

The Cultural Dependence and Potential Health Risks Associated  
with Caffeine Consumption

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## **Introduction**

There are several drugs throughout the world that are used on a day-to-day basis. In America we are exposed to several different legal drugs that we use constantly. Over the counter drugs, nicotine, prescriptions, and alcohol are just a taste of the vast amount of ways one can legally use drugs in our country. This research paper is on a substance that most people would not even perceive as a drug in general. When a person uses the term “drug” it is generally looked at as a negative in our culture. Caffeine is a drug that is more often than not looked at as a positive substance within our culture. The research done in this paper will attempt to challenge the overall beliefs that caffeine should still be undermined.

It is easy to argue that caffeine does very little harm to the body both mentally and physically. Caffeine is a drug unlike many others drugs in that anyone can use it. The effects of caffeine are very different from other drugs as well. The objective of this research project is to point out all of the negatives that go along with using caffeine. First, this paper will give a brief history of caffeine followed by the various methods one can go about ingesting caffeine. The next section of the paper will touch base with many of the different substances that caffeine can be found in. The five main arguments being made are as follows (1) Caffeine has mental health risks (2) Caffeine has physical health risks (3) Caffeine has withdrawal symptoms that are associated with addiction (4) Our culture is dependent upon this particular drug (5) There are dangers associated with highly caffeinated substances. I will attempt to give both sides of the argument for each of these points as well. The last section will round up the research with an explanation of all of the numerous symptoms that caffeine produces.

The research will also get into the newer trends of caffeine use such as energy drinks and the mixing of caffeine with alcohol. Today, more and more people are mixing caffeine with their alcoholic beverages because it is rumored to enhance the affects of the alcohol. This topic is extremely relevant to Sociology. Sociologists should study caffeine use because it is a part of everyday culture in the United States and all around the world. This paper is assuming that everyone is targeted to be a potential caffeine user and America sees this as perfectly acceptable. By putting forward some of these issues, this research is hoping to show the “other side” of caffeine, the side that is most commonly overlooked by society.

## **History**

For thousands of years people all over the world have enjoyed the use of products containing caffeine. The earliest record of caffeine consumption dates back to around 2700 B.C., when Chinese Emperor Shen Nung drank extremely strong, hot brewed tea (Reissman 1996). Caffeine is naturally produced in the leaves, seeds, and fruits of many plants. In fact, more than sixty different plants contain caffeine. Coffee, the most commonly used substance for a person to ingest caffeine, “originated in Africa around 575 A.D., where beans were used as money and consumed as food.”(Reissman 1999: 37) Records also indicate that 11th century Arabs drank coffee regularly. Reissman and Carrol (1996:37) explain how “Spanish conquistadors first exploring what is now Mexico, were served coffee by Montezuma, the mighty Aztec ruler, in 1519.”

In America, caffeine made its first step towards being what it is today during the Revolutionary war. During this time period, Americans made the permanent shift from tea to coffee as their caffeinated drink of choice. The reason behind this switch was

opposition to the Tea Acts that was taking place during the 18<sup>th</sup> century. People were switching to coffee to rebel against the taxes and in turn never looked back to tea the same way. Coffee consumption is now the main way Americans ingest their mass amounts of caffeine.

Today, “Caffeine is the most widely used drug in the world” (Thornton 2004: 172). Caffeine is the center ingredient of a multi-billion dollar industry. The Food and Drug Administration has determined caffeine to be a “safe” or “low-risk” drug, and thus so many individuals consume caffeine without regard for its negative side effects. The studies done around caffeine are numerous and very detailed. Scientists have done thousands of studies on the (physical and mental) effects that caffeine has on the human body. In the United States, children are being targeted with various caffeine-containing products as well, even though the United States has no guidelines regarding what suggested amounts are safe for them. The findings are much more similar to other drugs than the general public could even imagine.

