

# AU InforMed

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## Key Inforbits

- 10 Things you didn't know about caffeine...
- Caffeine effects on blood pressure
- Mood altering effects of caffeine...
- How much caffeine is too much...?
- What's in your cup?
- Caffeine Withdrawal



March is...



National  
Caffeine Awareness  
Month

10 things you...

## DIDN'T KNOW ABOUT CAFFEINE

- ❖ Global consumption is estimated to be about 120,000 tons per annum which is approximately one caffeine-containing beverage per day for everybody on earth.
- ❖ Caffeine is the most widely used behaviorally active drug in the world with an estimated 80-90% of adults and children habitually consuming caffeine. As a beverage, the worldwide consumption of tea is surpassed only by water.
- ❖ Coffee is the leading dietary source of caffeine among adults in the United States, while soft drinks represent the largest source of caffeine for children.
- ❖ The coffee "tree" is indigenous to Ethiopia, but its cultivation and use as a beverage stem largely from Arabia.
- ❖ It is suggested that America owes its present day coffee habits to the famous Boston "tea party" of 1773. Since that time the United States has become the major coffee-consuming nation of the world.
- ❖ Caffeine is absorbed rapidly into the bloodstream and reaches maximum concentration within about one hour. It has an estimated half-life of 3 to 7 hours.



- ❖ Females metabolize caffeine 20-30% more quickly than males.
- ❖ Caffeine is a strong diuretic that increases blood flow through the kidneys.
- ❖ Caffeine has been shown to increase mental alertness; however, the high-caffeine users do not perform as well as others in mental tasks.
- ❖ Caffeine crosses the blood-brain barrier where it constricts the cerebral blood vessels. A common withdrawal symptom is headache due to the dilation of these blood vessels.

Read the complete Australian Broadcasting Corporation's article on caffeine facts at:

<http://www.abc.net.au/quantum/poison/caffeine/about.htm>

## **FROM THE MEDICAL LITERATURE**

### **Timing of Blood Pressure Measurements Related to Caffeine...**



A meta-analysis published in the *Annals of Pharmacotherapy* suggests that asking patients to abstain from consuming caffeine within 30 minutes of having a blood pressure measurement is insufficient. The author based this assumption on the pharmacokinetics of caffeine with it peaking 30-120 minutes after consumption and a half-life of 3-6 hours, allowing the effects caffeine to extend past the standard wait time of 30 minutes. The magnitude of blood pressure changes associated with caffeine use depend on the hypertensive status of the patient, age (greater elevations are seen with advanced age and in younger patients), physical and psychological stress, past caffeine use and tolerance, a process that occurs due to chronic caffeine consumption that may diminish the body's response to caffeine. Caffeine was shown to acutely change systolic blood pressure by 3-15 mmHg and diastolic blood pressure by 4-13 mmHg. The study concluded that rather than having patients refrain from consuming caffeine 30 minutes prior to blood pressure monitoring, the alternative approach should be to simply ask patients about daily and recent caffeine intake. This will assist in appropriately interpreting blood pressure values. And as always, provide patient counseling and education on the effects of caffeine on blood pressure and general health. Mort JR, Kruse H. Timing of blood pressure measurement related to caffeine consumption. *Ann Pharmacother*. 2008;42:105-10.

### **Mood Altering Effects of Caffeine in Humans**

It is well recognized that caffeine has mood altering effects in humans; however, these effects are specific to an individual depending upon the amount of caffeine consumed and whether the individual is physically tolerant or dependent on caffeine. In low doses (20-200mg) among occasional caffeine users, caffeine produces positive mood effects like happiness, energetic arousal, alertness, and sociability. As the consumer becomes more physically tolerant of caffeine's effects, the amount of caffeine ingested must be increased to provide the aforementioned positive effects. In higher doses (200 mg or greater) caffeine can be responsible for many negative effects depending on the sensitivity and tolerance of the individual. Studies have shown that these higher doses of caffeine increase anxiety ratings and induce panic attacks along with an increased risk of an upset stomach and nervousness in the general population.



