

OVERVIEW FOR PRESENTER

This 30 minute lesson plan is the first part in a two part series about the Open Truth campaign (www.opentruthnow.org). Part 1 exposes the truth that sugary drinks are making us sick. The activities are designed to teach the following key messages in an interactive and engaging way:

1. What is a sugary drink?
2. Sugary drinks vs. sugary food
3. We are eating too much sugar.
4. Sugary drinks are making us sick.

SUPPLIES

- | | |
|--|---|
| <input type="checkbox"/> Variety of sugary drink containers and answer key | <input type="checkbox"/> 19 teaspoons of sugar |
| <input type="checkbox"/> Formula for calculating tps of sugar in a container | <input type="checkbox"/> Sugary Drinks are Making Us Sick Handout |
| <input type="checkbox"/> Bag of sugar packets | |
| <input type="checkbox"/> 5.5 pounds of sugar | |

WHAT IS A SUGARY DRINK? (5 min)

[Before the presentation, place a variety of sugary drinks around the room and cover the total grams of sugar on the nutrition label with a sticker or masking tape.]

Today we are going to talk about sugary drinks and how they affect your health. Before we get started, let's get on the same page. What is a sugary drink?

Sugary drinks are any drink that contains caloric sweeteners. Let's do an activity to help us understand just how much sugar are in some popular drinks.

Instructions to the audience: Some of you have a sugary drink in front of you. I've covered the sugar on the nutrition label. I'd like you to come to the front of the room and introduce yourself and share with the group the name of your sugary drink. Then place your drink along this "Sugar Spectrum" with lowest amount of sugar on one end to the highest amount of sugar on the other.

[Allow participants a few minutes to come to the front of the room and place the drinks on a spectrum from lowest to highest amount of sugar in the container.]

Does anyone want to rearrange or fix the order of drinks?

[Hand out and explain the formula for calculating teaspoons of sugar in a container. Reveal the correct order of drinks along the Sugar Spectrum and show the participants the answer key for each drink so they learn the teaspoons of sugar for each container.]

What was most surprising? [Discuss]

SUGARY FOODS VS. SUGARY DRINKS (5 min)

One question we often get is “why do we focus on sugary drinks and not sugary food?” To demonstrate, **we need 2 volunteers** (Vol A and Vol B).

[Vol A] will represent the **sugary food**. [*Hand bag of sugar packets to Vol A*]

[Vol B] will represent the **human body**.

[*Instruct Vol A to slowly toss sugar packets, one at a time, to Vol B who will catch them.*]

Sugary food *can* have nutritional value, including fiber and other nutrients that slow digestion and absorption of the added sugars. Multiple organs in the body may help metabolize the added sugars for energy. In other words, **your body can take what is thrown at it**.

The liver plays a very important role in the body. It cleans our blood, makes bile, and processes all the liquids we consume, which is why alcohol is so damaging to the liver. Now Vol A will represent a **sugary drink**, and Vol B will represent the **liver**.

[*Instruct Vol A to throw a large handful of sugar packets to Vol B who is unable to catch them.*]

Ask the audience: What happened? How did the liver react differently to the sugary drink?

The **sugary drink overwhelmed the liver where all the fructose is metabolized and the liver gets sick from overuse, resulting in fatty liver disease**, just like alcoholics.

Ask the audience: Why don't parents allow their kids to eat sugary foods before dinner?

Answer: Because they believe that it will ruin their appetite. However, kids often drink sugary drinks before, during, and after dinner!

Sugary drinks also have little to NO nutritional value. And what's worse? Sugary drinks do not make you feel fullⁱ, causing you to **drink more, and eat more**.

HOW MUCH IS TOO MUCH? (2 min)

We are consuming too much sugar, especially in liquid form. **Sugary drinks are THE NUMBER ONE source of added sugars** in our dietsⁱⁱ. The average American consumes **19 teaspoons of added sugars a day**. That's what this is:

[*Show audience 19 teaspoons of sugar*]

That means the average person is consuming **5.5 pounds of sugar a month!**

[*Show them 5.5 pounds of sugar*]

So this is what the *average* person is consuming, but how much *should* we be consuming?

Ask the audience: Does anyone know the FDA's guidelines for maximum amount of added sugars a person should consume in a day?

Answer: That's a trick question. The FDA has no guidelines. However, The World Health Organization proposed a maximum of 6 teaspoons of added sugarsⁱⁱⁱ.

SUGARY DRINKS ARE MAKING US SICK (10 min)

Sugary drinks are making us sick from head to toe and we now have the first generation of children in over two centuries who may live a shorter lifespan than their parents! ^{iv} **1 in 3 kids born after 2000 will have type 2 diabetes^v, and for African American and Latino children, it's 1 in 2.**

[Give each group a hand out and 5 minutes to identify which diseases are linked to sugary drinks and fill in the blank. Review the answers as a group. Direct participants to www.opentruthnow.org for more info.]

A growing body of science has linked sugary drinks to numerous health conditions including tooth decay^{vi}, obesity^{vii}, heart disease^{viii}, type 2 diabetes, metabolic syndrome^{ix} and gout^x, and ultimately, premature death.

Ask the audience: What was most surprising? Which of these diseases are most compelling to your age group?

[The following information is for the presenter's reference only. Do not read to participants, but use this information as background and refer to if participants have questions.]

LIVER - The liver is a vital organ that cleans our blood, makes bile, and processes all the liquids we consume, which is why alcohol is so damaging to the liver. Fructose can only be processed in the liver, so consuming drinks high in fructose or high fructose corn syrup has a large impact of the buildup of fat in the liver. We are now seeing increased cases of **Non Alcoholic Fatty Liver Disease**, which can lead to liver failure, liver cancer, and liver-related death.

