

Foreword

The assessment of dietary adequacy based on nutrient intake data is a complex issue, not only because of the reliability of self-reported information but also because requirements for most nutrients except energy are unrelated to actual individual needs. Thus, in addition to relating the adequacy of mean individual intakes with the recommended nutrient intakes, we must assess the number of individuals who, at any given time, are consuming above or below their requirements. Nearly one decade ago, Professor Alicia Carriquiry simplified the practical approach based on geometric symmetry, using the estimated average requirement as a proxy for the actual line of nutritional adequacy based on the proportion of subjects consuming intakes below or above their requirements. It is by no means perfect, but it is practical and can be used to assess the adequacy of population intakes for specific nutrients provided that we have at least two measures of intake for sufficient numbers of individuals to allow for the removal of day to day variation and isolate true inter-individual variation. In addition, not all nutrients being assessed meet the necessary conditions for valid use of the estimated average requirement method, thus leaving us with the problem of special nutrients such as Fe and key macronutrients such as energy, which require special solutions.

Moreover, establishing dietary adequacy is a complex issue since the scientific knowledge base changes and the need to consider the context in the application of guidelines add new dimensions that lead to increased complexity in this exercise. International agencies and national authorities around the world are faced with the need to inform and educate consumers and orient food producers and providers of food services. Food and nutrition policy makers, planners and common citizens need to be able to orient, manage and make food choices at the national, community and individual levels. The authors document well the difficulties in developing and applying nutrient-based dietary guidelines to the assessment of dietary intakes. These series of articles produced by the European micronutrient REcommendations Aligned project (EURRECA) examine the concept and methods behind food-based dietary guidelines and discuss the possibilities and challenges of harmonising the processes needed for the development and implementation of nutrient recommendations and dietary guidelines.

The development of food-based dietary guidelines has contributed to a better understanding of the role of nutrients and foods in achieving optimal health; however, the impact of these guidelines on human health has been limited. Harmonisation of efforts is an important issue if we are to realise the full potential of dietary guidance, which is nothing less than *reducing the burden of diet-related disease and disability, while promoting human development and well being*. Dietary guidance must be evidence based both in the process of development and in their application. However, there are the limitations in the present nutrition sciences to fully ascertain the precise health consequences of dietary insufficiency, excess

or imbalance with a broader perspective. We clearly need to start considering the totality of the effects of a given dietary pattern, and not just focusing on single nutrients. Food selection guidance should be seen as part of a comprehensive and culturally appropriate dietary and health promoting strategy, and not only as a tool for providing detailed nutritional information. Nutrient-based recommendations are customarily defined as the intakes of energy and specific nutrients necessary to satisfy the requirements of a group of healthy individuals. This nutrient-based approach has served well to advance science, but has not always fostered the establishment of nutritional and dietary priorities consistent with broad public health interests at national and international levels. In fact, judged *post facto*, nutrient-based recommendations may have misguided some efforts to solve key nutritional problems. For instance, the emphasis on both the quantity and the quality of protein derived from the studies of single food protein sources, which used the evaluation of the effect protein had on the growth rates of weaning rats, placed an undue emphasis on the need for the consumption of animal foods (meat, eggs and cow's milk). This focus also failed to recognise that in usual diets amino acid food sources complement each other, such as in cereal–legume mixes.

In many ways, the answers to the questions we pose are greatly influenced by the methods we use to assess or to study them. In nutrition, as in most biological sciences, we have very few absolutes. In fact the present knowledge, whether we acknowledge it or not, is conditioned by our tools and thus has great limitations. Will we ever achieve a single unified global set of food-based dietary guidelines? If so, is this desirable? As revealed by this series of papers, the task is not as simple as it seems. There are many challenges that need to be considered and addressed as seen, for example, in the cultural diversity and the complex social, economic and political interactions between human subjects and their food supply. Regional harmonised efforts in support of strategic dietary interventions together with strong global scientific support and facilitation for the development and communication of food-based dietary guidelines at national and regional levels are clearly needed. The supplement includes a set of selected systematic reviews and original papers from a variety of institutions across Europe coordinated by Professor Lluís Serra-Majem in the context of the EURRECA network of excellence. Undoubtedly, it is an excellent effort in this direction and will surely contribute to improve nutrition and population health in Europe and to closing the gap between the different European Countries. Other regions will surely follow the path and will also benefit from this pioneering initiative.

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