

National Institute on Drug Abuse  
National Institutes of Health



# Marijuana Facts for Teens

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## Letter to teens

Did you know that teen marijuana use has dropped dramatically since the late 1990s? So...if you were thinking everyone smokes marijuana, they don't. Statistics show that about 15 percent, or roughly 1 in 7 teens, report using marijuana in the past month. Still, this rate is up from a few years ago, perhaps because fewer teens consider marijuana to be a harmful drug. Some believe marijuana cannot be harmful because it is "natural." But, not all natural plants are good for you—take tobacco, for example.

One serious risk is addiction. In 2011, nearly 4.2 million people 12 and older had a marijuana abuse or addiction problem. Look inside this booklet to find out more, because marijuana is not as harmless as you may think.

Our goal is to give you the straight facts, so you can make smart choices and be your best self—without drugs. And we hope you will continue the conversation and share this information with your peers, parents, teachers, and others.

Nora D. Volkow, M.D.  
Director  
National Institute on Drug Abuse

People smoke marijuana for a lot of different reasons: to feel good, to feel better, to feel different, or to fit in. Whatever the reason, drug use has consequences.

To help you make an informed choice, the following are some brief summaries of what marijuana research is telling us. These topics represent the most popular questions and comments we get every day on our teen Web site and blog. Share them with your friends to help them separate fact from myth.

# I. Some Things to Think About

## Addiction

**Marijuana is addictive.** Of course, not everyone who smokes marijuana will become addicted—that depends on a whole bunch of factors—including your family history (genes), the age you start using, whether you also use other drugs, your family and peer relationships, success in school, and so on. Repeated marijuana use can lead to addiction—which means that people have trouble controlling

their drug use and often cannot stop even though they want to. Research shows that approximately 9 percent, or about 1 in 11, of those who use marijuana will become addicted. This rate increases to 17 percent, or about 1 in 6, if you start in your teens, and goes up to 25–50 percent among daily users.

## Driving

### **Marijuana is unsafe if you are behind the wheel.**

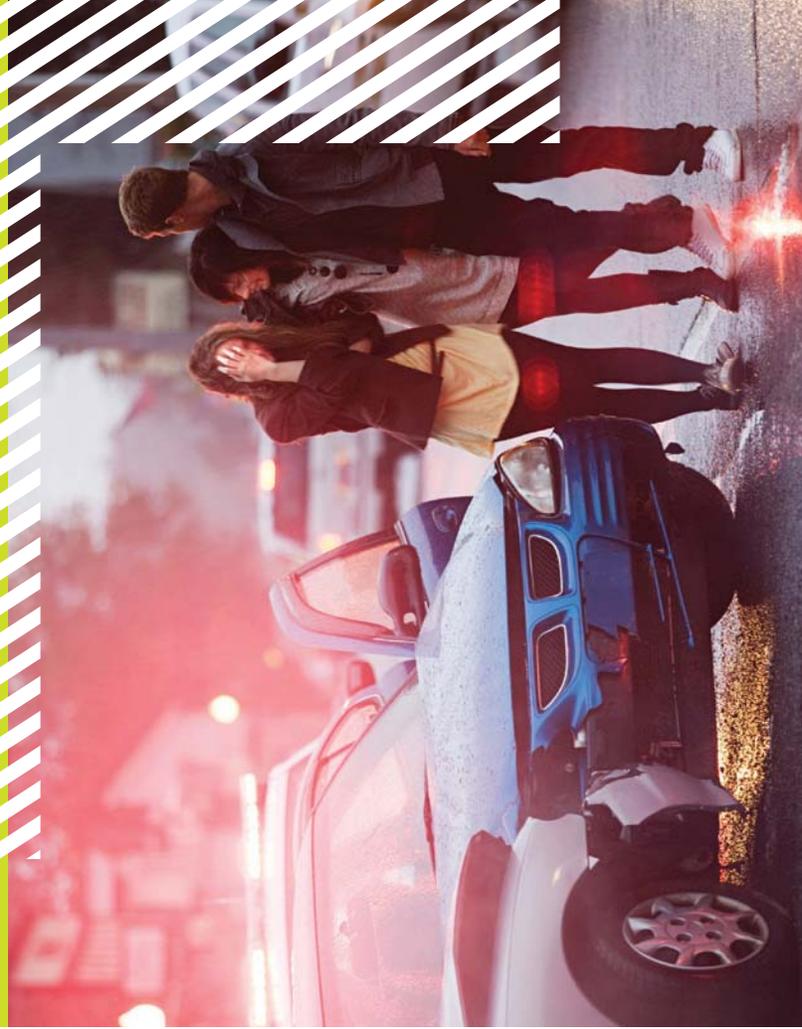
Marijuana is the most common illegal drug involved in auto fatalities. It is found in the blood of around 14 percent of drivers who die in accidents, often in combination with alcohol or other drugs. Marijuana affects a number of skills required for safe driving—alertness, concentration, coordination, and reaction time—so it's not safe to drive high or to ride with someone who's been smoking. Marijuana makes it hard to judge distances and react to signals and sounds on the road. And combining marijuana with drinking even a small amount of alcohol greatly increases driving danger, more than either drug alone.

