

# HIGH-INTENSITY DRINKING

The Latest Findings from the Institute for Social Research  
University of Michigan



## WHAT IS HIGH-INTENSITY DRINKING?

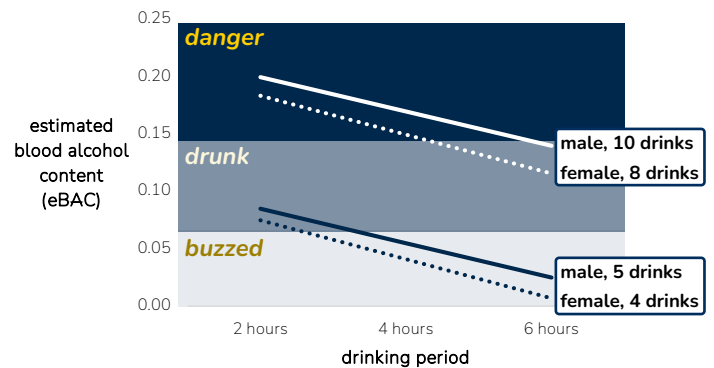
Since the early 1990s, binge drinking (defined as drinking at least 4 drinks in a row for women or at least 5 drinks in a row for men) has been a key indicator of risky drinking.

However, **the binge threshold may not clearly distinguish drinking risk.** A person who consumes five drinks over a few hours may or may not show signs of intoxication, depending on factors including body composition, food and water intake, and tolerance. In contrast, a person who consumes ten drinks over the same time period is at high risk for alcohol poisoning and other negative outcomes.

Therefore, researchers have recently begun examining the prevalence, correlates, and consequences of **high-intensity drinking, which is defined as drinking 10 or more drinks in a row** (or with sex-specific cutoffs of drinking at least 8 drinks for women or at least 10 drinks for men).

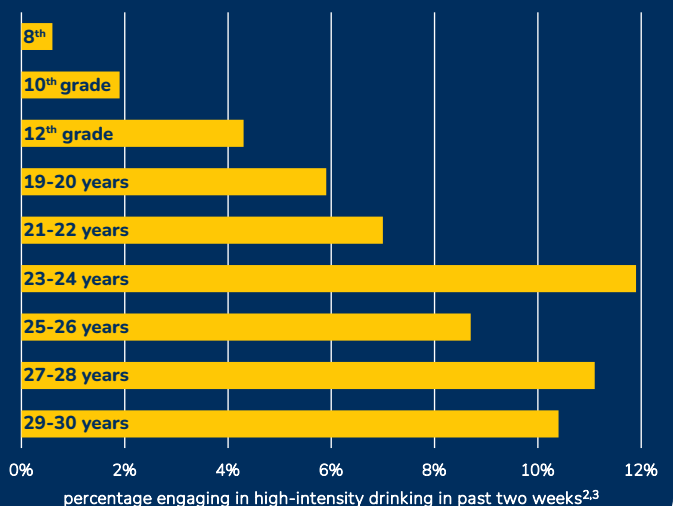
High-intensity drinking typically occurs in combination with other risky drinking patterns. On days when people engage in high-intensity drinking, not only do they consume a high number of drinks, but they also tend to drink for longer periods of time and at a faster pace than they do when drinking at moderate or binge levels. That is, they have more drinks in a shorter period of time, which leads to a higher estimated blood alcohol content (eBAC).<sup>1</sup>

## HIGH-INTENSITY DRINKING RAISES BLOOD ALCOHOL CONTENT TO MORE DANGEROUS LEVELS THAN BINGE DRINKING.



Sources: Jurd, B. Blood alcohol content estimator. <https://swords.id.au/ebac.html>; Stanford University. What is BAC? <https://super.stanford.edu/alcohol-drug-info/buzz-buzz/what-bac>

