

Dose of Knowledge

A Pharmacists Teach Program

Recommended for Middle and High School

Prescription Stimulants



Educator Guide

This content is for educational/entertainment purposes only and is not meant to provide medical advice nor recommend the use of any type of medication. Viewers should consult their physician for medical advice.

Background

Attention deficit/hyperactivity disorder (ADHD) can be described as neurodevelopmental disorder in which people may have trouble paying attention, controlling impulsive behaviors, or being overly active.¹ According to the Centers for Disease Control, 6.1 million American children between the ages of two and 17 have been diagnosed with ADHD.² Types of treatment for ADHD can include behavior therapy (including training for parents) and medication.³

Prescription stimulants are one type of FDA-approved medication that may be prescribed to treat children, teens, and adults diagnosed with ADHD. Prescription stimulants can be prescribed to treat those diagnosed with ADHD by helping to increase feelings of alertness and attention.

Research suggests that prescription stimulants change the way the brain works by acting on the neurotransmitters dopamine and norepinephrine.⁴ Neurotransmitters are the body's chemical messengers, and they transmit messages from nerve cells to other cells in the body. Neurotransmitters help regulate bodily functions, including breathing, heart rate, mood, concentration, and muscle movement. Dopamine and norepinephrine both contribute to our ability to pay attention and focus. Dopamine is involved in the reinforcement of rewarding behaviors. Norepinephrine affects blood vessels, blood pressure and heart rate, blood sugar, and breathing.⁵

Doctors usually prescribe low doses of these types of medications and then increase them slowly if necessary.⁶ As they do, they continue to monitor the medication's side effects and effectiveness. The patient should continue to take the lowest effective dose of the medicine, under continuous monitoring by their doctor.

A few commonly used prescription stimulants that students may have heard of are dextroamphetamine/amphetamine combination products (Adderall®), methylphenidate (Ritalin® and

Concerta®), and Lisdexamfetamine (Vyvanse®). Like all prescription drugs, the U.S. Food and Drug Administration (FDA) approves their development, manufacturing, safety, efficacy, and marketing.

Common street names for prescription stimulants include Uppers, Vitamin R, Speed, Addies, and The Smart Drug. One reason street names or slang terms are used for prescription stimulants is because, even though they are not illegal if taken as prescribed and by the person they are prescribed for, they can be illegally misused. A prescription stimulant is misused if it is taken in any way other than as prescribed.

Human brains are not fully developed until around the age of 25, and sections of the brain develop at different rates. The parts that develop first include the cerebellum and amygdala, which are responsible for physical activity, emotion, and motivation. The prefrontal cortex, which controls reasoning and impulses, develops last. The adolescent brain's voice of reason is therefore quieter than its voices of emotion, excitement, and reward—which can make adolescents more susceptible to risky behavior.⁷

Rewarding experiences trigger dopamine release, which can lead to repeated use and addictive behavior.⁸ Teens who seek the high that a flood of dopamine can bring may misuse prescription stimulants. Prescription stimulants also have the reputation of being “study drugs” that can help improve focus, regardless of whether the user has ADHD. However, there is no evidence that

1 <https://www.cdc.gov/ncbddd/adhd/facts.html>

2 <https://www.cdc.gov/ncbddd/adhd/data.html>

3 <https://www.cdc.gov/ncbddd/adhd/treatment.html>

4 <https://teens.drugabuse.gov/teachers/mind-matters/prescription-stimulants>

5 <https://www.drugabuse.gov/sites/default/files/drugfacts-prescriptionstimulants.pdf>

6 <https://teens.drugabuse.gov/blog/post/your-brain-stimulants-part-1-how-stimulants-work>

7 <https://drugfree.org/article/brain-development-teen-behavior/>

8 https://store.samhsa.gov/sites/default/files/SAMHSA_Digital_Download/TipsforTeens_PrescriptionStimulants_508.pdf