### **Caffeinated Substances**

Caffeine is found naturally in many plants including coffee beans, tea-leaves, and cocoa nuts. Caffeine can be found in both solid foods and beverages of all sorts. It is primarily thought of being in coffee and tea, however, several over the counter drugs and foods also contain doses of caffeine. Cold relief medication is a medicine that contains caffeine. Chocolate is an example of a solid food that also contains the drug. There are thousands of soda companies that make products that contain high amounts of caffeine as well. Even though in recent years coffee consumption has been declining, it is extremely

important to note “the amount of caffeine being consumed has not declined appreciably because the increase in caffeinated soft drink consumption.” (Thronton 2004:172)

According to Sally Satel, “around 90 percent of Americans consume caffeine in one form or another every single day. More than half of all American adults consume more than 300 milligrams (mg) of caffeine every day, making it America's most popular drug by far” (Satel 2006:494). With thousands of companies in the food and drug industry who manufacture products with caffeine, it is no wonder why so many people are using caffeine on a daily basis. It is important for an issue such as caffeine intake to be studied with this many people using caffeine on a daily basis. One could argue that with this size of a population, it is extremely important to know why so many people are infatuated with this particular drug.

Newer innovations of caffeinated substances have also become more and more popular in America. The energy drink market has increased every year with more users today than ever before (Reid 2005). Now, people who don't like coffee or soft drinks can still get their caffeine fix from these energy drinks that contain extremely high rates of caffeine in comparison to any other food or drink. Energy drinks do what coffee does to the body, only in a much faster time because the dosage of caffeine is that much higher. Another example of new inventions for caffeine intake is through chewing gum. Jolt, an extremely popular energy drink, has introduced its energy gum, which contains the same amount of caffeine in one piece as a normal sized coffee cup! People don't even have to be drinking or eating anything now to get their caffeine fix. If companies are going to these kinds of efforts to make caffeine consumption that much easier, than there must be something bigger going on in our society than we first thought.

## **Effects/Symptoms**

### **Mentally**

Caffeine is known medically as trimethylxanthine, and the chemical formula is  $C_8H_{10}N_4O_2$ . The Food and Drug Administration has distinguished caffeine as a stimulant drug. Other examples of stimulant drugs are nicotine, amphetamines, cocaine, and heroin. The biggest difference is the effects that caffeine has on the body when comparing it to the other examples mentioned. Caffeine's effects are much less significant than those of heroin and cocaine, however, it is extremely important to note that all of these stimulants use the same mechanisms to trigger the brain (Rocket 2002: 33). Scientists have been studying for years whether or not caffeine is an addictive drug. In fact, in the newest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM) manual coming out in 2010, caffeine addiction could even see itself as the newest addition.

The research doesn't lie; caffeine is in fact an addictive drug, in that it shares common withdrawal symptoms associated with other addictive drugs. Stimulant drugs such as heroin, cocaine, and (meth)amphetamines are the most addictive (Griffith 2006). When comparing caffeine to these addictive drugs, Griffith (2006:18) states, "caffeine is manipulating the same channels, and that is one of the things that gives caffeine its addictive qualities." When a person gets addicted, it then becomes an issue with their mental state of mind and we see a sense of dependency for a certain type of drug. Common withdrawal symptoms have been linked to depriving a user from caffeine. Withdrawal symptoms of caffeine, though they are not as significant compared to other drugs, can be extremely discomforting. Symptoms of caffeine withdrawal include headaches, feeling tired, distress, and problems with sleep.

Too much caffeine in a certain set of users can cause anxiety and also panic attacks. It is impossible to detect exactly who is at risk, however, it is extremely dangerous to some individuals. Another misperception of caffeine is that it makes the individual “smarter.” This is not the case as medical doctor McLellan explains, “even though caffeine has a dramatic affect on alertness, as you move to higher cognitive functioning it really doesn’t have an impact.” Caffeine is socially accepted, it is perfectly legal, and rarely do we hear anything in the media about possible health dangers. As long as it is perceived by the culture as acceptable than the dangers are always going to be overlooked by the typical user.

### **Cultural Dependence**

American culture is at the forefront of changing ways in which caffeine is being consumed. Since the industrial revolution, the workday has shifted into a 24-hour experience. With the widespread use of caffeine in combination with a new lifestyle, caffeine allowed people to better adapt. In our fast pace lifestyles we are treating caffeine as our fuel and are forgetting about how important sleep is. “The principal reason that people need caffeine is inadequate sleep. Now think about this, we are using caffeine to make up for a sleep deficit that is largely due to caffeine in the first place.”(Reid 2005) Dr. Czeisler of Harvard Medical School believes that caffeine is the drug that made the modern world possible. The problem I see, is that the more modern our world gets, the more we seem to need caffeine. Caffeine has allowed us to cope with a work schedule set by the clock, not by daylight or the natural sleep cycle.

