Added Sugar: Friend or Foe?

Jim Painter, PhD, RD
Professor, School of Family & Consumer Sciences
Eastern Illinois University
Added Sugar Friend or Foe

- Dietary recommendations for added sugar
- Sugar added as a friend encouraging nutrient dense foods:
  - Dressing on salads
  - Sweetened milk
- Sugar as a foe
  - When added to nutrient devoid foods
  - When it replaces nutrients
    - Juices
    - Dried fruits
- Replacing sugar with nutrient dense foods
“Although a UL is not set for sugars, a maximal intake level of 25 percent or less of energy from added sugars is suggested based on the decreased intake of some micronutrients of American subpopulations exceeding the level.”

Reduction in Nutrients as Added Sugar Increases

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  - Sugar added as a friend encouraging nutrient dense foods:
    - Dressing on salads
    - Sweetened milk
  - Sugar as a foe
    - When added to nutrient devoid foods
    - When it replaces nutrients
      - Juices
      - Dried fruits
  - Replacing sugar with nutrient dense foods
Sugar as a Friend Encouraging Salad and Veggie consumption

- **Side Salad Plain**
- **Side Salad w/ Creamy Ranch Dressing**
- **Ceasar Salad Plain**
- **Ceasar Salad w/ Creamy Ceasar Dressing**

![Bar chart showing calories for different salads](chart.png)
<table>
<thead>
<tr>
<th>Vegetable</th>
<th>% RDA in 1 NLEA Serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomato (148 g)</td>
<td>Vitamin A: 25%</td>
</tr>
<tr>
<td></td>
<td>Vitamin K: 14%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 31%</td>
</tr>
<tr>
<td>Carrot (85 g)</td>
<td>Fiber: 10%</td>
</tr>
<tr>
<td></td>
<td>Vitamin K: 10%</td>
</tr>
<tr>
<td></td>
<td>Vitamin A: 234%</td>
</tr>
<tr>
<td>Broccoli (148 g)</td>
<td>Fiber: 15%</td>
</tr>
<tr>
<td></td>
<td>Vitamin A: 18%</td>
</tr>
<tr>
<td></td>
<td>Vitamin K: 158%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 220%</td>
</tr>
<tr>
<td></td>
<td>Riboflavin: 10%</td>
</tr>
<tr>
<td></td>
<td>B6: 13%</td>
</tr>
<tr>
<td></td>
<td>Folate: 23%</td>
</tr>
<tr>
<td></td>
<td>Phosphorus: 10%</td>
</tr>
<tr>
<td></td>
<td>Manganese: 16%</td>
</tr>
<tr>
<td></td>
<td>Potassium: 10%</td>
</tr>
<tr>
<td>Vegetable</td>
<td>% RDA in 1 NLEA Serving</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Potato (Baked with skin, 148 g)</td>
<td>Fiber: 13%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 24%</td>
</tr>
<tr>
<td></td>
<td>Niacin: 10%</td>
</tr>
<tr>
<td></td>
<td>B6: 23%</td>
</tr>
<tr>
<td></td>
<td>Folate: 10%</td>
</tr>
<tr>
<td></td>
<td>Manganese: 16%</td>
</tr>
<tr>
<td></td>
<td>Phosphorus: 10%</td>
</tr>
<tr>
<td></td>
<td>Magnesium: 16%</td>
</tr>
<tr>
<td></td>
<td>Potassium: 17%</td>
</tr>
<tr>
<td>Romaine Lettuce (85g)</td>
<td>Vitamin A: 99%</td>
</tr>
<tr>
<td></td>
<td>Vitamin K: 107%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 33%</td>
</tr>
<tr>
<td></td>
<td>Folate: 29%</td>
</tr>
<tr>
<td>Fruit</td>
<td>% RDA in 1 NLEA Serving</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Apple (154g)</td>
<td>Fiber: 15%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 12%</td>
</tr>
<tr>
<td>Banana (126g)</td>
<td>Fiber: 13%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 18%</td>
</tr>
<tr>
<td></td>
<td>B6: 23%</td>
</tr>
<tr>
<td></td>
<td>Manganese: 17%</td>
</tr>
<tr>
<td></td>
<td>Potassium: 10%</td>
</tr>
<tr>
<td>Orange (1- Medium)</td>
<td>Fiber: 14%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 105%</td>
</tr>
<tr>
<td>Fruit</td>
<td>% RDA in 1 NLEA Serving</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Pear (166 g)</td>
<td>Fiber: 21%</td>
</tr>
<tr>
<td></td>
<td>Vitamin C: 12%</td>
</tr>
<tr>
<td>Strawberry (147 g)</td>
<td>Fiber: 12%</td>
</tr>
<tr>
<td></td>
<td>Vitamin: 143%</td>
</tr>
<tr>
<td></td>
<td>Manganese: 28%</td>
</tr>
<tr>
<td>Meat</td>
<td>% RDA</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Beef (3 oz, 95% lean, ground, crumbles, pan cooked)</td>
<td>Protein: 50%</td>
</tr>
<tr>
<td></td>
<td>Riboflavin: 10%</td>
</tr>
<tr>
<td></td>
<td>Niacin: 31%</td>
</tr>
<tr>
<td></td>
<td>B6: 18%</td>
</tr>
<tr>
<td></td>
<td>B12: 37%</td>
</tr>
<tr>
<td></td>
<td>Iron: 15%</td>
</tr>
<tr>
<td></td>
<td>Phosphorus: 23%</td>
</tr>
<tr>
<td></td>
<td>Zinc: 40%</td>
</tr>
<tr>
<td></td>
<td>Selenium: 26%</td>
</tr>
</tbody>
</table>
Nutrient Content of Chocolate Milk and other Sweetened Beverages

