

Submission to Consultation on SACN's Draft Carbohydrates and Health Report

Background

This is a submission on the draft SACN report 'Carbohydrates and Health' from the Food Safety Authority of Ireland (FSAI). The FSAI makes this submission on the following grounds:

The Public Health Nutrition team at FSAI carried out research to establish the evidence base for the most recent Food-Based Dietary Guidelines for Ireland (see references outlined below). Of direct relevance is research conducted using dietary intake data with the specific objective of formulating healthy eating advice to prevent obesity and related chronic disease. This involved exploring the reciprocal relationship between total fat and sugar in the diet to find ways of limiting both sugar and saturated fat within the energy requirements of people of different age, gender and activity levels.

Detailed submission on SACN's Draft Carbohydrates and Health Report

Overall Comments

This report provides an excellent review of the role of dietary carbohydrates in cardio-metabolic health, colo-rectal health and oral health.

The clarification of the complexity of dietary carbohydrates from the perspective of terminology, classification and definitions is very welcome and will be very useful.

This report provides a transparent and detailed outline of the research considered and the strength of evidence for conclusions and recommendations. The concerns FSAI have relate to two areas of the report:

1. Chapter 11 Dietary Reference Values

The formulation of Dietary Reference Values for carbohydrates is undertaken without considering other nutrients in the diet – particularly macronutrients. Therefore while the conclusions on ideal amounts of dietary carbohydrates for health may be well-founded, failure to consider the consequent effects of changing carbohydrate intakes on other nutrients, particularly fat and saturated fat, may result in dietary intakes that are more harmful. The Institute of Medicine (IOM) in their 2002-2005 report outline an approach to developing recommendations on macronutrient intakes that takes account of the inter-relationships that exist between macronutrients – particularly the reciprocal relationship between fats and carbohydrates (see Institute of Medicine 2002 – 2005 below).

2. Chapter 12 Overall Summary and Conclusions – 12.26 and 12.27

The dietary reference value recommendations outlined in Paragraph 12.26 and 12.27 for free sugars and for dietary fibre, respectively, are not feasible.

- a. FREE SUGARS - FSAI agree with the conclusions that free sugars must be limited and that the previous upper limit of 30% needs to be revised considerably (Paragraph 11.5). However the recommended mean intake of 5% is set too low for palatability of low fat, low saturated fat diets. For similar reasons the maximum level of free sugars intakes needs to be increased to ~12%. Notwithstanding that reservation FSAI agree that free sugars need to be limited but for this, the role of different food sources of sugar needs to be considered i.e. food sources that
 - i. are 'fat-free' vs. 'fat-containing' and
 - ii. become 'part of a low-fat nutrient dense food' vs. 'those that are strictly additional'
- b. DIETARY FIBRE – The DRV recommended for total dietary fibre intake is given in absolute terms as a goal of 30g per day and this will only be achieved by those with high energy intakes. Consideration should be given to setting the requirement in terms of energy needs and providing the recommendation in terms of overall food intakes – i.e. a certain fibre density (g fibre/MJ). Such an approach will adjust fibre intakes for those with lower energy needs (small adult females) and protect against compromising micronutrient status.

Specific comments on the report

FREE SUGARS

Chapters 11 and 12 setting DRVs for Carbohydrate and free sugars specifically should be amended to consider the effects on other macronutrients – especially total and saturated fat. This would be in line with the approach used by IOM which accounts for the fact that macronutrients are sources of energy that can be used interchangeably (see Institute of Medicine 2002 -2005). The approach outlined in the SACN Draft Carbohydrates and Health Report in paragraph 11.10 to formulate the 5% mean Free Sugars intake goal is flawed in that it only considers energy and not the complex dietary inter-relationships between fat and sugar. Dietary intake studies in the UK and Ireland have consistently demonstrated the reciprocal relationship that exists between total fat (and saturated fat) and sugar intakes (see Flynn *et al* 1996 and Flynn & Kearney 1999 below). This is often referred to as the fat-sugar see-saw. We have explored this in the detailed revision of Ireland food based dietary guidelines to protect against chronic diseases including obesity, and to improve health – including dental health (see Flynn *et al* 2011a, Flynn *et al* 2011b, FSAI 2011 and FSAI 2012 below).