Caffeine is also the only habit forming psychoactive drug we routinely serve to our children. (Shute 2007) Products like Monster, Redbull, and Hersheys are all

marketing towards our nation's youth; this is another cause for concern. "The United States hasn't yet developed guidelines for caffeine intake in children, Canada has, and their guidelines recommend that children get no more than 45 milligrams of caffeine a day" (Shute 2007). For the purpose of this point I am trying to make, I would like to point out that 12 ounces of Mountain Dew has more caffeine than this. On the other hand, one could argue that caffeine is still a low risk drug. If children were at serious risk, than the legality of the substance would be altered accordingly.

### **Physically**

We all are aware of the "positive" effects that caffeine can have on the human body. The term positive meaning, waking us up, getting us going, and basically helping us stay focused on a day-to-day basis. According to Thornton (2004:264), "Caffeine elevates mood, reduces fatigue, increases work capacity and stimulates respiration." Being that it is a stimulant drug, scientists have long studied the link between caffeine consumption and all of the various heart problems. Caffeine is also a diuretic, so it makes you urinate more often and become dehydrated more easily. Studies have shown conflicting evidence that there are actual health risks, however, the fact that some studies have found a correlation is extremely significant for the purposes of this argument.

Typical caffeine users are using caffeine on a daily basis for a whole number of reasons. The most common reason as reported by Shute (2007:63) is to "remain focused" or to "stay awake". The truth is caffeine affects molecules in the brain that cause the body to want to sleep. Adenosine neurotransmitters found in the brain are what makes an individual feel tired. As the day goes on, Adenosine levels begin to increase, making us feel tired and the process continues on a daily basis. "There is however, an alternative to

clearing adenosine: you can block it before it has a chance to make you feel sleepy.

Caffeine does this by binding to adenosine receptors before the adenosine gets to the brain” (Thronton 2004:172). With caffeine affecting different chemical make ups that are natural to the body it is worth studying the potential risks involved. Caffeine helps the body produce adrenaline, which is another chemical that makes us feel more awake. One of the most common problems associated with caffeine dependency is the issue of when the adrenaline levels wear off from the initial use. Typical caffeine users will just rely on the second or third dose of caffeine to bring the levels of adrenaline back up. Having your body in a state of emergency all day long cannot be very healthy and it also makes you more tolerant and dependent. Significant amounts of caffeine at one time can have toxic effects including nausea, vomiting, diarrhea, cramps, muscle twitching and agitation (Reid 2005). Over the years, population studies have shown that people who consume caffeine daily for several years have higher rates of kidney and bladder cancer, fibrocystic breast disease, pancreatic cancer, and osteoporosis. (Reid 2005)

One physical factor that is associated with caffeine use is endurance. “Caffeine can stimulant certain aspects of the body and in the long run help out one’s endurance”(Astorino 2008:130). The NCAA and the Olympic committee both have testing for caffeine rates in the body to make sure the playing fields are as equal as possible. Studies have shown that athletes, especially men, are always using caffeine to help improve their athletic abilities. Caffeine affects hormone levels and causes different muscles to tighten up, thus making them ready for action. This is an extremely radical viewpoint, but should caffeine be used as an advantage and should this be allowed? If

caffeine has potential health risks and these new energy drinks contain insane amounts of caffeine and taurine, should we really be encouraging the consumption of these products?

