Letters to the Editor

Dietary intakes of older Victorians

To the Editor: The paper published in March 2002 in Nutrition & Dietetics by McCarty et al. on the dietary intakes of older Victorians (1) is of considerable interest particularly given the large random sample, and the desire to explore diet in relation to eye health.

However, the results of the study are very difficult for the reader to evaluate, due to lack of supporting information. Further, it is not clear how associations of dietary adequacy with eye parameters could be carried out with the nutrient data as currently presented.

Despite journal guidelines to authors, the nutrient database is not referenced and the reader is obliged to go back to the original dietary method paper (2) to discover its identity. Here it is stated that the nutrient database is NUTTAB95 (3) but since this database does not contain values for vitamin E it is not clear how the McCarty group measured vitamin E intake. It is unusual to see energy intakes given only in kcal despite journal guidelines.

The nature of the dietary method (food frequency questionnaire (FFQ)) is nowhere discussed as a possible limitation to the study’s findings as reported in the article. This method is most useful for comparison of ranked group data in nutritional epidemiology (possibly this is the ultimate aim of the McCarty paper). No mention is made of the inclusion or exclusion of liver in this study (it appears to have been excluded in the validation study).

However, a much more major concern about the McCarty paper is the conclusion that the intakes of a number of nutrients were deficient in much of the study population. Close inspection of the data does not suggest that this is in fact the case.

The data given in Table 1 obviously contain a number of typographical errors, however, even the corrected version (4) is puzzling. According to the corrected table, for both males and females in both age groups, intakes of vitamins are identical for both supplemented and unsupplemented subjects. Yet, the original paper (1) showed that 5–10% of participants were taking vitamin A supplements. It is conceivable that those taking vitamin A supplements consume less vitamin A from foods, but it is very strange to read that the 5th–95th percentile ranges remain exactly the same for both groups.

The interpretation of the nutrient intake data in this paper must be questioned. The RDIs (5) appear to have been used as the cut-off point for nutrient adequacy, and there are many references to the percentages of the sample who were consuming nutrients at levels above or below the RDI.

Although the authors correctly state that the RDIs are ‘set at levels that exceed the nutrient requirements for almost all healthy persons’ they appear to have used the RDI as a minimum that should be met to ensure dietary adequacy. This is not correct practice. ‘The recommended [nutrient] intakes which are judged to be adequate for practically all individual members of a population, must of necessity be in excess of the requirements of most of them...’ to quote a citation in George Beaton’s elegant exploration of the subject in his Boyd-Orr Memorial lecture (6). Since no one individual’s actual requirement is known in a population study, assessment of adequacy must rest on the estimation of the relative probability that a given nutrient intake does or does not meet the actual requirement of that particular individual. Thus rather than looking at the percentage of the population reaching or not reaching the RDI, the estimations needed are of the proportion of subjects who fall within % ranges below the RDI. A common figure is that described by Gibson (7) in which risk of inadequacy is low in the range from the mean requirement to the RDA (i.e. 77% to 88.5%) (in cases where the RDI has been set at +2SD from the mean). Those at risk therefore would be those consuming < 77% of the RDI, and those most at risk < 50% of the RDI.

Another method of assessing adequacy is to use the Estimated Average Requirement (EAR) for an age and gender group (8), however, to date this concept has not been introduced in Australia.

Whatever the method is for assessment of adequacy, the reader really needs to know the distribution of intakes across the groups. The data presented for this study do not permit any conclusion about which groups or subgroups of the population had adequate or inadequate intakes of the nutrients studied, and, the study overall is mistaken in suggesting that inadequate nutrition is prevalent in older Victorians.

These matters are dealt with in a number of articles, authoritative publications and textbooks (7–12) and recently Barr et al. (13) have expanded the discussion to include the assessment of excessive intakes of nutrients.

Since the approach to setting RDIs in Australia has been somewhat different to that used in the USA and Canada (on which much of the discussion of the probability approach has been based) it is hoped that the forthcoming new RDIs for Australia (14) will spell out the proper use of these dietary references.

