

Effects of caffeine and nicotine on the mind



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Nicotine and caffeine are substances that most people do not consider a drug, but most do acknowledge that they are addictive substances. The effects on the mind and body are something else that most do not consider significant, however, both are highly addictive and affect numerous aspects of the mind and body. This paper will cover some of the misconceptions and myths and provide clarification of the actual effects of nicotine and caffeine on the mind and body.

Caffeine is probably one of the most misconstrued drug of the two and most do not consider it much of a danger or consider that it has effects on the body other than simply producing a bit of energy. Die hard caffeine drinkers will often complain of a headache if they do not have their normal dose of caffeine, while it appears to have no effect on others no matter how much or how often they consume it. What must be understood about caffeine is that it is a drug, it is considered a psychoactive drug, and has effects on the body that must be taken into consideration.

Julien, Advokat, and Comaty (2011) discuss the known effects such as the effects on the central nervous system (CNS), the cardiac and respiratory systems, the diuretic effects, therapeutic effects including treatment of asthma and migraines, and describe caffeinism. Caffeinism is a clinical syndrome that occurs when there has been an overuse of caffeine and symptoms include anxiety, agitation, and insomnia as well as tachycardia, hypertension, cardiac arrhythmia's and gastrointestinal disturbances. This goes to show that caffeine is like many drugs in that it can be a good thing if

used in moderation, but can have adverse side effects when used improperly or overused.

Perhaps one of the most common therapeutic uses of caffeine is the use for migraine headache and headache in general. It can be found in combination with aspirin in several products due to the constriction of blood vessels it causes. When the vessels constrict it decreases the blood flow to the brain by up to thirty percent which can reduce pressure to the brain relieving the headache (Julien, Advokat, & Comaty, 2011).

Consumption of caffeine that is prolonged can cause several adverse effects such as headache, fatigue, osteoporosis, adrenal stimulation, and apathy, and also has the ability to cross the placental and blood-brain barrier and has the potential to cause fetal malformation if the fetus has not developed the enzymes needed for demethylation of caffeine (Gummadi, Bhavya, & Ashok, 2012). So in essence, some of the desirable and therapeutic effects that are garnered such as headache relief and energy increase can reverse in overuse or prolonged use. And even though it is a drug, it is not a regulated drug but is a much researched drug due to the therapeutic effects and the seemingly endless applications.

Athletics is an application where caffeine is highly promoted in energy drinks, energy bars, and diet aids. Although caffeine is considered a stimulant and performance enhancing it is widely accepted and not regulated or banned from use in athletic competitions. McDaniel, McIntire, Streitz, Jackson, and Gaudet (2010) discuss some of the research done in

regard to athletic performance and caffeine use and the increase in speed and power and ability to train longer when caffeine is used.

Nicotine is another drug that is not necessarily considered a drug by the general public, although there is a general consensus that it is found in tobacco products and not necessarily good for the body. Unfortunately this assumption is mainly based on the fact that it is in tobacco and the tobacco is usually the focus of most mainstream media along with the effects of tobacco on the user and second-hand effects on people in the vicinity of the user. While tobacco is unhealthy, it is the nicotine contained in the tobacco products that causes the addiction to the tobacco and should have more focus placed on it when discussing or reporting the negative effects of tobacco.

Nicotine like caffeine is a psychoactive drug and is one of the three most widely used (the other two being caffeine and ethyl alcohol), and while it has no therapeutic applications in medicine it is nevertheless widely used and has a well-defined toxicity (Julien et al., 2011). Nicotine use used to be limited to more traditional cigars, pipes, cigarettes, chewing tobacco, and snuff, but more recently it has been expanded to include other smokeless products as smoking has been more and more regulated. Some of the products that are currently flooding the market are strips, sticks, pellets, snus pouches, e-cigarettes (smokeless nicotine vapor electronic cigarettes). Traditional cigarettes contain between 0.5 and 2.0 milligrams of nicotine, but some of the smokeless applications such as the strips can contain just under a milligram to as much as four milligrams of nicotine in one use (Julien et al., 2011).

Nicotine is absorbed through every site on or in the body and the elimination half-life in a chronic smoker is approximately two hours which necessitates a frequent administration to avoid withdrawal symptoms, and has effects on the peripheral nervous system, heart, and other body structures (Julien et al., 2011). In researching the addictive properties of nicotine, there is far less research found on the actual effects than there is on cessation from the addiction. Some articles say that nicotine is addictive as heroin while others say that one could not possibly ingest enough nicotine to equal the addictiveness of other drugs, and both types of articles have multiple peer reviewed sources to back up the claims.

This author has first-hand experience with nicotine and tobacco use/addiction, and while tobacco can be an enjoyable experience, it is this author's personal view that believes the research that claims that nicotine is highly addictive causing withdrawal symptoms and cravings. Withdrawal symptoms can include nervousness, agitation, mood swings, lack of concentration, and increased appetite as observed by the author. The increased appetite at times appears to be a nervous response to needing something to do with the hands and mouth rather than an actual increase in appetite, but regardless it can and does often lead to weight gain upon cessation of smoking.

Julien et al. (2011) further reinforce this belief as abstinence symptoms listed include the previously mentioned along with restlessness, insomnia, and severe cravings, as well as pointing out that many times when smokers seek treatment for drug or alcohol addictions it is often more difficult to quit smoking than to quit other drugs. No matter how adverse the effects of
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nicotine is on the body or mind, the primary problem is that the products that nicotine are in cause far worse health problems than the nicotine does. Various forms of cancer, increased risk of stroke, and heart attack are just a few physical problems directly related to tobacco use, and although e-cigarettes are touted as being relatively safe because they do not contain tobacco product the fact remains that they still contain a substance that is considered addictive.

Any drug that is considered as addictive, can and will have adverse effects on one's body and should not be treated lightly, and as in the case of nicotine a drug that directly affects the brain is nothing to sneeze at. Nicotine induces physiological and psychological dependence in the majority of smokers and very few smokers seem capable of sudden termination of smoking without experiencing abstinence symptoms (Julien et al., 2011). What also must be taken into consideration is the effects of second-hand smoke that is experienced by others in the close vicinity of a tobacco smoker, and it is the carcinogens in the smoke and not the nicotine that causes the health problems that can be experienced when subjected to second-hand smoke.

One thing that should be taken into consideration is that both nicotine and caffeine are considered drugs, addictive drugs that are also psychoactive and thus mood altering. According to the Bible our bodies are God's temple, "What? know ye not that your body is the temple of the Holy Ghost which is in you, which ye have of God, and ye are not your own?" (I Corinthians 6: 19, KJV) which would bring one to the conclusion that any substance that alters one's being and is not therapeutic (medically prescribed and necessary)

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should not be used. This does not mean that most people consider either nicotine or caffeine as a sin, but if the Bible is taken literally then both substances would be considered forbidden.

While there are some religions that do consider caffeine along with any other mood altering substance as forbidden, it is generally accepted as can be witnessed in almost any church kitchen for most contain coffee and coffee making appliances. Smoking is more frowned upon by most Christians, but as other vices in this day and age is not considered as “ bad” as it once was Biblically speaking, just physically detrimental. In conclusion, the evidence is overwhelming that both nicotine and caffeine are physically and psychologically addictive, but caffeine is the only one of the two that has therapeutic uses but still must be used in moderation to avoid adverse effects.

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