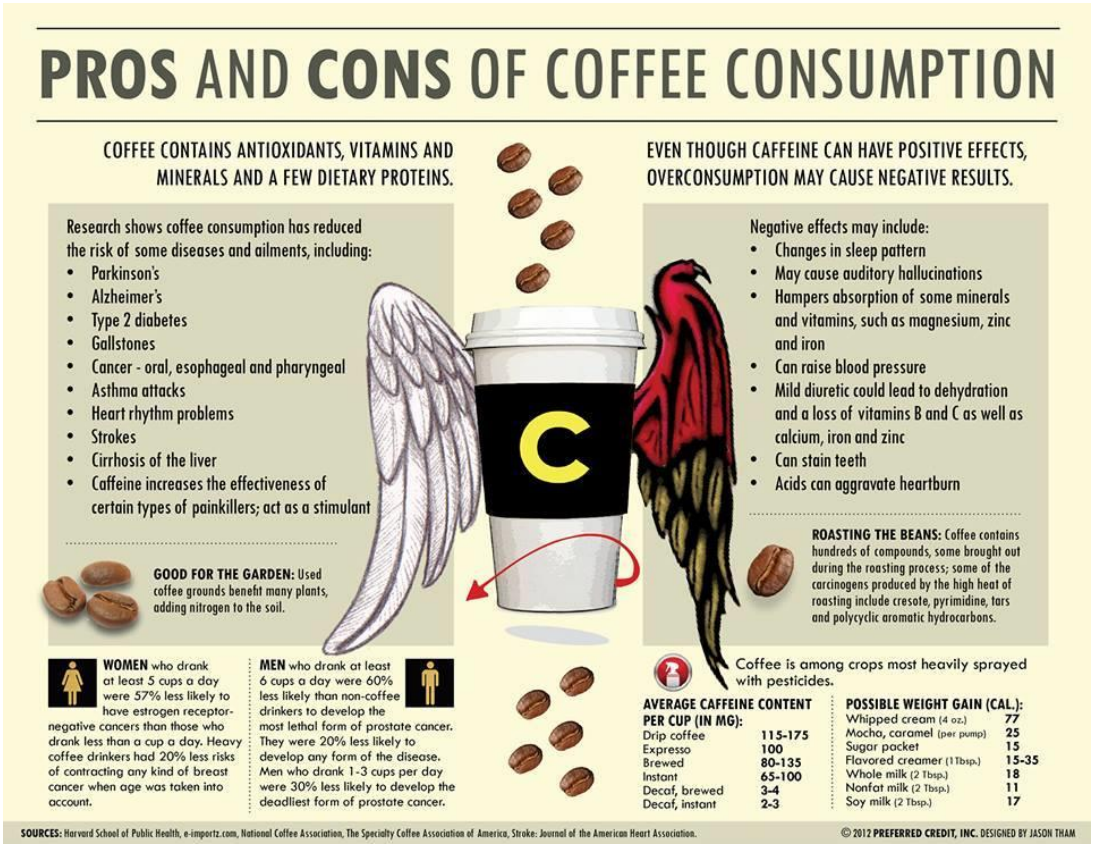
Daily Life with Christ-71: Understanding brain addictions (10). Psychoactive drugs: how caffeine changes the brain.



Every new year seems to bring renewed commitments to New Year's resolutions to finally break a bad habit, an addiction, a vice. These renewed commitments usually last for a month or so until a person's will finally gives up, and the person returns to what he "wishes" (on the lower level) he would not do (on the higher level). When a person does something he really does not want to do (e.g., from his higher self, his conscience), he is fragmented, divided in himself, and thus is incapable of enjoying true freedom as a human being.

A distinction needs to be made between the contemporary view of freedom and the classical view of freedom. The former tends to define freedom as doing what one wants. The latter defines freedom as fulfilling one's highest and truest nature in the good of its highest nature. In the former, an alcoholic would be considered free because he drinks all that he wants. In the latter, the alcoholic would not be considered free because being an alcoholic is not fulfilling his highest and true self—the true self is enslaved by his lower self's addictions. In other words, his brain addiction in his lower material self has taken captive his higher spiritual, immaterial self. The lower sense appetites end up controlling the spiritual nature of the person.

These lower sense appetites that become addictions are a result of a change of brain chemistry, which is why they have a very powerful influence on our lives. Understanding these changes in the brain enables one to understand these powerful addictive influences. The goal of this series is to help people understand the physical changes in the brain that make resolutions so difficult to keep. Moreover, to understand the physical causes of addictive cravings enables the believer to have more sympathy for addicts. It is not just a matter of sheer brute force, brute resolve, of the immaterial will—for the will is tied to the material and thus to physical cravings.

On the nature of drugs, recall that I said that any substance introduced into the body that changes a biological function in a person's body is classified as a drug. This means that an antacid is a drug. Recall also that when a substance makes a change in the brain, then it is a psychoactive drug. An antacid is a drug, but it is not a psychoactive drug—it does not change brain chemistry.

Let us start with the most prevalent and most innocuous psychoactive drug, namely, caffeine. We so love our coffee Eighty to ninety percent of Americans drink coffee or other caffeinated drinks every day. A typical adult consumes 200 to 400 milligrams of caffeine every day on average. Except in severe cases, consuming caffeine on a regular basis does not pose a health risk. In fact, moderate caffeine has a number of health benefits, e.g., reducing the rise of Parkinson's disease and type 2 diabetes. The psychoactive nature of this drug also increases alertness and improve concentration. However, because it is a psychoactive drug it works in ways that are similar to other more dangerous psychoactive drugs.

Regular use of caffeine can and does lead to physical dependence, and the associated symptoms of tolerance and withdrawal, just like the regular use of other dangerous drugs do. Many readily agree that they cannot function in the morning until they have had their java. How does caffeine change the chemistry of the brain? Caffeine is what is known as an adenosine receptor antagonist. This means that it prevents the brain chemical adenosine from turning on receptors in the brain. Adenosine is an inhibitory brain chemical, which means that it tends to reduce neural activity. The reduced neural activity is related to sleep-wake cycle. Caffeine blocks the effect of

adenosine and therefore fools the brain into thinking that it has not been awake for as long as it has. Caffeine also stimulates dopamine production, but not nearly as much as the dangerous psychoactive drugs.

Caffeine is different than dangerous psychoactive drugs in that it does not significantly charge or boost the reward circuit (nucleus accumbens, ventral tegmental area). In other words, it has a much weaker effect on the brain's reward circuit. People do not generally drink caffeine because of cravings so strong as to lead to unhealthy and even life-threatening behavior.

Instead of the desire to drink coffee due to intense cravings from the human brain's reward system, most people drink coffee to avoid the negative withdrawal symptoms of fatigue or irritability. In other words, caffeine is more associated with negative consequences than positive consequences. For these reasons, caffeine is not considered to be a drug of abuse. However, repeated use does lead to changes in the brain and ultimately physical dependence. But this dependence does not lead to the significant negative consequences like other drugs that we will be examining in the next few articles.

Thank God for the pleasure and blessings of caffeine/coffee. However, let us not so abuse this gift that we become dependent on it and thereby fail to enjoy a full and robust freedom--to thrive as a human being and a son of the Living God without the need for drug stimulation. We should not need caffeine because we have so abused it, and with that abuse compromise our otherwise healthy and normal functioning brain.

John 8:32, "And you shall know the truth, and the truth shall make you free."

Pastor Don Hargrove