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The Effect of Alcohol on the Performance of the Brain

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Introduction

Learning and memory are complex cognitive processes which take place in the delicate organ of the brain. It has an array of blood vessels and nerves located in the brain, associated with effective learning. Alcohol enters your blood stream right after consumption and is quickly carried around the body. At first, it makes one feel relaxed, but that feeling is followed by drowsiness or confusion. This is because of alterations to one's brain chemistry.

The Effects of Alcohol on the Brain

Over time, alcohol has been consumed by people across ages in different institution of learning as it is perceived to have positive effect on the brain and enhance the speed of its operations. It is however worthy of note that alcohol exert more negative effects than positive as far as academic achievement of the learner is concern ranging from dizziness, dousing off, anger, unnecessary anxiety, etc. When the student continues in the act of alcohol consumption, such student becomes addicted with time. The origin of the word 'addiction' is from the Latin for 'bound to'. Think about that. Being addicted to alcohol means you are bound to it, one in the same. Alcohol has become part of you. Making matters worse, heavy and/or persistent drinking also makes alcohol a part of your brain, and it's not good. This is especially true when considering how prevalent alcohol use, and abuse, is in Nigeria.

Karla (2022). Alcohol addiction changes your brain mainly in three ways: it makes the brain crave alcohol, it makes you continue to drink despite any negative effects, and it makes you lose control of your drinking. Essentially, alcohol makes the brain make you drink. Of all Nigerians with substance addictions of any kind, alcohol is included in nearly 70% of them. That's over 17.5 million brains addicted to alcohol, and the effects of alcohol on the brain are numerous.

Addiction is not a choice. It is a disease. However, it's a disease that is curable with the help of professional treatment services and a good support group. It also takes a lot of personal strength and willpower. That being said, let's discuss the effects of alcohol on the brain and add some incentive to achieving sobriety from alcohol (Chenemi, 2022).

Short Term Effects of Alcohol on the Brain

The majority of us have been drunk. All of us know what it's like when a person is drunk, even if it wasn't you yourself. Since the brain is the control room of the body, the effects of alcohol, even the familiar ones, are actually effects on the brain. Short-term effects on the brain can be broken into intoxication effects and memory impairment.

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Intoxication Effects

These are the obvious ones. Step into your local bar any time after dinner and you'll see the effects of intoxicated brains: difficulty walking, slurred speech, slower reaction time, trouble with overall balance, poor judgment, and unpredictable behavior. Because these effects wear off over time, they are considered short-term. However, repeated intoxication will damage your brain in the long-term, as we will see.

Memory Impairment

There are three forms of memory. We have the sensory memory, which lasts a few seconds, the short-term memory, which lasts a handful of minutes, and the long-term memory, also known as storage, which can last forever. Alcohol deteriorates each form of memory differently. Agu (2022). The sensory memory is affected strictly in the short-term. An example would be the pain-reducing effects of alcohol. This is why when drunk you can injure yourself but not quite feel the pain (until later). When it comes to short-term and long-term memory, it's a different story.

A blackout is when short-term memory is impaired by alcohol. Blackouts occur in two forms: fragmentary & en bloc. Fragmentary blackouts cause the loss of a short amount of time, where en bloc blackouts cause the loss of much time, perhaps even an entire night. Both narrow down to the same damage. Your hippocampus, (the part of the brain responsible for memory), is being altered greatly enough to stop the formation of memories, and you are actually experiencing transient amnesia. While not a lasting form of amnesia, severe alcohol abuse can indeed lead to full-blown amnesia.

Ajuma (201) opined that blackout can be permanent. Among various other horrible long term effects of alcohol on the brain, there is Wernicke-Korsakoff Syndrome (WKS), a memory-impairing, vision-affecting, seizure-causing disorder.

