

Everything You Need to Know About Caffeine

Many of us enjoy a daily pick-me-up, such as a freshly brewed cup of coffee, an ice cold soft drink, a hot cup of tea, or an energy drink all sharing a common ingredient: Caffeine.

People all over the world have enjoyed foods and beverages containing caffeine for over a thousand years. It is one of the most studied food ingredients. Even so, misperceptions about this food ingredient continue. Given the buzz about caffeine, IFIC Foundation is providing science-based information on common questions about caffeine, its use in foods and beverages, and its effect on health.

Is caffeine safe?

Decades of research have found that moderate amounts of caffeine consumed by the general healthy population are safe and do not harm health. Caffeine's safety is supported by its long history of consumption and extensive studies on its safety.

How is caffeine used and regulated in foods and beverages?

Caffeine may be used to impart a bitter taste to some food and beverage products, and some products may also contain caffeine for its well-known pick-me-up qualities. The U.S. Food and Drug Administration (FDA) classifies caffeine as Generally Recognized as Safe (GRAS). GRAS ingredients must meet one of the following requirements: 1) The ingredient's safety was established before 1958, based on a history of safe use and consumption by a significant number of consumers or 2) Scientific data and information about the safety and use of the ingredient is widely known and publicly available (through scientific articles, etc.), and there is consensus among scientific experts that the ingredient is safe for its intended use. Caffeine is required to be listed in the ingredients list on food and beverage product labels, and some manufacturers also choose to list the quantity of caffeine on product labels as well.

How much caffeine is considered 'moderate' for healthy adults?

Moderate caffeine consumption is considered to be in the range of 300-400 milligrams per day (mg/day), or about three to four 8-ounce cups of home-brewed coffee per day. According to FDA, the European Food Safety Authority, and Health Canada, caffeine consumption of up to 400 mg daily is not associated with adverse health effects in the general healthy population of adults.



DID YOU KNOW?

- Coffee originated in Africa around 575 A.D., where beans were used as money and consumed as food.
- The world's first caffeinated soft drinks were created in the 1880s.



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WHAT MAKES 400 MG OF CAFFEINE?

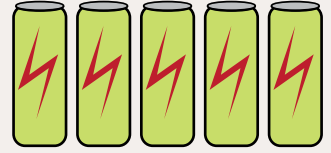
5 shots (12 oz.) of espresso



4-7 cups (8 oz.) of drip coffee



5 cans (250 ml) of energy drinks



OR

OR

How much caffeine do people consume each day, on average?

Recent caffeine intake studies show that the average American's caffeine consumption is below moderate levels, with a 2014 study showing average daily caffeine consumption of 165 milligrams. This study also found that the average caffeine intake among children is low, at just 24-27 mg/day. (A study of caffeine intake in children and adolescents ages 2-16 from 1999-2010 found the primary sources of caffeine for this age group are carbonated soft drinks and tea.)

Has the introduction of energy drinks to the market changed how much caffeine people consume?

A 2010 study conducted for the FDA found that average daily caffeine intake did not change significantly between 1999 and 2010, despite the introduction of energy drinks and other foods and beverages containing added caffeine. In addition, the study found that just four percent of all consumers consume energy drinks.

How can I tell how much caffeine I am consuming?

Information about the amount of caffeine in common caffeinated foods and beverages is available from many sources, including manufacturers' websites. Some manufacturers also provide caffeine content information on the product label. See the chart

for a general range of caffeine content in common caffeine-containing foods and beverages.

It is important to tally the caffeine from all sources you consume throughout the day to ensure you stay at or below the moderate range of 300-400 milligrams. Remember to look at the serving size provided on the label and, if you consume more than one serving, factor this in to your total caffeine intake for the day. Non-food products, such as some medications, may also contain caffeine, so it is important to include these products in your calculations.

How does caffeine fit into a healthful diet?

Caffeinated foods and beverages can be consumed by the general healthy population. Caffeine is found in various foods and beverages that can be consumed as part of an overall healthful diet, along with regular physical activity. Knowing how much caffeine you are consuming each day from all sources will help ensure you are consuming moderate amounts.

While caffeine is not an essential nutrient, moderate caffeine consumption has been associated with reduced risk of some non-commu-



QUICK FACTS ABOUT CAFFEINE

- Caffeine is a naturally-occurring substance found in the leaves, seeds, and/or fruit of more than 60 plants.
- Coffee and cocoa beans, kola nuts, and tea leaves are used to make beverages such as coffee, tea, cola drinks, and chocolate.
- Caffeine is used as a flavoring ingredient in a variety of beverages.

nicable diseases, such as type 2 diabetes, some cancers, and Alzheimer's disease.

Whether it's a latte, soda, or energy drink, when enjoying a caffeinated beverage, keep the amount of caffeine per serving in mind. Despite common misperception, an 8-ounce energy drink contains about the same amount of caffeine as an 8-ounce cup of home-brewed coffee*—about 100 milligrams (Remember, moderate daily consumption is 300-400 mg for the average healthy adult).