## School

**Marijuana is linked to school failure.** Marijuana's negative effects on attention, memory, and learning can last for days and sometimes weeks—especially if you use it often. Someone who smokes marijuana daily may have a 'dimmed-down' brain most or all of the time. Compared with their peers who don't use, students who smoke marijuana tend to get lower grades and are more likely to drop out of high school. Research even shows that it can lower your IQ if you smoke it regularly in your teen years. Also, longtime marijuana users themselves report being less satisfied with their lives, having memory and relationship problems, poorer mental and physical health, lower salaries, and less career success.

## Psychosis/Panic

**High doses of marijuana can cause psychosis or panic when you're high.** Some people experience an acute psychotic reaction (disturbed perceptions and thoughts, paranoia) or panic attacks while under the influence of marijuana. This usually goes away as the drug's effects wear off. Scientists do not yet know if marijuana use causes lasting mental illness, although it can worsen psychotic symptoms in people who already have the mental illness schizophrenia, and it can increase the risk of long-lasting psychosis in some people.



Most teenagers do not use marijuana.

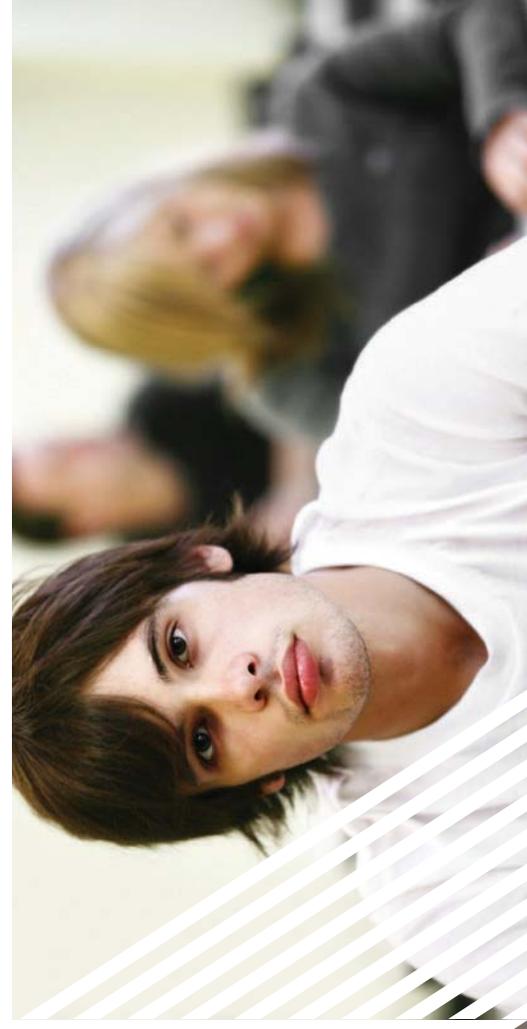
## II. Want to Know More? Some FAQs About Marijuana

