



PROJECT YOUTH WELLNESS

WEEK 5: SUBSTANCE USE DISORDER RISKS

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SUBSTANCE USE DISORDERS:



MANIFESTED AS A BRAIN DISEASE

Did you know you can see the effects of using drugs on the brain? In the photo below, the red means more "healthy brain." Notice the image on the right has less red, meaning changes in the brain. This is showing how people who use drugs over time have changes in their brain structure and function.

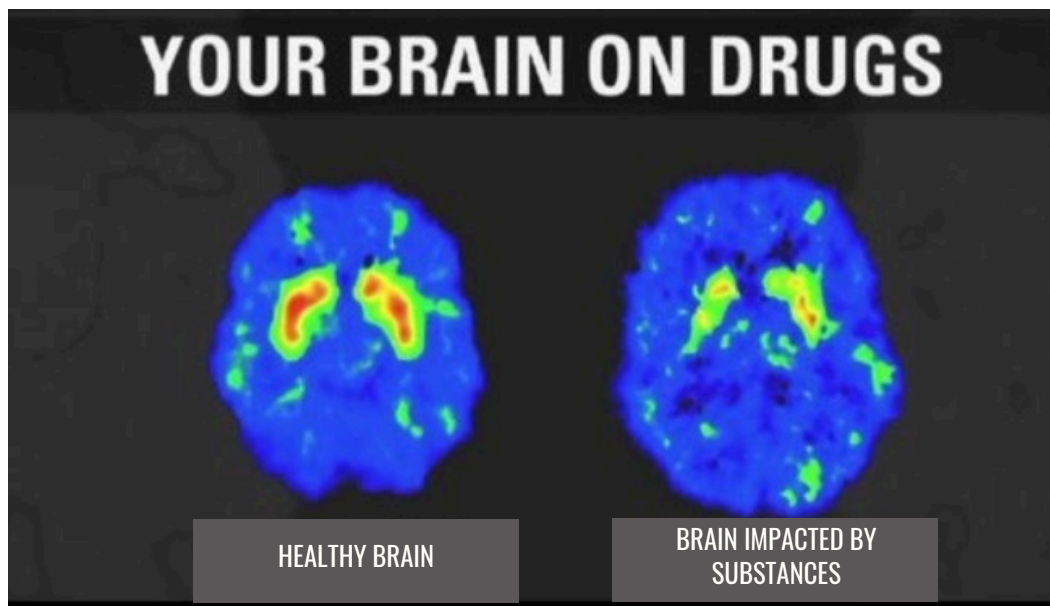


Image source: <https://www.cnn.com/videos/bestoftv/2012/02/21/nr-gupta-brain-addicted.cnn>

Here are some of the short- and long-term ways the brain on the right is affected by substances:

- Reduced sensitivity of brain systems involved in the experience of reward (pleasure)—needing more than the last time to feel the same pleasure.
- Impaired functioning of areas of the brain in charge of making decisions and regulating one's emotions, impulses, and actions. This makes it harder to stop using substances or quitting without difficulty.
- Constant desire for use (craving) that is triggered by feelings or the environment around you.

All of these brain disruptions lead to the brain being in a diseased state. The table on page 77 lists the clinical symptoms (criteria) that experts use to determine if someone has developed a substance use disorder (i.e., addiction) to a substance.

SUBSTANCE USE DISORDERS: CLINICAL CRITERIA IQ

Look over the table below that lists the symptoms of substance use disorder. These are grouped into "criteria" or clinical symptoms that are used to identify if someone has a diagnosable substance use disorder.

Symptom Criteria	Substance Use Disorder
1. Substance is taken in larger amounts or for a longer period of time than was intended 2. Unsuccessful attempts to cut down/control use 3. A lot of time spent to obtain, use, or recover from effects 4. Craving—strong desire or urge to use	Criteria 1-4: Impaired Self-Control
5. Failure to fulfill work, school, or home obligations due to use 6. Continued use despite social or interpersonal problems 7. Reducing important social, work, or recreational activities due to use	Criteria 5-7: Impaired Role Functioning
8. Use in physically hazardous situations 9. Continued use despite knowledge of problems	Criteria 8-9: Impaired Judgment
10. Tolerance (defined by either): needing more for effects or diminished effect with the same amount 11. Withdrawal (manifested by either): withdrawal symptoms or medications/substances taken to relieve symptoms	Criteria 10-11: Impaired Physiology

When someone has at least two of these symptom criteria, it is a sign that they may have a substance use disorder. As a young person, it is important to know your risk, and the risk of those close to you, for developing substance use disorders, like addiction.

