



Questions About Sugar and Health?

The Canadian Sugar Institute *Nutrition Information Service*

The Canadian Sugar Institute is a non-profit national food industry association with a science-based nutrition information service. The *Nutrition Information Service* monitors the scientific literature on sugars and health, contributes nutrition expertise to nutrition-related government, regulatory and policy issues, and partners with numerous scientific and health organizations to facilitate the sharing of science-based public health messages around sugars, carbohydrates and healthy eating. This service is managed by qualified nutrition professionals, including registered dietitians and nutrition researchers and is guided by an external academic Scientific Advisory Council.

Every year the Canadian Sugar Institute works with an expert in the field to prepare a health professional resource, *Carbohydrate News* and corresponding consumer-based resource, *Clips on Sugars* on a relevant topic related to carbohydrates and health. Past topics include the **glycemic index, sugars and cognition, carbohydrate as fuel for physical activity**, as well as **current estimates of sugars intake in Canada**. These and other past resources, including a **collection of recipes** with tips to improve food skills, can be downloaded from our website, www.sugar.ca. Hardcopies can also be mailed to you free of charge by contacting us at info@sugar.ca.

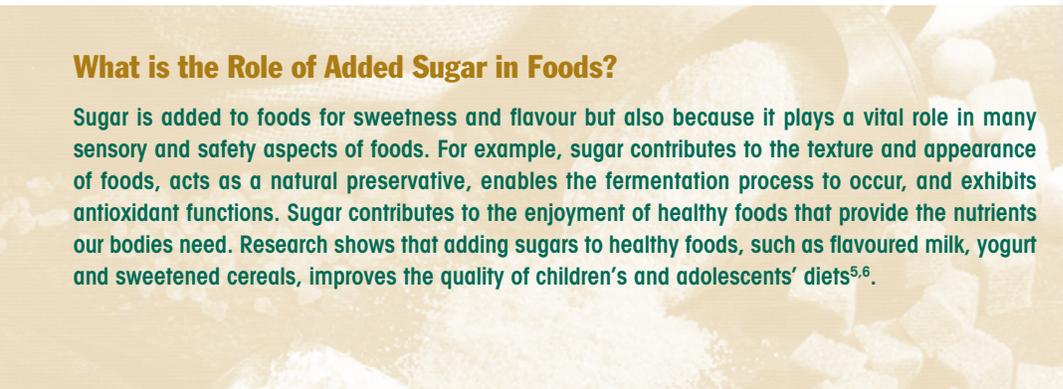


HOW DOES DIETARY CARBOHYDRATE IMPACT EXERCISE PERFORMANCE?

Many popular fad diets prescribe higher intakes of protein and fat with reduced carbohydrate consumption. This is particularly concerning as, according to Canadian Community Health Survey Data¹, 32% of adult males and 24% of adult females in Canada already have carbohydrate intakes below the dietary recommendations. Adequate carbohydrate intake is not only important for meeting daily nutritional needs, but also remains essential for optimal performance in physically active individuals². In contrast, diets that are higher in fat and lower in carbohydrate have been associated with lower exercise tolerance and are thus not recommended^{3,4}. The American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine agree that whether an individual is an elite or recreational athlete, carbohydrate remains an important energy source for sport-related performance^{3,4}. Despite the importance of carbohydrate for performance being well accepted among professionals in the field, many misconceptions and misunderstandings regarding carbohydrates (including sugars) and their relationship to health exist among health professionals, the media and the general public.

WHAT IS THE DIFFERENCE BETWEEN NATURALLY OCCURRING AND ADDED SUGARS?

The term "sugar" refers to pure sucrose. Sucrose is found in the greatest quantities in sugar cane and sugar beets but is also found in all fruits and vegetables (Table 1 and Figure 1). In fact, all green plants manufacture sucrose through photosynthesis. Whether sugar is added to foods or is consumed as a part of fruits and vegetables, it is metabolized by the body in the same way and, like other carbohydrates, provides 4 calories per gram (15 Calories per teaspoon). In addition to sucrose, there are a number of other 'sugars' such as glucose, fructose and lactose. Whether naturally occurring in foods or added, each sugar is chemically and metabolically equivalent.



What is the Role of Added Sugar in Foods?

Sugar is added to foods for sweetness and flavour but also because it plays a vital role in many sensory and safety aspects of foods. For example, sugar contributes to the texture and appearance of foods, acts as a natural preservative, enables the fermentation process to occur, and exhibits antioxidant functions. Sugar contributes to the enjoyment of healthy foods that provide the nutrients our bodies need. Research shows that adding sugars to healthy foods, such as flavoured milk, yogurt and sweetened cereals, improves the quality of children's and adolescents' diets^{5,6}.

Have questions about sugars and health?

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Did You Know?

