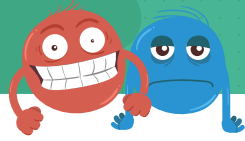


Alcohol and the Developing Brain



Discovery
EDUCATION



GRADE
RANGE
5–7

BODY ACTIVITY

TREAT YOUR BODY LIKE A TOP ATHLETE

Learning Objectives

Students will:

- Summarize the effects of alcohol use on the cerebellum
- Consider the effects of alcohol on one's motor functions
- Reframe the effects of alcohol on the cerebellum into different messages that specifically target and resonate with middle school students

Overview

The *Ask, Listen, Learn* underage drinking prevention program teaches kids what the brain does, what alcohol does to it, and what underage drinking does to them! In this activity, students explore the role of their brain's cerebellum in motor skills through the lens of an Olympic swimmer. Students consider why motor skills and coordination are important in the lives of all people (not just athletes!) and examine the negative effects of underage drinking on the cerebellum. Students ultimately apply what they have learned to create a profile of a fictional student their age to highlight the importance of making safe and healthy decisions.

Timing

60 minutes

Materials Needed

1. Device with the ability to project, one for the teacher
2. Video: [Healthy Decisions for the Whole Body](#)
3. Handout: **Cerebellum Investigation Notes Sheet**, one per student
4. Video: [How Alcohol Affects Your Developing Cerebellum](#)
5. Handout: **Student Spotlight Cards** (cut out), one card per student

Vocabulary

- Cerebellum

Procedure

1. **Warm-Up Activity:** Begin by playing the first half of the *Ask, Listen, Learn* video: [Healthy Decisions for the Whole Body](#) (just before Nathan begins to outline what could go wrong in the developing body when alcohol interferes). As students watch, encourage them to think about how they rely on their motor skills on a daily basis.
2. After viewing the video clip, lead students in participating in a popcorn share¹ in which they brainstorm examples of how they use motor skills in everyday life. “Pop” around the classroom in quick succession until everyone has participated (or until the desired number of students have contributed an idea).
3. Explain that a part of our brain called the **cerebellum** controls our movement, balance, and coordination. In other words, the cerebellum controls the ways in which our muscles work together to accomplish all the examples that they just shared—and more!
4. Distribute one **Cerebellum Investigation Notes Sheet** to each student and explain that the class is going to watch a quick video that further explains the cerebellum. Review questions 1–3 so students are aware of what they should listen for during the video. Then play the *Ask, Listen, Learn* video: [How Alcohol Affects Your Developing Cerebellum](#). Encourage students to take notes as they watch. *Note:* It may be helpful to play the video twice.
5. Following the video, give students a few minutes to work with a peer to discuss their notes and form responses to the first three questions. Discuss the answers as a class before moving on. Ensure that students understand alcohol’s effects on gross motor skills (e.g., when large muscle groups are used to accomplish tasks like walking, jumping, and running) as well as balance, speech, and fine motor skills (e.g., hand-eye coordination).
6. Next, direct students’ attention to the In the Spotlight question on the bottom of the **Notes Sheet**. Instruct them to record notes (related to the question) as they watch the second half of the *Ask, Listen, Learn* [Healthy Decisions for the Whole Body](#) video, in which Nathan Adrian discusses what could go wrong in the body as alcohol interferes with the cerebellum. When the video is complete, invite a few students to share the answers they recorded.
7. Explain that now that the class has thought about the importance of healthy decisions as it relates to an elite swimmer, they are going to think more thoroughly about the importance of these healthy decisions when it comes to people like them—middle school students!
8. Ask each student to randomly select one **Student Spotlight Card** and imagine that they are the person described on the card. Explain that they will create a spotlight about “themselves,” much like the video spotlight that they just watched about Nathan Adrian. Their goal is to share their spotlights with

¹ Students stand and the leader introduces a topic for sharing. Students voluntarily “pop” out of their seats and give a brief answer or comment. When finished, the speaker sits and the next student may pop up. (Another option is to have the student who just answered select the next student.) If two or more students “pop up,” they nonverbally determine who will speak first. A key to success is merging gracefully into and out of the conversation: waiting until the prior student is finished before “popping” in, trying to avoid having multiple people speaking at the same time, etc. Adapted from <https://www.originsonline.org/popcorn-share>

their peers to help them learn about the importance of the cerebellum, the effects of alcohol on the cerebellum, and the dangers of underage drinking. The spotlight must include:

a. Background information about “themselves” (the student described on the card)

Students can use the description provided on the card as a starting point and then develop additional personal details.

b. Information about why motor skills and coordination important to them

Students should consider the movements and types of coordination that are needed in this person’s daily life—both now and in the future.

c. Information about why they should say NO to underage drinking

Students should apply what they have learned to explain how alcohol use and an impaired cerebellum could impact this person’s life now and in years to come.