Source: American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (DSM-5®). American Psychiatric Pub.

SUBSTANCE USE DISORDERS: IMPAIRMENT AREAS

For this activity, match the impairment area to each symptom of substance use disorder. The impairment areas can be used more than once.

Impairment Areas			
Loss of Control	Social or Personal Problems	Risky Use	Physical Effects

Experiencing negative effects when you try to stop (e.g., irritability, sweating)

You spend a lot of energy trying to get more

You have strong cravings for more

Getting hurt or having emotional difficulties due to use

Relationship problems caused by use

Using drugs or alcohol in dangerous situations (e.g., driving)

You use more than you want to

Not finishing school or work responsibilities

Needing more of the substance to get the same effects

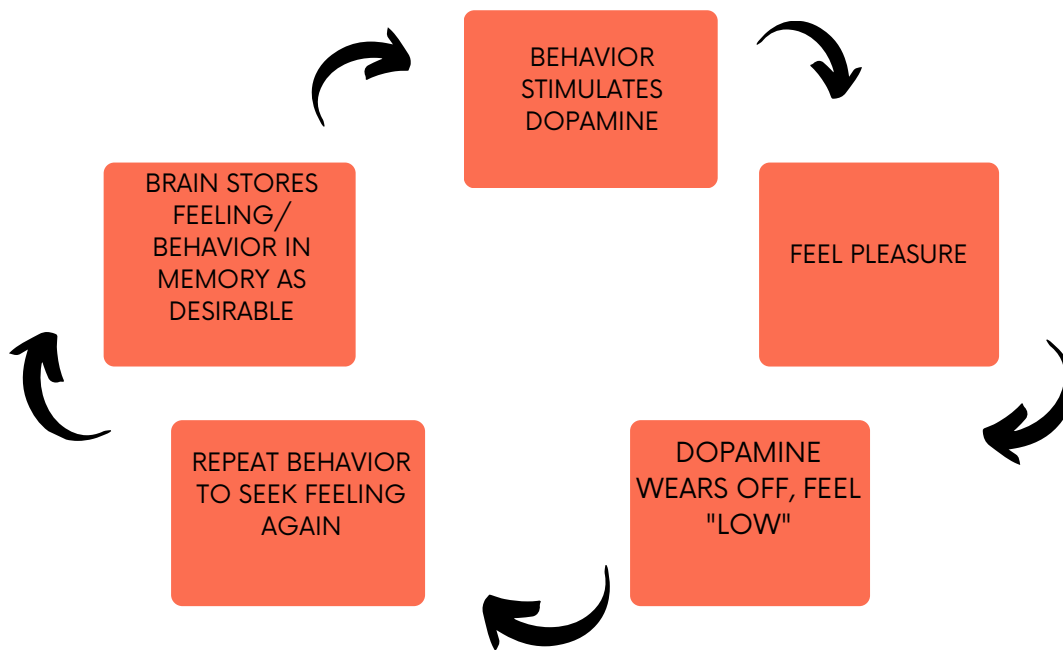
Giving up on other social activities

UNDERSTANDING THE SCIENCE OF SUBSTANCE USE DISORDERS: REWARD SYSTEM

Engaging in the various health behaviors you just listed activates chemical messengers in the brain to release **dopamine**. Dopamine is called the "pleasure chemical" of the brain and is released when we engage in things that make us feel good.

Substance use activates this system in a similar way; however, the activation is called "unnatural." This means that the system is triggered by the ingesting of drugs that are chemically made to have similar effects on the brain and body but, substance use causes the brain to release dopamine in **HIGHER** and more **INTENSE ways** than the typical behaviors that activate the reward system naturally.

Below is the cycle of reward that occurs. What do you notice?



As you can see, the reward system likes and remembers the "pleasure" it experiences. This leads people to repeat consumption patterns over and over again. But with repeated behaviors over time, the brain adapts and adjusts to being over-loaded with dopamine, no longer experiencing the same pleasure. Now, it takes more and more of a substance to feel the same effects. This results in a diseased brain that can lead you to engage in very unhealthy behaviors while seeking that same "reward."