Long Term Effects of Alcohol on the Brain

WKS is one of the worst known effects of alcohol on the brain. Two of the many symptoms are both forms of amnesia: anterograde amnesia, which causes loss of the ability to create memories, and retrograde amnesia, which causes loss of previously-formed memories. Other symptoms include visual disturbances, confusion, spinal misalignment, inability to concentrate, situational unawareness, and seizures throughout the body. In short, severe alcohol abuse can cause you to lose memories and to stop making them. That would surely be a burdened life.

However, as mentioned, there are numerous other long-term effects of alcohol on the brain other than those related to memory. These effects can be divided into two groups that seem rather different from one another: neurotransmitter effects and social effects.

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Neurotransmitter Effects

There are three categories: GABA, dopamine, and endorphins. Neurotransmitters are chemicals that carry messages to/from the brain.

1. **GABA (Gamma-Aminobutyric Acid)**Alcohol affects brain chemistry by changing the levels of neurotransmitters. One of the affected neurotransmitters is GABA, or gamma-aminobutyric acid. It is responsible for reducing excitability in the brain. Alcohol increases the amount of GABA transmitted, which inhibits the brain to abnormal degrees, essentially sedating the drinker. This is why drunken people have trouble walking, talking, and remembering things later on. Over time, high GABA levels can cause shortness of breath, high blood pressure, increased heartrate, and night terrors, among other disorders. GABA is also responsible for creating tolerance to alcohol, forcing alcoholics to consume more and more.
2. **Dopamine**Another neurotransmitter alcohol affects is dopamine. The brain's reward system consists of dopamine, which is released when we feel pleasure. Dopamine is released in excess by the consumption of alcohol. The pleasurable effects of alcohol are to be blamed on dopamine. However, because of dopamine, the brain considers alcohol use to be rewarding, and contributes to forming addiction. Over time, high dopamine levels from alcohol can cause an inability to feel pleasure without alcohol. Other effects from high dopamine levels include aggression, depression, delusions, hallucinations, and muscle spasms.
3. **Endorphins**Endorphins are morphine-like molecules produced by the central nervous system, released by the body to counteract physical pain. Endorphin release can also create a feeling of euphoria. Produced naturally in response to pain, endorphins are also produced by human activities such as working out, laughing, and abusing alcohol. Different parts of the brain release endorphins according to different responses, and alcohol releases endorphins in two different parts: the nucleus accumbens and the orbit frontal cortex, which control addictive behavior and decision-making. Over time, high endorphin levels can cause depression, lower sex drive, low testosterone, infertility, and extreme fatigue, among other complications.

Social Effects

Long-term alcohol abuse will lead to an array of social issues, including high stress, depression, anxiety, loneliness, disinterest, and overall withdrawal from society. However, regarding the social effects of alcohol on the brain, these are all two-way streets. Some symptoms of alcohol abuse, when experienced as a non-drinker, can cause someone to turn to alcohol as a cure.

Ajogwu (2022). Pointed out that stress is the number one reason cited for why people drink. Alcohol is perceived to be a stress-reliever, but in reality can cause its own stress. Also, mental health issues can contribute to alcohol addiction. In fact, 20% of those with clinical mental health issues are alcoholics. Other social reasons people may become addicted to alcohol revolve around confidence: craving attention, trying to blend in or look cool, gaining acceptance, or as a coping method for issues in the person's life. However, as someone with low confidence drinks

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more and more, a sense of strong confidence can begin to rise. Sometimes, this leads to bad decisions, such as driving, being violent, or engaging in risky behavior.

Conclusion

Alcohol affects the brain in so many different ways, none of them positive. Being buzzed is absolutely not worth the risk it places you in. Alcohol is the most abused substance on the planet, and is extremely addictive, yet not as a substance itself.

Alcohol is addictive because it becomes required in order for the brain to function properly. The neurotransmitters and endorphins released act as a reward system for the brain, causing addiction once the drinker becomes dependent. The brain changes that occur from here are life-altering, damaging, and downright horrible. All of this can be prevented, provided it's not already too late. Seek professional treatment services today, and combat your alcoholism until your brain is back to normal, healthy, and making new wonderful memories.

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