



Scientific Advisory Committee on Nutrition

1st MEETING

Carbohydrates Working Group

16 April 2008, Room 3, Aviation House

125 Kingsway, London, WC2B 6NH

FINAL MINUTES

Chairman: Professor Ian Macdonald

Members: Professor Alan Jackson

Professor Tim Key

Professor Annie Anderson

Dr David Mela

Mrs Christine Gratus

Secretariat: Dr Elaine Stone (FSA)

Mrs Vicki Pyne (FSA)

Ms Lynda Harrop (FSA)

Dr Sheela Reddy (DH)

Agenda item 1 – Chair’s introduction and welcome

1. The Chair welcomed Members to the first meeting of the SACN Working Group on Carbohydrates.
2. No apologies were received.

Agenda item 2 – Purpose of the meeting and background to Working Group

3. The Chair informed the Working Group that the purpose of the first meeting was to agree the terms of reference and to discuss the work programme and structure of the Group. In addition, a progress report on the narrative synthesis of health effects of potential dietary fibre components would be presented by Dr Louise Aston and Dr Alison Stephen from the MRC-HNR group working on the review.
4. Dr Elaine Stone outlined the rationale behind the FSA commissioning the fibre narrative synthesis. The principle reason for the review is to inform imminent Codex discussions on the definition of fibre and to strengthen the UK position in this matter. A secondary purpose for the review is to feed into the work of the carbohydrate Working Group.
5. The Chair declared that Dr Paul Haggarty, Professor Tim Key and himself had all been involved in reviewing the tenders for the fibre narrative synthesis. He also commented that there was no food scientist involved in the review and suggested that if the Group felt that this would provide added value, food science expertise could be co-opted onto the Group in due course.

Agenda item 3 – Agree terms of reference (SACN/ Carbohydrates/08/01)

6. Members were invited to comment on the draft terms of reference (ToR) for the Working Group.
7. Clarity was requested about whether the review covered infants and children and it was agreed that they should be considered and that this should be made explicit in the ToR.

Action: Secretariat

8. The Group agreed to use the definitions of carbohydrate given in the recent FAO/WHO report as a working definition to begin the SACN review process, but that definitions would be readdressed again at the end, in order to assess whether they remained appropriate to use.

9. Several other minor amendments to the wording were noted and it was agreed that the ToR should be modified and circulated for agreement.

Action: Secretariat

Agenda item 4 – Discussion of the FAO/WHO scientific update on carbohydrate in human nutrition (2007) and how this can be used to inform the Working Group’s work.

10. The Chair presented the FAO/WHO update on carbohydrate report and asked the Group whether it raised any specific questions that should be considered by their review.
11. The Chair requested early sight of the results from the two wholegrain trials being funded by the Agency, in order to inform the review.

Action: Secretariat

Definition of fibre

12. There was a lengthy discussion about current international considerations for fibre and how the US, EU and UK viewed fibre differently. The key issue in defining fibre is whether it is classified according to its chemical or physiological characteristics. For example, in Europe, resistant starch is considered fibre but it is not starch NSP or part of the plant cell wall and so is not considered ‘fibre’ by other definitions. It was agreed that there is no simple way of taking all the chemical and physiological components to classify carbohydrates and that metabolic handling also needed to be considered for the definition.
13. A Member highlighted that there may be a problem if Codex and the EU agreed different definitions of fibre to the one preferred by the Working Group. For example, if they opt for the gravimetric definition rather than the analytical one. A Member suggested approaching EFSA to ascertain what point they are at with the discussions.

Action: Secretariat

14. The Members agreed that a one page summary of different definitions of carbohydrates taken from the FAO/WHO report would be useful for the Group to refer to so that they could determine whether or not it needed modifying.

Action: Secretariat

Fibre and the gut

15. The Chair highlighted the concept of net metabolisable energy used in the physiological section of the report. It was agreed that the likely impact of differences in Net Metabolisable Energy in a total dietary context would be small (although this should be checked with Professor Marinos Elia. Also, it was agreed that it would be useful to confirm if there are any population subgroups where net metabolisable energy would be more relevant.

Action: Secretariat

16. An issue was raised about the potential additional metabolic significance of fermentation by-products such as volatile fatty acids (independent of their likely small energy contribution).

17. The Chair highlighted the importance of fully evaluating the evidence base on pre-biotics since industry are producing large amounts of these products. Therefore, the Group needs to check the prebiotic section of the fibre review and address any shortfalls in the evidence presented in the MRC-HNR fibre review.

