

Effects of Sugar on Our Bodies: The Good, the Bad, and the Options

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Disclosures

- * No financial interest in any food or medication companies

Objectives

- * Identify the effects of sugar on metabolism, brain function and chronic disease development.
- * Identify the connection between our diet and our well being, vitality, and energy level
- * List options for those of us that love to eat sugar.

What is Sugar?

- * Sugars are carbohydrates – they break down into energy in the body
- * Some carbohydrates cause blood glucose to spike, others more stable

Natural Sugars

- * Fruit – fructose, glucose
- * Vegetables – fructose, glucose
- * Milk – lactose (galactose and glucose)

Review of Metabolism

- * Glucose is obtained from three sources:
 - * Intestinal absorption of food
 - * Glycogenolysis
 - * Gluconeogenesis

The Role of Insulin

- * Insulin has a number of effects on glucose metabolism, including:
 - * Inhibition of glycogenolysis and gluconeogenesis
 - * Increased glucose transport into fat and muscle
 - * Increased glycolysis in fat and muscle
 - * Stimulation of glycogen synthesis

Review of Metabolism

- * Sugar (glucose) in the blood spikes or raises - the pancreas releases insulin
- * Insulin puts glucose into cells
- * Insulin causes fat storage
- * Insulin inhibits fat burning
- * Insulin spikes stimulate an increased food intake at the next meal

The > 50 names for Sugar

- * Anything ending in “ose”;
i.e. dextrose, lactose, etc.
- * Syrup
- * Fruit juice
- * Cane sugar
- * Beet sugar
- * Brown rice sugar
- * Malt
- * Molasses
- * Cane syrup
- * Brown rice syrup
- * Honey
- * Agave nectar
- * Barley malt
- * Caramel
- * Corn sweetener
- * Corn syrup etc...

Glycemic Index

- * Glycemic Index = Compares how much carbohydrates in different foods raise blood glucose.
- * Glucose = 100
- * Fruit roll-ups = 99/24
- * White rice = 89/43
- * White bread = 75/10
- * Wheat tortilla = 30/8

Glycemic Load

Takes into consideration the amount and quality of the food.

*** GL High / Medium / Low Guidelines**

- * Low (good) = 10 and below
- * Medium (acceptable) = 11-19
- * High (avoid / limit) = 20+

GI and GL Chart

High Gi
70 & Above

High GL
20 & Above

Medium Gi
56 - 69

Medium GL
11 - 19

Low Gi
55 & Below

Low GL
10 & Below

Is Sugar a Drug?

Consider sugar as a drug? – there is no RDA for sugar intake.

- * The AHA recommendations focus on all added sugars, without singling out any particular types such as high-fructose corn syrup.
- * AHA - no more than 100 calories per day, or about 6 teaspoons of sugar for women. For men, it's 150 calories per day, or about 9 teaspoons

What About White Flour?

- * White bread is 70 on the glycemic index
- * Sugar is 58
- * A good rule of thumb is to avoid white food: rice, bread, pasta, etc.

How Does Sugar Affect Our Body?

- * Too much glucose > ↑ insulin > sugar is stored as fat → cells become resistant to insulin → diabetes/obesity
- * Obesity leads to heart disease, joint problems, high blood pressure

Diabetes

- * Blood glucose (sugar) becomes high from food intake
- * Pancreas secretes insulin but not enough - or - Cells become resistant to insulin
- * Need insulin from other sources (injections) or medications by mouth
- * Too much glucose in the blood leads to coma and death

