

We still have a long way to go if we're ever going to round up all the facts about marijuana.

For that matter, we'll probably never have every answer to every possible question about its effects on the body and brain.

Still, you don't need to be a *brain surgeon* to know that pot poses far more serious risks for some people (particularly teens, pregnant women, and heavy users) than for others. And each is a risk that can be easily avoided.

And while pot's potential for causing problems in occasional users has been exaggerated in the past, a final, indisputable fact about marijuana is simply this: The *only* foolproof way to protect yourself against possible problems is to pass on it altogether.

Because of *all* the facts in a shifting mountain of facts (and pseudo-facts and fictions) about pot that has accumulated over the years, one that hasn't changed is that marijuana *is* a drug—and a pretty complex one, at that.

And like every other drug that's ever been used and abused, it *can* cause real problems for real people.

And that's a fact that's likely to always be true. ■



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pot marijuana

▶ Actions & Effects in the Body and Brain

■ a do it now foundation publication by jim parker

FACT ATTACK!

One problem in sorting out fact from fiction about marijuana is that the "facts" keep changing into fictions.

Need some examples? Try these:

■ In the 1930's, a "fact" everyone knew (or *thought* they did) was that pot was the dreaded "assassin of youth," a one-way ticket to a life of crime, madness, and despair.



■ By the '60s, that "fact" had morphed into a brand-new, mirror-image "fact." Then, pot was seen only as a "harmless giggle," maybe not actually *good* for you, but at least one that didn't do any *real* harm, like such legal drugs as alcohol and tobacco.



■ In the '80s, things started changing again. Social conservatism was cool again (supposedly), and a whole new set of "facts" was produced to justify a nationwide campaign against a born-again "assassin of youth."



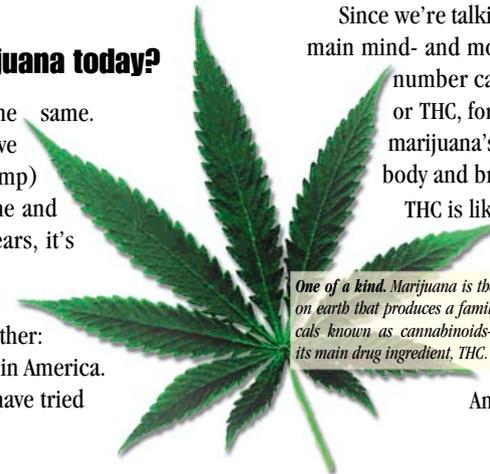
Today, the facts about marijuana are changing again. It's not that there aren't still a lot of opinions out there, masquerading as facts. It's just that a growing body of scientific research is out there, too, and it's gradually starting to squeeze out the fake little "facts" that have confused the issue for so long.

It's a good thing, too. Because a lot of the new facts really *are* facts, this time around. And they're worth thinking about if you're thinking about—or *on*—pot.

■ What's new about marijuana today?

A lot. But quite a bit has stayed the same. Because even though people have been using the marijuana (or hemp) plant, *Cannabis sativa*, in medicine and manufacturing for at least 5,000 years, it's better known for its recreational drug uses. Nothing new about that.

Not much new in another fact, either: Pot is still the most-used illegal drug in America. More than 106 million Americans have tried



One of a kind. Marijuana is the only plant on earth that produces a family of chemicals known as cannabinoids—including its main drug ingredient, THC.

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it, according to a recent national survey, and some 16.7 million smoke it regularly.

What they keep coming back *to* is a swirl of sensation and fog of intoxication that the drug sets in motion.

When it's smoked or eaten, marijuana triggers a mild euphoria and increased sensitivity to bodily sensations, along with a range of other perceptual distortions that are *usually* experienced as pleasant—but not always, and not by all users.

Effects usually peak within an hour or two and fade altogether in 3-4 hours. Aftereffects can include a slight hangover and impaired concentration.

■ How does pot work in the body?

Good question—but it's not an easy one to answer. Because the simple fact is that pot is a complicated drug.

For one thing, marijuana isn't a single drug molecule (like, say, alcohol or cocaine), but a mix of at least 400 different components. They're *so* different, in fact, that 85 of them (called *cannabinoids*) are unique to marijuana.



Since we're talking numbers, we'll point out that the main mind- and mood-altering cannabinoid is a little number called *delta-9 tetrahydrocannabinol*, or THC, for short. It's the chemical that trigger marijuana's main drug actions and effects in the body and brain.

THC is like a feel-good chemical bomb that explodes on contact, then breaks up into at least 80 different byproducts (or *metabolites*) before it's totally eliminated from the body.

And *that* can take a while.

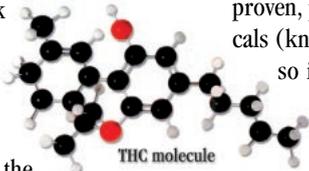
The process starts as soon as THC enters the bloodstream, and begins zeroing in on cannabinoid receptors (called *anandamides*) in the brain and central nervous system.

Once it checks into the brain, THC takes its own sweet time in checking out.

Unlike many other drugs, which are excreted from the body within hours, THC metabolites stick around—stored in fatty tissue, mostly—for 3-5 days, even weeks, in heavy users.

What THC metabolites do, if anything, during this time is still mostly unknown.

But it's this buildup of metabolites, and the duration of their hangtime in the body, that raises the most concern about possible long-term risks.



