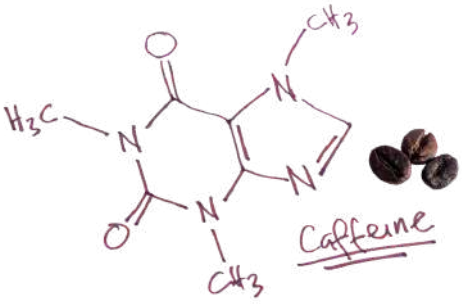
Caffeine

Let's look at it closely



Caffeine. We love it and consume so much of it.
It's the legal drug of choice of so many people!

Let's take a close look at this energizer, so many of us use to keep going.

Caffeine is a common, unregulated, quite addictive substance.

Caffeine increases our energy, our attention and keeps people awake.

Caffeine affects the brain and the central nervous system in many ways.

Caffeine blocks the action of adenosine receptors in the brain.
The effect of this makes you feel more energetic and awake.

This is the chemical compound of natural or synthetic caffeine.

Caffeine is a white, crystalline, bitter purine or powder.

America imports over 17 million pounds of caffeine per year.

Caffeine is found in many products we consume; coffee and chocolate most famously.

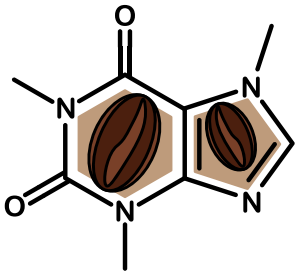
Caffeine is also a powerful dietary supplement. It's added to supplements because of its stimulant effects.

Caffeine is also found in many foods - most notably, colas and energy drinks. It is an addictive and that's why you crave foods with caffeine in them.

One tablespoon of caffeine equals about fifty coffees or 192 bottles of Coca Cola. Doctors recommend only 400mg of caffeine daily. About 10 cans of cola or 4 large coffees.

Enjoy your caffeine but monitor your intake and take it with caution.

QUESTIONS



Is caffeine a drug? Is it legal or regulated?

What does taking caffeine do to us, our bodies?

How does caffeine work in our bodies?

How much caffeine do doctor's recommend daily?

What caffeine do you take daily? List everything.

NAME..... DATE.....

??????? HOW MUCH CAFFEINE? ???????

Look at the products below. Calculate the amount of caffeine per ounce in each container so you can compare them. Once you've calculated the amount of caffeine per ounce, tell which product has the most caffeine per ounce.

HERE'S HOW TO CALCULATE THE AMOUNT OF CAFFEINE PER OUNCE OF BEVERAGE: Divide the number of mg of caffeine by the number of ounces in the container. Round your answer to the nearest tenth.

EXAMPLE:
ROCKSTAR
160 mg/16 oz
Answer: *160÷16=10*
10 mg/1 oz
Rank: #_____

FLAVORED ICED TEA
42 mg/20 oz
Answer:
_____ mg/1 oz
Rank: #_____

7-UP
0 mg/12 oz
Answer:
_____ mg/1 oz
Rank: #_____

MOUNTAIN DEW
54 mg/12 oz
Answer:
_____ mg/1 oz
Rank: #_____

CHOCOLATE MILK
5 mg/8 oz
Answer:
_____ mg/1 oz
Rank: #_____

NOS ENERGY DRINK
260 mg/16 oz
Answer:
_____ mg/1 oz
Rank: #_____

COLA
34 mg/12 oz
Answer:
_____ mg/1 oz
Rank: #_____

RED BULL
80 mg/8.4 oz
Answer:
_____ mg/1 oz
Rank: #_____

BREWED COFFEE
108 mg/8 oz
Answer:
_____ mg/1 oz
Rank: #_____

5-HOUR ENERGY
138 mg/2 oz
Answer:
_____ mg/1 oz
Rank: #_____

BREWED BLACK TEA
47 mg/8 oz
Answer:
_____ mg/1 oz
Rank: #_____

TALL CAFE LATTE
75 mg/12 oz
Answer:
_____ mg/1 oz
Rank: #_____

Source: http://www.energyfiend.com/the-caffeine-database

BONUS QUESTION: List the three products above that have the highest ***total amount*** of caffeine.