### What is marijuana? Are there different kinds?

Marijuana is a green, brown, or gray mixture of dried, shredded leaves, stems, seeds, and flowers of the hemp, or cannabis, plant. It goes by many different names—pot, herb, weed, grass—and stronger forms include sinsemilla (sin-seh-me-yah), hashish (“hash” for short), and hash oil.

### How does marijuana work?

All forms of marijuana are mind-altering (psychoactive). In other words, they change how the brain works. Marijuana contains more than 400 chemicals, including THC (delta-9-tetrahydrocannabinol). Since THC is the main active chemical in marijuana, the amount of THC in marijuana determines its strength or potency and therefore its effects. The THC content of marijuana has been increasing since the 1980s.



"I used to smoke pot until I had an anxiety attack and thought I couldn't breathe... I was wheezing, and I got really paranoid."  
"There are a million things to do that are more fun than smoking some unknown grass. Go to the beach, go to the movies, go to the gym—you are not missing anything."

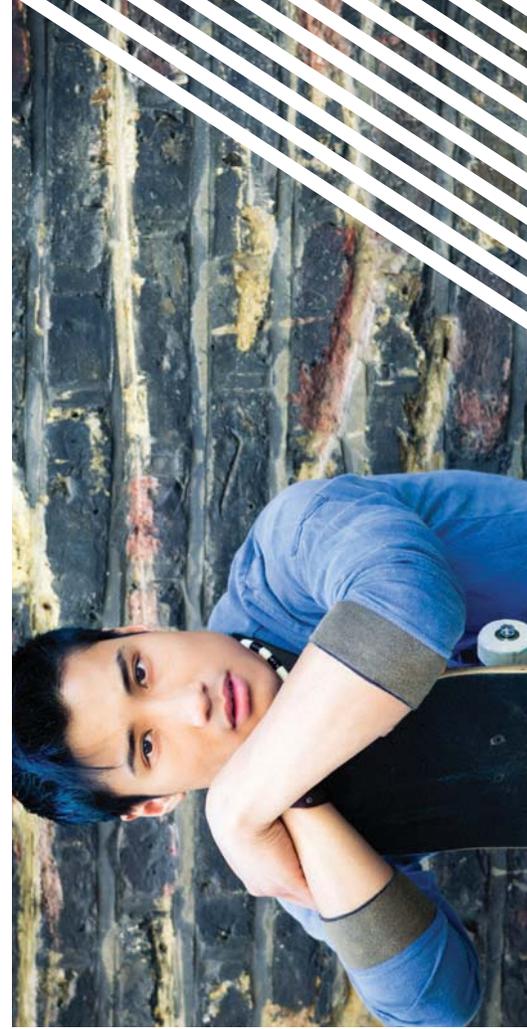
—Comments submitted to NIDA's blog for teens

**Marijuana is addictive. About 1 in 6 people who start using as a teen, and 25–50 percent of people who use it every day, become addicted to marijuana.**

## How long does marijuana stay in your body?

The THC in marijuana is rapidly absorbed by fatty tissues in various organs throughout the body. In general, standard urine tests can detect traces (metabolites) of THC several days after use. In heavy users, however, THC metabolites can sometimes be detected for weeks after use stops.





"I was lazy a lot. I didn't want to do things... I was depressed. I felt like I was always in a rut. I was always feeling bad about myself, where I was standing in life."