Source: USDA Nutrient Database for Standard Reference, Release 24. Orange fruit drink with vitamin C added; 100% unsweetened apple juice with vitamin C added; low-fat chocolate milk with vitamins A and D added.
Nutrient Content of Chocolate Milk and other Sweetened Beverages

Source: USDA Nutrient Database for Standard Reference, Release 24. Orange fruit drink with Vitamin C added; 100% unsweetened apple juice with vitamin C added; low-fat chocolate milk with vitamins A and D added
Milk Nutrients

- Children ages 2-8 do not get recommended amount of milk each day.
- Three-fourths of adolescents ages 9-19 do not receive recommended amounts each day.
Figure 16: Food Consumption of High School Students, 2003-2011 (MYRBS)

- **Ate 5+ fruits and vegetables per day**
  - 2003: 14
  - 2005: 12
  - 2007: 15
  - 2009: 14
  - 2011: 14

- **Drank 3+ glasses of milk per day**
  - 2003: 19
  - 2005: 15
  - 2007: 15
  - 2009: 13
  - 2011: 14

- **Ate breakfast every day**
  - 2003: 32
  - 2005: 33
  - 2007: 35
  - 2009: 36
  - 2011: 37

- **Drank 1+ glass of non-diet soda per day**
  - 2003: 25
  - 2005: 21
  - 2007: 48
Essential Minerals & Daily Intake Through Milk

- Calcium - 32% of AIs for children and 33% of AIs for adolescents
- Potassium - 16% AIs for children and 16% AI for adolescents
- Magnesium - 22% of RDA for children, and 13% of RDA for adolescents
Flavored milk 3%

Yeast bread & rolls 2%

Yogurt 1%

Condiments & sauces 1%

All other food categories 5%

Dairy desserts 6%

Ready-to-eat cereals 6%

Grain-based desserts 12%

Soda & soft drinks 30%

Candy, sugar, sugary foods 19%

Fruit drinks 15%

Note: Chart represents average values
Source: NHANES (2003-2006), Ages 2-18 yrs
The average flavored milk serving in schools this Fall will be 134 calories.

Flavored milk will be only 30 calories more than the white milk in school.

66% of Processors report newly reformulated product will be offered this Fall.

The most common Chocolate offering will be fat free with 130 calories and only 10 added grams of sugar.

