Toxic Sugar
We are a nation of sugar addicts!

Sugar Consumption
[pounds per person, per year]

More than 21,000,000 metric tons of sugar was consumed in the United States in recent years

Reference: Chemical Week
Where does all this sugar come from?

1. Milk
2. Boxed cereal
   – Kellogg’s Honey Smacks: 55.6% sugar
3. Bottled water
   – Water: 0 sugar
   – “Enhanced water”: 20 oz bottle has up to 30 g sugar (many are artificially sweetened)
4. Soft drinks
   – 20 oz bottle of Coke has 65 grams of sugar
5. Bread
   – DID YOU KNOW? White flour acts like sugar!
Other Sugar Sources

• Obvious: honey, table sugar, syrup, sweetened drinks and sugary desserts

• Not so obvious: pasta sauce, peanut butter, bread, yogurt, ALMOST EVERY PROCESSED FOOD CONTAINS SUGAR!
What Exactly is Sugar?

- 3 basic sugar types: glucose, fructose and galactose
- Combining these basic units makes more complex sugars and carbohydrates. For example:
  - Glucose + Fructose = Sucrose (refined table sugar)
  - Glucose + Glucose + Glucose (a chain of glucose hooked together) = starch (as in “potato”)
  - Your body breaks down carbohydrates into their simple forms
  - Glucose can be metabolized by any cell; fructose must be processed in the liver first
What about High Fructose Corn Syrup. Is that Sugar?

• YES

• High fructose corn syrup was what the food industry used to replace “refined sugar” back in the 1980s
  – Refined sugar was getting a bad reputation
  – HFCS is cheaper to produce

• HFCS is absolutely a sugar
  – Chemically, it is similar to sucrose, or table sugar (combination of glucose + fructose) but with a higher percentage of fructose
  – Because it is processed by the liver, many health experts consider it as bad for the liver as excessive alcohol
  – The average American consumes 30-40 lbs of HFCS a year
What about Fruit? It has sugar but I thought fruit was good for me.

- Fructose and glucose found in real, unprocessed foods is different from added sugar found in processed foods BECAUSE...

- In fruit, the sugar (fructose)
  - Is in low amounts (in comparison to processed foods); a peach has 2.4 grams of fructose, a 20 oz soda has 33 grams
  - is buffered by FIBER.

- Fiber slows the absorption of sugar, keeping the liver from being overwhelmed and blunting the extreme blood sugar spikes associated with added sugar.
Is Sugar REALLY that Bad?

• Health expert Dr. Robert Lustig says: YES
  – Pediatric endocrinologist who has treated hundreds of kids with obesity
• He says: “Sugar is a Poison. It is as bad as alcohol or tobacco. It is killing us.”
  – See his lecture on Youtube. Search for “Sugar: the Bitter Truth”
• Dr. Lustig notes that fructose is particularly bad: “Fructose is a chronic poison. It doesn’t kill you in one meal, it kills you after 10,000 meals. The problem is, every meal now is a fructose meal. Fructose is found in everything from pretzels to ketchup. “
• Mountains of fructose are not easily processed in the body
  – Converted to citrate, which is the raw material for triglycerides
  – Stays in the liver as fat (fatty liver), which triggers insulin resistance
  – Fructose triggers inflammation and increases uric acid levels (gout)
What else does added sugar do to your body?

• Makes you stupid.
  – Recent study found that a long-term, high fructose diet slows brain function, damaging memory and learning

• Increases your risk of cancer.
  – Sugar intake triggers insulin release. Some tumor cells have insulin receptors. When insulin lands on the tumor cell, it attracts sugar. Sugar feeds the tumor.

• Makes you fat.
  – 2/3 of Americans are overweight or obese
  – Obesity brings increased risk of diabetes, metabolic syndrome, heart disease, etc.

• Damages your heart.
  – High sugar diet is associated with high blood pressure and increased level of triglycerides (a type of fat associated with inflammation and increased risk of heart attack)
Other special effects of HFCS

• Fructose must be metabolized by the liver, which converts excess amounts to fat
  – Other carbs are absorbed and processed as glucose, which can be metabolized by any cell and doesn’t need liver involvement
  – HFCS can be damaging to the liver AND increases the amount of visceral fat – the most dangerous type of fat

• Fructose has adverse effects on hormone levels
  – Fructose intake does not turn off appetite-stimulating hormone (ghrelin)
  – Fructose intake does not turn on appetite-suppressing hormone (leptin)
  – Therefore, you can drink a large soda containing HFCS and be extremely hungry afterwards
Sugar in the bloodstream is like filling up your car with dirty gas

• Can your car run on dirty gas? Sure it can. Probably for quite some time.

• BUT – the longer the dirty gas circulates in the engine, the more damage it does.

• Eventually, the damage is so bad the engine breaks down.
How did we fall into the sugar trap in the first place?

• In the 1970s, health experts advised Americans to decrease fat intake and reduce risk of heart disease, because **Fat Will Kill You**.

• We stopped eating fat. We shunned butter.

• Result? Rates of diabetes, metabolic syndrome and heart disease SKYROCKET!

• Why – fat was replaced with sugar!
How did fat get such a bad reputation?

