

September 12, 2014

Bureau of Nutritional Sciences
Food Directorate
251 Sir Frederick Banting Driveway
Tunney's Pasture
Ottawa, Ontario
K1A 0K9

RE: Revised Core Nutrients and Declaration of Sugars

Dear Madam or Sir,

The North American Branch of the International Life Sciences Institute (ILSI NA) appreciates the opportunity to share ILSI NA supported scientific work published in peer-reviewed journals. Evidence submitted herein provides sound science and reasoning in response to Health Canada's Proposed Changes to the Core Nutrients Declared in the Canadian Nutrition Facts Table (NfT) published July 14, 2014.

ILSI NA is a public, non-profit organization that actively collaborates with government and academia to identify and resolve scientific issues important to public health. The organization carries out its mission by sponsoring relevant research, professional education programs and workshops, seminars and publications, as well as, providing a neutral forum for government, academic, and industry scientists to discuss and resolve scientific issues of common concern for the wellbeing of the general public. ILSI NA's programs are supported primarily by industry member companies. ILSI NA's Technical Committee on Carbohydrates developed these comments on total and added sugars.

Given the growing concern and interest in having more information about sugars on food labels, Health Canada proposes:

- adding the declaration of "added sugars" to the NfT; and
- using a Daily Value (DV) of 100 grams as the basis for the mandatory declaration of the percent (%) DV for total sugars in the NfT.

Concerning the proposal to require declaration of the amount of added sugars to the Nutrition Facts Table and a DV of 100 grams for total sugars, ILSI NA-sponsored work supports:

1. the conclusion that added and naturally occurring sugars cannot be differentiated analytically or physiologically;
2. the conclusion that there is no valid or acceptable basis for establishing a Dietary Reference Value (DRV), and hence a Daily Value (DV), for total or added sugars;
3. a need for understanding the role of added sugars in selecting nutritionally adequate diets within estimated energy requirements;
4. the need for consumer research *before* a decision is made to require added sugars labeling in order to determine if consumers will comprehend and use the information appropriately and



must be coupled with an emphasis on educating the consumer about selecting foods with greater nutrient density; and

5. a need for added sugars definitions used by various entities to be consistent, if labeling is implemented.

Specific Comments on Sugars

ILSI NA has sponsored workshops, research projects, and scientific papers on sugars that focused on several of the items addressed in Health Canada's proposed changes. For example, ILSI NA and ILSI Europe held a Sugars and Health workshop in 2002 (ILSI Sugars workshop) which involved a group of internationally recognized experts on selected topics relevant to sugars. The ILSI Sugars workshop followed a process pioneered by John Dobbing of the Department of Child Health at the University of Manchester, UK, to foster group consensus building. According to the Dobbing process, the experts were asked to write short review papers on specific topics posed to them in advance of the workshop. The papers were circulated to all of the authors, and each author was asked to review the papers and prepare written critical comments. The commentaries on each paper were given to those papers' authors before the workshop. Authors were asked to consider all published papers and reports with a focus on human health that had scientific validity. During the workshop, authors presented a 20-minute summary and discussion of their papers, and the remainder of the workshop was devoted to questions from and discussion by the other authors and invited participants. Comments from these discussions on the manuscripts were included in the final draft of the paper. The workshop proceedings were published in the *American Journal of Clinical Nutrition* in 2003. While there has been a significant amount of research added to the literature over the past 10 years, many of the issues that were raised in 2002 remain unresolved.

In the following comments, ILSI NA cites Health Canada's statements in its proposal along with the associated page numbers. We then provide relevant and/or supporting comments from workshops, research, and publications that have been sponsored or co-sponsored by ILSI NA.

