Backgrounders

Introduction

It is helpful to scan or read all 'Backgrounders' before starting to teach the program:

- Each one offers valuable information about the sugary drinks you will be discussing. As well, each backgrounder has links for more information.
- Students will ask a variety of questions, and these will vary from year to year. Backgrounders will be helpful, quick reference for you when one of these questions is unexpectedly posed by a student.

Sugar Backgrounder

What is sugar?

The word "sugars" describes the group of carbohydrates that provide energy to the body and help to make our food sweet. Sugars come in many forms and have different names because of their chemical structures. "Glucose", "fructose" and "lactose" are different types of sugars. The word "sugar" usually means white or brown table sugar. It is found naturally in sugar cane and sugar beet, extracted through a refining process and then granulated.

Sources of sugars

Sugars can occur naturally in fruit, vegetables, starches, grains and most plant-based foods. Fructose is found in fruits and vegetables, while lactose is in milk and milk products. Granulated sucrose or table sugar is sold in grocery stores in brown, white and powdered forms.

"Added sugars" are the granules, syrups and sugars added to food and drinks for flavour, texture or colour.

"Free sugars" is another word used when talking about sugar. Free sugar is any sugar that is added to foods by the manufacturer or when cooking at home, plus it includes the sugar that is naturally present in honey, syrups, and fruit juices. It does not include sugar naturally present in milk or whole fruit and vegetables.

Is there any nutrition in sugar?

Other than providing energy, sugar offers no nutrition. Most of the sugar we eat will be broken down into glucose or "blood sugar". It is the energy source for organs, tissues and all of the body's activities. Glucose is very important for healthy brain function. The brain uses glucose almost exclusively for its energy needs. Fruits, vegetables, milk and milk alternatives have naturally-occurring sugar, but also have important nutrients such as fibre (in vegetables and fruit), protein, vitamins, minerals, and antioxidants.

How much sugar is recommended for healthy eating?

Your body does not need to get carbohydrates from free sugars for good health. The Heart and Stroke Foundation recommends that in both adults and children, intake of free sugars not exceed 10% of total daily energy (calories). Based on this, **Sip Smart!™ Ontario** uses a maximum daily amount of no more than 10 tsp (50 mL) of free sugar for children ages 7 – 13 years.

10 tsp = 10 sugar cubes = 10 sugar packs = 40 grams of sugar

This Daily Sugar Total (DST) is to be used as a guideline only. The number would change slightly based on the student's age, gender, body composition, and activity level.

Included in the DST (10 tsp/50 mL sugar) is:

- Sugar added to flavoured milk and flavoured soy beverages
- Sugar added to soft drinks, fruit beverages, cocktails, energy and sports drinks
- Sugar in honey and syrups
- Naturally occurring sugar in 100% fruit juice. This is included because we don't actually need to drink juice to be healthy. It's easy to get the same nutrients (and more) from whole fruits

Not included in the DST is:

- Naturally occurring sugar in milk (lactose)
- Sugar in plain soy beverages
- Naturally occurring sugar in whole fruits or vegetables

As an example, if a child consumes one 355 mL can of pop, which contains 10 - 12 teaspoons of sugar, he has reached his DST (daily sugar total) for that day!

For more information on the Heart and Stroke Foundation's advice on ways to reduce sugar consumption visit their website at www.heartandstroke.com.

Does sugar cause hyperactivity?

No! Although it is a commonly held belief that sugar causes hyperactive behaviour in children, research has not found any negative effects of sugar on behaviour. Children can become naturally excited and active for class parties and other special events, so it can be easy to think that eating special treats, such as cake and candy, is the cause. Research makes it quite clear that sugar does not cause hyperactivity.

Commonly reported negative effects of sugar on children's behaviours may be because people closely watch a child's behaviour and expect it to cause problems. Parents who thought their child was sugar sensitive reported hyperactivity just by being told their child had received a large dose of sugar in a sugar-sweetened beverage (even though the drink had artificial sweetener).

There are other reasons besides hyperactivity to limit children's sugar intake, including to prevent dental caries and to limit excess calories, which could lead to overweight and obesity.

Main points:

- Sugar is a type of carbohydrate.
- Sugar can be naturally present in food (i.e., naturally-occurring sugar) or added to food at the table and during processing (i.e., added sugar).
- There are many names for added sugars that can be found in ingredient lists.
- Added sugars provide calories but no nutritional value.
- Limit food and beverages high in added sugar.
- A high intake of sugars can contribute to poor oral health and other chronic diseases.
- Sugar does not cause hyperactivity.

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[1] *Heart and Stroke Foundation of Canada Position Statement. Sugar, Heart Disease and Stroke.*

Available at http://www.heartandstroke.com/site/c.ikIQLcMWJtE/b.9201361/k.47CB/Sugar_heart_disease_and_stroke.htm

Label Reading Backgrounder

Teaching students to read the food labels found on packaged food will help them to make informed food choices when it comes to choosing healthy drinks.

Ingredient List: The ingredient list shows all the ingredients in a packaged food. Ingredients are listed in order of weight, beginning with the ingredient that weighs the most and ending with the ingredient that weighs the least. This means that a food contains more of the ingredients found at the beginning of the list, and less of the ingredients at the end of the list.