OSTEOPOROSIS is a disease characterized by weakening of bones and bone density. Phosphoric acid in sugary drinks is linked to weakening bones, and caffeine interferes with calcium absorption. For children and adolescents, this is a double whammy: 1) These are their critical bone-building years; and 2) Sugary drinks are displacing healthy drinks like milk and water^{xi, xii}.

TOOTH DECAY – Tooth decay is the most common chronic disease of children and adolescents^{xiii}. Drinking sugar is worse for your teeth than eating sugar due to the length of time that sugar is on the surface of the tooth. Even diet soda is highly acidic, causing teeth to be highly susceptible to cavities. You don't have to be a heavy soda drinker to

experience dental decay. Drinking one 12 oz. can of soda a day can cause dental erosion due to the cumulative effects of some of the chemicals we consume.^{xiv, xv}

Even children less than 1 year old can have cavities. Early Childhood Caries, also known as **Baby Bottle Tooth Decay**^{xvi}, happens when children are allowed to sleep with sweet liquids in their mouth.

Sugary drinks are the only food or beverage directly linked to the overweight/obesity epidemic^{xvii}. Drinking one can of soda a day can add more than one pound of **weight gain** every month^{xviii}!

WRAP UP

There are three key messages that I hope you'll remember:

1. **We are consuming too much sugar.** Especially in liquid form, and in doses that are toxic to our bodies.
2. **Sugary drinks increase the risk of chronic diseases** like type 2 diabetes and heart disease.
3. And studies show that **cutting back on sugary drinks helps control weight and more importantly – reduce risk of diseases like type 2 diabetes and heart disease.**

ⁱ Pan A, Hu FB. Effects of carbohydrates on satiety: differences between liquid and solid food. . 2011;14:385-90.

ⁱⁱ Gutrie JF, Morton JF. Food sources of added sweeteners in the diets of Americans. J Am Diet Assoc. Vol 100; 2000; 43 - 51.

ⁱⁱⁱ http://www.who.int/nutrition/sugars_public_consultation/en/

^{iv} Olshansky SJ, Passaro DJ, Hershow RC, Layden J, Carnes BA, Brody J, Hayflick L, Butler RN, Allison DB, and Ludwig DS, "A Potential Decline in Life Expectancy in the United States in the 21st Century," *New England Journal of Medicine*, 352:11, pp. 1138-1145.

^v Narayan, K M, Boyle, JP, Thompson, TJ, Sorensen, S, Williamson DF. Lifetime Risk for Diabetes Mellitus in the United States. JAMA 2003;290:1884-1890. <http://helios.hampshire.edu/~cjcNS/sputtbug/416K/Endo/DiabetesRisk.pdf>

^{vi} Sohn W, Burt BA, Sowers MR. Carbonated soft drinks and dental caries in the primary dentition. J Dent Res. Mar 2006;85(3):262 - 266.

^{vii} UCLA Center for Health Policy Research & California Center for Public Health Advocacy, 2009.

^{viii} Fung TT, Malik V, Rexrode KM, Manson JE, Willett WC, Hu FB. Sweetened beverage consumption and risk of coronary heart disease in women. Am J Clin Nutr. Apr 2009;89(4):1037 - 1042.

^{ix} Malik VS et al, 2001;357(9255):505 - 508.

^x Choi, Hyon and Curhan, Gary. Soft Drinks, Fructose Consumption, and the Risk of Gout in Men: Prospective Cohort Study. *bmj.com*, January 31, 2008: doi:10.1136/bmj.39449.819271.BE

^{xi} Gortmaker S, Long M, Wang Y. The Negative Impact of Sugar-Sweetened Beverages on Children's Health: A Research Synthesis. Robert Wood Johnson Foundation; 2009. Available at: <http://www.rwjf.org/en/research-publications/find-rwjf-research/2009/11/the-negative-impact-of-sugar-sweetened-beverages-on-children-s-h.html>

^{xii} Kranz S, Smiciklas-Wright H, Siega-Riz AM, Mitchell D. Adverse effect of high added sugar consumption on dietary intake in American preschoolers. J Pediatr. Jan 2005;146(1):105-111.

^{xiii} CDC, 2013.

^{xiv} Marshall, T.A., Levy, S.M., Broffitt, B., Warren, J.J., Eichenberger-Gilmore, J.M., Burns, T.L. & P.J. Stumbo (2003). Dental caries and beverage consumption in young children. *Pediatrics*, 112, 184-191.

^{xv} Bassiouny, M.A. & J. Yang (2005). Influence of drinking patterns of carbonated beverages on dental erosion. *General Dentistry*, 53, 205-210.

^{xvi} American Dental Association web site: "Fact Sheet-Children's Dental Disease." American Dental Association web site: "Early Childhood Tooth Decay." Academy of General Dentistry web site: "What is Baby Bottle Tooth Decay."

^{xvii} Babey SH, Jones M, Yu H, Goldstein H. *Bubbling Over: Soda Consumption and Its Link to Obesity in California*. UCLA Center for Health Policy Research and California Center for Public Health Advocacy, 2009.

^{xviii} Vasanti S Malik, An Pan, Walter C Willett, and Frank B Hu. Sugar-sweetened beverages and weight gain in children and adults: a systematic review and meta-analysis/ Am J Clin Nutr October 2013 98: 1084-1102; First published online August 21, 2013. doi:10.3945/ajcn.113.058362