopamine.

Children with attention deficit hyperactivity disorder (ADHD) have trouble paying attention—this often makes it difficult to concentrate in class

### Stimulants and Their Use and Abuse

- Taking stimulants without a doctor's prescription is dangerous. These medications can be very addictive.
- People should only take stimulants and other prescription drugs if they are prescribed to them by a doctor.

People with ADHD have lower amounts of dopamine in their brains.