Average flavored school milk has 32 fewer calories than 5 years ago.
Avg. Calories in 8 oz. of Flavored Milk

'06-'07: 166.1
'09-'10: 154
'10-'11: 142.8
'11-'12P: 134.3

2011-2012 Projected School Milk Product Profile, Prime Consulting Group
**TruMoo Fat Free Chocolate Milk...Has Gone From Good to Even Better!**

[Image of TruMoo products]

- Non Fat
- No High Fructose Corn Syrup
- Lower Sugar, Lower Sodium, and Fewer Calories!

**A Truly Good Thing.™**

**NO High Fructose Corn Syrup**

<table>
<thead>
<tr>
<th></th>
<th>Old Formula</th>
<th>New Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container Size:</td>
<td>8 oz.</td>
<td>8 oz.</td>
</tr>
<tr>
<td>Serving Size:</td>
<td>8 oz.</td>
<td>8 oz.</td>
</tr>
<tr>
<td>Calories:</td>
<td>130</td>
<td>120</td>
</tr>
<tr>
<td>Calories from Fat</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Fat:</td>
<td>0g</td>
<td>0g</td>
</tr>
<tr>
<td>Saturated Fat:</td>
<td>0g</td>
<td>0g</td>
</tr>
<tr>
<td>Trans Fat:</td>
<td>0g</td>
<td>0g</td>
</tr>
<tr>
<td>Cholesterol:</td>
<td>5mg</td>
<td>5mg</td>
</tr>
<tr>
<td>Sodium:</td>
<td>200mg</td>
<td>180mg</td>
</tr>
<tr>
<td>Total Carbohydrate:</td>
<td>24g</td>
<td>18g</td>
</tr>
<tr>
<td>Fiber:</td>
<td>0g</td>
<td>0g</td>
</tr>
<tr>
<td>Sugars:</td>
<td>22g</td>
<td>18g</td>
</tr>
<tr>
<td>Protein:</td>
<td>8g</td>
<td>8g</td>
</tr>
</tbody>
</table>

**Ingredients:**
- Non-Fat Milk, Sugar, Contains Less Than 1% Cocoa (Processed with Alkali), Corn Starch, Salt, Carrageenan, Natural and Artificial Flavor, Vitamin A Palmitate, Vitamin D3

**Ingredients:**
- Non-Fat Milk, Sugar, Contains Less Than 1% Cocoa (Processed with Alkali), Corn Starch, Salt, Carrageenan, Natural and Artificial Flavor, Vitamin A Palmitate, Vitamin D3

[Arrow indicating lower values]
## Nutritional Comparison

1 serving (8 oz.)

<table>
<thead>
<tr>
<th></th>
<th>Chocolate Calories</th>
<th>Chocolate Sugars</th>
<th>Coffee Calories</th>
<th>Coffee Sugars</th>
<th>Strawberry Calories</th>
<th>Strawberry Sugars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Formula</td>
<td>140</td>
<td>22g</td>
<td>140</td>
<td>23g</td>
<td>130</td>
<td>23g</td>
</tr>
<tr>
<td>New Formula</td>
<td>130</td>
<td>22g</td>
<td>130</td>
<td>22g</td>
<td>130</td>
<td>22g</td>
</tr>
</tbody>
</table>
What Happens when Milk is Removed from the Schools?
What happens when milk is removed from schools?

- Eliminated all foods and beverages with high fructose corn syrup (flavored milk was removed and made a la carte)
- Purpose: measure total milk consumption before and after the elimination of flavored milk
- Milk invoices for a 3 month period:
  - September-December 2007 (White & Chocolate)
  - September-December 2008 (White only)
Flavored Milk Removed From Schools

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Before Removal</th>
<th>After Removal</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-2</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>3rd-5th</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>6th-8th</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>9th-12th</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>K-8th total</td>
<td>42</td>
<td>20</td>
</tr>
</tbody>
</table>

- **Before Removal**
- **After Removal**
Food Revolution Study

- Jamie Oliver Study to make school lunches healthier
- Removes Flavored Milk in Schools
- The new menus were intended to include only fresh and made-from-scratch items, eliminating the use of processed foods.
- 25% decrease in milk consumption by students
Pilot Study

Purpose: to determine calcium consumption in school-aged children when flavored milk is offered in the school systems.