## HOW COMMON IS HIGH-INTENSITY DRINKING?





## WHO IS AT RISK FOR HIGH-INTENSITY DRINKING?

- **Gender:** Men are more likely than women to engage in high-intensity drinking.<sup>4</sup>
- **Race/ethnicity:** Among adolescents, engaging in high-intensity drinking is most likely for White individuals and Native Peoples, and least likely for Asian American and African American individuals.<sup>5</sup>
- **Fraternity/sorority members:** Members of college fraternities and sororities are more likely than their non-member peers to engage in high-intensity drinking.<sup>6</sup>
- **Expectations:** College students who expect that potential consequences of drinking are more likely (both positive consequences like being more social and negative consequences like vomiting) are also more likely to engage in high-intensity drinking.<sup>6</sup>
- **Family history:** People are at increased risk for high-intensity drinking if a biological parent or sibling has a history of drinking problems.<sup>4</sup>
- **Mental health:** Individuals experiencing symptoms of depression are at increased risk of high-intensity drinking.<sup>4</sup>
- **Other substance use:** Individuals who smoke cigarettes or use illicit drugs are more likely to engage in high-intensity drinking.<sup>4</sup> Further, on days when people engage in high-intensity drinking, they are more likely to smoke cigarettes, vape nicotine, and smoke marijuana than on days when they drink less.<sup>7</sup>
- **Family structure:** High-intensity drinking is less common among individuals who are married or who have children.<sup>8,9</sup>



## WHAT IS THE TIMING OF HIGH-INTENSITY DRINKING?

- **Age:** High-intensity drinking typically starts in the teens<sup>10</sup> but tends to peak around age 21-22 for men and 25-26 for women.<sup>11</sup>
- **Age of initiation:** Young adults are more likely to engage in high-intensity drinking if they started using alcohol before or during high school, rather than after high school.<sup>8</sup>
- **Drinking progression:** High school students who move from their first drink to their first time being drunk within the same school year are more likely to engage in high-intensity drinking than their peers with a slower progression.<sup>12</sup> Similarly, the faster an individual moves from first binge drinking episode to first high-intensity drinking episode, the more frequently they tend to engage in high-intensity drinking as a young adult.<sup>13</sup>





## WHEN AND WHERE DOES HIGH-INTENSITY DRINKING HAPPEN?

- **Weekly rhythms:** High-intensity drinking is more likely to happen on Thursdays, Fridays, and Saturdays (i.e., weekends) than on other days of the week.<sup>6,14</sup>
- **Bars and parties:** When college students drink at bars or parties, they are more likely to engage in high-intensity drinking than if they are at home.<sup>6,15</sup>
- **Multiple locations:** Young adults are more likely to engage in high-intensity drinking when drinking at more than one location, like going from a house to a bar.<sup>15</sup>
- **Groups:** Being with friends, a large group of people, or people they don't know well increases the chances that young adults will engage in high-intensity drinking. High-intensity drinking is also more likely when playing drinking games.<sup>15</sup>



## WHAT MOTIVATES HIGH-INTENSITY DRINKING?

People drink alcohol for a variety of reasons, and these motives<sup>4</sup> may vary each day.<sup>14</sup> For young adults, high-intensity drinking is more likely when they report drinking for enhancement motives, such as liking the feeling, or social motives, such as to have more fun at a party.

When people drink for enhancement reasons, they experience stronger positive emotions with the more drinks they consume.<sup>16</sup>



## WHAT ARE THE POTENTIAL CONSEQUENCES OF HIGH-INTENSITY DRINKING?

In general, the more alcohol a person drinks, the more likely they are to experience negative consequences such as hangovers, injuries, and regretted sexual encounters. **On days when young adults engage in high-intensity drinking, they tend to experience a higher number of negative consequences than on days when they drink less.**<sup>14,17</sup> This includes acute physical consequences like hangovers, as well as serious outcomes like blacking out or passing out, which are rare but much more common with high-intensity drinking.<sup>18</sup>

High-intensity drinking is also linked to long-term consequences. **Young adults who engage in high-intensity drinking are at increased risk for having symptoms of alcohol use disorder in their mid-30s.**<sup>19</sup> Additionally, those who initiate high-intensity drinking earlier tend to have greater levels of alcohol-related dysfunction in adulthood than those who initiate later.<sup>13</sup>