1. Griffiths R., Woodson P. Reinforcing effects of caffeine in humans. *J Pharmacol and Exp Ther* 1988;246(1):21-29.
2. John Hopkins University School of Medicine [homepage on the Internet]. Baltimore, MD: Behavioral Pharmacology Research Unit;[updated Aug 31, 2007]. Available from: [http://www.caffeinedependence.org/caffeine\\_dependence.html#top](http://www.caffeinedependence.org/caffeine_dependence.html#top)

## How much caffeine is too much?



A day without a cup of coffee or a cola is unheard of for most people. In fact, 9 in 10 Americans consume some type of caffeine regularly. The effects of caffeine can easily be felt in less than an hour. You are more alert, you feel more productive and your mood is instantly lifted. But the effects of caffeine are often not long lived, leaving you thirsty for more. For most people, 200-300mg (2-3 cups of coffee) are not harmful, but for some who are caffeine sensitive (people with low BMIs, or those under stress), those two-three cups could cause an exaggerated effects of anxiety, restlessness and irritability. About 500-600 mg of caffeine daily, or 4-7 cups of coffee a day, is considered an excessive amount of use. Consumption of this much of caffeine could lead to muscle tremors, sleeplessness, headaches, abnormal heart rate and even gastrointestinal problems such as nausea and diarrhea. Abrupt decreases in caffeine can lead to withdrawal, so it is best to decrease the consumption gradually. When trying to curb your caffeine habits, gradually reduce the amount by drinking one less cup of coffee or bottle of soft drink. You may also replace caffeinated drinks with decaffeinated beverages or teas.

The Mayo Clinic. Caffeine: How much is too much? The Mayo Clinic Staff. March 2007. Available from: <http://www.mayoclinic.com/health/caffeine/NU00600>

## What's in Your Cup?

**Did you know that it takes only about 500-600 mg of caffeine a day to cause symptoms such as restlessness, anxiety and/or headaches? Here is a list of common caffeinated drinks and how much caffeine each contains:**

Beverage	Caffeine (mg)
<b>COFFEES</b>	
Plain brewed 8 ounces (oz.)	95
Espresso, 1 fluid oz.	64
Starbucks Caffe Latte, 16 oz.	150
Starbucks Coffee Grande, 16 oz.	330
<b>SOFT DRINKS</b>	
Coca-Cola Classic, 20 oz.	58
Diet Coke, 20 oz.	78
Mountain Dew, Diet Mountain Dew	90
<b>ENERGY DRINKS</b>	
Full Throttle, 16 oz	144
Rockstar, 16 oz.	160
SoBe No Fear, 16 oz.	174
<b>OTHER</b>	
NoDoz Maximum Strength tablets	200

The Mayo Clinic. How much caffeine is in your daily habit? The Mayo Clinic Staff. October 2007. Available from: <http://www.mayoclinic.com/health/caffeine/AN01211>

## Caffeine Withdrawal



Caffeine withdrawal syndrome has been well documented in numerous double-blind clinical trials. Caffeine withdrawal is an official diagnosis in ICD-10 (World Health Organization) due to its potential to cause clinically significant impairment in functioning. The most commonly reported signs and symptoms of caffeine withdrawal syndrome are headache, fatigue, drowsiness, agitation, difficulty concentrating, depression, anxiety, flu-like symptoms, and impairment in cognitive function. Caffeine withdrawal has been documented in individuals after stopping consumption of just one cup of coffee daily. Subjects are usually unaware of their physical dependence on caffeine and often mistake caffeine withdrawal symptoms for other ailments. It has been shown that as little as 25 mg of caffeine can partially suppress the common caffeine withdrawal symptoms and many patients unknowingly consume caffeine through sources other than coffee and soft drinks. The severity of caffeine withdrawal symptoms ranges from mild to severe with substantial differences within and across various subject populations. Onset of the caffeine withdrawal syndrome usually occurs within 12 to 24 hours after withdrawing caffeine intake with peak intensity occurring 20 to 48 hours after abstinence. The duration of caffeine withdrawal ranges from two days to one week, although longer intervals have been noted.

John Hopkins University School of Medicine [homepage on the Internet]. Baltimore, MD: Behavioral Pharmacology Research Unit;[updated Aug 31, 2007]. Available from:

[http://www.caffeinedependence.org/caffeine\\_dependence.html#top](http://www.caffeinedependence.org/caffeine_dependence.html#top)

### What's the Buzz? It's the world's most popular psychoactive drug...

- Extroverted people are less sensitive to caffeine's effects than introverts
- Going without caffeine for a day and a half increases blood flow to the brain which may explain why people get headaches when they first give it up
- One of the newest products to which the stimulant has been added: "caffeine tights" are panty hose with caffeine woven into their threads to supposedly help shrink thighs

For information visit: <http://ngm.nationalgeographic.com/ngm/0501/feature1/index.html>

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### Fun Facts!!! ...March is:

- National Kidney Month
- Colorectal Awareness Month
- National Endometriosis Awareness Month
- Day Light Savings Time Begins (9<sup>th</sup>)
- National Nutrition Month
- Save Your Vision Month
- National Poison Prevention Week (March 16-22)
- St. Patrick's Day (17<sup>th</sup>)
- Easter Sunday (23)



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***Way too much coffee. But if it weren't for the coffee, I'd have no identifiable personality whatsoever.*** ~David Letterman

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