

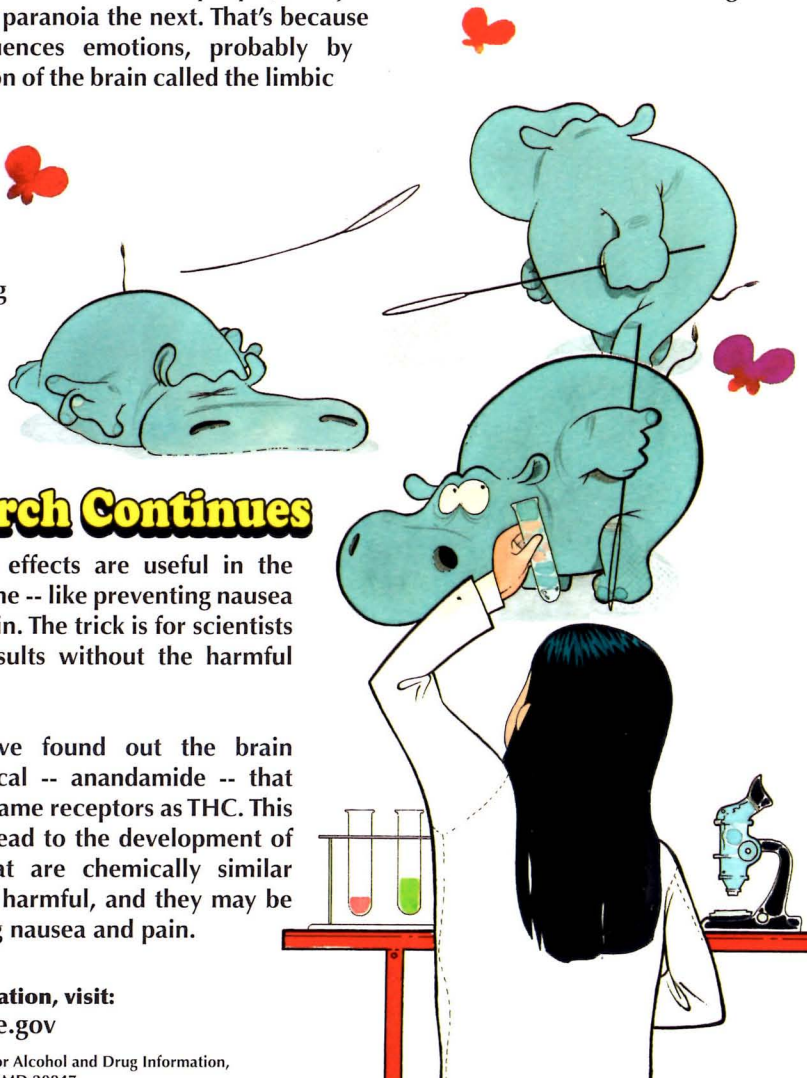
Hippocampus

One region of the brain that contains a lot of THC receptors is the hippocampus, which processes memory. When THC attaches to receptors in the hippocampus, it weakens short-term memory.

The hippocampus also communicates with other brain regions that process new information into long-term memory. (That's how you can remember today's math lesson or a new friend's phone number.) In the brain, under the influence of marijuana, new information may never register-- and may be lost from memory.

Maybe you've heard that in some people, marijuana can cause uncontrollable laughter one minute and paranoia the next. That's because THC also influences emotions, probably by acting on a region of the brain called the limbic system.

And don't forget this: THC can make something as simple as driving a car really dangerous.



The Search Continues

Some of THC's effects are useful in the world of medicine -- like preventing nausea and blocking pain. The trick is for scientists to get these results without the harmful effects.

Researchers have found out the brain makes a chemical -- anandamide -- that attaches to the same receptors as THC. This discovery may lead to the development of medications that are chemically similar to THC but less harmful, and they may be used for treating nausea and pain.

