

Commentary

The Feast of the Assumptions

People vary. They vary in many things, but they certainly vary in their body size and composition, their energy expenditure, and their requirements for nutrients. Assessing the adequacy of diets for populations comprising such a variety of individuals requires tools, and the development of such tools has been a core function of public health nutrition over several decades.

These tools have gone under a series of names and acronyms over the years, but all share a common aim – to provide a quantified reference framework against which measured diets can be compared. The implications of meeting or not meeting these reference standards are potentially great, striking at the most fundamental human right to adequate nourishment.

While the use of an assessment tool needs to be as simple as possible, deriving them is complex, and nowhere more complex than in the case of protein. Estimating requirements for nutrients is at the heart of setting reference values. There are several issues peculiar to protein, such as patterns of individual amino acid requirements, which add complications to the assessment of requirements, even beyond that for micronutrients. Just as for any such endeavour, we are bedevilled by incomplete information; as in any such case, practical progress depends on making assumptions. For the very reason that they are assumptions, it might be supposed that they are difficult to challenge. However, as Millward and Jackson¹ demonstrate in their contribution in the present issue, the results of making particular assumptions can be thrown into sharp relief by examining their application in different contexts.

Millward and Jackson have examined the implications of a proposed reference value for lysine requirements, in populations generally regarded as well-nourished, as well as in those where the diet is accepted to be sub-optimal. The results are striking. While the calculations expose an

expected high risk of deficiency in West Bengal, they also imply deficiency in groups within the UK. It is of course possible that protein deficiency on this scale has been undetected in the UK, but it is not easy to point to the consequences of this. This discrepancy between what is observed and what is calculated must at least challenge the assumptions on which it is based.

Millward and Jackson highlight a number of assumptions that could be examined more closely. There is a judgement as to whether more conservative estimates of requirements are more appropriate than less conservative. In using the reference values as a tool for diagnosing population risk of deficiency, the former imply high sensitivity, but are exposed as having low specificity. In contrast, increasing specificity will tend to reduce sensitivity.

There is no single right answer, and Millward and Jackson's main message seems to be that we should bear that in mind in applying our imperfect estimates, especially where the stakes are high. In the words of Oliver Cromwell: 'In the bowels of Christ, gentlemen, I beseech you to remember you may be mistaken'. That humbling thought should be at the heart of the practice of the health professions.

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Reference

- 1 Millward DJ, Jackson AA. Protein/energy ratios of current diets in developed and developing countries compared with a safe protein/energy ratio: implications for recommended protein and amino acid intakes. *Public Health Nutrition* 2004; 7(3): 387–405.