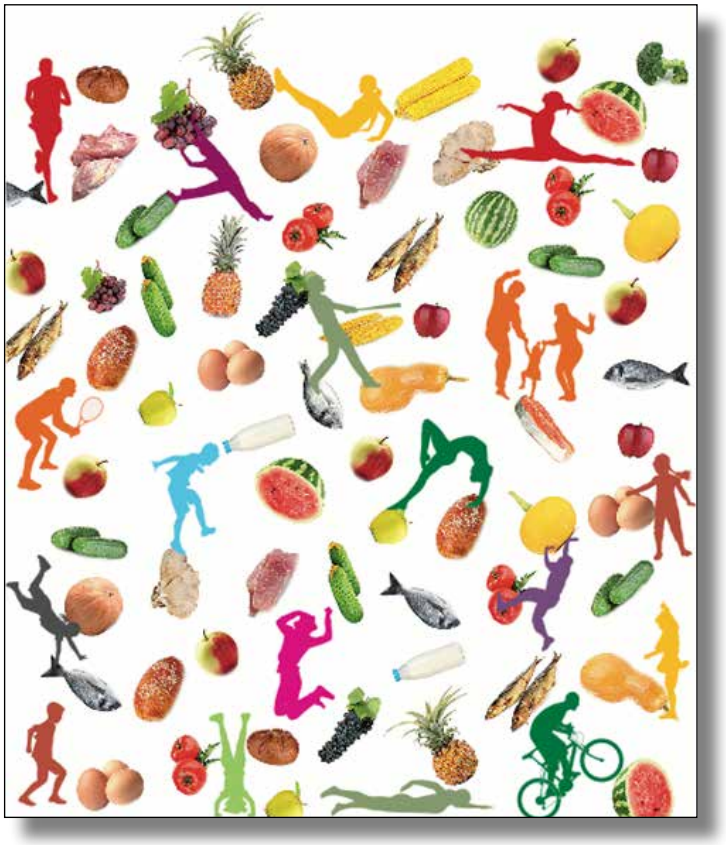
Rapport 5–2016

Evaluation of the Nordic Nutrition Recommendations 2012

– Results from an external evaluation of the Nordic Nutrition Recommendations 2012 project and suggested improvements on the structure and process for a future revision

by Jessica Ahlin



Livsmedelsverket
National Food Agency

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1. List of abbreviations

E %	energy percent
NCM	Nordic Council of Ministers
NFA	National Food Agency
NNC	Nordic Nutrition Conference
NNR	Nordic Nutrition Recommendation
PICO/PECO	Population/Participants, Intervention/Exposure, Control, and Outcome
RI	Recommended Intake
SR	systematic review
QAT	quality assessment tools

2. Summary

2.1 The NNR background

The Nordic countries have collaborated for decades with providing the Nordic Nutrition Recommendations (NNR). The first version of NNR was issued year 1980 and the latest 5th edition, evaluated in this project, was published in 2014. The NNR set guidelines for dietary composition as well as Recommended Intake (RI) of nutrients which form the basis of the national dietary recommendations in the Nordic countries. NNR 2012 also includes reference values for energy intake and recommendations on physical activity. The macro- and micronutrients included in NNR 2012 are protein, fat and fatty acids, carbohydrates, calcium, chromium, copper, fluoride, folate, iodine, iron, magnesium, manganese, molybdenum, phosphorus, potassium, selenium, sodium as salt, vitamin A, D, E and K, and zinc. Other nutrition related topics included in NNR 2012 are alcohol, dietary antioxidants, breastfeeding, fluid and water balance, food patterns and health outcomes, and sustainable food consumption – environmental issues. The work behind NNR 2012 was led by the NNR 5 working group. Beside from the working group, selected experts and reviewers, librarians, an external reference group, as well as a steering group were also involved, see *figure 1*. NNR 2012 project was financed by the Nordic Council of Ministers (NCM).

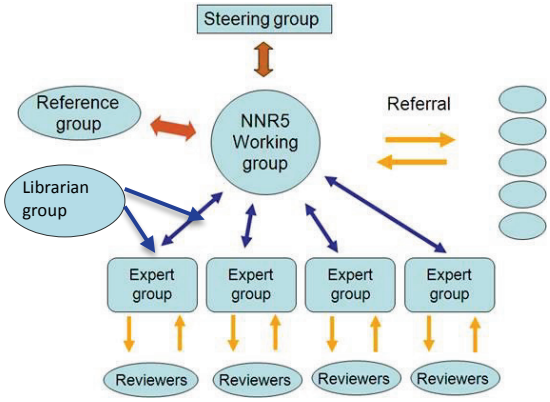

Figure 1. The project organization and groups involved in the work behind NNR 2012.

2.2 The NNR 2012 evaluation

The Swedish National Food Agency (NFA) was responsible for this evaluation project aiming at investigating and evaluating the needs, improvements and prerequisites for a future edition of NNR. The evaluation project mainly consisted of questionnaires which were sent to the scientific experts and librarians involved in NNR 2012. Other stakeholders that were asked to complete the questionnaire were several Nordic authorities, university departments and research institutions, professional organizations, as well as some organizations within the food industry. This was done in order to collect views on what had worked well during the project process and also to receive suggestions on what could be improved for a

possible future revision. The questionnaires targeted questions regarding the information and instructions given to the participants, the workload and time frames, the database searches, the help and supporting tools given, the communication between different target groups, the overall credibility of NNR, views on future updates, the NNR and NCM websites, the media coverage and the public consultation.

2.3 The participation rate of the NNR 2012 evaluation

A total of 177 questionnaires were sent out during the autumn of 2015 to the different target groups. Sixty three questionnaires were completed, corresponding to a response rate of approximately 36 percent. Nineteen of 50 experts (38 %), three of six librarians (50 %), 15 of 35 reviewers (43 %), five of 14 peer reviewers (36 %), four of 16 authorities (25 %), six of 32 university departments and research institutions (19 %), and eleven of 24 professional organizations within the health and food industry (46 %), completed the questionnaire.

2.4 The results from the NNR 2012 evaluation

When looking at the results from the target groups behind the 5th edition of NNR, the overall opinion regarding the project organization was that it was well prepared, and most information and instructions were relevant and generally clear. The seminars that were given at the beginning of the process at the Swedish NFA were appreciated by many, since not all experts had been involved in this kind of work before or had ever performed a Systematic Review (SR). The request for more meetings was, however, high. Many participants commented that they wanted to have more physical meetings during the process, both within the groups, as well as with the working group and secretariat. The scientific secretariat and working group did a great job with support and answering correspondence. All 35 participants of the evaluation answered that is was easy to get in touch with the working group and the secretariat when needed.

The most important suggestions for improvement that needs to be performed regarding the information and instructions, is to better explain how to integrate the SRs with earlier research results and previous NNRs. For several groups the most difficult task during the whole process was to address and focus the research questions. The literature search was limited to post-2000 research, which several participants do not think is scientifically justified. Instead, to focus the research questions, concentrate on filling the gaps where there is limited scientific evidence for giving the recommendations. The methodology used by the experts was not always sufficient enough; the PICO/PECO (Population/Participants, Intervention/Exposure, Control, and Outcome) approach was not clear to all and the quality assessment tools (QATs), that were used when grading the studies, were not optimal for all study types. Several questions within the guide for grading overall evidence were too similar to each other, too complicated and too detailed. Some participants also thought that the exclusion criteria were too rigid, which resulted in the exclusion of otherwise good work, due to irrelevant technicalities.

When selecting the expert groups it might be a good idea to consider having persons with different competence in each group. Also, it would be optimal to have at least one person in each group, who is familiar with earlier NNR work. At the same time, some comments suggested that it is important to exchange several participants in the scientific writing groups, as well as the reviewers, for the revision of NNR. For the credibility of the recommendations it is clear that the most important factors are the SRs and the scientific competence and selection of the involved scientists. The selection of experts and reviewers are key issues for success and credibility according to several participants. One participant proposed that the researchers and experts should not be selected from the same workplace or from within a narrow research field. It is important to have better qualified and more engaged experts for a future revision.

All experts had other obligations aside from the NNR work which sometimes caused problems. Several persons complained that some experts had weak commitment and were poor at corresponding. A possible solution could be to increase the number of experts involved, thus reducing their workload and allowing greater focus on their research questions. Another suggestion is to consider increasing the compensation for the experts and to give them full-time or part-time employment for a shorter period of time. An important change that would decrease the workload for the librarians would be to stagger the starting periods of the different expert groups.

The recommendations in NNR are widely used within authorities, universities and nutrition organizations for research, seminars, education as well as practice. The comments regarding the NNR and NCM websites varied. Several persons had problems with finding the actual websites, especially the NNR 2012, but once the website was found the information was perceived as relevant, the layout was good and better than ever before. In all Nordic countries the NNR 2012 seem to have been well translated and adapted to the national situation. The current model with collecting thoughts and comments during a public consultation is appreciated by many and is an important part of the process.

All the participants of the evaluation think that it is very important to produce a new NNR, even though the 5th edition was very extensive both in time and costs. The timing and extent of any future version should however be carefully considered and many suggest that the update should be performed each fifth to tenth year or depend on the generation of new knowledge.

A common view was that the evaluation of NNR 2012 was performed much too late. It should have been distributed just after completing the work of NNR 2012. Many participants had forgotten much of what worked well, and what the problems and minor difficulties were during the working process. If the ambition is to perform an evaluation on a future edition of NNR as well, it should be performed just after the final version is release for a public consultation.

It is important to keep in mind that some target groups had a relatively low participation rate in the evaluation while other target groups were few in number. This means that the results, comments and complaints, should be interpreted with some caution since it might not necessarily represent the whole target groups opinion.

2.5 The conclusion of the NNR 2012 evaluation

In conclusion, the overall opinion on the project organization and the work process is that it worked well. The outcome of NNR 2012 was good and had high credibility. A future revision is both wanted and needed. The most important changes that needs to be performed in a future revision is to reduce the workload for the experts, by involving more experts or by increasing the economic compensation, and also to make sure that the literature searches for the SRs cover a broader time frame.

3. Background

3.1 Key points

1) The first official Nordic Nutrition Recommendations (NNR) was issued in 1980 for planning purposes only and since then four updated versions have been published. The latest 5th edition of NNR was published in 2014 and it sets guidelines for dietary composition as well as Recommended Intakes (RI) of nutrients which form the basis of the national dietary recommendations in the Nordic countries.
2) The reference values presented in NNR 2012 take into account the prevention of diet associated diseases in the general population. NNR is based on an overall assessment of the available knowledge and scientific evidence published up till 2012 regarding the impact of food and food groups on health and the risk of diet and lifestyle related disease. As new scientific knowledge emerges with time, the NNR should not be considered as definite and therefore it needs to be updated when necessary.
3) Nutrition research has traditionally strived to identify the specific mechanisms and health impacts of single nutrients. Most foods consist of mixtures of nutrients as well as a multitude of other potential bioactive constituents, which interact with each other and can affect the bioavailability, uptake and metabolic responses. Thus, associations between single factors and chronic disease can be difficult to identify and interpret. Therefore the current 5th edition of NNR puts emphasis on the whole diet and the role that dietary patterns and food groups play in the prevention of diet related chronic diseases.

3.2 The aim of NNR

The first official Nordic Nutrition Recommendations (NNR) was issued in 1980 for planning purposes only and since then four updated versions have been published. The latest 5th edition of NNR was published in 2014 (www.norden.org/nnr) and sets guidelines for dietary composition as well as Recommended Intakes (RI) of nutrients which form the basis of the national dietary recommendations in the Nordic countries. The dietary reference values are based on the reference values for energy intake and scientifically grounded relationships between nutrient intakes and good health, both in a short and long perspective. NNR 2012 is to be used as guidelines for dietary planning, evaluation of dietary intake, as a basis for developing food-based dietary guidelines, the development of national and regional nutrition policies, as a basis for nutrition information and education, as a basis for the Keyhole symbol on food products as well as being guiding values when developing new food products.

The reference values in NNR 2012 take into account the prevention of diet associated diseases in the general population. It is based on an overall assessment of the available knowledge and scientific evidence published up till 2012 regarding the impact of food and food groups on health and the risk of diet and lifestyle related

diseases. As new scientific knowledge emerges with time, the NNR should not be considered as definite and should therefore be updated when necessary. The RIs refers to the macronutrients as well as the most essential micronutrients. The new recommendations state that the overall nutrient intake and food pattern is of more importance, from a health aspect, than the specific food products. It is believed that the most important factors for a good health are to eat with a big variation, not to eat too much and to exercise regularly.

The RIs are based on scientific evidence, and should in combination with a varied and well-balanced diet, provide with optimal function and development, as well as contribute to a reduced risk of developing diet and lifestyle related diseases such as cardiovascular diseases, overweight, type-2 diabetes, osteoporosis and several types of cancer. The recommendations for a given nutrient are only applicable if the intake of other nutrients as well as energy is adequate. The recommendations focus on prevention and are directed to the general population and not groups or individuals with diseases or other conditions that might affects their nutrition needs. The nutrients covered in NNR 2012 are protein, fat and fatty acids, carbohydrates, calcium, chromium, copper, dietary antioxidants, fluoride, folate, iodine, iron, magnesium, manganese, molybdenum, phosphorus, potassium, selenium, sodium as salt, vitamin A, D, E and K, and zinc. Other nutrition-related areas included in NNR 2012 are alcohol, dietary antioxidants, breastfeeding, fluid and water balance, food patterns and health outcomes, and sustainable food consumption – environmental issues.

The 5th edition of NNR is intended to be used in the Nordic region, i.e. Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland and Åland. Advantages with the co-operation between the Nordic countries are that the dietary habits, food patterns as well as the consumption of many food groups are quite similar between the populations. The prevalence of diet and lifestyle related diseases are also quite similar.

3.3 The NNR 2012 project organization

The work behind the NNR was led by the NNR 5 working group. Beside from the working group, also selected experts and reviewers, librarians, an external reference group, as well as a steering group were involved, see *figure 2*. All the names of the persons involved can be found in the NNR 2012 publication (www.norden.org/nnr).

The expert groups conducted Systematic Reviews (SR) for the nutrients and nutrition related topics where new data indicated the need for modifications of the recommendations presented in NNR 2004. For the nutrition-related topics that were not subjects to SRs, less stringent literature searches and updates were conducted. Other experts, called reviewers, went through and commented the SRs as well as the less strict updates. Another group of experts, called peer reviewers, reviewed and commented the chapters of NNR 2012. The librarians conducted the literature

searches for the SRs and were responsible for the article handling that the experts requested. A reference group, consisting of senior experts representing various fields of nutrition science, was engaged in the project. A steering group, with representatives from Nordic national authorities, was responsible for the overall management and follow-up of the project process. The NNR 2012 was produced by the working group which was established in 2009 and nominated by the Working Group on Food, Diet and Toxicology (NKMT) under the auspices of the Nordic Committee of Senior Officials for Food Issues (ÄK-FJLS Livsmedel). The steering group also provided the evaluation project group with contact information on important authorities, university departments and research institutions, and professional organizations to contact.

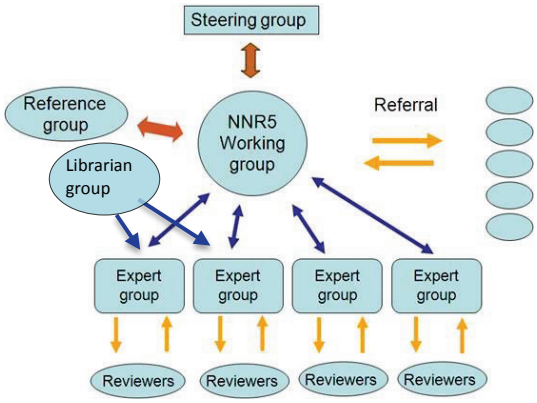

Figure 2. The project organization and groups involved in the work behind NNR 2012.

3.4 The systematic reviews

In order to set reference values and RI for nutrients it is required to use various types of scientific data, such as randomized clinical trials (RCTs), prospective cohort studies, and other epidemiological studies. These kind of studies take into consideration the habitual dietary patterns and scientific evidence of the effects of foods on different health outcomes. Animal and *in vitro* studies have been included when needed to explain mechanisms of action. For the 5th edition of the NNR two different approaches were used; SRs and less strict updates.

More than a hundred leading scientific experts within nutrition and nutrition-related areas, mostly from the Nordic countries, were involved in the NNR 2012. For selected nutrients and nutrition-related topics, SRs were used. The SRs included a quality assessment of all pertinent studies and a final grading of the overall evidence. For the other nutrients and nutrition-related topics, an updated review has been undertaken using the documentation published in NNR 2004 as a starting point. These less strict updates were performed either due to the fact that little new scientific data was available, or the nutrient in question was of small public health concern.

