Utah Poison Control Center

Buzz in a Bottle

Target Age:
Teens

Goal:
To increase awareness of potential overdose risk when consuming caffeine in energy drinks and other caffeine containing products, and learn how to get help in the event of a poison emergency.

Learning Objective:
By the end of the presentation, participants will be able to

- explain the difference between energy drinks and sports drinks
- name 3 possible side effects from too much caffeine
- list 2 healthy energy promoting alternatives to energy drink
- critique the marketing of an energy drink during the "tagline" activity

Utah State Board of Education, Core State Standards for Health Education
Health I:
Strand 4. Substance Abuse Prevention. Students will learn how substances affect the developing brain, practice ways to resist peer pressure, and examine consequences of substance use.

Standard HI.SAP.2: Analyze media and marketing tactics used to promote alcohol, tobacco, nicotine, and other drug products.

Health II:
Strand 4. Substance Abuse Prevention. Students will evaluate decisions and influences about substance use. Students will also learn to speak with health care providers, research legal consequences, and analyze facts and resources for substance abuse.

Standard HII.SAP.2: Evaluate media and marketing tactics used to promote alcohol, tobacco, nicotine, and other drug products.

Timeline:
This lesson is designed to be a 60 minute presentation.

Materials:

- Video: *Buzz in a Bottle* (optional) available for loan from Utah Poison Control Center (UPCC). Activity handouts for each participant: *Tagline Activity, Caffeine Tracker Activity* and *Caffeine Levels in Common Drinks, Name the Energy Drink* located in the appendix.
- Magnets or telephone stickers with the poison control phone number (optional) available free of charge by calling poison control at 1-800-222-1222

Description:

Use of energy drinks has been steadily increasing. Approximately 30% of teens age 12-17 consume energy drinks regularly. They contain high and unregulated amounts of caffeine and have been linked to serious side effects. Marketing of these products are usually targeted at young people. Furthermore, some energy drinks contain alcohol, which competes with the caffeine stimulant and can cause a false sense of sobriety. New caffeine containing products continue to emerge and are usually marketed to the teen population. Educating teens about the risks and about healthy alternatives to energy drink consumption can help prevent poisonings.

Energy Drinks

1. Introduction

a. Introduce yourself
b. Explain purpose: To increase awareness of potential overdose risk when consuming energy drinks and learn how to get help in the event of a poison emergency.

2. Icebreaker

a. **Name the Energy Drink Activity:** Distribute the Name the Energy Drink handout* to each participant. Explain that they will be given 1 minute to write the name of as many energy drinks as possible. When the time limit is completed, each participant one-by-one, reads the items on their paper. If more than one person has an item listed, then all participants must cross it out. Participants continue reading their lists and others indicating if they have the same item listed. Once everyone has read through their lists, participants count the number of products left on their paper that have not been crossed out. The person with the most items listed wins. A small prize could be given to the winner (optional).

3. Overview/Statistics

Present the following information to the class:

a. Approximately 30% of teens age 12-17 consume energy drinks regularly. Ask the following question: Why do people choose to drink energy drinks? Allow answers. Most people state that fatigue and lagging energy is the reason.
b. We need to be aware of what we are putting into our body.

4. What are Energy Drinks?

Present the following information to the class:
Energy drinks contain large amounts of caffeine and sugar along with a combination of legal stimulants and supplements such as taurine, guarana, and ginseng. Many energy drinks do not list the amount of each ingredient on the label which makes it difficult to know exactly how much it contains.

*Located in the appendix

a. Caffeine is a drug not a food, however, energy drinks are not regulated by the Federal Drug Administration because they fall under the "supplement" category not the food or the drug category. Manufacturers of energy drinks regulate themselves. There are no requirements for testing, warning labels, or restrictions against sales or consumption by minors.
b. Caffeine is the most common used stimulant in America.

5. Energy Drinks vs. Sports Drinks

a. Ask the class if they know what the difference is between energy drinks and sports drinks.
b. Sports drinks such as Gatorade or PowerAde are flavored beverages that often contain carbohydrates, minerals and electrolytes, and sometimes vitamins or other nutrients. They are designed to re-hydrate the body while energy drinks can produce the opposite effect.
c. Energy drinks and pre-workout supplements contain may contain stimulants such as caffeine, guarana, taurine, ginseng, and creatine with varying amounts of carbohydrates, protein, amino acids, vitamins, sodium and other minerals. They cause dehydration because the caffeine in them is a diuretic drug.
d. Studies show that energy drinks have no therapeutic benefit
e. Energy drinks pose more of a threat to a person's health than a benefit to their performance.

