

## Dispelling the “facts” in the *Sugar Coated* documentary press kit fact sheet

On April 25, 2015, the first screening of the *Sugar Coated* directed by Michèle Hozer will be aired in Toronto at the Hot Docs festival. Here, we share our comments and review of the statements made in the documentary’s press kit “Sugar fact sheet” released prior to the screening (*Sugar Coated Documentary*).

**Statements listed in the *Sugar Coated* press kit sugar fact sheet (●).**

**Responses courtesy of the registered dietitians and researchers at the Canadian Sugar Institute-  
Nutrition Information Service (R)**

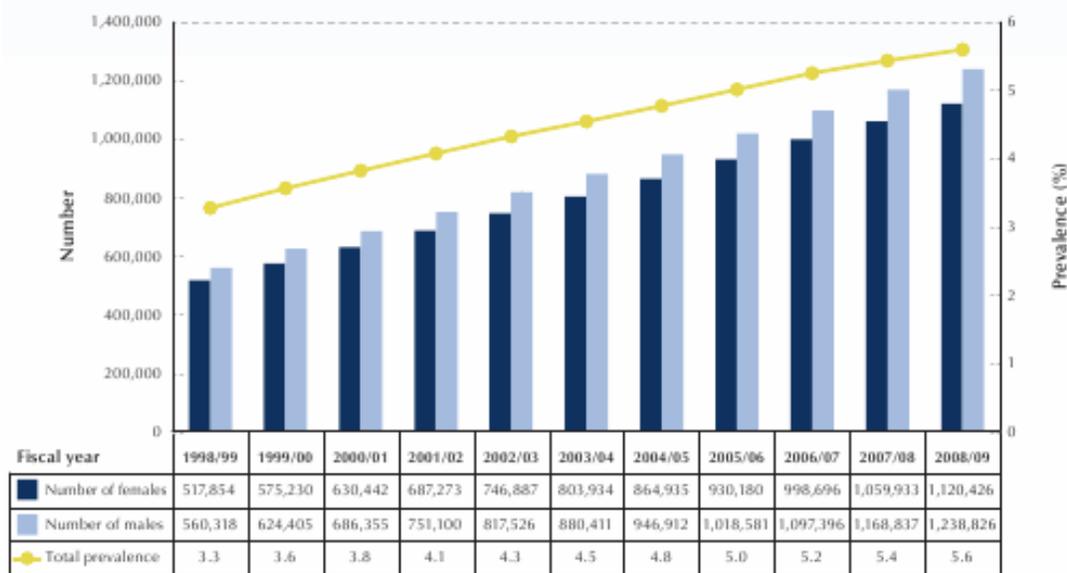
- **SUGAR COATED: “In the past 30 years, obesity rates have doubled to 600 million. Diabetes rates have tripled to 347 million worldwide.”**