Common words for sugar in the ingredient list:

- Agave nectar
- Barley malt
- Beet sugar
- Brown sugar
- Caramel
- Corn sweetener
- Corn syrup solids
- Dextrin
- Dextrose
- Evaporated cane juice
- Fructose
- Fruit juice concentrations
- Galactose
- Glucose
- High-fructose corn syrup
- Honey
- Lactose
- Liquid glucose-fructose
- Liquid invert sugar
- Maltodextrin
- Maltose
- Molasses
- Raw cane sugar
- Sucrose
- Syrup (e.g., malt, barley, rice, maple, corn)

Nutrition Facts: The Nutrition Facts Table is found on almost all pre-packaged foods. It gives you information on the amount of 13 core nutrients and calories in an amount of food. “Sugars” is one of the core nutrients that must be listed on the Nutrition Facts Table. It is listed under carbohydrates. The Nutrition Facts Table lists total sugars, which includes both added and naturally occurring sugars.

All of the information in the Nutrition Facts Table is based on an amount of food called "serving size." The serving size is listed at the top of the Nutrition Facts Table. The serving size is not necessarily the amount of food you should eat. It is a reference amount for the calories and nutrients on the Nutrition Facts Table.

In the example for chocolate milk, the 26 grams of total sugar per 1 cup (250 mL) would include the naturally occurring lactose, as well as the added sugars (e.g., sugar, glucose/fructose). The added sugars would be listed in the ingredient list.

How many teaspoons of total sugar are in a sugary drink?

One teaspoon (5 mL) of sugar is equal to 4 grams, which can be compared to 1 sugar cube or 1 sugar packet.

Nutrition Facts
Valeur nutritive
Per 1 cup (250 mL)
par 1 tasse (250 mL)

Amount / Teneur	% Daily Value / % valeur quotidienne
Calories / Calories 170	
Fat / Lipides 2.5 g	4 %
Saturated / saturés 1.5 g + Trans / trans 0 g	8 %
Cholesterol / Cholestérol 10 mg	3 %
Sodium / Sodium 180 mg	8 %
Carbohydrate / Glucides 26 g	9 %
Fibre / Fibres 0 g	0 %
Sugars / Sucres 26 g	
Protein / Protéines 9 g	
Vitamin A / Vitamine A	10 %
Vitamin C / Vitamine C	0 %
Calcium / Calcium	30 %
Iron / Fer	2 %
Vitamin D / Vitamine D	45 %

1. Look at the number of grams of "sugars" in the beverage on the Nutrition Facts Table (this number includes both naturally occurring and added sugars).
2. Divide the number of "sugars" by four (4) to find out the teaspoons of sugar in the serving size used for the Nutrition Facts Table.

Watch out: The serving size shown on the Nutrition Facts Table might be less than the full bottle. If the container has more than one serving, multiply the number of grams of sugar in one serving by the number of servings to get the **total grams** of sugar in the container.

Example 1:

Your drink has 8 grams of sugar per serving according to the Nutrition Facts Table. Divide 8 by 4 to determine the number of teaspoons of sugar in the drink. Therefore, 8 divided by 4 equals 2 tsp (10 mL) of sugar per serving.

Example 2:

A 591 mL cola has 30 grams of sugar per serving, and one serving is 250 mL

How many teaspoons of sugar are in this bottle of cola?

Step 1: Figure out the number of servings in the bottle.

591 mL per bottle ÷ 250 mL per serving = **2.4 servings per bottle**

Step 2: Figure out the grams of sugar in the bottle.

30 grams sugar per serving x 2.4 servings = **72 grams of sugar per bottle**.

Step 3: Figure out the teaspoons of sugar in the bottle.

72 grams of sugar per bottle ÷ 4 grams per teaspoon = **18 teaspoons of sugar per 591 mL bottle**

There are 18 teaspoons of sugar in this 591 mL cola.

For more information:

- Visit Health Canada website: Nutrition Labelling at http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/index-eng.php

Sugar-Sweetened Beverages Backgrounder

What are sugar-sweetened beverages?

Sugar-sweetened beverages are drinks (carbonated or not) that contain added sugars. Examples include:

- Soda pop or soft drinks
- Fruit drinks (e.g., "punches", "cocktails" or "-ades")
- Energy drinks
- Sports drinks
- Flavoured or vitamin-enhanced waters
- Specialty tea and coffee beverages (e.g., iced cappuccinos or iced teas)
- Flavoured milk drinks and milkshakes
- Sweetened plant based beverages (e.g., soy, almond, rice beverages)
- Hot chocolate
- Sweetened smoothies made with added honey or fruit juice
- Slush type drinks

Health Effects of Drinking Too Many Sugary Drinks

1. **Poor nutrition:** Sugary drinks contain mostly sugar and water. They provide calories but little, if any, nutritional value.
2. **Tooth decay:** Sipping sugary drinks, especially ones high in acid (e.g., sports drinks or pop) can lead to tooth decay. Sugary drinks mix with bacteria in the mouth to produce acid. Acid erodes enamel, which can lead to cavities. Diet drinks may not contain sugar but they do contain acid.
3. **Displace healthier beverages in the diet:** When the frequent choice is a sugary drink instead of milk or water, it can affect the intake of important nutrients such as calcium and vitamin D. Some research suggests that people who drink this "liquid candy" do not feel as full as if they had eaten the same calories from solid food and do not compensate by eating less.
4. **Weight gain:** Greater intake of sugary drinks is linked to increased energy intake and body weight. Obesity puts children at risk for other health problems such as heart disease, high blood pressure, stroke and diabetes.
5. **Chronic diseases:** Regular consumption of sugar-sweetened beverages is associated with cardiovascular disease (e.g., stroke, high blood pressure) and type 2 diabetes.

