by Jeffrey Maxwell

"Drinking coffee will improve your memory and increase creativity." "Coffee is full of antioxidants." If you have looked to the media about the wonders of coffee, you probably have read statements similar to these. Additionally, Popular Science posted an article saying, "If anything, coffee may literally be the healthiest beverage on the planet." Is coffee really good to the last drop? Or has society been snared by the joe?

What is it about Coffee?

When people awake, or want to stay awake, many grab a cup of coffee. What is coffee's allure? The obvious answer is that coffee holds a key ingredient—caffeine.

When you drink a cup of coffee, the caffeine quickly travels to the brain. The caffeine crystals are just the right fit for your adenosine receptor sites. As you go through the day, the body produces adenosine molecules that depress the system—sort of like the brakes of the body, promoting sleep. As caffeine binds to the adenosine receptor sites, adenosine is not able to do its work. Instead, the caffeine stimulates when the body would be preparing to rest. This creates what is called the heightened cognitive ability and stimulation to awake, the effect sought by coffee lovers. But is there a price to be paid for these benefits?

Caffeine under an electron microscope *Courtesy of Annie Cavanagh and David McCarthy Welcome Images*

Cause and Effects

What does caffeine do in the system?[1] Another job of adenosine is to dilate the blood vessels specifically in the brain to allow more oxygen to flow in while sleeping. Caffeine has the opposite effect, causing these vessels to unnaturally constrict (which is why caffeine is used in some headache pharmaceuticals). This is why when those used to drinking coffee try to stop, they get withdrawal symptoms of splitting headaches[2] because of the mass pilgrimage of vessel dilation.

The half-life of caffeine can be around six hours, which is a major reason why it tends to disrupt healthy sleep patterns. The body is robbed of its needed rest and in order to jump start the day, coffee is taken to whip a tired horse. As adenosine slows neural activity, caffeine increases this activity causing the pituitary gland to cause the adrenals to release adrenaline, the hormone responsible for the "fight or flight" response of the body. When the adrenals are consistently whipped into action, it causes them to become overloaded and depleted, pulling from reserves and resources of the whole system. It is not hard to see how once the adrenaline wears off, the drinker is faced many times with more fatigue than before and how heavy caffeine intake has been linked to depression[3], anxiety[4], hypoglycemia, nutrient deficiencies, irritableness, and other ailments[5] [6] [7] [8] [9] (studies that say otherwise usually have the disclaimer that it is insufficiently studied). What is the fix that many use to overcome the caffeine-induced effects like fatigue? Unfortunately, more caffeine.

It is a true saying that we are "fearfully and wonderfully made" (Psalms 139:14); and God in His wisdom created brakes in our body to make sure we get the proper rest that our bodies need to maintain good health. The body figures out that it is not getting the adequate amounts of adenosine and in order to compensate, the brain mutates, in a sense, forming more adenosine receptors. This contributes to heightened tolerance for caffeine causing the drinker to need more for similar effects. Any unnatural hot-wiring of the system so wisely established is surely to have consequences.

Is it a Drug?

Another effect of caffeine is the role it plays with dopamine—a pleasure center hormone—causing its levels to rise. Though stronger, cocaine and heroin also work in a similar fashion, having similar effects. Excess dopamine levels are clinically linked to some major psychiatric diseases such as schizophrenia, bipolar disorder, movement disorders like Tourette syndrome, and psychosis (losing touch with reality). Treatment for these and other ailments often use dopamine blocking pharmaceuticals.

If we say the definition of a drug is a substance that alters the physiology of the body, producing an unnatural effect, and causing addiction or dependence, then caffeine is a drug in every sense of the word. Not only a drug, but a psychoactive drug—chemicals that change brain function, altering "perception, mood, or consciousness." It is often termed the most widely used drug in the world. It is said that some 90% of Americans take it at least minimally in some form or another, whether in coffee, teas, sodas, energy drinks, or delicacies.

What about Decaffeinated?

Decaffeinated does not mean the absence of caffeine; it simply means that most of the caffeine has been stripped out, but it has enough to give those who are highly sensitive to it mild effects. Also, coffee stimulates production of acidity in the stomach, contributing to GERD causing severe heartburn and ulcers[10]—this is from both caffeinated and decaffeinated varieties. Decaf may even be more acidic due to the variety of beans used for flavor purposes. Both also cause excessive excretion of nutrients and increases risk of heart disease[11] [12]. Moreover, it is very hard to decaffeinate without stripping the coffee of all of whatever good properties, namely the antioxidants, leaving decaf as a not-so-healthy substitute. There are far healthier and more nutritious alternatives to coffee to choose from that taste pretty close to it, such as dandelion root tea or Roma©.

Final Thoughts

It is hard to leave a conversation about caffeine without mentioning a close relative found in a food loved by many—chocolate. Yes, chocolate does have stimulating alkaloids along with a very close cousin to caffeine—theobromine. These two stimulants are almost identical in molecular structure and have some similar immediate effects upon the system, though theobromine is milder. While some would say it is not addictive, by the actions of some I have seen, it would seem that this may not be the case. Carob is a great alternative to this stimulant.

In weighing coffee's potential positive benefits to the potential negative ones, the immediate effects and potential future risks are certainly not worth it. Personally, I drink mainly water in the morning and throughout the day and my body has no trouble being perky in the morning time and having energy throughout the day until it is time to go to sleep soundly. With the will set to overcome the addiction, —especially through faith in God's power—bearing through any withdrawals knowing they will not last forever, along with some natural helps of a nutritious diet, lots of water, and other healthy habits, anyone chained to this stimulus can overcome it. And anyone on the other side of the tunnel will tell you it is more than worth the efforts not to be enslaved by any drug.

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