**Marijuana Makes for Slackers? Now There’s Evidence**

*ILLUSTRATION: TOMASZ WALENTA*

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By

**SUSAN PINKER**

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In cities like Seattle and Vancouver, the marijuana icon has become almost as common on storefronts as the [Starbucks](http://quotes.wsj.com/SBUX) mermaid. But there’s one big difference between the products on offer: A venti latte tastes the same everywhere and provides an identical caffeine rush, while marijuana stores offer the drug’s active ingredients in varying combinations, potencies and formats. There is no consistency in testing, standards or labeling.

This matters because marijuana’s two psychoactive ingredients, tetrohydrocannabinol (THC) and cannabidiol (CBD), have contrasting effects on the brain. “THC makes you feel high,” said Catharine Winstanley, a psychology professor at the University of British Columbia who does research on marijuana, while CBD “is responsible for its analgesic, antiseizure and purported anticancer effects.”

In street marijuana, the THC-to-CBD ratio now tends to be 10 to 1, and it is increasing, a trend occurring even at some marijuana clinics, Dr. Winstanley said. And few people know what effect that has on their brains. A new study by Dr. Winstanley’s group [in the Journal of Psychiatry and Neuroscience](http://www.ncbi.nlm.nih.gov/pubmed/27557094) examines how these two chemicals shape our willingness to face a challenge. Does marijuana make us lazy?

To answer this question, the Winstanley team first tested rats to determine which were hard workers and which were slackers. After being injected with THC, CBD or both, the rats had to choose between a simple task with a measly reward or a demanding one that reaped a bigger payoff.

In the easy version, the animals had a minute—an eternity for a rat—to see that a light was on in a chamber and poke their noses inside. They got a single sugar pellet. In the hard version they only had a fifth of a second to notice the light—something a rat, even a stoned one, should have no problem perceiving—and respond. Their vigilance in the hard choice would earn them two lumps instead of one. Under normal circumstances, the vast majority of rats prefer to work harder for a bigger payoff.

The results? “Whether they were workers or slackers to begin with,” Dr. Winstanley reported, “even small amounts of THC made them all slackers.”

THC didn’t impair the rats’ ability to perform, only their willingness to try. That downshift in motivation didn’t happen in rats injected with CBD only.

Later analysis of the rats’ brains showed that those with the greatest reaction to THC also had a greater density of a particular receptor in their anterior cingulate cortex, or ACC. “That area of the brain is very important for people to gear up to face a challenge and stay the course,” Dr. Winstanley said.

A small study shows something similar in humans. [Published this month in the journal Psychopharmacology](http://link.springer.com/article/10.1007/s00213-016-4383-x) by a University College London team, the study of 17 adults showed that inhaling cannabis with THC alone (versus pot with CBD plus THC, or a placebo), induces people to choose an easy task more often, eschewing the harder one that offered four times the payoff. Neither the researchers nor the subjects knew who had gotten the drug, who the placebo. The effects were short term, meaning that the subjects’ apathy didn’t persist after the high wore off.

The need for policy-makers to deal with the results of tests like these is complicated by the lack of regulatory consistency. That’s because the U.S. Drug Enforcement Administration considers marijuana as illegal as heroin, while 25 states and the District of Columbia have legalized pot for various purposes. So no national standards exist.

“Thinking that it’s harmless, that you can smoke cannabis and you’ll be fine, is a false assumption,” said Michael Bloomfield, a University College London professor in psychiatry and one of the UCL study’s authors. “THC alters how willing you are to try things that are more difficult.” So next time you go to a clinic—or dealer—you might want to ask about the product’s chemical breakdown.