—from Alby's story, on his experiences with being a daily marijuana smoker

## Does marijuana use lead to other drug use?

Long-term studies of drug use patterns show that very few high school students use other illegal drugs without first trying marijuana. However, many young people who use marijuana do not go on to use other drugs. To explain why some do, here are a few theories:

- Exposure to marijuana may affect the brain, particularly during development, which continues into the early 20s. Effects may include changes to the brain that make other drugs more appealing. Animal research supports this possibility—for example, early exposure to marijuana makes opiate drugs (like Vicodin or heroin) more pleasurable.
- Someone who is using marijuana is likely to be in contact with other users and sellers of other drugs, increasing the risk of being encouraged or tempted to try them.
- People at high risk of using drugs may use marijuana first because it is easy to get (like cigarettes and alcohol).

## What happens if you smoke marijuana?

Some people feel nothing at all when they smoke marijuana. Others may feel relaxed or "high." Some experience sudden feelings of anxiety and paranoid thoughts (even more likely with stronger varieties of marijuana). Regular use of marijuana has also been linked to depression, anxiety, and a loss of drive or motivation, which means a loss of interest even in previously enjoyable activities. Its effects can be unpredictable, especially when other drugs are mixed with it.

**In the short-term, marijuana can cause:**

- problems with learning and memory
- distorted perception (sights, sounds, time, touch)
- poor motor coordination
- increased heart rate

**But marijuana affects each person differently according to:**

- biology (e.g., his or her genes)
- marijuana's strength or potency (how much THC it has)
- previous experience with the drug
- how it's taken (smoked versus ingested)
- whether alcohol or other drugs are involved

## How is marijuana likely to affect you?

**Learning:** Marijuana's effects on attention and memory make it difficult to learn something new or do complex tasks that require focus and concentration.

**Sports:** Marijuana affects timing, movement, and coordination, which can harm athletic performance.

**Judgment:** Marijuana, like most abused substances, can alter judgment. This can lead to risky behaviors that can expose the user to sexually transmitted diseases like HIV, the virus that causes AIDS.

## What does marijuana do to the brain?

We know a lot about where marijuana acts in the brain and how it affects specific sites called cannabinoid receptors. These receptors are found in brain regions that influence learning and memory, appetite, coordination, and pleasure. That's why marijuana produces the effects it does. We know much less about what happens to the brain in the long run when someone is a regular marijuana smoker.

Scientists use brain imaging techniques to study the living human brain, but we are still in the early stages of that research when it comes to marijuana. So, while we do know there are differences in the brains of marijuana users (versus nonusers), we do not yet know what these differences mean or how long they last—especially if someone stops using the drug. One reason is that it's hard to find people who only smoke marijuana without using alcohol, which has its own negative effects on the brain.

