The British Nutrition Foundation (BNF) is pleased to have the opportunity to respond to the consultation on Limit on Trans Fats (Scotland) Bill. The British Nutrition Foundation (BNF) was established over 40 years ago and exists to deliver evidence-based information on food and nutrition in the context of health and lifestyle. BNF’s work is conducted and communicated through a unique blend of nutrition science, education and media activities; accurate interpretation of nutrition science is at the heart of all we do. BNF’s strong governance is broad based but weighted towards the academic community and we are honoured to have Her Royal Highness, The Princess Royal as our patron. BNF is a registered charity that attracts funding from a variety of sources, including contracts with the European Commission, national government departments and agencies; food producers and manufacturers, retailers and food service companies; grant providing bodies, trusts and other charities.

We agree that trans fatty acids (TFA) have an adverse effect on blood cholesterol levels, and in particular a unique adverse effect on HDL-cholesterol, and increase heart disease risk. We agree that intakes need to be as low as possible within the constraints of achieving a varied and balanced diet. But we disagree with the approach you are suggesting for a number of reasons, as outlined below.
1. Intakes of TFA are already well below the population target of 2% energy

In the UK we have a population target of a maximum of 2% of dietary energy derived from TFA. This was set back in 1991. The Scientific Advisory Committee on Nutrition (SACN) recently (in 2007) reviewed the evidence, in response to a request from Health Secretary Alan Johnson, and endorsed the original recommendation. In reaching its conclusions, SACN took account of revised estimates of TFA intakes that have resulted from the extensive reformulation to remove TFA from foods over the past two decades. The removal of TFA from the food supply is an example of how the oils and fats industry responded to the science rather than waiting for government policy, and substantially reduced the TFA content of leading brands of spread. This approach has since been followed by other manufacturing sectors and by the major retailers and, as a direct result, UK TFA intakes are estimated to be around (possibly below) 1% of energy intake. Attached as Appendix 1 is an extract from the SACN report, summarising the conclusions reached (key phrases are highlighted).

2. Leading authorities are concerned that further reduction might have adverse effects

As part of its review, SACN considered whether the existing recommendation in the UK (a population upper limit of 2% energy) should be changed to the recommendation that ‘no individual in the UK population should have a trans fatty acids intake > 1% food energy’. It concluded that such a recommendation might have adverse consequences for the overall lipid profile of the diet, including increasing the population’s saturated fat intake, and might also impact adversely on the consumption of animal products. The latter is because TFA are present in the diet through two routes – the hydrogenation of vegetable oils to produce cooking and spreading fats, which has been substantially reduced, and secondly through the natural presence of TFA in the meat and milk of ruminant animals. SACN estimated that in 2007 approximately 55-65% of TFA in the UK diet was derived from vegetable oils and the remainder (35-45%) from animal sources (a small sample of people living in Scotland were included in this survey). It noted a fall in intakes had already taken place (since the survey in 1986/7) due to the reduction in the amount provided by vegetable oil sources. In 1986/7, the lower 2.5 percentile, mean and upper 2.5 percentile for men were 1.06, 2.19, 4.08 % food energy, respectively, compared with 0.5, 1.2 and 2.1 % food energy in 2000/1. Similar changes were evident in women, meaning that population intakes were already substantially below the 2% level. In 1986/7, 30% TFA came from spreads and by 2000/1 this had fallen to 18%.

Since the last NDNS survey in 2000/1, reformulation has continued and in its 2007 report SACN published revised estimates using newer compositional data, indicating that a further fall to about 1% energy is likely to have taken place. This does not of course mean that some individuals will not have intakes above 1% energy, however the target has been established as a population level target rather than a target for individuals.

On the basis of the SACN review, the FSA board advised that legislation was not necessary as dietary levels were now so low and they also welcomed the food industry’s efforts to tackle this dietary risk factor. This advice was accepted in full by Health Ministers.

A Draft Scientific Opinion on dietary reference values for fat, published by EFSA this summer, makes a similar point, noting that fats and oils that are a source of TFA are often also important sources of fatty acids and other nutrients and therefore there is ‘a limit to which the intake of TFA can be lowered without compromising adequacy of intake of
essential nutrients’. The EFSA Panel recommends that TFA intake should be as low as possible within the context of a nutritionally adequate diet.

3. Methodological challenges

Existing recommendations are targeting vegetable oil derived TFA specifically. But at present there are no methods of analysis that can distinguish between TFA naturally present in foods (i.e. those derived from animal products) and those formed during the processing or cooking of vegetable oils. The latter includes hydrogenation and deodorization (deodorization being a necessary step in the processing of vegetable oils high in polyunsaturated fatty acids) and TFA can also be formed by heating oils or frying foods at too high a temperature. This analytical problem exists because there is overlap in the profiles of the fatty acids emerging via the two routes.

In terms of the specific proposal in the draft Bill, in our view linking TFA content of a food back to that of a specific ingredient would not be possible.