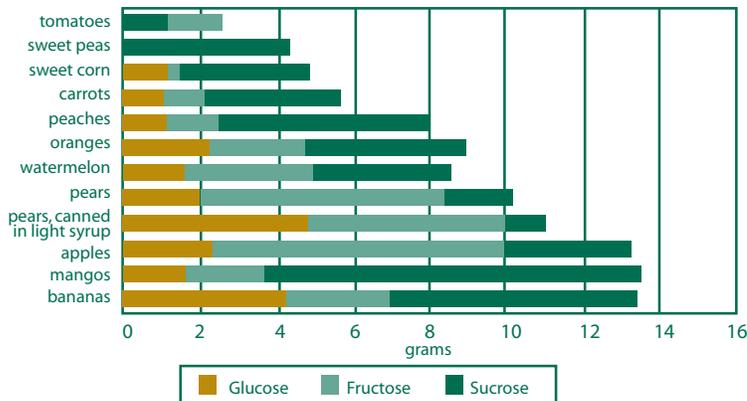
Canadian adults consume on average 51g (12 tsp) of added sugar per day, nearly a third less than the US adult population (88 g or 21 tsp per day)^{9, 10, 11}. This in part reflects much higher soft drink consumption in the US, which is double that of Canadian consumption (Figure 2). Unfortunately, many media articles and scientific papers inappropriately reference US consumption patterns which do not accurately reflect Canadian intakes.

Table 1: Sugar Terminology in Canada

Sugar	Sucrose (from sugar cane or sugar beets). Canadian food standards specify that sugar must have a minimum purity of 99.8% sucrose.
Added Sugars	All sugars added to foods, including sugar (sucrose) and sugar syrups, honey, maple syrup, and corn sweeteners (high fructose corn syrup ("glucose-fructose"), glucose syrup, and dextrose).
Naturally Occurring Sugars	All sugars naturally present in foods, including sucrose, glucose and fructose in fruits and vegetables, and lactose in milk and dairy products.
Total Sugars	All monosaccharides (glucose, fructose, galactose) and disaccharides (sucrose, lactose, maltose), naturally occurring in foods (e.g. milk, fruit, and vegetables) or added to foods (see "Added Sugars").

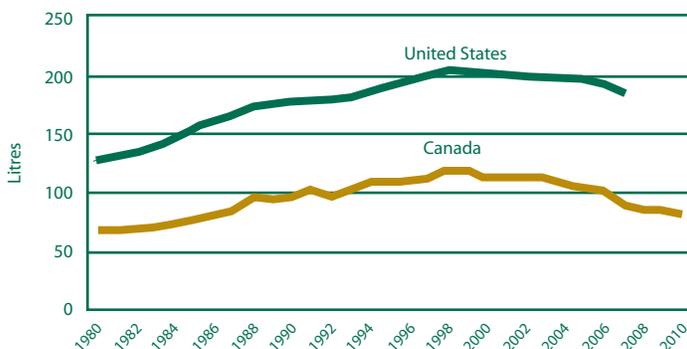
Sources: Government of Canada 2013. Food and Drug Regulations, Division 18, Sweetening Agents [online] Available from http://laws-lois.justice.gc.ca/eng/regulations/C.R.C._c._870/page-161.html#h-112 [updated 2013]; Canadian Food Inspection Agency 2012. Food, Labelling [online] Available from <http://www.inspection.gc.ca> [updated 2012]

Figure 1: Sugars Content Fruit and Vegetables 100 grams, edible portion



Source: USDA Nutrient Laboratory, Sugar content of selected foods. 2012.

Figure 2: Soft Drinks Available for Consumption, per capita 1980 - 2010, Statistics Canada, USDA*



* US carbonated soft drinks per capita figures were calculated by USDA using industry data. This data was discontinued after 2007. Source: USDA, Economic Research Service, Food Availability: Miscellaneous Beverages. 2007. Abbreviation: USDA = United States Department of Agriculture.

What are the Recommendations for Sugars Consumption in Canada?

Unlike other nutrients, there is no quantitative recommendation for total or added sugars intake in Canada. The Dietary Reference Intakes report⁷, which was developed by Canadian and American scientists, included a comprehensive review of the potential adverse effects of high sugars intake. The report concluded that, "based on the data available on dental caries, behaviour, cancer, risk of obesity and risk of hyperlipidemia, there is insufficient evidence to set a UL [upper limit] for total or added sugars"⁷. Instead, a maximum intake of 25% of energy from added sugars is suggested for adults and children because some individuals may not get adequate intakes of certain micronutrients at such high levels of added sugars intake.

How Much Sugar are Canadians Consuming?

Dietary survey data indicate that Canadians are consuming sugars from a variety of foods, with most sugars being consumed as part of the four food groups of Canada's Food Guide. Consumption of added sugars has been stable or modestly declining over the past three decades in Canada. Analysis of both National nutrition survey data^{1,9} and Statistics Canada availability data⁸ suggests that added sugars average about 11-13% of total energy intake, well below the suggested maximum of 25%.

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