Alcohol + Caffeine

Combining alcohol and caffeinated energy drinks has been widely recognized as risky, given the inherent danger in mixing alcohol, a depressant, with stimulants such as caffeine, guarana and other additives. This combination can result in a phenomenon known as “wide awake drunk,” where intoxicated people mistakenly conclude they can safely perform potentially dangerous functions, such as driving. The combination of alcohol and caffeine also can lead to:

- An increased risk of alcohol poisoning. Since caffeine makes people feel “less drunk” than they really are, they tend to drink more than they should;
- Making a person’s heart rate and blood pressure rise;
- Dehydration (and severe hangovers), because caffeine and alcohol are both diuretics; and
- An increased likelihood of addiction.

Alcoholic energy drink users typically drink twice as much alcohol as regular alcohol users. Surveys also show that college students who drink alcoholic energy drinks report suffering more negative consequences than do students who drink other types of alcohol. Often, there is an inaccurate expectation, particularly among adolescents and young adults, that mixing an energy drink with alcohol will diminish the cognitive and motor impairments related to alcohol intoxication. Given this expectation, individuals may be more likely to engage in risky behaviors after consuming these mixtures. This raises concern because caffeine can mask some of the sensory cues individuals might normally rely on to determine their level of intoxication. However, when the caffeine wears off, a person feels the full effects of the alcohol.

A 2010 national student survey found that there is a huge gulf between those who are drinking alcoholic energy drinks and those who are just drinking alcohol in terms of the negative academic, social, and behavioral consequences experienced. This difference is greater than the difference between drinkers and non-drinkers. Consuming alcoholic energy drinks has a predictive relationship with negative consequences such as having a hangover, passing out, forgetting where you were or what you did (blackout), being taken advantage of sexually, getting behind on school work, missing class, getting into physical fights, driving after drinking, riding with a driver who had been drinking, and straining relationships with friends!

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College Students and Alcoholic Energy Drink Usage

According to recent survey data of thousands of newly-enrolled college students nationwide by Outside the Classroom, Inc., of students who consume alcohol, 55% had consumed alcoholic energy drinks within the past year, 40% had consumed them within the past two weeks, and students consumed an average 2.6 cans per occasion. There appears to be no difference in usage based on gender, race, ethnicity, or age. Alcoholic energy drink users were twice as likely to drive drunk and four times more likely to ride with a drunk driver. Predictors of college students’ alcoholic energy drink usage include early initiation of alcohol consumption, high risk takers, and a family history of alcoholism.

Four Loko

Four Loko is just the latest in roughly 25 different brands of caffeinated alcoholic beverages. The name “Four Loko” stems from the four main ingredients: malt liquor, caffeine, guarana, and taurine. Four Loko is an alcoholic energy drink produced by Phusion Projects, LLC of Chicago, Illinois. Four Loko debuted in U.S. markets in 2008, and was developed by three recent alumni of The Ohio State University.

Four Loko comes in nine flavors: fruit punch, orange blend, grape, watermelon, blue raspberry, kiwi strawberry, lemonade, cranberry lemonade, and lemon lime. Four Loko also contains 660 calories, 135 mg of caffeine, and 65 grams of sugar. Four Loko is 12% alcohol, which means that one can of Four Loko is equal to 4.6 “standard” drinks. Because of the high alcohol content, it is easy for consumers of Four Loko to underestimate the amount of alcohol being ingested. This is one of the reasons that Four Loko is referred to as “liquid cocaine” or “blackout in a can.”

On November 13, 2009, the U.S. Food and Drug Administration warned Phusion Projects and over two dozen other brewers and distillers whose drinks contained the “intentional addition of caffeine” that it was looking into the safety and legality of their beverages. Several states have banned the sale of this product, and many college campuses have banned the drink from its premises.

On November 16, 2010, the U.S. Food and Drug Administration warned four companies that the caffeine added to their malt alcoholic beverages is an “unsafe food additive” and said that further action, including seizure of their products, is possible under federal law. The FDA stated that there is evidence that the combination of caffeine and alcohol in these products pose a public health concern. Upon this announcement, Phusion Projects, the maker of Four Loko, announced its intention to remove caffeine and other stimulants from its drinks. The FDA intends to work with Phusion Projects and the other manufacturers to assure their products meet safety standards.

On November 22, 2010 Kansas Director of Alcoholic Beverage Control, Thomas Groneman, sent notification to Four Loko and two other alcoholic energy drink makers that he was issuing a recall of their products effective immediately. Therefore, Four Loko is no longer legally for sale or distribution in the state of Kansas. But be assured, the long-term problems associated with combining energy drinks with alcoholic drinks will not so easily disappear.

