**Sugar in the food we eat Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

It is difficult to determine the total amount of sugar in our food because some of it is *naturally occurring* such as fructose in fruit and lactose (milk sugar) in milk. Many packaged food have sugars added to them such as sucrose, glucose, glucose-fructose (also known as high fructose corn syrup), fructose, maltose, or dextrose.We also add our own sugar during preparation (such as putting sugar in your coffee or adding sugar to your cereal).

There are many different forms of sugars that may be added to foods. Some examples are:

Some foods may be sweetened with naturally occurring sugars such as agave syrup, honey, maple syrup, barley malt syrup or fancy molasses, fruit juice and purée concentrates that are added to replace sugars in foods

Sugars are **“***empty calories***”** becausemost foods that are high in sugar have *little nutritional value*. When we eat sugar, it satisfies our hunger and therefore we eat less of the healthy foods. Excess sugar that our body does not use for energy right away gets *stored as fat*. Excess consumption of sugar can lead to *obesity*.  Obesity is a risk factor for chronic conditions including *cardio-vascular disease*, *type 2 diabetes* and certain types of *cancer*.

Not all sweet food is bad for us. Fruit contains a lot of sugar but it also contains fiber and macronutrients. The fiber helps slow down the sugar absorption. Because the sugar in the fruit is locked in fiber, this causes a slower release of sugar to our body, preventing the sugar “rush” and then crash.

Eating excess sugar can also lead to type 2 diabetes. When we eat sugar, our body releases *insulin*, a hormone that tells the body’s cells to absorb the sugar we just ate. If we constantly consume sugar, our body keeps releasing insulin and over time our cells become desensitized to the insulin and don’t absorb the sugar. The sugar remains in the blood. Extended periods of high blood sugar levels can be damaging to our small blood vessels. Later we will look at what health problems come with diabetes.

In Canada, the total sugar consumption has been set at **100 g per day**.  Foods that contain 5% or less or our daily value (5g or less), this is considered *a little*. Foods containing more than 15% of our daily value (>15g) is considered a lot. Health Canada recommends that most of your consumption of sugar come from fruits, vegetables and milk.

Aside from diabetes and obesity, other health problems associated with excess sugar consumption are Cardiovascular disease, Cognitive problems, including dementia and Alzheimer's, Colon cancer, High blood pressure, cholesterol and triglyceride levels, kidney disease and Liver disease.

*Use the reading on the previous page to answer the questions on the next page.*

1. Why is it difficult to calculate total sugar consumption from the foods we eat?
2. Sugar is added to many packaged foods. List at five different types of sugars you might find on a nutrition label.
3. What do most sugar names end in? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What are some naturally occurring sugars that may also be added to foods?
5. Why are added sugars called “empty calories”?
6. What does our body do with the extra sugar we don’t immediately use as fuel?
7. What is insulin and what does it do?
8. The daily limit of sugar is set to 100g a day. How much sugar in our packaged food is considered a little? \_\_\_\_\_\_\_\_ How much is considered a lot? \_\_\_\_\_\_\_\_
9. What some health concerns that might arise from eating too much sugar?
10. Many foods naturally contain sugar, such as fruit. On your device, search up how much sugar an average apple contains. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Is this a little or a lot?
11. Now search up the sugar content of your favorite beverage (bubble tea, apple juice, Nestea, Starbucks Frappuccino): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Is this a little or a lot?

**Reading Labels for Sugar Content**

When you have a bowl of cereal in the morning do you measure out the suggested serving size or do you fill your bowl? How can you compare sugar content of different cereals when serving sizes are different?









|  |  |  |  |
| --- | --- | --- | --- |
|  | All bran | Frosted Flakes | Froot Loops |
| Amount of Sugar (g) per serving |  |  |  |
| Serving Size (mL) |  |  |  |
| Standardized Serving | 500mL |
| Amount of sugar per 250mL serving |  |  |  |
| Percent of Daily intake (100g)  |  |  |  |
| Is this a little (5%) or a lot (>15%) ? |  |  |  |

**Comparing Labels Assignment**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Purpose:** To compare sugar content in processed foods and rate them on sugar content.

1. Look up nutrition labels of *3-4 different brands* of foods from ONE category:
	* Beverages: Pop/energy drinks/juice/Specialty coffees/bubble tea/ice tea
	* Snack bars: granola bar, chocolate bar, protein bar, meal replacement bar
	* Breakfast: cereal, granola, oatmeal
	* Yogurt
	* Salad dressings
	* Condiments: ketchup, mayonnaise, mustard, jam
	* Other?
2. Using the products you chose above, complete the chart as we did in class. **Show sample calculations in at least one column.**

|  |  |  |  |
| --- | --- | --- | --- |
| Brand:  |  |  |  |
| Amount of Sugar per serving size (g)  |  |  |  |
| Serving Size Listed (mL or g). Convert to metric if needed |  |  |  |
| Choose a **Standardized Serving**. Example: * 355mL drinks
* 35mg bar
* 25mL condiments
 |  |
| Amount of sugar for **standardized serving size**. See calculations below.  |  |  |  |
| Percent of 100g Daily intake in this standardized serving. See previous assignment |  |  |  |
| Is this a little (5%) or a lot (>15%) ? |  |  |  |

\* Grams of sugar per Standardized serving = Standardized serving size x grams of sugar per serving on container

1. Graph your results in a **bar graph** for each food item. Express your values as either *percent of daily intake* OR *grams of sugar per your standardized serving*.

 Title: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Self-Assess:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| How did you do?  | 0 | 1 | 2 | 3 | 4 |
| Did you show your calculations neatly? |  |  |  |  |  |
| Is your graph neat and easy to understand? |  |  |  |  |  |
| Did you give your graph an appropriate title? |  |  |  |  |  |
| Did you label each axis? |  |  |  |  |  |
| Will the reader know what serving size you chose?  |  |  |  |  |  |

**Part B Sugar Display**

Materials: empty containers/wrappers, sugar, baggies, scoopulas, masking tape, 250ml beaker, triple beam balance.

1. Collect empty wrappers/rinsed out containers or cut out a printed image for of your items.
2. With masking tape, clearly label a clear plastic zip lock bag with the name of product.
3. Using a triple beam balance, weigh an empty 250mL beaker.
4. Using a calculator, ADD the weight of the sugar in grams from the label to the weight of the beaker.
5. Adjust the riders on the balance to this new measurement. The scale arm will drop down. Leave the beaker on the scale.
6. Scoop sugar into beaker until the scale is balanced again. This means you’ve added the correct amount of sugar from the label.
7. Pour the measured sugar from beaker into designated bags
8. With masking tape, clearly label the number of grams of sugar that each clear plastic zip-lock bag contains.
9. Clean up and put balance away.
10. Attach your wrappers/containers to the display board with corresponding bag of sugar. Leave enough space for others.
11. Answer the reflection questions and hand in.

**Part C: Reflection:**

1. From the class display board, which product was most surprising to you? Why?
2. Which of these products do you or your friends regularly consume?
3. How has this activity affected your choices now? Please be specific.
4. What are some reasons why the general public doesn’t realize how much sugar is in our processed foods?
5. Evaluate each product and decide which one you would recommend as the best option. Consider not only sugar content but also taste and convenience. Please use COMPLETE SENTENCES.

**Self Assess:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| How did you do?  | 0 | 1 | 2 | 3 | 4 |
| I fully answered the questions and used complete sentences |  |  |  |  |  |