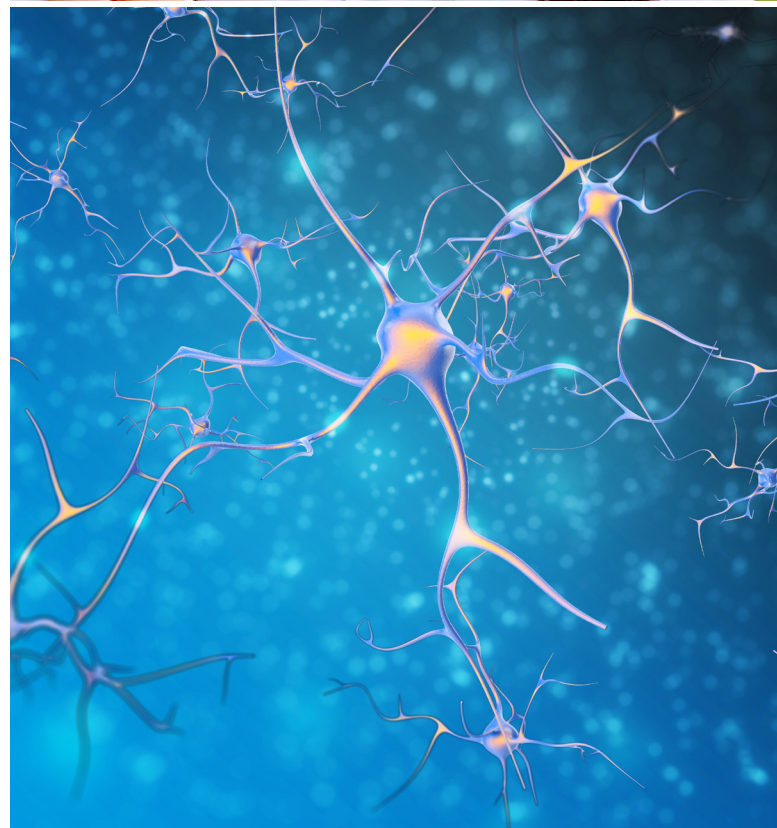
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prescription stimulants have a positive effect on grades for students who do not have ADHD. In fact, studies have shown that students who misuse stimulants typically have a lower grade point average than those who do not.⁹ Other people may say they misuse prescription stimulants to suppress their appetite or to lose weight.

Misusing prescription drugs and/or sharing prescription drugs with others is illegal and can be very dangerous. Misusing prescription stimulants can have serious negative short and long-term effects on the body. Some examples of short-term effects of stimulant misuse can include increased blood pressure, irregular heartbeat, sleeping problems, and lack of interest in eating. Over time, the misuse of prescription stimulants can cause the following long-term effects: heart problems, psychosis, intense anger, and/or paranoia.¹⁰

Misusing any drug can be harmful to the human brain. Since teens' brains are still developing, they may be at even greater risk.¹¹ Substance misuse can increase a person's risk of developing an addiction or substance use disorder. Addiction is considered a brain disease because drugs change the brain, including its structure and how it works.¹² Resisting peer pressure to try drugs and following a doctor's orders if prescription medications are necessary are paramount to a young person's physical well-being.



⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2951617/pdf/nihms203315.pdf>

¹⁰ <https://teens.drugabuse.gov/what-can-happen-your-body-when-you-misuse-prescription-stimulants>

¹¹ <https://drugfree.org/article/brain-development-teen-behavior/>

¹² https://www.drugabuse.gov/sites/default/files/soa_2014.pdf

Overview

In this digital lesson module, students will learn about ADHD and how prescription stimulants, when used as prescribed, can work to help those diagnosed with ADHD manage their symptoms. Students will explore the consequences of prescription stimulant misuse and the short and long-term effects misuse can have on the brain and body. They will consider the impact substance misuse can have on adolescents due to the developing teen brain. Students will ultimately understand how prescription stimulants should be used correctly, and they will identify where they can turn for help if needed.

Use of Presentation

The accompanying presentation was created with PowerPoint so that it can be used in a variety of classrooms. If you are using a laptop with an LCD projector, simply progress through the PowerPoint by clicking to advance. All the interactive aspects of the presentation are set to occur on click. This includes images, text boxes, and links that will appear in a web browser when clicked. If you are using an interactive whiteboard, tap on each slide with your finger or stylus to activate the interactive aspects of the presentation. There is information on how to proceed in the notes for each slide. This guide provides slide-by-slide instructions to ensure pharmacists are prepared to explain, discuss, and facilitate the hands-on content in the accompanying presentation. Note that timing guidance is provided as a recommendation, but each situation will be unique.

Session Structure

The Dose of Knowledge sessions provide the following information to guide the educator through its implementation and teach the necessary skills and content.

- **Learning Objectives:** Each session includes its overall goals as well as specific learning objectives for students.
- **Materials:** Any materials necessary for the session are clearly outlined and included when possible to facilitate easy implementation of the session.
- **Key Terms:** Any words that can be used as vocabulary words will be defined for the teachers.
- **Key Talking Points:** To help the teacher guide discussion and reinforce key concepts, key points are listed next to the corresponding slides.
- **Reflections:** A learning summary is provided at the end of the session for the educator to provide reinforcement of the key concepts and objectives of each session.