Tell students that how they create this spotlight is up to them! They may choose to produce a comic strip, video, paper, blog post, article, poster, slideshow, speech, or other creative product as long as it effectively answers the three questions. *Note:* You may decide whether you would like students to work independently or collaborate and work with peers who selected the same card.

- 9. Wrap Up:** When there are 5 minutes left in class, direct students to display the work they have completed so far. Then conclude class with a gallery walk, in which students have a chance to view the work of their peers. Acknowledge that most of the profiles will still be in draft form—and that is fine! The purpose of the gallery walk is for students to think further about the risks associated with underage alcohol use and the importance of spreading the word about making safe decisions.

Optional Extension

Students can turn their profiles into a broader school campaign. After completing a final draft of their student spotlight, students can brainstorm visible areas around their school where they can display their work in hopes of sharing their message with the rest of the student body.

Continue the Conversation

The *Ask, Listen, Learn* program provides a variety of resources to help you continue the conversation around alcohol and underage drinking throughout the school year. To learn more about how educators and families can help students make healthy decisions and say no to underage drinking, visit AskListenLearn.org.

National Middle School Standards

Next Generation Science Standards

- MS-LS1-8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

National Health Standards

- 1.8.1 Analyze the relationship between healthy behaviors and personal health.
- 7.8.1 Explain the importance of assuming responsibility for personal health behaviors.
- 8.8.4 Identify ways in which health messages and communication techniques can be altered for different audiences.

Common Core English Language Arts Standards

- CCSS.ELA-LITERACY.CCRA.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- 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 their own clearly and persuasively.

Cerebellum Investigation Notes Sheet

1. Explain the connection between the brain's cerebellum and the phrase "good things come in small packages."

2. The cerebellum controls your body's coordination. While you may have already known that big movements (like walking, running, and kicking a ball) are examples of coordination, the video gave other examples as well. What are other examples of coordination that you use in your everyday life?

3. When the cerebellum is affected by alcohol, it can have dangerous effects on our motor skills. Describe at least one way alcohol affects our voluntary movements *and* one way alcohol affects coordination that we normally do not have to think twice about. Then explain: Why are these effects unsafe?

In the Spotlight: Elite athlete Nathan Adrian discusses the importance of the cerebellum and how alcohol affects it. Why is it important for people to make healthy decisions like saying no to underage drinking?

Student Spotlight Cards

Student Spotlight

You help babysit your three younger siblings every day after school. You like to play outside with them and love to read them your favorite old picture books. You think you want to be a teacher someday.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

It is your first year on the volleyball team. You are slowly getting better at the sport, but it is taking quite a bit of practice! However, you are determined and will not give up.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

You love music and can't remember a time when you didn't play a musical instrument. From the guitar to the cello and the drums, you love it all! Your family likes to play music together on the weekends.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

You draw all the time. Your teachers are often unhappy when they catch you doodling! You love to capture facial expressions, and you hope to be a famous cartoon artist.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

You are captain of your school's debate team. You love the challenge of articulating your thoughts clearly and persuasively, and hope to be a lawyer in a big courtroom one day.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

You love writing! Over the years, you have filled countless notebooks with your ideas. This year, you became editor-in-chief of your school's newspaper!

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight Cards

Student Spotlight

Your goal is to make it onto your school's baseball team next year. For now, you practice pitching every day with your best friend as you work on increasing your throwing speed and accuracy.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

Last year, you were one of the slowest runners on the track team. But after a lot of hard work, you have increased your speed and have learned to love running. Now whenever you are stressed, you go for a jog!

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking

Student Spotlight

You dance even when music is not playing. You are working on choreographing a routine so you can try out for the school dance team. It is your dream to open your own dance studio one day.

Spotlight must include:

1. Background information about yourself in this scenario
2. Why motor skills and coordination are important to you
3. Why you should say NO to underage drinking