Main points:

- Sugary drinks provide calories but often little, if any, nutritional value.
- Sugary drinks often take the place of healthier drinks.
- Regular consumption of sugary drinks is associated with weight gain and development of chronic diseases.
- Sipping sugary drinks can lead to tooth decay and acid erosion.

Food Additives Backgrounder

Food additives are substances that are added to foods to increase their shelf life, to enhance their taste, or colour. There has been much controversy regarding the risks and benefits of food additives. Hyperactivity in children, allergies, asthma, and migraines have been associated with adverse reactions to food additives. However, most food additives are considered safe if consumed in moderate quantities, and Health Canada requires all food additives to go through a rigorous process of approval before they can be used in Canada. Sugary drinks often have many additives.

Ingredient	Use in food or beverages
Carrageenan	A food additive from seaweed sometimes called Irish moss (a type of red seaweed). It is used as both a gelling and stabilizing agent. Gelling agents help thicken beverages and stabilizing agents help keep suspended food particles from settling to the bottom (e.g. chocolate in chocolate milk).
Citric Acid	This food additive acts as a preservative by regulating the acidity of a beverage or food. It also adds an acidic or sour taste to foods and soft drinks, and increases the carbonation and foaming properties of soft drinks.
Disodium phosphate, Sodium Citrate	These food additives help keep ingredients in a beverage from separating, act as preservatives by regulating the acidity of a beverage, protect the colour or flavour of a beverage from trace minerals like iron, and add to a beverage's carbonation or foaming properties.
Ester gum (Glycerol Ester of wood rosin)	Ester gum is a resin that is produced by combining glycerol (syrup used for sweetening and preserving food) with rosin (dark brown resin from the stumps and sap of pine trees). It is used in beverages as an emulsifier (keeps oil droplets evenly distributed in water) and carbonation agent.
Maltodextrin	A carbohydrate produced from starch and used as a food additive. It is easily digestible, being absorbed as rapidly as glucose.
Monopotassium phosphate, Tricalcium phosphate	Food additives that protect the flavour and colour of food and beverages and are also used as food for yeast in the fermentation of beer. Tricalcium phosphate is also used to keep ingredients in a beverage from separating, and as a carbonation agent in soft drinks.
Vegetable Oil and Bromated Vegetable Oil	Vegetable oil may be added to some fruit and soft drinks as a flavouring agent and emulsifier. By law, if the amount of oil included is 0.5% or lower per reference amount, manufacturers are allowed to put 0% fat on the nutrition label.

Ingredients Added to Energy Drinks	
Ginseng	This is a species of plant within Panax, a genus of 11 species of slow-growing perennial plants with fleshy roots. It is added to energy drinks to improve physical and athletic stamina; however, studies have not supported this role for ginseng.
Glucoronolactone	This is a naturally occurring chemical compound produced by the metabolism of glucose in the human liver. It is added to energy drinks to reduce fatigue and to remove toxins, however, there is no scientific evidence to support these claims.
Guarana extract	Guarana is a plant from the Amazon that contains caffeine and other chemicals which are similar to caffeine. One Guarana berry has five times more caffeine than a coffee bean. It is added to energy beverages to enhance athletic performance and to reduce mental and physical fatigue. High doses may cause the heart to race and trouble sleeping.
Inositol	It is a vitamin-like substance found in many plant and animal cells and is made by the body. It is used to treat circulation disorders.
Taurine	An amino acid that occurs naturally in meat, seafood and milk. Taurine is often added to energy drinks to boost mental and physical performance though this has not been proven. When mixed with alcohol, taurine may mitigate the effects, encouraging greater consumption of alcohol.
Yerba mate	This is a species of holly native to South America. The dry leaves are toasted and/or steeped as a beverage and contain caffeine. It is a central nervous system stimulant and has cardiovascular benefits however it is also is associated with a higher risk of cancer of the mouth, esophagus, kidney and more. It is **not** recommended for children.

Vitamins Added to Beverages

Declarations of vitamins and mineral nutrients in the Nutrition Facts Table are based on the combined total of both the naturally occurring nutrient content and any added nutrient content of a food. Vitamins and mineral nutrients are declared as percentages of the Daily Value per serving of stated size.

Vitamin A palmitate	An animal source of vitamin A that can be synthesized and added to beverages, especially low-fat milk that loses some of its Vitamin A when the fat is removed. It also can be added to cereals and vitamin waters.
Pantothenic Acid	A form of vitamin B5 added to energy drinks to improve exercise performance but research does not support its benefit.

For more information on additives permitted in food and beverages in Canada, go to: Food Additives Dictionary, www.hc-sc.gc.ca/fn-an/securit/addit/diction/index-eng.php

Oral Health Backgrounder

What is oral health?

Good oral health means teeth and gums that are free from infection and decay. A healthy mouth helps to eat, speak, and socialize in comfort.