• Saturated fat and cholesterol linked to heart disease in the 1950s
• Researcher (Ancel Keys) found a connection between diets containing saturated fat and heart disease in 7 different countries
• Soon, everyone was told to eat “low fat”
But on closer inspection

• The “fat is bad” research ignored countries such as France, where people ate high fat diets and had low levels of heart disease (the “French paradox”)

• Other experts note:
  – More than 20 studies have shown that people who have heart attacks don’t eat more saturated fat than healthy people
  – Eight studies have shown that people with stroke have eaten LESS saturated fat than healthy people
Did You Know?

No dietary study has succeeded in lowering heart disease deaths by reducing intake of saturated fat.
Stay away from Butter!

• The message: Stay away from butter. It is full of saturated fat and is guaranteed to give you a heart attack.

• Advice: eat margarine instead

• Did you know? A research survey showed that men eating butter had half the risk of developing heart disease as those using margarine.
More on Margarine

• Made from hydrogenated vegetable oils
  – Hydrogenated = chemically modified to make it more stable (adding hydrogen keeps it from getting rancid)
  – To the oil is added: butter flavor, salt, preservatives, vitamin A, and yellow coloring

• Why it is a poor food choice
  – Increases LDL cholesterol levels
  – for each teaspoon of margarine consumed each day, risk of heart disease was found to be raised by 10%
  – Long-term margarine consumption by women was associated with a 67% increased risk of heart disease
Butter isn’t Bad!

• Butter has healthy nutrients
  – Anti-oxidant Vitamins A and E
  – Lecithin
  – Selenium
  – Cholesterol – yes, you need cholesterol. It is a natural anti-oxidant, foundation for many hormones, and for cell formation

• Health benefits of Butter
  – Strengthens the immune system
  – Contains vitamins A and D which aid calcium absorption
  – Source of iodine
Does Fat Make You Fat?

• All foods have the potential to cause weight gain
• Because fats are concentrated calories, people mistakenly avoid them
• Example: almonds
  – Overweight people on a low-cal diet PLUS 2.5 daily oz of almonds lost 62% more weight, 50% more belly fat, and reduced their blood pressure by 11 points versus the control group eating low-cal food and foods equal to the almonds for calories and protein
• Instead, we eat carbs and diet soda and most of us are overweight or obese
  – When you have insulin resistance you REALLY pack on the pounds!
So what should we really be concerned about?

• Artificial Trans-fats
• About 80 percent of trans fat in American's diet comes from **factory-produced partially hydrogenated vegetable oil**.
  – There are small amounts of natural trans fat in beef and dairy
How Dangerous are Trans Fats?

• In Denmark, where it has been illegal for foods to contain more than 2% trans-fats since 2004, deaths from heart disease have dropped by 20%

• A 2006 study found that for each additional 2% of calories consumed as trans fat, risk of heart disease nearly doubled!

• Trans fat not only raise total cholesterol levels, it also depletes good cholesterol (HDL), which helps protect against heart disease.

• Saturated fats do NOT deplete HDL – in fact, it may even increase HDL!
What about margarine that is free of trans-fats?

• The more solid the margarine, the more it has been hydrogenated and the higher the content of trans-fats

• REMEMBER: margarine is a man-made product. It is not natural.
  – It is chemically extracted, refined vegetable oil
  – It has trans-fatty acids (allowed to say “free of” or “no” on the label if less than 0.5 g per serving, but they are still there)
  – Does not have the healthy nutritional content of butter – especially lacking in the fat-soluble vitamins
Result of the Trans-fat & Sugar Diet

• America’s Number 1 Killer: Heart disease
  – high blood pressure, heart failure and stroke
• Heart disease kills more Americans than the next 5 leading causes of death COMBINED!
  – #2 cancer
  – #3 influenza
  – #4 lung disease (COPD)
  – #5 accidents
  – #6 diabetes

25% (1 in 4) of deaths in the United States are due to heart disease!
Avoid Trans Fats

• Biggest culprits are processed foods
  – Frozen foods, especially pizza, desserts, pot pies, breaded fish sticks
  – Prepackaged soup cups
  – Cake and biscuit mixes
  – Microwave popcorn
  – Chips and crackers
  – Cookies and candy
  – Margarine

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  • Long-term margarine consumption by women was associated with a 67% increased risk of heart disease
Eat Healthy Fats Instead

• Natural, mono- or polyunsaturated fats are very healthy, especially for the heart

• Olive Oil
  – In a recent study, regular use of olive oil reduced risk of dying (of any cause) by 26%, and specifically reduced risk of heart disease by 44%

• Sesame Oil
  – In a group of people with high blood pressure (despite taking prescription blood lowering medication) using sesame oil for cooking for 2 months reduced their average blood pressure to the normal range
  – Has also been found to promote weight loss

• Virgin coconut oil (not conventional hydrogenated oil)
  – Excellent for cooking and baking

• Don’t be afraid of reasonable amounts of saturated fats – real butter instead of margarine, for example
This is how you should eat: Paleolithic Diet

• 30% animal protein
• 60% animal fat (Not artificial trans fat!)
• 10% non-starchy carbohydrates from fruits and vegetables
  – no more than 72 grams of carbohydrates daily
  – 50 or less on the Glycemic Index