Hallucinogenic Mushrooms: A Guide

Presented by the Hamre Center for Health and Wellness
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Welcome to the Hamre Center's hallucinogenic mushrooms guide! Thank you for wanting to learn more about “magic mushrooms” and how they can affect you.

This guide is designed to be a science-based resource to help inform people about hallucinogenic mushrooms. We use a harm-reduction model, which we'll talk about more in the next slide.

If you have any concerns regarding your own personal health and mushrooms, we strongly recommend that you reach out to your health care provider. No matter the legal status of hallucinogenic mushrooms in your state or country, health care providers are confidential resources. Your health is their primary concern.
Harm Reduction

- The harm reduction model used in this curriculum is about neither encouraging or discouraging use; at its core, harm reduction simply aims to minimize the negative consequences of behaviors.
- Please read through the Hamre Center’s statement on use and harm reduction below:

“The Hamre Center knows pleasure drives drug use, not the avoidance of harm. We do not condone or promote the use of illegal drugs. We DO promote the use of common sense when going about one’s daily activities. These suggestions represent information that may provide some guidance in reducing the risk of harm only. Note that no amount of planning and care can ensure you will have either a safe or enjoyable experience when you take drugs.”
What are Hallucinogenic Mushrooms?

- Any mushrooms that contain psilocybin, a compound that, once ingested, is converted to the hallucinogenic molecule psilocin ("Psilocybin," 2020).
- There are many kinds of hallucinogenic (or “magic”) mushrooms. Scientists have identified at least 180 different species of mushroom containing psilocybin (Lee and Jones, 2020).
What are the U.S. and MN Laws Surrounding “Magic” Mushrooms?

- All mushrooms containing psilocybin are considered Schedule 1 drugs in the U.S. Possession of a magic mushroom is a 4th degree controlled substance offense (serious felony) in MN.
  - The Controlled Substances Act posits that they have a high potential for abuse and no accepted medical uses, and thus are considered Schedule 1.
  - However, some recent research shows that there is a potential for medical use and a low physiological addiction rate (Johnson et al., 2018).
- Please note: physiological addiction is only one part of addiction and dependency, however, and behavioral compulsions can play a role as well. More on this later.
- There have been calls for the decriminalization of mushrooms (Hamblin, 2019) in some parts of the U.S.
What Kinds of Hallucinogenic Mushrooms are There?

- Though there are many kinds of mushrooms, there are just a handful of heavily-used species (Freeman and Chandler, 2020):
  - Liberty cap (*Psilocybe semilanceata*)
  - Golden cap (*Psilocybe cubensis*)
  - Bottle caps (*Psilocybe baeocystis*)
- The potency of the mushrooms depends on a variety of factors, including:
  - the species
  - growing conditions
  - how the fungi were consumed
  - The physical characteristics of the user (Lee and Jones, 2020).
- Hallucinogenic mushrooms can be easily confused with toxic mushrooms. If buying, do so from a knowledgeable, established source (“Psilocybin,” 2020).
How are Hallucinogenic Mushrooms Ingested?

- Mushrooms can only effectively be consumed orally, this allows the stomach acid to transform the psilocybin into psilocin (Bauer, 2020).
- While oral consumption of the whole mushroom is the most common method of ingestion, brewing the mushrooms into a tea and crushing the dried fungi into a pill are other popular methods ("Psilocybin," 2020).
How Do Hallucinogenic Mushrooms Physically Affect the Brain?

- Once psilocybin is broken down by stomach acids, the resulting psilocin is easily able to pass through the blood-brain barrier
  - This process takes approximately 30 minutes if eaten (Davis, 2019), though as little as five if consumed as a tea or soup (“Psilocybin,” 2020).
  - Psilocin remains in the system for four to six hours (Davis, 2019).

How Do Hallucinogenic Mushrooms Physically Affect the Brain (cont.)?

