

10 things you should know about CANNABIS

The grass isn't always greener

BY CAITLIN DOW

Marijuana has gone mainstream. The plant, its sister hemp, and their constituents now show up in oils, creams, candies, and more. Putting aside the many controversies over marijuana, here's what it does for—or to—your health.

Ten years ago, when you referred to cannabis, you were talking about dried plant material that people smoked," says Ryan Vandrey, associate professor of psychiatry and behavioral sciences at the Johns Hopkins School of Medicine.

"Now, cannabis—which refers to marijuana and hemp—is a blanket term that could also mean hemp oil, topical creams, CBD products, high-THC concentrates that are smoked, vaporized, or orally ingested, and more."

And confusion abounds. "People either demonize cannabis or make it sound like the most amazing thing," says Vandrey.

The truth likely falls somewhere in the middle.

"Maybe cannabis will be useful to some people, but it will be disappointing to most," says Daniele Piomelli, professor of anatomy and neurobiology at the University of California, Irvine.

"Cannabis will not be a panacea. Nor will it be as dangerous as some people think."

Here are 10 things you should know about cannabis.

tive side effects, like feeling paranoid or anxious," explains Vandrey.

(In recent years, marijuana's potency has soared. In 1980, marijuana averaged about 1 percent THC.¹ In a recent report, marijuana sold at dispensaries averaged 21 percent THC, according to labels.²)

"CBD can produce drug effects, but it's not the typical marijuana high," notes Vandrey. "It's not intoxicating, and it doesn't come with THC-like side effects."

Hemp oil doesn't have much CBD unless it's added, because CBD is found

■ "We found conclusive evidence that cannabis can reduce nausea and vomiting induced by chemotherapy," says Piomelli, who served on the panel.

■ There is "substantial" evidence that cannabis modestly reduces self-reported involuntary muscle contractions in people with multiple sclerosis.

■ There is "substantial" evidence that cannabis modestly reduces chronic pain. "It's not as strong as a narcotic pain reliever like an opiate," Piomelli notes. "So it's not as effective, but it may be more usable long term."

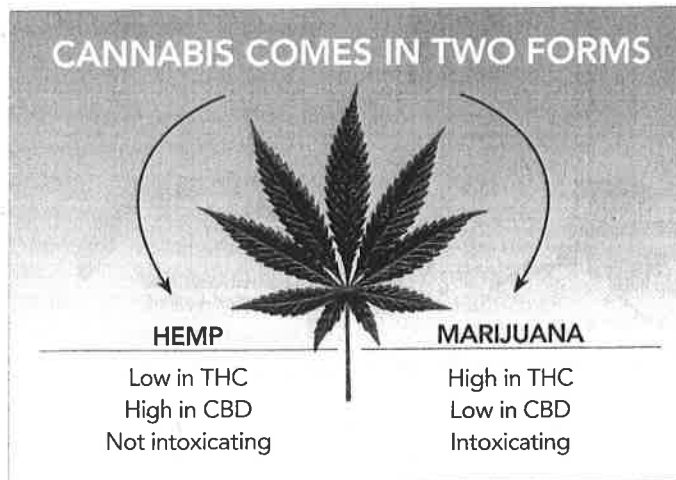
As for most other health problems, few good studies have been done. But the list of cannabis's benefits may never be long.

"In what other case do we have a single medicine that we use to treat 30 different health conditions?" says Vandrey.

In fact, the Food and Drug Administration has approved just three (synthetic) THC drugs—Marinol and Syndros (dronabinol) and Cesamet (nabilone)—to treat nausea and vomiting from chemotherapy. (That's how cannabis *should* be tested and sold as medicine.)

But some states are far more enthusiastic. "In many, the list of conditions for which medical cannabis is authorized is very long," says Piomelli.

"Out of those, we really have evidence for maybe one or two."



1 Don't confuse THC with CBD.

Cannabis plants contain a class of compounds called cannabinoids.

"We've identified just over 100 of them," says Piomelli. The two most abundant: tetrahydrocannabinol (THC) and cannabidiol (CBD).

"THC drives the hallmark features of feeling high, like getting the munchies and feeling relaxed, as well as the nega-

only in hemp's leaves and flowers (not its seeds). So if you want CBD, look for CBD—not cannabinoids—on the label.

2 Cannabis has few established medical benefits.

In 2017, a National Academy of Medicine panel drew roughly 100 conclusions on the health effects of cannabis (see "Cured by Cannabis?" p. 11).³ Only three benefits stood out:

3 The evidence for CBD is scant.

You can buy CBD as an oil, but it's also sold in everything from water and candy to Willie Nelson's CBD-infused coffee.

"CBD is promoted as this amazing,

CURED BY CANNABIS?

The evidence on cannabis ranges from limited (🌿) to conclusive (🌿🌿).