Objectives:

- To determine preferences of milk flavors among school children
- To analyze among of calcium and nutrients consumed among both flavored drinkers and plain milk drinkers
Procedure

- Count Initial Milk
- Place empty/full Milk on table
- Poured wasted milk into separate bowls for separate flavors
- Weigh Bowls
Results: DAY 1 vs. DAY 2

Total Milk Consumption Per Day

- **Day 1**: 66.70%
- **Day 2**: 50.35%

**Figure 3**

Day 1 - Flavored and White Milk Offered - Consumption

Day 2 - White Milk Only Offered - Consumption
The Value of Milk

- A study showed eliminating flavored milk from elementary schools resulted in a dramatic drop in milk consumption - 35%.

- To replace nutrients lost if milk is not consumed can be difficult and expensive.
Added Sugar Friend or Foe

- Dietary recommendations for added sugar
- Sugar added as a friend encouraging nutrient dense foods:
  - Dressing on salads
  - Sweetened milk
- Sugar as a foe
  - Is HFCS liquid death
  - When added to nutrient devoid foods
  - When it replaces nutrients
    - Juices
    - Dried fruits
- Replacing sugar with nutrient dense foods
High-Fructose Corn Syrup: Harmless Sweetener or Liquid Death?
ABC NightLine Sugar Wars

http://www.hulu.com/watch/136085
Sugar the Bitter Truth?

- Pediatric endocrinologist Dr. Robert Lustig, whose YouTube video -- entitled "Sugar: The Bitter Truth"
- "Fructose is the cause of the current epidemic," insists Dr. Lustig
- Fructose is toxic in large quantities, because it is metabolized in the liver in the same way as alcohol, which drives fat storage and makes the brain think it is hungry

Ludwig

- Ludwig, a childhood obesity expert, cited sugar as the key source of an American public health crisis.

- “Tobacco and alcohol are perfect examples. We have made a conscious choice that we’re not going to get rid of them, but we are going to limit their consumption. I think sugar belongs in this exact same wastebasket,” he said.
HFCS causes obesity

• Arguments for:
  • Increase in HFCS consumption corresponds to increase in obesity in US
  • HFCS Different from sugar rinks
US Sweetener Consumption
1970-2005

Wells & Buzby 2008

1Includes sucrose, HFCS, glucose, dextrose, edible syrups, and honey.
Source: ERS Food Availability data.
## Comparison of HFCS, sucrose, and honey

<table>
<thead>
<tr>
<th></th>
<th>Sugar</th>
<th>Honey</th>
<th>HFCS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How sweet is it?</strong></td>
<td>Sugar is the benchmark</td>
<td>Honey is as sweet as sugar</td>
<td>There are two types: HFCS-55 as sweet as sugar; HFCS-42 about 92% as sweet</td>
</tr>
<tr>
<td><strong>How many calories per gram?</strong></td>
<td>4/gram</td>
<td>4/gram</td>
<td>4/gram</td>
</tr>
</tbody>
</table>
| **What's in it?**      | 50% fructose 50% glucose | 48% fructose 52% glucose | HFCS-55: 55% fructose 45% glucose  
HFCS-42: 42% fructose 58% glucose |
Added Sugar Friend or Foe

- Dietary recommendations for added sugar
- Sugar added as a friend encouraging nutrient dense foods:
  - Dressing on salads
  - Sweetened milk
- Sugar as a foe
  - When added to nutrient devoid foods
  - When it replaces nutrients
    - Juices
    - Dried fruits
- Replacing sugar with nutrient dense foods
<table>
<thead>
<tr>
<th>Amount/Serving</th>
<th>%DV**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fat</strong> 0g</td>
<td></td>
</tr>
<tr>
<td>Saturated Fat 0g</td>
<td></td>
</tr>
<tr>
<td>Trans Fat 0g</td>
<td></td>
</tr>
<tr>
<td>Cholesterol 0mg</td>
<td></td>
</tr>
<tr>
<td>Sodium 0mg</td>
<td></td>
</tr>
<tr>
<td>Total Carbohydrate 34g</td>
<td>11%</td>
</tr>
<tr>
<td>Dietary Fiber 0g</td>
<td></td>
</tr>
<tr>
<td>Sugars 27g</td>
<td></td>
</tr>
</tbody>
</table>

*Contains important Value of the day.