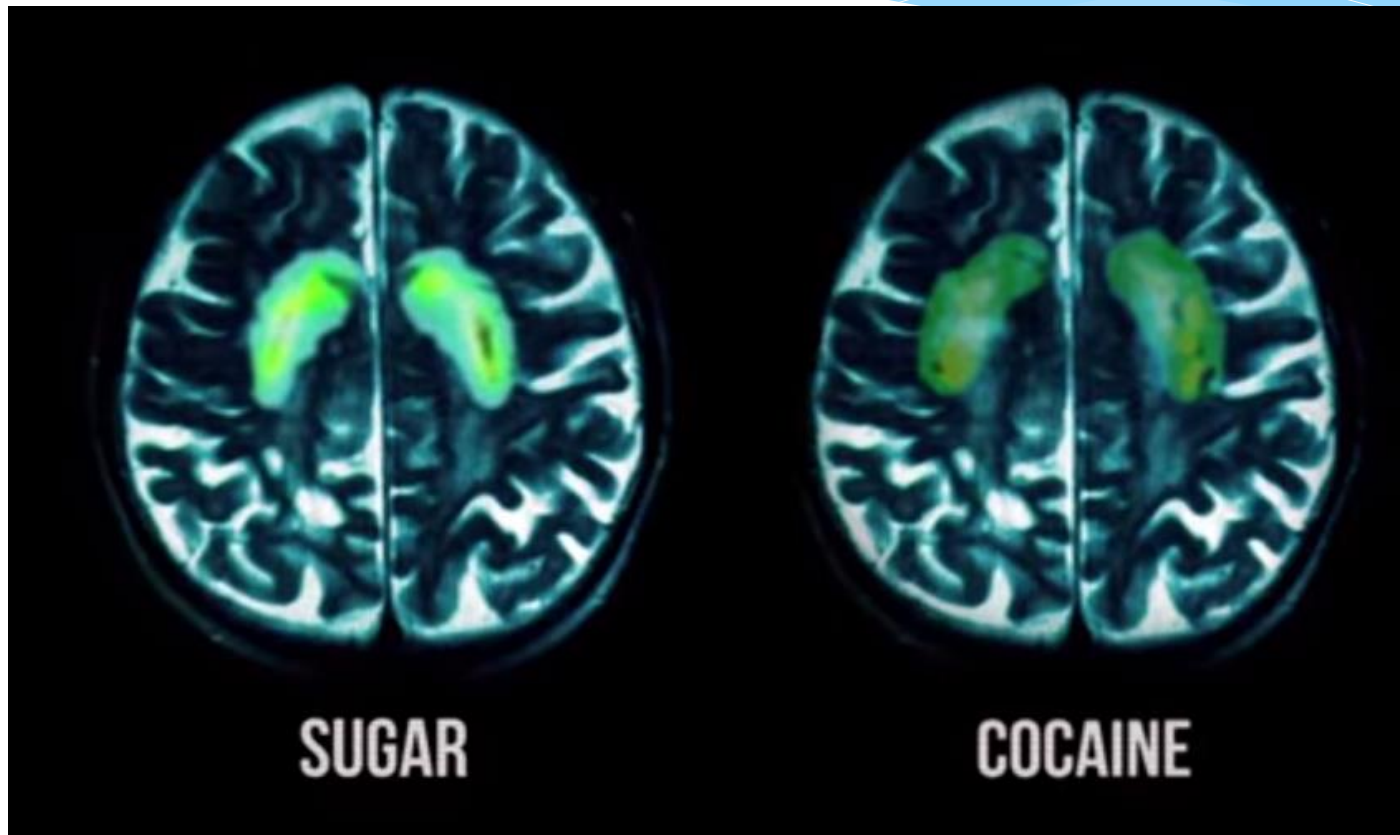
How Else Does Sugar Affect Our Body?

- * Many people report feeling better after decreasing or eliminating added sugar from their diet
- * More energy
- * Exercise more
- * Sleep better
- * Lose weight
- * Happier

How Does Sugar Affect Our Brain?

- * Tongue – sweet receptors
- * Brain stem
- * Cerebral cortex – reward system is activated
- * Gut – insulin response
- * Dopamine release
- * Increased tolerance to sugar, cravings, loss of control
- * Similar to drug, socializing, and sexual responses in the brain

Sugar Vs. Cocaine - And the winner is...



What About Sweeteners?

- * They help replace calories of sugar intake
- * They can help people maintain healthy weight
- * They may have the same addictive qualities as sugar
- * Our brains get used to the intense sweetness so natural sugar taste may decline
- * Truvia is not as intense – about 70% as sweet as sugar
- * FDA: regarded as safe

Stevia and Truvia

- * Stevia - from stevia plant
- * No calories
- * Have been used for 100's of years
- * Truvia – stevia extract plus a sugar alcohol
- * Neither have effects on blood sugar or insulin
- * FDA rates them safe

Inulin

- * What is inulin? – Inulin is a type of fiber found in certain plants.
- * Your small intestine does not absorb inulin. When it reaches the colon, bacteria ferment it.
- * Helps with constipation, other GI issues
- * Promotes healthy gut bacteria growth

What About Alcohol?



Options

Tips on Cutting Back Sugar Consumption

- * Toss the table sugar
- * Swap out soda and juices for low calorie drinks and water
- * Compare food labels and choose ones with lowest amount of *added* sugar

Tips on Cutting Back Sugar Consumption

- * Add fruit instead of sugar to cereal or oatmeal
- * Use extracts: vanilla, almond, orange, lemon
- * Use spices: cinnamon, clove, ginger, nutmeg
- * Use unsweetened applesauce in recipes instead of sugar

Snacks

- * Berries and almond/soy milk (try vanilla)
- * Bananas (not too ripe) and almond/soy milk
- * Apples, almonds, cinnamon with soy milk or yogurt
- * Yogurt and flaxseed, cinnamon, spoonful of granola
- * Power snacks – Sprouts (cocoa and goji berry)
- * Apple with cinnamon

Feel Better!

- * It's hard to give up added sugar
- * Dedication
- * Motivation
- * Exercise
- * Easier to sustain because you will feel better!