



Today’s Marijuana: More legal, and more potent

The expanding legality of selling and using marijuana and its derivatives has made products containing the plant’s psychoactive ingredient, tetrahydrocannabinol (THC), more widely available and more widely accepted. And those products are increasingly more potent.

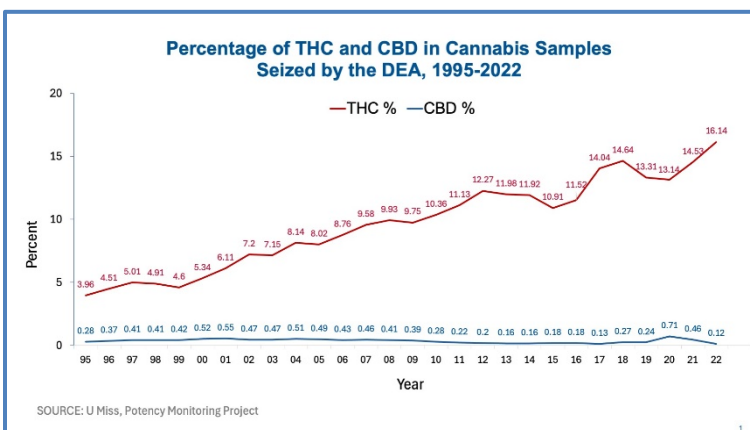
Potency is about the amount of THC present in the plant material or in marijuana products like oils, capsules, and ointments, or edibles such as gummies, candy bars and sodas. It is important for both employers and employees to understand the importance of potency, how it has changed, and the concerns associated with high-potency marijuana.

Is marijuana really more potent than it used to be?

Marijuana has changed a great deal since generations of Americans were first exposed to it. The biggest change is the increase in potency, a trend we have been seeing for decades.

The Marijuana Potency Monitoring Project is part of The National Center for Natural Products Research (NCNPR) located at the University of Mississippi (UM). The Project conducts analyses to monitor the potency of cannabis products distributed in the illegal marijuana marketplace in the United States. Samples which have been seized by the Drug Enforcement Administration (DEA) and by state and local police agencies are submitted for analysis.

In the 1970s, the average THC content of marijuana was less than 1%. By the 1990s, it had increased to 3 – 4%, and by 2010 it was topping 10%. The latest report shows that in 2022 the average potency of plant material seized by law enforcement was 16%.



Those statistics are for seized marijuana. What about legalized marijuana in states that have made it available either for medical or general adult use? Today, due to continued advancements in plant breeding, cultivation techniques, and the sheer demand for potent strains, nationally the average THC content in commercially available marijuana plant material typically hovers between 15% and 25%.



Of course, today there are many other marijuana products on the market. These products are made from “extracts,” which are concentrated compounds with high levels of THC. These concentrates are extracted through a manufacturing method that involves processing marijuana plant material with solvents (such as butane, ethanol, propane, etc.). The result is an oily, waxy, or crystalline THC concentrate which can be heated and inhaled through vaping or dabbing or made into an edible form which can then be eaten or drank.

Today’s marijuana concentrates often have potency levels of 60% to 80%, or even higher. And some products are billed as almost pure THC.

Why has potency increased?

Marijuana potency has increased for a number of reasons. Some researchers have reflected on the source of marijuana back in the 60s and 70s when most of it came from other countries. The marijuana at that time, they say, was a mixture of leaves, stems, flowers and other plant parts, with very little of the brick-packed, mass-produced product actually being made up of the flower current dispensary customers and home growers now expect. The flower is the part of the plant that is highest in THC, so the members of the “Me Generation” were mostly just getting dried leftovers, versus the fresher flowers of today.

But even the potency of just that “flower” has gone up over the years. For both home growers and commercial enterprises, this crop has benefited from agricultural advancements just like any other crop. In short, if we can grow better corn, we can grow better marijuana. Even before its legal status started changing, home growers were selectively breeding plants for years. And now that there is an entire commercial industry focused on it, marijuana growing and processing has become more high-tech than ever.

And those marijuana concentrates? Extraction processes using flammable solvents such as butane can be very dangerous. So as marijuana legalization expands commercialization has industrialized this process, not only taking the danger out of the end-user’s hands, but also providing a much wider selection of products, forms and flavors. Add in the basic principles of supply and demand and we end up with edibles and other products with extremely high potency levels.

Should we be concerned about increased potency?

In short, yes. Increased potency has led to increased problems. Studies have linked high potency marijuana to increased hospital and ER admissions, more problems on our roads and even higher rates of mental health problems.

The brain seems particularly susceptible to impacts from high potency, especially still-developing brains. High potency marijuana has been found to be associated with changes in brain structure in young people, particularly



in the prefrontal cortex, which is associated with decision-making and executive function. Other epidemiological evidence suggests that heavy and early use of cannabis is associated with increased risk of developing schizophrenia, bipolar disorder, depression, and anxiety. But regardless of age, existing research indicates that consuming high-potency marijuana heightens a user's chances of developing a psychotic disorder.

In addition, high-potency marijuana has been linked to increased rates of addiction. The steep increase in marijuana addiction treatment admissions starting in 1992 has tracked much more closely with the steep rise in potency than with any population increases in use.

