

Forum

Old people – should they be eating generously, frugally or what?

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Abstract

The ageing of populations, associated with diminishing family size and increasing longevity, is evoking far-reaching effects on health and other services, especially in Western countries. Influencing factors in ageing include not only diet but factors such as physical activity, smoking, and alcohol consumption. There is evidence that a large proportion of morbidity in ageing is due to life-style factors. As far as diet is concerned, the question, should old people be encouraged to eat more, eat frugally, or what, largely depends on the population concerned. In prosperous countries, old people largely have enough to eat. It has been urged that their nutritional status could be improved, not so much by specific supplementation but rather by an increase in vegetable and fruit intake, with a concurrent decrease in the amount of fat consumed. The same recommendation would apply to non-Westernized elderly populations. However an adequate consumption of vegetables and fruit is often limited by cost. Data bases on the minimum ranges of nutrient requirements that are consistent with good health in older populations in South Africa are required.

In the United Kingdom in 1842, the average age of death for "gentlemen and persons engaged in the professions and their families" was 45 years, and for "tradesmen and their families", 26 years; for "mechanics, servants and labourers and their families" it was only 16 years (Davey-Smith, Carroll, Rankin & Rowan, 1992). What a difference from the present time. Nowadays in most Western populations, expectation of life at birth is 70-80 years (Department of Health, 1992; Tanne, 1992). Among urban dwellers in some developing populations it is even 50-60 years (Walker & Walker, 1993). In Western populations at the turn of the century there was one elderly person to every eight children; nowadays the ratio is about 1:1 (Thompson, 1991). Thus, not only are huge and increasing proportions of populations reaching an advanced age but because of falls in birth rates, diminishing work forces now have to support increasing numbers of old people who constitute 12-15% of Western populations. As an index of needed care, elderly patients now occupy half of all hospital beds in the United Kingdom (Morgan, 1983).

The health/ill-health of the elderly is therefore of tremendous public health importance. How can the number of years

of morbidity and disability which increases with longevity be decreased? How can the number of disease-free years be increased? How much of the ill-health of the elderly is preventable, or can be ameliorated? How much is attributable, directly or indirectly, to faulty nutrition? Should there be an ample supply of food, or, conceivably, is there a case for frugal intakes?

At a "Symposium on Nutrition in the Elderly" held in Japan in 1991, Rosenberg (1992) stated that "the real challenge is to live those increased years in a fulfilling way." Rosenberg (1992: 350) quoted William Butler Yeats who in 1820 wrote "There is a great difference between going off in warm blood like Romeo and making one's exit like a frog in a frost."

Numerous recent reviews have emphasized that relatively little research has focussed on the interrelations of nutrition and ageing (Feldman, 1993). The symposium in Japan included 35 papers. In several of these papers, the authors regretted that the nutritional needs of the elderly remain poorly defined (Kobayashi, 1992; Rosenberg, 1992). In agreement, a recent report entitled *The nutrition of the elderly*, published in the United Kingdom by the Department of Health (1992), stressed that "data on the nutritional and energy requirements of elderly people with a disability are scarce." However, despite an insufficiency of knowledge, the report decided that dietary energy intake should tend to be generous, except for those who are obese. The report urged that old people should eat more energy-dense foods and high-fibre foods (cereals, vegetables and fruit) but less sugar.

Numerous authors advise near-routine supplements of mineral salts and vitamins. Notwithstanding, benefits to health from supplementation are variable. Some are undeniable (Blumberg, 1992; Chandra, 1992; Joosten, van den Berg, Riezler *et al.*, 1993); yet in other studies benefits have been found to be limited or absent (Horwath & Worsley, 1989). MacLennan (1986) maintains that only a minority of old persons suffer from subnutrition, and that there is little evidence that supplements are of much value.

Turning to the possibility that a frugal diet can promote longevity, historically there is much to support the view that a diet relatively low in energy intake is consistent with long life. The historian Josephus, in *The Jewish War*, remarked on the sustained good health of the sect called Essenes: "They abstain from seventh-day work more rigidly than any other

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Jews . . . Emptying bowels is quite natural . . . They are long lived, most of them passing the century, owing to the simplicity of their daily life, I suppose, and the regular routine" (Williamson, 1969: 136).

In his travels in South-West India, Marco Polo extolled the life-style of the Brahmans: "They eat no meat and drink no wine. They live very virtuous lives according to their own usage. These Brahmans live longer than anyone else in the world. This is due to their light feeding and great abstinence" (Latham, 1969: 237). James Mitchener (1960) in his book entitled *Hawaii* described food habits in the mid-nineteenth century. He gave details of a typical dinner of the middle-class white population, of rich foods extending over several courses. He then noted that the Chinese servants would eat steamed cabbage with no fat, a little fish cooked with soya-bean sauce, a bowl of rice and some unsweetened tea" (1960: 473). It was often remarked, he noted, that Hawaii must agree with Orientals, because even though they worked harder than white men they lived longer (1960: 473).

