**RESEARCH ON CAFFINE PRESENT IN DIFFERENT DRINKS, FOODS AND SUPPLIMENTS**



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**CAFFINE IN DIFFERENT DRINKS,FOODS AND SUPPLIMENT**

Many of us can’t imagine starting the day without a cup of coffee. One reason may be that it supplies us with a jolt of caffeine, a mild stimulant to the central nervous system that quickly boosts our alertness and energy levels. [1] Of course, coffee is not the only caffeine-containing beverage. Read on to learn more about sources of caffeine, and a review of the research on this stimulant and health.

**Absorption and Metabolism of Caffeine**

[Caffeine is a central nervous system stimulant of the methylxanthine class. It is mainly used recreationally or as a cognitive enhancer, increasing alertness and attentional performance.](https://www.bing.com/ck/a?!&&p=3578ac799657d250JmltdHM9MTY4NzQ3ODQwMCZpZ3VpZD0zMDhkNjBlNC1kMmRkLTY3MjUtMDM3MS03MjAwZDNkOTY2NDImaW5zaWQ9NTY2Nw&ptn=3&hsh=3&fclid=308d60e4-d2dd-6725-0371-7200d3d96642&psq=caffeine+in+different+drinks&u=a1aHR0cHM6Ly9lbi53aWtpcGVkaWEub3JnL3dpa2kvQ2FmZmVpbmU&ntb=1" \o "en.wikipedia.org" \t "_blank)

The chemical name for the bitter white powder known as caffeine is trimethylxanthine. Caffeine is absorbed within about 45 minutes after consuming, and peaks in the blood anywhere from 15 minutes to 2 hours. [2] Caffeine in beverages such as coffee, tea, and soda is quickly absorbed in the gut and dissolves in both the body’s water and fat molecules. It is able to cross into the brain. Food or food components, such as fibers, in the gut can delay how quickly caffeine in the blood peaks. Therefore, drinking your morning coffee on an empty stomach might give you a quicker energy boost than if you drank it while eating breakfast.

The Food and Drug Administration (FDA) generally recognizes caffeine as safe. Consuming up to 400 mg of caffeine per day has not been associated with adverse health effects in healthy adults

Caffeine is broken down mainly in the liver. It can remain in the blood anywhere from 1.5 to 9.5 hours, depending on various factors. Smoking speeds up the breakdown of caffeine, whereas pregnancy and oral contraceptives can slow the breakdown. During the third trimester of pregnancy, caffeine can remain in the body for up to 15 hours.

People often develop a “caffeine tolerance” when taken regularly, which can reduce its stimulant effects unless a higher amount is consumed. When suddenly stopping all caffeine, withdrawal symptoms often follow such as irritability, headache, agitation, depressed mood, and fatigue. The symptoms are strongest within a few days after stopping caffeine, but tend to subside after about one week. Tampering  the amount gradually may help to reduce side effects.

**Sources of Caffeine**

Caffeine is naturally found in the fruit, leaves, and beans of [coffee](https://www.hsph.harvard.edu/nutritionsource/food-features/coffee/), cacao, and guarana plants. It is also added to beverages and supplements. There is a risk of drinking excess amounts of caffeinated beverages like [soda](https://www.hsph.harvard.edu/nutritionsource/2016/10/25/spotlight-on-soda/) and [energy drinks](https://www.hsph.harvard.edu/nutritionsource/energy-drinks/) because they are taken chilled and are easy to digest quickly in large quantities.

**Coffee.**

1 cup or 8 ounces of brewed coffee contains about 95 mg caffeine. The same amount of instant coffee contains about 60 mg caffeine. Decaffeinated coffee contains about 4 mg of caffeine. Coffee is a brewed beverage prepared from coffee beans, which are a natural source of caffeine.

Revered for its taste and aroma around the world, coffee is consumed for its stimulating effects, which increases energy levels, mood, and alertness.

Whether coffee increases the risk of disease is controversial.

Some studies exploring the relationship between coffee consumption and the risk of disease have suggested an increased risk of heart disease, while others have shown [potential health benefits](https://www.healthline.com/nutrition/top-13-evidence-based-health-benefits-of-coffee), including a reduced risk of type 2 diabetes.

On average, an 8-ounce (240-mL) [cup of coffee](https://www.healthline.com/nutrition/how-much-caffeine-in-coffee) contains about 100 mg of caffeine. At this level, 4 cups of coffee per day will keep you within the safe limit of 400 mg of caffeine for healthy adults.

However, coffee products may contain very different amounts of caffeine. For example, Starbucks’ 16-ounce (475-mL) Grande Vanilla Latte provides 170 mg of caffeine, while a Grande Blonde Roast of the same volume provides 360 mg of caffeine.

You should read the nutrition label to be aware of the amount of caffeine per serving of coffee.