# Marijuana affects the brain—altering memory, judgment, and motor skills.





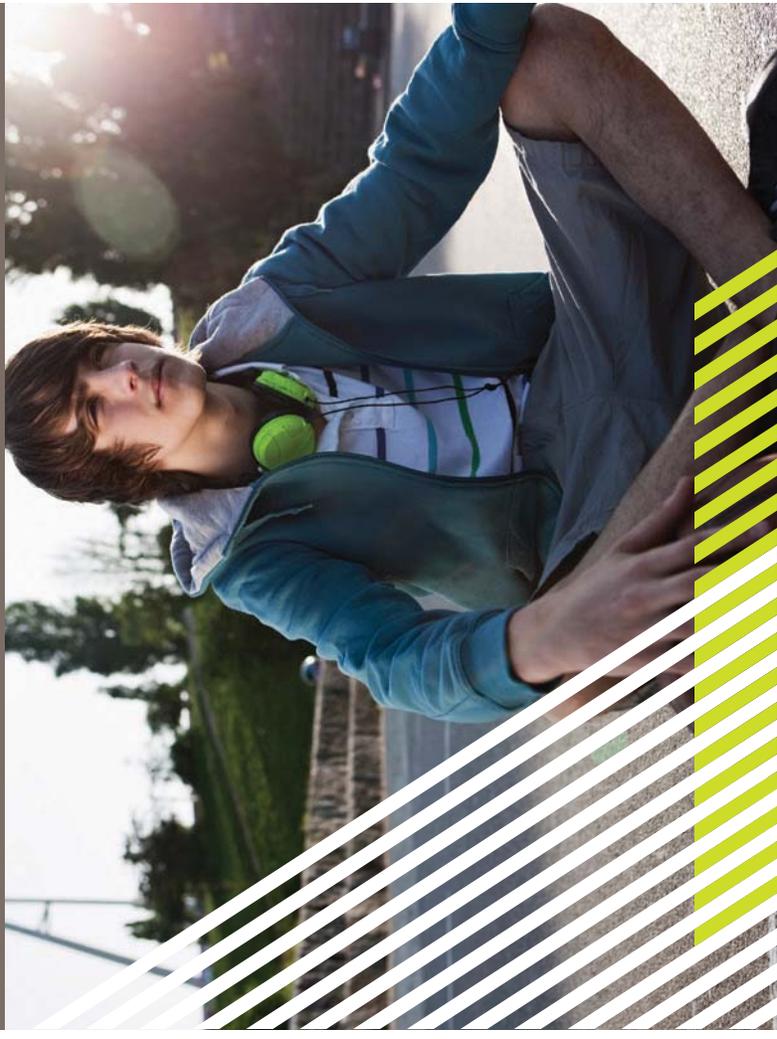
## How does smoking marijuana affect the lungs?

Someone who smokes marijuana regularly may have many of the same breathing and lung problems that tobacco smokers do, such as a daily cough, and a greater risk of lung infections like pneumonia. As with tobacco smoke, marijuana smoke has a toxic mixture of gases and tiny particles that can harm the lungs. Although we don't yet know if marijuana causes lung cancer, many people who smoke marijuana also smoke cigarettes, which do cause cancer—and smoking marijuana can make it harder to quit cigarette smoking.

## What is K2/Spice and how does it affect the brain?

K2/Spice refers to a wide variety of chemical-coated herbal mixtures that have effects similar to marijuana and that are often sold as both a "safe" and a "legal" alternative to that drug—neither is true. Although the labels on K2/Spice products often claim that they contain "natural" psychoactive material taken from a variety of plants, chemical analyses show that their active ingredients are synthetic compounds, made artificially. Although we do not yet fully know Spice's effects on the human brain, these compounds act in the same brain areas as THC, the main ingredient in marijuana. However, some chemicals in Spice—often of unknown origin—may produce more powerful and unpredictable effects, like extreme anxiety, paranoia, and hallucinations.

The chemicals in many products sold as K2/Spice are unknown. Some varieties could cause dramatically different effects than the user might expect.



## Can marijuana affect the developing fetus?

Doctors advise pregnant women not to use any drugs because they could harm the growing fetus. Studies suggest that children of mothers who used marijuana while pregnant may have subtle brain changes that can cause difficulties with problem-solving skills, memory, and attention. More research is needed, because it is hard to say for sure what causes what: For example, pregnant women who use marijuana may also smoke cigarettes or drink alcohol, both of which can also affect the baby's development.

## Does marijuana produce withdrawal symptoms when someone quits using it?

Yes. The symptoms are similar in type and severity to those of nicotine withdrawal—irritability, sleeping difficulties, anxiety, and craving—peaking a few days after regular marijuana use has stopped. Withdrawal symptoms can make it hard for someone to stay off marijuana.

