Dear Alice,

My girlfriend tells me she uses marijuana to calm herself if she is having a stressful day. She has been doing this for many years. She says smoking pot is like self-medicating; it is better than using anti-depressants. She also claims smoking pot helps with depression because of how it helps produce serotonin in the body. What is serotonin and how does it help depression? Does smoking pot really help with managing your anxiety, depression, etc.?

Thank you,

A very concerned boyfriend

Answer

Dear A very concerned boyfriend,

It sounds as though some answers about marijuana and its effect on mood will be helpful in understanding your girlfriend's use. Serotonin is one of many neurotransmitters found in the brain. It is also found in the blood, mucous membranes which line the digestive tract, and stomach. Serotonin is a chemical neurotransmitter made from tryptophan, an amino acid found in food. Certain imbalances in the brain's neurotransmitters are correlated to depression. Having higher levels of serotonin is shown to counter some depressive symptoms.

Marijuana doesn't directly produce serotonin, but it may help to reduce depression for some people. One chemical in marijuana, THC (tetrahydrocannabinol) does affect a substance in the brain called anandamide. Anandamide causes a soothing sensation in the body when it reacts with THC. It may be the anandamide that causes your girlfriend to relax while using marijuana. Some of the ways that marijuana can affect people in low to medium doses are by:

- Reducing blood pressure,
- Increasing relaxation,
- Reducing coordination,
- Inducing sleepiness,
- Lowering attention span, and
- Creating a sense of altered time and space

Additionally, marijuana has been found to stimulate neurogenesis in the hippocampus; another characteristic that may help counter depression over time. Though it is not fully
understood how serotonin, depression, and neurogenesis are related, the production of new neurons in the hippocampus has been associated with relief of depression symptoms for many people. Similarly, a reduction in hippocampal volume is often found in patients with major depression. Many factors contribute the production and destruction of cells in the hippocampus and other regions of the brain, including sleep, stress, anti-depressants, and exercise. As you might guess, getting insufficient sleep and experiencing major life stressors can reduce hippocampal volume, while anti-depressants and exercise can stimulate the growth of new cells in the brain. Another chemical in marijuana, cannabidiol, is likely responsible for the anti-depressive effects that stem from neurogenesis. This chemical does not produce the psychoactive effects of marijuana, but is likely responsible for the medicinal benefits of marijuana, in addition to the neurogenesis, including relief of nausea, anxiety, and inflammation.

The concentration of THC varies between plants, as does the ratio of cannabidiol to THC. But generally speaking, higher doses of marijuana can cause delusions, hallucinations, and impaired memory, especially if the THC to cannabidiol ratio is high. Cannabidiol is not associated with any of the psychotic-inducing effects of marijuana. While marijuana use may seem like a soother to your girlfriend, she may need to know about the potential negative effects:

- **Addictive potential.** Marijuana use affects dopamine; a neurotransmitter involved in the brain's pleasure producing or reward mechanism, which helps explain its potential for dependency.
- **Memory impairment.** Marijuana use can negatively affect short-term memory, especially memories formed while a person was high.
- **Heart and lungs.** Marijuana smokers may experience some of the same acute symptoms as cigarette smokers, including increased respiratory infections, increased phlegm production, and daily cough. Marijuana users may have an increased risk of lung cancers and heart attack, especially those users who are older or have underlying heart vulnerability.
- **Mental health.** A number of studies show an association between marijuana use and anxiety, depression, and schizophrenia. It's not clear whether marijuana triggers new problems or existing problems lead some to use marijuana.

It might be helpful to ask your girlfriend why marijuana would be preferable to a prescribed medication taken under medical advisement to manage her stress and depression. You could also express any concerns you may have about how her use impacts your relationship and daily life. These are issues you could explore with her. At the least, she may agree to see her health care provider for a medical exam and evaluation. This provider can make a referral to a specialist or a mental health professional if needed.

Perhaps if you share this information with your girlfriend, showing your caring and concern, she may see that there are other ways to manage her stress. If you do suggest that she visits a provider, you could offer to go with her so that she gets the support she deserves.

Take care,

Alice!

Category: 
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Marijuana, Hash, & Other Cannabis

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