With regard to the remark that the serum retinol concentration is a rather weak indicator of vitamin A status, we note that the currently recommended conversion factors for calculating the retinol equivalence of provitamin A are also based on the results of studies that compared changes in serum retinol concentrations after different sources of vitamin A were consumed. However, as discussed in our paper, the magnitude of the difference and the range of estimates of bioavailability and bioconversion still have to be established more accurately and precisely. This will require the use of other techniques, such as those involving stable isotopes, which are currently being applied in our laboratories (2) and in those of others.

Saskia de Pee
Clive E West
Dewi Permaesih
Sri Martuti
Muhilal
Joseph GAJ Hautvast
Helen Keller International
Jl. Patra Kuningan XIV, No 12
Jakarta 12950
Indonesia
E-mail: sdepee@compuserve.com

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The dietary pyramid
Dear Sir:

The nutrition world should wake up to the revolutionary statement made by Willett (1) in a recent letter to the Editor: “if potatoes are to be included in the dietary pyramid, the appropriate place appears to be in the apex along with sweets, to be eaten only sparingly.” The potato is a staple in many countries; here in Ireland especially, where the 150th anniversary of the Irish potato famine was just commemorated, such a statement needs careful consideration. It seems somewhat defeatist to accept that given our sedentary lifestyles, high-carbohydrate diets should be recognized as disadvantageous because of their frequent, but not constant, association with elevated plasma triacylglycerol, low plasma HDL cholesterol, and occasionally insulin resistance. These effects of high-carbohydrate diets are totally negated by moderate physical activity on the order of 30 min of accumulated brisk walking. To begin to accept that dietary guidelines be constructed to suit a sedentary and overweight culture is absolutely revolutionary and cannot be ignored. Nothing in public health nutrition is more urgent than the resolution of this matter. Without prejudice to the outcome of a high-level consultation on this issue, which I hope will be fostered immediately by some august and independent body, it is worth noting that every study of changes in proxies for physical inactivity (eg, number of cars per household or number of hours spent watching television) has shown attendant changes in the prevalence of obesity (2). The notion that the dietary guidelines be constructed to defend the automobile, the television, the computer game, and the town planning industry, while at the same time relegating the potato and presumably pasta, rice, and bread to the same level of the food pyramid as sweets, is so revolutionary that it is either daft or brilliant. Given the distinguished provenance of this wisdom, it is truly urgent that nutritionists resolve this issue now.

Michael J Gibney
Department of Clinical Medicine
Trinity College Dublin
Dublin 2
Ireland
E-mail: mgibney@tcd.ie

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Reply to MJ Gibney
Dear Sir:

I appreciate Gibney’s call to consider seriously the placement of potatoes at the apex of the dietary pyramid along with sweets, to be eaten sparingly. Of course, the humble potato deserves honor for keeping famine at bay in Ireland and in the United States during economic depressions, and it is a staple in some countries today. However, this does not necessarily mean that consumption of potatoes as a major energy source is optimal for health and longevity in contemporary Western societies. Nor does this history prove that potatoes have intrinsic positive health benefits, as is implied by their inclusion as a vegetable in the US dietary pyramid. Although the topic cannot be fully considered in the context of a letter, 2 general points deserve consideration.

First, as a major energy source, potatoes displace other foods with higher nutritional values, in particular, vegetables and whole grains. In a major review, Steinmetz and Potter (1) found consistent evidence that foods usually considered to be vegetables were associated with lower risks of cancer; in striking contrast, direct and inverse associations were seen with equal frequency for potatoes, as would be expected by chance. Similarly, in the extensive review of diet and cancer conducted by the World Cancer Research Fund (2), no evidence of benefit was seen for potato consumption, again in contrast with the findings for vegetables. Moreover, a large and consistent body of epidemiologic data shows that higher consumption of whole grains and cereal fiber (which will be low if potatoes are the staple carbohydrate) is associated with reduced risks of coronary artery disease (3).
Second, apart from preventing energy deficiency (hardly an issue in Western countries, where obesity is the dominant nutritional problem), potatoes have adverse metabolic effects on health. Carbohydrate ingestion per se is not harmful (virtually all diets will have carbohydrates as the major energy source), but some carbohydrate-containing foods are more healthful than others. Potatoes, along with white bread, have a nearly maximal glycemic index (4), higher than that of table sugar. Thus, these foods raise insulin concentrations and C-peptide excretion to a greater extent than do foods that contain identical amounts of carbohydrates but with lower glycemic indexes (5). Hyperinsulinemia is independently predictive of coronary artery disease risk (6) and is associated with hypertriglyceridemia and low HDL-cholesterol concentrations. In both men and women, consumption of potatoes is associated with higher risk of type 2 diabetes (7, 8). In contrast, consumption of cereal fiber and whole-grain foods is associated with reduced risk.

Gibney asserts that 30 min of brisk walking can totally negate the adverse metabolic effects of high-carbohydrate diets, but offers no evidence. Certainly, physical activity has many benefits, including reducing insulin resistance, and should lessen the adverse effects of a high glycemic load (9). However, adverse effects of high glycemic loads are likely to be present even with 30 min of walking, which is after all, modest compared with the physical activity of traditional agriculturalists. Specifically, to address the issue of these metabolic effects in the context of low insulin resistance, West et al (10) studied 8–9-y-old boys in 12 countries, including developing nations. Even in this group, the percentage of energy from carbohydrate intake was directly correlated with serum triacylglycerol concentrations and inversely correlated with serum HDL-cholesterol concentrations. Contrary to Gibney’s implication, advocating the consumption of whole grains and vegetables is not a defense of inactivity; both good diets and regular exercise are essential for optimal health. In summary, abundant metabolic and epidemiologic evidence support the conclusion that those who consume potatoes (or white bread and white rice) as their staple would be healthier if they replaced, to the extent feasible, this source of carbohydrate with whole grains and vegetables.

Walter Willett
Harvard School of Public Health
Department of Nutrition
665 Huntington Avenue
Boston, MA 02115
E-mail: dosulliv@sph.harvard.edu

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