What can be learned from the Japanese, who now have the longest survival rates: 75 years for men, 82 years for women (Iglehart, 1988)? Their diet, compared with that in the United States of America, has 25% less energy and half the intake of fat (Okamoto, 1992). Of the leading prefectures, Okinawa has the highest record for centenarians: 14,6 per 100 000, with female life expectancy of 84 years. The leading occupation of the inhabitants is agriculture, and they work until the eighth decade. They eat rice or potato as carbohydrate with abundant vegetable protein or fish protein. Their diet was stated to be "well balanced, and was assumed to be related to longevity because of the decreased incidence of atherosclerosis . . . they had a good genetic background, suggested by the accumulation of longevity in their siblings" (Mimura, Murakami & Gushiken, 1992: 159). It is highly illuminating that when Okinawans have emigrated, as to Campo Grande in Brazil, the survival time of the women falls tremendously, to 67 years (Concar, 1993).

What of the results of experimental studies on animals? In a recent American symposium, the classic McCay hypothesis that caloric undernutrition can prolong the life span beyond the usual maximum for a species, was challenged both on the quality of McCay's experiments and the validity of extrapolating findings in rats to the human condition (Widdowson, 1992). In answer, Masoro (1992) contended that in state-of-the-art experiments in several mammalian species, the basic findings of McCay have been repeatedly reproduced.

In harmony with the foregoing information are results obtained in a study undertaken in South Africa several years ago. It was found that of populations aged 50 years and over, more blacks than whites reached 70 or more years: 39,4% versus 32,7%, respectively (Walker, 1974). It is interesting that in the United States at present, African-Americans aged 70 years (although not before), despite their socio-economic and other disadvantages, have slightly longer survival time than white Americans (Guralnik, Land, Blazer *et al.*, 1993).

In the American symposium mentioned earlier, changes in the immune system, the gastro-intestinal tract and the skeleton, as well as cardiovascular and cerebrovascular changes were discussed. In a summary of the papers presented, Leaf (1992: 1271S) referred to "the repeated and nagging question . . . of whether the changes are exclusively the result of the aging process, and thus represent normal aging, or, whether they represent cumulative pathological changes from some subtle deficiencies, toxicities, diseases, or diseases superimposed on aging changes in cellular functions, is not readily answered." There are grounds to believe that the latter view is correct.

First, regarding overweight and hypertension, the usual accompaniments of ageing in Western populations, neither weight nor blood pressure rise with age in traditionally living African populations (Walker, 1964).

To give an example from local evidence, in 1957 studies were carried out at Baragwanath Hospital, Soweto, on changes with age in the pathological grading and chemical composition of aorta from urban African and white subjects. It was found that in most cases, the aorta of elderly Africans resembled those of whites aged 20-30 years, with minimal evidence of plaques, ulceration or calcification (Anderson, Walker, Lutz & Higginson, 1959).

A further example is afforded by recent colonoscopy studies, which have revealed that the colons of elderly blacks are free from polyps, and have the appearance and resilience of colons of young white subjects (Jackson, Ally & Segal, 1993). The African subjects studied in the investigations were invariably poor, with relatively low energy intakes, and with intakes of macronutrients (save carbohydrate) and micronutrients far below recommended allowances (tenth edition of RDA, 1990). Clearly, sequelae of ageing in some populations and contexts are far less than such evoked in other contexts.

As might be expected, in contrasting contexts there are plenty of perplexing nutritional situations. For example among Western women very high intakes of calcium are urged to attain maximum bone density, so as to lessen the occurrence of hip fracture in old age (Heaney, 1993). However among elderly African women in South Africa, half of whom ingest less than 500 mg calcium daily (a third of the 1 500 mg recommended), hip fracture has a tenth of the prevalence reported among elderly white women (Solomon, 1979). Thus, nutritional needs in one context may differ from those in another context.

As to future studies in South Africa regarding the role of nutrition, within the context of impoverishment in the different ethnic populations we should be seeking to acquire data bases on the *minimum* ranges of intakes of nutrients consistent with current and future good health (Walker, Walker & Glatthaar, 1994). This should apply not only in the case of the elderly, but also in the case of the young, and pregnant and lactating women. Local knowledge is minimal in these particular areas.

In the case of the elderly, it is also necessary to quantify non-dietary influencing factors, such as physical activity, smoking and drinking practices, stress, and home, socio-economic and other circumstances. Because of the variety of ethnic populations and sub-populations, South Africa is well placed to make an important contribution to knowledge in these areas.

Can it be said, from the available knowledge, that any one factor, nutritional or non-nutritional, is more influential in the ageing process than other factors?

In a recent book entitled *Successful aging* (Baltes & Baltes, 1991), the authors concluded that in a Western setting, a large number of factors affect ageing and they interact in complex ways; however even the most detailed evidence provides little evidence that any single causal factor is pre-eminent. This being so, and to be pragmatic, for successful ageing should old people eat more, less, or what? How should their diets be amended?

In the United Kingdom the Department of Health (1992) has advised that the diets of older persons should be modified to include more cereal products and far more vegetables and fruit. This is the most prominent advice given in British dietary guidelines (Bingham, 1991). The same advice would apply to African populations. Unfortunately, almost all cereals at present are refined, and the relatively high cost of

vegetables and fruit lowers the consumption of these foods by impoverished African populations. Yet these are the general guidelines which should be aimed at. Should the costs of staple foodstuffs be subsidized in the future, the food types mentioned, together with milk, should have the highest priority in dietary guidelines.

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