### Decaf coffee

In case you’re wondering, decaffeinated coffee still contains caffeine. However, it has reduced levels compared with regular coffee.

One cup (240 mL) of decaf coffee contains 1–50 mg of caffeine, depending on the brand and serving size. That’s less than half the amount of caffeine in a regular cup.

A 2014 review study found that along with drinking regular coffee, drinking decaf coffee may reduce your risk of developing type 2 diabetes.

**Espresso.**

1 shot or 1.5 ounces contains about 65 mg caffeine.

**Tea.**

1 cup of black tea contains about 47 mg caffeine. The amount of caffeine in any given tea varies based on what you pick. In fact, due to the nature of tea production, the caffeine content can vary between different batches of the same teas!

For example, many experts think that black teas contain more caffeine than green or white teas, but this isn’t always true. Some green teas can contain more caffeine than black teas and vice versa.

The average amount of caffeine in a cup of tea can be between 15mg for a very low-caffeine tea to around 70mg for a higher-caffeine tea. (Just to give you an idea, 200mg per day is your daily recommended allowance.) Here are the four most common teas and their caffeine content:

* [White Tea](https://www.artoftea.com/collections/white-tea) - 30-55mg per cup
* [Green Tea](https://www.artoftea.com/collections/green-tea) - 35-70mg per cup
* [Oolong Tea](https://www.artoftea.com/collections/oolong-teas) - 50-75mg per cup
* [Black Tea](http://www.artoftea.com/tea/black-tea.html) - 60-90mg per cup

**Green Tea:**

Another natural source of caffeine is [green tea](https://www.healthline.com/nutrition/top-10-evidence-based-health-benefits-of-green-tea). It’s an especially popular drink in Asian countries. Green tea contains about 28 mg. Decaffeinated tea contains 2 mg, and herbal tea contains none.

Green tea contains amino acids like theanine, which studies have shown act on the hippocampus in the brain and exert stress-reducing effects in animals and humans.

A 2017 study further suggested that the combination of theanine and caffeine in green tea may improve brain function and cognition, as well as reduce anxiety, although more research is needed.

An 8-ounce (240-mL) serving of green tea provides about 30–50 mg of caffeine, which is about half of the caffeine content of a cup of coffee

The caffeine content of green tea varies by the age of the leaf. Older leaves provide less caffeine than younger leaves.

## Soda.

## A 12-ounce can of regular or diet dark cola contains about 40 mg caffeine. The same amount of Mountain Dew contains 55 mg caffeine.

## Kola nut:

Native to West Africa, the [kola nut](https://www.healthline.com/health/kola-nut) is a staple food prized for its cultural symbolism and economic and health importance to all socioeconomic classes and religious groups.

It was once a main flavoring agent and source of caffeine in commercial colas like Coca-Cola. However, some major cola brands no longer use it.

The kola nut is the seed of the kola tree and a natural source of caffeine.

You can eat it fresh or dried, and people use its extract as a food additive.

Although the kola nut itself has potential health benefits, regularly drinking [sugar-containing sodas](https://www.healthline.com/nutrition/13-ways-sugary-soda-is-bad-for-you) is associated with weight gain and other negative health consequences

**Chocolate (cacao)**.

1 ounce of [dark chocolate](https://www.hsph.harvard.edu/nutritionsource/food-features/dark-chocolate/) contains about 24 mg caffeine, whereas milk chocolate contains one-quarter of that amount. Just like coffee beans, cocoa beans naturally contain caffeine.

This means that all [chocolate](https://www.healthline.com/health/does-chocolate-have-caffeine) and foods flavored with chocolate contain some caffeine, but the amount of caffeine in the product depends on the percentage of cocoa it contains.

Here’s about how much caffeine you’ll find in 3.5 ounces (100 grams) of different types of chocolate:

* **100% cocoa chocolate:** 240 mg of caffeine — the equivalent of 2.5 cups of regular coffee
* **Bittersweet chocolate (55% cocoa):** 124 mg of caffeine
* **Milk chocolate (33% cocoa):** 45 mg of caffeine — around the amount of caffeine in a cup of black tea

Cocoa also contains compounds like flavonols and methylxanthines, and some studies have investigated its potential as a [functional food](https://www.healthline.com/nutrition/functional-foods).

These compounds, including caffeine, have antioxidant and anti-inflammatory properties and may provide [health benefits](https://www.healthline.com/nutrition/7-health-benefits-dark-chocolate) .

That’s good news for chocolate lovers.

**Guarana.**

[Guarana](https://www.healthline.com/nutrition/guarana-benefits) is a plant that’s native to the Amazon rainforest in Brazil and known for its antioxidant and stimulant properties.

Just like cocoa beans, the guarana plant contains chemicals called methylxanthines, and caffeine is one of these.

Studies have found consuming the guarana plant is associated with increased energy and protection against high blood pressure, obesity, and metabolic syndrome in older adults.

