

# Caffeine and the Brain



I will never forget the first time someone handed me a beer. I liked it from the first sip. They said it would be an acquired taste but it wasn't for me because I liked that ice-cold beer on that hot Alabama night from the first taste. The same situation happened the first time I tried coffee. Ever since then when I was working and in grad school full time, I've been an avidly addicted coffee drinker which adds up to 18 years of 2-4 or maybe more cups a day, depending on how big the cup. I like the ritual, smell, warmth, and taste and I have from day one.

## *The Problem*

Caffeine is completely safe, in moderate amounts, and was never a big problem for me, but I started to notice over time that it took more and more coffee to get the same caffeine buzz. Over time, I built up a tolerance to coffee and I needed more and more of it to get the same response. Plus, when its effects wear off I would get a big letdown and energy crash, and if you're moderately prone to anxiety like I am then excess caffeine will only exacerbate it. I needed a break. So, this year I gave up alcohol and caffeine for Lent. It wasn't as hard overall as I thought it would be. I got severe headaches the first few days, and severe withdrawal symptoms like panic, anxiety, and irritability. After a week or two though, these went away. After Lent, I got back on it and resumed my usual 2-4 cups of coffee per day.

Fast forward to a few weeks ago, when I decided to give up caffeine for good, unless I really needed it in an emergency. I was just having a hard time limiting it to a healthy amount, and I wanted to detox and restore some hormonal balance after drinking so much of it for so long (18 years). Again, coffee is perfectly safe, and thus so is caffeine, BUT it is a psychoactive drug substance so let's not forget that it has a big effect on the brain and your psychology. Caffeine

is addictive! Plus, the larger story is something I have been writing a lot on lately the last few years. You shouldn't need to rely on anything to feel good, barring some health condition which requires treatment. Your normal state should be energetic and focused.

What do you really need to be happy, and feel good? Why not try to "get there" on the inside without relying on dependencies?

### *The Caffeine Fact Sheet:*

- Caffeine is the most widely used psychoactive drug in the world.
- Caffeine is naturally occurring, bitter, white, crystalline alkaloid.
- Morphine, Cocaine, & Nicotine are also alkaloids.
- Caffeine is an adenosine impersonator.
- Caffeine works by blocking adenosine, which is another alkaloid that occurs naturally while awake, builds up in the brain during the day and when it reaches a certain level it makes you feel tired.
- Caffeine blocks the work of adenosine by interacting with its receptors.
- Over time, caffeine consumption can increase the number of adenosine receptors in your brain, to compensate for the lack of an outlet for adenosine which is present (remember, caffeine is blocking its receptors).
- Caffeine restricts arterial blood flow and can raise blood pressure.
- Caffeine can dehydrate the brain.
- Caffeine blocks a hormone called GABA, which is a neurotransmitter which induces calm, and this explains why caffeine can cause anxiety.
- 4 cups or less of coffee per day is probably safe for most people.
- Pregnant women and those on antibiotics should avoid caffeine.
- Adolescents should consume 100mg or less.
- 1 60 oz. cup of coffee has about 100mg of caffeine, 1 12 oz. Coke has 34 mg, 1 Red Bull has 80 mg. 1 Tea has about 40-60, depending on the type. Black tea has more caffeine than the other types.
- More than 500 mg of caffeine can cause dehydration.
- Moderate caffeine (<400 mg/ day) does not cause or aggravate arrhythmias or atrial fibrillation.
- Moderate to heavy alcohol use does seem to lead to atrial fibrillation.
- Caffeine could boost epinephrine (adrenaline), and norepinephrine, artificially. This could cause downregulation of natural production, making it harder to get wired up or more alert without caffeine.
- Not everything is known or understood about caffeine or about how the brain works for that matter.
- Caffeine occurs in all kinds of plants.
- Dopamine and Glutamate are the brain's two primary neurotransmitters, and with adenosine blocked, they can continue to do their work.

- Caffeine is less revving you up as it is blocking something that makes you naturally sleepy, or relaxed, so it is like blocking the break versus mashing the gas pedal.
- The famous composer Johan Sebastian Bach was a prodigious coffee consumer, but it wasn't necessarily caffeine that helped him work so prolifically, since coffee can decrease mental performance in some cases.
- Most people who go on anesthesia have headaches afterward less from the drugs, than the caffeine withdrawal.
- It can take a full 12 hours before the full effect of caffeine wears off completely.
- The brain seeks to return to its normal state when it is essentially under "attack" from ingested caffeine, which then causes a wide variety of responses and compensations, which are not completely understood.
- Over time, within a few weeks, the brain can develop a tolerance for even huge amounts of caffeine.
- Headaches can be caused by caffeine, but they can also be caused from the withdrawal of caffeine.
- Caffeine withdrawal, which kicks in 12-24 hours after the last dose, can cause depression, fatigue, brain fog, lethargy, irritability, nausea, eye and muscle spasms, and even vomiting
- Withdrawal normally ends after 10-14 days.

### *The Bottom Line*

Coffee and other caffeine products are not unhealthy, in moderation. They can even contain powerful antioxidants, decrease fatigue and boost fat-burning. But the problem is that most of us, myself included, have a hard time with moderation. It takes practice to drink less, spend less, eat less, consume less, and even work less.

**Personally, I feel better when I'm not drinking caffeinated coffee or other caffeine drinks.** My energy levels are overall much better and more sustained. I have less anxiety, and fewer headaches or withdrawal, and I sleep better. When I sleep 6 hours on a caffeine free day, it feels like 8 on a caffeine day, because my brain gets into a deeper sleep faster. For now, I am going to keep drinking decaf. But I could see a time when I might drink caffeine when I need a boost of alertness for some reason.

The bottom line is this: I want you stronger, and healthier, and freer from addictions of all sort. This includes caffeine. Enjoy your coffees, and teas, but do it in moderation, and take long breaks so that you really enjoy it and find it useful when you need it.