The first step in performing SRs is to clearly identify and define the research questions. This was done by using a PICO/PECO approach. In the second step, a protocol and search strategy was conducted, and appointed experts were to collaborate closely with one of the involved librarians. After the literature search, the first selection was carried out. Abstracts of articles identified in the database searches were screened for potentially relevant articles in a consistent, comprehensive manner by at least two independent experts according to the eligibility criteria. The abstracts that did not fulfill the predefined criteria were excluded. All excluded articles, together with reasons for their exclusion, were included in the SRs. For the remaining articles, full-text papers were collected, reviewed and went through a three-category grading system. Tools for the assessment of the different study categories were included in the NNR SR guide developed by the NNR 5 working group (www.norden.org/nnr). The results from the included studies were then summarized and tabulated. When summarizing their findings, the experts describe the methods used for their review. Basic statistical information is included in order to indicate the strength of the findings. After summarizing the results, the grading of the evidence was conducted according to criteria defined by the World Cancer Research Fund (www.wcrf.org), with minor modifications. The grading of evidence is based on the analysis of the scientific basis, such as the study quality, consistency, generalizability, effect size, risk of publication bias, imprecise data, or other aspects such as correlation of dose-response. The grading of the evidence results in one of the following grading categories: '*convincing*', '*probable*', '*limited –suggestive*', and '*limited – no conclusion*'. The conclusions of the SRs give an overall summary of the reviewed evidence. Where appropriate, the conclusions also point out principal areas of uncertainty and areas where further research is required. An SR approach is used in order to provide a comprehensive and distilled evidence document and to enhance the transparency of the decision-making process (NNR5 SR guide; Chung et al., 2010[1]).

The experts assessed the associations between dietary patterns, foods, nutrients and specific health outcomes like diseases such as cardiovascular diseases, overweight, type-2 diabetes, osteoporosis, certain types of cancers, as well as the related risk factors for these diseases.

The review of the literature for the 5th edition of NNR was concentrated on papers and other reports published after 2000, primarily using PubMed and SweMed+ as database sources. Other important data sources of scientific reports and recommendations that were published by national and international institutions and expert groups were also included. Additional papers and reports which included major key references were identified and used for the establishment of the reference values during the work.

[1] Chung M, Balk EM, Ip S, Lee J, Terasawa T, Raman G, et al. Systematic review to support the development of nutrient reference intake values: challenges and solutions. Am J Clin Nutr. 2010;92:273–6.

3.5 The updates made in NNR 2012

Nutrition research has traditionally strived to identify the specific mechanisms and health impacts of single nutrients. Most foods consist of mixtures of nutrients as well as a multitude of other potential bioactive constituents that interact with each other and can affect the bioavailability, uptake, and metabolic response. Thus, associations between single factors and chronic disease can be difficult to identify and interpret. Therefore the current 5th edition of NNR puts emphasis on the whole diet and the role that dietary patterns and food groups play in the prevention of diet related chronic diseases. In the current edition the focus is not put on the specific mechanism or influence of a single nutrient but instead strive to identify the effects of combinations of nutrients and food components consumed.

The type of carbohydrates consumed and its food source are shown to be more important than the total intake of carbohydrates. The same applies for fat. Current evidence show that the type of fat and fatty acids consumed is more important than the total intake of fat from a health aspect. The reference values for energy percent (E%) of fat has therefore been adjusted from the earlier recommendations of 25-35 E% to 25-40 E%. The recommendation for total E% of carbohydrates has been changed from 50-60 E% to 45-60 E%. For persons over the age of 65 years, the daily recommended protein intake has been increased, in order to prevent osteoporosis. The recommended daily intake of vitamin D has been increased for children the age of 2, adults and persons older than 75 years. The recommendation on selenium has also been increased. A new important part of the NNR is the environmental aspect. By considering factors such as seasonal food supply, food production characteristics, as well as the food origin when selecting and buying food items, a diet that supports health can also be sustainable from an ecological and environmental perspective.

3.6 The public consultation

When all the chapters had been reviewed and approved by the working group, they were subjects to a public consultation which proceeded from October 2012 to September 2013. This consultation was open for the public and certain important stakeholders such as selected university departments, research institutions, and professional organizations were notified. All the comments received during the consultation were documented and are available to read at the Nordic Council of Ministers (NCM) website (www.norden.org) and some of these comments resulted in modifications of the text.

3.7 The NNR 2012 publication

The NNR publication is in English and can be downloaded from the NCM website (www.norden.org/nnr). The 5th edition of NNR was for the first time published as a free PDF-version. The individual chapters of the book were also published as a series of e-publications, and as always the NNR is also available in print. The publication includes the recommendations, a description of the methods used and the scientific support to the recommendations of each nutrient and nutri-

tion-related topic. The reference values most often reflect on the same scientific findings and knowledge as the ones given by health organizations such as the World Health Organization (WHO) and the European Food Safety Agency (EFSA). All the SRs included in the NNR 2012 were published in the journal *Food and Nutrition Research* and the rest of the material used can be found at the Nordic Council of Ministers website (www.norden.org/nnr).

3.8 The evaluation project

The Swedish National Food Agency (NFA) was responsible for both hosting and administering the project of the 5th edition of NNR as well as its evaluation. The evaluation was performed by Jessica Ahlin as project manager, with Wulf Becker as supervisor. All funding was provided by the NCM. The evaluation work was carried out between September 2015 and February 2016 and the results from the evaluation will be presented at the 11th Nordic Nutrition Conference (NNC) "Bridging nutrition sciences for health in the Nordic countries" in Gothenburg the 20-22 June, 2016.

4. Methods

4.1 The aim of the NNR 2012 evaluation

The aim of the evaluation was to collect opinions and comments on the process and work of the NNR 2012 project with a focus on; the project organization, the information and instructions given, the workload and time frames, the research questions and database literature search, the help and supporting tools given, the communication and cooperation between and within different target groups, the overall credibility of NNR, views on a possible future revision, the NNR and NCM websites, the media coverage and the public consultation. Several questionnaires were developed and sent to all the experts and librarians behind the work of NNR 2012. All participants are presented in the NNR publication (www.norden.org/nnr). Beside from the participants mentioned above, questionnaires were also sent to important Nordic authorities, university departments and research institutions, professional organizations and networks within the food industry. Contact details, see *appendix 2*, to these external stakeholders were provided by the steering group. They were contacted during the evaluation project in order to collect more opinions and suggestions on improvements for a possible future revision. The questionnaires can be found at the end of this report as appendix (*appendix 3-9*). All the received comments from the NNR 2012 evaluation on what worked well, what worked less well and suggestion on what can be improved are collected as an appendix (*appendix 10*).

4.2 The methods used

The questionnaires were developed in a computer program called esMakerNX3 (www.entergate.se) and the questions differed depending on the target group. The participants answered these web-based questionnaires and the answers were then automatically saved within esMaker. The collected answers could then be transformed into Word and Excel documents in order to be processed.

4.3 The participation rate of the NNR 2012 evaluation

A total of 177 questionnaires were sent out during the autumn of 2015 to the different target groups. Sixty three questionnaires were completed, which corresponds to a response rate of approximately 36 percent. Nineteen of 50 experts (38 %), three out of six librarians (50 %), 15 of 35 reviewers (43 %), five of 14 peer reviewers (36 %), four of 16 authorities (25 %), six of 32 university departments and research institutions (19 %), and eleven of 24 professional organizations (46 %) within the food industry completed the questionnaires.

5. Results

5.1 Key points

1) When looking at the results from the target groups behind the 5th edition of NNR, the overall opinion regarding the project organization was that it was well prepared, and all the information and instructions were relevant and generally clear. The seminars that were given at the beginning of the process at the Swedish NFA were appreciated by many since not all experts had been involved in this kind of work or had ever performed SRs before. The scientific secretariat and working group did a great job with supporting and answering e-mails and all 35 experts, reviewers and librarians that participated in the evaluation answered that is was easy to get in touch with the working group and the secretariat when needed. The recommendations in NNR are widely used within authorities, universities and within nutrition organizations for research, seminars, education as well as practice. In all Nordic countries the NNR 2012 seem to have been well translated and adapted to the national situation, with some minor exceptions. The current model with collecting thoughts and comments from the public is appreciated by many and it is an important part of the process. All received comments can be found in *appendix 10*.
2) The most common received comments and most important suggestions on improvements that needs to be carried out for a future revision were the following;
    - When constituting the expert groups it might be a good idea to consider having persons with different competence in each group and to have at least one person in each group, who is familiar with earlier NNR-work.
    - Several persons complained that some experts had weak commitment and were slow at responding to e-mails. The selection of experts and reviewers are key issues for success and credibility. It is important to only select motivated and committed persons.
    - For several groups the most difficult task during the whole process was to address and focus the research questions. The research questions were hard to focus and became too wide for several groups.
    - The experts felt that the workload was too big since they had other obligations aside from the NNR work. By making the NNR work a part-time job for the experts this problem would probably be solved. Another suggestion that would decrease the workload is to involve more experts. With more participating experts the expert groups could have better focused their research questions and literature searches.
    - Most participants did not think it was scientifically justified to have a literature search limit or to neglect old evidence. Instead, the experts should concentrate on filling the gaps where there is limited scientific evidence for giving recommendations so that the research questions do not become

too wide. With a reduced workload or a better compensation for the experts the literature search limit might not be necessary.

- The instructions on how to integrate the SRs with earlier research results and previous NNRs need to become clearer.
- The methodology used by the experts was not always sufficient enough; the PICO/PECO approach was not clear to all and the quality quality assessment tools (QATs) were not optimal for all study types. Several questions within the guide for grading overall evidence were too similar to each other, too complicated and too detailed.
- Some experts thought that the exclusion criteria were too rigid which resulted in the exclusion of otherwise good work, due to minor technicalities.
- The vast majority of the evaluation participants thought that it is very important to produce a new NNR. The timing and extent of any future version should however be carefully considered. Most people suggest that NNR should be updated every seventh to tenth year or that the update should depend on when enough new knowledge has been generated.
- The evaluation of NNR 2012 was performed much too late. It should have been distributed just after completing the work of NNR 2012. Many participants had forgotten a lot of what worked well, what the problems and minor difficulties were during the working process.

3) It is important to keep in mind that some target groups had a relatively low participation rate in the evaluation while other target groups were few in number. This means that the results, comments and complaints, should be interpreted with some caution since it might not necessarily represent the whole target groups opinion.

5.2 The results from the Yes and No questions

The tables presented in the result part show the participation rate of each question found in the sent evaluation questionnaires. Different questions were asked to different target groups. Some participants did not answer all questions given to them which resulted in a variation in the rate of answers from the same target groups.

5.2.1 The information and instructions given

- Were the general instructions and information of the project clear?

	Yes	No
Experts	12/18 (67%)	6/18 (33%)
Librarians	3/3 (100%)	0/3 (0%)
Reviewers	15/15 (100%)	0/15 (0%)
Peer reviewers	4/4 (100%)	0/4 (0%)
Total	**34/40 (85%)**	**6/40 (15%)**

- Was the information and description of your specific task and work clear?

	Yes	No
Experts	9/18 (50%)	9/18 (50%)
Librarians	3/3 (100%)	0/3 (0%)
Reviewers	14/15 (93%)	1/15 (7%)
Peer reviewers	3/3 (100%)	0/3 (0%)
Total	**29/39 (74%)**	**10/39 (26%)**

Comments:
The following comments refers to the question; ”*Was the information and description of your specific task and work clear?*” as well as the previous one; ”*Were the general instructions and information of the project clear?*”.
All librarians and the majority of the reviewers answered that both the general and the specific information and instructions was very clear. However, six of 18 experts (33 %) answered that the general instructions and information regarding the project was not totally clear. The information on the participants’ specific task was obviously not clear enough according to the experts. Nine out of 18 experts

(50 %) answered that it was not clear. When reading the comments from this specific target group it is obvious that one interpretation problem was the information on how to integrate the results from the SRs with previous research results from NNR 2004. There were also some difficulties with understanding the information regarding the research question. It was not clear to all how wide the research questions should be, sometimes the ambition of the expert groups were much greater then what was possible to achieve with the set workload and time frames. It was also not clear to all groups that they were to send their finalized research question to the other groups. Some experts complained that they had to wait a long time in the beginning for some of the other groups to make their drafts on the search terms. Another information and instruction problem, according to the experts, was that the information regarding the methodology was not clear enough. Also, not all experts had performed SR's before and were perhaps a bit unsure on exactly how this procedure was performed. A seminar on how to perform a SR was held at the NFA in Sweden at the beginning of the project, in which most of the experts participated. Several of the participants wanted more education and training in practice at the beginning in order to become more familiar with the process. Timing and content of such a seminar, and follow-up needs to be carefully planned in connection with future NNR updates.

The information on how the final version of the SRs should look like was not obvious to all, and also the information about the limitations can be more specific, e.g. whether the reviews should cover only the adult population or children too. Many participants from different target groups commented that they would appreciate more meetings during the process, especially at the beginning. Those groups that arranged meetings themselves often commented that the meetings were the most productive times and absolutely necessary for managing the task. Meetings between the experts, librarians and working group could be held to communicate and discuss the research questions, and to avoid duplication work and inefficiency.

- Were the instructions and information on the project given in an appropriate form? (E.g. documents, meetings, e-mail, telephone).

	Yes	**No**
Experts	16/17 (94%)	1/17 (6%)
Librarians	3/3 (100%)	0/3 (0%)
Reviewers	14/15 (93%)	1/15 (7%)
Peer reviewers	4/4 (100%)	0/4 (0%)
Total	**37/39 (95%)**	**2/39 (5%)**

Comments:
It is great that the groups can use the type of communication form they think is the most appropriate one during the process.

5.2.2 The research question and the systematic literature search

- Were the original research questions given to you well-defined and focused?

	Yes	No
Experts	10/18 (56%)	8/18 (44%)
Librarians	2/3 (67%)	1/3 (33%)
Reviewers	12/15 (80%)	3/15 (20%)
Total	**24/36 (67%)**	**12/36 (33%)**

Comments:
The process of the original research questions needs to be improved since it caused problems in several groups. The experts received wide, unspecific research questions from the working group since they wanted the experts to decide and focus the research questions themselves. The problem was either that the information on that it was the experts' task to create well-defined research questions, or just that it was too much work for the experts to actually do it. The ambition of the expert groups were in several cases to high. Not only did the research questions cause problems for the experts in the beginning, it also caused some problems for the reviewers and librarians who received research questions that are not well-defined. The questions were in several cases too broad and not manageable to work with. One suggestion is for the working group to define the research questions so that the expert groups only have to make minor modifications. Another proposal is for the working group to present the research questions before the start-up phase in order for the participants to get familiar with them. Then during the seminars at the beginning of the process the working group, together with the experts, discuss and finalize the research questions.

- Were the requests on the database search from the experts well-defined and focused?

	Yes	No
Librarians	**2/3 (67%)**	**1/3 (33%)**

Comments:

The librarians were the only target group that was asked this question, and only three answers were received. The majority, two out of three (67 %), thought the research questions produced by the experts were well-defined and focused, while one of the librarians did not agree. It is clear that some expert groups did have some problems with the research question, as seen and commented in the previous questions. Unfocused research questions lead to some frustration and a lot of extra, unnecessary work for at least one of the librarians. This lead to a lot of printing of extra articles, abstracts and scientific texts that were not of any use in the end.

- Did it go well to provide the abstracts and articles to the experts?

	Yes	No
Librarians	**3/3 (100%)**	**0/3 (0%)**

Comments:
The librarians thought it went well and the experts seemed to be generally very pleased with the work and help provided by the librarians.

- Was it a good strategy to limit the systematic literature search to start from year 2000?

	Yes	No
Experts	11/16 (69%)	5/16 (31%)
Reviewers	10/15 (67%)	5/15 (33%)
Peer reviewers	3/4 (75%)	1/4 (25%)
Total	**24/35 (69%)**	**11/35 (31%)**

Comments:
Many who answered that it was a good strategy to limit the literature search commented that it was due to the fact that the workload had been even higher if it had not been limited. Although, most experts did not think it is scientifically justified to limit the search of SRs. With more well-defined and focused research questions and with more experts involved, the literature search should not have to be limited. The information on how to integrate previous findings in the earlier NNR, with new literature needs to become much clearer for the experts.

- Did the reviewed chapter/chapters cover all the important aspects of the specific nutrient and/or topic?