Companies use guarana extract as a food additive in soft drinks, energy drinks, energy bars, and herbal dietary supplements.

This is a seed from a South American plant that is processed as an extract in foods, energy drinks, and energy supplements. Guarana seeds contain about four times the amount of caffeine as that found in coffee beans. [4] Some drinks containing extracts of these seeds can contain up to 125 mg caffeine per serving.

**Yerba tea:**

Yerba tea is a popular beverage in South America. It’s made from the dried, crushed leaves of the large-leafed *Ilex paraguariensis* tree.

Also known as Paraguay tea, [yerba mate](https://www.healthline.com/nutrition/8-benefits-of-yerba-mate) is a natural source of caffeine. Experts have praised it as a heart-friendly drink with numerous potential health benefits, which include its antimicrobial and antioxidant properties.

Yerba mate is also a source of [polyphenols](https://www.healthline.com/nutrition/polyphenols), which are plant compounds that have health benefits in humans.

The caffeine content of yerba mate varies depending on the brewing method, ranging from 20–180 mg per 8 ounces (240 mL).

## Chewing gum

[Chewing gum](https://www.healthline.com/nutrition/chewing-gum-good-or-bad) is a soft, rubbery substance traditionally made from tree sap.

It’s not a natural source of caffeine, but manufacturers may include caffeine in their recipes. This has made chewing gum popular among some athletes and others looking for an energy boost.

Studies have shown that you absorb the caffeine in chewing gum much faster than caffeine in capsule form. This is possibly because the buccal mucosa cells of the inner cheek absorb it quickly.

Caffeine enhances athletic performance. For this reason, caffeinated chewing gums, along with other sources of caffeine, are on the [National Collegiate Athletic Association (NCAA) banned substances list](https://www.ncaa.org/sport-science-institute/topics/2020-21-ncaa-banned-substances) for athletes.

Chewing gum that contains caffeine may increase your alertness and attention span. Certain caffeinated versions, such as Run Gum, provide 50mg of caffeine in two pieces of gum

**Energy drinks.**

Energy drinks are carbonated, sweetened beverages marketed for their ability to boost energy levels, mood, and alertness.

However, energy drinks are sold as food supplements, not regulated by the FDA, and exempt from rigorous testing.

Therefore, it may be difficult to determine the caffeine content of some brands. One study indicated that the caffeine content of energy drinks ranges from about 50–505 mg.

For example, the popular energy drink [Red Bull](https://www.healthline.com/nutrition/red-bull-side-effects) contains 80 mg of caffeine per 8.4-ounce (250-mL) can.

In addition to caffeine, energy drinks contain [taurine](https://www.healthline.com/nutrition/what-is-taurine), an amino acid that is naturally found in the brain and possesses antioxidant properties.

* 1 cup or 8 ounces of an energy drink contains about 85 mg caffeine. However the standard energy drink serving is 16 ounces, which doubles the caffeine to 170 mg. Energy shots are much more concentrated than the drinks; a small 2 ounce shot contains about 200 mg caffeine.

## Coffee-containing foods

You can find a vast number of coffee-containing foods available to purchase, and many of these contain caffeine. Tiramisu, coffee ice cream, and coffee-flavored bagels are just a few examples.

Tiramisu is a traditional, coffee-flavored Italian dessert made with espresso and rum.

Tiramisu and other coffee-containing foods, such as Haagen-Dazs coffee ice cream, are common sources of caffeine.

Because cocoa beans are a natural source of caffeine, all chocolate and chocolate-flavored foods and drinks contain caffeine.

The amount of caffeine present depends upon the amount of cocoa the product contains.

For example, Starbucks’ 16-ounce (475-mL) Grande hot chocolate contains 25 mg of caffeine.

However, brands such as Swiss Miss and Nestle produce caffeine-free hot chocolate beverages.

**Supplements.**

 Caffeine supplements contain about 200 mg per tablet, or the amount in 2 cups of brewed coffee.

**Recommended Amounts**

In the U.S., adults consume an average of 135 mg of caffeine daily, or the amount in 1.5 cups of coffee (1 cup = 8 ounces). [5] The U.S. Food and Drug Administration considers 400 milligrams (about 4 cups brewed coffee) a safe amount of caffeine for healthy adults to consume daily. However, pregnant women should limit their caffeine intake to 200 mg a day (about 2 cups brewed coffee), according to the American College of Obstetricians and Gynecologists.

The American Academy of Pediatrics suggests that children under age 12 should not consume any food or beverages with caffeine. For adolescents 12 and older, caffeine intake should be limited to no more than 100 mg daily. This is the amount in two or three 12-ounce cans of cola soda.

