

## **Nutrition Society response to SACN draft report on Carbohydrates and Health**

### **Background**

The Scientific Advisory Committee on Nutrition (SACN) published its draft Carbohydrates and Health report for consultation in June 2014. Key stakeholders were invited to make comments on the scientific content of the report until 1 September 2014.

A number of Nutrition Society Trustees and members are also members of SACN, namely Dr Ann Prentice, Professor Peter Aggett, Ms Gill Fine, Dr Paul Haggarty, Professor Susan Lanham-New, Professor Julie Lovegrove, Professor Ian Macdonald, Professor Harry McArdle, Dr David Mela, Professor Monique Raats and Dr Anthony Williams

Nutrition Society members have had a long-standing interest in this area. Indeed our 2014 Summer Meeting in Glasgow explored latest scientific research on the impact of carbohydrates on human health, attracting learned speakers from around the world.

The 2014 annual report on the state of the public's health by England's Chief Medical Officer, Professor Dame Sally Davies flagged concerns about the 'normalisation' of obesity. In her report, the CMO raised the possibility of introducing a 'sugar tax' if food manufacturers are unable or unwilling to reformulate their products to use less added sugar.

There is considerable media and public interest in this area. Certainly amongst public health professionals there is a growing clamour for Government to take legislative action in order to prevent an obesity epidemic that threatens to place huge burdens on our NHS and social care systems.

On the other hand those working in the food industry are cautious about reformulating recipes for their most successful brands, instead offering low-calorie-sweetener or low fat versions of their products as 'healthy' alternatives. There are also strongly held views that added sugar - as a single ingredient - cannot be held solely responsible for health problems caused by obesity.

### **Representing our members**

The Nutrition Society is a membership organisation representing a wide variety of professionals working in the field of nutrition and dietetics. We invited our members to send us their comments on the SACN consultation. We received responses from members representing a wide range of nutrition professionals: university academics, dietitians, independent nutrition consultants, nutritionists with experience in industry, public health nutritionists, and officers of the Nutrition Society. This overview summarises their responses.

### **Scope of review**

All respondents praised the broad scope of the rigorous systematic review which covers a wide spectrum of outcomes (incident disease endpoints, biomarker endpoints and dietary

effects) and highlights gaps in the evidence as well as differences in terminology between studies.

### **Deficiencies of review**

The emphasis on improved intake of fibre was rather sidelined in favour of the recommendation to reduce intake of sweetened drinks and fruit juices, rather than being given equal prominence. In general people are more responsive to a positive message.

However some respondents commented that the review has been too extensive for reviewers to attend to essential detail, and that it will be largely out of date by 3-4 years at the time of publication, which compares with 6 months for journal reviews.

One respondent suggested adding a brief section considering the effect of cooking methods, domestic food processing and preservation on the public health outcomes considered by the report.

It was noted that only brief reference is made to the effect of physical activity and exercise on health outcomes such as constipation, bowel cancer or insulin resistance. It would be useful to include information on the effect of exercise/physical activity on gut motility and absorption of non-digestible carbohydrates and the metabolic process and on resulting changes leading to disease, cure, prevention and control.

There is little or no comment with respect to pregnancy which is considered an omission as advice to women in pregnancy is very varied. It should be made clearer from the outset of the report that pregnant women are excluded from consideration.

### **Quality of evidence**

The report acknowledges that much of the evidence reviewed was deemed as scientifically insufficient or conflicting. The problems associated with conducting RCTs for disease prevention are well known and almost inevitably biomarkers of risk have to be used, the validity of which are also subject to debate. This level of uncertainty should be clearly conveyed in the overall recommendations.

The strength of the advice is reported to be upgraded by “evidence from appropriately controlled experiments demonstrating one or more plausible and specific mechanisms in humans.” (A2.21). Several respondents suggested adding indications of the quality of the evidence to the tables. For example it would be useful to add a bullet point to each table where a convincing mechanism has been identified as relevant in humans. This would help in the identification of areas where better mechanistic studies need to be undertaken. Also useful would be a grid summarising the findings for different outcomes for different carbohydrate components showing limited/moderate evidence and whether of beneficial/detrimental effect.

The report is based on self-reported intakes of carbohydrates and does indeed highlight the inaccurate method of self-reported measures of intake and mis-reporting. So conclusions

are being drawn regarding intakes which may or may not be accurate. A recommendation is made for further research to remedy such problems in the future. We agree that more research is needed.

### **Sugars target**

There was general support for the proposed use of the simpler term of 'free sugars' to replace NMES (Non Milk Extrinsic Sugars).

There was considerable discussion of, and some differences of opinion on, the 5% energy target for free sugars, the same conclusion as that of the World Health Organisation (March 2014).

Supporting comments acknowledged that as free sugar is non-essential in our diet and tends to be associated with energy-dense rather than nutrient-dense foods, the recommendation is very unlikely to have any adverse consequences for human health and has potentially greater health implications in protecting subgroups of the population who show increased sensitivity to the adverse metabolic effects of excessively high intakes of dietary sucrose and fructose (>20% total energy). These subgroups include children and teenagers over consuming sugar-rich foods (sugar sweetened beverages and confectionary), and overweight and obese adults with subclinical signs of cardio-metabolic risk and early liver disease.

