HEADS UP REAL NEWS ABOUT DRUGS AND YOUR BODY ACTIVITY SHEET

What Causes Addiction?

DIRECTIONS: Read the text passage and study the diagrams below to learn how drugs such as opioids change the way the brain works. Then, use the information along with what you learned in the article to answer the questions that follow.

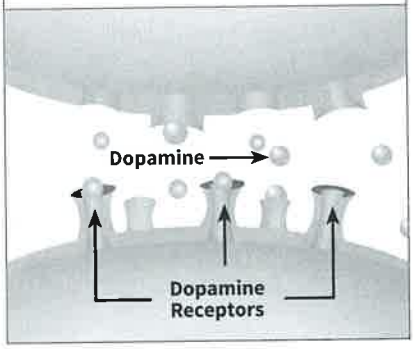
DRUGS AND THE BRAIN

Drugs affect the way signals are sent in the brain's reward circuit, which is a network of structures that is activated when you do something pleasurable.

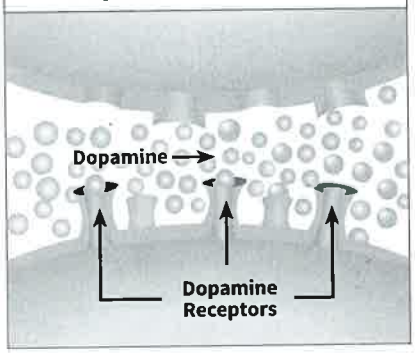
Dopamine is a chemical that helps signals pass between nerve cells in the brain. When you do something enjoyable, such as eating chocolate, dopamine levels increase in the brain (see top diagram). Receptors detect the rise in dopamine, which helps your brain remember the pleasurable behavior so that you are more likely to want to do it again.

Using drugs, including opioids, causes a rise in dopamine levels that is far greater than the increase from other enjoyable activities (see bottom diagram). When drugs are misused over time, the brain becomes used to the extreme surge of dopamine that drugs deliver. This leads to powerful cravings that make it very difficult to stop. The state of being ruled by these cravings is addiction.

Dopamine While Eating Food



Dopamine and Drugs



THINK IT THROUGH

Use a separate sheet of paper to record your answers to the questions below. Please answer in complete sentences.

1. What is dopamine? What role does it play in the brain?

2. Why are drugs more addictive than something else that gives pleasure, such as eating chocolate?

3. Explain why a person who is addicted to a drug might continue to use it even if they experience negative consequences, such as losing friends or a job?

4. In the article "Opioids: What You Need to Know," you learned that medications exist that can help treat addiction. Based on what you learned about the science of addiction above, how do you think they might work? Explain your answer.

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From Scholastic and the scientists of the National Institute on Drug Abuse, National Institutes of Health, U.S. Department of Health and Human Services