_____

CAFFEINE

Background Information on Caffeine

Did you know that caffeine is the most widely used psychoactive drug in the world?

Caffeine in its natural and synthetic forms is found in a growing list of products including coffee, tea, cola beverages, energy drinks, chocolate and even some medicines. The increasing presence of caffeine in our lives raises the question of how much is too much for the average consumer.

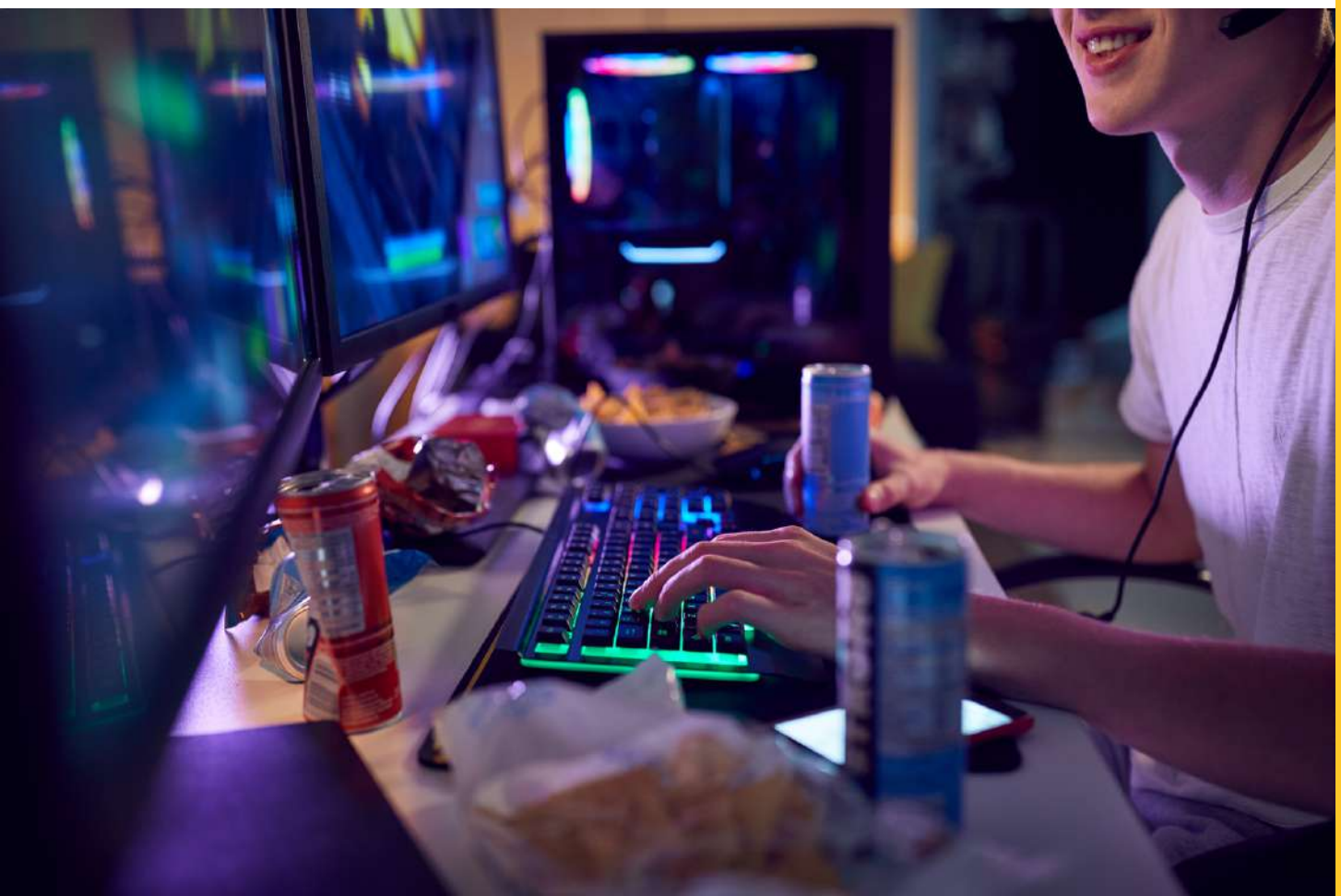
There have been many studies over the years dealing with caffeine and human health, specifically looking at general toxicity (e.g., muscle tremors, nausea, irritability), cardiovascular effects (e.g., heart rate, cholesterol, blood pressure), effects on calcium balance and bone health (e.g., bone density, risk of fractures), behavioural effects in both adults and children (e.g., anxiety, mood changes, attentiveness), potential links to cancer, and effects on reproduction (e.g., male and female fertility, birth weight) as risks from caffeine use.