	Yes	No
Peer reviewers	**0/4 (0%)**	**4/4 (100%)**

Comments:
Only the peer reviewers were asked this question. Only four of the fourteen peer reviewers answered this question which might give misleading interpretations. Some of the peer reviewers thought that if more experts were involved, more scientific studies could be covered in the SRs. Then important and good studies would not have been excluded due to lack of time. This was the most significant problem with the credibility according to some of the peer reviewers who participated in the evaluation.

5.2.3 The communication and cooperation within the groups

- Was it easy to get in touch with and interact with the experts when needed?

	Yes	No
Librarians	2/3 (67%)	1/3 (33%)
Reviewers	6/9 (67%)	3/9 (33%)
Total	**8/12 (67%)**	**4/12 (33%)**

- Was it easy to communicate with other experts within your group when needed?

	Yes	No
Experts	**13/16 (81%)**	**3/16 (19%)**

Comments:
The following comments refers to the question; ” *Was it easy to get in touch with and interact with the experts when needed?*” as well as the previous one; ”*Was it easy to communicate with other experts within your group when needed?*”.
These results are another indicator that the experts often had too much to do. Most experts had other obligations aside from the work of NNR 2012. This lead to difficulties for them to answer all the e-mails sent to them from other participants in the project. However, 13 of 16 of the experts (81 %) thought that it was easy to get in touch with other experts, primarily those in the same group.

- Were the experts' responses and suggested amendments to your comments appropriate and well-motivated?

	Yes	No
Reviewers	**9/12 (75%)**	**3/12 (25%)**

Comments:
More time should be put aside for this part. The experts need to closely look into the reviewers' comments and suggestions on improvements and then reply back to the reviewers. Some reviewers felt that their comments were not considered at all and that they did not receive well-motivated responses to *why* their comments were not considered or a part of the final version. However, most reviewers, nine of 12 (75 %) thought the experts responded well.

- Was the collaboration with the librarians regarding searches and in providing the search reports, articles etc. good?

	Yes	No
Experts	**13/17 (77%)**	**4/17 (23%)**

Comments:
The general opinion was that the librarians did a good job with providing the literature asked for by the experts. However, one group found that several studies that should have been covered by the research question were missing and there were some organizational cut-backs which resulted in delays of the work, and too little time for one librarian to help.

- Did you collaborate with other librarians regarding database searches and provision of the search reports, articles etc.?

	Yes	No
Librarians	**2/3 (67%)**	**1/3 (33%)**

Comments:
Two librarians worked at the same workplace in Sweden during the NNR 2012 project. They collaborated a lot which seemed to be both appreciated and time-saving.

5.2.4 The support and helping tools

- Was it easy to get in touch with the working group and the secretariat when needed?

	Yes	No
Experts	16/16 (100%)	0/16 (0%)
Librarians	3/3 (100%)	0/3 (0%)
Reviewers	13/13 (100%)	0/13 (0%)
Peer reviewers	3/3 (100%)	0/3 (0%)
Total	**35/35 (100%)**	**0/35 (0%)**

Comments:
This question got great response. Many appreciated the quick answers and help from especially the secretariat, but also from the working group. An active secretariat is very important.

- Were the given supporting tools for reviewing the manuscripts sufficient for performing your task as well as possible?

	Yes	No
Reviewers	**11/14 (79%)**	**3/14 (21%)**

Comments:
Eleven of 14 reviewers (79 %) thought that the supporting tools for reviewing the manuscripts were sufficient. The comments given by the reviewers indicate that some were not totally satisfied with the PICO/PECO, since they were not optimal or clear for all situations.

- Were the given supporting tools, i.e. SR guide, sufficient for performing your task as well as possible? / Were the given supporting tools for reviewing the chapter/chapters sufficient?

	Yes	No
Experts	14/16 (88%)	2/16 (12%)
Librarians	2/3 (67%)	1/3 (33%)
Peer reviewers	3/3 (100%)	0/3 (0%)

	Yes	No
Total	**19/22 (86%)**	**3/22 (14%)**

Comments:
The supporting tools given to the experts were generally seen as sufficient, except for the QAT and evidence grading (see question below). The peer reviewers were satisfied with the supporting tools while there were some comments from the librarians who thought that the used program Endnote might not be the most optimal platform to use for this kind of work.

- Were the quality assessment tools (QAT) and evidence grading tools adequate?

	Yes	No
Experts	**12/16 (75%)**	**4/16 (25%)**

Comments:
Perhaps some minor modifications and improvements can be made on the QAT and evidence grading tools, to make them more specific depending on the type of study the reviewed article use. Comments received from the experts indicated that several questions within the guide for grading overall evidence were too similar to each other, too complicated and too detailed. They could be reduced in number to become less time-consuming and easier to use. The QATs were not suitable for all study types, some questions were difficult to handle. Some groups had discussions on how they were to be filled. Sometime they answered both yes and no to the same question as the query was posed about two issues. Also, the exclusion criteria were often too rigid according to several experts and reviewers.

- Did the secretariat provide you with the support you needed to complete your task?

	Yes	No
Librarians	**3/3 (100%)**	**0/3 (0%)**

Comments:
The librarians participating in the evaluation were generally very positive to all the work process and their task. They did a great job and are positive to the idea of participating again. However, one librarian was about to retire during the evaluation time, but would like to help educating a new librarian.

- Would you have preferred to have regular meetings with the working group and the secretariat during the project period?

	Yes	No
Experts	**11/16 (69%)**	**5/16 (31%)**

Comments:
The general opinion is that more meetings would have been both helpful and time-saving. It is important to have meetings with the secretariat and working group at the start of the project so that all questions can be answered straight away. Meetings with the working group and/or secretariat in the middle of the process might also be good to introduce, so that there is a better follow-up on how the work process is going. Then meetings within the groups could be made mandatory since many participants were missing this.

5.2.5 The time frames, the workload and the work-plan

- Was the estimated time frame for completing the task adequate?

	Yes	No
Experts	9/18 (50%)	9/18 (50%)
Librarians	1/3 (33%)	2/3 (67%)
Reviewers	12/15 (80%)	3/15 (20%)
Peer reviewers	4/4 (100%)	0/4 (0%)
Total	**26/40 (65%)**	**14/40 (35%)**

Comments:
The time frames for the experts and the librarians were not optimal. Many experts would have wanted the time frames to be more strict in order to work more efficient at the same time as the work burden was too high, even though the time frames were quite wide. One suggestion on improvement is to give more compensation to the experts so that the NNR work becomes a full-time or part-time job. The librarians commented that it would be a good idea for the expert groups to start at different time periods. The intensity of the work for the librarians was too high during the beginning when all the experts requested the literature and other support. Most persons in the reviewer groups seemed to think the time frames and workload (see question below) was OK and manageable.

- Was the overall workload manageable?

	Yes	No
Experts	10/18 (56%)	8/18 (44%)
Librarians	3/3 (100%)	0/3 (0%)
Reviewers	13/15 (87%)	2/15 (13%)
Peer reviewers	5/5 (100%)	0/5 (0%)
Total	**31/41 (76%)**	**10/41 (24%)**

Comments:
The workload for the experts was in several cases not acceptable. Many think that they had too much to do. Some would have preferred to be compensated during a shorter period of time in order to work more efficient. Also more experts involved would have helped since they felt that not all important articles were included due to the high workload and the limited literature search. One quite common comments during the evaluation was that some participants thought that the introduction of more exercises and training at the starting phase of the work would make the participants more familiar with the process. This is believed to reduce the workload.

- Were the time frames for your allocated searches and included databases realistic?

	Yes	No
Experts	**8/18 (44%)**	**10/18 (56%)**

Comments:
It was too much for the experts to do. Smaller and more focused database searches and/or more experts working within the same nutrition area would have made the time frames and workload more realistic.

5.2.6 The number of participants

- Would the outcome of the NNR have been better if more reviewers/experts/ librarians had been involved?

	Yes	No
Experts	9/17 (53%)	8/17 (47%)

	Yes	No
Librarians	1/2 (50%)	1/2 (50%)
Reviewers	3/13 (23%)	10/13 (77%)
Peer reviewers	1/3 (33%)	2/3 (67%)
Total	**14/35 (40%)**	**21/35 (60%)**

Comments:
For this question the experts were asked if they thought that more experts would have improved the outcome of NNR 2012. The librarians were instead asked if more librarians would have improved the outcome, while the reviewers were asked if more reviewers would have given a better NNR 2012. Most experts, nine of 17 (53 %), think that if more experts would have been involved it would have resulted in a better outcome of NNR 2012. The comments suggest that the experts think they would have managed to include more literature in the SRs and excluded the literature search limit if there had been more experts involved. The librarians would have appreciated more help in providing the literature to the experts, or have the expert groups starting at different time-periods. Many reviewers that thought more persons involved would improve the outcome said that the group that most needed more resources was the experts since a lot of articles were missed or excluded due to lack of time. All comments regarding the number of participants can be read under the headline ”*If more persons were involved”* in *appendix 10*.

5.2.7 The recommendations and their credibility

- How would you grade the scientific credibility of the relevance of the project and the recommendations?

Grading 1-4	Experts (n)	Reviewers (n)	Peer reviewers (n)	Authorities, institutions, organizations (n)	Total (n)
Very low	1	0	0	0	**1**
Low	0	2	0	0	**2**
OK/Satisfactory	2	3	0	6	**11**
High/Good	10	5	4	4	**23**
Very high	2	2	0	8	**12**

Comments:
The participants and external stakeholders were asked to grade the scientific credibility of the project and recommendations. Three persons of 49 (6 %) gave the

credibility *very low* to *low*. Eleven of 49 (22 %) answered that the credibility was *OK/satisfactory* and 35 persons of 49 (71 %) commented that the scientific credibility was *high/good* to *very high*. These results clearly indicate that the majority of the participants think that the recommendations have *OK* to *very high* scientific credibility and relevance. Comments suggest that the SRs and selection of experts and reviewers are the most important factors for the scientific credibility.

- How do you rate the systematic reviews published in Food and Nutrition Research for contributing to the scientific credibility of NNR?

Grading 1-4	Experts (n)	Reviewers (n)	Peer reviewers (n)	Total (n)
1	1	0	1	**2**
2	3	3	0	**6**
3	4	5	2	**11**
4	9	6	2	**17**

Comments:
The publications of the SRs were important to many participant and the SRs were a key factor for the credibility of NNR 2012. For the questions on how the publications contributed to the scientific credibility, only eight of 36 participants (22 %) rated a *1* or *2*, while 28 participants of 36 (78 %) rated a *three* or *four*. There were those who thought that a higher ranked journal would be preferable in a future NNR revision.

- Could the credibility of the project and the recommendations be improved in any way?

	Yes	No
Reviewers	5/13 (38%)	8/13 (62%)
Peer reviewers	2/2 (100%)	0/2 (0%)
Authorities, organizations, universities	6/16 (38%)	10/16 (62%)
Total	**13/31 (42%)**	**18/31 (58%)**

Comments:
Here the responses indicate that there is a lot of space for improvements. Thirteen of 31 (42 %) evaluation participants thought that the credibility could be im-

proved somehow. The most frequently commented suggestions on improvements were to involve more experts to cover more nutrition areas and result in more articles for the SRs. Also, it is important to choose unbiased and competent experts, authors and reviewers. Some reviewers commented that the experts need to consider all comments provided by the reviewers.

Most authorities, university departments, research institutions and professional organizations were satisfied with the credibility but think that some minor improvements are necessary. Most comments from these target groups indicate that the most important thing to change in order to increase the credibility is to exclude the literature search limit.

- Are the recommendations easy to understand and use?

	Yes	No
Authorities, organizations, universities	**20/20 (100%)**	**0/20 (0%)**

Comments:
The recommendations are very clear and easy for professionals to understand and use. The translation and adaptation of NNR to the different national situations has generally worked well.

- Has the NNR 2012 been useful within your organization/university/institution?

	Yes	No
Authorities, organizations, universities	**15/16 (94%)**	**1/16 (6%)**

Comments:
The recommendations are being used by authorities, professional organizations and university which show its importance.

- Is the NNR 2012 a sufficient, valid and useful support for education within your institution/department?

	Yes	No
Universities, institutions	**6/6 (100%)**	**0/6 (0%)**

Comments:
The recommendations are easy for professionals to understand and they are useful and sufficient for education. As seen in the previous question, the recommendations are being used today.

- Is it easy to find the information/recommendations you are searching for on the current NCM website?

	Yes	No
Authorities, organizations, universities	**10/15 (67%)**	**5/15 (33%)**

Comments:
It would be optimal if the recommendations were easier to find on the NCM website. Perhaps there can be a direct link to the NNR 2012 at the start-page on the website since several comments indicate that the recommendations are hard to find.

5.2.8 A NNR revision

- Do you think that the NNR should be updated on a regular basis?

	Yes	No
Experts	16/17 (94%)	1/17 (6%)
Reviewers	13/14 (93%)	1/14 (7%)
Peer reviewers	5/5 (100%)	0/5 (0%)
Authorities, organizations, universities	20/20 (100%)	0/20 (0%)
Total	**54/56 (96%)**	**2/56 (4%)**

Comments:
54 of 56 participants (96 %) answered that NNR should be updated on a regular basis. However, the opinions on when and how often it should be updated varied. The majority of the participants thought that an update should be performed every fifth to tenth year while others thought a revision should be made when enough new evidence is available. To see all comments look in *appendix 10,* under the headline ”*NNR revision*”.

- Would you consider participating for the next NNR?

	Yes	No
Experts	11/16 (69%)	5/16 (31%)
Librarians	3/3 (100%)	0/3 (0%)
Reviewers	7/13 (54%)	6/13 (46%)
Peer reviewers	3/4 (75%)	1/4 (25%)
Total	**24/36 (67%)**	**12/36 (33%)**

Comments:
The reviewers and experts were the target groups that had most participants answering that they were not sure if they would consider participating again. For the expert the workload needs to be reduced at the same time as the compensation might need to be increased. For the reviewers the credibility of the work depends a lot on the responses from the experts comments. More thorough comments can be found in *appendix 10* under the headline; ”*Participate again*”.

5.2.9 The follow-up of the NNR 2012 project and the public consultation

- Did your authority/organization/institution or representative follow the 5th edition of the NNR (NNR 2012) project?

	Yes	No
Authorities, organizations, universities	**17/21 (81%)**	**4/21 (19%)**

- Did your authority/organization/institution or representative participate in the public consultation?

	Yes	No
Authorities, organizations, universities	**12/20 (60%)**	**8/20 (40%)**

Comments:
The public consultation was appreciated by many participants, and seem to be an important part of the process. However, some improvement could be performed here. Perhaps better information before the public hearing on what will be issued during what time, since it is divided into different parts. It was difficult for some to understand at what time the specific issues were presented. Also, more invitations could be sent out to important stakeholders.

6. The conclusions

The evaluation
This evaluation is performed much too late and should have been distributed just after completing the work of NNR 2012. Many participants had forgotten much of what worked well, as well as the problems and minor difficulties occurring during the project process. If the ambition is to perform an evaluation on a future 6th edition of NNR as well, it should be performed just after the final version is released for a public consultation in order to receive more valuables opinions on the work process. Also, the participation rate of the evaluation would most likely be increased. The cost for an evaluation should be included in the NNR budget.

The number of participants in the evaluation
It is important to keep in mind that some target groups had a relatively low participation rate in the evaluation while other target groups were few in the number of participants. This means that the results, comments and complaints, should be interpreted with some caution since it might be the case that a specific type of group chose to participate, resulting in misleading and bias answers which does not necessarily represent the opinions of that target group.

The information and instructions given
The overall opinion of the project organization was that it was well prepared, and all information and instructions regarding the NNR process were clear and relevant according to most participants. The seminars that were given at the beginning of the process at the Swedish NFA were appreciated by many since not all experts had been involved in this kind of work or had ever performed SRs before. The most important improvement that needs to be done regarding the SRs, concerns the instructions on how to integrate them with earlier research results and previous NNRs. There seem to be a request on creating a pilot for the experts to use, and more exercises with training at the start-up is believed to improve the work and make the participants familiar with the process. It would be good if more editorial help was available, such as lay-out, figures, and tables to make the work process clearer.

The formation of the groups
When constituting the expert groups it might be a good idea to consider having persons with different competence in each group. It is important to make sure that

at least one person in each group is familiar with earlier NNR work and who has great knowledge on the work-process.

The research questions and the systematic literature search
For several groups the most difficult task during the whole process was to address and focus the research questions. It is important to clearly point out where there is a need to include new scientific evidence and look closely in these areas when defining the research questions. One suggestion is for the working group to define the research questions so that the expert groups only have to make minor modifications. Another proposal is for the working group to present the research questions before the start-up in order for the participants to familiarize themselves with the specific area of research. Then during the seminars at the beginning of the process, the working group together with the experts discuss and finalize the research questions.

