



Revised nutrient intake levels

After 15 years, the NHMRC has updated its recommended daily intakes of nutrients, explains Prof Samir Samman.

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Nutrient Reference Values (NRVs) for Australia and New Zealand were published in May after a long process that began in 1998. The report is based on the (US) Institute of Medicine's recommended reference values that were reviewed by Australian and New Zealand experts to ensure the final figures were derived through a process consistent with the National Health & Medical Research Council's (NHMRC) evidence-based criteria, and were applicable to the local population. NRVs were published for seven life stages and 37 nutrients that included the macronutrients, 13 vitamins, 14 minerals and trace elements, choline and water — a substantial expansion of the list when compared to the previous set of recommended dietary intakes (RDIs).

Introducing three new values

The update brings with it a range of new values, definitions and acronyms. The first of the NRVs that was needed to be established for all nutrients was the estimated average requirement (EAR). If the data were normally distributed and sufficiently robust to calculate an EAR, then a recommended dietary intake was defined as the EAR plus two standard deviations. When there were insufficient or inconsistent data to calculate an EAR, an Adequate Intake (AI) was set. The AI is defined as the median intake of a given nutrient as obtained from the

National Nutrition Surveys of Australia and New Zealand. For all nutrients, an Upper Limit (UL) was set that included intake from all sources, and was based on the possibility of adverse effects.

Macronutrient level changes

The NRVs also include a recommendation for an acceptable macronutrient distribution range (AMDR), which is an estimate of the range of intake of each macronutrient (expressed in terms of total energy consumed) that would maximise the general-health outcome while allowing for an adequate intake of all other nutrients. The AMDR for protein allows for a higher intake than previously acknowledged (up to 25 per cent of energy) while the AMDR for carbohydrates reinforces the importance of low energy-density and low glycaemic-index foods. Another set of recommendations — the Suggested Dietary Target (SDT) — relate mainly to the micronutrients, but also to dietary fibre and omega-3 fatty acids, for which there is evidence of a potential chronic-disease prevention effect at levels higher than the EAR, RDI or AI.

Micronutrient levels

Some differences emerged when the new figures were compared to the previous Australian RDIs. For example, the new RDI for iron has increased to 18 mg/day and reflects the large variation in EAR, mainly due to menstrual losses. The EAR for calcium has risen in recognition of losses in sweat while the EAR for zinc has risen for men because of the significant (although voluntary) losses in semen. Similarly, the RDI for



SUMMARY

- New Nutrient Reference Values for 37 nutrients and 7 life stages
- Optimal distribution range for macronutrients intake
- Most RDIs have been slightly increased e.g. folate, iron
- Intake above the RDI is recommended for some nutrients e.g. vitamins C and E

magnesium and most of the B vitamins increased due to data from metabolic studies and sensitive biochemical markers of nutrient status that are better able to predict requirement.

While new data were used to finetune the RDIs for some nutrients, re-evaluation of older data, based on NHMRC guidelines, has meant that some RDIs could no longer be justified. For example, there were insufficient data to set an EAR for vitamin E where the key evidence, published in the early 1960s, does not allow for a valid analysis of the vitamin E dose-response curve. Hence an AI, rather than an RDI, was set. In addition, an SDT has been determined for vitamin E (19 mg) that is equivalent to the 90th percentile of intake in Australia and New Zealand.

The NRVs are undoubtedly a significant advance in the application of quantitative nutritional science. However, no set of values can ever be complete and current research is hinting strongly of the importance of other dietary factors e.g. phytonutrients and genetic regulation of nutrient requirements. In the meantime, however, health professionals have the most up-to-date data on nutrient requirements.

- see pp 8, 85–94 or www.nhmrc.gov.au/publications/ for the new RDIs