How to maintain oral health?

Oral health depends on good oral hygiene and proper nutrition to prevent tooth decay (cavities) and keep mouth tissues healthy. It is recommended to floss daily and brush teeth for two minutes, twice a day:

"2 for 2 is what you do!"

What are the risks to oral health?

Oral health can have a huge impact on a child's overall health and well-being. Having and keeping a full set of teeth (both baby teeth and permanent teeth) allows children to maintain good nutrition, proper speech and contributes to positive self-esteem. Both tooth decay and tooth erosion can threaten oral health.

Why can drinking too many sugary drinks cause tooth decay?

Plaque is a sticky film that forms daily on teeth, and is made up of live bacteria. These bacteria feed on sugar (natural or added) and produce an acid, which causes tooth decay also known as cavities. If left untreated, tooth decay can cause pain and infection.

Bacteria + Sugar = Acid (Tooth Decay)

What is tooth erosion?

Tooth erosion occurs when the outer surface of the tooth (enamel) wears away. This makes the enamel thinner and the tooth more sensitive and more susceptible to decay.

Why can too many acidic beverages cause tooth erosion?

Some drinks, such as soft drinks, lemonades and citrus fruit juices, are acidic. This is true for regular and diet versions of these beverages. This acid can also put teeth at risk, but in a different way than that of the sugar-eating plaque. Prolonged exposure to acid can have a direct eroding effect on the outer surface of the teeth (enamel).

Acidic beverages + Tooth + Time = Erosion

Can water contribute to oral health?

Yes. Rinsing with water after eating or drinking anything helps to clear sugar and acids from the mouth.

For more information:

- Ontario Association of Public Health Dentistry: http://www.oaphd.on.ca
- Canadian Dental Association: http://www.cda-adc.ca/en/oral_health/cfyt/dental_care_children/

Main points:

- A healthy mouth is an important part of overall health.
- Sugar in foods and beverages (even naturally-occurring sugar) can contribute to tooth decay, also known as cavities.

- Acids in beverages (even sugar-free ones) can cause tooth erosion and increase tooth sensitivity and risk for decay.
- Three steps will help promote oral health:
  - → Brush your teeth for two minutes twice a day.
  - → Floss your teeth once a day.
  - → Rinse your mouth with water after eating or drinking anything.

* Ontario has government programs to assist with dental care for kids under 18. Check with your local Public Health Unit for more information.

Children can sip water all day with no worries of acid attacks on their teeth

Water Backgrounder

Water is an essential nutrient. Our bodies are made up of about 65% water.

Our bodies need water to:

- Regulate body temperature. Evaporation of sweat helps to release heat made by working muscles.
- Carry nutrients (glucose, vitamins, minerals, fats) and oxygen around the body as part of our blood.
- Carry waste (carbon dioxide, lactic acid) away from cells.
- Digest food and maintain bowel regularity.
- Maintain blood pressure and kidney health.
- Cushion organs and joints.
- Allow muscles to contract.
- Maintain fluid and electrolyte (such as sodium and potassium) balance.
- Carry out many vital functions.

Sources of water:

In addition to basic drinking water, water is also found in food and beverages, such as milk, juices, soups, fruit and vegetables. Although our bodies can get water from all of these sources, *Eating Well with Canada's Food Guide* recommends drinking water regularly to satisfy thirst. Drinking water keeps us hydrated without adding extra calories, sugar, sodium or caffeine to our diets.

What if we don't get enough water?

We cannot survive without water. Without adequate fluid intake, our bodies can become dehydrated. Our bodies naturally lose water during the day, through sweating, breathing and getting rid of waste. These fluids must be replaced to avoid dehydration.

Dehydration can lead to fatigue, weakness, dizziness, headache, irritability, muscle cramps and impaired physical performance. Other signs of dehydration include dry mouth and dark yellow/orange, strong smelling urine.

How much water do children need?

On average, boys and girls aged 6-11 years need about 6-7 cups (1.5 – 1.7 L) of fluid each day. Water, in addition to fluid contained in food and other beverages, can contribute to this amount. Specific water requirements have not been set because they vary so much for each person. The amount of water we need each day depends on our age, gender and activity level. In addition, people often need more fluids when they are physically active or when the weather is hot and humid.

Is bottled water safer than tap water?

There is no evidence that bottled water is safer than tap water. In Canada, the quality standards of both bottled water and municipal tap water are similar. Both meet or exceed their required health and safety standards and are considered to be safe.

Which one we choose to drink is a personal preference, but there are some advantages to drinking tap water, such as:

- It is available in most places
- It is much cheaper than bottled water
- It is much more environmentally friendly than bottled water

Note: Under some circumstances tap water can be unsafe. For example, untreated or inadequately treated water from wells or other sources can have disease-causing organisms such as bacteria, parasites and viruses that cause illness. Bottled water would be a safer choice in this case. Contact your local public health unit for information on safe water.

Flavoured and vitamin-enhanced water

Most of these products are marketed to enhance health and well-being but they are NOT necessary for good health. These beverages are often sweetened with sugar and may contain a variety of other added ingredients, such as flavourings, herbs, vitamins, minerals, anti-oxidants, sodium, protein and fibre. Some popular brands have between 6-8 teaspoons of sugar (30-40 mL), while others may be sweetened with an artificial sweetener. Many also contain caffeine.