Action: Members

18. The importance of clarity about the differences in microflora that appears in the stool and that which is in the cecum, was raised. The WHO report describes the importance of microflora in the absorption of calcium, however, they are also important for the handling of a lot of other nutrients in the large bowel. Even if there are not many studies investigating the absorption of other nutrients, this point needs to be acknowledged.

Fibre and obesity

19. The Chair informed Members that there is evidence regarding sweetened beverage intake and weight gain/obesity that has been published since the FAO/WHO report, which needs to be included in the carbohydrate review.

Fibre and cancer

20. A Member commented that the evidence included in the WCRF 2007 report did not alter the current state of knowledge regarding fibre intake and cancer.

Changes in fibre recommendations

21. The Chair stated that the impact of possible revisions of carbohydrate recommendations needed to be considered as part of the review process. For example, changes in carbohydrate could cause changes in other macronutrients and these should be considered, as appropriate. In addition, there is a need to recognise specific groups in the population, such as type II diabetics, where recommendations for the population as a whole cannot be applied.

Scope of the SACN carbohydrate review

22. There was concern that although FAO/WHO had not conducted a full systematic review, this might happen in the near future. It was confirmed that it was very unlikely that there would not be the resource for any such review.

23. Concern was also raised about the scope of the review and whether aspects relating to cognitive health, such as children's behaviour, should be included. It was acknowledged that the potential scope for the review was extremely large and that boundaries needed to be established. The Members agreed to keep the ToR as they are, but to include a statement that psychological effects are not included in the review. However, if it is apparent that there is research that has been done in this area, it can be stated that a full review will be performed at a later stage.

Action: Secretariat

Agenda item 5 – Process for systematic review of carbohydrate and cardio-metabolic health section (SACN/08/02)

I. Process/protocol/scope

24. A Member stated that the ‘material’ needs to be well defined in the studies included. Also when considering studies where the diet is controlled or glycaemic index is manipulated, it needs to be considered if multiple aspects of the diet have been manipulated, as this will prove problematic when trying to attribute effects of carbohydrate to disease.
25. Members agreed that the type of studies to be included in the review should be restricted to human observational and experimental studies either in healthy subjects or in those with an intermediate stage of ‘ill-health’, such as glucose intolerance. Studies should not be included if they are investigating effects relating to the management of disease.
26. It was concluded that the cut-off criteria for inclusion of studies needed careful consideration and it was suggested that when the carbohydrate and cardio-metabolic health review is put out to tender applicants should detail their approach and that the approach used by MRC-HNR should be used as a guide. It was also agreed that a systematic review approach might not be appropriate in this case due to lack of consistency in the studies.
27. The Members discussed taking a layered approach to capturing information, for example, a preliminary search to be conducted to see if there are any epidemiological studies that have been published and, if this is the case, a further search can be done. However, it was concluded that this approach would slow the process down and it would be difficult for the applicants to judge the timing of the project.

II. Defining the research questions

28. Members discussed potential work areas and issues that needed consideration,

which included:

- Duration of studies to be included.
- Characterisation of exposures, although it was acknowledged that this would be difficult.
- Inclusion of genotypic variation/nutrient-gene interactions.
- Dietary patterns.
- Inclusion of dietary patterns, a broad statement about the proportion of carbohydrate in the diet e.g. drinks
- Confounding factors that may affect carbohydrate recommendations e.g. weight, physical activity, lifestyle factors. However, these should be linked to a hypothesis to prevent the list from being too long.

29. The Chair suggested that a framework should be prepared for consideration that would include exposures and endpoints, extracted from the WHO/FAO report as a starting point.

Action: Secretariat/Chair

Agenda item 6 – Progress report from HNR on narrative synthesis of health effects of potential dietary fibre components

30. The Chair introduced Dr Alison Stephen and Dr Louise Aston from the MRC Human Nutrition Research unit to the Working Group, who are currently preparing a narrative synthesis of health effects of potential dietary fibre components. They gave a summary of their progress so far:

- Meta analyses and reports, such as the WCRF 2007 report, have been used as a starting point to obtain literature.
- There are 5 summaries- cardiovascular disease, weight and metabolic function, colorectal cancer, colonic function and prebiotic effects
- Studies have been included if they investigate specific components or dietary fibre, but not if they have only assessed fibre containing foods, such as fruits and vegetables.

Cardiovascular disease

- Within cardiovascular disease, studies with blood pressure and cholesterol lowering as endpoints have been included. The number of studies included has been limited by those that report analytical methods of measuring fibre.
- Disease outcomes have not been included since the purpose of the work is to determine physiological effects in order to assist the definition of fibre.