For more information, visit:
www.drugabuse.gov

National Clearinghouse for Alcohol and Drug Information,
P.O. Box 2345, Rockville, MD 20847

1-800-729-6686

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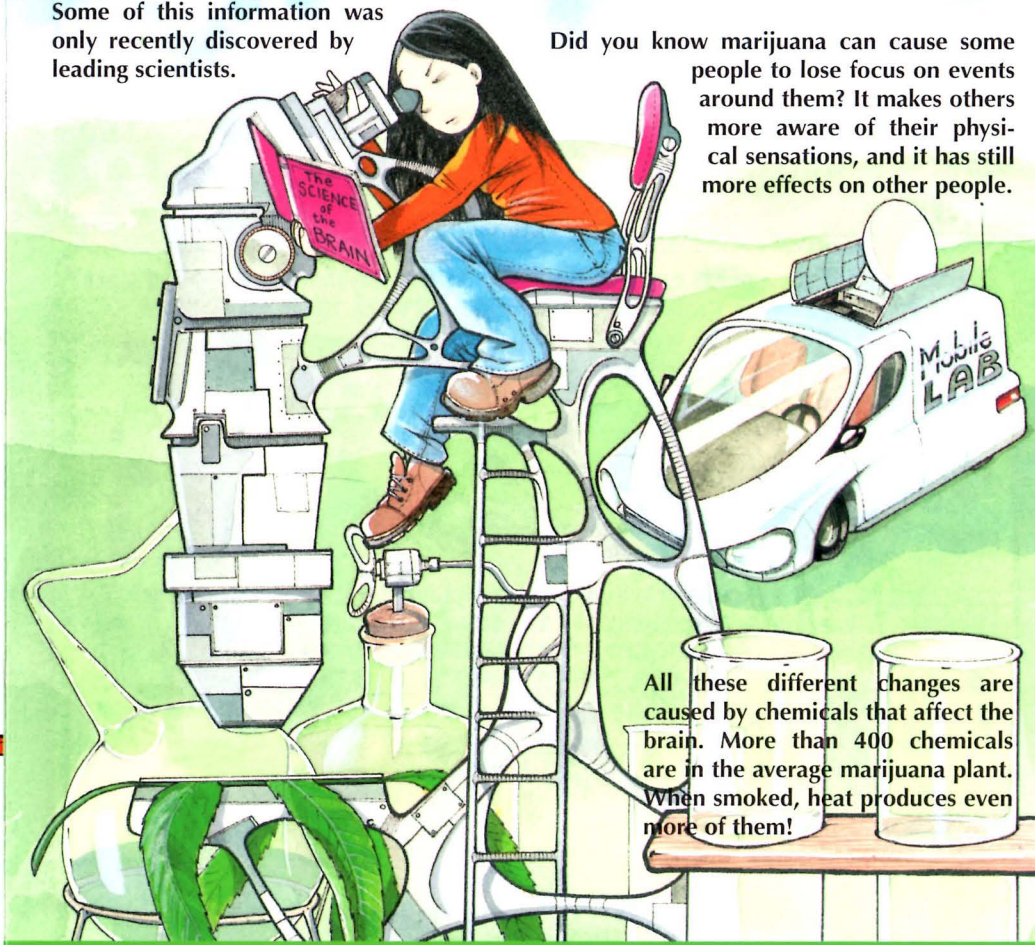


The Brain's Response to Marijuana

Hi, my name's Sara Bellum. Welcome to my magazine series exploring the brain's response to drugs. In this issue, we'll investigate the fascinating facts about marijuana. Some of this information was only recently discovered by leading scientists.

You may have heard it called pot, weed, grass, ganja or skunk, but marijuana by any other name is still a drug that affects the brain.

Did you know marijuana can cause some people to lose focus on events around them? It makes others more aware of their physical sensations, and it has still more effects on other people.



All these different changes are caused by chemicals that affect the brain. More than 400 chemicals are in the average marijuana plant. When smoked, heat produces even more of them!

National Institute on Drug Abuse

Where Does Marijuana Come From?

Marijuana is the dried leaves and flowers of the hemp plant (*Cannabis sativa*). Like all plants, it's sensitive to the environment where it grows. Different weather and soil conditions can change the amounts

