

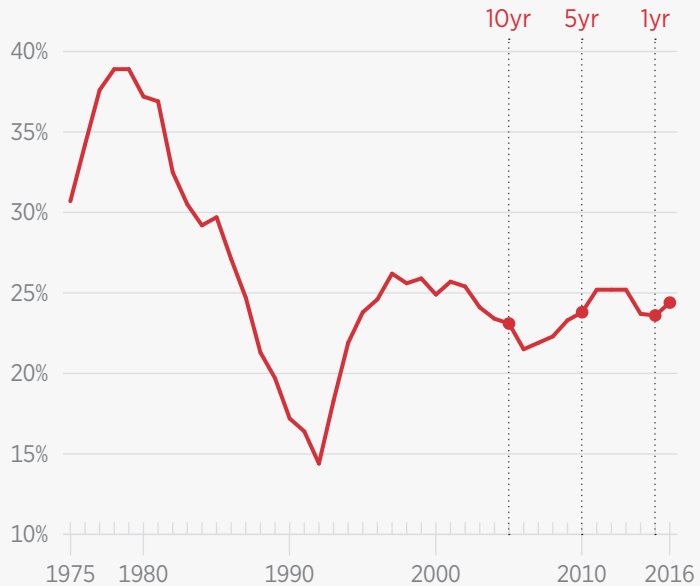
Teen Drug Use

From 2006 to 2016, the percentage of 12th graders reporting current drug use increased by 2.9 percentage points.

* Illicit drug use refers to the use of marijuana, LSD and other hallucinogens, cocaine and crack cocaine, heroin, or any use of narcotics without a doctor's prescription, including amphetamines, sedatives (barbiturates), or tranquilizers.

SOURCE: Monitoring the Future.

PERCENTAGE OF 12TH GRADERS WHO USED ILLICIT DRUGS* IN PAST MONTH



A Precious Natural Resource: The Developing Adolescent Brain

Christian Thurstone, MD

Americans should care about teen substance use because the developing brain is one of our nation's most precious natural resources. We need our brains to create, innovate, and solve our country's problems.

The brain goes through crucial changes in adolescence.¹ Connections that are no longer needed are pruned. Fat cells, called myelin, develop around the neurons to provide insulation. The end result is to make the brain more efficient. Efficient brains, in turn, create our country's future.

Unfortunately, adolescent substance exposure may interfere with brain development.² Brains that are exposed to alcohol, marijuana, opioids, and tobacco during adolescence are different from brains that are not exposed to

these substances.³ They look different on brain scans, and they function differently as well. For these reasons, our country has an interest in preventing teen substance use and promoting healthy brain development.

In the area of teen substance use, we have cause for both celebration and concern. We celebrate decreases in the prevalence of teen drinking.⁴ At first glance, we might also celebrate decreases in teen cigarette smoking. However, if we include nicotine vaping, teens likely use more nicotine now than a decade ago.⁵ This increase is not surprising, given the way these products target youth with, among other things, sweet flavors such as chocolate, cherry, and vanilla.

Three main areas of concern are marijuana, opioids, and access to mental health/substance treatment.

- **Marijuana.** Among high school seniors, 6 percent use marijuana daily, and perceived harmfulness is at its lowest point ever with only 30 percent of high school seniors reporting great harm with regular use.⁶ Historically, perceived harmfulness is an important predictor of future use. Most striking is the legalization and commercialization of marijuana. Marijuana commercialization has led to cartoon advertising, brightly colored packaging, and sweetly flavored edibles (e.g., candy bars and sodas), all of which clearly target youth. Profits from selling these products can then be used to lobby and impede common-sense prevention such as plain packaging, limitations on potency, and restrictions on store hours.
- **Opioids.** Since 1999, the rate of people dying from opioid overdose has quadrupled.⁷ Adolescents have not been spared from the opioid overdose epidemic. From 1999–2013, drug overdose deaths among young people 12–25 years old increased from 3.1 to 7.3 deaths per 100,000.⁸ In 2015, 1.1 percent of all young people 12–17 years old, or 276,000 teens, used a prescription pain pill in the preceding month.⁹ Even when

opioids do not lead to addiction or overdose, there is concern about their potential impact on the developing brain. For instance, animal models show that opioid exposure during adolescence promotes premature myelination of neurons.¹⁰ In other words, the precise sequencing of the brain development process is altered in potentially crucial ways.

- **Access to substance treatment.** Only 6 percent of adolescents with a substance problem access treatment.¹¹ This treatment gap would never be tolerated for other conditions such as cancer, diabetes, and heart disease. Yet it has existed for years.

Our country's future depends on healthy brain development. Adolescent exposure to substances endangers our future. In the 1970s, scientists discovered the ill effects of lead on the developing nervous system.¹² Prevention efforts led to dramatic declines in the proportion of youth with toxic lead levels.¹³ Similar efforts are needed today to safeguard our youth—and our future—from drug and alcohol exposure.

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