CAFFEINE INTAKE RECOMMENDATIONS

Doctors recommend that the maximum daily caffeine intake of the average adult should be no more than 400 mg/day which is equal to about three 8-oz coffees (three small coffees or 1 extra-large coffee).

That number is reduced slightly for those who are pregnant or breastfeeding or who are planning to become pregnant to 300 mg/day (or 2 8-oz coffees).

Everyone's body can handle caffeine differently, and that will change as we age as our weight fluctuates over time. Listen to your body, and when you begin feeling the general signs of "general toxicity" like jitters, insomnia, headaches, irritability, and nervousness, take a step back!



ALCOHOL CONSUMPTION WITH CAFFEINE

Contrary to popular belief, drinking coffee will not help you to “sober up” if you’ve had too much alcohol. The caffeine will make you more alert, but your coordination and concentration will still be impaired.

Combining high doses of caffeine with alcohol can be dangerous because caffeine can make you feel less intoxicated, so you may continue to drink more or behave in ways that are risky to you and others.

Remember that drinking caffeine, in combination with alcohol, does not reduce the amount of alcohol actually in your body. Caffeine simply makes you *feel* more aware and less intoxicated, making it much easier to drink more alcohol than you intended to.

For some folks, energy drinks are the caffeine of choice when drinking alcohol. If you regularly pair alcohol with energy drinks, here are a couple of questions that you may consider: Why do I want to mix energy drinks with alcohol? Is it the taste? Have I been told that it will keep me from getting drunk? Energy drinks or otherwise, am I being responsible in my consumption of alcohol?

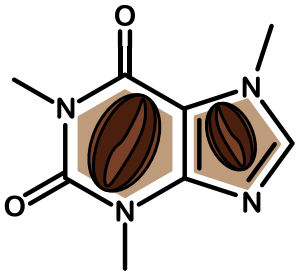
HOW CAFFEINE AFFECTS SLEEP AND STUDYING

Caffeine can impact the onset of sleep and reduce sleep time, efficiency, and satisfaction levels. When caffeine is absorbed into the body, the caffeine that is distributed to the brain blocks the adenosine receptors there. Adenosine is a sleep-promoting chemical that is produced in the brain when we're awake, and the buildup of adenosine is what makes us sleepier over time.

Caffeine reduces the time we spend in the stage of deep, restful sleep, known as slow-wave sleep, which leaves us feeling refreshed and alert in the morning. Caffeine-interrupted sleep can lead to sleep deprivation the following day, which is characterized by fatigue and problems with learning, memory, problem-solving, and emotion regulation. This means that if you grabbed an espresso to help you stay up longer to study for your exam the next day, you're actually making it harder to remember what you studied.

Studies recommend limiting caffeine intake within 4-6 hours before bed.
That being said, caffeine can have a positive short-term impact on studying by helping you to focus, improve your mood, and consolidate memory. These positive effects of caffeine can be lost when we overdo it - shifting us into "toxicity" symptoms, so aim to stick to the recommended daily amount, and to not drink caffeine too late in the day, for maximum benefit.