Finally, the recommendation that 100 g of spinach daily ‘could supply sufficient amounts of nearly all of the nutrients that are deficient in the diets of Victorians’ must be challenged as simplistic and naïve given the well-known low bioavailability of iron and calcium from vegetables.

If the team plans to study eye health in relation to dietary adequacy, it would be preferable to take into account the concept of EAR to make meaningful conclusions.
consideration accepted approaches to this concept rather than those used in their paper.

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References

Dietary intakes of older Victorians

In reply: Heather Greenfield and Karen Cashel raise some interesting issues regarding our recently published paper on dietary intake in older Victorians (1).

We elected not to debate and discuss the relative merits of various methodologies to quantify the dietary intake of individuals, under the assumption that the readership of *Nutrition & Dietetics* are very familiar with the strengths and weaknesses of these various methodologies. It is always important to distinguish whether the objectives of nutrition assessment are to make inferences about individuals or populations. The authors reference the book by Gibson, which is primarily aimed at health professionals wishing to assess the nutritional intake of individuals (2). This was clearly not the intention in our paper or in our study. For interested readers, there are a number of excellent references that include discussions of the advantages and disadvantages of various nutrition assessment methods for characterisation of the nutritional adequacy of groups of individuals for epidemiologic studies (3–5). Semi-quantitative food frequency questionnaires have been used in hundreds, if not thousands, of epidemiologic studies of diet and disease. They are the accepted standard, more representative of usual intake than methods such as the 24-hour recall or weighed food records and are much less expensive for use in large epidemiologic studies (3).

The particular food frequency questionnaire (6) that was employed for the Melbourne Visual Impairment Project was developed for use in the Melbourne Collaborative Cohort Study (7), a large, population-based study of diet and disease in Australian-born, Greek-born and Italian-born adults of Melbourne. The extensive list of foods included in the food frequency questionnaire was selected to cover the majority of nutrients for this adult Melbourne population and was therefore ideal for use in the Melbourne Visual Impairment Project. Prior to selection of a nutrition assessment tool, researchers should always consider the population that was used to develop the food frequency questionnaire. Contrary to the final sentence in the letter by Heather Greenfield and Karen Cashel, we have taken into consideration and used accepted approaches to the quantification of dietary intake in a large group of individuals.

As mentioned in our paper, Australian Recommended Dietary Intakes (RDIs) were set at levels that exceed the nutrient requirement for almost all healthy persons. For that reason, we chose to highlight only those intakes where the majority (more than half) of the study population had levels that were less than the RDI. By providing the mean, median, range between the 5th and 95th percentile, as well as the percent less than the RDI, we provided a lot of information about the distribution of intake in this population, stratified by age, gender and major ethnic group.

In regard to the issue of vitamin A supplementation, a relatively small number of people (n = 188) reported taking vitamin A supplements. We corrected typographical errors in the data tables when the errors were detected by staff in the editorial office. The letter by Heather Greenfield and Karen Cashel prompted us to reexamine all of the data on supplement intake. We discovered that the unit of measurement for vitamin A supplementation was not the same as the unit of measurement for dietary intake. This error has been rectified and the corrected values for vitamin A are shown in Tables 1a and 2. These minor errors do not affect our conclusions.

Finally, we take issue with the challenge that a simple dietary recommendation to eat more spinach is ‘simplistic and naïve’. We are aware of the relatively low bioavailability of iron and calcium from vegetables, although as most readers would be aware the vitamin C in spinach increases the bioavailability of iron. From a public health perspective, scientists in general are quite poor at developing simple messages for the general public. Instead many authors include the throw-away line that ‘more research is needed’. More research will always be needed, but in the mean time, the general population can benefit from information and guidance as to how to select a healthy diet. We challenge all scientists to conduct mean-

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ingful research and where possible to develop simple, consistent messages for the general population. These may not work for all individuals but they can make positive changes on the population level. We cannot imagine that anyone would argue against adding additional servings of spinach to our diets.

References


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Table 1a.

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Table 2.

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