In an earlier study of dietary intakes in Ireland the inverse relationship between total fat and non-milk extrinsic sugars (NMES) sugars intake was found to extend to saturated fat (see Flynn *et al* 1996). Examination of the food sources of NMES sugars in this study categorised

these foods into those that were 'fat-free high sugar foods' and 'fat-containing high sugar foods'. The 'fat-free high sugar foods' were found to be associated with lower fat and saturated fat intakes while the 'fat-containing high sugar foods' were not. Furthermore the low fat and low saturated fat diets that contained higher quantities of the 'fat-free high sugar foods' were associated with higher intakes of fibre and micronutrients with the exception of vitamin A (Flynn *et al* 1996). This demonstrates that 'fat-free high sugar foods' have a role - albeit in limited amounts, as part of a healthy diet.

The role of 'fat-free high sugar foods' play in palatability of low fat, high fibre diets arises when formulating dietary guidelines. For this task 'fat-free high sugar foods' need further classification into those that become part of a low-fat high fibre or micronutrient-rich food (e.g. sparing use of sugar in porridge or preserves on wholemeal bread) vs. those that are simply additional (e.g. sugar-sweetened beverages or sugar added to tea).

This is outlined in a report of FSAI work revising the food-based dietary guidelines for Ireland (Flynn *et al* 2011b). An iterative approach to develop twenty-two 4 day food intake patterns until average intakes met a range of nutrient and energy goals that represented the variable nutritional requirements of all in the population aged 5 years and older. Achieving low saturated fat intakes (<10% energy) was difficult as was achieving the dietary fibre goal of 25g per day for those with energy needs below 9.2MJ/day. These healthy eating goals, including keeping intakes of non-milk extrinsic sugars (NMES) below 10% energy, were largely achieved – but the mean NMES intakes ranged between 6.2 – 11.5% energy. Notwithstanding the fact that Free Sugars will amount to slightly lower levels compared with NMES, the mean goal of 5% energy intake would not be achieved. In the published report (Flynn *et al* 2011b) we outlined the advice on sugars as follows:

'This revision found that fibre goals were difficult to achieve, as previously reported in Ireland, particularly in food patterns that were based on lower energy requirements (<10MJ/<2,400 kJ). Specific adjustments of food patterns involved the sparing use of two fat-free sources of sugar - namely, table sugar and preserves, to increase the acceptability and palatability of fibre-rich food sources, such as wholemeal cereals, breads and stewed fruit – an approach that has been previously used.'

This approach is in agreement with the SACN Draft Carbohydrates and Health Report regarding the recommendation that 'consumption of sugar-sweetened beverages should be minimised in both children and adults' and frequent intake of sugars should be avoided for better dental health. The relevant section of this report (Flynn *et al* 2011b) is outlined below:

However this revision of healthy eating advice also includes advice to avoid frequent intakes of sugar for the promotion of good dental health. Previous work in Ireland has highlighted an inverse relationship between saturated fat and sugar and preserves and the inverse relationship between sugar and fat intakes is well established. Notwithstanding this, the inclusion of sugar and sugary foods for their own sake (i.e. independent of fibre-rich foods) was not supported in this revision. Consumption of sugary foods, such as soft drinks, or sugary foods that also contain fat, such as confectionery, increase intakes of energy and possibly fat, without providing essential nutrients, and high-fat sweet foods may be positively associated with obesity.

In conclusion, therefore, this submission calls for the amendment of the approach used to set DRVs for Carbohydrate and free sugars so that the effects on other macronutrients – especially total and saturated fat can be considered. As part of this, the role of different food sources of sugar needs to be considered i.e. those that

- a. are 'fat-free' vs. 'fat-containing' and
- b. become 'part of a low-fat nutrient dense food' vs. 'those that are strictly additional'

DIETARY FIBRE

Achieving absolute dietary fibre goals >25g per day is difficult for those with energy needs below 9.2MJ/day (Flynn *et al* 2011b). The DRV recommended in the SACN Draft Report for total dietary fibre intake is given in absolute terms as a goal of 30g per day and this is only be easily achievable by those with high energy intakes due to their larger food intakes. Consideration should be given to setting the requirement in terms of energy needs and providing the recommendation in terms of overall food intakes – i.e. a certain fibre density (g fibre/MJ). Such an approach will adjust fibre intakes for those with lower energy needs (small adult females) and protect against compromising micronutrient status.

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