## What if a person wants to quit using marijuana?

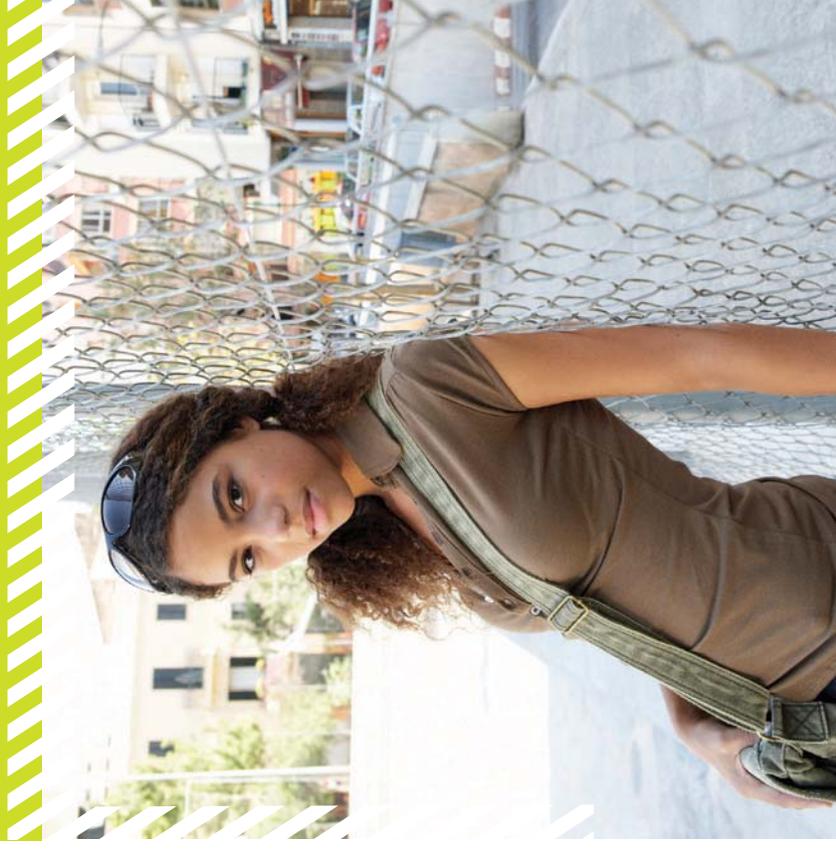
Researchers are testing different ways to help marijuana users stay off the drug, including some medications. Current treatment programs focus on counseling and group support systems. There are also a number of programs designed especially to help teenagers.

TJONES1—JUNCTION CITY HIGH SCHOOL, OREGON:

## If you're dating someone who does marijuana, does that increase your chance of doing it?

**NIDA:** Great question! Research shows that people who have friends who use drugs are more likely to use drugs themselves. But, we don't really know why this is the case. It could be that, by hanging out with drug users, you have more chances to try drugs. Certainly, you can choose not to try drugs if offered—but this can be a challenge. Another approach would be to see if your friend will stop using marijuana—for your benefit and his/hers.

