Questions and Answers About Energy Drinks & Health

International Food Information Council Foundation

Energy drinks have been increasing in popularity, especially among teens and children. Due to several articles in the media about negative health effects experienced by people who consumed too many energy drinks, some parents and school personnel have become concerned about their growing popularity specifically among teens and children.

However, if you are aware of how much caffeine you are consuming, people of all ages can safely consume energy drinks in moderation. Caffeine is the primary ingredient in most energy drinks, and is often blamed for causing the negative health effects some people have experienced after consuming too many energy drinks. However, the majority of the healthy population can safely enjoy moderate amounts of caffeine without experiencing undesirable symptoms.

Staying aware of how much caffeine you are consuming each day from energy drinks, as well as other sources such as coffee, tea, soda, dietary supplements, and medications, is important to stay within moderate, safe intake levels. Learning how to determine the caffeine content of each item, as well as the number of servings per container, will help you to know how to moderate your consumption. You can also help children and teens learn how to moderate their consumption so that they can safely enjoy an energy drink or soda responsibly without risking undesirable symptoms.

Below are some common questions consumers have about energy drinks and how they work to increase feelings of energy, and what you can do to help children and teens consume them in moderation along with a healthful diet.

Q: What are energy drinks?
A: The term “energy drink” is a popular term used to refer to some beverages that typically contain caffeine as well as other ingredients, such as taurine, guarana, and B vitamins, for the purpose of providing an extra energy boost. It is not a term that is recognized by the U.S. Food and Drug Administration (FDA) or the U.S. Department of Agriculture (USDA).

Q: What are the most common ingredients in energy drinks, and what do they do?
A: Some common ingredients in energy drinks include caffeine, taurine, guarana, ginseng, B vitamins and L-carnitine. More about what these ingredients are and why they’re added to energy drinks is provided below:

Caffeine is included in energy drinks for its potential to improve mental and physical performance and for its taste profile. As it is often the primary ingredient in energy drinks, we will address more questions about caffeine below.

Taurine is an amino acid that the body makes from the foods we eat. High levels of taurine are present in animal products (beef, pork, lamb, chicken, etc.), while some fish and shellfish contain the highest amounts of taurine (ex. cod, clams, and oysters). Taurine supports neurological development and helps regulate water and mineral salt levels in the blood. It is included in energy drinks because some studies have suggested that it may improve athletic performance. Additionally, some studies propose caffeine and taurine together may improve athletic performance, and perhaps even mental performance.

In a report published in 2003, the European Food Safety Authority (EFSA) concluded that studies have not shown a link between taurine consumption and cancer, and that both taurine and its components occur naturally in humans and are broken down and excreted by the body. In addition, in 2009 EFSA’s Panel on Food Additives and Nutrient Sources Added to Food (ANS) concluded in a scientific opinion that regular consumption of these ingredients in energy drinks is not a safety concern.

Guarana is a plant that comes from South America, and guarana-containing drinks and sodas are widely consumed in Brazil. Guarana contains caffeine, and is actually denser in caffeine than coffee beans. It is therefore added to energy drinks for the same reason as caffeine – to increase feelings of energy and to improve mental and physical performance. Guarana content is not typically listed on energy drink labels and adds only a very small amount of caffeine. Guarana is generally recognized as safe (GRAS) in the U.S. as a natural flavoring substance.

Ginseng is an herb that is thought to provide a number of potential benefits, including increasing a sense of well-being and stamina; and improving both mental and physical performance. Other potential benefits include improving the health of people recovering from illness; beneficial effects on immunity and lowering blood glucose levels. However, most of these studies were small or conducted only in laboratory animals; therefore, additional research is needed to confirm these potential health benefits. For more information on Asian ginseng, read the National Institute of Health’s (NIH’s) Asian Ginseng Fact Sheet.

B vitamins can be found in different foods and help regulate metabolism. Examples of B vitamins include Thiamin and Cobalamin. These vitamins are often included in energy drinks because they may contribute to the maintenance of mental function. For more information on different types of B vitamins, visit the IFIC Functional Foods Backgrounder.

Carnitine is derived from an amino acid and plays a role in energy production in cells, helping metabolism and energy levels. Some believe carnitine may improve athletic performance; however, there is no consistent research to support this theory. Most people get sufficient amounts of carnitine though the body’s natural production, and through the foods we eat, without needing a supplement. For more information about carnitine, read the NIH’s Carnitine Fact Sheet.
Q: How does the caffeine in energy drinks increase feelings of energy?
A: Most energy drinks contain caffeine, which evidence has shown can improve both mental and athletic performance. Several studies have also found that moderate amounts of caffeine can increase alertness. In one study, participants used the words “vigor”, “efficiency”, “energy”, and “clear-headedness” to describe their moods after consuming caffeine. Research has also shown that moderate caffeine consumption has the ability to improve memory and reasoning in sleep-deprived individuals. Additionally, caffeine has been shown to improve endurance if consumed before physical activity. For more information about caffeine and performance, see the IFIC Caffeine Review.