Another important issue to put into consideration is the differences associated with caffeine use when comparing males and females. The effects caffeine can have on a male are much different from those of a female. Males are able to take in a higher dose of caffeine than females, yet there are no regulations or labels on products making this factor apparent. A study done by Griffith found a number of risks involved with pregnant women who use caffeine. In his study, Griffith found that caffeine has an affect on the placenta. This particular study encourages expecting mothers to refrain from using caffeine. Several pregnancies have been affected in various ways from the effects of caffeine. Some examples of the potential harms caffeine can have on a pregnancy is a higher risk for low birth weight, a higher risk for pre-mature labor, and in the most extreme cases a miscarriage. Griffith also points out “Other research has shown that babies of women who got more than 500 mg a day had faster heart rates and breathing rates, and spent more time awake in the first few days after berth.” (Griffith 2006:17)

### **Highly Caffeinated Substances**

As mentioned previously, our culture has become dependent on caffeine. To give a concrete example of this we can look in the area of energy drinks and other highly caffeinated substances or “stimulant substances”. The rate at which the U.S. has been consuming these new products is very alarming considering the way it is looked at around the globe. “The government in Dublin, Ireland recently established a Stimulant Drinks Committee. There is a warning label requirement that applies in 25 European nations. Australia and New Zealand have also adopted warning requirements. The United

States has no such requirement”(Reid 2005). France and Denmark are examples of two countries that banned energy drinks such as Redbull altogether. Sales of these new products in the United States also show an alarming statistic. Redbull, for example, arrived in the United States in 1997; today the product is selling close to two billion cans a year. These types of sales could be seen as a positive influence on our economy, however, people are still under the impression that they are consuming safe products. The research shows a series of effects that these products have on children and adults. The United States needs to adopt these warning requirements other nations have accepted.

The last main argument I found through research dealt with mixing highly caffeinated energy drinks with alcohol. A fairly new trend that is more and more popular across the nation. The target audience is college students and young adults who are willing to mix popular energy drinks such as Redbull, Monster, and Rockstar with various types of hard alcohol. A research study completed at Brown University found that the health risks involved with the mixing of the two could spell disaster for those who do. As stated earlier, the body sends chemicals to the brain to let you register that you are tired. Therefore, it is dangerous to confuse the chemicals in the body in this way. Mixing these drinks with alcohol further increases the risk of heart rhythm problems. By themselves, without alcohol, these energy drinks can cause problems to some of the users and it is highly recommended that potential consumers find out how their body responds (Cambrell 2007). A person might have some pre-existing medical condition or they might have an adverse reaction to some of the stimulants that are in those drinks.

College students and adults who drink need to be more aware of the dangers associated with mixing highly caffeinated beverages with alcohol. Fatigue is the body's

way of letting someone know when they have had enough to drink. By drinking energy drinks at the same time as alcohol your body is unable to do this. "Caffeine makes you more alert, but does not reduce your level of intoxication. Mixing and drinking too much can cause your heart to race, elevate blood pressure and possibly even lead to a heart attack"(Cambrell 2007). Even in Redbull's home country of Austria there is a warning label requirement that states; "do no mix with alcohol." Knowing these facts, is it a good thing that more and more bars all across the U.S. are being sponsored by companies like Monster and Redbull to sell their products along with alcohol?

### **Conclusion**

The dangers of caffeine are important enough to be considered by all of the people who use it. The dangers do in fact outweigh the benefits. Because caffeine is so widely used, it is important that these issues obtain more attention. A drug like caffeine can become very addictive to people who use it. Once someone is addicted to a drug it can then have many different side effects that could have been avoided in the first place. Women have more potential risks than men when the particular drug being used is caffeine. Caffeine affects all sorts of chemicals throughout the human body and the users who rely on them on a daily basis, more often than not, are unaware of all of the physical and mental responses that take place. In both children and adults too much caffeine can cause jitteriness, nervousness, headaches, upset stomach, difficulties sleeping, increased heart rate, and increased blood pressure (Griffith 2006). It is important for more information on caffeine to be accessible to the general public.

Caffeine is the most commonly used drug in American culture and is just as common throughout the world. Caffeine has been around for hundreds of years and has

always been perceived as perfectly acceptable. As long as society accepts the dangers associated with caffeine use than the demand will continue to be prevalent. The target audience for caffeine has shifted more recently to younger teenagers and adults who are aware from a very young age of the “positive” effects of caffeine. Energy drinks and soda companies are targeting a younger audience to consume their products without letting any of the potential health risks become known. It is extremely important for our culture to become more aware of these health risks before something negative really does come from caffeine. The caffeine consumption numbers will remain high for the time being, as long as people are under the impression that it is healthy.

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