1. ILSI NA-sponsored work supports the conclusion that naturally occurring and added sugars cannot be differentiated analytically or physiologically

Health Canada is proposing the declaration of "added sugars" in grams and for this to appear as a separate indented line in the NfT, under "sugars", which would be re-named as "total sugars" for clarity, Health Canada acknowledges that, "This approach may however support the misbelief that added sugars per se are nutritionally different from naturally occurring sugars and would create enforcement challenges given that there is no analytical method to distinguish added sugars from total sugars. [p.15]

ILSI NA-sponsored work is consistent with Health Canada's recognition of the lack of physiological and analytical distinction between added and naturally occurring sugars. The ILSI Sugars workshop paper by Murphy and Johnson (2003) specifically addressed the question: *Should added sugars be distinguished from naturally occurring sugars when offering dietary advice to the public?* The following are excerpts from the paper:



“The [Dietary Guidelines Advisory Committee] DGAC’s discussion regarding added compared with naturally occurring sugars centered on several issues. First, the 2 types of sugars are indistinguishable chemically and physiologically.”

“Because added sugars cannot be chemically distinguished from naturally occurring sugars, label values for added sugars would be difficult to monitor with current analytic methods.”

“In the final section of the DGAC report, there is a call for a better definition of total sugars and added sugars and more research to determine whether there are reasons to distinguish between the 2 in the *Dietary Guidelines*.”

“Efforts to separate the effects of added sugars from those of naturally occurring sugars have been aided by the availability of the Pyramid Servings Database from the US Department of Agriculture (7), which gives the added sugars content of all foods reported during the 1994–1996 and 1998 Continuing Surveys of Food Intake by Individuals (CSFIIIs). However, a complete investigation of the effects of the 2 categories of sugars would require analyses in which their comparative effects on health outcomes were examined. Unfortunately, the primary food-composition tables in use in the United States do not contain composition information for naturally occurring sugars, and thus it has not been possible to directly compare the effect of these categories of sugars on health outcomes.”

2. ILSI NA-sponsored work supports there is no valid or acceptable basis for establishing a DRV or DV for total or added sugars

Health Canada is proposing to establish a DV for total sugars of 100 grams and to mandate the declaration of the % DV in the NfT. in order to help consumers determine whether a serving of food is high in sugars. Health Canada acknowledges that the US FDA did not propose a DV for total or added sugars because no dietary reference value was set due to an absence of a biomarker of risk of disease or other public health endpoint. Nonetheless, Health Canada is proposing a DV for total sugars using an approach that would be compatible with all nutrients of public health concern related to excessive intakes. [p. 16]

ILSI NA-sponsored work is consistent with the FDA’s decision not to propose a DRV for total or added sugars, given insufficient scientific evidence. The ILSI Sugars workshop paper by Murphy and Johnson (2003) reviewed the DRIs for carbohydrates and stated the following:

“The panel extensively reviewed the literature examining potential adverse effects of overconsumption of sugars. This included the available data on dental caries, behavior, cancer, risk of obesity, and risk of hyperlipidemia. The panel concluded that there was insufficient evidence to set a tolerable upper intake level (UL) for sugars. A UL for sugars was not set because of the limitation in the UL definition that requires a specific endpoint for an adverse effect from excessive nutrient intake.”

In addition, as cited by Hess et al. (2012), a European Food Safety Authority panel concluded that there are insufficient data to set an upper limit for (added) sugar intake. The basis for this conclusion was a review of the effects of sugar intake on the nutrient density of the diet, body weight, dental caries, and risk factors for cardiovascular disease and type 2 diabetes mellitus.



3. ILSI NA-sponsored work supports a need for understanding the role of total and added sugars in selecting nutritionally adequate diets within estimated energy requirements

Health Canada notes that the foods providing the highest amounts of added sugars are often foods with a low nutrient density, e.g., sugar-sweetened beverages and desserts, whereas whole foods tend to have higher nutrient densities, such as unprocessed fruits and unsweetened milk. Data on sugar consumption of Canadians show that a significant proportion of sugar in their diets comes from foods high in added sugars such as sweetened beverages, candies and desserts. Thus, Health Canada states that declaring the amount of added sugars in the NfT would address consumers' interest to better understand the sugar content of foods; would help consumers apply Canada's Food Guide recommendations to limit foods and beverages high in sugar, fat and salt; may help consumers reduce their intake of excess calories; and would align with the United States proposal. [p. 15]

Also, Health Canada states that using the 15% DV [for total sugars] benchmark for "a lot", foods and beverages containing 15 g or more of total sugars per serving would be identified as contributing a lot of sugars. In most cases, these foods and beverages contain free sugars (for example, sugar from sugar-sweetened beverages and fruit juices, added sugars in foods such as chocolate bars and desserts). It is expected that this approach would encourage Canadians to reduce their caloric intake from free sugars to a level that approximates or is less than the 10% maximum daily intake of free sugars recommended by the WHO in its recent draft guideline.