Some people may need to avoid or limit caffeine consumption due to a health condition or individual sensitivity. Certain sensitive groups,

such as pregnant women and those with a history of heart attack or high blood pressure, should talk with their healthcare professional about their caffeine consumption to determine the amount that is best for them.

*Note that coffee house brews typically contain more caffeine per serving than home brewed coffee.

Can some people be more sensitive to caffeine than others?

Yes, people do differ in their sensitivity to caffeine. While children, pregnant women, and those with a history of heart attack or high blood pressure are among those who may be more sensitive to caffeine than

others, there are also differences in individual sensitivity among the general population.

Those concerned about experiencing undesirable effects of over-consuming caffeine, such as sleeplessness, anxiety, and jitters can limit their caffeine intake based on the amount and timing of consumption. For example, some people may choose to avoid consuming caffeine prior to bedtime in order to limit disruption of sleep.



Common Foods and Beverages that May Contain Caffeine

CAFFEINE CONTENT CHART	MILIGRAMS (mg) OF CAFFEINE	
	Item	Typical
Coffee (8 oz) Brewed, drip method	95	75-165
Instant	75	60-85
Decaffeinated	3	2-4
Espresso	60	45-75
Teas (8 oz) Black	47	14-70
Green	25	24-45
White	15	15
Instant	30	11-47
Iced	25	9-50
Soft Drinks (12 oz) Cola	40	30-60
Citrus	40	37-47
Energy Drinks (8 oz)	80	27-164
Cocoa Beverage (8 oz)	6	3-32
Chocolate Milk Beverage (8 oz)	5	2-7
Solid Milk Chocolate (1 oz)	6	1-15
Solid Dark Chocolate (1 oz)	20	5-35
Baker's Chocolate (1 oz)	26	26
Chocolate Flavored Syrup (1 oz)	4	4

*Due to brewing method, plant variety, formulation, etc...

Adapted from: IFIC Foundation, 1998; Mayo Clinic, 2015; Mitchell et al., 2014.

Some people find that regularly consuming foods and beverages with caffeine may decrease their sensitivity to caffeine's effects over time.

Does caffeine improve mental alertness?

Research shows that caffeine can increase mental alertness at work or while studying and can enhance performance on certain mental tasks. In addition to alertness and mental performance, caffeine may also improve memory and reasoning in sleep-deprived people. Caffeine will not give you unusual or "superhuman" abilities, but instead may help you reach your peak mental alertness.

Does caffeine improve athletic performance?

Caffeine has been shown to improve athletic performance, including improving endurance and delaying fatigue. Just one cup of coffee, or an equivalent amount of caffeine, has been found to have a beneficial effect on some aspects of athletic performance, and studies of cyclists found various forms of caffeinated beverages to be effective for improving performance. Similar to caffeine's effect on mental alertness, caffeine can help an athlete achieve their peak performance, but not a level of performance that would be above their current physical capability.

Are caffeinated beverages dehydrating?

No, caffeinated beverages do not cause dehydration and in fact can contribute to hydration. While caffeine itself has a mild diuretic effect, this is offset by the liquid in the beverage. The Institute of Medicine (IOM) has concluded that caffeinated beverages, including coffee, tea, and soda, can contribute to total daily water intake.



Can pregnant women consume caffeine?

The FDA, European Food Safety Authority, as well as credible health organizations such as the March of Dimes and the American College of Obstetricians & Gynecologists have stated that some caffeine is generally safe for pregnant and nursing women. They suggest pregnant or nursing women limit consumption to no more than 200 mg/day (or two 8-ounce cups of home-brewed coffee per day).

Studies have found that moderate amounts of caffeine do not cause adverse effects like miscarriage, preterm delivery, birth defects, or low birth weight.

Pregnant and nursing women should discuss their diet with their physician and/or health professional to ensure proper nutrition for them and their babies.

Can you be "addicted" to caffeine?

Those who say they are "addicted" to caffeine tend to use the term loosely, like saying they are "addicted" to chocolate, running, working, or television. However, evidence of true addiction such as that associated with addictive drugs of abuse has not been found in studies of caffeine.

Some people may experience mild, temporary effects from abruptly stopping caffeine consumption, including headache, restlessness, and irritability. However, experts agree that discomfort can be avoided by gradually decreasing caffeine intake over time.

Does caffeine increase risk of heart disease?

A large population study found that caffeine does not increase the risk of coronary heart disease.

However, those with a history of heart attack, cardiovascular disease, and/or high blood pressure should talk to their healthcare professional if they have concerns about their caffeine intake.

Does caffeine increase blood pressure?

Caffeine does not cause chronic high blood pressure (hypertension) or any persistent increase in blood pressure. Some sensitive individuals may experience a temporary increase in blood pressure from consuming caffeine; however, studies have found this increase to be modest and less than that experienced from climbing a flight of stairs.

For more information about caffeine, visit www.foodinsight.org