6. What is Caffeine and how does it affect the body?

Present the following information

a. Caffeine is a stimulant drug that affects the body by jolting the central nervous system. It tricks the brain into thinking that it is not tired.
b. Caffeine is a diuretic that rids the body of extra water. Because of this, it may cause dehydration

7. What are the Dangers of Consuming Energy Drinks

Present the following information

a. Excessive caffeine can cause serious side effects such as:
    1. Upset stomach
    2. Sleeplessness
    3. Seizures
    4. Strokes
    5. Heart palpitations
    6. Sweating
    7. Tremors
    8. Vomiting
    9. Headache
    10. Diarrhea
    11. Chest pains
    12. Increased blood pressure
    13. Dependency
    14. Withdrawal when trying to stop
b. Caffeine can actually make you feel more tired by disrupting deep sleep. Many people try to combat lack of sleep by drinking more caffeine – which disrupts the sleep cycle even more. This caffeine cycle can lead to chronic fatigue and make your body dependent on caffeine to feel awake.
c. Explain that some energy drinks contain alcohol. Present the following elevator analogy:

> Have you ever stepped onto an elevator and pressed all the buttons? That wouldn't make much sense, because you'd be giving the elevator mixed signals. That is exactly what you are doing to your body if you mix

alcohol with ingredients found in many energy drinks. When two drugs like caffeine and alcohol are mixed, there is the risk of a drug interaction. A drug interaction occurs when two or more drugs combine and have unpredictable results. This is a potentially deadly mixing of signals.

d. Creates a false sense of sobriety. Even though you may feel alert, legally you are still considered "under the influence".
e. Studies have shown that caffeine may have a negative effect on the developing child's brain reward and addiction center. (Pediatrics February 14, 2011)
f. Pediatricians state that "stimulant-containing energy drinks have no place in the diets of children or adolescents". (Pediatrics May 29, 2011)

8. How Much Caffeine is in these Drinks?

Present the following information

a. The amount of caffeine in energy drinks is much greater than the amount found in soda and often much greater than the amount found in a cup of coffee (a threat for caffeine overdose and related health problems).
b. The total amount of caffeine contained in some cans or bottles of energy drinks can exceed 500 mg which is equal to 14 cans of common caffeinated soft drinks. This is high enough to result in caffeine toxicity (Pediatrics May 29, 2011).
c. Distribute *Caffeine Levels in Common Drinks**. Ask the participants to look over the list and see if there is anything that surprises them. Discuss the handout.
d. Activity: explain the *Caffeine Tracker** and distribute to participants.

9. Video—Buzz in a Bottle: the Dangers of Caffeine-Spiked Energy Drinks

a. Description: Video highlights 3 real-life scenarios all of which have tragic consequences for those involved. The stories are reenacted in the video. Experts are shown giving information on energy drink dangers and how to stay safe.

- Discuss the video: Ask the students to comment on the stories that were presented.
- Alternative to video: Share real news stories such as the following to illustrate the dangers of consuming energy drinks; https://www.youtube.com/watch?v=u704u8nKYIE https://www.youtube.com/watch?v=CVwBMuYCDe4 https://www.youtube.com/watch?v=I_bWKpl-VQE

10. Marketing

Explain that energy drinks are largely marketed to teens and young adults

a. Activity: Explain the *Taglines** activity and allow time for participants to complete it. This can be done individually, or in small groups.
b. Discuss strategies that advertisers use to target young people such as the following:
    - Magical promises and claims about increased energy and mental performance
    - Music and dance
    - Names that appeal to young people and their lifestyles, such as Full Throttle, Bionic Tonic and Jolt

*located in the appendix

- Emphasis on technology-video games, MP3's, the internet
- Superheroes
- Links to sports and movie activities
- Peer group acceptance
- Depictions of children outperforming adults
- Carefully chosen fonts and colors that are more likely to appeal to teens
- The use of "ideas kids" who are usually a little older and little cooler than the kids in the target audience

11. Healthy Alternatives

There are healthy alternatives to help us have more energy. Discuss the following:

a. Carbohydrates: such as fruit, vegetables, cereal and whole-grain breads can increase energy.
b. Sleep: getting enough sleep is essential for the body to function at its best.
c. Exercise: making exercise a part of your routine will create more energy.
d. Water is the appropriate first beverage choice during and after most exercise, not sports drinks or energy drinks.
e. Research has shown that low fat milk and chocolate milk help rehydrate after exercise.

12. How to get help if needed

a. If there is a poisoning, call poison control. They provide service 24 hours a day, 7 days a week. It is free and confidential. 1-800-222-1222
c. Activity: Program poison control phone number into cell phone. Optional: Make this into a race. The first person to come to the front and show the instructor the programmed number gets a prize.

14. Conclusion

a. Companies are coming up with new types of energy products frequently. Energy shots™, Energy Sheets™, and Aeroshots™, as well as other over-the-counter products have similar dangers associated with them. It is important to be aware of all sources of caffeine in your diet on a daily basis.
b. Don't hesitate to call poison control hotline 1-800-222-1222 if you or someone you know needs help.
c. Offer them magnets or telephone stickers with the number to share with their family (optional). These are available free of charge from poison control.

