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Dear Professor MacDonald,

#### SACN Report on Carbohydrates and Health

The report is a rigorous analysis of a substantial body of material; the approach is stringent and the results clearly presented. However, by limiting the evidence to cohort studies and RCTs much valuable observational data are lost and in many cases (as acknowledged in the report) this results in 'limited evidence' of effect even though this may be biologically relevant. There is particular emphasis in the report on dietary recommendations to reduce free sugars intake, which has resulted in a lot of scientific and media interest. There are others far better qualified to comment in detail on this, but my concern is how this target can be communicated effectively, in particular with the confounding of sugars intake with total energy intake. Given that the UK population does not meet the current target this is going to be a challenge. The focus on free sugars has deflected other major recommendations, particularly around dietary fibre definitions and intake.

I welcome the recommendation to adopt the revised definition of dietary fibre in place of NSP, noting that this will require changes to product labelling and public health messages. Increasing the target for consumption to 30g/day in line with more global recommendations is appropriate, but this will bring into sharp focus the current shortfall in intake. This message is somewhat lost in the report.

There is a strong scientific consensus about the health benefits of increased whole grain consumption, although the mechanisms are unclear. I welcome the report recommendation to promote whole grains as key constituents of a healthy carbohydrate diet pattern as I and others have advocated for some time. Adoption of increased whole grain consumption will be essential if the target for higher fibre intake is to be achieved.

The draft report focusses on the benefits of whole grain on cardiometabolic risk factors/markers with less emphasis on cancer, overall digestive health, weight maintenance and, from more recent evidence, body fat distribution. The report comments on difficulties in interpreting the available evidence for health benefits of whole grain but fails to make reference to these when developing future research recommendations. Key factors for consideration include setting definitions of whole grain and wholegrain foods, servings/portion sizes of wholegrain foods and recommendations for intake. These must be addressed by the Committee so that appropriate strategies for promoting whole grain consumption can be developed for the consumer and which will help direct labelling and advertising in the food industry. I would advocate adoption of the Healthgrain Forum definition (van der Kamp *et al.*, 2014) which has been developed by a large consortium of

academic and industry members with a pan-European membership. At a global level a consensus statement on definitions of wholegrain foods has been recently published which the Committee may wish to consider (Ferruzzi *et al.*, 2014). The US definition of a serving of whole grain as one ounce-equivalent (or 16g) has been adopted by many countries as part of dietary recommendations and has been used in the majority of published observational and cohort studies. The current US recommendation for whole grain intake [which is likely to be raised upwards in the new Dietary Guidelines] is 3 servings per day, or 48g [not 85g p153 Chapter 1]. On this basis I was surprised to see that the reviewers chose to use a serving of 40g for one study in their meta-analysis since this distorts the intake data upwards considerably [p159 Chapter 1].

The estimate of whole grain intake for the UK used in the report [mean of 0.5 servings per day based on the paper by Lang *et al.* (2003)] is misleading. The Lang paper reports *median* intakes as 2.5 servings per week and defines a 'serving' of wholegrain food as "each occasion any of these identified codes appeared in a dietary record for each individual, regardless of portion size" (Lang *et al.*, 2003). Thus 'serving' in this context is an 'eating occasion' and is not an accurate measure of whole grain intake and is not comparable to the cohort data presented in the report, which are based on the US definition of 16g whole grain/serving. The Lang data are also superseded by data we published on absolute levels of intake (Thane *et al.*, 2005; Thane *et al.*, 2007). These data suggest median whole grain intake was approximately 14-16g/d or 0.9-1.0 US servings of whole grain for the two NDNS surveys. We have recently presented data at the Nutrition Society Summer Meeting in Glasgow, and a paper submitted for publication, based on the NDNS RP 2008-2011. These more recent data suggest that whole grain intake has risen slightly since 2001.

In developing a whole grain intake recommendation the Committee may wish to consider the approach from Denmark, which coupled with a strong public health campaign has resulted in significant increases in whole grain intake at a population level (Mejborn *et al.*, 2013). The Danish recommendation of 75g whole grain/10MJ dietary energy was based on modelling of intake to meet dietary fibre targets assuming other targets for fruit and vegetable and other high-fibre foods were achieved. The current UK guidance to 'choose whole grain varieties whenever you can' is unlikely to be sufficient to motivate change at the population level, as evidenced by the very small change in intake in the past 10 years. Thus the Committee should establish a mechanism to develop a recommendation which has broad scientific consensus.

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