HEALTH BASICS

# Caffeine and your health

Caffeine is a stimulant found in drinks, foods, medicines, and supplements.

**WHAT IT IS**
A stimulant that temporarily increases alertness

**WHERE IT COMES UP**
Coffee, tea, energy drinks, medicines, and supplement labels

**WHY IT MATTERS**
Can affect alertness, sleep, heart rate, and pregnancy

**WHAT IT IS NOT**
Not a disease or diagnosis

**WHO TO ASK**
A pharmacist or primary care clinician

**HOW IT IS CHECKED**
Product labels and a daily intake record

## Overview

Caffeine is a stimulant. A stimulant increases activity in the brain and can make you feel more awake. Caffeine occurs naturally in coffee beans, tea leaves, cocoa, guarana, and kola nuts. Manufacturers also add it to some soft drinks, energy products, medicines, and supplements.

Caffeine and coffee are not the same thing. Coffee contains caffeine unless it is decaffeinated, but it also contains many other substances. Decaffeinated coffee usually still contains a small amount of caffeine.

The amount in a drink can differ widely. It is affected by the type of bean or tea, brewing method, serving size, and brand. An energy drink or supplement may contain caffeine from several ingredients, including guarana. The label may not always give a clear total.

The United States Food and Drug Administration (FDA) says that, for most adults, 400 milligrams a day is not generally associated with harmful effects. This is not a target or a safe amount for everyone. Some people have unwanted effects at much lower amounts.

Pregnancy, age, medicines, health conditions, and individual sensitivity can change how caffeine affects you.

## How it works

Caffeine mainly blocks adenosine receptors in the brain. Adenosine is a natural chemical that helps build the feeling of sleepiness. Blocking its action can temporarily increase alertness and reduce tiredness.

Caffeine can also increase stress-related signals in the body. Your heart may beat faster, and your blood pressure may rise for a short time. These effects differ from person to person.

The body absorbs caffeine fairly quickly, but it may remain active for many hours. If you have caffeine later in the day, some may still be in your body at bedtime. Pregnancy and certain medicines can slow its removal. Smoking can speed it up, so stopping smoking may make the same caffeine intake feel stronger.

Regular use can lead to tolerance. This means you may notice less effect from the same amount. It can also lead to physical dependence, meaning that stopping suddenly may cause withdrawal effects. Dependence is not the same as addiction, although some people do find it difficult to reduce their intake.

## Why it matters for your health

Caffeine can improve alertness and concentration for a limited time. It does not replace sleep. Using it to push through ongoing tiredness may hide a sleep problem, a demanding schedule, or another reason for fatigue that needs attention.

Timing matters as much as the total amount. Caffeine in the afternoon or evening can delay sleep, shorten sleep, or make sleep feel less restful. People differ in how strongly it affects them.

Caffeine may cause a temporary increase in blood pressure. It may also make a heartbeat feel more noticeable. This does not mean that caffeine has caused high blood pressure or a heart rhythm disorder, but repeated palpitations or concerning blood pressure readings deserve medical review.

During pregnancy, the American College of Obstetricians and Gynecologists (ACOG) advises keeping caffeine intake below 200 milligrams a day. Caffeine crosses the placenta, and the developing baby clears it slowly. Coffee, tea, chocolate, soft drinks, energy products, and medicines all count toward the total.

Children and teenagers may be more sensitive to caffeine's effects on sleep, mood, and heart rate. Energy drinks can contain large amounts and may also include other stimulants. The American Academy of Pediatrics advises that children and adolescents should not consume energy drinks.

## What can go wrong

Sleep disruption and insomnia can occur when caffeine is taken too late or in an amount that affects you strongly. Even if you fall asleep, your sleep may be shorter or lighter.

Anxiety and panic symptoms can become worse in some people. Caffeine can cause restlessness, shaking, sweating, or a racing feeling that may resemble anxiety.

Palpitations are feelings that the heart is pounding, fluttering, or skipping beats. They may follow a large amount of caffeine, but they can also have other causes. Repeated or unexplained palpitations should not automatically be blamed on caffeine.

Caffeine withdrawal can follow a sudden reduction after regular use. Possible effects include headache, tiredness, irritability, low mood, nausea, and difficulty concentrating. These effects are usually temporary, but they can interfere with daily activities.

Medicine and supplement interactions are possible. Some medicines slow the removal of caffeine, while others add to its stimulant effects. Caffeine is also an ingredient in some headache, cold, and alertness products, making accidental double dosing possible.

Caffeine poisoning can happen after a very large amount, especially from pure or highly concentrated powders and liquids. These products are much easier to measure incorrectly than ordinary drinks. Severe poisoning can cause dangerous heart rhythms, seizures, confusion, vomiting, or collapse.

Mixing caffeine with alcohol does not make alcohol's effects disappear. Feeling more awake can make it harder to judge how impaired you are.

## What you can do

If caffeine is affecting your sleep, mood, stomach, blood pressure, or heartbeat, keep a record for several days. Write down the product, serving size, estimated caffeine amount, and time you had it. Also note bedtime and any effects you noticed.

Check labels on energy drinks, supplements, pain relievers, cold medicines, and alertness products. Add together all sources rather than counting coffee alone. Be cautious when the caffeine amount is not stated or the serving size is smaller than the container.

If you want to cut down, reducing gradually may make withdrawal less uncomfortable. You could use smaller servings, replace one drink with a caffeine-free option, or move caffeine earlier in the day. There is no medical need for everyone to stop caffeine completely.

Ask a pharmacist or primary care clinician about caffeine if you:

Routine blood testing is not used to measure everyday caffeine intake. In suspected poisoning, clinicians may arrange tests to assess the heart rhythm, electrolytes, and other effects. A caffeine blood level is not usually needed.

Seek urgent medical advice for a new rapid or irregular heartbeat that continues, repeated vomiting after a concentrated caffeine product, or marked agitation.

Call emergency services or a poison control service after a large accidental dose, or if there is a seizure, collapse, severe confusion, trouble breathing, chest pain, or a persistent very fast or irregular heartbeat. Do not wait for symptoms after swallowing pure or highly concentrated caffeine.

- are pregnant, planning pregnancy, or breastfeeding
- take medicines or stimulant supplements
- have repeated palpitations or difficult-to-control blood pressure
- have anxiety or sleep problems that caffeine may be worsening
- regularly need caffeine to remain awake during normal activities

## Common questions

How much caffeine is in coffee?

There is no single amount. Cup size, bean type, brewing method, and strength all matter. A café drink may contain more than one serving. Use the seller's nutrition information when available.

Is tea caffeine-free?

Most black, green, and white teas contain caffeine. Herbal infusions are often caffeine-free, but check the ingredients. "Decaffeinated" means most caffeine has been removed, not necessarily all of it.

Are energy drinks the same as sports drinks?

No. Energy drinks usually contain caffeine or other stimulants. Sports drinks are designed to provide fluid and carbohydrates and may contain electrolytes. Product names can be confusing, so read the label.

Does caffeine dehydrate you?

Caffeine can increase urine production, especially if you are not used to it. However, ordinary caffeinated drinks still contribute fluid. Water remains a simple choice for routine hydration.

Can caffeine cure a headache?

Caffeine is included in some headache medicines and may improve their effect. It can also

contribute to withdrawal headaches or problems from frequent use of combination pain medicines. Follow the product directions and ask a pharmacist if you need headache medicine often.

Should I stop caffeine before a medical test?

Only if the test instructions say to do so. Caffeine can affect some heart, blood pressure, sleep, and exercise tests. Ask the testing service if the written instructions are unclear.

## Sources

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