Dear Alice,

Obviously drinks like Four Loko and Joose are dangerous for many reasons. Can you please explicate the science beyond my general understanding that "alcohol is a depressant and caffeine is a stimulant and thus, Four Loko is dangerous?" Exactly why on a chemical level is it a dangerous drink? Does it kill brain cells more consistently than traditional alcohol? Will it weaken my short term memory? Once I understand in greater detail, I'll probably be able to make the conscious decision to stop drinking "alcopop." Thank you very much.

Answer

Dear Reader,

Four Loko and similar products were once popular due to its combination of alcohol and caffeine. However, in late 2010, the Food and Drug Administration (FDA) cited caffeine as an unsafe food additive to alcoholic beverages, and that the mixing of alcohol and caffeine isn't "generally recognized as safe." [2] As a result, Four Loko and related drinks have removed common additives that can be found in energy drinks, such as caffeine, guarana, and taurine. That being said, using Four Loko does still carry some risks. However, even without the effects of caffeine, high risk alcohol use can have effects on brain cells and memory loss (more on this in a bit). Although Four Loko may not be the same drink that it was in the past, there is still plenty to consider, so keep on reading!

Even without caffeine, beverages that contain high sugar content and a high alcohol content can also still pose health risks. Even though the caffeine is now gone, those who choose to consume these products might want to consider that Four Loko does contain at least 8 and up to 14 percent alcohol, which is generally about the same content as wine and twice as much as many beers. Another factor to keep in mind is that Four Loko often comes in 23.5 ounce cans. In fact, the Federal Trade Commission required Four Loko to change their labeling as one can has as much alcohol as four or five beers, depending on the alcohol content of that flavor. This makes it much easier for people to consume more, and consuming one can in a short period of time would be categorized as binge drinking [3]. More recently, reports about a new drink, bubbly sangria, noted that just one serving can cause a hangover for some. Why? It contains 13.9 percent alcohol per volume, which is more alcohol than three of the four Four Loko options currently on
the market. The high sugar content and juice-like flavor may trick a drinker’s taste buds, causing the person to drink the beverage more quickly than usual. Because the drink and others like it are sweet tasting and don’t taste as much like alcohol, it can be easier to drink quickly than, say, 23.5 ounces of wine.

Though these pre-mixed drinks no longer contain caffeine, some people continue to mix alcohol with energy drinks. The Centers of Disease Control and Prevention (CDC) reported [4] that those who mix alcohol with energy drinks are more likely to describe partaking in a whole host of risky behaviors, including unprotected sex, drunk driving, and violent behaviors associated with increased aggression. So what does all this mean for your body? According to the CDC, this combination of alcohol and caffeine has the potential to lead to more alcohol consumption because it keeps the person more alert and awake and therefore they have the opportunity to continue consuming alcohol. They’re also less likely to experience the depressant effects of alcohol that can more clearly indicate signs of intoxication. It’s also worth noting that caffeine has no effect on alcohol metabolism by the liver, so it doesn’t reduce alcohol concentrations in the blood, meaning it won’t sober someone up. To learn more about the alcohol and caffeine combination, check out Mixing alcohol and energy drinks – Safe or risky? [5] in the Go Ask Alice! Alcohol and Other Drugs [6] archives.

While having a drink once in a while probably won’t have harmful effects on your brain, you might want to consider the risks of high risk drinking and chronic alcohol abuse, both of which could result from the continued use of the high-sugar, juice-like beverages such as Four Loko and bubbly sangria. Even without caffeine, high risk drinking in adolescents may lead to fewer brain cells in the prefrontal cortex, and chronic alcohol abuse may contribute to neuron loss and damage different parts of the brain, resulting in long and short-term memory loss. If you have concerns about these behaviors or more questions about their effects, you may consider speaking with your health care provider.

Here’s to smart, safe, and responsible alcohol use,

Alice!

Category:
Alcohol & Other Drugs [7]
Alcohol [8]
Caffeine, Energy Boosters, & Other Performance Enhancing Drugs [9]

Related questions

Hangover helper and tips for healthy drinking [10]
Better to drink one a day or many at one time? [12]
Alcohol poisoning [13]

Resources

Columbia Health BASICS program (Morningside) [14]
Medical Services (Morningside) [15]
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If you are in an urgent situation, please visit our Emergency page to view a list of 24 hour support services and hotlines.

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Links
[8] https://goaskalice.columbia.edu/category/alcohol
[12] https://goaskalice.columbia.edu/answered-questions/better-drink-one-day-or-many-one-time