Will past experimentation with drugs lead to permanent brain damage?  

Dear Alice,

I have a history of "experimentation" (infrequent or occasional use of ecstasy, 'shrooms, and other drugs ? mostly prescription pills). I am completely sober now, but am worried about long-term damage to my brain. I used drugs infrequently (no more than 3 to 5 times for each substance), but drank regularly. How worried should I be? Is there anything I can do to combat long-term effects?

Answer

Dear Reader,

Fortunately, in this case it looks like you don't need to be overly concerned. While the substances you've mentioned ? ecstasy, mushrooms, prescription pills, and alcohol ? can all alter brain functioning and neurotransmitter activity, infrequent experimentation with them has not been shown to cause long-term brain damage. That being said, they certainly do carry with them short-term effects like insomnia, diarrhea, vomiting, changes in respiration and blood pressure, accidents and injuries, and even lethal overdose. Some of these related effects could be long-lasting. It's also important to keep in mind that experimentation with some drugs can also lead dangerously fast to addiction, and recreational use of prescription drugs could build a tolerance to them, rendering them useless as medications if you need them. Each drug you mentioned can have a different effect on the body, so let's elaborate.

MDMA, also known as ecstasy or "E," is a recreational drug belonging to the amphetamine family. It produces effects of both a stimulant and a hallucinogen, which it achieves by increasing the activity of three neurotransmitters in the brain ? serotonin, dopamine, and norepinephrine. Continual use of amphetamines can lead to a depletion of serotonin, the neurotransmitter that regulates mood, sleep, pain, emotions, and appetite. Research suggests that a long-term deficit in serotonin is implicated in many psychiatric disorders, including depression, anxiety, paranoia, obsessive traits, and sleep disturbances, which would explain why research has also found that MDMA users can experience more mental illness than non-users. In this way, continual use of amphetamines like ecstasy can cause long-term brain damage. But infrequent use, like the three to five times you mentioned, is unlikely to do so.

Similar to amphetamines, hallucinogens like "shrooms" contain chemical compounds such as mescaline, psilocybin, and ibogaine, that are structurally similar to the brain neurotransmitter serotonin. Mushrooms produce their effects by disrupting normal functioning of the serotonin
system to create hallucinations and visual disturbances such as seeing false motion, bright or colored flashes, and halos or trails attached to moving objects. Former users of hallucinogens have reported recurrences of some sensory distortions originally produced by the hallucinogen. This condition, known as **hallucinogen persisting perception disorder**, can persist for years after individuals have stopped using the drug.

In terms of prescription medication, use may lead to addiction, drug tolerance, and risk for withdrawal symptoms. Depending on what you were using, there could be some changes with brain or neurotransmitter functioning, but as with MDMA, using prescription drugs only three to five times is probably not enough to create lasting changes.

Finally, adding alcohol to the mix can complicate matters. Alcohol is a brain depressant, and mixing it with other drugs can have dire consequences. Alcohol changes the ways medications are accessible to the human body, which is one of the reasons why it's generally recommended not to mix alcohol with other drugs. Prolonged alcohol abuse can lead to liver damage and cognitive impairment. Most alcoholics with cognitive impairment show at least some improvement in brain structure and functioning within a year of abstinence, though some people take much longer.

You can't change what you did in the past. Rather than worry about damage you might have already caused, try thinking about propelling yourself into a healthier life. You have already started with your decision to be sober. You might also think about other healthful activities like playing a sport, eating healthful foods, and committing to getting enough sleep. If you'd like support in beginning or maintaining this lifestyle and your sobriety, you can make an appointment with a health care professional. Columbia students can check out the services that Counseling and Psychological Services offers, and they can make an appointment with a counselor by calling x4-2878. Columbia students can also meet with a health care provider at Primary Care Medical Services. To make an appointment, you can call x4-2284, or log in to Open Communicator.

The only way to totally ensure that you do not suffer from long-term adverse effects from drug use is to abstain from using them now and in the future. Again, what's done is done, but the body is remarkable in its ability to bounce back and heal. Focusing your energy on leading a healthier and drug-free lifestyle and supporting your body in its recovery will likely yield great results for body and brain!

Alice!
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