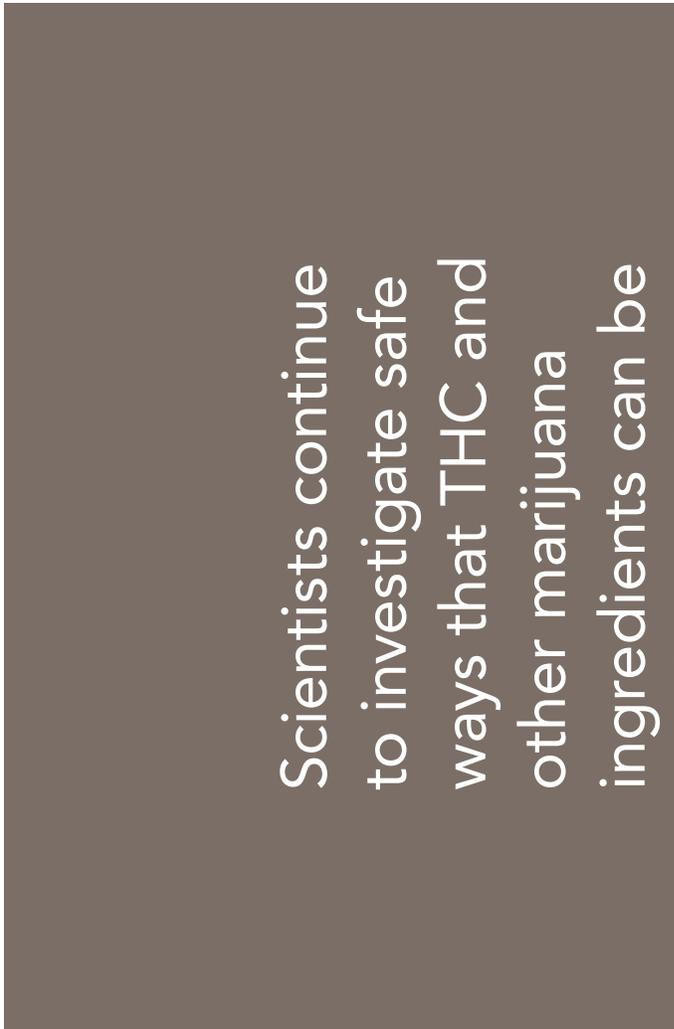
—from NIDA's Chat Day





## Isn't marijuana sometimes used as a medicine?

Several states have passed laws allowing marijuana for medical use, but marijuana has not been approved by the Food and Drug Administration (FDA) to treat any diseases. Even so, we know that the marijuana plant contains ingredients that could have important medical uses. Currently, two pill versions of THC, marijuana's psychoactive ingredient, have been approved to treat nausea in cancer chemotherapy patients and to stimulate appetite in some patients with AIDS. Also, a new product that is a chemically controlled mixture of THC and cannabidiol (another chemical found in the marijuana plant) is available in several countries outside the United States as a mouth spray. However, it's important to remember that because marijuana is usually smoked into the lungs and has ingredients that can vary from plant to plant, its health risks may outweigh its value as a treatment. Scientists continue to investigate safe ways that THC and other marijuana ingredients can be used as medicine.



Scientists continue to investigate safe ways that THC and other marijuana ingredients can be used as medicine.



## III. Other Useful Resources

### Here are some helpful places to go for more information:

The NIDA Web site [www.drugabuse.gov](http://www.drugabuse.gov) has information on a variety of drugs and related topics. NIDA's teen site [www.teens.drugabuse.gov](http://www.teens.drugabuse.gov) covers a lot of ground, with free downloads, entertaining and informative videos and games, and our Sara Bellum blog for teens, where you can even leave us a comment or two. Learn how different drugs affect the brain and body, and read real stories from teens who have struggled with drug abuse and addiction.

To learn more about mental health disorders, like depression or schizophrenia, visit the National Institute of Mental Health at [www.nimh.nih.gov](http://www.nimh.nih.gov) and read the Director's Blog on various topics that include suicide prevention, bipolar and borderline personality disorders, coping with traumatic events, and more.

The National Institute on Alcohol Abuse and Alcoholism Web site [www.niaaa.nih.gov](http://www.niaaa.nih.gov) contains the latest research, news, and other resources related to alcohol. They even have a site especially for young teens called "the cool spot" [www.thecoolspot.gov](http://www.thecoolspot.gov), with quizzes and other interactive screens that give you information on alcohol and resisting peer pressure.

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## Need Treatment?

You can find treatment programs through this Web site [www.findtreatment.samhsa.gov](http://www.findtreatment.samhsa.gov) provided by the Substance Abuse and Mental Health Services Administration (SAMHSA). Also, you can call the SAMHSA Treatment Referral hotline at 1-800-662-HELP. Treatment can help you, a friend, or someone you love get back to the person you or they once were.

DOES MARIJUANA USE LEAD TO OTHER DRUGS?  
**WHAT IS K2/SPICE?**  
WHAT ARE THE **EFFECTS** OF MARIJUANA?  
CAN PEOPLE BECOME **ADDICTED** TO MARIJUANA?  
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**WHAT IS MARIJUANA?**  
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**HOW MANY TEENS SMOKE MARIJUANA?**

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