Drinking too much of these products can result in excess intake of vitamins, minerals and caffeine. It is important to read the label to find the maximum amount that can be consumed on a daily basis. These products should be kept out of children's reach and are usually not recommended for children under the age of 12 years.

For more information:

- Frequently Asked Questions About Bottled Water (Health Canada) http://www.hc-sc.gc.ca/fn-an/securit/facts-faits/faqs_bottle_water-eau_embouteillee-eng.php
- It's Your Health – The Safety of Bottled Water (Health Canada) http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/food-aliment/bottled-embouteillee-eng.php
- Water Quality (Health Canada) http://www.hc-sc.gc.ca/ewh-semt/water-eau/index-eng.php

Main points:

- Plain water is best for quenching thirst.
- Children should have free access to water, particularly during school hours.
- Drink more water in hot and humid weather, or when you are very active.
- Sip water throughout the day; with and between meals.
- Food and other beverages can contribute to your overall water intake.
- Tap water and bottled water are both safe to drink, but there are some advantages to drinking tap water; convenience, cost and it is more environmentally friendly.
- Flavoured or vitamin-enhanced waters are not recommended for children. They can contain added sugar and can result in an excess consumption of vitamins, minerals and caffeine.

Milk, Flavoured Milk and Other Beverages Made with Milk Backgrounder

Milk

Milk is a healthy drink. It has protein, calcium, vitamin D, vitamin A, and riboflavin. Milk and milk alternatives (e.g., fortified soy beverage) are the main source of calcium and vitamin D in our diets, which help to build strong bones and teeth, contract muscles and carry nerve signals.

While young children (nine months to two years) are advised to drink homogenized (3.25% MF) milk, school-age children are encouraged to choose lower-fat options (2% MF or less). Lower-fat options have the same nutrients as 3.25% MF milk with less calories and saturated fat.

One cup (250 mL) of milk is considered one serving from the Milk and Alternatives food group in *Eating Well with Canada's Food Guide*. Children aged 4-8 should get two Food Guide Servings of Milk and Alternatives each day, while children aged 9-18 should get 3-4 Food Guide Servings daily.

Flavoured milk

Sugar occurs naturally in milk in the form of lactose. Chocolate, strawberry and other flavoured milks, however, contain lactose and added sugars. Flavoured milk has the same nutrients as plain milk; however, it is a 'sometimes' choice. Less is best. Children should be offered plain (not flavoured) milk regularly so they learn to enjoy it.

Milkshakes

Milkshakes are made from milk, ice cream or iced milk, often with added flavourings, syrups or sauces. Milkshakes made with ice cream will have a lot more sugar and fat than the same amount of milk. Not including any added syrups, one cup of plain ice cream has almost the same amount of sugar as a can of pop. Smoothies made with real fruit, low-fat, plain milk or yogurt are healthier alternatives to milk shakes.

Hot chocolate and specialty drinks

A hot chocolate or specialty latte can have the same amount of sugar as two cans of coke. The sugar comes from the chocolate or chocolate mix and the added whipped cream, marshmallows, and chocolate syrup. Skipping the additions, asking for 'half sweet' and choosing a smaller serving size reduces the sugar; however, these drinks are still a choice to avoid.

Lattes and espresso beverages are not recommended for kids. Not only do they contain high amounts of sugar, but they also contain caffeine.

Main points:

- Milk is a great source of protein, calcium, vitamin D and B vitamins.
- Flavoured milk is a 'sometimes' choice.
- Sugar-sweetened drinks that contain some milk (e.g., milkshakes, hot chocolate, specialty lattes) often have a lot of sugar, calories and fat, and should be avoided.

Plant Based Beverages Backgrounder

Plant based or non-dairy beverages are made from plants, such as soy, rice, almonds, hemp or flaxseed. They may be used by someone who avoids milk, either because of a cow's milk allergy, personal preferences or dietary practices, such as a vegan diet, which does not include animal products.

Which plant based beverages count as a milk alternative in *Canada's Food Guide?*

Only soy beverages fortified with calcium and vitamin D count as milk alternatives in *Canada's Food Guide*. Fortified soy beverages have added vitamins and minerals to make them a nutritionally adequate alternative to cow's milk.

Rice, oat, almond or other plant based beverages might have added calcium, vitamin D and other nutrients; however, they don't have the same amount of protein, and may not have the same amount of vitamins and minerals as cow's milk and fortified soy beverage.

Examples of protein in cow's milk versus plant based beverages*:

1 cup cow's milk:	9 grams of protein
1 cup soy beverage:	7 grams of protein
1 cup hemp beverage	2 grams protein
1 cup rice beverage	1-2 grams protein
1 cup almond beverage	1 gram protein

*Values based on a review of product examples (i.e., not an exhaustive list). July 2014

Is there sugar in plant based beverages?

Most plain non-dairy beverages are fairly low in sugar. Flavoured non-dairy beverages often have added sugars and can contain twice the amount of sugar as the plain variety.