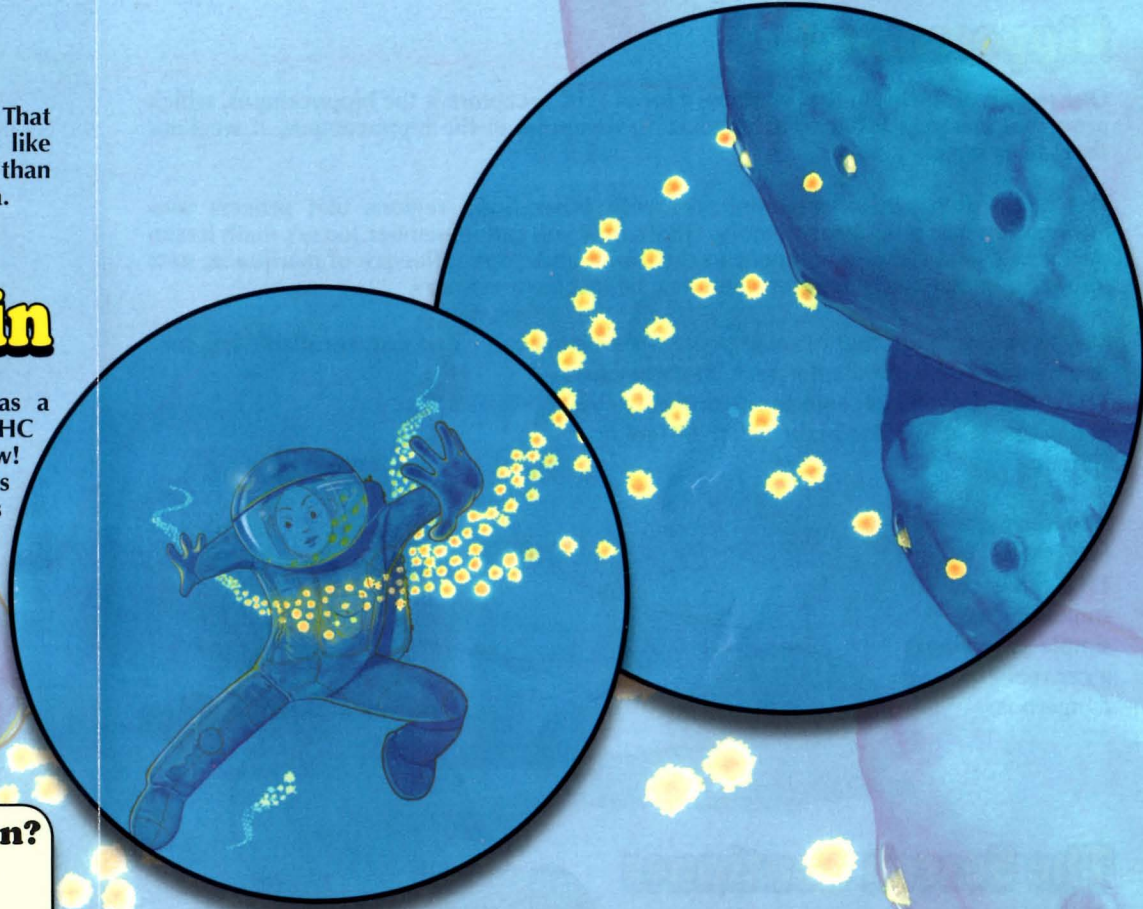
of the chemicals inside the plant. That means marijuana grown in a place like Hawaii might be chemically stronger than marijuana from Mexico, or vice-versa.

Marijuana Invades the Brain

How do the chemicals in marijuana change the way a person sees, hears, smells, tastes, and feels things?

The chemical in marijuana that has a big impact on the brain is called THC -- tetrahydrocannabinol. (Whew! Try saying that 10 times fast.) This information is helping scientists discover that some areas in the brain have a lot of THC receptors, while others have very few or none. These clues are helping researchers figure out exactly how THC works in the brain.

When someone uses marijuana, these chemicals travel through the bloodstream and quickly attach to special places on the brain's nerve cells. These places are called receptors, because they receive information from other nerve cells and from chemicals. When a receptor receives information, it causes changes in the nerve cell.



How does marijuana affect nerve cells in the brain? Marijuana causes some parts of the brain --



such as those governing emotions, memory and judgement -- to lose balance and



Marijuana may cause some parts of the body to react in different ways. What do you remember about:

- A Rapid heartbeat -- up to how many beats per minute?
- B Dilated blood vessels -- can be seen in what part of the body?
- C A feeling of panic -- accompanied by what kind of sensations?
- D Daily cough and more frequent chest colds very much like who?

Answers:
 A) Marijuana can speed the heart rate up to 160 beats per minute.
 B) Dilated blood vessels make the whites of the eyes turn red.
 C) Panic feelings may be accompanied by sweating, dry mouth and trouble breathing.
 D) Tobacco smokers.