- After binding with a specific serotonin receptor in the prefrontal cortex (Davis, 2019), psilocin triggers a phenomenon called “neural avalanching” (Lee and Jones, 2020). As the name suggests, the binding triggers a slew of effects, including:
  - Increased activity in areas associated with vision (Lee and Jones, 2020);
  - Decreased activity in the default mode network (Lee and Jones, 2020), this is the mental process responsible for conceptions of the self, or ego (Synthesis Institute BV, n.d.);
  - Increased connectivity across different regions of the brain (Lee and Jones, 2020); see image on the previous slide;
  - In some cases, decreased blood flow in the amygdala, the region of the brain responsible for fear and stress (Carhart-Harris et al., 2017).
What are some Short-Term Effects of Use?

- Psilocin can cause a variety of mental and physical effects.
  - Mental (taken from “Psilocybin,” 2020 unless otherwise marked)
    - A possible feeling of euphoria;
    - A change of consciousness, perception, and thought patterns;
      - Relatedly, intense emotions (Hatfield, 2018)
    - A possible change in perceptions of time (Hatfield, 2018)
    - Changes in visual and auditory perception (hallucinations);
    - A possible increase in anxiety and paranoia if the user has an active, pre-existing anxiety disorder (Mitrokostas, 2019);
    - Possible intense or unpleasant hallucinations (Mitrokostas, 2019);
    - Potential for unpredictable or violent behavior in the event of a bad “trip” (Johnson et al., 2018).
    - Possible feeling of spiritual awakening (Griffiths et al., 2006)
What are some Short-Term Effects of Use (cont.)?

○ Physical:
  ■ Dilation of pupils;
  ■ Gastrointestinal discomfort or nausea;
    ● In some instances, vomiting.
  ■ Increased or irregular heartbeat;
  ■ Increased blood pressure.
  ■ Heightened body temperature;
    ● Relatedly, sweating and chills.
  ■ Loss of coordination (Hatfield, 2018)

○ Though possible, overdosing on hallucinogenic mushrooms is very rare (Drug Policy Alliance, n.d.). One should still be mindful of their intake and consume moderately, especially if they are a first-time user.
What are Some Long-Term Effects of Use?

- Little research has been done on psilocin and its long-term effects thus far
  - Hallucinogenic mushrooms can rarely cause Hallucinogen Persisting Perception Disorder, characterized by changes in perception lasting weeks or months after use (Drug Policy Alliance, n.d.)
  - Can exacerbate symptoms of those with or predisposed to psychotic disorders (Johnson et al., 2018).
  - Early research shows that psilocin can decrease depressive symptoms in users (Carhart-Harris et al., 2017).
    - Some experts have compared a good “trip” to a “condensed version of talk-therapy” (Lee and Jones, 2020).
    - Exactly how this happens is still unknown and psilocin should not be considered a substitute for therapy.
What are Some Long-Term Effects of Use (cont.)?

- Psilocin has been shown to help those dealing with physiological addiction to other drugs fight the disease (Sprunt, 2019).
  - Talk to your health care provider if you have questions about addiction treatment. Please do not attempt to self-medicate a dependency with hallucinogenic mushrooms.

- Psilocin is not physically addictive. However, users can develop a behavioral addiction that often acts like a physiological addiction.
How Do Hallucinogenic Mushrooms Interact with Medications?

- Taking hallucinogens with *stimulants* such as amphetamines or methamphetamines increases the likelihood of a bad trip ("Psilocybin," 2020). Also, both classes of drugs increase heart rate; taking them together can lead to serious heart complications (Elkins, 2020).
- Using mushrooms while also taking a *psychiatric medication* can cause a relapse or worsening of the condition being treated ("Psilocybin," 2020).
- Using mushrooms with any other *psychoactive drug*--cannabis, for instance--increases the odds of both a bad trip and dangerous disruption of the brain (Elkins, 2020).
- Ask your medical provider if you have questions about mushrooms and your personal health; they are confidential resources.
- For more general information on many drug interactions, medications and otherwise, you can visit [https://www.safesubstance.com/](https://www.safesubstance.com/).
How do Hallucinogenic Mushrooms Interact with Alcohol?

- It is unclear how alcohol and hallucinogenic mushrooms interact, but preliminary research indicates that strategic use of psilocybin can cut down on craving for those suffering from alcohol use disorder (Anderson, 2019).
- Anecdotally, mixing mushrooms and alcohol can lead to nausea, bad trips, an increased heart rate, and, potentially, unconsciousness (Hilliard, 2020).
What are Some Harm-Reduction Strategies for Use?