When it comes to the workplace, both the availability and the increased use of higher potency marijuana is likely contributing to safety concerns. In February 2024, the Journal of the American Medical Association reported laws legalizing adult use of marijuana were associated with a 10% increase in workplace injuries among individuals aged 20 to 34 years.

In addition, Quest Diagnostics' Drug Testing Index™ 2024 shows a steady increase in post-accident marijuana positivity every year since 2012, when the first states began legalizing marijuana for adult use. As more states legalized marijuana, whether for medical or full adult-use, there has been a corresponding increase in positivity for marijuana, especially for post-accident testing. In fact, marijuana positivity for post-accident testing far outpaces marijuana positivity on both pre-employment and random tests.

While there is research supporting risks from high-potency marijuana, most scientists agree that much more research is needed. However, each new study that does come out makes a compelling argument for limiting the availability of high-THC products and the need for THC caps in legal markets.

Does higher potency affect how long marijuana stays in the body?

We've all heard that marijuana stays in the body longer than alcohol and other drugs. Thirty days, right? Not so fast. It is tempting to want to put a number on that, but many factors impact how long marijuana stays in anyone's body. THC dissolves into fatty lipids, while alcohol and other drugs are water-soluble. To be clear, this is NOT a fat versus skinny issue — THC stores in the fatty-lipids of the cell walls (any cell walls, but especially white cells, cells in the reproductive area and most importantly in brain cells).

Because THC is fat-soluble, it has a half-life, meaning it takes a certain amount of time for the amount of the substance to cut in half, and the same amount of time for the remainder to cut in half, and so on. THC's half-life ranges from two to ten days, with an average of four days. If a person uses it again before the THC is all gone, the THC accumulates with regular use. The more a person uses, and the more often he or she uses, the greater the THC accumulation.



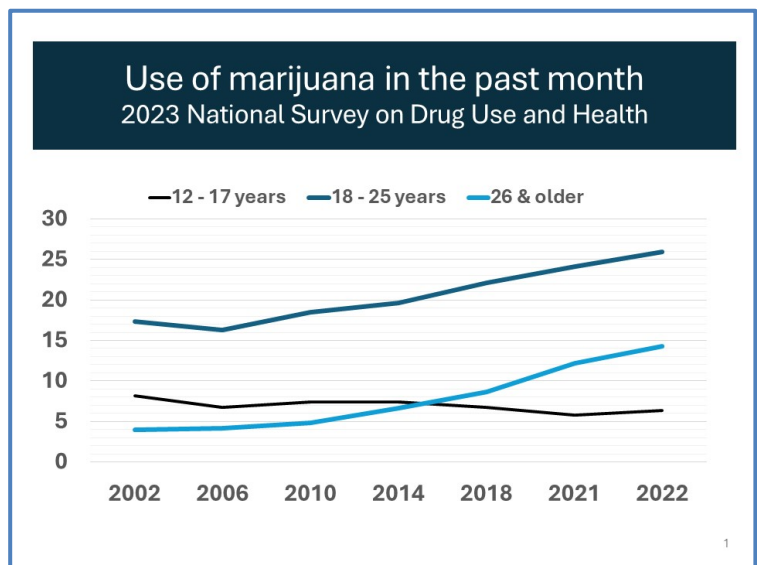
To answer the question “how long does it stay in the body?” we need to consider a number of factors such as how much and how often the person uses, when the person last used, the length of the person’s half-life (which can vary) and, of course, the potency of the marijuana used.

The more potent the marijuana is, the more THC is absorbed; the more THC absorbed, the longer it will take to leave the body. So, yes, higher potency marijuana will stay in the body longer.

What does this mean for the workplace?

In general, more people are using marijuana than ever before; and working-age adults are driving the increase in regular use of marijuana. In addition, according to the National Survey on Drug Use and Health, over the past 20 years, daily use of marijuana has increased by 262% with close to half (48.8%) of users reporting they use it daily or almost daily.

Today, legalization has made marijuana much more available, more adults are using it, more are using it daily, and high-potency marijuana is easily accessible. Add in the fact that marijuana stays in the body longer and accumulates with regular use and there are real workplace concerns – for both employees and employers.



For employees, there could be questions about personal time versus work time. Some may be concerned about medical conditions and wonder how to balance any medical benefits from marijuana with policies and testing programs at their workplace. And those whose work is safety-sensitive may be wondering if the person next to them is safe to work with.

For employers, marijuana and THC accumulation raise concerns about job performance, productivity and safety. They have a duty to ensure a safe work environment and that all their employees are fit for duty and productive. The question they most often ask is, “How will we know if an employee is impaired?”



A drug test, if an employer is using best-practice science and processes, is court defensible. But a positive test can only determine there is a certain amount in the person's system. It doesn't say when the person last used marijuana and it doesn't say whether the person is *impaired*.

Currently, there is no objective, standardized measure for marijuana impairment. So, while it makes sense to focus on job impairment as it relates to marijuana use, we currently have no objective way to know if an employee is safe to work after they've used it in their own time. That leaves workplaces with a drug test as the only tool in their toolbox as they try to balance safety, productivity, public image, liability and employee rights.

Where does that leave us?

The issues and decisions regarding marijuana and the workplace are more complex than most people realize. It poses challenges for both employees and their employers.

Education is one key to the puzzle. We all need to understand more about this drug and help others understand that today's marijuana is not the marijuana of the past. The more we understand about this drug, the better positioned we are to make decisions that impact our workplaces.

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