Content Areas

Health, Physical Education

Activity Duration

Approximately 50 minutes

Grade Band

6–12

Objectives

Students will

- Summarize what ADHD is and how prescription stimulants can work to help to manage ADHD symptoms.
- Understand the consequences of prescription stimulant misuse, as well as the short and long-term effects misuse can have on the brain and body.
- Understand how substance misuse can impact the developing teen brain.
- Identify support resources in their community and online.

Materials Needed

- Resources for Teens student handout, one per student

Educator Prep

1. Read through the instructions to familiarize yourself with the content. Note that timing guidance is provided as a recommendation. The Lesson At-a-Glance below may be used to help you determine how long to spend on each section.
2. Prepare all materials before the lesson begins.

Key Terms

- **Addiction:** a psychological and physical inability to stop consuming a substance or performing an activity even though it causes harm
- **Attention-Deficit/Hyperactivity Disorder (ADHD):** a neurodevelopmental disorder that can result in trouble paying attention and controlling impulsive behaviors, as well as being overly active; usually first diagnosed in childhood

- **Neurotransmitter:** the brain's chemical messengers; they transmit messages from a nerve cell across a synapse to target cells; dopamine and norepinephrine are two examples
- **Pharmacist:** licensed healthcare professionals who work in pharmacies and help the public with many parts of their health, including their medication. It's their job to prepare and dispense medications, as well as help patients better understand them.
- **Prescription:** an instruction written by a medical practitioner that authorizes a patient to receive a medicine or treatment
- **Prescription drug:** a drug that can be obtained only with a physician's prescription
- **Stimulant:** drugs that increase alertness, energy, and attention by modifying how neurotransmitters communicate; prescription stimulants are commonly used to treat attention-deficit hyperactivity disorder and narcolepsy; in a class of drug that also includes cocaine and methamphetamine
- **Substance misuse:** using a substance, like drugs or alcohol, for a purpose not consistent with legal or medical guidelines in a manner that can be harmful to oneself or others

Lesson At-a-Glance

Section	Activity	Approximate Timing
Engage	Session introduction and discussion	2 minutes
Learn	What is prescription medicine?	3 minutes
	What is ADHD?	4 minutes
	How do prescription stimulants treat ADHD?	6–7 minutes
	Prescription stimulant misuse	3–4 minutes
	Effects of misuse	6 minutes
	Adolescent factors	3 minutes
	Safe use of prescription stimulants	1 minute
	Resources	10–11 minutes
Reflect	Summary of key points in lesson	5–6 minutes

Procedure

Engage

Slide 1

1. Begin by encouraging students to take a moment to observe the prescription bottles on the slide. As they do, ask: What words or thoughts come to mind? Call on several students to share their thoughts.
2. Click once and explain that the images on the slide are examples of prescription drugs or medication. Prescription drugs are medications that can be used to diagnose, cure, treat, or prevent disease, illnesses or medical conditions.
3. Tell students that certain healthcare providers or medical practitioners (a professional who practices medicine, such as a doctor, a nurse practitioner, or a physician's assistant) may write you a prescription if they decide that you need medicine for a specific health reason. This means that they authorize you to take a certain type of medicine, how much of it you should take, when you should take it, and for how long.
4. Be sure students understand that while prescription drugs can be beneficial when used according to their prescription, they can also have serious consequences if they are misused.
5. Explain that the most common medications prescribed to children and adolescents include asthma medicine, antibiotics, topical agents like creams or nasal sprays, antihistamines for allergies, and medication for attention-deficit/hyperactivity disorder (ADHD).¹³

KEY TALKING POINTS:

- Prescription drugs are medications that can be used to diagnose, cure, prevent, or treat disease, illnesses, or medical conditions.
- A prescription authorizes you to take a certain type of medicine. It details how much of it you should take, when you should take it, and for how long.
- While prescription drugs can be beneficial when used according to their prescription, they can also have serious consequences if they are misused.

Learn

Slide 2

6. Tell students that today's session will focus on one type of medication: prescription stimulants.
7. Click once and explain that doctors may prescribe stimulants to treat children, teens, and adults diagnosed with Attention-Deficit/Hyperactivity Disorder or ADHD. Define ADHD as a neurodevelopmental disorder in which people have trouble paying attention, controlling impulsive behaviors, or being overly active.¹⁴
8. Explain that in addition to ADHD, prescription stimulants can also be used to treat sleep disorders, like narcolepsy.
9. Explain that if you have been diagnosed with ADHD, prescription stimulants can be prescribed as a treatment to help make you more alert, increase your attention, help you focus, and give you more energy.

