



## **ILSI Comments on WHO Draft Guideline: Sugars intake for adults and children**

The International Life Sciences Institute (ILSI) respectfully submits the following comments on the recent draft guideline on free sugars – “Guideline: Sugars intake for adults and children.” The World Health Organization developed the guidance in its ongoing effort to improve health for all citizens of the world. For this they are to be commended. WHO based the guideline on the best available science.

ILSI is not a standards-setting organization, but it has considerable experience in examining available data and is active in efforts to enhance the quality of research design and interpretation Webb et al. 2013. Given that national governments worldwide are stretched to meet the health care needs of their populations, it seems important to provide guidance in which there is considerable confidence to avoid wasting valuable resources on implementing actions that will not result in effective outcomes.

The WHO guidance is based on two evidence-based reviews related to dental caries and obesity/overweight. The new, conditional recommendation to further reduce free sugars intake to 5 percent of total calories appears to be based solely on data from several studies that are more than 50 years old. Even so, the findings of the evidence-based review are described by the review authors as of “very low quality” (Moynihan and Kelly 2014).

### ILSI reviews of literature regarding sugars and dental caries

ILSI North America reviewed the data related to dental caries as recently as September 2002 and the findings were published in 2003 (Touger-Decker and van Loveren 2003). An earlier review was conducted in 1994 and published in 1995 (König K and Navia JM 1995). This second, earlier review addresses the issue of dental caries during wartime. The data cited by the WHO review were collected following World War II in Japan, where there were undoubtedly many confounding factors, e.g., undernutrition and lack of dental care. The authors of the 1994 ILSI review state: “Although sugar consumption rose rapidly after World War II and has been ~ 45 kg per capita during the past 40 y, the number of caries-free schoolchildren aged 7-15 y had risen to 65% by 1989 and the DMFT index for 12 y-old children had decreased to 1.0.” The data cited come from Büttner 1991.

ILSI Europe published a concise monograph on this topic as well (van Loveren 2009). This monograph reviews studies showing that frequency of consumption of fermentable carbohydrates is a driver of dental caries along with oral hygiene, exposure to fluoride, and salivary flow and composition. The monograph cites studies showing a decline in dental caries in children from Germany and The Netherlands from the 1960s to 2005.

### ILSI contributions to the understanding of the impact of added sugars consumption on Body Mass Index (BMI)

ILSI North America supported a re-analysis of *Appendix J: Association of Added Sugars Intake and Intake of Other Nutrients* published by the Institute of Medicine in 2002. Marriott et al. 2010 combined the 2003-2006 National Health and Nutrition Examination Survey (NHANES) data (15,189 respondents, ages 4 years and older, with the U.S. Department of Agriculture My Pyramid Equivalents Database to estimate individual added sugars intake as a percentage of total energy. Respondents were then

classified into 8 added sugars percent energy intake categories. Table 1 in this paper shows that the majority of individuals had an estimated intake of >5 to <20 percent of energy from added sugars, with mean daily total energy intake of 2062 kcal to 2183 kcal. Controlling for total energy intake in their analysis, this represented an estimated range of 45 to 92 mean gram-equivalents of added sugar intake daily. There were no appreciable differences between male and female respondents across the 8 categories.

The BMI for the same nationally representative sample from the United States (US) was higher for individuals with low or high intakes of added sugars, thus there does not appear to be a linear relationship between BMI and intake of added sugars for this population. Those with low added sugars intake ( $\leq 5$  percent of energy) had a similar BMI to those with high added sugars intake ( $\geq 35$  percent of energy): 28.9 compared to 28.1, respectively. Of persons who were overweight or obese, the highest proportions reported consuming between 5 and 15 percent of their energy from added sugars. With each 5 percent increase in added sugars intake above 15 percent added sugars intake, a lower prevalence of overweight and obese individuals was found, until the highest category of sugars intake was reached (>35 percent).

Marriott et al. 2010 also compared the nutritional quality of dietary intake by category of added sugars intake. As with the BMI data, the relationship is not linear, but “J” shaped. This means that those with very low intake of added sugars ( $\leq 5$  percent) had poorer diet quality as measured by Dietary Reference Intake than those with higher added sugars intake until added sugars intake reached >25 percent energy.

Obviously, one study using US-based data is not sufficient to build recommendations, but this study does provide a cautionary note that driving added sugars intake very low – meaning less than 10 percent of energy – may result in unintended consequences.

ILSI Europe published a concise monograph, Ziesenitz et al. 2012, that reviews the available data and found that sustained overconsumption of energy, irrespective of the energy sources, leads to weight gain. The most effective means of weight loss is to reduce energy intake and increase physical activity.

Thank you for the opportunity to share ILSI-sponsored scientific data with you.

## References

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