It is not scientifically justified to limit the literature search or to neglect old evidence if still relevant. Instead, it would be better for the experts to concentrate on filling the gaps where there is limited or new scientific evidence for the recommendations so that the research questions do not become too wide.

The search for articles and information
The involved librarians did a great job with helping and providing the experts with the requested literature and information. Due to license constraints for the experts, the librarians sometimes had to print out electronic documents for delivery by post which was very time-consuming. More open access research would decrease the workload for the librarians and would be time-saving for all participants.

Meetings and communication within the groups
The meetings and seminars at the beginning of the process were very sufficient and appreciated by many and so were the regular meetings between the librarians and the secretariat. The request for more meetings was however high, meetings both within the groups as well as with the working group and secretariat.

The support and help given
The scientific secretariat and working group did a great job with supporting and answering e-mails from the participants. All 35 involved experts, librarians and reviewers of NNR 2012 who participated in the evaluation, answered that is was easy to get in touch with the secretariat and also the working group when needed.

The tools given
The methodology used was not always sufficient enough; the PICO/PECO approach was not clear to all and the QATs were not optimal for all study types. Several questions within the guide for grading overall evidence were too similar to each other, too complicated and too detailed, and could be reduced in number to become less time-consuming and easier to use. Some participants also thought

that the exclusion criteria were too rigid which resulted in the exclusion of otherwise good work, due to irrelevant technicalities.

The program Endnote was not preferred by all librarians since it is not really suitable for the large quantities of references and papers that are used in the NNR-process. A suggestion is to create some kind of e-platform where all the experts and librarians can share articles and abstracts.

The time frames, workload and work efficiency
All experts had other obligations beside from the NNR and several persons complained that some experts had weak commitment and were poor at corresponding. This resulted in some frustration and delays. One solution might be to reduce the areas for which the experts are to cover, in order to make the work more manageable, by increasing the number of involved experts. Beside from reducing the area for the experts to cover, the time frames could also be shortened which might increase the availability and dedication of the experts. Another suggestion is to consider increasing the compensating and to give the experts full-time or part-time employment.

An important change that would decrease the workload for the librarians drastically would be to have the expert groups starting at different time-periods. This would also give the librarians more time to help the different expert groups with their questions and searches.

The recommendations and their credibility
For the credibility of the recommendations it is clear that the most important factors are the SRs and the selection and scientific competence of the participants. If more experts had been involved, a literature search limit would not have been necessary and it would have increased the credibility of the work. The selection of experts and reviewers are key issues for success and credibility and to achieve a dynamic process. Avoid selecting researchers from the same workplace or from a narrow research field. The experts' responses and suggested amendments to the comments given by the reviewers were not always appropriate or well-motivated. To reach a higher credibility with NNR, it is extremely important to choose unbiased authors and reviewers and to have competent, better qualified and more engaged experts in a future revision.

The NNR 2012 recommendations
The questions regarding the actual recommendations show that NNR is widely used within authorities, universities and within nutrition organizations for research, seminars, education as well as practice. The recommendations are easy for professionals to understand.

The information and layout of the NNR 2012 and NCM websites
The comments regarding the NNR and NCM websites varied. Most answers indicated that the information and layout is fine once you have found the website. The information is relevant and the layout is better than ever before according to some. Although, several persons had problems with finding the actual websites, especially the NNR 2012, and given its importance, better visibility is necessary.

The translating and adaptation of NNR to the national situation
In all Nordic countries the NNR 2012 seem to have been well translated and adapted to the national situation, with some exceptions.

The public consultation
The current model with taking in thoughts and comments during a public consultation is appreciated by many and it is an important part of the process. However, there were some complaints on the fact that the public consultation process was divided into different parts and that it was difficult to know which issues would be included at what consultation.

The number of participants
Several participants commented that the outcome of NNR 2012 and its credibility would be increased if more experts had been involved. With more experts they could have better focused their literature searches on the nutrition areas at the same time as the total amount of conducted SRs would have been higher due to an exclusion of literature search limit. Since many appreciate the size of the groups used for NNR 2012, which was around four persons, the number of groups should be increased and not the size of the groups.

Future NNR revision
All the participants of the evaluation think that it is very important to produce a new NNR, even though the 5th edition was extensive both in time and costs. The timing and extent of any future version should however be carefully considered and many suggest that the update should depend on the generation of new knowledge. Since there is no European alternative today, many hope that the NNR-project will continue in the future since it is used by several authorities, universities and within nutrition organizations for research, seminars and education. One part that some professional organizations were missing in the current NNR is the effects different food processes have on food.

Conclusion
In conclusion, the overall opinion on the project organization and the work process is that it worked well. The outcome of NNR 2012 was good and had high credibility. A future revision is both wanted and needed. The most important changes that needs to be performed in a future revision is to reduce the workload for the experts, by involving more experts or by increasing the economic compensation, and also to make sure that the literature searches for the SRs cover a broader time frame.

7. Appendix

7.1 The NNR 5 working group

The NNR 5 working group consisted of Inge Tetens and Agnes N. Pedersen from Denmark, Ursula Schwab and Mikael Fogelholm from Finland, Inga Thorsdottir and Ingibjörg Gunnarsdottir from Iceland, Sigmund A. Anderssen and Helle Margrete Möltzer from Norway and Wulf Becker (chairman), Ulla-Kaisa Koivisto Hursti (scientific secretariat) and Elisabet Wirfält from Sweden. The SRs provided by the experts were used as major and independent components for the decision-making processes of the working group that was responsible for deriving the NNR 2012.

7.2 The contact information to authorities, university departments, research institutions, professional organizations and nutrition networks

1. Denmark

1. Fødevarestyrelsen
2. Sundhedsstyrelsen
3. Ålborg Universitet
4. Danmarks Tekniske Universitet, DTU
5. Århus Universitet
6. Københavns Universitet
7. Professionshøjskolen Metropol
8. University College Sjælland
9. University College Lillebælt
10. Hotel- og Restaurantskolen
11. Diabetesforeningen
12. Hjerteforeningen
13. Kræftens Bekæmpelse

2. Finland

1. National Nutrition Council
2. National Institute for Health and Welfare
3. Ministry of Agriculture and Forestry
4. Food Safety Authority, Evira
5. Association of Clinical and Health Nutritionists
6. Finnish Diabetes Association
7. Finnish Heart Association
8. Finnish Food and Drink Industries' Federation (ETL)
9. Institute of Public Health and Clinical Nutrition, University of Eastern Finland
10. Department of Food and Environmental Sciences, University of Helsinki
11. Department of Pediatrics, Turku University Hospital and University of Turku

3. Island

1. Directorate of Health
2. Icelandic Food and Veterinary Authority
3. Matís, Icelandic Food and Biotech R&D
4. Federation of Icelandic Industries
5. The Icelandic Food and Nutrition Association
6. Icelandic Heart Association
7. Icelandic Cancer Society
8. Unit of Nutrition Research, University of Iceland

4. Norway

1. Helsedirektoratet
2. Folkehelseinstituttet
3. Mattilsynet
4. Nofima
5. NIFES
6. Vitenskapskomiteen for mattrygghet
7. Institutt for folkehelse, idrett og ernæring, Universitetet i Agder
8. Høgskolen i Akershus
9. Avd. for ernæringsvitenskap, Universitetet i Oslo
10. Institutt for kjemi, bioteknologi og matvitenskap, Norges miljø- og biovitenskaplige universitet
11. Norsk forening for ernæring og dietetikk
12. Norsk forening for ernæringsfysiologer
13. Norsk forening for kliniske ernæringsfysiologer
14. Landsforeningen for hjerte og lungesyke, LHL
15. NHO Mat og Drikke

5. Sweden

1. Livsmedelsverket, Undersökning och vetenskapligt stöd
2. Folkhälsomyndigheten
3. Socialstyrelsen
4. Expertgruppen för nutrition och folkhälsa
5. IMM, Karolinska institutet
6. Institutionen för kost och idrottsvetenskap, Göteborgsmuniversitet
7. Institutionen för kostvetenskap, Umeå universitet
8. Lunds universitet, genetisk epidemiologi
9. Institutionen för kostvetenskap, Uppsala universitet
10. Institutionen för livsmedelsvetenskap, SLU
11. Institutionen för medicinska vetenskaper, Örebro universitet
12. Gymnastik- och Idrottshögskolan, GIH
13. Institutionen för folkhälsa och klinisk medicin, Umeå universitet
14. Institutionen för folkhälso- och vårdvetenskap, Uppsala universitet
15. Hjärt- och lungfonden
16. Cancerfonden
17. Konsument Stockholm

18. SNF - Swedish Nutrition Foundation
19. Livsmedelsföretagen
20. Kost och Näring
21. Dietisternas Riksförbund

7.3 Evaluation questionnaire to the experts

	Question			Comment
	Questions on the project organization, time frames and workload			
1	What were the main reasons for participating as an expert in the NNR5 project?			
2	Was the estimated time frame for completing the task adequate? If not, how much time do you think would have been needed to complete your task?	Yes	No	
3	Were the time frames for your allocated searches and included databases realistic?	Yes	No	
4	Was it a good strategy to limit the systematic literature search to start from year 2000? If not, how do you think the literature search should have been conducted and limited?	Yes	No	
5	Was the overall workload manageable? If not, what could be changed in order to decrease the workload?	Yes	No	
6	Would the outcome of the NNR have been better if more experts were involved?	Yes	No	
	The given information and instructions			
7	Were the general instructions and information of the project clear? If not, what was unclear and what could be improved?	Yes	No	
8	Were the instructions and information on the project given in an appropriate form? (e.g. documents, meetings, e-mail, telephone). If not, in what way do you prefer to be given the instructions? It is possible to write down more than one answer.	Yes	No	
9	Was the information and description of your specific task and work clear? If not, what was unclear and what could be improved?	Yes	No	
10	Were the original research questions given to you well-defined and focused? If not, how could they be improved?	Yes	No	
	The supporting tools			
11	Were the given supporting tools, i.e. SR guide, sufficient for performing your task as well as possible? If not, what kind of supporting tools would have improved the outcome of your work?	Yes	No	
12	Were the QAT and evidence grading tools adequate? If not, what improvements could be made?	Yes	No	
13	Was the collaboration with the librarians regarding searches and in providing the search reports, articles etc. good? If not, do you have any suggestions on how it could be improved?	Yes	No	

	Question			Com-ment
	The communication with the Working group and the secretariat			
14	Was it easy to get in touch with the Working group and the secretariat when needed?	Yes	No	
15	Would you have preferred to have regular meetings with the Working group and the secretariat during the project period? If yes, how often would be optimal in your opinion?	Yes	No	
	The communication within the expert group			
16	Was it easy to communicate with other experts within your group when needed?	Yes	No	
17	How did you collaborate with the other experts within your group? (e.g. e-mail, telephone, meetings, web-cam)			
18	Do you have any suggestions for improving the collaboration and communication with the expert group?			
	Views on the overall NNR			
19	How would you evaluate the scientific credibility of the project and the recommendations?			
20	How do you rate the systematic reviews published in Food and Nutriton Research for contributing to the scientific credibility of NNR? Please rate from 1-4. 1= not important, 4= very important			
21	To what extent did the option to publish systematic reviews in Food and Nutriton Research influence your decision to participate in the NNR work? Please rate from 1-4. 1=no influence, 4=big influence			
22	Could the credibility of the work accomplished be improved in any way? If yes, explain how it could be improved	Yes	No	
23	Do you think that the NNR should be upgraded on a regular basis? If yes, how often? If not, do you have suggestions on alternative approaches?	Yes	No	
24	Would you consider participating in the expert group for the next NNR? If yes, please indicate the prerequisites for your participation (workload, time, economic compensation, published papers, etc.)	Yes	No	
25	What is your overall opinion of the project organization? (What worked well, what was difficult, what was unexpected, what can be improved etc.)			
26	Other general comments or suggestions on improvements			
27	Other general comments comments regarding the future of NNRs			

7.4 Evaluation questionnaire to the librarians

	Question			Comment
	Questions on the project organization, time frames and workload			
1	What were the main reasons for participating as a reviewer in the NNR5 project?			
2	Was the estimated time frame for completing the task adequate? If not, how much time do you think would have been needed to complete your task?	Yes	No	
3	Was the overall workload manageable? If not, what could be changed in order to decrease the workload?	Yes	No	
4	Do you think that the outcome of the NNR would have been better if more librarians had been involved?	Yes	No	
	The given information and instructions			
5	Were the general instructions and information of the project clear? If not, what was unclear and what could be improved?	Yes	No	
6	Was the information and description of your specific task and work clear? If not, what was unclear and what could be improved?	Yes	No	
7	Were the instructions and information on the project given in an appropriate form? (E.g. documents, meetings, e-mail, telephone). If not, in what way do you prefer to be given the instructions? It is possible to write down more than one answer.	Yes	No	
8	Were the original research questions given to you well-defined and focused? If not, how could they be improved?	Yes	No	
9	Were the given supporting tools sufficient for performing your task as well as possible? If not, what kind of supporting tools would have improved the outcome of your work?	Yes	No	
	The database search			
10	Were the requests on the database search from the experts well-defined and focused? If not, how could it be improved?	Yes	No	
11	Did it go well to provide the abstracts and articles to the experts? If not, do you have any suggestions on improvements?	Yes	No	
	The communication with the secretariat, experts and other librarians			
12	Was it easy to get in touch with the secretariat when needed?	Yes	No	
13	Did the secretariat provide you with the support you needed to complete your task?	Yes	No	

	Question			Com-ment
14	Was it easy to communicate and interact with the experts?	Yes	No	
15	How did you collaborate with the secretariat and the experts? (e.g. e-mail, telephone, meetings). It is possible to write down more than one answer.			
16	Do you have any suggestions for improving the collaboration with the expert group?			
17	Did you collaborate with other librarians regarding database searches and provision of the search reports, articles etc? If yes, what was the purpose?	Yes	No	
	Views on the overall NNR			
18	How relevant was this project task to your own work area in general?			
19	Would you consider participating as a librarian for the next NNR? If yes, please indicate the prerequisites for your participation (workload, time, economic compensation etc.)	Yes	No	
20	What is your overall opinion of the project organization? (What worked well, what was difficult, what was unexpected, what can be improved etc.)			
21	Other general comments and/or suggestions on improvements			
22	Other general comments regarding the future of NNRs			

7.5 Evaluation questionnaire to the reviewers

	Question			Comment
	Questions on the project organization, time frames and workload			
1	What were the main reasons for participating as a reviewer in the NNR5 project?			
2	Was the estimated time frame for completing the task adequate? If not, how much time do you think would have been needed to complete your task?	Yes	No	
3	Was it a good strategy to limit the systematic literature search to start from year 2000? If not, how do you think the literature search should have been conducted and limited?	Yes	No	
4	Was the overall workload manageable? If not, what could be changed in order to decrease the workload?	Yes	No	
5	Would the outcome of the NNR have been better if more reviewers had been involved?	Yes	No	
	The given information and instructions			
6	Were the general instructions and information of the project clear? If not, what was unclear and what could be improved?	Yes	No	
7	Was the information and description of your specific task and work clear? If not, what was unclear and what could be improved?	Yes	No	
8	Were the instructions and information on the project given in an appropriate form? (e.g. documents, meetings, e-mail, telephone). If not, in what way do you prefer to be given the instructions? It is possible to write down more than one answer.	Yes	No	
9	Were the original research questions given to you well-defined and focused? If not, how could they be improved?	Yes	No	
	The supporting tools			
10	Were the given supporting tools for reviewing the manuscripts sufficient for performing your task as well as possible? If not, what kind of supporting tools would have improved the outcome of your work?	Yes	No	
11	Were the experts' responses and suggested amendments to your comments appropriate and well-motivated? If not, please explain how the responses could be formulated in order to become more helpful?	Yes	No	

	Question			Com-ment
	The communication with the Working group, secretariat and the experts			
12	Was it easy to get in touch with the Working group and the secretariat when needed?	Yes	No	
13	Was it easy to get in touch with the experts when needed?	Yes	No	
14	How did you collaborate with the Working group, secretariat and the experts? (e.g. e-mail, telephone, meetings, web-cam). It is possible to write down more than one answer.			
	Views on the overall NNR			
15	How would you evaluate the scientific credibility of the project and the recommendations?			
16	How do you rate the systematic reviews published in Food and Nutrition Research for contributing to the scientific credibility of NNR? Please rate from 1-4. 1= not important, 4= very important			
17	Could the credibility of the project and the recommendations be improved in any way? If yes, please suggest how it could be improved.	Yes	No	
18	Do you think that the NNR should be upgraded on a regular basis? If yes, how often? If not, do you have suggestions on alternative approaches?	Yes	No	
19	Would you consider participating in the review group for the next NNR? If yes, please indicate the prerequisites for your participation (workload, time, economic compensation etc.)	Yes	No	
20	What is your overall opinion of the project organization? (What worked well, what was difficult, what was unexpected, what can be improved etc.)			
21	Other general comments or suggestions on improvements			
22	Other general comments comments regarding the future of NNRs			

7.6 Evaluation questionnaire to the peer reviewers

	Question			Comment
	Questions on the project organization, time frames and workload			
1	What were the main reasons for participating as a reviewer in the NNR5 project?			
2	Was the estimated time frame for reviewing the chapter/chapters adequate? If not, how much time do you think would have been needed to complete your task?	Yes	No	
3	Was it a good strategy to limit the systematic literature search to start from year 2000? If not, how do you think the literature search should have been conducted and limited?	Yes	No	
4	Was the overall workload manageable? If not, what could be changed in order to decrease the workload?	Yes	No	
5	Would the outcome of the NNR have been better if more reviewers had been involved?	Yes	No	
	The given information and instructions			
6	Were the general instructions and information on the project clear? If not, what was unclear and what could be improved?	Yes	No	
7	Was the information and description of your specific task clear? If not, what was unclear and what could be improved?	Yes	No	
8	Were all the instructions and information on the project given in an appropriate form? (E.g. documents, meetings, e-mail, telephone). If not, in what way do you prefer to be given instructions? It is possible to write down more than one answer.	Yes	No	
	The supporting tools			
9	Were the given supporting tools for reviewing the chapter/chapters sufficient? If not, what kind of supporting tools would have improved the outcome of your work?	Yes	No	
10	Was it easy to get in touch with the Working group and the secretariat when needed?	Yes	No	
	The reviewed chapter/chapters			
11	Did the reviewed chapter/chapters cover all the important aspects of the specific nutrient and/or topic?	Yes	No	
12	How would you evaluate the scientific credibility and relevance of the reviewed chapter/chapters and its recommendations?			