¹³ <https://pubmed.ncbi.nlm.nih.gov/29800213/>

¹⁴ <https://www.cdc.gov/ncbddd/adhd/facts.html>

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10. Explain that if you do not have ADHD or a sleep disorder and you take these medications, it can be very dangerous! Misusing prescription stimulants or using the medication in a way other than how it was prescribed, can cause negative health effects.

KEY TALKING POINTS:

- Prescription stimulants can be prescribed to treat people diagnosed with ADHD as well as sleep disorders like narcolepsy.
- ADHD is a neurodevelopmental disorder in which people have trouble paying attention, controlling impulsive behaviors, or being overly active.
- If you have been diagnosed with ADHD, prescription stimulants can be prescribed to help increase feelings of alertness or attention. However, if you do not have ADHD or a sleep disorder and you take these medications, prescription stimulants can be very dangerous. Misusing prescription stimulants or using the medication in a way other than how it was prescribed, can cause negative health effects.

13. Click once and share the statistic that about 9.4 percent of American children and adolescents from 2–17 years old have been diagnosed with ADHD.
14. Then click again. Explain that doctors don't yet know exactly what causes ADHD, but they do know the symptoms. Take a moment to review the following:

- Symptoms of ADHD can include inattention, such as having trouble staying focused or paying close attention to details, becoming easily distracted, and having trouble with organization.
- Symptoms can also include hyperactive-impulsive behavior including constant fidgeting, always being in motion, and having difficulty speaking in turn.
- Some cases of ADHD may be predominantly (or mostly) inattentive, some may be predominantly hyperactive impulsive, and some may be a combination of the two.¹⁶
- It's important to note that ADHD has nothing to do with intelligence or talent! Sometimes students with ADHD need help channeling their energy and staying focused. Additionally, some studies report that students diagnosed with ADHD can demonstrate increased creativity, spontaneity, and drive.

Slide 3

11. Tell the class that in order to understand how prescription stimulants can help people with ADHD, it's important to first understand more about ADHD.¹⁵
12. Explain that because there are many misconceptions about ADHD, it is important to have discussions like this one in order to help with open and ongoing communication.

15 <https://www.cdc.gov/ncbddd/adhd/data.html>

16 <https://www.mayoclinic.org/diseases-conditions/adhd/symptoms-causes/syc-20350889>

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KEY TALKING POINTS:

- Doctors don't yet know exactly what causes ADHD, but they do know the symptoms.
- Symptoms of ADHD can include inattention, such as having trouble staying focused or paying close attention to details, becoming easily distracted, and having trouble with organization.
- Symptoms can also hyperactive-impulsive behavior, such as constant fidgeting, being in motion, and having difficulty speaking in turn.
- ADHD has nothing to do with intelligence or talent! Students diagnosed with ADHD can often demonstrate increased creativity, spontaneity, and drive!

Slide 4

15. Ask students to show through a show of hands: Can anyone here be focused all the time?
16. Ensure students understand that everyone, especially children and young adults, can have difficulty staying focused and still sometimes. However, for those with ADHD, it is a chronic issue—or one that is more persistent and long lasting. Because of this, children and teens with ADHD may also have trouble with relationships, low self-esteem, and performance in school.¹⁷
17. Click once and explain that if ADHD starts to impede or affect someone's life, medical practitioners may recommend treatment. While there's no cure for ADHD, the treatments can help lessen the symptoms.
18. Click again and tell the class that two types of treatments for ADHD can include:
 - One main treatment for ADHD is support. This support can include behavioral therapy, parent/caregiver education, support at

school, and other techniques to manage symptoms, such as strategies for staying focused.¹⁸

- Click and explain that the second main treatment for ADHD is medication. The Food and Drug Administration (FDA) has approved two types of medications—stimulants and non-stimulants—to help reduce the symptoms of ADHD. Prescription stimulants like Adderall®, Ritalin®, Concerta®, and Vyvanse® are some examples of ADHD medications.
19. For children six years old and older, the American Academy of Pediatrics (AAP) recommends a combination approach of both behavior therapy and medication, preferably both together.¹⁹

KEY TALKING POINTS:

- If ADHD starts to impede or affect someone's life, medical practitioners may recommend seeking treatment.
- Examples of treatment can include:
 - Support from others to help the person manage their symptoms
 - Medication

Slide 5

20. Segue to how prescription stimulants work to help people diagnosed with ADHD, and explain that it all comes down to a little brain science!