**Percent Daily Values are based on a 2,000 calorie diet. Higher or lower needs vary.

<table>
<thead>
<tr>
<th>Total Fat</th>
<th>Sat. Fat</th>
<th>Cholesterol</th>
<th>Sodium</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ED CORN STARCH; LESS THAN 2% OF: APPLE JUICE FROM CONCENTRATE, CITRIC DIOXIDE), NATURAL AND ARTIFICIAL FLAVORS, SODIUM CITRATE, CARNAUBA WAX,
Contiene 5% Jugo de Manzana

Datos de Nutrición
Tamaño por Ración 1 bolsa (177 mL)
Raciones por Envase 10

Cantidad por Ración
Calorías 80
Grasa Total 0g 0%
Sodio 20mg 1%
Carbohidrato Total 20g 7%
Azúcares 20g
Proteínas 0g
Vitamina C 100%

INGREDIENTES: AGUA, JARABE DE MAÍZ DE ALGA FRUTOSA, JUGO CONCENTRADO DE MANZANA. CONTIENE MENOS DE 2% DE ÁCIDO ASCÓRBICO (VITAMINA C), SABOR ARTIFICIAL, ACERO CERÍCO, SODIO CITRATO, ACETO, ETILEN-GAMMA-ETILO-ÁCIDO (EITÁ) (PARA CONSERVAR LA FRESCUÍZA), ROJO 40, AZUL 1.

KRAFT FOODS GLOBAL, INC.
NORTHFIELD, IL. 60063-2752 USA.

Visítenos en kraftfoods.com 1-800-347-9225

Prueba esto...
Enfría las bolsas de bebidas durante 4 horas hasta que estén congeladas. Después guardalas en las lonchinas aisladas de los niños para que su almuerzo se conserve fresco. A la hora del almuerzo la bebida se habrá descongelado y estará lista para disfrutar.
**Nutrition Facts**

**Datos de Nutrición**

**Serving Size/Tamaño Por Ración:** 8 fl oz (240mL)

**Servings Per Container/Raciones Por Envasaje:** 16

<table>
<thead>
<tr>
<th>Amount Per Serving/Cantidad Por Ración</th>
<th>% Daily Value/<em>/Valor Diario</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories/Calorías</td>
<td>60</td>
</tr>
<tr>
<td>% Daily Value/<em>/Valor Diario</em></td>
<td></td>
</tr>
<tr>
<td>Total Fat/Grasa</td>
<td>0g</td>
</tr>
<tr>
<td>% Daily Value/<em>/Valor Diario</em></td>
<td>0%</td>
</tr>
<tr>
<td>Sodium/Sodio</td>
<td>170mg</td>
</tr>
<tr>
<td>% Daily Value/<em>/Valor Diario</em></td>
<td>7%</td>
</tr>
<tr>
<td>Total Carbohydrate/Total de Carbohidratos</td>
<td>16g</td>
</tr>
<tr>
<td>% Daily Value/<em>/Valor Diario</em></td>
<td>5%</td>
</tr>
<tr>
<td>Sugars/Azúcares</td>
<td>14g</td>
</tr>
<tr>
<td>Protein/Proteína</td>
<td>0g</td>
</tr>
<tr>
<td>Vitamin C/Vitamina C</td>
<td>100%</td>
</tr>
<tr>
<td>Thiamin/Tiamina</td>
<td>15%</td>
</tr>
</tbody>
</table>

*Not a significant source of calories from fat, saturated fat, trans fat, cholesterol, dietary fiber, vitamin A, calcium and iron. No es una fuente importante de calorías de grasa, grasa saturada, grasa trans, colesterol, fibra dietética, vitamina A, calcio ni hierro.*

*Percent Daily Values are based on a 2,000 calorie diet.