ILSI NA-sponsored work, which addressed dietary intakes in the United States, suggests that a focus exclusively on reducing added sugars intake may not necessarily result in an improvement in essential nutrient intake and overall diet quality. This evidence indicates that poor diet quality does not always coincide with high added sugar intake. Both of these dietary attributes can exist independently of one another. Furthermore, the addition of sugars to foods such as whole grains and dairy products may actually improve diet quality. As cited by Hess et al. (2012):

"The IOM suggested that added sugars should comprise no more than 25% of total calories consumed. The rationale for this maximal intake level was based on ensuring sufficient intakes of essential micronutrients that are, for the most part, present in relatively low amounts in foods and beverages that are major sources of added sugars in North American diets. After a systematic review of observational and experimental data in humans, the IOM panel concluded that although the trends were not consistent for all age groups, reduced intakes of calcium, vitamin A, iron, and zinc were observed with increasing intakes of added sugars as a percentage of energy intake, particularly at levels exceeding 25% of energy. The panel noted that not all micronutrients were examined."

ILSI NA sponsored a project to update and expand data in Appendix Table J in the IOM Macronutrient report. Appendix Table J contained data on median intakes of selected micronutrients at 5% increments of added sugars (from 0 to >35% of energy intake) developed from NHANES III (1988–1994) data. The ILSI NA-sponsored work was based on an analysis of NHANES 2003–2006 data (Marriott et al., 2010). As reported in the publication:



“Nutrient intake was less with each 5% increase in added sugars intake above 5–10% [of energy intake].”

“Higher added sugars intake were associated with higher proportions of individuals with nutrient intakes below the EAR, but the overall high calorie and low quality of the U.S. diet remained the prominent issue.”

However, “High levels of added sugars intake occur among only a small proportion of the population and cannot explain the existing problem of poor nutrient intake in the U.S. population as a whole.”

The data from Appendix Table J in the IOM Macronutrient report and from Marriott et al. (2012) indicate that, even at lower levels of added sugars intake, Americans have relatively poor diet quality and nutrient intakes. A focus exclusively on reducing added sugars intake may not result in an improvement in essential nutrient intake and may risk unintended consequences in some individuals related to inadequate intake of some essential nutrients. This suggests that a more effective strategy to promote increased micronutrient intake would be to communicate that specific objective, as discussed further in comment 4.

4. ILSI NA-sponsored work supports the need for consumer research *before* requiring added sugars labeling and declaring a % DV for total sugars

Consumer research is essential *before* a decision is made to require added sugars labeling and declaring a % DV for total sugars in order to determine how consumers will interpret and use such declarations. As indicated by Health Canada’s statements, the concern with added sugars intake is overconsumption of calories from low nutrient-dense foods while meeting energy and nutrient requirements. A paper from the ILSI Sugars workshop covered findings reported by the 2000 Dietary Guidelines Advisory Committee and the IOM report on DRIs for macronutrients (Murphy and Johnson, 2003). The paper contains the following statements concerning added sugars intakes, energy intakes, and nutrient density:

“From the existing evidence, we conclude that the most likely consequences of sugars consumption beyond the levels described by the food guide pyramid are overconsumption of energy and micronutrient inadequacies. However, excess energy from any source, not just from sugars, is detrimental to the maintenance of a healthy body weight.”

“Thus, a guideline that communicates the desirability of choosing foods with a high nutrient density (preferably not solely from fortification nutrients because many of the other healthful components of foods from the food guide pyramid—e.g., carotenoids, flavonoids, fibers—may still be missing) might be more effective than advice that specifically identifies sugars as being responsible for overconsumption of energy and nutrient displacement. Perhaps we need a simple message that communicates the desirability of choosing foods with a high ratio of nutrients to energy.”

