

Caffeine's Hidden Dangers

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Americans are hooked on caffeine. Ninety percent consume it in one form or another every single day. Over half consume more than 300 milligrams of caffeine every day. It is our nation's most popular drug. It is in coffee, tea, cola, chocolate, and a variety of other things.

Caffeine is an addictive drug. It operates on the brain, using the same mechanisms as amphetamines, cocaine, and heroin to stimulate the brain. Although it is milder than the others, it is manipulating the same channels. This is one of the reasons it is addictive.

If you think that you cannot function every day with it, and must consume it every day—you are addicted to caffeine.

Caffeine is trimethylxanthine. Its chemical formula is $C_8H_{10}N_4O_2$. When isolated in pure form, caffeine is a white crystalline powder that tastes very bitter.

Physicians use it as a cardiac stimulant and also as a mild diuretic (increases urine production). But regular folk take it for the apparent “boost of energy” or feeling of heightened alertness it gives. It is often used to help people stay awake longer.

Obviously, what is happening is that the body is tired and needs rest; but, instead, it is whipped into action. Beating a horse always hurts it. The body, repeatedly pushed into greater activity when it wants to stop for rest, is gradually damaged. Instead of recovering, organs gradually weaken. Eventually, the weakest ones become diseased, and the person wonders why it happened.

Caffeine occurs naturally in many plants, including coffee beans, tea leaves, and cocoa nuts. Because of this, it is found in a wide variety of food products. In addition, caffeine is added to many other foods, including beverages.

Here is a dangerous menu to think about:

- Coffee: Typical drip-brewed coffee contains 100 milligrams (mg.) per 6-ounce (oz.) cup.

Whether you are buying it at Starbucks or a store, drinking it at home or at the office, out of a mug or commuter's cup, you are consuming it in one of three sizes: 12 oz. (200 mg.), 14 oz. (234 mg.), or 20 oz. (334 mg.). That is a lot of caffeine!

- Tea: Typical brewed tea contains 70 mg. in each 6-oz. cup.

- Cola drinks: Coke, Pepsi, Mountain Dew, etc., contain 50 mg. per 12-oz. can. Jolt contains 70 mg. per 12-oz. can.

- Chocolate: Typical milk chocolate contains 6 mg.

per oz.

- Drugs: Anacin contains 32 mg. per tablet. No-doz contains 100 mg. per tablet. Vivarin and Dexatrim contain 200 mg. per tablet.

Sit down and calculate how much you are taking each day, and you might be surprised. Many people consume a gram (1000 mg.) or more every single day, without realizing it.

Just what does caffeine do when it gets into the body?

As your body becomes fatigued, adenosine is made in the brain, and binds to adenosine receptors. This causes drowsiness by slowing nerve cell activity. You want to stop and rest. You want to go to sleep. This is good, for you need the rest. In the brain, the adenosine also causes blood vessels to dilate (enlarge), so more oxygen can reach the brain during sleep.

But when caffeine is taken into the stomach, it travels quickly to the brain. Once there, it does what adenosine normally does; it binds to the adenosine nerve receptors. But, instead of slowing cellular activity, it speeds it up. The cell can no longer bind with adenosine, because caffeine is linked up with all its available receptors.

The cell begins accelerating its activity. Because adenosine is shut out, the brain's blood vessels began to constrict (narrow).

The increased neuron firing in the brain awakens the pituitary gland to action. Some kind of emergency must be taking place! So the pituitary signals the adrenal glands to produce adrenaline (epinephrine), the “fight or flight” hormone.

The longer-term effects of using caffeine tend to spiral down. Once the adrenaline wears off, you face even greater fatigue—and also depression. More caffeine is taken, and soon the body is jumping into emergency levels all day long. You become jumpy and irritable.

Because the half-life of caffeine is six hours, by the time you go to bed, you cannot get to sleep or you will not obtain the deep sleep you need. (If the last cup of coffee was taken at 3 p.m., by 9 p.m., you will still have 100 mg. in your body.) So the next morning you feel worse—and you need caffeine to get you out of bed.

You have started another day, beating the horse. This is why 90% of Americans consume caffeine every day. But if you try to stop, you will get terrible, splitting headaches as blood vessels in the brain dilate. So you go back to caffeine.