¹⁷ <https://www.mayoclinic.org/diseases-conditions/adhd/symptoms-causes/syc-20350889>

¹⁸ <https://www.ncbi.nlm.nih.gov/books/NBK321114/>

¹⁹ <https://www.cdc.gov/ncbddd/adhd/treatment.html>

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21. Click and explain that in the brain, nerve cells send messages to each other by releasing chemicals called neurotransmitters. These neurotransmitters are released at the end of one nerve cell, travel across the space between two cells, and then bind to a neighboring cell (which could be another nerve cell, muscle cell, or gland cell) to share the message. Signals for our sense of touch, sight, and hearing, as well as our feelings, thoughts, and movements are all transmitted this way.
22. Click and tell the class that researchers think that prescription stimulants work in part by changing the way the brain works by acting on the neurotransmitters dopamine and norepinephrine.²⁰ These chemicals can play a role in thinking, focus, and attention.
23. Explain that:
 - When used as prescribed, prescription stimulants can work by slowly raising the level of these neurotransmitters in the brain.
 - Doctors generally prescribe low doses (or amounts) of stimulant medication and then increase it slowly if necessary.²¹ As they do, they continue to monitor its side effects and effectiveness.
 - The patient should continue to take the lowest effective dose of the medicine, with continued monitoring by a doctor throughout the use of the medication.
24. Click and challenge students to summarize what they just learned. Instruct them to turn to a partner and develop a quick one- or two-sentence answer to the question: How are prescription stimulants thought to work in the treatment of ADHD?*
25. Once student pairs have discussed their response, call on a few students to share their summaries.

Tip: If teaching in a remote learning environment, assign pairs in advance for students to pair up and

review the questions together. They can use the chat window to discuss their responses or use a shared open-access document to capture their ideas.

KEY TALKING POINTS:

- Prescription stimulants change the way the brain works by acting on the neurotransmitters dopamine and norepinephrine.
- Dopamine and norepinephrine can play a role in thinking, focus, and attention.
- Prescription stimulants increase the level of these neurotransmitters in the brain
- Doctors monitor patients throughout their use of the medication.

Slide 6

26. Tell the class that examples of commonly prescribed prescription stimulants can include: dextroamphetamine/amphetamine, also known as Adderall®; methylphenidate, also known as Ritalin® or Concerta®; and lisdexamfetamine, also known as Vyvanse®. Students may have seen or heard of these prescription stimulants before.
27. Explain that most prescriptions stimulants come in a capsule, tablet, or liquid form and are taken by mouth. Some prescription stimulants may also be administered through a patch that slowly releases medication through the skin. No matter what, the prescription and the medication label will clearly explain how to take it.

²⁰ <https://teens.drugabuse.gov/teachers/mind-matters/prescription-stimulants>

²¹ <https://teens.drugabuse.gov/blog/post/your-brain-stimulants-part-1-how-stimulants-work>

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KEY TALKING POINTS:

- Students may have seen or heard of the following prescription stimulants: Adderall®; Ritalin®, Concerta®, or Vyvanse®.
- Prescription stimulants come in different forms, but the patient's prescription and the medication label will always clearly explain how to take it.

Slide 7

28. Ask: Has anyone heard other terms for prescription stimulants? Encourage students to share.
29. Then click once and explain that common street names for prescription stimulants include Uppers, Vitamin R, Speed, Addies, and The Smart Drug. Tell the class that one reason street names or slang terms are used for prescription stimulants is because, even though they are not illegal if taken as prescribed and by the person they are prescribed for, they can be illegally misused.
30. Click again and ask: So what does it mean to "misuse" a prescription stimulant?
31. Explain that, generally speaking, you misuse a prescription stimulant if you use it in any way that is not prescribed for you by your doctor. More specifically, you misuse a drug if you use a drug prescribed for you in a way different from how it is prescribed (for example, taking more than the recommended dosage), if you share your prescription stimulant with others, if you use a prescription stimulant that was prescribed for someone else, or if you mix a prescription stimulant (whether or not it was prescribed for you) with substances like alcohol or other drugs.
32. Ask: Can you think of any reasons people may give for *misusing* prescription stimulants?
33. After allowing students a moment to answer, click once and share the following reasons:

- Some people may say they misuse prescription stimulants as "study drugs" to help them focus. Be sure to stress to students that there is no evidence that prescription stimulants have a positive effect on grades for students who do not have ADHD.²² In fact, studies have shown that students who misuse stimulants can have a lower grade point average than those who do not.²³
- Some may say they misuse prescription stimulants to get high and experience feelings of intense happiness/euphoria.
- Others may say they misuse stimulants to suppress their appetite or to lose weight.