Malt Liquor

Malt Liquor is a North American term referring to a type of beer with high alcohol content. It is a strong lager in which sugar, corn or other adjuncts are added to the malted barley to boost the alcoholic strength. These beers tend to be mildly hopped (that is, they are not very bitter). While ordinary beers in the United States average around 5% alcohol by volume, malt liquors typically range from 6% to 9% alcohol by volume.
Caffeine

Caffeine is one of the world’s most popular drugs. Caffeine is a white, slightly bitter, crystal-like substance found in coffee, tea, cocoa, cola, and now energy drinks. As a stimulant, caffeine usually increases alertness and physical activity. Caffeine increases a person’s metabolism, body temperature, and blood pressure. Other effects include an increase in urine production, higher blood sugar levels, hand tremors, a loss of coordination, decreased appetite, and delayed sleep. After drinking too much caffeine, some people experience headaches, nausea, trembling, an irregular heartbeat, and nervousness. Ingesting large amounts of caffeine can lead to convulsions and breathing failure. Deaths linked to misuse of tablets containing caffeine have been reported. Caffeine can be addictive in nature, and some caffeine researchers have found withdrawal-like symptoms among regular caffeine users who try to quit or reduce drinking caffeine. These symptoms include headaches, fatigue, muscle pain, depression, irritability, and mood changes.

Guarana

Guarana is a creeping shrub native to Venezuela and northern Brazil in the Amazon rain forest. The fruit are small, bright-red, and contain black seeds. The main chemical components of guarana are caffeine and traces of theophylline and theobromine, which belong to the chemical family of caffeine. Guarana seeds contain up to 4-8% caffeine, more than coffee beans, which contain approximately 1-2% caffeine. Guarana is present in some drinks imported from South America in a manner similar to American soft-drinks fortified with caffeine. When mixed with caffeine, the stimulant effect is intensified. Guarana has not been evaluated by the FDA for safety, effectiveness or purity. All potential risks of guarana may not be known. Talk to your doctor or health care provider before taking guarana if you have heart problems or high blood pressure, diabetes, epilepsy, kidney disease, an overactive thyroid (hyperthyroidism), insomnia or an anxiety or nervous disorder. Additionally, there are no regulated manufacturing standards in place for these compounds and unlike coffee, the amount of caffeine does not have to be listed in guarana drinks.

Taurine

Taurine, or 2-aminoethansulfonic acid, is a nonessential amino acid and one of the few known naturally occurring sulfonic acids. It support neurological development and helps regulate the level of water and mineral salts in the blood. Taurine is also thought to have antioxidant properties. It is found naturally in meat, fish and breast milk. It is commonly available as a dietary supplement. Some studies suggest that taurine supplementation may improve athletic performance, which may explain why taurine is used in many energy drinks. Other studies suggest that taurine combined with caffeine improves mental performance, although this finding remains controversial. However, moderation is important as little is known about the effects of heavy or long-term taurine use. Taurine is not recommended for children and pregnant or breast-feeding women. Studies have implicated synthetic taurine in illnesses ranging from high blood pressure to strokes and seizures to heart disease. For these reasons it has been banned in some Scandinavian countries.
### Alcohol Content Chart

<table>
<thead>
<tr>
<th>Beverage</th>
<th>Alcohol Content by Weight</th>
<th>Alcohol Content by Volume</th>
<th>Proof</th>
<th>Ounces of Alcohol Per Typical Serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grocery Store Beer (CMB)</td>
<td>3.2%</td>
<td>4%</td>
<td>8</td>
<td>4% x 12oz. = .48</td>
</tr>
<tr>
<td>Liquor Store Beer</td>
<td>4%</td>
<td>5%</td>
<td>10</td>
<td>5% x 12oz. = .60</td>
</tr>
<tr>
<td>Wine</td>
<td>9.6%</td>
<td>12%</td>
<td>24</td>
<td>12% x 5oz. = .60</td>
</tr>
<tr>
<td>Whiskey</td>
<td>32%</td>
<td>40%</td>
<td>80</td>
<td>40% x 1.5oz. = .60</td>
</tr>
<tr>
<td>Over-Proof Rum</td>
<td>60.4%</td>
<td>75.5%</td>
<td>151</td>
<td>75.5% x 1.5oz. = 1.1</td>
</tr>
<tr>
<td>Everclear</td>
<td>76%</td>
<td>95%</td>
<td>190</td>
<td>95 x 1.5oz. = 1.4</td>
</tr>
<tr>
<td>Four Loko</td>
<td>9.6%</td>
<td>12%</td>
<td>24</td>
<td>12% x 23.5oz. = 2.8</td>
</tr>
</tbody>
</table>

A “standard drink” typically equals a 12-ounce beer, a 5-ounce glass of wine or 1.5 ounces of hard liquor. Each contains about .60 ounces of ethyl alcohol.

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### RESOURCES

**KSU Counseling Services**  
English/Counseling Services Bldg.  
Phone: 532-6927

**KSU Alcohol & Other Drug Education Service**  
Director: Bill Arck  
214 English/Counseling Services Bldg.  
Phone: 532-6927

**Alcoholics Anonymous**  
Noon Meeting (Mon.-Sat.)  
Blue Valley United Methodist Church  
835 Church Ave.  
Phone: 537-9260

The intent of Higher Education is to provide accurate, timely information representing the current state of alcohol/drug knowledge. Keep in mind that research on these matters continues daily and is subject to change. It is our intention to keep you informed, not to diagnose or treat illness. For personal alcohol and other drug problems, please consult your physician or counselor.

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