

Caffeine Effects and Health

American Heart Association Recommendation

Before we start, it is important to understand why tea has a different caffeine effect than other beverages. Here is why:

Physiological Effects - The calming effect of green tea may seem contradictory to the stimulatory property of tea's caffeine content but it can be explained by the action of L-theanine. This amino acid actually acts antagonistically against the stimulatory effects of caffeine on the nervous system. Research on human volunteers has demonstrated that L-theanine creates a sense of relaxation in approximately 30-40 minutes after ingestion via at least two different mechanisms. First, this amino acid directly stimulates the production of alpha brain waves, creating a state of deep relaxation and mental alertness similar to what is achieved through meditation. Second, L-theanine is involved in the formation of the inhibitory neurotransmitter, gamma amino butyric acid (GABA). GABA influences the levels of two other neurotransmitters, dopamine and serotonin, producing the key relaxation effect.

Alpha Brain Activity - The brain emits weak electrical impulses (brain waves) that can be measured on the surface of the head. The predominant frequency of electrical impulses correlates with different types of mental states and activities. Brain waves are classified into four categories (delta, theta, alpha, and beta)—each with an associated mental state. Delta is seen only in the deepest stages of sleep. Theta is seen in light sleep and drowsiness. Alpha is present in wakefulness where there is a relaxed and effortless alertness and Beta is seen in highly stressful situations and where there is difficulty in mental concentration and focus. It is well known that alpha brain waves are generated during a relaxed state and therefore alpha waves are used as an index of relaxation.

Caffeine has many metabolic effects. For example:

1. It stimulates the central nervous system.
2. It releases free fatty acids from adipose (fatty) tissue.
3. It affects the kidneys, increasing urination, which can lead to dehydration.

Caffeine is in coffee, tea, soft drinks, chocolate and some nuts. Whether high caffeine intake increases the risk of coronary heart disease is still under study.

Many studies have been done to see if there's a direct link between caffeine, coffee drinking and coronary heart disease. The results are conflicting. This may be due to the way the studies were done and confounding dietary factors. However, moderate coffee drinking (1-2 cups per day) doesn't seem to be harmful.

Caffeine-habituated individuals can experience "caffeine withdrawal" 12 to 24 hours after the last dose of caffeine. It resolves within 24-48 hours. The most prominent symptom is headache. They can also feel anxiety, fatigue, drowsiness and depression.

According to the Mayo Clinic, when caffeine is added to foods or beverages in the United States, it must appear in the ingredients list on the label. But manufacturers aren't required to list the amount of caffeine.

Caffeine is a stimulant. It can increase alertness and heart rate. Caffeine can also cause restlessness and difficulty in sleeping. The effects of caffeine begin about 15 minutes after you consume it and last up to several hours. People differ in their sensitivity to caffeine. If it causes problems, consider limiting how much caffeine you consume.

Coffee is the major source of caffeine for most adults. The average American consumes about 230 milligrams (mg) of caffeine a day — about the same amount as in two 12-ounce cups of brewed coffee. For children, the major source of caffeine is carbonated beverages and tea. The average American child consumes about 21 mg of caffeine a day. But this may change as the number and popularity of highly caffeinated, or "supercaffeinated," beverages increases.

A few studies indicate that large amounts of caffeine may slightly enhance weight loss in people who exercise and maintain a low-fat diet. This may seem encouraging. But read on.

Caffeine is a stimulant that can make your heart beat faster, increase your blood pressure, interrupt sleep and cause nervousness and irritability.

Studies have used amounts of caffeine equal to six cups of strong coffee a day. But even this amount doesn't seem to greatly increase the body's ability to burn calories (metabolic rate). It also doesn't result in significant loss of body fat.

Caffeine can suppress appetite. Some people assume that if they use caffeine, they'll eat fewer calories. But the appetite-suppressant effect of caffeine doesn't last long enough to lead to significant weight loss.

Caffeine is a diuretic, which acts to help your body lose water by increasing the amount of urine. This water loss may decrease body weight, but the weight you lose isn't body fat.

At first glance, it may seem that caffeine is a weight-loss aid. But it's not. No studies indicate that weight loss from large amounts of caffeine is significant or permanent. Also, many caffeinated beverages contain sugar, which adds calories and contributes to weight gain.

Healthier replacements for coffee are green tea, herbal blends, Chai (especially decaf versions), Yerba Mate', Rooibos, or white and silver needle tea!

You also may substantially reduce the caffeine content in regular tea by steeping it for approximately 30 to 60 seconds, then dispose of the tea or serve it to someone in need of caffeine. Then, using the same tea leaves, make another cup of tea which will contain much less caffeine since most of it was dissolved in the first cup of tea. Most of the caffeine dissolves in the first 30 to 60 seconds. It actually takes at least several minutes of steeping to start extracting the beneficial substance from tea, such as polyphenols.

CAFFEINE COMPARISON CHART

BEVERAGE	SERVING SIZE	CAFFEINE DOSE PER SERVING
Coffee	1 cup	60-150 mg
Coffee - Instant	1 cup	70 mg
Double espresso	4 oz.	180 mg
Decaffeinated Coffee	1 cup	2-5 mg
Hot Cocoa	1 cup	6 mg
Black Tea (loose or bags)	1 cup	40 mg
Tea - Oolong/Wulong	1 cup	30 mg
Tea - green	1 cup	20 mg
Tea - white	1 cup	15 mg
Tea - decaf	1 cup	2 mg
Milk chocolate	1 oz	6 mg
Chocolate dark	1 oz.	20 mg
Baking chocolate	1 oz	35 mg
Maté	1 cup	25-50 mg
Cola drinks	12 oz can	40 mg
Mountain Dew	12 oz can	55.5 mg
Sprite or Diet Sprite	12 oz can	0 mg
Chocolate milk	1 cup	4 mg
Minute Maid Orange Soda	1 cup	4 mg
Barq's Root Beer	12 oz.	0 mg
7-up	12 oz.	0 mg
Coffee Fudge Frozen Yogurt	1/2 cup	85 mg
Stonyfield Farm Cappuccino Yogurt	1/2 cup	0 mg
Ben & Jerry's No Fat Coffee Fudge Frozen Yogurt	1 cup	85 mg
Starbucks Coffee Ice Cream	1 cup	40-60 mg
Guarana	varies	25-50 mg per gram

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