Resources:

- Journal of School Nursing, June 10, 2010
- Human Relations Media "Buzz in a Bottle the dangers of Caffeine-spiked Energy Drinks", 2010
- Pediatrics February 14, 2011 and May 29, 2011 http://pediatrics.aappublications.org/content/127/3/511
- National Center for Complementary and Integrative Health, July 26, 2018
- https://nccih.nih.gov/health/energy-drinks

- Al-Shaar, Laila, Vercammen, Kelsey, Lu, Chang, et al. Health Effects and Public Health Concerns of Energy Drink Consumption in the United States: A Mini-Review. *Front Public Health* (2017) https://doi.org/10.3389/fpubh.2017.00225
- National Institute on Drug Abuse http://www.drugabuse.gov/news-events/latest-science/adolescent-caffeine-use-cocaine-sensitivity
- American Association of Poison Control Centers
- Human Media Relations

Appendix

Name the Energy Drink

Directions: On the lines below list the names of as many energy drinks as you can within the allotted time.

Tagline Activity

Listed below are four popular energy drink brands and their marketing taglines that you may recognize. Choose one brand, or another brand that you are familiar with, and answer the questions below.

Red bull®- "Red bull gives you wings"
Rockstar®- "Party like a rockstar"
Monster® - "Unleash the Beast"
Bang® - "Fuel Your Destiny"

1. How is the name of the energy drink associated with increased vitality and energy?

   _____

   _____

   _____

2. Does the tagline make any promises or claims? If so, are they realistic claims? Explain.

   _____

   _____

   _____

3. Chose one word from the tagline that is intended to evoke a particular image for the product and explain what reaction you think the marketing team is trying to provoke in consumers.

   _____

   _____

   _____

4. Do you think the tagline for this product might be aimed at teens? Why or why not?

   _____

   _____

   _____

5. What, if anything, does the tagline tell you about the drinks actual ingredients?

   _____

   _____

   _____

Caffeine Tracker Activity

Caffeine is a drug that occurs naturally in many of the foods and drinks that we consume each day. As with any drug, it's possible to have too much of it.

For this activity, use the *Caffeine Levels in Common Drinks* fact sheet as well as your own research about caffeine levels in foods and drinks to track how much caffeine you consume on a typical day.

For each of the categories below, write down an estimate of how much caffeine you ordinarily consume. Just be sure to answer honestly and remember that caffeine is present in more than just certain kinds of sodas, teas or coffee.

Discuss your results as a group, and answer the following questions during the discussion:

- How much caffeine am I consuming?
- Have I been feeling any negative effects as a result of it, like trouble sleeping?
- How can I decrease or eliminate caffeine from my diet?

Morning	Afternoon	Evening	Night

Caffeine Levels in Common Drinks

It is difficult to know how much caffeine is in a product. Caffeine is required to be included on the ingredients list of food and beverages when it is added to a pro-cit (such as with soft drinks). However, it is not required to be listed as an ingredient when it occurs naturally in the product itself (e.g., chocolate) or in a caffeine-containing ingredient of the other products (e.g., guarana). Considering how much these levels can vary depending on the type and brand of beverage, this means you might be consuming much more caffeine than you realize.

Here are some approximate levels of caffeine for popular drinks.

~Amount of Caffeine in Beverages

Product	Caffeine per Serving	Caffeine per Ounce
Coffee		
Dunkin' Donuts regular coffee (16 oz)	206 mg	12.9 mg/oz
Plain (8 oz)	102-200 mg (avg 133)	16.6 mg/oz
Starbucks brewed coffee (16 oz)	320 mg	20 mg/oz
Espresso (1 oz)	30-90 mg (avg 40)	40 mg/oz
Tea		
Arizona, green (16 oz)	15 mg	0.9 mg/oz
Snapple, plain (16 oz)	18 mg	1.1 mg/oz
Arizona, black (16 oz)	32 mg	2.0 mg/oz
Snapple, flavored (16 oz)	42 mg	2.6 mg/oz
Brewed, green (8 oz)	10-40 mg (avg 25)	3.1 mg/oz
Brewed (8 oz)	40-120 mg (avg 53)	6.6 mg/oz
Soda (12 oz serving)		
Barq's Root Beer	23 mg	1.9 mg/oz
Coke	35 mg	2.9 mg/oz
Pepsi	38 mg	3.1 mg/oz
Dr. Pepper	42 mg	3.5 mg/oz
Sunkist Orange	42 mg	3.5 mg/oz
Diet Coke	47 mg	3.9 mg/oz
Pepsi One	54 mg	4.5 mg/oz
Mountain Dew	54 mg	4.5 mg/oz
Mountain Dew MDX	71 mg	5.9 mg/oz
Jolt Cola	72 mg	6.0 mg/oz
Energy Drinks		
Full Throttle (16 oz)	144 mg	9.0 mg/oz
Red Bull (8.3 oz)	80 mg	9.6 mg/oz
Monster Energy (16 oz)	160 mg	10.0 mg/oz
SoBe No Fear (16 oz)	174 mg	10.9 mg/oz
Cocaine (8.4 oz)	280 mg	33.3 mg/oz
Spike Shooter (8.4 oz)	300 mg	35.7 mg/oz
Caffeinated Water		
Propel invigorating Water (20 oz)	50 mg	2.5 mg/oz
Water Joe (16.9 oz)	60 mg	3.6 mg/oz
FXXX Hybrid (20 oz)	110 mg	5.5 mg/oz


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