

On My Mind: Weed and the developing brain



Over the course of my career, I have known countless people who started using marijuana in their teen and preteen years whose lives have been irreparably damaged as a result. Addiction, psychiatric illness, and academic and social failure are the result for far too many. The number of people I see using marijuana seems to be ballooning at the same time that the perception of the risks of using is plummeting. Access is greater than ever before, and marijuana and its paraphernalia are being marketed on the Vineyard and elsewhere with an enthusiasm driven by commercialization and profiteering. As Colorado passes its five-year anniversary of legalization, an investigation found an increase in high school drug violations of 71 percent since legalization, while school suspensions for drugs increased 45 percent.

According to the 2016 Youth Risk Behavior Survey report, about 34 percent of Martha's Vineyard high school students and 54 percent of high school seniors had used weed in the past month. Over 9 percent had used it more than 20 times.

Meanwhile, only 28 percent of high school students (as compared with 41 percent in 2014) felt that there was “moderate” or “great risk” associated with smoking marijuana once or twice a week. Vineyard kids use marijuana more than comparable groups nationwide.

Mental health professionals often see adults in our practices who used marijuana as a major source of comfort starting in their teen and preteen years. Many haven’t matured emotionally, or academically, or vocationally. And many have developed other addictions and/or chronic psychiatric illnesses. Just about all of the opioid addicts we know used marijuana first. And while most people who use marijuana don’t end up addicted to heroin, early use does appear to leave people more vulnerable to further substance abuse and addiction.

In recent years, nearly all of the people I have seen who have developed chronic psychotic illnesses had their first symptoms after heavy marijuana use. In a study of 45,000 Swedes over the course of 15 years, individuals who had used marijuana by the age of 18 were six times more likely to develop schizophrenia than those who had abstained. And while we don’t know with certainty that the marijuana caused the psychiatric illness, we do know that some of the chemicals in marijuana cause psychosis. What I see is that the psychosis worsens when people smoke pot and improves when they stop.

Marijuana is a complicated and poorly studied substance containing over 400 chemicals that contribute to its effects. Content varies widely between different strains. But today’s marijuana contains six to 20 times more tetrahydrocannabinol (THC) — the chemical in marijuana most closely associated with its effects — than did marijuana in the 1960s. And most of the users that I know, at least at times, use much more concentrated forms such as “ear wax” and edibles, which are marketed heavily in some states.

According to Dr. Nora D. Volkow, director of the National Institute of Drug Abuse, there is growing evidence that marijuana creates long-term structural changes in the brains of adolescent smokers. Working memory, IQ, academic performance, and motivation are all adversely affected. Chronic anxiety, poor attention, and depression ensue.

For this article I spoke with one of my kids’ friends who is in his early 20s. He has stopped using marijuana. This is what he told me: “The Vineyard is not a place for a young person ... There is nothing to do there and that is what makes drugs so appealing ... Two summers ago, I was smoking large amounts of marijuana because the people I was with were doing it ... If I didn’t use it I would

feel out of place and awkward. I wasn't confident enough to say no." But it also made him self-conscious and anxious, and he felt that it shut down his brain. In recent months he has used it three times and reports that each time, he regretted it. He also told me, "Some of my friends use it now because they can't sleep without it. I don't get why they can't sleep without weed." People who take weed to sleep and treat their anxiety should know that insomnia and anxiety are two of the most common withdrawal symptoms of marijuana dependence. (And yes, marijuana is addicting.)

Recovery coach Eric Adams reinforced the same message. "I see some kids at 16 who have been using daily for five or six years! So many kids can't tolerate the boredom of school." Eric pointed out that there are three factors that cement substance use in teens. The first is family history.

Studies suggest that more than any other factor, genetics contribute to who will develop a problem with drugs. The second factor is early age of onset and peer drug use. Kids learn best from other kids. (See bit.ly/SugataMitratedtalk.) And third, kids who have had adverse childhood experiences, such as trouble in their homes, learn to comfort themselves with drugs (bit.ly/adversechildhoodevents).