The following statement was contained in another paper sponsored by ILSI NA (Hess et. al., 2012)



“...discussions concerning the health effects of sugars must be framed rationally and be supported by scientific evidence. Underlying assumptions and expectations related to specific nutrient and food choices must be consciously made with the consumer in mind. For consumers to implement dietary recommendations, they must be provided with clear, relevant messages that are based on quality evidence. Such messages are critical to maintaining the trust and confidence of consumers in those who develop the recommendations and in those who deliver them.”

“Clearly, excess energy intake in any form results in weight gain; therefore, moderating sugar intake so as to not exceed daily energy requirements can help to reduce the risk for obesity. It is not clear; however, if diets lower in added sugars necessarily result in better or more balanced diets based on currently available scientific evidence. All digestible carbohydrates contain 4 kcal per gram, so substitutions of refined starch for added sugars will not lower calorie intake or improve public health.”

If added sugars and a % DV for total sugars are listed on the NfT, will consumers focus more on total and/or added sugars content than on calorie and nutrient content? For example, will consumers avoid nutrient dense products such as dairy products and fiber rich cereals due to the declaration of added sugars or a % DV for total sugars? If an objective of the proposal is to reduce energy intake and improve selection of foods with higher nutrient density, a greater emphasis should be placed on educational campaigns about total calories in the diet and weight gain as well as what is a nutrient dense food.

5. ILSI NA- sponsored work supports a need for consistency in the added sugars definitions used by various entities

To align with the definition proposed by the US Food and Drug Administration (FDA)¹, which in turn would facilitate trade if implemented in both countries, Health Canada refers to “added sugars” as sugars and syrups that are added to foods during processing or preparation, specifically as

“Sugars that are either added during the processing of foods, or are packaged as such, and include sugars (free, mono- and disaccharides), syrups, naturally occurring sugars that are isolated from a whole food and concentrated so that sugar is the primary component, for example fruit juice concentrates, and other caloric sweeteners.” [p.15, footnote c]

One of the ILSI Sugars workshop papers addressed the need for consistency in the definition of added sugars (Sigman-Grant and Morita, 2003). While the paper focused on defining and interpreting intakes of sugars that were relevant to the United States, the following comments are relevant to Health Canada’s definition of added sugars.

“...in the United States, 4 distinctly different terms—*added sugars*, *sugars*, *sugar*, and *caloric sweeteners*—are used by 2 government agencies. The US Department of Agriculture (USDA) issues dietary guidance, and the Food and Drug Administration (FDA) regulates foods and

¹ “Food Labeling: Revision of the Nutrition and Supplement Facts Labels; Proposed Rule”, proposed rule, Federal Register vol 79, no. 41 (3 March 2014), Section II D 3 b, p.11906 (Docket No. FDA-2012-N-1210 RIN 0910-AF22).



food ingredients. Each term is described in detail in Table 2.” [A copy of Table 2 from this paper follows.]

TABLE 2
Definitions

Term used	Source	Definition	Measurement
Consensus definitions used within workshop			
Sugars	Consensus	Refers to monosaccharides and disaccharides (1 and 2 monomers only); sometimes seen in the literature as simple sugars	
Sugar	Consensus	Refers strictly to sucrose	
Oligosaccharides	Consensus	Refers to compounds containing 3–9 monomers	
Commonly used definitions to describe sugars in food			
Added sugars	Food Guide Pyramid (US Departments of Agriculture and Health and Human Services; 8)	Eaten separately or used as ingredients in processed or prepared foods (such as white sugar, brown sugar, raw sugar, corn syrup, corn syrup solids, high-fructose corn syrup, malt syrup, maple syrup, pancake syrup, fructose sweetener, liquid fructose, honey, molasses, anhydrous dextrose, and crystal dextrose). May contain oligosaccharides	Teaspoon
Sugars	Food Label— <i>in the Nutrition Facts Panel</i> (Food and Drug Administration; 9)	All monosaccharides and disaccharides (includes naturally occurring sugars as well as those added to a food or drink, such as sucrose, fructose, maltose, lactose, honey, syrup, corn syrup, high-fructose corn syrup, molasses, and fruit juice concentrate). Any oligosaccharides present in these compounds are not counted.	Grams
Sugar	Food Label— <i>in the Ingredients Statement</i> (Food and Drug Administration; 9)	Indicates sucrose in ingredients statement	None
Caloric sweeteners	Food Disappearance Data (Economic Research Service, US Department of Agriculture; 10)	Sweeteners consumed directly and as food ingredients (such as sucrose (from refined cane and beet sugars), honey, dextrose, edible syrups, and corn sweeteners (primarily high-fructose corn syrup); contains oligosaccharides	Grams Teaspoons