Colonic function

- Further studies have been identified since the FAO/WHO carbohydrate report
- There are number of new studies investigating non-starch polysaccharides (NSP).
- A number of studies are investigating faecal output.

Weight and metabolic health

- For these outcomes the search strategy has had to be conducted afresh.
- Outcomes include body weight, energy intake and satiety.
- For metabolic outcomes only, cross sectional studies have been included.

Colorectal cancer

- Studies with endpoints of colorectal cancer and adenomas have been included.
- Prospective studies are included, but case control studies are not.
- The majority of studies are observational, with few intervention studies identified.
- Very few studies include resistant starch as an exposure the majority report total fibre.
- The search initially gave 1400 hits, with 32 papers being identified as relevant.
- Case-control studies were excluded.

Prebiotic effects

- Three criteria were used in order to decide whether a component could be considered as a prebiotic.

31. Members made the following suggestions:

- Results from studies that use *ad libitum* diets should be separated from those employing equicaloric diets.
- Present acute and long term studies separately.
- Studies investigating gestational diabetes should be separated from those using type II diabetes as an end point.
- To ensure that quantitative information is included in the results.
- Studies that assess fibre as non-starch polysaccharides should be made distinct from those that report the effects of varying types of NSP.
- In terms of prebiotic effects studies investigating the effects of milk and infant formula should be included, but presented separately from other studies in that area.

32. Dr Alison Stephen asked for clarification from Members about whether they considered that any further end points should be included and that the inclusion/exclusion criteria are satisfactory.

33. A Member recommended that studies with and without weight loss measures should be included, but they should be presented differently.

34. A Member raised concern that some intervention studies may use large doses of fibre, above that which can be obtained through diet.

35. Dr Alison Stephen clarified that the purpose of the review is to investigate physiological effects of fibre, therefore, these studies remain valid to include.

36. Members agreed that it will be the Carbohydrate Working Group's role to evaluate studies to ascertain whether interventions were performed at dietary levels for the purpose of their review.

37. Dr Alison Stephen confirmed that the evidence will be presented by the different types of fibre.

38. The Chair informed Dr Alison Stephen and Dr Louise Aston that the draft report

would now be submitted to the Carbohydrate Working Group for discussion via telephone conference in late May and that they no longer need to attend the SACN meeting on 12th June 2008. They were also informed that feedback will be given at the Working Group meeting on 26th September 2008, before the paper is presented at the SACN meeting on 23rd October 2008.

39. A Member suggested that physiological effects of fibre such as gelling and viscosity should be reported. However, it was stated that this information is not reported in the literature.

Agenda item 7 – Future work programme

40. Dr Elaine Stone presented a draft Gantt chart of the proposed timeline of the different aspects of the carbohydrate review.

41. There was some discussion about the timing of the fibre narrative synthesis and when it should be signed off by the Working Group and the main Committee. It was agreed that a telephone conference should be held at the end of May to allow the Working Group Members to agree the report in principle and then take forward the main conclusions to the June SACN meeting, in order to come up with a recommendation that the Agency can then use in its negotiations at Codex. Secretariat agreed to prepare a short background about Codex for the telephone conference. The narrative synthesis report would then be revised accordingly and signed off by the full Committee in October 08.

Action: Secretariat

42. It was agreed that the publication terms for the narrative synthesis should be checked in the contract as it was considered inappropriate for the contractor to publish the results of the review whilst the work of the Working Group was ongoing.

Action: Secretariat

43. It was agreed that the activity of this Working Group should be closed and that any detailed reports or discussions at the SACN main meetings would also need to

be held in closed sessions. Activities surrounding the Codex meeting, such as stakeholder meetings, might potentially bring sensitive topics into the open and this would need consideration.

Action: Secretariat

Agenda item 8 – Timing of co-opting members onto Working Group

44. It was agreed that various aspects of the work of the Group would be commissioned out, for example metabolic health. Other parts, such as the colonic health and dental work were likely to be carried out internally, due to financial constraints. This raised concerns about whether this work would be considered suitably unbiased and it was agreed that as SACN would have the final sign off for any work undertaken, this should not be a problem.

45. It was suggested that it would be useful to co-opt experts with nutrition/diet expertise who also had experience with systematic reviews and that it would be preferable to include them from the start of the process.

46. Members agreed to suggest experts in systematic review and dental health to potentially co-opt on to the Group at appropriate stages.

Action: Members

Agenda item 9 – Date of next meeting

52. The date of the next meeting is 26th September 2008.