Source: <https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/drugs-brain>

HEALTH BEHAVIORS AND THE BRAIN'S MOTIVATIONAL SYSTEM


Consumption patterns addiction pathway (progression from use to disorder) is the brain's reward system. The brain's reward system is also known as the "motivational system," which drives people to seek out pleasure and reward. During youth years, this system is very active.

Write down common health behaviors that youth engage in on the lines below.

[Hint: screen time, gaming, eating, sleeping, exercising, hugs and kisses]

_____	_____
_____	_____
_____	_____
_____	_____

Health behaviors like the ones you listed all affect the brain's reward system. **But how?** In the space below, write your thoughts on how you think the various health behaviors affect (trigger or activate) the brain's reward system.





Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3722417/>

SUBSTANCE USE DISORDERS: WARNING SIGNS

As substance use continues or increases, sometimes we don't pay attention to the warning signs that use is becoming severe and problematic.

What are the warning or danger signs of developing a substance use disorder (addiction)?

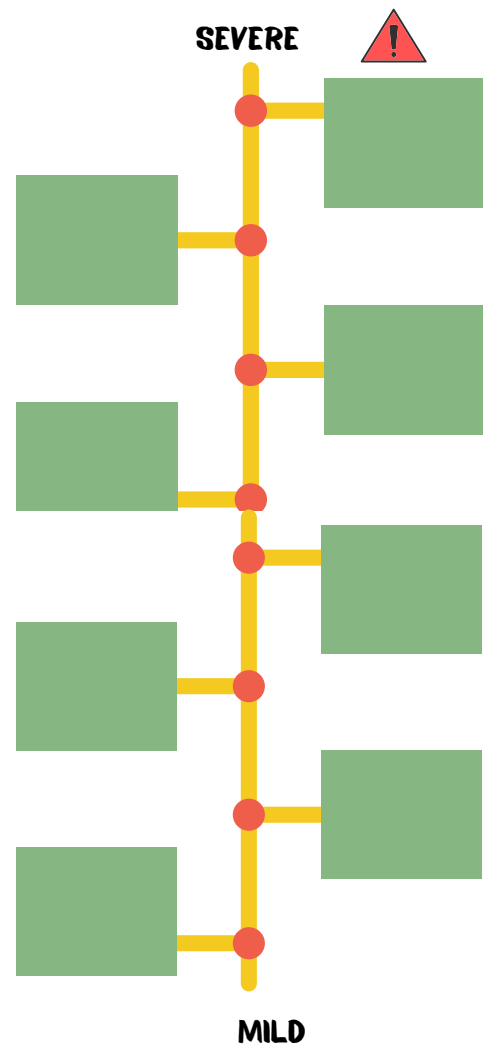
As the substances change key brain systems, they can also begin to change your physical appearance and mental health. Knowing the signs and being educated on the changes that can take place will help you be prepared to watch out for yourself and for others!

Below are some of the physical and mental health effects that are common among someone with a substance use disorder. Place them in the order of least to most severe on the right.

- Memory loss
- Anger/Rage
- Loss of consciousness
- Changes in grooming (appearance)
- Inability to focus
- Sudden changes in weight
- Slurred speech
- Intense desire to have it
- Changes in sleep habits

Remember that these effects can also depend on the dose (how much of the substance is used).

Continuing to engage in unhealthy risk behaviors affects your brain in a way that leads to addiction. By that time, it's much harder to make a change! You can play an active role in reducing your risks right now.



SUBSTANCE USE DISORDERS: SIDE EFFECTS

Here is a list of some common side effects that are caused by using drugs and alcohol. Read through this list and check off any that you might have experienced.

- Forgot what happened
- Fell or got into an accident where you or someone else got hurt
- Did something that was unsafe or illegal (e.g., driving under the influence)
- Got into arguments with your friends and family because of your use
- Did something that went against your own personal values
- Had trouble completing or remembering important responsibilities (e.g., doctors appointments, school)
- Experienced negative health effects due to substance use (e.g., lung issues, sexually transmitted infections, skin issues)
- Felt badly about yourself and experienced unpleasant feelings like anxiety, anger, or depression