## HOW DOES COLLEGE ATTENDANCE RELATE TO HIGH-INTENSITY DRINKING?

- **Prevalence of high-intensity drinking is similar for young adults attending and not attending college.**<sup>2</sup>
- **However**, some differences emerge when examining subgroups of college students. Among young adults who drink, those attending a 4-year college are the most likely to engage in high-intensity drinking, followed by those not attending college. **Young adults attending a 2-year college or vocational program are at the lowest risk.**<sup>4</sup>
- Among young adults who engage in high-intensity drinking, those attending a 4-year college full time tend to have started high-intensity drinking at an older age.<sup>13</sup>
- Full-time students at 4-year colleges are more likely than other young adults to drink in ways that are associated with high-intensity drinking, including drinking for social reasons,<sup>14</sup> drinking with others, drinking in multiple locations, and playing drinking games.<sup>15</sup>
- **High-intensity drinking tends to have the same consequences, regardless of college attendance.**<sup>14</sup>



## WHAT CAN WE DO TO PREVENT AND REDUCE HIGH-INTENSITY DRINKING?

- Once someone has had their first drink or first binge drinking episode, there is a **brief window of time to intervene** to prevent high-intensity drinking. Delaying the initiation of high-intensity drinking, through prevention and intervention strategies in high school and the years immediately following, may be one way to reduce long-term consequences.<sup>13</sup>
- Young adults not enrolled in college are also at risk for high-intensity drinking. However, few alcohol-related prevention and intervention programs exist for this population. **Interventions need to be developed for and tested with young adults outside of educational settings.**
- There are several proven strategies to prevent and reduce alcohol consumption. However, we do not yet know **whether these strategies are effective at addressing high-intensity drinking**. It is also **possible that new interventions will need to be developed and tested** to specifically address high-intensity drinking.