Reprinted from Sigman-Grant and Morita (2003). Open Access.

“Added sugars (USDA) and caloric sweeteners [Economic Research Service (ERS), USDA] omit naturally occurring sugars, such as those in fruit and dairy products. Although the FDA includes only monosaccharides and disaccharides in its sugars category on the Nutrition Facts label, the ERS includes oligosaccharides present in the various high-fructose and non-fructose corn syrups in its caloric sweeteners category. Confusion exists about whether boiled (stripped, deodorized, and decolorized) fruit juices are included within the added sugars categories, but the FDA does include them as a component of total sugars for the Nutrition Facts Label.

“In common vernacular, *sugar* refers only to table sugar (sucrose). The ultimate result of these multiple definitions is the potential for inconsistency and misinterpretation by consumers, scientists, and regulators alike. This is of major concern when addressing the issues of sugars and health because the body cannot distinguish naturally occurring monosaccharides and disaccharides from those added to food during processing, during cooking, or at the table or from those formed during the digestion of complex dietary carbohydrates.”

The ILSI Sugars workshop consensus (Sigman-Grant and Morita, 2003) was that consistency of definitions across authoritative and regulatory bodies is important. Without a common language, accurate and precise measurements, and consensus among scientists, educators, regulatory



agencies, and the public, conversations regarding any health effects of sugars may perpetuate misunderstandings. Furthermore “...attempts should be undertaken to propose and adapt common terms used by regulators, scientists, manufacturers, and consumers alike. Agreement about which foods and ingredients to include and exclude would require commitment from all parties involved. Such efforts would open the path for better understanding, communication, and health.”

Fruit juice concentrate is one example of inconsistency among U.S. federal agencies that should be addressed. A paper supported by ILSI NA (Hess et al. 2012) contained the following statement:

“The USDA developed a database that estimates the added sugars content of over 2000 common foods. To compile the database, the USDA estimated added sugar values from sugars listed as label ingredients and nutrient values for total sugars and total carbohydrates. Sugar values were taken from the National Nutrient Database for Standard Reference. Fruit juice concentrates were counted as added sugars when used as an ingredient and not reconstituted as juice. If reconstituted pear juice was added to canned fruit, it was not counted as an added sugar.”

In Health Canada’s definition for added sugars, it is not clear if all fruit juice concentrates listed in an ingredient statement would be considered an added sugar or only those that are not reconstituted as full strength juice.

Concluding Comments on Sugars

ILSI NA-sponsored work supports the need for a consistent definition of added sugars across various entities, the conclusion that added and naturally occurring sugars cannot be differentiated analytically or physiologically, and the lack of a scientific basis for establishing a DV or DRV for total or added sugars. Reducing total or added sugars intakes alone will not necessarily result in diets that are nutritionally adequate or within estimated energy requirements. Addition of sugars to nutrient dense foods may actually improve diet quality. Consumer research is needed *before* a decision is made to require added sugars labeling or a % DV for total sugars in order to determine if consumers will comprehend and use the information appropriately and must be coupled with an emphasis on educating the consumer about selecting foods with greater nutrient density.

Respectfully submitted,

Eric Hentges, PhD
Executive Director
ILSI North America



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