### **Obesity**

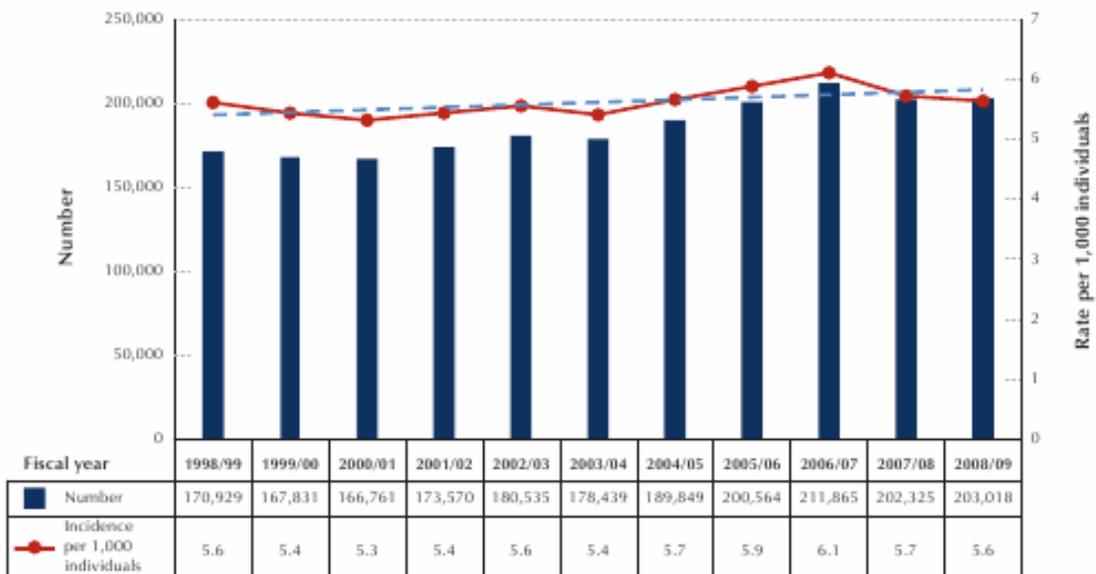
- R Yes, obesity rates are rising: Canadian obesity rates in 1994 were 13%, in 2012 they were 18%. This represents an increase of 38% in 20 years (Public Health Agency of Canada, 2011).
- R Obesity is a complex, multi-factorial issue. Many factors can interact and lead to obesity, such as our eating, exercise and sleep habits, the food environment, medical conditions, medications, stress and our genes. Nutrition experts agree that there isn’t one cause or one cure for obesity. Isolating or restricting a single food or nutrient is unlikely to be an effective approach in addressing complex public health problems such as obesity.
- R Calories come from fat, protein, carbohydrates (such as starch, sugars, fibre) and alcohol. Eating or drinking more calories than you need from any calorie source can lead to weight gain and obesity. A comprehensive scientific review of sugars and obesity commissioned by the World Health Organization published in 2013 concluded that the changes in body weight were linked to changes in total caloric intake based on the findings that there was no unique effect of sugars as compared to other carbohydrates, such as starch, on body weight (Te Morenga L, 2012).

### **Diabetes**

R In Canada, the number of Canadians over the age of 1 year diagnosed with diabetes has doubled in a ten year period (see graph below from Public Health Agency of Canada, July 2011; using 1998/99 to 2008/09 data from the Canadian Chronic Disease Surveillance System (Public Health Agency of Canada)). Two of the main factors cited for this increase are the aging Canadian population and increased longevity of individuals living with diabetes (Public Health Agency of Canada, 2011)



R In Canada, the age-adjusted incidence rate of diabetes, which indicates newly diagnosed individuals, increased only slightly from 5.6 per 1,000 individuals in 1998 to 6.1 per 1,000 individuals in 2006. From 2006 to 2008 the incidence of diabetes in our country actually decreased to 5.6 per 1,000 individuals as shown in the figure below (Public Health Agency of Canada, 2011).



- R A Harvard study reported that the number of adults with diabetes reached 347 million in 2008, up from 153 million in 1980. Seventy percent of this increase was due to population growth and aging (Danaei G, 2011).
  - R A recent systematic review and meta-analysis indicates that there was no relationship between total sugars intake and incidence of diabetes (Tsilas CS, 2014). Risk factors for diabetes include a family history of the disease, obesity, your genes, impaired glucose tolerance or impaired fasting glucose, and high blood pressure and high cholesterol or other fats in your blood (Canadian Diabetes Association, 2015).
- **SUGAR COATED: “The world daily consumption of sugar has increased by 46% in the last 30 years.”**
    - R This is incorrect on a per person basis and does not consider the increase in world population over the last 30 years. A review paper published in December 2014 showed that worldwide consumption of dietary sugars is either declining or stable (Wittekind A, 2014).
    - R In Canada, daily per capita sugars and syrups intake has been declining by about 33% over the past 40 years (76 g/d in 1970 year versus 51 g/d in 2010 year). In 2007, the sugars-sweetened beverage per capita consumption in Canada was 50% less than the consumption in the United States (180 litres versus 90 litres) (Canadian Sugar Institute, 2015).

