Editorial

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HIV is a major international public health issue, affecting sub-Saharan Africa particularly hard. Unlike most HIV positive people living in Europe, Australia and North America, drugs to control disease progression and secondary infections are not economically available to people living in Africa and Asia. One important option is to explore ways to maintain optimal body composition by maintaining and improving dietary intakes. In the present issue of the journal Forrester *et al.*[1] show body compositional changes in otherwise apparently healthy HIV positive subjects. This study suggests that weight loss starts early and while CD4 counts are still above the range associated with opportunistic infections. The weight loss in these otherwise apparently healthy Americans was mostly fat loss, not lean body mass. These results suggest that early screening and follow-up of HIV positive subjects may be an important public health approach to identify early signs of metabolic changes that may be addressed by nutritional means. This area of work certainly warrants further investigation.

It has often been assumed that because dietary intakes are difficult to measure and that measures of exposure derived from questionnaires or self-reported methods may be biased, or at least measured with such error as to mask a true association with outcome, biological measures will be more accurate. Biological markers are not subject to reporting errors, and therefore seem an attractive alternative to measuring dietary intake. If dietary intake is the relevant measure of exposure it is important to establish whether the biological measure reflects in a sensitive and specific way the dietary exposure across the range of intakes in the study population. In other circumstances the biological measure may be considered to be in the causal pathway, and may be a suitable measure of risk. There is ample evidence for example, that the apparent protective effects of fruits and vegetables are related to a whole range of compounds besides or in addition to, nutrients. For these compounds, studied in isolation, it is important to establish their relevance to the underlying mechanisms. Measuring the dietary exposure of these compounds is difficult.

In the present issue there are two papers that assess the use of biological markers of the intake of fruits and vegetables[2,3]. Van Kappel *et al.*[2] measured serum carotenoid concentrations in women participating in the New York Women's Health Study. They found that serum carotenoid concentrations could be measured with high reliability and that one single serum measure could accurately rank subjects according to their usual serum levels (based on three repeat measures). However, dietary intakes of fruits and vegetables (based on a diet history questionnaire) were positively but only weakly correlated with serum carotenoids. The authors conclude by suggesting that serum carotenoids should be used with caution as biomarkers of fruit and vegetable consumption. It was not possible in the present study do identify whether the poor correlation was due to errors in the questionnaire or the effects of other factors that influenced serum levels.

Fowke *et al.*[3] explored the consistency of urinary excretion of isothiocyanates (ITC) as a marker of *Brassica* vegetable consumption. Brassica vegetables are a good source of glucosinolates which are hydrolysed to series of isthiocyanates and their metabolites. They found that the ITC excretion predicted total *Brassica* intake when consumption averaged between 100 g/day and 200 g/day. They concluded 'In using ITC as an exposure marker in large epidemiological studies, careful consideration should be given to the types of vegetables consumed in the population, the variability in cooking practices, the amounts consumed, and the theorised biological mechanisms of the disease of interest'.

Taken together these studies suggest caution in drawing causal inferences about the relationship between diet and health outcomes using biological markers. It is attractive to be able to isolate the critical factors in diet that may play a role in the development of disease, but from a public health point of view we need to be able to understand how these measures relate to what people eat so that we can formulate sound dietary advice. There is growing recognition of the need to consider the effects of dietary patterns, and not single nutrients or compounds in isolation. The effects of one nutrient studied in isolation may be quite different from that studied in a usual diet. More recently there have been attempts to summarise the complexity of dietary patterns using statistical approaches. Pryer *et al.*[4] in the present issue used cluster analysis to identify three dietary clusters that identified three distinct patterns of food consumption. Serum and plasma measures varied significantly according to dietary cluster; those subjects described as having a 'healthy' diet had higher levels of most blood measures of nutrients.

There are many other interesting papers in the current issue. As an editor it feels as though there is a growing sense of cohesion on the work being submitted for

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publication to Public Health Nutrition. I would like to see more work submitted from countries in South America, Asia and Africa. It is clear that there is a great deal to learn from work published all over the world; our aim remains to link evidence to action, to find solutions to our major public health problems. We need to develop our methods and we need to find out what works.

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Editor-in-chief

References

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