



Caffeine: Uses, Abuses, Ups, and Downs

According to the American Chemical Society (ACS), caffeine is the world's most popular drug. It naturally occurs in many forms: tea leaves, Kola nuts, coffee, and cocoa beans (chocolate). It is also added to a variety of foods and medications (e.g., Excedrin or other migraine medications, diet pills, and daytime cold medicines).

It affects the nervous system in the brain by blocking the action of adenosine. *Adenosine* is a chemical made in the body that typically slows down nerve activity in the brain to help us calm down or take a nap.

Upsides of caffeine:

Caffeine generally produces a boost in energy and alertness. As it is digested, it breaks down into three different molecules or metabolites:

- *Theobromine* – increases flow of oxygen and nutrients to the brain
- *Paraxanthine* – improves athletic performance by increasing fat breakdown to fuel muscle activity
- *Theophylline* – increases heart rate and ability to concentrate



Caffeine also increases the release of *dopamine* and *adrenaline*, naturally occurring neurotransmitters (chemical messengers) the body creates to help us feel good and be energized.

- ✓ Scientists have found that between 250mg and 400mg per day of caffeine is the safest average dose range for most adults.
- ✓ The body quickly absorbs and eliminates caffeine. Processed mainly through the liver, caffeine has a relatively short half-life: it takes about 5-7 hours, on average, to eliminate half of it from your body.

Downsides of caffeine:

- Caffeine can be harmful if too much is ingested, and it can cause negative side effects such as headaches, restlessness, muscle tremors, jitteriness, irritability, gastrointestinal issues, sleep problems, and possibly cardiac issues. *Although caffeine does boost energy levels, it should not be used to compensate for a lack of proper sleep.*
- Adrenal glands can become fatigued over time from excessive, long-term caffeine use.
- When caffeine consumption is quickly halted, some people experience negative symptoms (headaches, drowsiness, irritability, and nausea) that last from one to several days. This can be avoided if caffeine consumption is reduced slowly.
- Symptoms of caffeine toxicity, which is also called caffeine intoxication, can range from nervousness to cardiac arrhythmia.
- Consuming caffeine later in the day can interfere with sleep. It should not be consumed for six hours prior to bedtime.

Alcoholic Energy Drinks and Homemade Concoctions:

Alcoholic energy drinks are premixed beverages that contain not only alcohol, but also include caffeine (and other stimulants). Some examples of alcoholic energy drinks are *Joose*, *Four Loko*, and *Maxx*.

Some people make their own mixed drinks with alcohol and caffeine, such as Red Bull with vodka, Jagerbombs, and Irish coffee.

Risks of Combining Alcohol and Caffeine:

- Combining caffeine with alcohol can reduce drowsiness and mask the symptoms of intoxication – but it does **not** reduce your level of intoxication. Motor skills, visual reaction times, and judgment are still impaired, but this impairment may not be perceived as accurately when combined with a stimulant like caffeine.
- Combining caffeine and alcohol can increase the risk for binge drinking. There can be a tendency to drink for longer periods of time due to the stimulant effect of caffeine keeping you awake. This contributes to a higher blood alcohol level (BAC) and increased intoxication. Drinkers who mix alcohol and caffeine are **3x** more likely to binge drink.
- Mixing alcohol and caffeine boosts heart rate and blood pressure which can increase the risk of heart rhythm problems (and in extreme cases, can cause heart attacks).



Caffeine Content in Some Familiar Products

(Source: Center for Science in the Public Interest)

Coffees

- Starbucks Coffee, Blonde roast, venti (20 oz.) = 475mg
- Dunkin' Donuts coffee, medium (14 oz.) = 210mg
- Panera Frozen Mocha, medium (16 oz.) = 188mg
- Dunkin' Donuts, Panera, or Starbucks Decaf (8 oz.) = 10-25mg
- Maxwell House Light Ground Coffee, 2 tbs/12 oz. = 50-100mg

Soft Drinks

- Pepsi Zero Sugar (20 oz.) = 115mg
- Mountain Dew – diet or regular (20 oz.) = 91mg
- Diet Coke (20 oz.) = 75mg
- Dr. Pepper or Sunkist – diet or regular (12 oz.) = 41mg

Over the Counter (OTC) Pills

- NoDoz or Vivarin, 1 caplet or tablet = 200mg
- Excedrin Migraine, 2 tablets = 130mg

Teas

- Starbucks Chai Latte – iced or regular, grande (16 oz.) = 95mg
- Snapple Lemon Tea (16 oz.) = 37mg
- Arizona Iced Tea, black (16 oz.) = 30mg
- Lipton Lemon Iced Tea (20 oz.) = 25mg

Energy Drinks

- Bang Energy (16 oz.) = 357mg
- 5-hour Energy (2 oz.) = 200mg
- Monster Energy (16 oz.) = 160mg
- Red Bull (8 oz.) = 80mg

Chocolate Candy and Chocolate Drinks

- Crackheads Gourmet Chocolate Coffee Caffeine, 1 box, 40g = 600mg
- Awake Caffeinated Chocolate Bar, 1.55 oz. = 101mg
- Starbucks Hot Chocolate, grande (16 oz.) = 25mg
- Hershey's Milk Chocolate Bar, 1.6 oz = 9mg

Sources:

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