Some respondents found the report to be particularly useful as they repeatedly come up against conflicting information surrounding the quantities of carbohydrate an individual should consume.

However there was detailed criticism of the supporting evidence for this target as it is founded on limited effects on disease risk - reduction in risk of dental caries, and the dietary collinearity between sugars intake and energy intake. The inference in the report is that a population reduction in sugars intake will help achieve reduction in energy intake but advice on changing any of the macronutrient components without emphasis on total energy is ill-founded. Confusingly SACN increased energy intake requirements in 2012 and the current report advises that the sugars energy deficit should be made up from starchy foods and sugars from milk and milk products (12.26).

The population average target for free sugars of 5% energy seems incongruent with an individual target of 10% energy. The 5% value is based on two assumptions for which there is no evidence in the SACN report

(1) that a proportion of people would be required to eat no added sugars for a population target of 5% EI in order to achieve individual maximum targets of 10% EI. This assumption should be evidenced with an analysis of the NDNS which properly models the required population target to achieve individual maximum targets of 10% EI added sugars. This could easily be done and it may be that the answer is higher, or even lower, than 5%.

(2) that a 5% population average of added sugar intake would drive calorie reduction. This is based on Figure 1 (page 202) which correlates EI with % EI from added sugar. With energy

on both sides of the equation, a correlation is unsurprising and would probably also be seen with fat. There were a number of comments regarding the data included in this figure, including one from the author of 2 of the studies (Sandra Drummond), please see attached detailed comments. There were other comments on the derivation of the data points in this graph which included reference to whether the data points refer to intake of 'total or free sugars'. This is an important point given that Figure 1 is used to derive the DRV for 'free sugars'. It would be helpful if the derivation of the specific data from the studies used to produce Figure 1 were included in the report. The assumption of a 5% population average should be evidenced in future with specifically designed RCTs which lower sugar consumption and examine the resulting calorie reduction, rather than relying on the mixed evidence from the trials included in Figure 1.

It would seem that SACN have simply tried to match the evidence to the WHO 5% EI target rather than letting the evidence drive the UK target. Behaviour change will have to be great to achieve such a stringent population target of 5% sugars energy.

## **Fibre**

For fibre intake the targets are based on harder endpoints - lower colorectal cancer risk and cardiovascular disease. A diet pattern high in pulses, whole grains, vegetables and fruit is advised. Given the lack of change in fruit and vegetables consumption over the last 20 years despite an intense public health campaign around 5 a day, the target of a 33% increase in fibre intake in men (and more in women) seems an extremely ambitious but worthwhile target.

## **Additional recommendations**

All cohort studies were corrected for BMI except those reporting on BMI as an end-point. This should be made clearer in the summary document so that the message that being obese is detrimental to health is reinforced while at the same time highlighting that it is NOT a high proportion of carbohydrate in the diet that is a problem but just too much food. The evidence behind such a statement is supported and strengthened by the table at 5.121. This is key to counteracting so much misinformation available on-line.

Self-reporting is generally the only available method to measure carbohydrate intake but research councils or the food standards agency should be encouraged to develop biomarkers of carbohydrate intake that are more accurate than self-reported intake measures and that can be used at a population level. Only by knowing more accurately intakes of individual and total carbohydrate can we know what levels are beneficial or harmful.

A section on recommendations for future research would be valuable.

Although the report findings are far from conclusive it would appear that the 'eat well plate' has become outdated and will need revision to become relevant for the general population.

The issue of unintended consequences should be explored. SACN need to investigate whether a stricter population target of 5% energy would have an unintended impact on intakes of healthier options, fibre consumption or, indeed, fat intakes (e.g. due to the substitution of crisps for sweets). One way around this would be to recommend a food-based, rather than a nutrient-based, approach whereby the population is encouraged to eat less of certain foods (sugar-sweetened soft drinks, biscuits, cakes, confectionery, high sugar cereals, crisps) and to eat more of other foods.

Assuming that SACN continues on the nutrient-based route, what should be the message to the public given that energy requirements vary considerably - to lower sugar intakes to 5% EI, e.g. maximum 25 teaspoons daily, or 10% EI?. Public health recommendations have to be communicated to groups of people, and to individuals. We must not end up with unwieldy targets that cannot be understood, or implemented, by those who need them most. Non-milk extrinsic sugars (NMES) could not be analysed, nor bore any resemblance to what consumers saw on food labels yet we were stuck with NMES for more than twenty years. We must not make the same mistake again with this opportunity to review sugar recommendations.

**Professor Catherine Geissler, Nutrition Society President**

**Supporting detail:**

When submitting their responses many of our members made detailed comments on the SACN report, chapter by chapter. In addition to the overview above, we feel these detailed comments would be of benefit to the SACN committee.

These are attached as an addendum.