**Caffeine and Health**

However, studies have observed mixed results, and some people may experience negative side effects at intakes of less than 400 mg per day

Caffeine is associated with several health conditions. People have different tolerances and responses to caffeine, partly due to genetic differences. Consuming caffeine regularly, such as drinking a cup of coffee every day, can promote caffeine tolerance in some people so that the side effects from caffeine may decrease over time. Although we tend to associate caffeine most often with coffee or tea, the research below focuses mainly on the health effects of caffeine itself. Visit our features on [coffee](https://www.hsph.harvard.edu/nutritionsource/food-features/coffee/), [tea](https://www.hsph.harvard.edu/nutritionsource/food-features/tea/), and [energy drinks](https://www.hsph.harvard.edu/nutritionsource/energy-drinks/) for more health information related to those beverages.some of the mental and physical health problems also generated because of less and excess consumption of caffine.

**Some of disease**

**Sleep**

**Anxiety**

**Cardiovascular disease**

**Weight management**

**Pregnancy and infertility**

**Liver disease**

**Gallstones**

**Neurological disease**

**Asthma**

**Diabetes**

**Signs of Toxicity**

Caffeine toxicity has been observed with intakes of 1.2 grams or more in one dose. Consuming 10-14 grams at one time is believed to be fatal. Caffeine intake up to 10 grams has caused convulsions and vomiting, but recovery is possible in about 6 hours. Side effects at lower doses of 1 gram include restlessness, irritability, nervousness, vomiting, rapid heart rate, and tremors.

Toxicity is generally not seen when drinking caffeinated beverages because a very large amount would need to be taken within a few hours to reach a toxic level (10 gm of caffeine is equal to about 100 cups of brewed coffee). Dangerous blood levels are more often seen with overuse of caffeine pills or tablets. [3]

**Did You Know?**

* Caffeine is not just found in food and beverages but in various medications. It is often added to analgesics (pain relievers) to provide faster and more effective relief from pain and headaches. Headache or migraine pain is accompanied by enlarged inflamed blood vessels; caffeine has the opposite effect of reducing inflammation and narrowing blood vessels, which may relieve the pain.
* Caffeine can interact with various medications. It can cause your body to break down a medication too quickly so that it loses its effectiveness. It can cause a dangerously fast heart beat and high blood pressure if taken with other stimulant medications. Sometimes a medication can slow the metabolism of caffeine in the body, which may increase the risk of jitteriness and irritability, especially if one tends to drink several caffeinated drinks throughout the day. If you drink caffeinated beverages daily, talk with your doctor about potential interactions when starting a new medication.

Coffee lovers around the world who reach for their morning brew probably aren’t thinking about its health benefits or risks. And yet this beverage has been subject to a long history of debate.

# High Caffeine Foods and Drinks

# Amount of Caffine and Calories

**1Dark Chocolate Coated Coffee Beans**

|  |  |  |
| --- | --- | --- |
| **Caffeine per oz(28 Beans)** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 336mg (84% UL) | 839mg (210% UL) | 311mg (78% UL) |

**2Coffee**

|  |  |  |
| --- | --- | --- |
| **Caffeine per 8oz Cup** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 95mg (24% UL) | 40mg (10% UL) | 8000mg (2000% UL) |

**3Energy Drinks**

|  |  |  |
| --- | --- | --- |
| **Caffeine per 8oz Cup** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 91mg (23% UL) | 38mg (10% UL) | 123mg (31% UL) |

**4Espresso**

|  |  |  |
| --- | --- | --- |
| **Caffeine per 1oz Shot** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 63mg (16% UL) | 212mg (53% UL) | 4711mg (1178% UL) |

**5Sodas**

|  |  |  |
| --- | --- | --- |
| **Caffeine per 16oz Bottle** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 49mg (12% UL) | 10mg (3% UL) | 49mg (12% UL) |

**6Green Tea**

|  |  |
| --- | --- |
| **Caffeine per 8oz Cup** | **Caffeine per 100g** |
| 28mg (7% UL) | 12mg (3% UL) |

**7Black Tea**

|  |  |
| --- | --- |
| **Caffeine per 8oz Cup** | **Caffeine per 100g** |
| 26mg (7% UL) | 11mg (3% UL) |

**8Dark Chocolate**

|  |  |  |
| --- | --- | --- |
| **Caffeine per 1oz Square** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 24mg (6% UL) | 86mg (22% UL) | 30mg (7% UL) |

**9 Coffee Liqueur**

|  |  |  |
| --- | --- | --- |
| **Caffeine per 1.5oz Shot** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 14mg (3% UL) | 26mg (7% UL) | 15mg (4% UL) |

**10 Chocolate Cake with Frosting**

|  |  |  |
| --- | --- | --- |
| **Caffeine per Slice** | **Caffeine per 100g** | **Caffeine per 200 Calories** |
| 8mg (2% UL) | 6mg (2% UL) | 3mg (1% UL) |

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