34. Wrap up the slide by emphasizing that it is illegal and dangerous to misuse prescription stimulants, no matter how they are misused.

KEY TALKING POINTS:

- Street names for prescription stimulants can include Uppers, Vitamin R, Speed, Addies, and The Smart Drug.
- A prescription stimulant is misused if it is used in any way that is not prescribed for you by your doctor.
- There is no evidence that prescription stimulants have a positive effect on grades for students who do not have ADHD.
- It is illegal and dangerous to misuse prescription stimulants, no matter how they are misused. When prescription stimulants are taken in ways not prescribed, they increase a person's risk of dangerous health issues.

22 <https://drugfree.org/drug-and-alcohol-news/nonmedical-use-prescription-stimulants-provides-no-academic-benefits-study/>

23 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2951617/pdf/nihms203315.pdf>

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Slide 8

Explain that there can be dangerous side effects associated with prescription stimulant misuse.

35. Tell the class that short-term effects of misusing prescription stimulants (e.g. taking if you don't have a diagnosed condition or taking in other ways than how it was prescribed) can include high blood pressure, increased breathing, increased or irregular heartbeat, high body temperature, sleeping problems, angry reactions, and less interest in eating.²⁴
36. Explain if the drug is taken in high doses, serious side effects such as high body temperature, heart failure, stroke, and/or seizures can also occur.
37. Explain that if the drug is injected with shared needles, there is a risk of risk of HIV, hepatitis, and other infectious diseases.

KEY TALKING POINTS:

- When stimulants are misused (taken when you don't have a diagnosed condition or taken in ways other than how it was prescribed), dangerous short-term effects can occur.
- These short-term effects can include: high blood pressure and sleeping problems, as well as the risk of infectious diseases and even life-threatening side effects like heart failure, stroke, and/or seizures.

Slide 9

38. Share that there are also long-term effects associated with stimulant misuse.²⁵ Explain that some long-term effects can continue for months or years, even if or once you stop misusing the substance.

39. Explain that one serious long-term physical effect of misuse can include heart problems.
40. In addition, there can be serious long-term psychological effects. These effects may include depression; onset of intense and sudden anger; paranoia, which is when you irrationally believe someone is going to harm you; and psychosis, which is when you see or hear things that aren't there.

KEY TALKING POINTS:

- Long-term effects of stimulant misuse can include:
 - Heart problems
 - Depression
 - Intense anger
 - Paranoia
 - Psychosis

Slide 10

41. Explain that you are about to conduct a quick poll in which you ask students to respond with a thumbs up for "yes" or a thumbs down for "no."
42. Then ask: Do you think teens are affected by prescription stimulant misuse differently from adults?
43. Once students share their response, explain that the correct answer is both yes and no!
 - The answer is no because the effects that were just discussed affect all users.