QUESTIONS



Is caffeine a drug? Is it legal or regulated?

Yes, caffeine is a drug and addictive. It is unregulated.

What does taking caffeine do to us, our bodies?

Caffeine increases our energy, our attention and focus and keeps us awake.

How does caffeine work in our bodies?

Caffeine blocks the action of adenosine receptors in the brain. This wakes us up and gives us energy.

How much caffeine do doctor's recommend daily?

Doctors recommend 400mg / day. That is about 4 large coffees or 10 cans of cola.

What caffeine do you take daily? List everything.

Various answers. Discuss. Share.

NAME..... DATE.....

??????? HOW MUCH CAFFEINE? ???????

Look at the products below. Calculate the amount of caffeine per ounce in each container so you can compare them. Once you've calculated the amount of caffeine per ounce, tell which product has the most caffeine per ounce.

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160 mg/16 oz
Answer: *160÷16=10*
10 mg/1 oz
Rank: #4

FLAVORED ICED TEA
42 mg/20 oz
Answer:
2.1 mg/1 oz
Rank: #10

7-UP
0 mg/12 oz
Answer:
0 mg/1 oz
Rank: #12

MOUNTAIN DEW
54 mg/12 oz
Answer:
4.5 mg/1 oz
Rank: #8

CHOCOLATE MILK
5 mg/8 oz
Answer:
.6 mg/1 oz
Rank: #11

NOS ENERGY DRINK
260 mg/16 oz
Answer:
16.2 mg/1 oz
Rank: #2

COLA
34 mg/12 oz
Answer:
2.8 mg/1 oz
Rank: #9

RED BULL
80 mg/8.4 oz
Answer:
9.5 mg/1 oz
Rank: #5

BREWED COFFEE
108 mg/8 oz
Answer:
13.4 mg/1 oz
Rank: #3

5-HOUR ENERGY
138 mg/2 oz
Answer:
69 mg/1 oz
Rank: #1

BREWED BLACK TEA
47 mg/8 oz
Answer:
5.9 mg/1 oz
Rank: #7

TALL CAFE LATTE
75 mg/12 oz
Answer:
6.3 mg/1 oz
Rank: #6

Source: http://www.energyfiend.com/the-caffeine-database

BONUS QUESTION: List the three products above that have the highest ***total amount*** of caffeine.

NOS Energy Drink, Rockstar, and 5-Hour Energy

Food for thought: What's wrong with too much caffeine?

Many of us reach for a cup of tea or coffee when we're tired, but why? It's because these and some other drinks contain the stimulant caffeine. But how does it affect the body? And how much is too much? Jennifer Trent Staves finds out how caffeine works and why consuming too much can be bad for you.

What is caffeine?
An odourless white powder that is bitter in taste, caffeine is a chemical with the formula C8H10N4O2. This stimulant is found naturally in over 60 plant species - including coffee bean, tea leaf, kola nut and cocoa bean - so its presence in our cups of tea and coffee and bars of chocolate is unsurprising. However, its stimulative power has led to manufacturers adding synthetic forms of caffeine to other products, such as fizzy soft drinks.

How does it work?
Caffeine works by competing with adenosine, a chemical produced by the brain. Normally, adenosine binds to receptors to slow down nerve cell activity, but caffeine takes adenosine's place, preventing it from doing its job at these locations in the brain. As a result, the activity of these nerve cells increases. This affects several parts of the body, including our central nervous system, the kidneys, muscles and the cardiovascular system.

Caffeine starts working as soon as 15 minutes after consumption. It takes about six hours for half of the total caffeine consumed to be eliminated from the body.

Caffeine:

- increases heart rate
- constricts blood vessels
- has a diuretic effect (increases the amount of urine made)
- relaxes air passages
- encourages the production of adrenaline (because of increased nerve cell activity)
- contracts muscles
- suppresses appetite.