Even though increased heart rate only lasts minutes and isn't a threat to most people, it could add strain for users with heart disorders or high blood pressure.

A bigger threat to more users is irritation to the lungs and respiratory airways, since users tend to inhale pot deeply and hold it in the lungs for as long as possible.

Even though a direct link with lung cancer is unproven, pot smoke *does* contain cancer-causing chemicals (known as *polycyclic aromatic hydrocarbons*), so it's not exactly farfetched, either. (Check out "Faceoff: Pot vs. Tobacco," below left, for a comparison with tobacco.)

■ Are other body systems affected?

They sure seem to be. Take the endocrine system, for example. It produces body hormones, the internal chemicals that control how and when we develop. Here's what pot does there:

- ▶ Triggers a short-term drop in the hormones that direct growth and development.
- ▶ Lowers sperm production in males, resulting in fewer normal sperm cells.
- ▶ Tinkers with the balance of hormones that control the menstrual cycles of girls and women.



Flower power. THC is concentrated in the leaves and buds of the cannabis plant.

In adults, these changes are temporary. But researchers suspect that young people risk possible long-range developmental problems. As a precaution, they warn kids to avoid pot to reduce the risk.

■ How does pot affect the brain?

That's the trickiest question of all—because nobody knows *all* the intricacies of how the brain works in the first place. And we know even less about how it works with a bongload of marijuana inside it.

Still, we're closer to *real* answers than ever before.

What we know for sure is that pot changes more than just the way people *feel*. It also triggers a number of changes in brain function and behavior.

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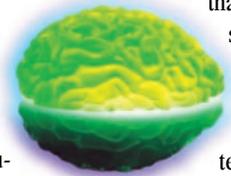
Let's consider just a couple of the *main* ones:

- ▶ Pot tilts the balance of chemicals in the brain that regulate mood, energy, appetite, and attention.
- ▶ It affects learning and memory processes, and can cause forgetfulness and reduced concentration.
- ▶ Pot also reduces logical thinking and calculation skills, and can impair a user's ability to perform complex tasks, including driving a car.

Uncovering the actual machinery of most of pot's effects in the brain is still years away.

But this much is known right now: Heavy smokers in general and longtime users in particular are more likely to experience ongoing problems than occasional smokers and nonsmokers.

And that's something *else* to think about if you're thinking about pot: Smoke enough of it and it could end up smoking *you*—or, at least, part of the *future* you.



■ Can marijuana cause birth defects?

It doesn't cause full-blown birth defects, but that doesn't mean it's okay to smoke if you're pregnant. Because the fact is that pregnancy and unnecessary drug use just don't go together at all.

Not only that, but with pot, there's some evidence that use during pregnancy could lead to unnecessary problems for a developing fetus, even raising levels of miscarriage and stillbirth.

That's because THC metabolites (remember *them?*) freely cross the placenta, where they interact with developing body systems. Possible effects include lowered birth weight, nervous system changes, and delayed learning.

And if you're pregnant (or you're planning to be), risks like those are too real to disregard—and too important to ignore.

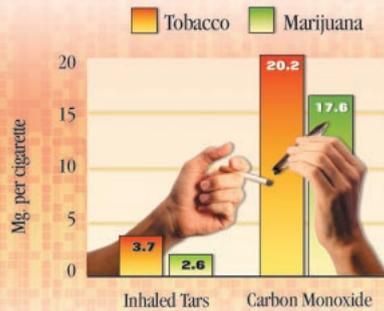
■ What risks are linked to pot?

We'll start with the heart, because pot can get things pumping faster there than a tricked-up drum machine at a techno-tribal music festival.

In fact, rapid heartbeat—which, for some users, can speed up by as much as 50 percent—is one of the few universal physical effects of marijuana. (Another is increased appetite—AKA “the munchies.”)

▶ Faceoff: Pot vs. Tobacco

Source: Julien, 1995; MAPS 1996



Winner by a nose. Pot packs a serious tar and carbon monoxide punch, but still lags behind tobacco, according to tests of gases and particulates in both kinds of smoke.

GETTING OFF

For most people, getting off pot isn't that big a deal. All they need to do is stop—and stay stopped. Quitting may not be *fun*, but it doesn't take much more than a little time and a lot of willpower. For others, it can get more complicated—usually, because they let THC & Company become a regular *thing*, like coffee in the morning or brushing their teeth at night.

For them, quitting is just the first step in a longer process of rebalancing their lives, and finding alternatives to fill the spaces that leaving pot can leave behind. Places to start:

- ▶ **Get Moving!** Any *serious* physical activity can boost your spirits and clear your head. Running, cycling, shooting hoops, or doing hand-stands can turn on the same feel-good brain chemicals that pot does, without the risks—or the expense.
- ▶ **Undo the Dew!** A junk-food-free diet can turn down any blues that can come from giving up weed. Taking a break from caffeine and sugar can't hurt, either.
- ▶ **Relax!** Take it easy. Turn on to a new activity or a skill that you've let slide. Now is as good a time as any to experiment with who you're going to be from here on out. If you think you need help, get it. And if you've thought about it before, be different this time and do it *now*.

Now is the only time we ever have for doing *anything*, including putting our lives back together when they've started coming apart. And come to think of it, another installment of it is scheduled to begin again soon, any second now. 🚬

