About Me

● Struggles
● Ah Ha moment
● Influences
  ○ Gary Taubes- Why we get fat and what to do about it
  ○ Robert Lustig- Sugar the bitter sweet truth
  ○ Dallas and David Hartwig- Whole 9
    ■ It Starts with Food
  ○ Fed Up Documentary with Katie Couric
Purpose Statement

- How sugar/sugar alcohols affect the body
- Where sugar/sugar alcohols can be found
- How much is too much
- How is this impacting childhood obesity
- Why we should address this issue as health advocates.
Carbohydrates

Monosaccharides: Glucose, Galactose, Fructose
Disaccharides: Lactose, Maltose, Sucrose
Polysaccharides: Starches
Fiber

Southgate, 1995
Carbohydrate Metabolism

Stomach: Salivary Amylase
Intestines: Pancreatic Amylase, Brush border enzymes

Glucose/Galactose: Absorbed through villi into bloodstream (Sodium transport)
Fructose: Transports to Liver to break down into glucose and triglyceride

Blood sugar rises, Insulin responds, glucose gets utilized throughout body, stored in muscles/liver as glycogen or stored as fat
The role of Insulin

Insulin:
- Growth Hormone
- Controlled by the pancreas
- Signals to muscle and fat tissue to uptake glucose in the bloodstream
Insulin Resistance

Insulin is not effective in signaling the uptake of blood sugar. More insulin is needed to do the work.

(Reaven, 2005)
Sugar

Sucrose: Glucose/Fructose

Fructose: Breaks down in liver as glucose and triglyceride, uric acid and free radical byproduct

Study:

Moderate Amounts of Fructose Consumption impairs Insulin Sensitivity in Healthy Young Men

Potential role of sugar (fructose) in the epidemic of hypertension, obesity and the metabolic syndrome, diabetes, kidney disease, and cardiovascular disease
Sugar on the food label

corn sweetener, corn syrup, dextrose, fructose, fruit juice concentrates, glucose, high-fructose corn syrup, invert sugar, lactose, maltose, malt syrup, raw sugar, sucrose, sugar syrup, cane crystals, cane sugar, crystalline fructose, evaporated cane juice, corn syrup solids, malt syrup, honey, agave, maple syrup
Sugar Alcohols

Sugar alcohols are digested in the large intestine, mainly by the bacteria in the intestine. This can cause bloating, GI discomfort, or a laxative effect. They do have a caloric value ranging from 1.5-3 calories per gram (Sugar 4 calories per gram).
Sugar Alcohol on Food Labels

Mannitol—pineapples, olives, asparagus, sweet potatoes and carrots, 50-70 times sweeter
Sorbitol—Fruits and vegetables, 50 times sweeter
Xylitol—straw, corncobs, fruit, vegetables, cereals, mushrooms and some cereals, same sweetness as sugar
Lactitol—Found in dairy, 30-40 times sweeter
Isomalt—Found in hard candies, 45-65 times sweeter
Maltitol—Hard candy, gum, desserts 75 times sweeter
Erythritol—Stevia 200 times sweeter
Hydrogenated starch hydrolysates (HSH)—Hydrolysis of Corn 40-90 times sweeter
Artificial Sweeteners

Aspartame (Equal) and Saccharin (Sweet & Low)

Do not raise the blood sugar
Cognitive sweetened response stimulates hunger hormones to consume

Artificial Sweeteners: A systematic review of metabolic effects in youth
What is Healthy

Fasting Blood Sugar of 70-100 mg/dl (Milligrams per deciliter)

AMA Recommendations for added sugar:
Women 100 Calories (6 teaspoons)
Men 150 calories (9 teaspoons)
1 teaspoon of sugar = 4 grams
What are we eating?

Average American consumes 20 teaspoons of Sugar a day

BEWARE! Sugar is EVERYWHERE!

Be a conscious consumer
Breakfast

Fat Free Strawberry Greek Yogurt: 2 tsp
½ Cherry Bagel: 1 tsp
Lunch

Peanut Butter/Celery: 1 tsp

Subway Turkey Sub: 2 tsp
Why should we care?

Excess Sugar or sweetener in diet is linked to

● Obesity
● Diabetes Type 2
● Addiction (sweeteners)
● Cancer (sweeteners)
● Cardiovascular Disease
For every sugar beverage a young person has each day their BMI correlates to the added sugar intake.

Chronic Stress, Combined with a High-Fat/High-Sugar Diet, Shifts Sympathetic Signaling toward Neuropeptide Y and Leads to Obesity and the Metabolic Syndrome.

Evidence for sugar addiction: Behavioral and neurochemical effects of intermittent, excessive sugar intake.
Most research is done on sugary beverages but desserts can be just as bad.
How can educators help

Good News! Consumption of sugary beverages are on the decline
Increase Insulin Sensitivity in Children
Change Eating Behaviors and Habits
Eliminate added sugars from diet
Carbs vs Fat
References


6. [http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyEating/Sugar-101_UCM_306024_Article.jsp](http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyEating/Sugar-101_UCM_306024_Article.jsp)