What are the positive effects of caffeine?
Caffeine is a stimulant, so it can increase alertness. By encouraging the production of adrenaline (which is linked to our fight-or-flight reflex), caffeine can improve productivity and concentration.

Modern medicine has harnessed caffeine's power in a variety of ways. Caffeine is often included in paracetamol tablets and other cold remedies, as it can help treat headaches by constricting blood vessels.

Because it can relax air passages, caffeine has been used to treat premature babies with a condition called sleep apnoea, which causes them to stop breathing in their sleep. One Australian study found caffeine to be effective in reducing the number of attacks in the first week of treatment and associated it with better longer term outcomes as well.

What are the negative effects of caffeine?
A dose of caffeine in a morning cup of tea might help us work, but many of the positive effects of the drug become negative ones when the amount of caffeine consumed is increased. Like many drugs, caffeine can cause physical dependence.

Too much caffeine is associated with reduced coordination, insomnia, headaches, nervousness and dizziness. Cutting caffeine out completely (going 'cold turkey') can cause withdrawal symptoms, such as headache, fatigue and muscle pain.

Ingesting excessive amounts can also put a strain on the heart and is linked with increased blood pressure and raised blood cholesterol.

Should we limit our consumption?
Europeans are the largest consumers of caffeine: a 1999 study into the consumption of coffee, tea, mate (a South American infused drink) and cocoa identified the UK as the world's 15th largest consumers of caffeine, after some other European countries and Australia, Nicaragua and Canada.

An older study on caffeine intake found that the average daily intake among UK adults was 359 mg, or 5.1 mg/kg for a 70 kg person. Another study estimated it to be 4 mg/kg for all consumers of caffeine and 7.5 mg/kg for heavier consumers.

In excessive doses, caffeine can even be lethal: the fatal dose is more than 10 g (80-100 cups of coffee in rapid succession), according to the University of Washington.

Although drinking 100 cups of coffee in one go is highly unlikely, studies say the amount of caffeine consumed in drinking four cups of coffee (or two small energy drinks) a day can cause physical dependence and have unwanted side-effects in adults.

Some groups are more at risk and should limit their intake even further, including:

Pregnant women or nursing mothers

The NHS advises that pregnant women should have no more than 200 mg of caffeine a day - this was reduced from 300 mg in 2008. This advice stems from research associating caffeine with lower birth weight in babies, as well as spontaneous miscarriage. Although there is no set guidance for nursing (breastfeeding) mothers, caffeine intake should be limited because it readily passes through breastmilk.

Babies and children
Caffeine contains a specific type of chemical (polyphenols) that bind to iron, making it difficult for the body to absorb this element. Because iron is essential for growth and development in young children, too much caffeine can stunt development.

The drug has also been blamed for sleep problems in young children. A 2010 study by Dr Warsak and colleagues at the University of Nebraska Medical Centre found that the more caffeine children consumed, the less they slept.

Teenagers
Older studies have found that teenagers in the UK consume more caffeine than their counterparts in the USA and Australia. Drinking too much caffeine can affect sleeping patterns in teenagers - a concern for students who stay up late at night and fall asleep during the school day.

In a 2009 study, researchers found that caffeine consumption tended to be more than 75 per cent higher among those teenagers who struggled to stay awake during the day than among those who didn't struggle. The researchers suggested that teenagers limit their caffeine intake to the first part of the day so as not to interfere with night-time sleep.

Table 1. Amount of caffeine in everyday food and drinks

Coffee	60-150 mg in 150 ml (a small cup)
Decaffeinated coffee	2-5 mg in 150 ml (a small cup)
Tea	40-80 mg in 150 ml (a small cup)
Coca-cola	4 mg in 330 ml (one can)
Energy drinks	80 mg in 250 ml (one can)
Chocolate	3-63 mg in 50 g (one bar)
Weight-loss tablets	16-200 mg in one tablet

Source: University of Washington

Image: Green coffee beans from Ethiopia. Credit: Sasha Andrews, Wellcome Images.

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