²⁴ <https://www.drugabuse.gov/publications/drugfacts/prescription-stimulants>

²⁵ <https://www.drugabuse.gov/publications/drugfacts/prescription-stimulants>

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- However, the answer is also yes because children, teens, and young adults can face even greater consequences from drug or substance misuse than adults.
44. Explain that there are several reasons why young adults can face even greater consequences from substance misuse than adults.
- Click once and explain that the human brain is not fully developed until around age 25. Elaborate on this by explaining that:
 - As the brain develops, different sections mature at different rates. This makes teens more likely to engage in risky behavior. The brain sections that develop first include the cerebellum and amygdala, which are responsible for physical activity, emotion, and motivation. The prefrontal cortex, which controls reasoning and impulses, develops last.
 - Because of this, the teen brain's voices of emotion, excitement, and reward are loud, whereas its voice of reason is quieter.²⁶ A psychologist named David Walsh once wrote that: "It's like a teenager's brain has a fully functional car accelerator but the brakes have not been installed yet."²⁷
 - Emphasize that despite this, brain development is not an excuse for misusing drugs. It just means that teens must be even more careful because they are scientifically more likely to engage and re-engage in risky behavior. This makes adolescents and young adult years a critical point of focus for establishing healthy behaviors and habits.
45. Click again and explain that children, teens, and young adults can also face even greater consequences from drug misuse than adults because drug misuse can change the chemistry of developing brains. Tell the class that substance misuse can:
- Have lasting and even lifelong effects on people, including impacted cognitive abilities,
 - Increase a person's risk of developing an addiction or substance use disorder. Addiction is a chronic disease that affects a person's brain and behavior and leads to an inability to control the use of a legal or illegal drug or substance. This means you continue to take a drug or substance even if bad things start happening to you—like getting poor grades or having problems with family and friends.²⁸
 - Most experts believe anyone can become addicted to substances.
 - Ninety percent of those suffering from substance use disorder report starting use during their teenage years.²⁹
 - People suffering from addiction can seek treatment and can recover, but it can take a long time and can be hard work. That's why preventing and delaying substance use during this time is so important to your long-term health.
 - And finally, an overdose can occur when a person uses enough of a drug to produce a life-threatening reaction or death.
46. Because the teen brain is still developing, preventing and delaying substance use during this time is SO important to living a long and healthy life!
-
- 26 <https://drugfree.org/article/brain-development-teen-behavior/>
- 27 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3399589/>
- 28 <https://teens.drugabuse.gov/teachers/mind-matters/prescription-stimulants>
- 29 <https://www.doseofknowledge.com/docs/ CVS-Pharma-DLB-Opioid-Use-and-Misuse-Educators.pdf>

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KEY TALKING POINTS:

- Teens, and young adults can face even greater consequences from drug misuse than adults.
- The human brain is not fully developed until around age 25. For this reason:
 - Teens must be even more careful because they are scientifically more likely to engage and re-engage in risky behavior.
 - Teens can face even greater consequences from drug misuse than adults because drug misuse can change the chemistry of their developing brains.
- Substance misuse can increase a person's risk of developing an addiction or substance use disorder.
- An overdose can occur when a person uses enough of a drug to produce a life-threatening reaction or death.
- Because the teen brain is still developing, preventing and delaying substance use during this time is SO important to living a long and healthy life!

Slide 11

47. Tell the class that after speaking about prescription drug misuse, it's also important to discuss how prescription stimulants can be used safely! Explain that like all prescription drugs, prescription stimulants can be used safely if you follow a few important but clear guidelines.
48. Tell the class that the first guideline is that a prescription stimulant should be used only if a doctor prescribes it to you.

49. Click once and explain that the second guideline is that the prescription stimulant must be used *exactly* as directed by your doctor.
- Elaborate on this and tell the class that each prescription is tailored specifically for the patient: for their weight, their symptoms, and their body's chemistry. It is important to always carefully follow the prescription's dosage instructions, which specify how much and how often the medicine should be taken over a specified amount of time.
50. Click again and encourage students to remember that if they ever have any questions about their prescription, including how to take it, they can always ask their doctor or local pharmacist. Pharmacists are medicine experts who can counsel patients to help them better understand their prescription medicine.
51. Click to play the video.

KEY TALKING POINTS:

- Prescription stimulants can be used safely if you follow a couple important but clear guidelines:
 - A prescription stimulant should be used only if a doctor prescribes it to you.
 - A prescription stimulant must be used *exactly* as directed by your doctor.

Slide 12

52. Introduce the term "human resources" to students by explaining that if they or someone they know ever needs help when it comes to prescription stimulant misuse or other substance misuse, they should use your "human resources"! These are people you can reach

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out to if you need help or just someone to listen. They are people who you trust and who care about you and want to see you live a long and healthy life.

53. Guide the class through a Think-Pair-Share around the question: Who are some of your own human resources?
54. Once students have shared, remind them that their human resources may include their family (parents, aunts, uncles, grandparents, etc.) or people in their school and community, like teachers, coaches, counselors, medical professionals, pharmacists, or other trusted adults.
55. Explain that while it's important to listen to, speak with, and support your friends, it's also important to turn to one of these trusted adults to ask for help if they or one of their friends need it.

KEY TALKING POINTS:

- Human resources are people who care about you and want to see you live a long and healthy life.
- Human resources may include family or people in your school and community, like teachers, coaches, counselors, medical professionals, pharmacists, or other trusted adults.
- If you or a friend need help, immediately seek help from one of your human resources!