*Los Porcentajes de Valores Diarios están basados en una dieta de 2,000 calorías.*
Welch's Light Concord Grape Juice Beverage

Nutrition Facts
Serving Size: 8 fl oz (240mL)
Servings Per Container: 8

- Calories 48
- Total Fat 0g
- Sodium 75mg
- Total Carbohydrate 9g
- Sugars 11g
- Protein 0g
- Vitamin C 100%

Taste you can trust
Real grapes, picked right from our vines
Pressed into juice within 8 hours of picking
You'll love it or we'll replace it!

Our Family Farmers' Promise to Your Family.

Ingredients: Filtered Water, Concord Grape Juice Concentrate, Apple Juice Concentrate, Sugar

Contains 28% Juice

Welch's Chillers Juice Drink

Nutrition Facts
Serving Size: 8 fl oz (240mL)
Servings Per Container: 8

- Calories 14
- Total Fat 0g
- Sodium 35mg
- Total Carbohydrate 4g
- Sugars 3g
- Protein 0g
- Vitamin C 100%

Want 1 serving of fruit?
Try Welch's Essentials

Ingredients: Filtered Water, Apple Juice Concentrate, Blueberry Juice Concentrate, Sugar

Contains 10% Juice

Comments or Questions?
Call 1-800-340-6870
Weekdays 9 am-4 pm EST
Pasteurized Shake Well Refrigerate After Opening
### Nutrition Facts

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>Calories from Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calories</strong> 110</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total Fat</strong> 0g</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Sodium</strong> 45mg</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Potassium</strong> 50mg</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Total Carbohydrate</strong> 28g</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Sugar</strong> 28g</td>
<td></td>
</tr>
<tr>
<td><strong>Protein</strong> 0g</td>
<td></td>
</tr>
</tbody>
</table>

**Vitamin C 100%**

*Not a significant source of saturated fat, trans fat, cholesterol, dietary fiber, vitamin A or calcium. Percent daily values are based on a 2000 calorie diet.*

**INGREDIENTS:** Filtered Water, Cranberry Juice from Concentrate, Cane or Beet Sugar, White Grape Juice from Concentrate, Lime Juice from Concentrate, Natural Flavors, Sodium Citrate, Red Grape Concentrate (for color), Ascorbic Acid (Vitamin C).

**Must refrigerate after opening. For best quality and freshness use within two weeks after opening.**

[Image of Cranberry Juice Bottle]
Gone Bananas (100g)

![Bar chart comparing nutritional values of Banana and Banana Chips]

- **Protein (g)**
- **Total Fat (g)**
- **Saturated Fat (g)**
- **Carbohydrate (g)**
- **Total Sugars (g)**

Legend:
- Blue: Banana
- Red: Banana Chips
% RDA Comparison
Cranberries and Dried Cranberries

- Cranberry 1/3 cup
- Dried Cranberry 1/3 cup
Nutrient comparison between dried fruits

Dried fruits vary in their nutrient content, each one scoring highest for different nutrients

- Figs — calcium, iron
- Raisins — phosphorus, vit c, potassium
- Sweetened dried cranberries — added sugar
Phosphorus
Potassium

mg/100g

- Prunes
- Figs
- Apples
- Pears
- Peaches
- Apricots
- Raisins
- Dried Cranberries
Added Sugar Friend or Foe

- Dietary recommendations for added sugar
  - Sugar added as a friend encouraging nutrient dense foods:
    - Dressing on salads
    - Sweetened milk
  - Sugar as a foe
    - When added to nutrient devoid foods
    - When it replaces nutrients
      - Juices
      - Dried fruits
  - Replacing sugar with nutrient dense foods
“Low calorie, low sugar, no salt. . . No wonder the dog doesn’t beg anymore”
How have you replaced sugar with nutrient dense foods
Usefulness of Sugar

- Binding
- Browning
- Texture
- Balance sour, bitter
- Filler, fat replacement
- Viscosity
Binding