Main points:

- Fortified soy beverage is nutritionally similar to cow's milk. It counts as a milk alternative in *Eating Well with Canada's Food Guide.*
- Other fortified non-dairy beverages are NOT part of the milk and alternatives food group, but they can still be a good source of calcium and vitamin D. Check the Nutrition Facts panel.
- Choose plant based beverages that are "enriched" with calcium and vitamin D. If they are not enriched they are not as nutritious.
- Read the ingredient list for added sugars.
- Choose plain plant based beverages instead of the sweetened flavoured varieties.

Fruit Juice and Drinks Backgrounder

What is fruit juice?

Beverages labeled 100% fruit juice are made from real fruit and do not contain added sugars. Unsweetened 100% fruit juice has some of the nutrients, such as vitamin C, potassium and B vitamins, found in the whole fruit; however, fruit juice lacks the fibre found in whole fruit. Health care professionals consider fruit juice a source of free sugar even when unsweetened.

Drinking juice is not as filling as eating the whole fruit. You would have to eat about 1½ - 2 oranges or apples to get 125 mL (½ cup) of juice (with a similar amount of calories and sugar). This makes it much easier to over-consume juice than to over-eat fruit.

What is fruit drink?

Fruit drinks are sugary drinks made with water, flavouring, added sugar and often only a small amount of fruit juice. They can be labeled fruit drink, beverage, punch, cocktail or –ade and should not be confused with real fruit juice. Some have vitamin C added, but fruit drinks do not have the other nutrients found in real fruit juice. Do not be fooled by the colourful fruit pictures on the container! Read the ingredient list to find out what is actually in the drink.

	100% Orange Juice	Orange Drink
Ingredient	• Filtered water • Concentrated orange juice	**Example 1:** • Filtered water • Sugar/glucose-fructose • Concentrated water extract of orange, concentrated fruit juices (orange, pineapple, grape and pear) • Citric acid • Natural flavour • Ascorbic acid (vitamin C) • Natural colour **Example 2:** • Water • Corn syrup • 2% or less of each of the following concentrated juices (orange, tangerine, apple, lime grapefruit, pear) • Citric acid • Ascorbic acid • Thiamin hydrochloride (vitamin B1) • Natural flavours • Modified cornstarch • Canola oil • Sodium citrate • Cellulose gum • Sucralose • Acesulfame potassium • Neotame • Sodium hexametaphosphate • Potassium sorbate • Yellow #5 • Yellow #6

What about vegetable juice?

Vegetable juice can be made from vegetables (e.g., tomatoes) or vegetable blends (e.g., tomatoes, carrots, celery, beets, parsley, lettuce, watercress, spinach). They are often high in added salt (sodium). Some can be made with added fruit juice but might have added water and sugar. Like fruit juice, vegetable juice does not have as much nutritional value as the whole vegetable.

Fortified juices

Some juices, such as orange juice, may be fortified with added calcium or vitamin D. These juices have the same amount of calcium or vitamin D as milk or fortified soy beverage, but are much lower in protein and should not be used to supplement calcium and vitamin D requirements on a regular basis.

Are unpasteurized fruit juices and ciders safe?

Not for everyone. Young children, pregnant women, elderly and people with weakened immune systems should avoid unpasteurized juices and ciders as they can cause severe illness or even be fatal.

Unpasteurized juice or cider does not undergo the treatment needed to kill harmful bacteria. Often they are sold at health food stores, local orchards, roadside stands, farmers' markets, country fairs and juice bars. Unpasteurized juice or cider may also be found on ice or in refrigerated display cases and in produce sections at grocery stores.

How much juice should children drink?

It is easy for children to drink fruit juice because it tastes good. Juice has no nutritional advantage over whole fruit and is not a good source of fibre. Fibre helps people feel full and satisfied, which may help to reduce the risk of obesity.

Too much juice can lead to tooth decay and erosion, diarrhea and stomach upset. Also, children who drink a lot of juice may be too full to eat nutritious whole foods or drink water and milk. For these reasons, it is best to limit juice intake to one Food Guide Serving, 125 mL (½ cup) per day or less, and encourage eating whole fruits and vegetables. *Eating Well with Canada's Food Guide* recommends choosing vegetables and fruit more often than juice.

Main points:

- Whole fruit and vegetables provide more nutrition and fibre than juice. Choose them more often.
- Limit juice to 125 mL (½ cup) per day or less for children.
- Avoid fruit flavoured drinks (e.g., punches, drinks, cocktails, -ades).
- Choose unsweetened 100% fruit juice rather than fruit flavoured drinks.
- Choose low sodium vegetable juice.
- Be cautious of unpasteurized juice and cider.
- Choose water first to quench your thirst.

Caffeine Backgrounder

What is caffeine?

Caffeine is a stimulant, which means it temporarily increases activity in the body or one of its parts. Caffeine is found in the leaves and seeds of many plants such as coffee beans, tea leaves, cocoa beans (chocolate), kola nuts (cola) and some herbs. Guarana and yerba mate are caffeine-containing herbs found in some energy drinks and soft drinks.

Sources of caffeine

Caffeine is found in soft drinks (cola and some non-cola brands), chocolate, coffee, tea, chocolate milk and iced mocha drinks. Energy drinks and some brands of vitamin-fortified water also have caffeine. Small amounts of caffeine are found in baked goods and desserts made with chocolate. Caffeine in foods is usually measured in milligrams (mg).