	Question			Comment
13	Could the credibility of the reviewed chapter/chapters and its recommendations be improved in any way? If yes, please suggest how it could be improved.	Yes	No	
	Views on the overall NNR			
14	How would you evaluate the overall scientific credibility of the project and the recommendations?			
15	Could the credibility of the project and the recommendations be improved in any way? If yes, please suggest how it could be improved.	Yes	No	
16	How do you rate the systematic reviews published in Food and Nutrition Research for contributing to the scientific credibility of NNR? Please rate from 1-4. 1= not important, 4= very important			
17	Do you think that the NNR should be upgraded on a regular basis? If yes, how often? If not, do you have suggestions on alternative approaches?	Yes	No	
18	Would you consider participating as a reviewer for the next NNR? If yes, please indicate the prerequisites for your participation (workload, time, economic compensation etc.)	Yes	No	
19	What is your overall opinion of the project organization? (What worked well, what was difficult, what was unexpected, what can be improved etc.)			
20	Other general comments or suggestions on improvements			
21	Other general comments regarding the future of NNRs			

7.7 Evaluation questionnaire to the authorities

	Question			Comment
	Views on the information on NNR, the website and the public consultation			
1	Did your authority or representative follow the 5th edition of the NNR (NNR5) project?	Yes	No	
2	What is your overall opinion of the information and layout of the NNR5 project website?			
3	What is your overall opinion of the information and layout of the Nordic Council of Minister's (NCM) website for the NNR (www.norden.org)?			
4	Is it easy to find the information you are searching for on the current NCM website? If not, please suggest how it can be improved	Yes	No	
5	Did your authority or representative participate in the public consultation process? How do you evaluate the public consultation process? How could it be improved?	Yes	No	
6	Are the recommendations easy to understand and use? If not, please give suggestions on how the recommendations can be improved	Yes	No	
	Adaptation of NNR to the national situation			
7	What are your experiences regarding translating and adaptation of NNR to the national situation? Any changes or additions made to the original recommendations? What could be done in order to facilitate the adaption?			
8	How was the media coverage of the NNR5 in your country?			
	Views on the overall NNR and its credibility			
9	How would you evaluate the overall scientific credibility and the relevance of the project and the recommendations?			
10	Could the credibility of the project and the recommendations be improved in any way? If yes, please suggest how it could be improved	Yes	No	
11	Do you think that the NNR should be upgraded on a regular basis? If yes, how often? If not, do you have suggestions on alternative approaches?	Yes	No	
12	Other general comments regarding the future of NNRs			

7.8 Evaluation questionnaire to the universities and research institutions

	Question			Comment
	Views on the information on NNR, the website, media coverage and public consultation			
1	Did the department/institution or representative follow the 5th edition of NNR (NNR5) project?	Yes	No	
2	Has the NNR5 been useful within your university/institution? If yes, in what context?	Yes	No	
3	Are the recommendations easy to understand and use? If not, in what way can they be improved?	Yes	No	
4	What is your overall opinion of the information and layout of the NNR5 project website?			
5	What is your overall opinion of the information and layout of the Nordic Council of Minister's (NCM) website for the NNR (www.norden.org)?			
6	Is it easy to find the information you are searching for on the NCM website? If no, what can be improved?	Yes	No	
7	How well are the recommendations adapted to the situation in your country?			
8	Did your department/research institution or representative participate in the public consultation process? How do you evaluate the public consultation process? How could it be improved?	Yes	No	
	Views on the overall NNR and its credibility			
9	How would you evaluate the overall scientific credibility and the relevance of the project and the recommendations?			
10	Could the credibility be improved in any way? If yes, please suggest how it could be improved	Yes	No	
11	Is the NNR5 a sufficient, valid and useful support for education?	Yes	No	
12	Other general comments regarding the NNR			
	Future updates			
13	Do you think that the NNR should be upgraded on a regular basis? If yes, how often? If not, do you have suggestions on alternative approaches?	Yes	No	

7.9 Evaluation questionnaire to professional organizations

	Question			Comment
	Views on the information on NNR, the website, media and public consultation			
1	Did your organization or representative follow the 5th edition of NNR (NNR5) project?	Yes	No	
2	What is your overall opinion of the information and layout of the NNR5 project website?	Yes	No	
3	What is your overall opinion of the information and layout of the Nordic Council of Minister's (NCM) website for the NNR (www.norden.org)?	Yes	No	
4	Is it easy to find the information you are searching for on the NCM website? If not, what can be improved?			
5	Has the NNR5 been useful within your organization? If yes, in what context has it been used?			
6	Are the recommendations easy to understand and use? If not, in what way can they be improved?	Yes	No	
7	How well adapted do you consider the recommendations to be to the situation in your country?			
8	Did your organization or representative participate in the public consultation process?	Yes	No	
9	How do you evaluate the public consultation process? Could it be improved in any way?			
	Views on the overall NNR and its credibility			
10	How would you evaluate the overall scientific credibility and the relevance of the project and the recommendations?			
11	Could the credibility of the project and recommendations be improved in any way? If yes, please suggest how it could be improved	Yes	No	
12	Other general comments regarding the NNR	Yes	No	
	Future updates			
13	Do you think that the NNR should be upgraded on a regular basis? If yes, how often? If not, do you have any suggestions on alternative approach?	Yes	No	

7.10 The comments on what worked well, less well and suggestions on improvements of the project

- The formation of the groups

Suggestions on improvements

Experts and librarians

- As an expert in analysis it was easier for me to determine if a method was suitable or not for the specific study. For an epidemiologist it was easier to evaluate if the statistic design used in the study was suitable or not. Different competence is important to have in all groups. Try to divide the expertise between the groups.
- Have one person in each group that have participated in previous NNR-work. This would probably make the beginning of the process more efficient and would be helpful during the whole project process.
- Not only have first-timers in the groups.

Reviewers

- The work was very tough in practice and some experts in our group were not committed at all to this work. Only include motivated experts next time.

- The instructions and information

What worked well

Experts and librarians

- I would like to commend the NNR 5 working group and their scientific secretariat for providing clear information to the experts through seminars at the Swedish National Food Agency and through written information and e-mails.
- The meetings with the working group were the most important and significant part at the beginning of the process.
- Most of the information was clear.

Reviewers

- I think the instructions given were clear for most persons.
- We received clear instructions as for how to proceed.
- The instructions were clear for most people.

What worked less well

Experts and librarians

- The ambition level was too high and not in accordance with the resources available. The methodology and the work process was not well communicated and changed while the work was going on.

- A long time has past, and I can't recall everything. But clearly there was room for improvements.
- Most problems encountered had to be solved by the group itself.

Reviewers
- I had to ask for information about new deadlines since I did not receive the work from the experts in time. Also the research question was not clear.
- The most difficult task was to decide within the expert group which research question to address.
- I do not think the method used was the best one.
- The process was very tough.

Peer reviewers
- It is a bit difficult to give an exact answer, since the project was performed several years ago.
- I do not remember. It is a long time since I did this work.

Suggestions on improvements

Experts and librarians
- The approach was in general OK, but sometimes we were not sure regarding smaller details, especially in connection with the level of detail for the excel sheets and the filling of the QATs. This must be clearer. But we received useful information when we approached the project leader.
- The information seemed clear to us, but we spent quite a long time in the beginning waiting for some of the other groups to make drafts on their search terms and to involve us in the decisions. I´m not sure that all other groups had understood that they were to contact us.
- More meetings, better information and more time needs to be put at the very beginning of the project. Clearer information on exactly *what* is expected by the experts, and stricter time frames are also needed.
- We had no expert to introduce us to the task. We had to set the research questions by ourselves. It would have been better to clearly point out where do NNR not have enough evidence and base the research questions on that.
- There were some questions of limitations that could have been more specific, e.g. whether the SR should cover only adult population or children too. There was also some overlapping with other groups that were not that clear.
- Our group were a bit overambitious in the number of things we wanted to cover. Of course, as we were one of the "cross-sectional" groups (i.e. children) we were supposed to cover a lot, but it became a bit over the top.
- There was a huge amount of information in the beginning, and we should have used more time in the beginning when we meet, to agree about the further working process.

- We had to decide ourselves on what specific topic to explore. I guess having more clear research questions in the beginning would have been helpful.
- Most of the instructions were clear, but the information on how the final version of the SR should be was not obvious for me.
- Some instructions were not totally clear and there should be more room for discussion of the work process and collaboration mode.
- Try not to change the information regarding the procedure during the project since it caused some confusion and frustration.
- There methodology needs to be improved. They were not clear enough at the same time as they were very time-consuming.
- There were no consideration on how to do integrate the SRs with research results in previous research results.
- Introduce mandatory meetings at the beginning of the process where all participants, or each separate group, are gathered.
- More literature searches would have been valuable. I did not realize from the beginning that these were limited.
- Present a clear pilot and structural plan on how the process and final version of the SRs should look like.
- More meetings and better information at the beginning of the process is needed
- The meetings with the working group were the most important.
- A pilot could have been helpful.

Reviewers

- Meetings and clearer information at the beginning of the process is needed. It would be good to include different exercises with training at the beginning, in order to practice the work.
- Before starting the work I think it is very important to discuss what the main issues and questions are and what actually needs to be updated.
- Education and training in practice may help. Make people familiar with this process.
- Training and practicing may help people who are committed to this project.
- The deadlines were too short, especially in round 2.
- The methodology needs to be changed.

Peer reviewers

- The chapters differed in the level of detail provided. Clearer instructions and information on how the chapters should look like would be appreciated.

- The cooperation and communication

What worked well

Experts

- I held tight contact as chair person and approached the working group and secretariat whenever we felt this was needed. We always received immediate feed-back. I think that physical meetings might have been more time consuming.
- The physical meetings, where everyone in our group met, were the most productive times and absolutely necessary for managing the task.
- We had several physical meetings within our expert group as well as monthly telephone meetings and weekly e-mail contact.
- We were a perfect team. We met several times and I also arranged good telephone meetings and e-mail contact.
- As an expert it was easy to e-mail questions to the scientific secretariat and I always got a swift reply.
- I was happy with the e-mails and phone-calls within our group. All help needed was available.
- All in our group were from Finland, so it was easy to meet each other during the process.
- Our group worked well, we had no problems with distributing the work.
- The meetings during the start-up phase were sufficient.
- The group I worked within mainly had web-meetings.
- Our expert group was working well.

Librarians

- We shared some tasks, such as designing the documentation, structuring the searches and the work-flow, for sending out the abstracts etc. This was very useful.
- Me and another librarian worked at the same work place which was useful and valuable since we did some of the work together.
- The regular meetings with the secretariat were great and productive.

What worked less well

Experts

- I found there was a great lack of willingness to listen to want I thought was extremely relevant input.
- The working group leader was not open to discussions and too controlling.

Librarians

- Most communication was by e-mail and telephone which is not always ideal due to possible misunderstanding and confusion.
- Sometimes I did not get clear answers to my questions to the experts. Perhaps it was due to lack of time.
- The communication was probably the single biggest problem during the process.

Reviewers

- The experts' responses and suggested amendments to my comments were not appropriate or well-motivated. In the responses there were a clear tendency for authors to selectively choose which studies they emphasized as important. These choices were not based on scientific quality but more based on subjective opinions. To reach credibility for the NNR it is extremely important to choose unbiased and competent authors (and reviewers).
- We faced problems with a few experts in our group because of weak commitment and because the time frames were not followed appropriately.
- It is normal that only part of the comments is relevant for the outcome.
- I did not receive any response from the experts.
- I did not have any contact with other experts.
- I received no information from them.

Peer reviewers

- I do not remember. It is a long time since I did this work.
- I had no need to get in contact.

Suggestions on improvements

Experts and librarians

- The number of meetings with the secretariat and working group should depend on the total time frame of the whole project, but around every 3rd month. Then the total period or process could be shorter. The meeting or at least contact within the working groups should be 2-3 times/month to make sure that there is progress in the work.
- All experts and librarians should have face-to-face meetings with both the working group and secretariat at the beginning of the project after receiving all the information. Then the participants could ask questions and discuss the process.
- Less control from the working group leader - actually no working group leader at all, but maybe more clearly divided areas of responsibility based on scientific expertise and prior experience with research evaluation.
- Each group should have mandatory and regular meetings at least a few times per year. Perhaps more frequently at the beginning. Make sure these meetings are calculated in the time frame and work schedule.
- To have regular meetings within the groups, perhaps every third month or so, would probably shorten the process, the total time frame and also decrease the workload and make it more efficient.
- I participated only in one meeting in the very beginning of the project. One or two meetings during the project period would have been of help for sharing experiences and raising questions.

- A meeting between the librarians and the expert groups at the beginning would be valuable for discussing the research questions, which was a huge problem for several groups.
- I think our group would have needed more meetings with the secretariat and the working group in the beginning, because we felt a little bit lost in defining the research question.
- The difficult part was that we all worked on different times on this project, weeks could go without getting any e-mail response. I think more meeting would have been helpful.
- It would have been good with a physical meeting between the experts at the start to get to know each other and really discuss the research questions and how to work.
- It could have been good to have one or two meetings (virtual?) especially in the beginning to discuss the work more in detail, once we had started.
- It would be good to have a meeting between the expert groups and the responsible librarian at the beginning to discuss the research question.
- To start the work with a meeting to which all the group members must attend (and get to know each other) would be appreciated.
- It would be good to have regular meetings between the experts and the working group to make sure there is progress in the work.
- Only contact via e-mail and telephone is not optimal since it can cause misunderstanding and confusion.
- The expert groups, the secretariat and working group should meet three times during the whole process.
- Make sure that there is not to far geographical distance between the members of the expert groups maybe.
- One suggestion is for the librarians to meet and work much closer to each other from the very beginning.
- Continue to allow work meetings over weekends/a few days, and let the costs be covered by the budget.
- The expert groups, the secretariat and working group should meet every 4th month or so.
- Perhaps it would be good to allocate resources for more face-to-face meetings.
- More e-mail or Skype-meetings.

Reviewers

- There needs to be more involvement in the process from the beginning.

- The given help and supporting tools

What worked well

Experts

- The meetings that our group had with the working group and the secretariat during the start-up phase were sufficient.
- As an expert it was easy to mail questions to the scientific secretary and I always got a swift reply.
- We got immediate response and support from the working group and secretariat.
- The secretariat responded very quickly to e-mail.
- All help needed was available.
- The guides etc. were OK.

Reviewers

- One of the authors has his office in the same corridor as me so we handled some questions face to face.
- I never had a reason to contact the secretariat or working group.
- The communication with the secretariat worked well.

