Public health nutrition enjoyed many breakthroughs in the 20th century – from the discovery of vitamins and the metabolic roles of some 60 macro- and micronutrients, to the effects of maternal and childhood diet on health over the life course. Moreover, the food shortages in the UK that were experienced during World War II gave the first opportunity to show that nutritional science could make a valuable contribution to public policy. However, public health nutrition is now facing the challenge of deriving recommendations based on systematically evaluated evidence; that is, the new concept of evidence-based nutrition. This challenge was foreseen by John Garrow almost 10 years ago in his lucid editorial proposing the formation of meta-analysis ‘clubs’.

The 2000 Eurodiet Conference was the culmination of a two-year EU-wide scientific process funded by the European Commission, which ended with a set of population dietary goals. These recommendations were intended to provide the basis for future EU-wide nutrition action. However, they have only been partly adopted. A Council Resolution on health and nutrition has cited increased fruit and vegetable consumption and increased breast-feeding as possible priorities for European nutrition policy (Council of Ministers’ resolution, 14 December 2000), but other recommendations, such as those on total fat and saturated fatty acids, iron, sodium, potassium and calcium, have yet to reach even this tentative recognition. One of the reasons for this hesitancy can be found in the closing speeches of the Eurodiet conference, when Matti Rajala, from the Directorate General, asked for nutritional evidence to be assembled in a more transparent and accessible way. Rajala observed that the conference had been debating what evidence should be cited, and he doubted that all of the relevant studies had been considered. He pointed to the absence of systematically collated evidence to support recommendations, and called for less reliance on consensus documents, and more reliance on systematic accumulation, synthesis and presentation of evidence. In summary, he was calling for more evidence-based nutrition.

A definition of evidence-based nutrition can be derived very simply from one well-known definition of evidence-based public health. Evidence-based nutrition is the application of the best available systematically assembled evidence in setting nutrition policy and practice. The need for new methods of dealing with published data is clear from Fig. 1. The amount of published work is increasing rapidly, and is quite beyond any one person to handle rationally. Systematic methods to synthesise information are available and there is an urgent need to use them more widely.

The methods are already being applied in nutrition. The Committee on Medical Aspects of Food Policy’s (COMA) recent review of nutrition and cancer is the first government report to use this approach to summarising evidence. Well-conducted and clearly reported systematic reviews are invaluable in clarifying complicated or contentious issues, and sometimes the results challenge existing wisdom. A recent pooled analysis of eight prospective studies of breast cancer and fruit and vegetable intake, involving more than 350,000 women, did not find a link between the two. This is an important result, given the ‘probable’ protective effect reported in a previous high-profile review.

Evidence-based nutrition has found a place in the Cochrane Library. The most recent edition of the Cochrane
Library\textsuperscript{11} contains 60 complete reviews involving one or more nutritional interventions. However, the model of a Cochrane Review, which is typically a meta-analysis of randomised controlled trials, does not translate comfortably into the field of nutrition. Identifying effective interventions in nutrition often requires studying diet over longer periods and in larger populations than would ever be practical in a randomised controlled trial, even supposing participants could be found who would agree to long-term engineering of their dietary intake.

Moreover, the scope of evidence-based nutrition is far wider than randomised trials. To construct effective and relevant policy recommendations, evidence is certainly needed on the relationship between diet and health but evidence is also needed on the acceptability of foods, on efficiency of food distribution, on the psychological or social issues that affect food preference, and so on. The evidence that will be used will come from observational studies, from economic modelling exercises, from sociological studies and from many other sources, as well as from randomised controlled trials. What is important is that evidence is assembled systematically, with transparent inclusion and exclusion criteria, with attention paid to the methodological quality of the work, and without prior assumptions about the findings being allowed to influence what evidence is considered. The key principles of systematic reviews are summarised in the Appendix.

Moving towards evidence-based nutrition

How could evidence-based nutrition be promoted? Nutritionists need systematic review skills, particularly in critical appraisal, database searching and quantitative methods. Departments of nutrition and others with a research interest in the nutrition field must alter the emphasis in their undergraduate and postgraduate courses, and add data synthesis to their research portfolios, for example through doctoral projects. We propose that a European network be established that brings nutritionists together with epidemiologists, biostatisticians and other relevant specialists. A series of international workshops on evidence-based nutrition could be a major contribution of the proposed network.

There are many models for a collaborative review network in nutrition. Defining its tasks and methods will require discussion, but the potential outputs of such a network are exciting. A library of reviews in a standard format on CD-ROM and the Internet would be central. Questions of methodology, aetiology, efficacy and effectiveness are all suitable for systematic review.
Conclusion

Public Health Nutrition will be revitalised by systematic, evidence-based methods that will deliver clarity of evidence and effective policy recommendations, thereby producing public health gains. Public Health Nutrition can have the impact it deserves, but only if the evidence is brought together and applied to the solution of real problems.

Statement of interest

EB and LH are unpaid editors in the Cochrane Heart Group.

References


Appendix – Principles of systematic reviews

**TRANSPARENCY AND QUALITY**
- unambiguously stated research question
- explicit inclusion and exclusion criteria, independent of study findings
- reproducible and extensive search strategy
- peer-reviewed protocol

**ACCESSIBILITY**
- promotion of access and wide dissemination

**CONTINUITY**
- maintained and updated reviews

**RELEVANCE**
- subjects of public health importance
- duplication of reviews avoided by co-ordination