Eric went on to say that many kids find the pressures of school overwhelming, and "they don't have much interest in anything but music, partying, and hanging out with their friends. The weed helps them to feel less anxious and less depressed. When you ask them to stop, you are asking them to give up their peer group, social status, and sense of identity." He notes that many kids are into the marijuana movement, supporting legalization and normalization. They see marijuana as natural medicine, and find it better than the medications their doctors prescribe. They don't recognize when they are physically dependent. And when they stop, they go through emotional and physical withdrawal. "But when they go on trips and can't access pot," he adds, "some kids notice that they enjoy more mental clarity, are less irritable, and just feel better." Similarly, while some young people have told me that they believe that marijuana helps their ADHD, it is also true that pot often clouds the senses and makes focus and organization worse.

Marijuana is extremely dangerous to the developing brain. The adolescent brain is in huge flux, and it is impossible to fully know all of the ways that introducing a foreign substance will affect it. Skyrocketing levels of hormones, the pruning of connections between neurons, and the laying down of the myelin sheaths around nerve cells are among the changes that are occurring. Myelin is akin to the insulation around an electric wire. As a result, the teen brain is more excitable

than an adult brain in which the myelin sheaths have been fully installed. This has both positive and negative consequences for teens: On the one hand, they learn better, fall in love more easily, seek more novel experiences, and feel emotions with an unmatched intensity. At the same time, teens are more vulnerable to depression, anxiety, schizophrenia, and addiction. Because what they are learning in all arenas is affecting the hardwiring of their brains, if they learn that drugs and alcohol are tools of comfort, those are likely to become lifelong lessons. If marijuana, alcohol, and other drugs were left untouched in the teen years, later risk of addiction would be vanishingly small.

Can you imagine if there were one behavioral change in adolescence that would eliminate all cancer? Our society would be united in its determination to change that behavior. But there are many obstacles to changing adolescent drug use. First, seeking mind-altering substances appears to be something that all mammals are prone to do. In addition, drinking, and increasingly marijuana, are normal ways that adults comfort and relax themselves. We role-model it for our children, and are often blind to the problems that it creates in our own lives. Also, it is hard to know how to talk to our children about their marijuana and alcohol use. And when our efforts don't seem to change our kids' behavior, it is frustrating, and may lead us to give up on trying. Furthermore, marijuana and other drugs being more potent makes them more addicting, and therefore harder to let go of. The good news on the Vineyard is that we have the Youth Task Force and a high school administration and community of mental health professionals that are acutely aware of the problem, and are actively promoting sobriety. While the difficulty of trying to impact this problem can be discouraging, teen drug, alcohol, and nicotine use nationwide is actually decreasing. The one exception is marijuana use, which is staying steady nationally but appears to be decreasing on the Vineyard. In fact, public health campaigns do work. There was, after all, a time when no one wore seat belts. There were smoking rooms at high schools, and drinking and driving was more the norm.

But we can't leave it to others to educate our kids. As adults and parents, we need to take a hard look at how we use substances and what we role-model for our children. We can start talking with our children about the risks of alcohol, marijuana, and other drugs early, and continue to do so often, even when it doesn't seem to be getting though. This is particularly important if they have any family history of substance abuse. We can, and should, also work harder to create a community where our kids find other sources of fun, comfort, and stimulation.

And we can be aware ourselves that while using marijuana may be a relatively safe source of comfort for many adults, it is dangerous for teens.

For more on substance abuse and the developing brain, see this talk by Ruth Potee, M.D., given last March on the Vineyard: bit.ly/parentingtoprevent.

An interesting highlight from her talk:

If your child has a family history of substance abuse, he or she has a 50 percent chance of developing an addiction. If onset of use is delayed to 24 years old, the risk of future substance dependence is eliminated entirely.

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