What worked less well

Experts

- Although the supporting tools were adequate the result was that these tools were used blindly and there was little room for judging studies on other basis than counting plusses and minuses.
- The given tools were not sufficient enough, a lot of ad hoc decisions had to be taken. It is easier to improve the tool now after this first trial.
- The guides etc. were OK but the problem was that the time frame and resource was in disharmony with the ambitions in the guides.
- The biggest problem was that the time frame/resources was in disharmony with the ambitions of the guides.
- The helping tools were clearly adequate, but not fully clear and relevant for all questions.
- The guide and given tools were too complicated and detailed.
- I expected more editorial assistance in the editorial work.
- It was difficult to evaluate the statistics used.
- The guide was not perfectly sufficient.

Librarians

- The requested literature searches were not always well-defined and focused. Some tried to incorporate many questions and many areas and others had trouble grasping what was and was not possible to do with the available tools leading to the formation of research questions which were difficult to fulfill.
- Endnote was not an ideal platform since it is not designed for large quantities of references.
- There needs to be more involvement in the process from the beginning.

Peer reviewers

- I do not remember. It is a long time since I did this work.
- Don't remember.

Suggestions on improvements

Experts and librarians

The QATs

- I cannot recall in detail now which of the QATs was less suitable, but we sometimes sat and wondered how this should be filled. Sometime one would answer yes and no to the same question as the query was posed about two issues.
- Not all instructions for the excel sheets and the filling of the QATs were clear. Improvements on smaller details need to be improved in order to be easier to use.
- The QATs were not optimal for all study types. Perhaps there could be different kind of QATs, with different approaches, depending on the study type.
- All the instructions given to the expert should be so clear that there is almost no room for own interpretations.
- The filling of the QATs was not entirely clear, but became clearer during the project.

The SR-tools

- Have clear instructions on the limitation of the SR-search, for example; if they should cover only the adult population or children too. This might help avoid overlapping between groups.
- Reduce the number of questions for the guide for grading evidence since many of them were similar to each other. This will make the grading clearer and easier to use.
- The SR-tools were good but we had to discuss and specify some items more as they sometimes were a bit difficult to understand or to use in connection to the papers.
- The ultra-critical procedures discarded a large number of papers. It seemed authors, editors and referees were unaware of the criteria that the experts used.
- The exclusion criteria were quite often too rigid, resulting in the exclusion of otherwise good work, due to irrelevant ”technicalities”. This limited the number of publications that could be used in evidence.
- There should be much clearer instructions for how to integrate the answers on the SRs with previous research results and previous NNRs.
- If a nutrition topic has both RCT:s and observational trials, the RCT:s should be valued higher than in the current grading system.

Other suggestions

- It was obvious that this was the first time for most if not all people involved. There was still a large room for your own interpretations in contrast to a standardized way for decisions. This could be improved.

- A huge decrease in the workload could have been obtained if there had been better administrative support during the process, especially in handling/indexing the large amount of papers for the review.
- Use another tool then Endnote, or Endnote plus another system, since it is not optimal for the large quantities of references needed in this process.
- Create some kind of e-platform where all the experts and librarians can share articles and abstracts to avoid double work and overlapping.
- Include more editorial help, such as lay-out, figures, and tables to make the work clearer. This is perhaps most important at the beginning.
- Increase the available support for the research questions at the beginning of the work process.
- More editorial assistance in the editorial work was expected and needed.
- The given tools were too complicated and detailed.

Reviewers
- The outcome would have been better if proper SRs had been performed and if the decision for the resulting recommendations has been clearer - I suggest the use of the GRADE approach next time.
- The PICO/PECO approach was not clear.

Peer reviewers
- More assistance needs to be given to the scientific writing group.

- The time frame

What worked well

Experts
- The time frame was changed during the process, as far as I can remember, and that was welcomed since it was not optimal.

What worked less well

Experts
- I think the workload for those in the very center of the project was quite big, bigger than expected, which challenged the timetable. In addition, as far as I am aware, in some groups, the level of commitment for the project varied across the group members.
- I expected a more strict time frame and more editorial assistance in editorial work. Our group worked well, we had no problems with distributing the work.
- The mismatch between the ambition and what was actually possible to accomplish within the given time frame and resources available, was a big challenge.
- My partner became sick and other circumstances made it difficult for her to complete her part which caused some problems.

- The time frame was OK but all members of our group also had many other obligations which was a problem.
- The time I used was about right, but the time frame stretched.
- I expected a stricter time frame.

Librarians
- It was hard to estimate the time needed to be put on this project. The support I had to give to the expert groups varied drastically.
- 6 months lead to 2 years - due to changes in assignment and responsibility.

Reviewers
- We faced problems with a few persons in our group because of weak commitment and because the time frames were not followed appropriately.

Suggestions on improvements
Reviewers
- I was asked to be a reviewer for a chapter of Eating patterns in November 2010. I was then told that "The reviewers should plan to devote approximately one week of time to review the SR (most likely) during the period January 2011 – December 2011". I got very little information about the delays of the systematic review and there were new deadlines until October 2013 when I received a draft on "Timing on eating". It is not reasonable to be prepared for one week work on short notice for so long time and I was surprised to get a draft with such low quality after three years.
- For me, the time frame was suitable, but the work was very tough in practice and some experts of our group were not committed at all to this work. In the future, selection of experts and commitment are key issues for success.

- The workload
What worked less well
Experts
- The workload that the individuals in the groups had outside this assignment varied over time, which together with the level of dedication led to extra work and prolonged working time.
- The process required much more time and work than any of us could anticipate, but it was still manageable.

Librarians
- The workload was very hard to estimate.
- The workload was quite big.

Reviewers
- The process was very tough.

Peer reviewers

- For me as a reviewer, the workload was quite manageable, but I fear that the situation was different for the scientific writing groups.

Suggestions on improvements

Experts and librarians

- A shorter time frame might increase the availability and dedication of many experts. Decrease the time frame and increase the compensation so the NNR-work becomes a part-time job.
- It is important that the members of the groups meet and work together during some periods of time since this would most likely make the workload much more manageable.
- It would have been better if the librarians had fewer groups to work with at a time instead of having them all work in parallel with each other.
- Reduce the nutrition areas for the experts to cover in order to reduce the workload and to make the work more manageable.
- Due to the high workload and the tight schedule there were no time left for appropriate discussion on important issues.
- Education and training in practice may help. Make persons familiar with this procedure/process.
- Shorten the period of time for the research process while making it more efficient.
- The schedule needs to be less tight.

Reviewers

- It was very heavy work in particular because some group members were not committed to this work or had only very narrow scope in this regard. Offering full-time jobs and choosing only committed experts are important for key experts in the future.
- More involvement in the process from the beginning.

- The research question and literature search

What worked well

Experts and librarians

- Some groups worked well and formulated well-defined and focused questions at the same time as other groups did not.
- For us it worked fairly well. I believe the main problem was that we were interested in too many things.
- The research questions were well-defined but covered only nutrients.

Reviewers

- I think the strategy of the literature limit was relevant given the availability of good quality SRs on earlier work. When this is not the case, inclusion of earlier work, before 2000, might be appropriate.

What worked less well

Experts

- The formation of the research question was left to ourselves to a high extent, which was OK. However, I am not sure that all groups did this in the same way. Maybe better communications between groups would help.
- The original research questions given to us were very wide and it was the expert group that had to decide and define how to focus. The working group could not possibly do this.
- The contacts and help given were good, but cut-backs in Iceland delayed our work quite a lot for a while, as there were too little time for the librarian to help us.
- Much of the literature research in our case also derived from earlier years. We found very few studies that fulfilled all criteria to be included in the review.
- The most difficult task during the whole process was to decide within the expert group which research question to address.
- The help from the librarians was good, however, we found several studies that had been missed by the original search.
- Our time frame was from 2005, but still the amount of papers was overwhelming.
- The research questions were not well-defined and focused.
- Some groups questions were to wide and unfocused.

Librarians

- The definition of the research question varied wildly between groups. In some groups there seemed to be very little consensus as to what the actual question should be, and it became rather broad and unfocused as a result.
- There were delays in answering my questions about the subject and the research question from the expert groups.

Reviewers

- Limiting the literature search to the last 10 years gives the impression that only recent findings are important while in fact most of our knowledge is based on older research. This is also reflected in the text of the 5th edition of the NNR that to a large extent is copied from the 4th edition. To be meaningful a systematic review of the last 10 years should have been preceded by a summary of the status of the questions asked prior to the start of the review.
- The scope may be narrowed when only new publications are included. It is very important that the background is strong when only new studies are included. What I mean is that we cannot neglect old evidence if still relevant.

- It is difficult to limit research to a short time period as to the last 10 years. This implies that important studies are excluded. The fixed time period could be suitable for some nutrients, but not for others.
- Eating patterns was not defined. In NNR 2012 food patterns and dietary patterns are covered in chapter 5, but I guess that the chapter that I should have reviewed should have been on meal patterns.
- I think the strategy was relevant given the availability of good quality systematic reviews on earlier work. When this is not the case, inclusion of earlier work might be appropriate.
- It is irrelevant to consider whether the search should start from earlier than 2000 when several relevant and recent studies are not identified or included.
- Several important studies have been published before year 2000. It is odd to limit evidence to recent years.
- In the case of protein, a drawback was that it was based on nitrogen balance methodology only.
- I do not think it was a proper SR according to the PRISMA guidelines.
- The PICO/PECO approach was not clear.

Peer reviewers

- Not all chapters covered all the important information. I wrote extensive comments on vitamin C and vitamin E. Much of the former were taken into account, but none of the later.
- The chapters did not always cover all the important aspects of the nutrient/nutrition topic. The chapters differed in the level of detail provided.
- I do not remember if it worked well or not. It is a long time since I did this work.
- There were certain aspects that were not covered sufficiently in some chapters.

Suggestions on improvements

The definition of the research question

Experts and librarians

- The working group should have defined the research questions. This would have decreased the workload for the experts. The experts should only have to make small modifications of the research questions and instead concentrate on filling the gaps where there is limited scientific evidence for giving the recommendations.
- We probably should have been stricter and demanded well-formed questions and constraints before moving forward with the searches and reviews. Some groups might have suffered from an unrealistic workload because of ill-defined questions. Then again, some groups worked fine.
- The research questions were well-defined but covered a very large field - specially the research question on breastfeeding. It made us believe

that covering such a large area would be doable (which it was, but it also required an enormous amount of time).
- The original research questions were defined by us, and then accepted by the scientific project team. Looking back we should have reduced them to manage the work burden.
- Clearly point out where the latest NNR does not have enough evidence or where new findings and relevant evidence have been found, and base the research questions on that.
- The research questions were well-defined but covered only nutrients. We took the freedom to look at foods as well.
- Due to the broad research questions and the high workload a lot of relevant literature was missed and not included.
- The research questions send to the librarians must be better defined in order to optimize the literature search.
- The working group had too many research questions in consideration, they need to be reduced.
- I think more emphasis should be put on intervention studies in comparison with observational studies.
- A clearer focus on the research questions with clearly defined delimitations is needed.
- More time to modify the research questions would have been valuable.
- A suggestion is to cover more than just nutrients in the next NNR.

The literature search

Experts and librarians

- The librarians did a really good job! However, it had been good if we had been more experts and could have focussed on specific areas of competence. Both, for abstract screening and the systematic review. As an expert in analysis it was easier for me to determine if a method was suitable or not. For an epidemiologist it was easier to evaluate if the statistic design was suitable or not.
- The need to limit the search for the SRs is justify, but I don't think there was a proper plan for how to integrate the new SRs with the older knowledge from previous NNRs. Much better information and support for this is needed.
- I do not think there should be a literature search limit. Instead we should have focused the research questions on the areas where new knowledge has arose and weigh that in with what we already know from the earlier NNR-versions.
- I do not think that it is appropriate to limit the literature search time. Instead, look more closely in what areas there is a need for new literature search and recommendations and only look at these nutrition topics.
- The librarians did a good job. But I believe we should have had a meeting with them face to face to talk things through in order to save time.
- Scientifically it is not really justified to limit the literature search. However, extending the search would have resulted in a too high workload.

- A good literature search is not an easy process and would have required some iterations and test runs.
- In order to perform a proper SR, all relevant literature must be searched.
- I do not think it is right to use a literature search limit.

Reviewers

- I think the strategy was relevant given availability of good quality SRs on earlier work. When this is not the case, inclusion of earlier work might be appropriate.
- To be meaningful, a SR of the last 10 years should have been preceded by a summary of the status of the questions asked prior to the start of the review.
- The fixed time period could be suitable for some nutrients but not for others.
- We cannot neglect old evidence if still relevant.

Peer reviewers

- The limit of 2000 is not the most essential question. When I was reading the vitamin C chapter, I found out that 2 large RCTs published after 2000 were missing: http://www.ncbi.nlm.nih.gov/pubmed/18997197; http://www.ncbi.nlm.nih.gov/pubmed/17698683. Similar problem was with the vitamin E chapter. Although the NNR p. 61 states "Studies on Nordic population groups have been included where available" and that was stated also at the draft stage. I pointed out that large studies in Nordic population groups were ignored in the vitamin E review: http://dx.doi.org/10.1093/aje/kwn413; http://dx.doi.org/10.1186/1475-2891-7-33; http://dx.doi.org/10.2147/CLEP.S16114; http://dx.doi.org/10.1017/S0007114508923709. Tho these studies were not added even after I pointed out that the studies were with Nordic populations. Thus, it is irrelevant to consider whether old literature should be searched when the citation to recent literature is biased/are not identified.
- I do understand the reason to limit, but as the people in the writing groups are not the same, a complete read-through would have been ideal. BUT, considering the text I was sent for reviewing, I think it was good to limit the time span. I felt that the writing group was somewhat pressed for time, and a more complete literature review would not have resulted in a “better” product.
- There was not enough time, due to other work commitments, to undertake an in depth review of the scientific credibility or the recommendations which arose from the evidence that was presented. I had to rely on my knowledge of the micronutrient, plus some brief PubMed searches.

- The search for literature/articles

What worked well

Experts

- The contacts and help given by the librarians was very good.
- The librarians did a really good work.
- The librarians did a very good job.

What worked less well

Experts

- Cut-backs for the librarians in Iceland delayed our work quite a lot for a while, as there was too little time for them to help us with the literature search.
- The search was very difficult and not precise.

Librarians

- It was frustrating to print out electronic documents for post-delivery due to licensing constraints from the experts. More open access research is needed.
- The process of printing the abstracts was extremely time-consuming and the amounts were staggering.
- The constraints of the distribution of electronic articles were a big problem.

- The credibility of the project and the recommendations

What worked well

Experts

- To use other experts as reviewers widens the perspective, if the authors who are responsible have neglected something important.
- The credibility is high. I think that the experts were very engaged and the review is based on systematic and scientific approach.
- The credibility is good in some fields, moderate in others.
- I think the scientific credibility of the project was high.
- I trust that the experts have been objective.
- Scientifically sound.
- High credibility.
- Very good.
- Very good.
- Good.
- Good.
- Good.
- High.
- High
- High.

Reviewers

- The project has high credibility and has been highly evaluated. The recommendations are well balanced and widely accepted.
- The recommendations are well accepted as far as I have heard from colleagues within and outside of Sweden.
- I evaluate the scientific credibility very high due to the systematic processes in every part of the project.
- I think it represents a solid summary of current scientific knowledge.
- Finally, I think they are fine and highly valuable.
- Good and satisfactory.
- Low to moderate.
- Very good.
- Good.
- High.
- OK.

Peer reviewers

- Overall good and high quality, after some minor adjustments.
- The credibility and relevance was good.
- High.

Authorities, institutions and organizations

- It is very important to ensure the scientific credibility of the recommendations. From that point of view, the process for NNR 2012 was good.
- The credibility is rather good, 8 on the scale from 1 to 10, with 10 being the highest. Better than ever in the history of NNR.
- The scientific credibility is assessed to be very high. This fact probably also explains the global interest in this work.
- I evaluate it very high. It was science based on SRs, working group, expert group, reviewers etc.
- The credibility is OK. It is very good that the recommendations are based strictly on science.
- I am not an expert to answer this, but to me it is convincing.
- Very high level on the credibility and relevance.
- Very solid work, high scientific credibility.
- The SRs give stable scientific ground.
- Very high credibility and relevance.
- Very high level on the credibility.
- Satisfactory scientific credibility.
- The scientific credibility is OK.
- I believe the credibility is high.
- I think it is quite credible.
- It was satisfactory.
- Very thorough.
- Very good.

What worked less well

Experts

- Being part of the project have downgraded my fate in the recommendations.

Reviewers

- For credibility it is not good to omit dietary aspects that have been focused in the previous version of the recommendations without any comments (e.g meal patterns NNR 2004-2012).
- An improvement is needed.
- Low quality.