- It can take up to a half an hour for mushrooms to take effect. If using, start with a low dosage and, if stronger effects are desired, slowly increase consumption after waiting for the first dose to kick in.
- Hallucinogens often uncover thoughts, feelings, and experiences that have repressed or simply undiscovered. Be prepared to face these surprising, joyful, or frightening thoughts and feelings (Drug Policy Alliance, n.d.).
- An altered perception of reality increases the risk of fatal accidents, violence, and suicide (Elkins, 2020). If using, it can help to have a sober individual present to mitigate the risks.
  - Be very mindful of your environment when using. Don’t use while driving or operating machinery, while in a crowded, busy area, next to a road, or in any other area with environmental hazards.
Are Hallucinogenic Mushrooms Addictive?

- Well, sometimes. The definition of addiction is not as clear with regard to mushrooms.
  - Physiological v. psychological addiction
    - All behaviors involve both physiological and psychological components. Addictive behaviors don’t necessarily need to be purely physical to create dependence.
    - The underlying problem of addiction and dependence is the same: an inability to function successfully without the presence of a drug in one’s system. Frequent users of psilocin may experience addiction symptoms.
Are Hallucinogenic Mushrooms Addictive (cont.)?

- Signs of hallucinogenic mushroom dependence are (taken from Hatfield, 2019 unless otherwise marked):
  - Use despite negative physical, psychological, and social consequences;
  - Inability to stop or reduce use;
  - Using more frequently or for longer than first planned;
  - Spending a lot of time and energy obtaining, using, and recovering;
  - Falling through on home, school, or work commitments because of use;
  - Urges, cravings to use;
  - Not enjoying previously liked activities;
  - Using in dangerous situations (driving, walking along a busy road, in a crowd);
  - Needing more and more for the mushrooms to “work.”

- Any two of the symptoms above occurring within 12 months qualifies as an dependence.
Are Hallucinogenic Mushrooms Addictive (cont.)?

- Those who suffer from depression, anxiety, and other mental health problems may be more prone to self-medication using drugs (American Addiction Centers, 2020).
  - Drugs can come to function as a coping mechanism for adverse emotional experience. This increases the likelihood for dependence or addiction (American Addiction Centers, 2019).
- Withdrawal symptoms from a dependence of any degree can often make stressors more impactful, especially if the stressors are related to mental illness symptoms.
- If planning to use, be intentional. Recognize why you are using, set limits ahead of time, and be cognizant of if you are disregarding those limits.
What Are Some Substance Abuse Help Resources?

- There are St. Paul-area and national resources available to those seeking help for any sort of substance abuse disorder, including dependencies:
  - Twin Cities Counselors - Counselors are confidential resources who can support you as you address your substance use.
    - On campus - Hamre Center Counselors, (651)-696-6275
    - Off campus - Wilder Mental Health Services, (651)-280-2310; Nicole Carreon and Nicole Muzzy at Nobility Wellness, (651)-505-3040; Michael Sigrin, (651)-964-0995; Lauren Ryan, (612)-454-1656; Kristin Wilcox, (612)-324-8736
  - Twin Cities Recovery Centers - These centers offer inpatient and outpatient addiction treatment as well as recovery support.
    - Kodiak Recovery, (763)-577-2489
    - Hazelden Betty Ford 1-866-861-1308
    - Fairview Substance Use Disorder Outpatient Treatment Programs 1-800-468-3120
Conclusion

Thank you again for reading through our guide! We hope it was informative and that it’ll be helpful if making decisions about hallucinogenic mushroom use.

We would love to know what you think about the program. If you’d like to leave some feedback, please click [here](#) to leave anonymous feedback and tell us what curriculum you’d like to see next.

If you’d like to use another one of our curriculums, you can find them on [our website](#).

Finally, if you’d like to contact the Health Promotion Team, you can reach us at [healthpromotion@macalester.edu](mailto:healthpromotion@macalester.edu). We’ll do our best to get back to you promptly.