




HOW DRUGS WORK


Lesson 3


DO NOW: (5 minutes)

Review: In our first lesson, we learned that a "drug" is any substance that in small amounts produces changes in the brain, body, or both.



1. How do you think drugs affect the brain, body or both?
2. What questions do you have about how drugs affect the brain or body?





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LESSON OBJECTIVES

After completing this lesson:

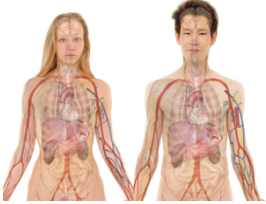
- I can explain the basic function of the brain and four major neurotransmitters.
- I can explain how the teenage brain is uniquely impacted by drug use.




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DRUGS & THE TEENAGE BRAIN

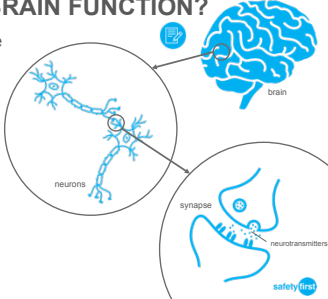
What do you think happens when someone smokes, eats or drinks an intoxicating substance?




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HOW DOES YOUR BRAIN FUNCTION?


- The **brain** is an organ made of **neurons**. It is the center of our intelligence. It interprets the senses, initiates body movement, and controls behavior.
- Neurons** communicate with each other using **neurotransmitters**, chemicals that cross tiny gaps called **synapses**.




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HOW DRUGS AFFECT THE BRAIN

- Drugs make changes to our brains by interacting with **neurons** and **neurotransmitters**.
- Drug use will change the chemical messages that tells the body what to do and how to feel.
- Drug use can affect your senses, breathing, heart rate, movement, mood and much more.



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HOW DRUGS AFFECT THE BRAIN


NEUROTRANSMITTERS COMMONLY AFFECTED BY SUBSTANCE USE:

<p>Dopamine [DOH puh MEEN]</p> <p>Involves muscle control, pleasure and motivation Examples: Cocaine / crack, crystal meth</p>	<p>Acetylcholine [uh SEE tuh koh LEEEN]</p> <p>Involves learning, memory and the ability to learn new things. Activates muscles that help the body move Example: Nicotine</p>
<p>GABA (short for: gamma-Amino-butyric acid)</p> <p>Reduces feelings of fear and anxiety Example: Alcohol</p>	<p>Serotonin [ser UH loh NIN]</p> <p>Regulates mood and bodily rhythms like sleep, appetite, digestion and sexual desire Example: MDMA ("molly" or "ecstasy")</p>

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THE DRUG CLASSES

Substance use can directly or indirectly affect the functions of neurotransmitters.




Stimulants Cannabinoids Depressants Opioids Psychedelics

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DRUGS & THE TEENAGE BRAIN

It may seem like adults are more worried about teenagers using drugs than any other age group.



Why do you think adults are more worried about teenagers using drugs?


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DRUGS & THE TEENAGE BRAIN

Video: "The Workings of the Adolescent Mind"

As you watch, try to answer the questions:


1. How is the teenage brain different from the adult brain?
2. Based on the information in this video, how do you predict the adolescent brain would be uniquely impacted by drug use?



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VIDEO: "The Workings of the Adolescent Mind"

1. Children and teenagers are wired to learn **faster** than adults.
2. The brain is the **last** organ to mature, and takes until your mid to late 20s to finish.
3. People who get addicted to substances early in life have a **much harder** time undoing that addiction later in life.

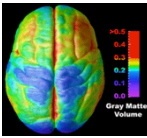


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TEENAGE BRAIN VS. ADULT BRAIN



Major Pattern #1:
Teenagers have more synapses and increased synaptic plasticity.



Major Pattern #2:
Teenage brain regions are not fully connected and frontal lobe not fully developed with myelination.

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EFFECTS OF DRUGS

Because drugs impact naturally occurring chemical systems in the brain and body, repeated and habitual use over long periods of time may increase long term health risks.

Use: any consumption of a drug.

Physical Dependence: when the body develops a need for the drug in order to feel normal.

Addiction may occur if a person's drug use is continuous and begins to interfere with their ability to function normally in their day-to-day life.



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EXIT TICKET

“One study found that about **1 out of 7 people who start drinking by age 14 eventually develop alcohol misuse problems** compared to 1 out of 50 people who wait to start drinking until they are 21 or older.”

Based on the video and this statistic:

1. How could the adolescent brain be uniquely impacted by drug use?
2. Why would it be beneficial to delay drug use?



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