Q: How much caffeine do energy drinks typically contain?
A: The caffeine content of energy drinks can vary greatly. A 250 milliliter (mL) energy drink (about 8.5 ounces) can have anywhere from 50-160 mg of caffeine. Comparatively, an average 8-ounce cup of coffee has about 100 mg caffeine, and a 12-ounce soft drink has about 40 mg caffeine. To put this into perspective, moderate caffeine consumption for most individuals, including sensitive populations such as pregnant women and children, is about 300 mg per day. Therefore, on average, one energy drink would fall within moderate consumption levels. For more information on the caffeine content of various foods and beverages, see the IFIC Caffeine Review.

As caffeine content can vary between energy drinks, you should look up the caffeine content when trying a new energy drink. Most energy drink manufacturers list the caffeine content of the product on the label, or on the official product Web site. Also, remember to check the label for the proper serving size – one energy drink container may provide more than one serving, and you could potentially double or even triple your caffeine intake if you consume the full container.

Q: Should I be concerned about the amount of caffeine in energy drinks?
A: Like all caffeinated foods and beverages, energy drinks can be consumed safely in moderation. The collective evidence from both scientific reviews and clinical studies concludes that moderate consumption of 300 mg caffeine per day is safe, even for more sensitive members of the population, such as children and pregnant women.

However, some people may be more sensitive to caffeine than others. Some may feel the effects of caffeine after only one serving, whereas others may be less sensitive. Symptoms experienced by some people may include excitement, restlessness and nervousness. Most people will adjust their consumption based on the amount of caffeine they can consume without feeling any effects.

Although daily consumption of 200 mg to 300 mg of caffeine has been shown through extensive scientific research not to have adverse effects on pregnancy, pregnant women should monitor their caffeine consumption and talk to their OB/GYN and/or health care provider about their caffeine consumption. See the IFIC Foundation brochure, Healthy Eating During Pregnancy, for more information.

And, although caffeine has not been found to cause chronic high blood pressure or increase the risk of heart disease, individuals with high blood pressure and/or history of heart attack or stroke should consult their physician about their caffeine intake.

Q: What about reports of calls made to Poison Control Centers from people who were supposedly sent to the hospital from consuming energy drinks?
A: There has been some recent concern over calls to Poison Control Centers due to “caffeine intoxication,” with media articles citing an increase in consumption of energy drinks by teens and children as the culprit. However, the majority of calls were actually related to people consuming dietary supplements containing caffeine, as opposed to energy drinks. Many of the reported effects occurred when caffeine was combined with other herbal and botanical ingredients and then ingested along with other pharmaceuticals.

Although studies suggest that most of these calls to Poison Control Centers are actually not from consuming energy drinks, if you have children, you should talk to them about practicing moderation in all aspects of their diet and lives, including consuming moderate amounts of caffeinated foods and beverages. These beverages are designed to provide an extra energy boost, which many teens and children should not need, as they are young and naturally energetic.

However, having one energy drink for enjoyment from time to time should not harm a healthy individual.

If you have any concerns or have observed symptoms from consuming just a small amount of caffeine, you should see a health care provider for advice before continuing to consume energy drinks and/or other caffeinated beverages.

Q: With the growing popularity of energy drinks among children, should I be concerned about my child consuming energy drinks?
A: Caffeine in moderation is safe for the general healthy population, including children. Research shows that children are no more sensitive to caffeine than adults.

Although caffeine is safe for children to consume, many energy drinks include warnings on the label that state they are not intended for children. As with all treats, practice common sense when giving energy drinks to children - low to moderate amounts every once in a while can be enjoyed as part of an overall healthful diet. One way you can do this is by sharing a container with them, pouring the correct serving (according to the label) into a small glass.

At an early age, most of children’s liquids should come from beverages containing important nutrients, such as calcium and Vitamin D, such as low-fat milk and 100% fruit juice. Additionally, talking to your kids about moderation in all foods and beverages, and teaching them how to read food labels for caffeine content and other vitamins and minerals, can help them to make smart decisions as they get older.
Q: Does caffeine cause children to become hyperactive?
A: No. There is no evidence that caffeine is associated with hyperactive behavior. In fact, most well-designed scientific studies show no effects of caffeine on hyperactivity or attention deficit hyperactivity disorder (ADHD) in children.

Q: Is caffeine addictive?
A: No, caffeine is not an addictive substance. Depending on the amount of caffeine ingested, it can be a mild stimulant to the central nervous system. Although caffeine is sometimes casually referred to as "addictive," moderate caffeine consumption is safe and should not be classified with addictive drugs of abuse. People who say they are "addicted" to caffeine are often using the term loosely, like saying they are "addicted" to running, working or television.

When regular caffeine consumption is stopped abruptly, some individuals may experience mild symptoms such as headache, fatigue or drowsiness. These effects are usually mild and will subside in a day or two. By gradually reducing caffeine consumption over time, symptoms may be prevented or reduced.

Bottom Line
Energy drinks are safe and can be consumed in moderation along with a healthful diet. Remember to check the number of servings in an energy drink container to determine the total caffeine content, and to include caffeine from other sources, such as soda and coffee, when determining your total for the day. Use common sense and talk to your kids about consuming all foods and beverages, including energy drinks, in moderation.

For More Information:
Fact Sheet: Caffeine and Performance
IFIC Review: Caffeine and Health: Clarifying the Controversies