Peer reviewers

- The vitamin C chapter: largely reasonable. - statement that "scurvy is very uncommon" is misleading. There are many cohort studies that have found that very low vitamin C levels are not uncommon, though the great majority has proper intakes. Exaggerating the rarity of scurvy indicates that it is not reasonable to keep that problem in mind, which give a false impression to the readers. p. 45 of NNR states "intended for healthy individuals. Generally the recommendations cover increased requirements such as during short-term mild infections". That is not valid for vitamin C, for which there is evidence that the common cold decreases levels. That should be mentioned in the chapter, thought the goal of the recommendations is not to describe the use of vitamin C in treatments. The vitamin E chapter has several problems that I pointed out in my reviewer comments. I do not repeat them here. I do not think that people should be instructed to increase their vitamin E intakes. However, this kind of document also influences research priorities and biased presentation of studies (ignoring several studies with Nordic population groups) misleads readers about the scientific findings.
- There was not enough time (due to my work commitments) to undertake an in depth review of the scientific credibility or the recommendations (which arose from the evidence that was presented). I had to rely on my knowledge of the micronutrient, plus some brief PubMed searches.

Authorities, institutions and organizations

- It seemed that the environment part was very complex. In those cases it is better to concentrate on nutrition. For consumers it is difficult enough to follow the nutrition recommendation. We should focus on those things.
- All of the systematic reviews should be published.

Suggestions on how to increase the credibility

Experts and librarians

- The credibility is good, however the process between the SR and the actual recommendations seemed to be somehow too rapid - it left an impression that the working group had made up their mind in advance about the recommendations before all the SRs were completed. The reason I am making a point out of this is the fact that the recommendations was presented in Reykjavik in 2012 before the SR was completed.
- I think really the NNR 5 working group should have more clearly defined the research questions and that the work we did would have been to fill the gap where there is limited scientific evidence for giving recommendations.
- The credibility of the work would be improved with better qualified and more engaged experts and an actual say from the experts instead of a process dictated by the working group.
- The credibility of the work is sufficient, but I believe the credibility could be improved with better communication between the expert groups and the working group.
- Unfortunately, the recommendations do not have credibility. It is important to find out to what extent this is justified and to improve the situation.
- Give the working group much less control or perhaps not even have a working group leader. The science should speak for itself not by individuals.
- The ultra-critical procedures discarded a large number of papers. It seems authors and editors and referees are unaware of the criteria we used.
- The credibility of the work would have been improved by involving more experts to cover more research questions by SRs.
- The outcome and the credibility of the work would have been improved if the process had been more democratic.
- The research questions must be reduced in the area it is covering to have time to go through all important literature.
- The credibility could be improved by involving more experts to cover more in the SRs.
- By publishing in a more highly ranked journal, the credibility of the work would be improved.
- Recommendations should not only be changed based on observational studies.
- More literature searches would have been valuable for the work and its credibility.

Reviewers

- In my opinion, the step from evaluating the underlying body of evidence to the formulation of recommendations is critically important for credibility, and further work in this process could be important for the future. You should not select authors who are previous co-authors, from

the same country or have COIs in relation to reviewers. If authors and reviewers stem from the same research group, fresh thinking is hindered. The authors should also not have a previous strong viewpoint (vitamin D; academic conflict of interest).

- The experts' responses and suggested amendments to the given comments were not always appropriate or well-motivated. The responses were a clear tendency for authors to selectively choose which studies they emphasized as important. These choices were not based on scientific quality but more based on subjective opinions. To reach a higher credibility with NNR, it is extremely important to choose unbiased and competent authors and reviewers.
- If you don't increase the scientific competence among authors, reviewers and the committee providing the final recommendations, NNR will not be considered as a result of a well-implemented process. To achieve a dynamic process, do not select researchers from a narrow source of population or research field.
- Similar systematic reviews have been published in other countries. The facts are the same but in Nordic countries the implications may be different. More emphasis on this and less efforts in repeating the work already done by others.
- Selection of competent and unbiased reviewers is extremely important if the goal is to reach a high scientific quality and respect from the scientific community as well as from the general public.
- I was disappointed by the biased selection of authors and reviewers. An objective evaluation should be searched for and author and reviewer selection precluded an independent evaluation process.
- For credibility it is not good to omit dietary aspects that have been focused in the previous version of the recommendations without any comments, e.g. meal patterns NNR 2004-2012.
- The scientific quality of the evaluators needs to be improved. Indeed, some comments and scorings of individual studies strongly indicate a low scientific competence.
- Increase the scientific quality of the evaluators. Indeed, some comments and scorings of individual studies strongly indicate a low scientific competence.
- In addition to the SRs, a broader scope is needed for the recommendations, such as essential findings published before 2000.
- The selection of experts, their commitment, meetings, and economic compensation that is based on the true workload is important.
- Offering full-time jobs and commitments are important for key experts in the future.
- In the future, selection of experts and commitment are key issues for success.

Peer reviewers

- I am currently participating in the EFSA DRV exercise which has been carried out to a very high level. The NNR chapters are easier to read than the EFSA opinions, but there is a lack of transparency in some parts i.e. how the values were calculated, and on what basis, is not always described in sufficient detail. This is true for most DRV reports, not just NNR. I am particularly sensitive to this because for EFSA we have insisted on giving detailed explanations for every calculated value to ensure 100 percent transparency. As stated previously, more resources to the scientific writing groups.
- The vitamin E chapter could have been improved if the author had read and considered my comments. In scientific manuscripts the authors are expected to respond to criticism or to modify their manuscript to take account the criticism. The credibility of the vitamin E chapter would have improved by following the usual scientific procedures.
- Try to change at least 50 percent of the persons in the scientific writing groups as well as the reviewers. The current model with taking in thoughts and comments from the public is excellent, even though it must be somewhat time-consuming.
- I recommend NNR follows the EFSA approach when the next review is undertaken.

Universities, institutions and organizations

- The literature reviews should have covered a larger time frame, although this would of course have increased the workload.
- Some changes were introduced in NNR 2012 compared to the 2004 edition, without sufficient explanations which is not OK.
- Knowledge of effect of food processing and variation is scarce.

- The recommendations

What worked well

Authorities, institutions and organizations

- The Swedish recommendations are easy to understand and the more thorough brochure the Swedish National Food Agency made gives a lot of easily understood tips and suggestions.
- Easy to understand for professionals but need to have national recommendations that are more close to the public.
- NNR is an example of scientific literature aimed at professionals and should be evaluated with this in mind.
- If you are a professional with higher university degree, then the recommendations are easy to understand.
- The recommendations are very useful. It is good that it includes a thorough background for each nutrient.
- The recommendations are for professionals, they are more problematic for the lay audience.
- The recommendations are important tools for various purposes.
- The food-based recommendations are very good.
- It gives an impression of a very solid document.

- Suggestions on how to improve the recommendations
- **Universities, institutions and organizations**
- Many consumers also want guidelines on the amounts. What does "limit" mean? How do persons know if they should limit their intake of meat etc. Make the recommendations more understandable for the regular population.
- The recommendations are easy to understand for professionals but we need to have national recommendations that are more understandable to the public.

- Have you had any use for the NNR 2012

What worked well

Authorities, institutions and organizations

- Both professionals and persons with diabetes were curious about the recommendations during the process and immediately after they had been published. The NNR 2012 is a good updated handbook with reliable information.
- Together with our national recommendations, which are based on the NNR 2012, the NNR is the basis for all nutrition communication delivered by our organization.
- NNR 2012 is the framework for our nutrition recommendations to the public. It is used in our publications and lectures.
- National nutrition recommendations, which are based on NNR, are important for the work of dietitians.
- I have used the information about the process and results in my lectures very often.
- I am finding all the information I need in order to give comments on proposals.
- We use it for different seminars and articles, including articles in blogs.
- We use it in several dietetic courses, primarily for dietitian students.
- We use it when commenting the drafts of recommendations.
- We use it in education programs and as a reference.
- We use it for education as well as research.
- We use it as basic material in teaching.

What worked less well

Authorities, institutions and organizations

- Since the Icelandic recommendations differ a bit from the Nordic ones we do not use the Nordic recommendations. We waited until the Icelandic recommendations had been revised before we recommend them to our member companies.

- Information and layout of the NCM website

What worked well

Authorities, institutions and organizations

- I think that once you have found the website, the information and lay-out is fine. You have to find it through search since it is not easy to find it in any other way and you have to use the correct keyword. Sometimes the translation to Icelandic is not good enough.
- The website is easy to refer to and use when having different interactive workshops and seminars.
- There is a lot of information > not easy to use.
- It is better than ever before.
- It is simple and nice.
- It worked well.
- Satisfactory.
- It is OK.

What worked less well

Authorities, institutions and organizations

- You must be a detective or have good luck too find the recommendations on the NCM website.
- I have not visited the web pages that often, and therefore I am not very familiar with the pages.
- I think the information is mixed, both good and not so good.
- I cannot find the website.
- I do not use this website.

Suggestions on improvements of the NCM website

Universities, institutions and organizations

- The NNR is really difficult to find. Given its importance, better visibility is necessary. My suggestion is to use "Food, diet and health" as a topic and then have both NNR and New Nordic Food within this umbrella.
- Use a direct link from the main page. It is difficult to guide persons who are not familiar with the recommendations, to find the document.
- The layout: the colors could be freshen up, also in the text, which is a bit difficult to read on the grey background
- There is a mix of the languages on the website, at least in the Finnish version.
- The website must be improved and become clearer.
- It is really hard to find the recommendations.
- It could be clearer.

- Information and layout of the NNR 2012 project website

What worked well

Authorities, institutions and organizations

- I liked the NNR 2012 project website, it was easy to find information and it included all the information I needed.
- The NNR includes relevant information and has a nice layout.
- The information and layout of the NNR website is OK.
- It is transparent and contains all information needed.
- It is a good source of relevant information.
- It is OK after you have found the pages.
- The website is better than ever before.
- The website is easy to navigate.
- The information is adequate.
- The website is informative.
- Worked well.
- Satisfactory.
- It was OK.

What worked less well

Authorities, institutions and organizations

- I was not very familiar with the websites during the project but I suppose they were quite informative. However, it is still a mix of the languages on the website which is not optimal.
- It is a bit hard to find the website, as well as it is hard to find specific information.
- I do not find this website by searching, only the information on www.norden.org.
- The information and layout is OK, but it is hard to find the pages.
- Can´t tell since I have not looked at the website.
- It was difficult to find things on the website.
- I cannot find it.

- This evaluation

Suggestions on improvements

Experts and librarians

- I think this evaluation is performed a bit too late to be very helpful, had you done it just after we finished the reviews, you would have gotten better answers from me. I cannot recall that there were any problems with the project organization.
- This evaluation is performed much too late.

Reviewers

- This survey should have been distributed just after completing the work, now I have forgotten all the problems and small difficulties I had during the working process.

Peer reviewers

- I do not understand why this evaluation is performed several years after the work was done. I am sorry to say that I do not remember the circumstances for the work.
- It is a bit difficult to give an exact answer, since the project was performed several years ago.
- I do not remember much since it is such a long time ago the project was performed.

- Overall opinion of the project organization

What worked well

Experts

- The mismatch between ambitions and what was actually possible to accomplish within the time frame and the resources available was a challenge.
- My overall opinion is that the project organization was well prepared, and informative e-mails were sent.
- The organization and the information as a whole worked well, with some small exceptions.
- My overall opinion of the project organization is that it worked well.
- Good compared to some other similar projects I have participated in.
- The organization of the project was good.
- All the instructions given were clear.
- I think everything worked very well.
- In general it was well organized.
- It was OK.
- Good.

Reviewers

- From my point of view it has worked very well. However, I found that some discussions in the project group, for example regarding vitamin D, took very much time and delayed the whole process.
- From my point of view it worked well, and I have no special considerations.
- Looking from the outside the project, the project organization was excellent.
- Most of it was very good, the long time frame was a bit difficult.
- The communication with the secretariat worked well.
- It worked well except for the delays.
- It was generally very good.
- As expected.
- It was OK.

Peer reviewers

- The project seemed to work well.

What worked less well

Experts

- The amount of work that we had to put in was unexpected. I was lucky to have a lot of research time in my position during at least one of the years we worked on the SRs - otherwise it would have been way too much, but I still spent many evenings and weekends working on the NNR. I never actually counted all the hours as I felt it would just make it feel worse.
- For our group the definition of the research question was not clear. The workload was unexpectedly high and included a lot of routine work (reading a lot of abstracts that were not at all related to the research questions) that could have been done by another researcher.
- Things that did not work well with the project organization were: the high work burden, the sudden information that no more funding for our paper was available, no reimbursement received for part 2 which suddenly was linked to the lack of publication.
- The QATs could be improve, the Excel evidence sheets should be improved, and more experts should be involved.
- The work progress could have been evaluated continuously by the project organization.
- The complexity of evidence compilation can be improved.

Librarians

- It was hard to assess how time consuming this process would be.
- Managing all the groups was somewhat difficult.

Reviewers

- It worked well except for the delays.
- The organization was a bit messy.

Peer reviewers

- It would have been better if the project would have ended in time, but that is easier said than done.
- I have no idea.

Suggestions on improvements

Reviewers

- The literature survey should be planned to avoid any true caps. The working group is very important. More training is needed! Before starting the work I think it is very important to discuss what the main issues/questions are that may need to be updated.
- Better information is needed.

- The translating and adaptation of NNR to the national situation

What worked well

Authorities, institutions and organizations

- The NNR is a very useful tool for academia and the translation and adaptation into the national situation through the national Food Based Dietary Guidelines (FBDG) is closely linked. National FBDG's represent the content of NNR 2012.
- It worked very well. We have a very active National Research Council and also The Consumers' Union of Finland has participated actively in communicating the message to the lay audience.
- As far as I know the Icelandic public health authorities have adapted the recommendations to the situation in our country and published specific Icelandic recommendations.
- Quite well, but as said, national recommendations were needed to touch more practical issues (especially concerning food level).
- We translated most of the information from the first chapter as a background document for our food based dietary guidelines.
- Some national emphasizing is done, but in general the NNR gives a robust base for us to work from.
- I think all the recommendations are relevant for the Norwegian population.
- The translation and adaptation was good - I rely on Finnish experts.
- The translation and adaptation worked pretty well.
- The adaptation worked very well.
- I believe it is well adapted.
- The translation is OK.
- It is fully adapted.
- It worked well.

Suggestions on improvements of the translation and adaptation of NNR

Universities, institutions and organizations

- Some changes were introduced in NNR 2012 compared to the 2004 edition, without sufficient explanations. Earlier we got the impression that the NNR-group had the ambition to collect and save the inputs/questions given during the hearing. We can not see that this has been done. Such explanations may have facilitated the adaption of NNR into Norwegian guidelines.
- Some recommendations are stricter in Finland, for example salt. It is interesting that in the Nordic recommendations it is 6 grams per day and in Finland it is 5 grams per day. The reason for that is that in Finland we already have reduced the salt intake. So we can make it even stricter. The logic is missing!
- The vitamin D-recommendations in Iceland are higher than NNR 2012. We also include vitamin D-in the food based dietary guidelines. Perhaps this is something for NNR to think about.

- During the last months the number of immigrants has increased drastically, and the recommendations may be difficult to adapt. This is an issue for different health- and nutrition professionals.
- Is the public consultation somehow documented in the NNR?
- Sometimes the translation to Icelandic is not good enough.

- If more persons were involved

What worked well

Reviewers

- The SR was scientifically well performed and the other two reviewers had only minor comments, so in this regard more reviewers was not necessary. Hypothetically, if major disagreements between the reviewers three reviewers would have been better.
- Potential new expertise could be added. However, I did not miss any essential expertise and there was no problem with coordinating all views from different persons with different skills.
- More persons should have been involved, but everything is based on the true expertise, commitment and good planning from the very beginning.

What worked less well

Peer reviewers

- How would more reviewers make the final version better, if the reviewer comments are ignored?

Suggestions on improvements

Experts and librarians

- More librarians in order to create and manage on-site workshops with each group at the beginning to create the initial research questions and also in order to give a more thorough run-through of the process.
- It would have been good if more experts had been involved so that they could have focused on more specific areas of competence for both the abstract screening and the SR.
- All experts had other obligations at the same time as the work with NNR, which caused some problems. Some experts wished for twice the time to manage their task.
- For decision-making four persons per group is enough. For reading through the abstracts and articles, more experts would have been necessary.
- Each country should have one or two librarians cooperating with collecting abstracts and articles for the experts.
- More experts would lead to more conducted SRs. BUT the experts need to be full-time employed for the task.
- More experts and more groups would have been good to have in order to cover more articles for the SRs.
- More experts would have been good so that the work could have been divided better.

