Are health and ill-health lessons from hunter-gatherers currently relevant?

Dear Sir:

In their Special Article in the March 2000 issue of the Journal, Cordain et al (1) discussed plant-animal subsistence ratios and macronutrient energy estimations in worldwide hunter-gatherer diets. They noted from the various reports on the societies of hunter-gatherers that these people were relatively free of many of the chronic degenerative diseases and symptoms that pervade modern societies. Accordingly, Cordain et al recommended that “the macronutrient characteristics of hunter-gatherer diets may provide insight into potentially therapeutic dietary recommendations for contemporary populations.”

First, it must be stressed that relative freedom from degenerative disorders or diseases was, and still is, characteristic of all societies of hunter-gatherers. This prevailed whether the diets had a high fat content, supplying 28–58% of energy, as reported in the societies studied by Cordain et al (1), or a far lower fat content, as indicated in the societies of hunter-gatherer agriculturalists described by Milton (2) in her Editorial on the subject. Further, this relative freedom from degenerative diseases is equally characteristic of all of the numerous rural pastoral societies in Africa, which, until very recently, have been accustomed almost wholly to diets with a relatively low contribution to energy by fat of 15–20% (3). In such contexts, obesity and diabetes had a low prevalence (4); indeed, this is still the case in some rural areas. Coronary heart disease (CHD) is still virtually absent and is rarely seen in patients admitted to rural hospitals (5). Simultaneously, in rural contexts, the cancers of prosperity are uncommon, although, understandably, they are increasing in urban dwellers (6). Thus, with limited exceptions, the nutritional pattern of the diet of rural Africans could still serve as a model for possible implementation in Western populations. In support of the uncommonness of deaths from degenerative diseases, in South Africa, as recently as 1970, of Africans who reached the age of 50 y, even more reached an age ≥70 y than was the case with the white population (7). Elderly Africans died almost entirely from infections. Two features insufficiently stressed were their very high levels of everyday physical activity and low levels of smoking, especially among women.

Of much greater import to the situation at issue, this rarity of CHD in African patients in rural hospitals, is the similarity of the situation in the wards of Massachusetts General Hospital as late as 1910–1920, when CHD was considered rare (8). Hence, what were Americans, most of whom were very poor, doing in their lifestyle that made them different from subsequent generations among whom the disease became extremely common, and still remains so despite major decreases in mortality rate (9)? Instead of seeking nutritional lessons from primitive communities and from developing populations, it would be far more pragmatic to try to learn more from certain present-day Western populations who have much less CHD than do other populations. In this respect, the relevant MONICA Study showed the CHD mortality rate in Spain to be only one-fifth of that in Poland (10). In the United States, the age-adjusted death rate from CHD in New Mexico is less than half of that in New York (11). To reiterate, which beneficial characteristics of these lesser prone but sophisticated populations lend themselves to adoption?

Crucially, however, even if highly apposite and practicable information were forthcoming, would it really be put into practice? Before we answer this question, it is imperative to keep in mind the current context of long life, namely, that despite high mortalities from degenerative diseases, expectations of life are now at their highest (=75 y for men and 80 y for women). This implies the enjoyment of a long life even by individuals with unfavorable lifestyles (eg, in regard to CHD, about three-quarters of cases occur after age 65 y). There is near universal reluctance to make changes for the lengthening of life. Thus, concerning the risk factor obesity, probably all is known that needs to be known for its successful treatment. Yet, in the United States, with the present rate of increase in obesity, it has been predicted that all Americans will be obese by 2230 (12). In Australia it was noted that only 6% of articles about cardiovascular disease risk factors in a MEDLINE search and 5% of articles in a medical magazine search discussed exercise prescription or how to start and maintain an exercise program (13). As to combating other important risk factors, a recent study in the United States showed that cholesterol-lowering medications are underutilized, even according to the narrowest indications for use (14). Furthermore, it was stated that national guidelines on the treatment of hypertension had little effect on prescribing patterns of antihypertensive medications. It was emphasized that greater attention must be paid to educating health care providers, so that treatments of proven benefit are implemented. As related by Minerva (15) as an example of resistance to change, “Health educators have a tough time persuading people to eat broccoli when chocolate, pop tarts, and sticky buns are everywhere, so US researchers have tried recruiting teams of trusted workers to pester their friends and colleagues to eat better. A lengthy and expensive programme of peer education, which included some intrusive sales techniques, led to participants eating about half an extra portion of fruit and vegetables a day. The authors don’t say how many friends the peer educators lost in the process.” In brief, no matter what efficacious lifestyle changes are recommended, whether they be derived from past or from present
experiences of populations, they seem almost irrelevant because they will be very largely ignored.

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**Reply to ARP Walker**

Dear Sir:

We appreciated and enjoyed Walker’s constructive comments and interesting insights and agree with many, but not all, of his conclusions. Numerous epidemiologic data support the notion that increasing Westernization and industrialization in human populations is associated with a greater incidence of chronic degenerative diseases. It is almost axiomatic that changes in diet and activity levels initiated by Westernization and industrialization are largely responsible for these health disorders. As human societies stray farther and farther from the original environmental conditions (both diet and exercise) for which our present genome was selected, it is not unexpected that ill-health effects should emerge (1, 2).

We have little doubt that some, but not all, lifestyle characteristics of rural Africans and many of the world’s other less industrialized people could serve as a model to benefit the health and well-being of Western populations. However, the reason certain of these lifestyle variables are advantageous is that they are consistent with those of Stone Age hunter-gatherers that in turn represent the lifestyle characteristics for which our species is genetically adapted. High levels of physical activity are required of both hunter-gatherers (2) and rural Gambian subsistence farmers (3) and similarly may provide both of these groups with protection from degenerative disorders and disease. However, the proximate mechanisms of exercise’s therapeutic effect are not specifically intrinsic to subsistence farming but, rather, stem ultimately from the rigors and selective pressures dictated by the physical requirements of the hunter-gatherer lifestyle that shaped the present human genome over >2 million years of evolutionary experience. Similarly, it was found that increased dietary intakes of n−3 fatty acids may provide protection from chronic disease in highly industrialized societies such as Japan (4) and in partially Westernized hunter-gatherers such as the Inuit (5). The ultimate evolutionary reason these fatty acids afford protection for these diverse populations is based on our species’ genetically determined requirement for them, which in turn was shaped by the environmental selective pressures that fashioned the present human genome. By examining the original environmental conditions for which our present genome was selected during the Paleolithic Era (the Old Stone Age, lasting from 2.6 million y ago until the agricultural revolution 10000 y ago), it is possible to gain insight into optimal lifestyle characteristics that may be of therapeutic value for modern populations experiencing degenerative disorders.

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