🌿	Seizures in two rare severe forms of epilepsy (CBD)
🌿	Chemotherapy-induced nausea and vomiting (THC, combined THC & CBD)
🌿	Involuntary muscle contractions due to multiple sclerosis (THC, combined THC & CBD)
🌿	Chronic pain (THC, combined THC & CBD, inhaled cannabis)
🌿	Sleep problems in people with conditions like obstructive sleep apnea, fibromyalgia, and chronic pain (THC, combined THC & CBD)
🌿	Anxiety
🌿	Post-traumatic stress disorder
🌿	Addiction
🌿	Irritable bowel syndrome
🌿	Dementia
🌿	Glaucoma
🌿	Cancer

Level of evidence

- 🌿 Conclusive 🌿 Moderate
 🌿 Substantial 🌿 Limited or insufficient

Sources: fda.gov, The National Academies Press.

notes. "The current estimate is that about 10 percent of people who try it will end up having problems."

That's concerning, but it's less than the roughly 20 percent of drinkers or 65 percent of nicotine users who become dependent.⁹

The Academy also found "substantial" evidence that cannabis use may increase the risk of psychotic disorders like schizophrenia, with the highest risk among the most frequent users.

"Young adolescents also have a higher risk," says Vandrey. "But a cause-and-effect relationship hasn't been established for any group." Still, he adds, "people with a family history of psychosis should avoid cannabis, especially products with high THC content."

8 Don't trust labels.

"You can't rely on labels," says Piomelli. In states that test cannabis products, the results are troubling.

For example, in 2018 the California Bureau of Cannabis Control tested nearly 26,000 products—plant material, vape pen cartridges, waxes, oils, tinctures, topical creams, edibles—sold at dispensaries. Almost 15 percent failed tests for potency or purity, typically because they were mislabeled or had detectable levels of pesticides, microbes, or solvents.

CBD-only products sold online or in stores fare no better. For example, only about 30 percent of 84 CBD products that Vandrey bought online were accurately labeled.¹⁰

"Some contained little to no CBD," he says. And roughly one in five had detectable levels of THC. "It's quite possible that the therapeutic benefits people are reporting from CBD are driven by THC, or maybe something else entirely."

9 A dose of THC varies.

It's up to each state to decide on an appropriate dose. In Washington and Colorado, for example, a dose of THC is 10 milligrams. In Oregon, it's 5 mg.

"There's a fairly narrow dose window

between somebody being okay and someone having uncomfortable adverse effects with THC," Vandrey explains.

He randomly assigned 17 infrequent marijuana users to smoke or vape marijuana with either 0, 10, or 25 mg of THC. Two people vomited and one hallucinated after taking 25 mg, but not 10 mg.¹¹

And when people inhaled 25 mg—but not 10 mg—of THC, they reported feeling more uncomfortable, sick, or anxious than when they inhaled the marijuana with no THC.

What's more, people were more intoxicated after vaping than after smoking the marijuana.

The take-home message: If you try THC, start low. That means around 2 to 3 mg. "Work your way up slowly until you get the effect you want," says Piomelli.

"And treat it with respect. This is not a toy. This is a drug. I'm concerned that people think, 'Oh, it's natural. It can't harm me.'"

10 Edibles: the Wild West.

"THC edibles are problematic," says Piomelli. "It's easy to eat a cookie without knowing what's in it."

And many edibles have much more than 5 to 10 mg of THC.

For example, Dixie Elixirs' line of 8.5 oz. juices has 100 mg of THC per bottle, but the labels list a serving as 6 mg of THC. Only people who use the "dosing cap" will get the three-teaspoon serving of juice that contains 6 mg of THC.

And keep your edibles away from children. The Poison Control Center warns that some kids have gotten into their parents' supplies.

Another potential problem: "When you inhale cannabis, you feel the effects almost immediately," says Vandrey. But it can take 30 to 90 minutes to feel the effects of an edible. If you don't know that, you may think the dose is too low. "So then you eat more and you're stoned for hours and hours," says Piomelli.

What's more, the kind of food may affect how quickly the THC is absorbed.

"Let's say you have a lollipop, a gummy bear, and a brownie, each with 10 mg of THC," says Vandrey.

"When you suck on the lollipop, you absorb some of the THC through the oral mucosa that lines your mouth. That absorption might be much faster than if you eat the gummy bear or the brownie. And if you eat the brownie, the absorption may be much slower if it has a lot of fat."

"That begs the question: Why does it have to be in a lollipop, gummy bear, or brownie when it should be in a capsule?"

The answer is more about marketing than medicine. 🍌

¹ *J. Forensic Sci.* 45: 24, 2000.

² *J. Gen. Intern. Med.* 33: 1426, 2018.

³ *The National Academies Press* 2017. doi:10.17226/24625.

⁴ [fda.gov/newsevents/newsroom/pressannouncements/ucm611046.htm](https://www.fda.gov/newsevents/newsroom/pressannouncements/ucm611046.htm).

⁵ *Braz. J. Psychiatr.* 2018. doi:10.1590/1516-4446-2017-0015.

⁶ *Cannabis Cannabinoid Res.* 2: 139, 2017.

⁷ *Int. J. Drug Policy* 52: 87, 2018.

⁸ *Clin. Chem.* 59: 478, 2013.

⁹ *Drug Alcohol Depend.* 115: 120, 2011.

¹⁰ *JAMA* 318: 1708, 2017.

¹¹ *JAMA Netw. Open* 1: e184841, 2018.