- Previous expertise and experience within the groups would have been very helpful.
- More persons should have been involved with the SR-process.

Reviewers
- Selection of competent and unbiased reviewers is extremely important if the goal is to reach a high scientific quality and respect from the scientific community as well as from the general public.
- The work would be improved if more reviewers had been involved, but everything is based on the true expertise, commitment and good planning from the very beginning.
- Potential new expertise could be added.

Peer reviewers
- I feel that more assistance to the scientific writing groups would be better spent resources.

- Participate again

Positive

Librarians
- It was relevant work for me. I often perform literature searches at my work. Economic compensation as before is necessary for me to participate again.
- It was a great experience. I would gladly share my knowledge and experience if needed since I am retiring.
- It was an interesting and challenging work process. I developed new skills and I am glad I participated.

Reviewers
- Of course I would participate again, dependent on the possibility of managing the time and work necessary for the task.

Not sure/Negative

Reviewers
- At present, I'm uncertain. I was disappointed by the biased selection of authors and reviewers. An objective evaluation should be searched for and author and reviewer selection precluded an independent evaluation process.
- I would not participate again since I know that there is no fund for salary, and I would not have time within my current position to do so.
- I know that there is no fund for salary, and I would not have time within my current position to do so.
- This is enough.
- Retiring.

Peer reviewers

- I have not yet decided. The main problem was not about time, but to see that my comments on vitamin E chapter were ignored. It does not make any sense to use my time to comment a chapter when the comments are thrown to waste basket.
  The author of the vitamin E chapter has 8 PubMed papers about vitamin E: http://www.ncbi.nlm.nih.gov/pubmed/?term=jarvinen+ r+%22 vitamin+e%22. I have 21 PubMed papers on vitamin E: http://www.ncbi.nlm.nih.gov/pubmed/?term=hemila+%22vitamin+e%22
  With that background I assumed that you might have considered my comments worth consideration.
- It depends on the chapter for reviewing. I reviewed "energy", which is not controversial and the amount of truly "directional changing research findings" are quite few. The allotted time was sufficient, and no or a small economic compensation is necessary.
- It depends when this takes place. If it is in the next few years, then I could participate, but if it is longer than 5 years, I will not be able to contribute (due to retirement).

Suggestions on improvements

Experts and librarians

- It was strange to be heading the work with the SR and not be involved at all in the writing of the actual recommendations, so next time I would like to be involved in both. More time, maybe more compensation and the possibility to meet the working group in real life. Published SR, preferably in highly ranked journal.
- Published papers are important. Economic compensation is good, but rather than getting some extra money on top of ordinary workload I would prefer to be able to "buy myself free" and do the work during usual office hours. The amount we were paid last time was a drop in the ocean compared to actual time spent on the task.
- I am not quite sure if I would participate again. The workload must be reduced. More experts. Economic compensation was too low (inadequate). No published papers due to our work burden/no funding available - this is not satisfying. The approach should be improved as earlier described.
- I guess if one decides on doing it almost the same way as this time, I think it would be much easier to participate due to experience. Economic compensation should be higher than last and published paper is extremely important.
- It is difficult to indicate prerequisites for workload, time and economic compensation, but published papers are important as well as practical help with the search and retrieval of full text papers.
- In principle yes, I would participate again. My expertise is calcium, vitamin D and exercise. My employer would appreciate economic compensation about the working time I would use in this work.

- I would consider participation, but would appreciate a more defined time frame, have increased economic compensation and paper publishing.
- There should have been more economical resources available so that the experts could be engaged with paid salary.
- I would prefer more meetings in smaller groups to discuss the challenges and research questions.
- I would participate again if there are changes on the workload and the published papers.
- Less workload and/or better economic compensation.
- Not unless the conditions are changed.

Reviewers
- Clear planing, training, selection of experts, economic compensation should be in relation to the workload.
- I might consider participating again if the methodology used is more systematic and result in co-author ship.

- NNR revision
How often should the NNR be updated
Experts
- Recommendation update with a 10 year interval could be correct. Perhaps consider 1) more time and experts involved 2) or a different approach where international competence is used and also international work by others is used, 3) plan perhaps for an european approach.
- Maybe every 5 years could be enough. Only if something very dramatic new information is published, then maybe a short update of that particular topic is needed, but not the whole recommendation.
- Update every 10th year. Every 8th year as it has been seems reasonable (or every 10th). Doing SRs is a daunting task, but important. Maybe there should be statisticians involved as well to enable meta-analysis calculations.
- Every 8 year seems appropriate. A wider collaboration across Europe may reduce the workload for the participants.
- Given the huge amount of work I think an update every 10 years would be appropriate.
- Every 5 years is a good aim even though 6-7 years is probably OK.
- Maybe less often but with more time and quality in the work.
- Update when motivated.
- Every 8 years or so.
- Every 7-10 years.
- Every 8-10 years.
- Every 10th year.
- Every decade.
- 5-10 years.
- As now.

Reviewers

- It should be dependent on the rate of scientific progress in the field, but I think the intervals so far of approximately 8 - 10 years seems practical.
- In my mind NNRs are also needed in the future.
- With the same regularity as it is now.
- Every 5 year is perhaps doable.
- 8 years is a proper interval.
- As now, every eighth year.
- 5 to 6 years intervals.
- Every 3-4 years.
- Every 8th year.
- Every 5 years.
- 5-10 yrs.
- As now.

Peer reviewers

- Updating depends on the generation of new knowledge. There are some micronutrients that are topics of research, and these should be considered. Others cannot be updated because new data is unlikely to be published. I suggest a review is made of on-going funded research to identify micronutrients for which DRVs could be reviewed when new information becomes available.
- The recommendations should always be revised after a few years. Regarding population groups in dietary transition, we might have to consider a future revision because of the recent impact of migration flow to Europe.
- I think the current time frame is quite OK. To do it like the Americans, with every 5 years is perhaps overdoing it.

Authorities, institutions and organizations

- NNR has for decades, and still is an important basic document for the formulation of national nutrition policies and guidelines. As we still do not have an European alternative, and the national experts groups in the Nordic countries are small, we hope that the NNR-Project will continue in the future.
- NNR cycle takes about eight years, which in principle means that the discussion and decision on a possible sixth edition of NNR should be taken in conjunction with the Nordic Nutrition Conference 2016. The 5th edition was very extensive both in time and costs.
- Every 8 year is still a reasonable interval. The current high scientific approach is good. However, I would suggest collaboration with e.g. Germany and Great Britain, which do pretty much the same work.
- At least every 8-10 years would be appropriate taking in consideration that new knowledge evolve.
- High scientific quality and thorough background from each nutrient in the future as well is important.

- The recommendations are important tools for various purposes.
- The current circle, in every 8 (10) year, is pretty good.
- It is an important work to develop a new NNR.
- Every 8 year is still a reasonable interval.
- Should be updated at least every 5 years.
- When there is enough new data.
- Same interval as now, 8 years.
- Every 8th year, if possible.
- At least every 5-10 years.
- Maybe every fifth year.
- Every forth year.
- Every fifth year.
- As previously.

Suggestions on improvements for the NNR revision

Reviewers

- The NNR has to include more food based recommendation, also take into consideration meal frequency.

Universities, institutions and organizations

- In some ways I think it is important to update NNR on a regular basis but maybe not everything simultaneously, but instead update a few subjects at a time. The NNR 2012 took a lot of work and cost a lot of money. I think we need to identify areas in which an update in the future will be relevant to perform in the Nordic countries.
- The timing and extent of any future version should be carefully considered. Several specific nutrition topics that are of common Nordic interest can probably be identified and explored in addition to the current 5th edition before a new 6th Nordic edition is initiated.
- The process is too long and delayed. The time table should be realistic.
- Increased focus on the food and processing variations are necessary.
- It would make sense to have an European task force for the SRs.

- The public consultation

What worked well

Authorities, institutions and organizations

- Since we are represented in the National Nutrition Council, that was well informed about the project, we did not prioritize to comment at the public consultation.
- KEFF (*Norwegian association for clinical nutrition physiology*) would like to be on the hearing list next time.
- It was good that the public hearing process was included in the process.
- I participated as a member of the group.
- It was very extensive, which was good.
- I think it worked very well.

Suggestions on improvements

Institutions and organizations

- It was quite hard to contribute to the public consultation process since it was spliced in to several parts. It was difficult to review the drafts given and it was very hard to know which issues would be included.
- Maybe we should have drawn more attention to the website when the "public hearing" was published.
- It could be easier to see the difference between proposal and final version.

- The media coverage of the NNR 2012

What worked well

Authorities, institutions and organizations

- The media coverage is estimated to have been good, but from a national standpoint the main emphasis is on media and publicity connected to the national FBDG's.
- The Icelandic Society of Food Science and Nutrition held a seminar in October 2013 where the NNR 2012 was presented. That seminar got fine media coverage.
- The professionals, health care and third sector have done good work in both implementing and informing about the work.
- The media coverage was good.

What worked less well

Authorities, institutions and organizations

- As usual, work by government with regard to nutrition is not perceived very high by the popular media.

- Other general comments

What worked well

Experts

- Keep up the good work.

Reviewers

- The NNR is a very important document to many discussions regarding nutrition.
- NNRs are also needed in the future.

Authorities, institutions and organizations

- The Danish Veterinary and Food Administration has been quite close to the process of NNR 2012. The administration hosts the secretariat of the Nordic Working Group for Nutrition and Toxicology (NKMT) and the chairman for this working group, Ms. Else Molander, is employed by the DVFA. The chairman of the NKMTwas also appointed chairman of the steering committee for NNR. Finally, the NKMT secretariat has

been responsible for NNR contract matters as well as for coordination of steering group meetings with the NNR project management, obtain half year status reports from the project management etc.
- It gives an impression of a very solid document.
- Well done.

Suggestions on general improvements

Experts and librarians

- The process between the SR and the actual recommendations was completed too quickly. It left an impression that the working group had made up their mind in advance about the recommendations before all SRs were completed.
- To use other experts as reviewers widens the perspective if the authors, who are responsible, have neglected something important.
- Proper financing is extremely important as well as to know the scope and time constraints well ahead - about 1 year before.
- The work progress could have been evaluated continuously by the project
  organization.
- The workload for the experts must be reduced and the published papers are very important is necessary.
- Less workload and/or better economic compensation.

Reviewers

- Similar SRs have been published in other countries. The facts are the same but in the Nordic countries the implications may be different. More emphasis on this and less efforts in repeating work that has already been done by others.
- Selection of experts, commitment, meetings, economic compensation based on the true workload is needed for the revision.
- The method used for making the Danish Clinical Guidelines by the National Board of Health might be better to use for next NNR.
- The NNR has to include more food based recommendation, and also take into consideration meal frequency.

Peer reviewers

- Page 60 states: Convincing (High) evidence: "Evidence from more than one study type … For some outcomes evidence from several RCTs might be sufficient. Evidence from at least two independent cohort studies" etc. I do not understand what kind of people are behind such reasoning. The author of those comments seems to be unfamiliar with - the vitamin E and CHD/mortality field, in which there were several consistent cohort studies, but RCTs refuted their findings - the beta-carotene and lung cancer field, in which there were several consistent cohort studies, but RCTs refuted their findings - etc. "several RCTs might be sufficient" is ambiguous, since there are large variations in

RCTs. They can be small/large, use placebo/or not, short/long, restricted population vs general population, etc etc. In my view it does not make any scientific sense to formulate the interpretation of studies in the way it is written on p. 60.

- The NNR chapters are easier to read than the EFSA opinions, but there is a lack of transparency in some parts i.e. how the values were calculated and on what basis, is not always described in sufficient detail. This is true for most DRV reports, not just NNR. I am particularly sensitive to this because for EFSA we have insisted on giving detailed explanations for every calculated value to ensure 100 percent transparency.
- I recommend that NNR follow the EFSA approach when the next review is undertaken.
- More resources to the scientific writing groups are needed.

Universities, institutions and organizations

Increased focus on the food and processing variations are necessary.

- The SRs should have covered a longer period of time.

Rapporter som utgivits 2015

1. Spannmål, fröer och nötter -Metaller i livsmedel, fyra decenniers analyser av L Jorhem, C Åstrand, B Sundström, J Engman och B Kollander.
2. Konsumenters förståelse av livsmedelsinformation av J Grausne, C Gössner och H Enghardt Barbieri.
3. Slutrapport för regeringsuppdraget att inrätta ett nationellt kompetenscentrum för måltider i vård, skola och omsorg av E Sundberg, L Forsman, K Lilja, A-K Quetel och I Stevén.
4. Kontroll av bekämpningsmedelsrester i livsmedel 2013 av A Jansson, P Fohgelberg och A Widenfalk.
5. Råd om bra matvanor - risk- och nyttohanteringsrapport av Å Brugård Konde, R Bjerselius, L Haglund, A Jansson, M Pearson, J Sanner Färnstrand och A-K Johansson.
6. Närings- och hälsopåståenden i märkning av livsmedel – en undersökning av efterlevnaden av reglern av P Bergkvist, A Laser-Reuterswärd, A Göransdotter Nilsson och L Nyholm.
7. Serveras fet fisk från Östersjön på förskolor och skolor, som omfattas av dioxinundentaget av P Elvingsson.
8. The Risk Thermometer – A tool for risk comparison by S Sand, R Bjerselius, L Busk, H Eneroth, J Sanner Färnstrand and R Lindqvist.
9. Revision av Sveriges livsmedelskontroll 2014 - resultat av länsstyrelsernas och Livsmedelsverkets revisioner av kontrollmyndigheter av A Rydin, G Engström och Å Eneroth.
10. Kommuners och Livsmedelsverkets rapportering av livsmedelskontrollen 2014 av L Eskilsson och M Eberhardson.
11. Bra livsmedelsval för barn 2-17 år – baserat på nordiska näringsrekommendationer av H Eneroth och L Björck.
12. Kontroll av restsubstanser i levande djur och animaliska livsmedel. Resultat 2014 av I Nordlander, B Aspenström-Fagerlund, A Glynn, A Törnkvist, T Cantillana, K Neil Persson, Livsmedelsverket och K Girma, Jordbruksverket.
13. Biocidanvändning och antibiotikaresistens av J Bylund och J Ottosson.
14. Symtomprofiler – ett verktyg för smittspårning vid magsjukeutbrott av J Bylund, J Toljander och M Simonsson.
15. Samordnade kontrollprojekt 2015. Dricksvatten - distributionsanläggningar av A Tollin.
16. Oorganisk arsenik i ris och risprodukter på den svenska marknaden 2015 - kartläggning, riskvärdering och hantering av B Kollander.
17. Undeclared milk, peanut, hazelnut or egg – guide on how to assess the risk of allergic reaction in the populationby Y Sjögren Bolin.
18. Kontroll av främmande ämnen i livsmedel 2012-2013 av P Fohgelberg och S Wretling.
19. Kontroll av bekämpningsmedelsrester i livsmedel 2014 av A Jansson, P Fohgelberg och A Widenfalk.
20. Drycker – analys av näringsämnen av V Öhrvik, J Engman, R Grönholm, A Staffas, H S Strandler och A von Malmborg.
21. Barnens miljöhälsoenkät. Konsumtion av fisk bland barn i Sverige 2011 och förändringar sedan 2003 av A Glynn, Avdelningen för risk- och nyttovärdering, Livsmedelsverket och T Lind, Miljömedicinsk epidemiologi, Institutet för Miljömedicin, Karolinska institutet, Stockholm.
22. Associations between food intake and biomarkers of contaminants in adults by E Ax, E Warensjö Lemming, L Abramsson-Zetterberg, P O Darnerud and N Kotova.

Rapporter som utgivits 2016

1. Samordnade kontrollprojekt 2015. Polycykliska aromatiska kolväten (PAH) – kontroll av PAH i traditionellt direktrökta livsmedel av S Wretling.
2. Miljöpåverkan från ekologiskt och konventionellt producerade livsmedel – litteraturstudie med fokus på studier där livscykelanalysmetodik använts av B Landquist, M Nordborg och S Hornborg.
3. Grönsaker, svamp och frukt – analys av näringsämnen av V Öhrvik, J Engman, R Grönholm, A Staffas, H S Strandler och A von Malmborg.
4. Kontrollprojekt – Djurslagsverifiering av köttvaror av U Fäger, M Sandberg och L Lundberg.
5. Evaluation of the Nordic Nutrition Recommendations 2012 – Results from an external evaluation of the Nordic Nutrition Recommendations 2012 project and suggested improvements on the structure and process for a future revision by J Ahlin.

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