## REFERENCES

1. Patrick, M. E., Parks, M. J., & Peterson, S. J. (2023). High-intensity drinking and hours spent drinking. *Alcohol: Clinical and Experimental Research*, 47(1), 2081-2089. <https://doi.org/10.1111/acer.15189>
2. Patrick, M. E., Miech, R. A., Johnston, L. D., & O'Malley, P. M. (2023). Monitoring the Future Panel Study annual report: National data on substance use among adults ages 19 to 60, 1976-2022 (PDF). Monitoring the Future Monograph Series. Ann Arbor, MI: Institute for Social Research, University of Michigan. <https://monitoringthefuture.org/wp-content/uploads/2023/07/mtfpanel2023.pdf>
3. Miech, R. A., Johnston, L. D., Patrick, M. E., O'Malley, P. M., Bachman, J. G., & Schulenberg J. E. (2023). Monitoring the Future national survey results on drug use, 1975-2022: Secondary school students (PDF). Monitoring the Future Monograph Series. Ann Arbor: Institute for Social Research, The University of Michigan. <https://monitoringthefuture.org/wp-content/uploads/2022/12/mtf2022.pdf>
4. Patrick, M. E., Terry-McElrath, Y. M., & Bonar, E. E. (2022). Patterns and predictors of high-intensity drinking and implications for intervention. *Psychology of Addictive Behaviors*, 36(6), 581-594. <https://doi.org/10.1037/adb0000758>
5. Terry-McElrath, Y. M., & Patrick, M. E. (2020). U.S. adolescent alcohol use by race/ethnicity: Consumption and perceived need to reduce/stop use. *Journal of Ethnicity in Substance Abuse*, 19, 3-27. <https://doi.org/10.1080/15332640.2018.1433094>
6. Patrick, M. E., Cronce, J. M., Fairlie, A. M., Atkins, D. C., & Lee, C. M. (2016). Day-to-day variations in high-intensity drinking, expectancies, and positive and negative alcohol-related consequences. *Addictive Behaviors*, 58, 110-116. <https://doi.org/10.1016/j.addbeh.2016.02.025>
7. Parks, M. J., Maggs, J. L., & Patrick, M. E. (2022). Daily fluctuations in drinking intensity: Links with vaping and combustible use of nicotine and marijuana. *Drug and Alcohol Dependence*, 233, 109347. <https://doi.org/10.1016/j.drugalcdep.2022.109347>
8. Terry-McElrath, Y. M., & Patrick, M. E. (2016). Intoxication and binge and high-intensity drinking among US young adults in their mid-20s. *Substance Abuse*, 37(4), 597-605. <https://doi.org/10.1080/08897077.2016.1178681>
9. Patrick, M. E., Evans-Polce, R., Wagner, A. C., & Mehus, C. J. (2020). High-intensity drinking by parental status: Differences by age and sex. *Addictive Behaviors*, 102. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6934898/>
10. Patrick, M. E., Terry-McElrath, Y. M., Miech, R. A., O'Malley, P. M., Schulenberg, J. E., & Johnston, L. D. (2017). Current high-intensity drinking among eighth and tenth grade students in the United States. *American Journal of Preventive Medicine*, 53(6), 904-908. <https://doi.org/10.1016/j.amepre.2017.06.027>
11. Patrick, M. E., & Terry-McElrath, Y. M. (2019). Prevalence of high-intensity drinking from adolescence through young adulthood: National data from 2016-2017. *Substance Abuse: Research and Treatment*, 13, 1-5. <https://doi.org/10.1177/1178221818822976>
12. Patrick, M. E., Evans-Polce, R., & Terry-McElrath, Y. M. (2019). Faster escalation from first drink to first intoxication as a risk factor for binge and high-intensity drinking among adolescents. *Addictive Behaviors*, 92, 199-202. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6499676/>
13. Patrick, M. E., Evans-Polce, R. J., Arterberry, B. J., & Terry-McElrath, Y. M. (2023). Initiation of and escalation to high-intensity drinking. *JAMA Pediatrics*, 177(3), 286-293. <https://doi.org/10.1001/jamapediatrics.2022.5642>
14. Patrick, M. E., & Terry-McElrath, Y. M. (2021). Drinking motives and drinking consequences across days: Differences and similarities between moderate, binge, and high-intensity drinking. *Alcoholism: Clinical & Experimental Research*, 45(5), 1078-1090. <https://doi.org/10.1111/acer.14591>
15. Terry-McElrath, Y. M., Arterberry, B. J., & Patrick, M. E. (2023). Alcohol use contexts (social settings, drinking games/specials, and locations) as predictors of high-intensity drinking on a given day among U.S. young adults. *Alcohol: Clinical and Experimental Research*, 47(2), 273-284. <https://doi.org/10.1111/acer.14985>
16. Stevenson, B. L., Parks, M. J., & Patrick, M. E. (2023). Daily associations between affect, drinking motives, and drinking intensity among U.S. young adults. *Psychology of Addictive Behaviors*, 37(2), 275-284. <https://doi.org/10.1037/adb0000809>
17. Evans-Polce, R. J., Maggs, J. L., Lanza, S. T., & Patrick, M. E. (2024). Negative consequences associated with daily alcohol use as a nonlinear function of number of drinks in a daily diary study. *Drug and Alcohol Dependence*, 256, 111089. <https://doi.org/10.1016/j.drugalcdep.2024.111089>
18. Evans-Polce, R. J., Stevenson, B. L., & Patrick, M. E. (2022). Daily-level analysis of drinking intensity and acute physical consequences. *Addictive Behaviors*, 128, 107246. <https://doi.org/10.1016/j.addbeh.2022.107246>
19. Patrick, M. E., Evans-Polce, R. J., Parks, M. J., & Terry-McElrath, Y. M. (2021). Drinking intensity at age 29/30 as a predictor of alcohol use disorder symptoms at age 35 in a national sample. *Journal of Studies on Alcohol and Drugs*, 82(3), 362-367. <https://pubmed.ncbi.nlm.nih.gov/34100704/>

### ADDITIONAL COMMENTARY

- Patrick, M. E., & Azar, B. (2018). High-intensity drinking. *Alcohol Research: Current Reviews*, 39(1), 49-55. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6104968/>
- Patrick, M. E. (2016). A call for research on high-intensity alcohol use. *Alcoholism: Clinical and Experimental Research*, 40(2), 256-259. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4743888/>

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