- Snack, energy bars
- Whole-grain cookies, muffins
- Gluten free products

Try:
- Dried fruit (w/o added sugar)
- Flaxseed meal
- Honey, agave nectar
Texture

- Whole-grain breads
- Cookies, muffins

Try:
- Fruit juice concentrate
- Honey, agave nectar, molasses
Balance and Enhance Flavor

- Vinaigrettes
- Marinades
- Tomato sauces

Try:
- 100% Fruit juice
- Honey
Filler/Fat Replacement

- Muffins
- Cookies
- Meatballs, Burgers

Try:
- Puréed carrots, sweet potatoes
- Apple sauce
Viscosity

- Sauces
- Salad Dressings
- Glazes

Try:
- Fruit, vegetable, herb, or spice purees
- Honey, agave nectar
- 100% fruit juice
- Reductions, concentrates
Coco Cocoa Nut Torte

Ingredients:
- 1 c. almond meal/flour
- ½ c. unsweetened coconut
- ½ c. cocoa powder
- 1 tsp baking soda
- ¼ tsp salt
- 1 cup raisins
- ½ cup pitted dates
- ¾ c. water
- 3 Eggs
- 2 T coconut oil
- 2 tsp vanilla

Directions:
Preheat oven to 325 F. Grease an 8” round cake pan.
Mix together almond meal, cocoa powder, baking soda, and salt in a bowl and set aside.
In a blender, food processor, or an immersion blender, blend the raisins, dates, and water until smooth.
Add the eggs, coconut oil, and vanilla to the blended mixture and mix until smooth.
Add the wet ingredients to the dry ingredients and mix just until incorporated. Pour batter into greased cake pan and spread evenly.
Bake for 25-30 minutes or until toothpick comes out clean. Let cool 10-15 minutes.

This could be eaten as a dessert or an entrée with all of the powerful ingredients!
Cutting Sugar: Roasted Tomato and Raisin Salsa

Yield: 1 quart
Serves: 30

Ingredients:
1 C. - California raisins
2 – 14.5 oz cans fire roasted tomato diced, drain
1 C. - toasted pepitas (pumpkin seeds)
4 T - cocoa nibs – crushed
2 each - Ancho chilis, toasted then soaked in 2 C. hot water for 15 minutes
½ c. Dark Brown sugar
1/4 C. raisin paste
1 T - olive oil
½ C. - 1/4" diced red onion
1 T - lime juice
1 t - apple cider vinegar

To Taste Salt and pepper

Directions:
Heat olive oil in a small sauté pan and add cocoa nibs, cook stirring until fragrant. Add raisins and cook for 2-5 minutes stirring, until raisins are soft and shiny, remove from heat and let cool. Puree the Anchos with 1/2 of the water they were plumped in, and the raisin paste. Mix tomatoes, pepitas, cocoa nibs, onion, raisins and chili mixture, lime juice, vinegar and salt and pepper to taste. Serve with Blue Corn Chips.
Cut Sodium: Raisin Tomato Relish

Ingredients:

- 1 C. – Sun-Maid golden raisins, plumped in hot Green Tea for 20 minutes, drained
- 3 C. - Soft Sun Dried Tomatoes, diced 1/4 "
- 1 T. - Fresh Ginger, peeled, finely grated
- 2 T. - Fresh Cilantro, chopped
- 1 t. - Sesame Oil
- 2 T. - Chili Oil
- 1 T. – Kikkoman Ponzu Sauce
- 1 T. Raisin Juice Concentrate
- 1C. - Yellow Onions, julienned and Caramelized, cooled to room temperature

Directions:

- Combine all the ingredients for the relish in a bowl, mix well.
- Store refrigerated until ready to use.
Thanks...

Chris Starbird

Julia MacKenzie

Maggie Schuster

Elizabeth Shuff
Conclusion

- We are consuming way too much added sugar
- But it is not the cause of the decline of western civilization
- It is bad when it replaces nutrients
- It is good when it encourages nutrient dense foods
- It is good when the added sugar is replaced by nutrient dense foods
- Choose your sugar by the company it keeps