The next obvious question is: what is the justification for not reducing intakes further? It is important to note that SACN emphasised there were concerns from their modelling that attempts to reduce TFA levels in processed foods below 1% would run the risk of the unintended consequence of increasing the saturates content of the diet because of the limited options available to product reformation experts, i.e. the need to find an alternate ingredient to perform the same function when a TFA-containing ingredient is excluded.

Taking into account the reduction in TFA in oil-based foods that has already taken place, the proportion in the remainder that is derived from animal sources (that are not being targeted for reduction) has risen, limiting the capacity for further reduction through the vegetable oil route. The fatty acid profile of ruminant meat and milk is a function of the ruminant digestion process. Feeding studies have demonstrated that it is possible to modify the fatty acid profile by changing the animal’s diet but this can have unexpected consequences. For example, some studies aiming to increase the MUFA and/or PUFA content of milk and to decrease the saturated fatty acid content (to modify the overall fatty acid profile) have achieved this objective, but at the expense of an increase in TFA.

Many countries share the concern that there is a need to set a ceiling on the TFA content of the diet. This is often expressed in terms of the total energy content of the diet and is usually in the range 1-2% of energy intake at the population level. We have already achieved this level in the UK as a whole (and the UK Low Income Diet and Nutrition Survey that has a reasonably sized Scottish sub sample) showed no difference between the countries of the UK in terms of TFA intake. In the draft Bill, the proposal would apply to oil and fat ingredients delivered direct to the consumer and to be used in food production, there being a 1% limit on trans fat levels. We find it difficult to comprehend how this would be policed because once a food is prepared, any analysis would not enable the source of the TFA present (either by ingredient, or naturally present versus oil-derived) to be determined.

For a number of reasons, therefore, we are not convinced that TFA legislation is the way forward for the UK, or for Scotland. If there is cause for concern about TFA intakes in specific sub groups of the population of Scotland, rather than imposing legislation perhaps a more viable approach would be to work with food suppliers in Scotland, especially the
smaller companies and fast food outlets who may not as yet have invested in reformulation, to help them identify manufacturing and cooking practices that could be improved from a TFA perspective and to provide advice to help them achieve the necessary changes.

Again, thank you for the opportunity to comment on the proposed Bill.

Yours sincerely

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Director General British Nutrition Foundation
Appendix 1

Conclusions of the SACN Report *Update on Trans Fatty Acids and Health*

257. The previous recommendation made by COMA that, on average, *trans* FA should contribute no more than 2% food energy, was based on epidemiological evidence of adverse effects of these fatty acids on risk of CHD. Since that report, epidemiological evidence based on up to 20 years of follow-up in prospective studies has remained consistent for an adverse effect of *trans* FA on CHD risk, although estimates of the size of the effect are smaller now than in 1994. Much of this evidence is based on a single large cohort of women in the USA. Evidence from RCTs that has emerged since 1994 has provided strong support for adverse effects of *trans* FA on LDL-C (increases) and HDL-C (decreases). In addition, the evidence for cardioprotective effects of HDL-C has strengthened over the same time period, resulting in greater recognition of the potential hazards of *trans* FA due to their unique properties in reducing HDL-C compared with other FA classes.

258. In most cases, the data that are available are for ranges of intakes slightly higher than those of current UK intakes. It is concluded that there is sufficient evidence upon which to base a risk estimate for CHD, but not for other diseases. The reduction in risk of CHD that would be obtained if all the population were to reduce *trans* FA intake to < 1% energy is estimated to be in the region of 7.5%. However, the overall impact may be less than this since this estimate is based on mean intake levels of 1.2% food energy (Henderson *et al*), whereas current intake levels (FSA 2007) may be closer to 1.0% food energy due to continuing efforts by the food industry to reduce levels of *trans* FA in manufactured foods. In the latter case, the reduction in risk is estimated to be in the region of 5%.

259. There is insufficient evidence to make reliable risk assessments for adverse effects of *trans* FA on risk of diseases other than CHD. Recent epidemiological data on the potential impact of *trans* FA on some types of cancers (colon, prostate, non-Hodgkin’s lymphoma) and diabetes is inconsistent, and further research is required. There is some, but very limited, data to suggest adverse effects of *trans* FA on body weight and body fat accumulation. However, the data are sparse and the impact cannot presently be quantified with any accuracy. There is currently no putative mechanism that could explain differential effects of *trans* FA versus *cis* FA on energy balance and adipose tissue deposition. On the basis of this evidence, this review has concluded that a specific recommendation for further reduction in *trans* FA based on potential adverse effects on body weight and obesity cannot be made.

260. Taking into account the totality of the evidence reviewed in this report the Committee endorse the recommendation made by COMA in 1994 that average *trans* FA intakes should be no more than 2% of food energy intake. The Committee agreed that there is currently no firm scientific basis for revising the recommendations.

261. Steps taken since the COMA report (1994) to reduce levels of *trans* FA in manufactured foods are likely to have contributed to a reduction in risk of CHD for the UK population as a whole. A recommendation that no individual in the UK population should have a *trans* FA intake > 1% food energy may have adverse consequences for the overall lipid profile of the diet, including increasing SFA intake, and may also impact adversely on the consumption of animal products.

Source: [www.sacn.gov.uk](http://www.sacn.gov.uk)