### Estimated Consumption of Sugars and Syrups in Canada from Availability Data, Statistics Canada<sup>1</sup>

Sugars and Syrups Canada	1970	1975	1980	1985	1990	1995	2000	2005	2010
Total Available (kg/yr)	46.1	40.2	35.0	42.2	36.8	37.0	35.9	33.7	31.2
Total Available (g/day)	126	110	96	116	101	101	99	92	86
Loss Adjustment Factor 40% <sup>2</sup>	-50	-44	-38	-46	-40	-41	-39	-37	-34

Estimated Consumption (g/day)	76	66	58	69	61	61	59	55	51
-------------------------------	----	----	----	----	----	----	----	----	----

<sup>1</sup>Sugars and syrups as defined by Statistics Canada (includes sugar, honey and maple sugars, and excludes corn sweeteners), *Food Statistics 2011*.

<sup>2</sup>Hall KD, Guo J, Dore M, Chow CC. *The progressive increase of food waste in America and its environmental impact. PLoS One 2009;4:e7940.*

- **SUGAR COATED: “In Canada, teenagers consume between 30 to 41 teaspoons (120 g – 165 g) of total sugars per day.”**

R This amount represents total sugars and includes natural sugars found in fruits, vegetables and milk products in addition to sugars added to food (Langlois K, 2011). Added sugars intake has been estimated to be about half of the total sugars intake. This means that teens consume about 15 to 20 teaspoons (60g-80g) of sugars, which represents on average 12% of their energy intake (Brisbois TD, 2014).

- **SUGAR COATED: “WHO guidelines suggest to lower daily sugar intake to only 6 teaspoons (25 g).”**

R WHO guidelines suggest that free sugars intake (not total sugars) be less than 10% of energy, which is similar to 12.5 teaspoons (50 g) of sugars a day. The guideline of 5% of energy (6 teaspoons or about 25 g/day) was identified in the WHO document as a conditional guideline since it is based on very low quality evidence. In addition, it’s important to note that the WHO’s rationale for both of these free sugar intake guidelines were in relation to dental caries and not in relation to obesity or diabetes (World Health Organization, 2015). \*Note that free sugars includes sugars added to foods plus sugars naturally present in honey, syrups and fruit juices; while added sugars does not include fruit juices.

- **SUGAR COATED: “Added sugar is hiding in 74% of packaged foods.”**

R Added sugars are not hiding in packaged foods. In Canada, mandatory ingredient and nutrition labelling shows the total amount carbohydrates, including sugars on food labels. For example, the ingredient list identifies all sources of sugars and sweeteners in descending order by weight. This means the first item on the ingredient list is most

