

# Impact of Marijuana on Adolescent Health

## Brain

- Adolescents are highly vulnerable to marijuana use. Their brains undergo complex changes in size, structure, and function until reaching maturation by the age of 26.<sup>1,5</sup>
- Marijuana binds to receptors within the endocannabinoid system that influence the construction of brain circuits crucial to brain development.<sup>1</sup>
- Frequent marijuana use during this critical time period is associated with modifications in part of the brain involved in attention, decision-making, memory, and motivation, with potential for permanent damage to occur.<sup>1,5</sup>
- Changes in the brain can occur after using marijuana only once or twice during adolescence. Impairments in attention and memory can persist even after abstaining for a month.<sup>1,6</sup>

## Mental Health

- Marijuana use increases the risk of developing psychotic disorders. Independent risk factors include using marijuana at a younger age, regular use of marijuana, and use of potent strains containing high levels of THC.<sup>1</sup>
- Using marijuana in adolescence is associated with higher incidence of depression in young adulthood. In one study, youth who used marijuana three or more times by the age of 18 were more likely to have a depressive disorder at age 26.<sup>2</sup>
- In a recent meta-analysis, the odds of developing depression as a young adult were 37% higher for those who used marijuana in their teen years compared to those who didn't use marijuana.<sup>3</sup>
- People smoking marijuana before the age of 17 were 3.5 times more likely to attempt suicide than those who started smoking marijuana later in life.<sup>3</sup>
- Since the legalization and commercialization of marijuana in Colorado in 2010, there has been a year-over-year increase in the number of adolescent suicides in which marijuana present in the toxicology analysis.<sup>4</sup>



## Potency



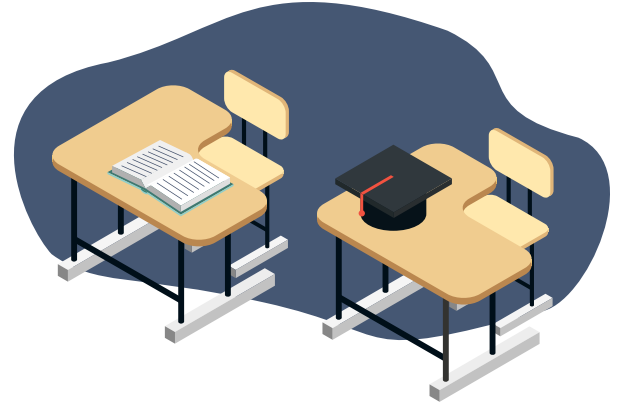
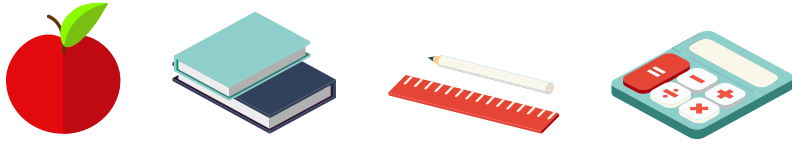
Marijuana is much stronger than it was 30 years ago. Today there are a variety of products available that are very appealing to youth including edibles, sodas, candies, and concentrates that can be ingested, vaped, or smoked.<sup>1,7</sup>



These high-potency products are linked to physical and mental health problems, violence, injury, and hospitalizations.<sup>1,7</sup> They also impair driving and increase the risk of teens getting into an accident by 65%.<sup>8</sup>

## Education

Chronic marijuana use during adolescence is associated with higher rates of school absenteeism and drop-out as well as a permanent loss of up to 8 IQ points. This leads to negative social and professional consequences throughout life.<sup>1,6</sup>



## Addiction and Other Harms

- Using marijuana before the age of 16 increases the risk of acute harm and susceptibility to developing substance use disorders and other mental health disorders including personality and mood disorders.<sup>9</sup>
- 1 in 6 users who use marijuana before the age of 18 will become addicted.<sup>6</sup>
- The odds of developing marijuana dependency were 18 times higher for adolescents who used marijuana daily before age 17 compared to adolescents who never used marijuana.<sup>10</sup>
- Marijuana, like tobacco and alcohol, is considered a gateway drug because it primes the brain for a heightened response to other drugs.<sup>11</sup>
- Adolescents who used marijuana daily before age 17 were 8 times more likely to use other illegal drugs in the future compared to adolescents who never used marijuana.<sup>10</sup>
- In 2017, adolescents aged 12 to 17 who were frequent marijuana users were more than twice as likely to misuse opioids.<sup>1</sup>



## References

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