Stimulant effects of caffeine

Caffeine may increase heart rate, body temperature, breathing rate, blood pressure and urine production. It can also cause anxiety, restlessness and decreased concentration. Caffeine has a stronger effect on children because their bodies are smaller and their brains are still developing.

How much caffeine is safe for children?

Health Canada advises caffeine limits based on average body weights of children.

Children 4-6 yrs: 45 mg of caffeine per day, or less

Children 7-9 yrs: 62.5 mg of caffeine per day, or less

Children 10-12 yrs: 85 mg of caffeine per day, or less

Beverage	Serving Size	Approximate Amount of Caffeine (mg)
Coffee	250 mL	150
Energy drink	250 mL	95
Tea	250 mL	43
***Iced tea**	250 mL	10 - 20
Cola beverage, regular	355 mL (1 can)	36 – 46
Cola beverage, diet	355 mL (1 can)	39 – 50
Chocolate bar	45 g	11 – 23
Chocolate milk or hot chocolate	250 mL	5 – 9

Values in table sourced from Caffeine and Kids (Health Canada) and Caffeine in Food (Health Canada) *Values sourced from manufacturer's website.

Check the label

Pure caffeine and caffeine citrate may be added to cola-type beverages and they must be listed in the ingredients on the product label. The caffeine in food from natural food ingredients or natural flavours is not regulated but products must follow safety requirements of the Food and Drugs Act. An exception is for energy drinks,

where caffeine content in mg can be found on the Nutrition Facts Table. Food manufacturers must list the food additives (e.g., caffeine) on the ingredient list of most prepackaged food labels but not the total amount of caffeine from all sources.

For more information:

- Caffeine in Food (Health Canada): http://www.hc-sc.gc.ca/fn-an/securit/addit/caf/food-caf-aliments-eng.php

Main points:

- Caffeine is a stimulant found in various beverages and foods.
- Caffeine has a stronger effect on children.
- Children should follow the caffeine limits per day set out by Health Canada.

Tea Beverages Backgrounder

Tea is made by steeping the young leaves and leaf buds of the tea plant (Camellia sinensis) in freshly boiled water. Tea is grown around the world. There are more than 1,500 kinds of tea but the most common are black, green, oolong and white. Unsweetened tea is calorie-free and provides fluids to keep a person hydrated. There may be some health benefits to drinking tea; however, more research is needed.

Tea contains caffeine and should not replace more nutritious beverages such as water and milk. Flavouring milk with a small amount of weak tea is a lower caffeine option and "sometimes" choice for children. Regular iced tea is similar to pop in that it contains added sugars and offers little nutrition.

Herbal tea does not come from the Camellia sinensis plant. Herbal teas are made from the roots, barks, leaves, seeds or flowers of different plants. Some herbs may not be well tested on children or adults and may contain harmful ingredients. As well, some tea drinks add ingredients, such as ginseng and B vitamins to make them appear to be a healthy drink choice. The health claims for herbal remedies in these products have less stringent standards of evidence than do health claims for foods. Many of these ingredients have not been well researched with respect to their effects in children.

Bubble tea is not a healthy choice. Different types of green and black tea are used as a base, and then fruit-flavoured syrups, milk, condensed milk (high in sugar), or cream are added. Bubble tea has tapioca pearls or "bubbles" that sit at the bottom of the cup. They are sucked up through a wide straw and need chewing like a gummy bear candy. Bubble teas can have a lot of sugar and caffeine.

Main points:

- Many tea drinks have more sugar and caffeine than is healthy for children.

For more information:

- Visit the EatRight Ontario website at: http://www.eatrightontario.ca/en/Articles/Antioxidants/Tea-Time.aspx

Energy Drinks Backgrounder

What are energy drinks?

Energy drinks are beverages that claim to give you energy, make you more alert, improve your athletic ability and/or help with weight loss. Energy drinks typically contain water (carbonated or not), caffeine, taurine (an amino acid), vitamins, herbal ingredients and sugar or artificial sweeteners. Examples of energy drinks include Red Bull®, Monster Energy Drink®, and Full Throttle Energy Drink®, among others.

Caffeine in energy drinks

Most energy drinks have 70 to 95 mg of caffeine per 250 mL (8 fl oz). This is almost the same amount of caffeine found in three cans of cola.

Health Canada limits the amount of caffeine that can be included in an energy drink to 180 mg in a single serving. This would be twice the maximum daily caffeine intake for children aged 10 to 12 years based on the Health Canada recommended maximum daily caffeine intake.

Energy drinks are not healthy or safe for children

- **Caffeine:** Children can very easily get too much caffeine by drinking energy drinks. Too much caffeine has been shown to disturb sleep and can make people nervous, anxious or jittery. It can also cause stomach upsets and make the heart beat faster.
- **Herbal ingredients:** Energy drinks contain herbal ingredients (e.g., gingko biloba, ginseng, taurine and glucuronolactone). The long term safety of these herbal ingredients is not known. Guarana, a plant extract added to energy drinks, contains caffeine, thereby increasing the overall caffeine level.
- **Extra calories but no nutrition:** Most energy drinks are high in sugar (approximately 10 tsp per 355 mL can) and can add calories with no nutritional benefit to the diet.
- **Dental:** High sugar content can cause cavities. In addition, energy drinks contain citric acid, which can lead to tooth erosion.