- abundant in the food, and the last ingredient is present in the smallest amount. In addition, the Nutrition Facts Table shows the amount of total carbohydrates as well as the amount of sugars found in the food per stated serving size (Government of Canada, 2015).
- R Sugar's role in foods goes beyond just contributing sweetness, although taste is an important component for enjoyment. For example, high fibre foods are usually bitter. Adding a little bit of sugar helps improve the taste of fibre. Health Canada recommends dietary fibre intake of 14 g/1000 kcal for all age groups, which translates to 25 g/d for adult women (19-50 years old) and 38 g/d for adult men (19-50 years old) (Health Canada, 2015).
  - R Sugar plays a vital role in many sensory and food safety aspects of food. For example, sugar gives baked goods a crispy texture and helps keep them moist. Sugar also helps with the browning of breads; Sugar is a natural preservative for jams and jellies and canned fruits, and helps to provide a smooth mouth feel to frozen desserts and ice creams (Canadian Sugar Institute, 2010).
- **SUGAR COATED: "Compared to people consuming less than one glass of soda per month, those consuming at least one glass of soda everyday show a 29% higher risk of developing diabetes, irrespective of the total calorie intake, weight, or diet."**
    - R The information in the *Sugar Coated* press kit did not elaborate on the study design, methodology, amount of soda consumed, the type of soda, or the number, gender or age of the participants. Confounding factors may not have been accounted for, such as whether the participants had a family history of diabetes or pre-existing health condition(s).
    - R The most recent meta-analysis of 6 prospective cohort studies on sweetened beverages reported a 20% higher risk of developing diabetes with 330 ml of intake per day sugars-sweetened beverages and a 13% higher risk of developing diabetes with artificially sweetened beverages. However, the authors point to flaws in the methodology of many studies - the research studies were observational by design, and 3 of the 6 studies did not control for energy or BMI, (Body Mass Index.) Thus the authors concluded that the results should be interpreted with caution (Greenwood DC, 2014).
    - R A recent systematic review and meta-analysis indicates that there was not a relationship between total sugars intake and incidence of diabetes (Tsilas CS, 2014).
    - R Observational studies are just that – observations. The observational studies cited in the documentary may hint that there is an observed association between those who

drink sugars-sweetened soda and an increased diabetes risk. However, this does not mean cause and effect. Like other chronic conditions, diabetes is a multi-factorial condition caused by dietary and lifestyle factors.

- **SUGAR COATED: “Non-alcoholic fatty liver disease was not described until 1980.”**
  - R Non-alcoholic fatty liver disease (NAFLD) as a progressive liver disease which starts with fat accumulation in the liver without excessive alcohol consumption. It is strongly associated with metabolic syndrome, which is a combination of conditions including high blood pressure, high blood sugar, overweight or obesity, and increases a person’s risk for cardiovascular disease and type 2 diabetes. The most common cause of NAFLD is being obese (Canadian Liver Foundation, 2015) (Yim C, 2014).
  - R Two systematic reviews and meta-analyses consistently showed that excess total caloric intake but not sugars intake contribute to NAFLD (Chung M, 2014) (Chiu S, 2014).

**R: Bottom line:**

As the main energy source for the body, carbohydrates are an important part of a healthy diet. Currently, experts agree that carbohydrates and sugars in foods and beverages can be enjoyed in moderation as part of a balanced diet and active lifestyle.

The *Nutrition Information Service* of the Canadian Sugar Institute provides health professionals, educators, consumers and the media with current scientific information on sugars, carbohydrates and health. The *Nutrition Information Service* is managed by qualified nutrition professionals including registered dietitians and nutrition researchers and is guided by a Scientific Advisory Council. The goal of this service is to inform and educate Canadians about sugars and healthy eating and to advocate for nutrition policies and recommendations that are based on reliable scientific research.

For more information, please contact our Nutrition Information Service at [www.sugar.ca](http://www.sugar.ca) and follow us on [@CdnSugarNutr](https://twitter.com/CdnSugarNutr).

## References

Brisbois TD, M. S. (2014). Estimated intakes and sources of total and added sugars in the Canadian diet. *Nutrients*, 6(5), 1899-912. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24815507>