Slide 13

56. Bring students' attention to the slide's list of additional resources.
57. Explain that there are also alternative resources that students can turn to if needed, including important phone numbers and websites. Be sure students understand that:
 - All phone numbers are free, anonymous, and available 24/7.
 - **1-800-273-TALK / 1-888-628-9454** (in Spanish): While this is the National Suicide Prevention Lifeline, it provides help on all subjects and can put you in touch with a nearby support contact.
 - **1-800-662-HELP**: This is the Substance Abuse and Mental Health Service's Administration's National Helpline, and it has free support available 24/7.
 - **The Crisis Text Line**: by texting HOME to 741741, you will immediately be connected with a crisis counselor.
 - The websites listed are specially designed to provide support and answer questions you might have.
58. Then distribute one Resources for Teens handout to each student.*
59. As students review the handout, explain that it provides a little more information about each of these resources, and it is theirs to keep. Encourage students to store it in a safe place so they can refer to it whenever they or someone in their family needs additional information or support in the future.

Tip: If a paper copy cannot be distributed, you may share the PDF with your students or direct them to the Dose of Knowledge partnership site <https://www.doseofknowledge.com/> to obtain the resource.

KEY TALKING POINT:

- There are many free and anonymous phone numbers and websites available 24/7 to provide students with support.

Reflect

Slide 14

60. Facilitate students' reflection on their learning by reviewing the bullets below. Click to project and read each bullet together:

- When prescription stimulants are used as prescribed, they can be a safe and effective way to treat ADHD.
- Prescription stimulants change the way the brain works by acting on the chemicals dopamine and norepinephrine.
- Using prescription stimulants that are not prescribed to you, or in a way other than how they were prescribed, is illegal and can be dangerous.
- Prescription stimulant misuse can lead to negative short-term and long-term effects on your brain and body.
- Substance misuse can alter brain function. Teen brains are even more at risk since they are still developing.
- If you or someone you know needs help, turn to a trusted adult.

61. If time allows, provide students with the opportunity to ask questions. If students ever have future questions about prescription stimulants or medicine of any kind, remind them that they can always speak with a pharmacist at their local pharmacy!

Extension Ideas

- Have students brainstorm situations in which they may be presented with the opportunity for prescription stimulant misuse, as well as ways to say no.
- Students can write newspaper articles that highlight key prescription stimulant information and interview their peers on their attitudes toward and/or perceptions of prescription stimulant misuse.
- Explore <https://teens.drugabuse.gov/> for additional student-facing activities and resources
- Present the Opioid Digital Lessons found on the DoseofKnowledge.com site to encourage continued learning about other types of prescription drug misuse.
- Present the Peer Pressure Digital Lesson found on the DoseofKnowledge.com site.

National School Standards

UNITED STATES

[National Health Standards](#)

- Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.
- Standard 2: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.
- Standard 8: Students will demonstrate the ability to advocate for personal, family, and community health.

[Common Core State Standards for English Language Arts](#)

- Writing
 - CCSS.ELA-LITERACY.CCRA.W.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to the task, purpose, and audience
- Speaking and Listening
 - CCSS.ELA-LITERACY.CCRA.SL.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing one's own clearly and persuasively
 - CCSS.ELA-LITERACY.CCRA.SL.2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally

Important Phone Numbers

Call: 1-800-273-TALK / Spanish: 1-888-628-9454

This National Suicide Prevention Lifeline provides free, 24/7, and confidential support to anyone in emotional distress. It can help you with any subject and will be able to put you in touch with a support contact nearby.

Call: 1-800-662-HELP

This national hotline for SAMSHA (Substance Abuse and Mental Health Services Administration) is free, open 24/7, and confidential. It will give information and treatment referral in English and Spanish for anyone facing substance abuse and/or mental disorders.

Text: HOME to 741-741

Once you send the first text, the Crisis Text Line will anonymously connect you with a free trained crisis counselor who will text with you to help you through your current situation.

Helpful Webpages

Teens.DrugAbuse.gov/Teens

Looking for clear explanations on how drugs affect the brain and body? Learn the latest through many different sources—including videos, games, blogs, and more.

AbovethelInfluence.com

Looking for a resource designed to help you think through the risks when you're faced with tough decisions? This website includes information on how to help yourself, your family, and your friends.

JustThinkTwice.gov

Looking for specific information about different drugs, facts and statistics, or true stories from teens who struggled with drug and alcohol abuse? This website presents the raw facts and offers many support resources.

Resources for Families

DrugFree.org

Provides a variety of information and resources for families impacted by addiction, including free and confidential support available by sending a text to 55753, emailing a specialist through their online form, or scheduling an appointment to speak with a specialist over the phone.

Teens.DrugAbuse.gov/Parents

This resource from the National Institute on Drug Abuse for Teens is designed to help you talk with your teenager about drugs and their effects, as well as what to do and where to turn if anyone in your family needs help.