Energy drinks are not necessary

Healthy, growing children are naturally full of energy. This energy comes from eating a balanced diet, proper hydration, regular physical activity and good sleeping habits.

Do energy drinks improve athletic performance?

No. Energy drinks are not the same as sports drinks, which are specially made to hydrate the body of an elite athlete. Energy drinks are not made to hydrate the body and can mask the effects of dehydration. Even the slightest amount of dehydration can negatively affect athletic performance. In addition, the high sugar content in energy drinks, as well as the carbonation, can cause stomach upset.

Energy drinks and alcohol

Mixing energy drinks with alcohol is dangerous and should be avoided. Caffeine is a stimulant and masks the effects of alcohol, which can lead to overconsumption of alcohol (alcohol poisoning) and risky behavior.

Check the label

Health Canada manages the quality and safety of energy drinks, setting the following requirements for their sale:

- A maximum amount of caffeine from all sources shown in mg per container or per serving size. There is now a caffeine limit of 180 mg per single serving.

- Limits for ingredients such as added vitamins and minerals.
- Labels that meet food labeling standards such as a Nutrition Facts Table, ingredient list, and allergy labeling.

The label must also include precautionary statements including:

- “Not recommended for children, pregnant/breastfeeding women, individuals sensitive to caffeine".
- "Do not mix with alcohol".
- "High source of caffeine".
- "Do not consume more than (X) container(s)/serving(s) daily". This limit must not result in the daily maximum limit being exceeded for any added vitamins, minerals or amino acids.

Note: The labels on energy drinks state that they are not recommended for children; unfortunately, there are no restrictions preventing children from buying them.

For more information:

- Information for Parents on Caffeine in Energy Drinks (Health Canada): http://www.hc-sc.gc.ca/fn-an/securit/addit/caf/faq-eng.php
- Caffeinated Energy Drinks (Health Canada): http://www.hc-sc.gc.ca/fn-an/prodnatur/caf-drink-boissons-eng.php
- Questions and Answers Caffeinated Energy Drinks (Health Canada): http://www.hc-sc.gc.ca/fn-an/prodnatur/questions-caf-eng.php#a6

Main points:

- Children should not consume energy drinks.
- The caffeine in energy drinks can cause harmful side effects.
- Energy drinks are bad for teeth.
- Energy drinks are not the same as sports drinks.
- Energy drinks can negatively affect sports performance.
- Energy drinks are dangerous when combined with alcohol.
- Energy comes from eating a balanced diet, proper hydration, regular physical activity and good sleeping habits.

Sports Drinks Backgrounder

What are sports drinks?

Sports drinks are generally made with water, sugars and a small amount of minerals or electrolytes, such as sodium and potassium. They often contain artificial colours and flavours, such as citric acid, artificial sweeteners, and other additives.

During exercise, the body uses stored carbohydrates (glycogen) as fuel. People use sports drinks to replace water (rehydrate), to refuel muscles and to restore carbohydrates that were used during activity. The electrolytes replace what the body loses through sweat and help maintain fluid balance in the body. As a source of added sodium, sports drinks may add to increasing sodium intakes among children.

Do children need a sports drink?

Water and a balanced diet give most children the energy and fluids they need. Sports drinks add sugar and calories with little nutritional value. They are not needed by children involved in sports of lower intensity and

duration, or doing routine physical activity for less than one hour. Regular water breaks every 15 to 20 minutes and enjoying water and a healthy snack after a game or workout is adequate.

Children may not recognize the need to replace fluids and often need reminders to drink. Also, they tend to drink more fluids if they are flavoured. For sporting events and practices, add sliced fruit (e.g., lemons, limes or oranges) or frozen cubes of fruit juice to water.

When is a sports drink better than plain water?

If children are involved in prolonged, vigorous physical activity in hot, humid conditions for more than one hour, or, are wearing heavy protective gear, which can increase sweating and reduce the evaporation of sweat to cool the child, small amounts of sports drinks may be useful. For the typical child or teen doing routine physical activity for less than three hours in normal weather conditions, the use of sports drinks in place of water is unnecessary.

What about coconut water?

Coconut "water" is the thin liquid found in the centre of young, green coconuts. It is not the same as coconut milk, which is the high fat liquid that comes from the grated coconut meat.

The nutrition in coconut water can vary with the age of the plant. Generally, plain coconut water has much less sodium, much more potassium and less carbohydrate than commercial sports drinks. For shorter periods of activity, coconut water can be a source of hydration, but water works just as well. For longer periods of intense activity, sports drinks may be the better choice, but more research is needed.

Coconut water has fewer calories than juice but is not calorie-free like plain water. Because it has a distinct taste, companies now make flavoured blends, which can have added sugar or fruit juice. The latte blend is made with coffee and therefore has caffeine. It is important to read the ingredient list.

For more information:

- Visit EatRight Ontario at www.eatrightontario.ca and enter 'sports nutrition' in the search box.

Main points:

- Sports drinks are not necessary for young athletes involved in sports of lower intensity and duration.
- If a child is doing continuous vigorous activity for longer than 60 minutes, in hot and humid weather wearing heavy protective gear, they may benefit from a sports drink.
- Sports drinks should not replace low-fat milk or water at meals or snacks.
- Children need to be encouraged to drink water before, during and after activity even though they may not feel thirsty.