- Canadian Diabetes Association. (2015). *Are you at risk?* Retrieved from Canadian Diabetes Association: [http://archive.diabetes.ca/files/Diabetes\\_Fact\\_Sheet.pdf](http://archive.diabetes.ca/files/Diabetes_Fact_Sheet.pdf)
- Canadian Liver Foundation. (2015). *Fatty Liver Disease*. Retrieved from Canadian Liver Foundation: <http://www.liver.ca/liver-disease/types/fatty-liver.aspx#13>
- Canadian Sugar Institute. (2010). *Sucrose: From Field to Table – Functional Properties and Physical Attributes in Food*. Retrieved from [http://sugar.ca/SUGAR/media/Sugar-Main/PDFs/2010-CHOnews\\_ENG-LR.pdf](http://sugar.ca/SUGAR/media/Sugar-Main/PDFs/2010-CHOnews_ENG-LR.pdf)
- Canadian Sugar Institute. (2015). *Sugar Consumption*. Retrieved from Canadian Sugar Institute: <http://www.sugar.ca/Nutrition-Information-Service/Health-professionals/Sugar-Consumption.aspx>
- Chiu S, S. J.-W. (2014). Effect of fructose on markers of non-alcoholic fatty liver disease (NAFLD): a systematic review and meta-analysis of controlled feeding trials. *Eur J Clin Nutr*, 68(4), 416-23. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24569542>
- Chung M, M. J. (2014). Fructose, high-fructose corn syrup, sucrose, and nonalcoholic fatty liver disease or indexes of liver health: a systematic review and meta-analysis. *Am J Clin Nutr*, 100(3), 833-49. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/25099546>
- Danaei G, F. M. (2011). National, regional, and global trends in fasting plasma glucose and diabetes prevalence since 1980: systematic analysis of health examination surveys and epidemiological studies with 370 country-years and 2.7 million participants. *Lancet*, 378(9785), 31-40. Retrieved 2015, from [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(11\)60679-X/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)60679-X/abstract)
- Government of Canada. (2015). *Food Labelling for Consumers*. Retrieved from Canadian Food Inspection Agency: <http://www.inspection.gc.ca/food/labelling/food-labelling-for-consumers/eng/1400426541985/1400455563893>
- Greenwood DC, T. D. (2014). Association between sugar-sweetened and artificially sweetened soft drinks and type 2 diabetes: systematic review and dose–response meta-analysis of prospective studies. *Br J Nutr*, 112, 725-34. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/24932880>
- Health Canada. (2015). *Do Canadian Adults Meet Their Nutrient Requirements Through Food Intake Alone?* Retrieved from <http://www.hc-sc.gc.ca/fn-an/surveill/nutrition/commun/art-nutr-adult-eng.php#il>
- Langlois K, G. D. (2011). *Sugar consumption among Canadians of all ages*. Ottawa: Statistics Canada. Retrieved from <http://www.statcan.gc.ca/pub/82-003-x/2011003/article/11540-eng.pdf>
- Public Health Agency of Canada. (2011). *Diabetes in Canada: Facts and figures from a public health perspective*. Ottawa: Government of Canada. doi:Cat.: HP35-25/2011E
- Public Health Agency of Canada. (2011). *Obesity in Canada: A joint report from the Public Health Agency of Canada and the Canadian Institute for Health Information*. Ottawa: Government of Canada. doi:Cat.: HP5-107/2011E-PDF

Te Morenga L, M. S. (2012). Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. *BMJ*, 346, e7492. doi:10.1136/bmj.e7492

Tsilas CS, d. S.-M. (2014). No relation between total sugars intake and incident diabetes: A systematic review and meta-analysis of cohorts. *32nd International Symposium on Diabetes and Nutrition*. Reykjavik, Iceland.

Wittekind A, W. J. (2014). Worldwide trends in dietary sugars intake. *Nutr Res Rev*, 27(2), 330-45. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/25623085>

World Health Organization. (2015). *Sugars Intake for Adult and Children: Guideline*. Geneva: World Health Organization. Retrieved from [http://who.int/nutrition/publications/guidelines/sugars\\_intake/en/](http://who.int/nutrition/publications/guidelines/sugars_intake/en/)

Yim C, S. H. (2014). *University Health Network*. (U. H. Network, Editor) Retrieved from Non-alcoholic Fatty Liver Disease: [http://www.uhn.ca/docs/HealthInfo/Shared%20Documents/Non-Alcoholic\\_Fatty\\_Liver\\_Disease.pdf](http://www.uhn.ca/docs/HealthInfo/Shared%20Documents/Non-Alcoholic_Fatty_Liver_Disease.pdf)