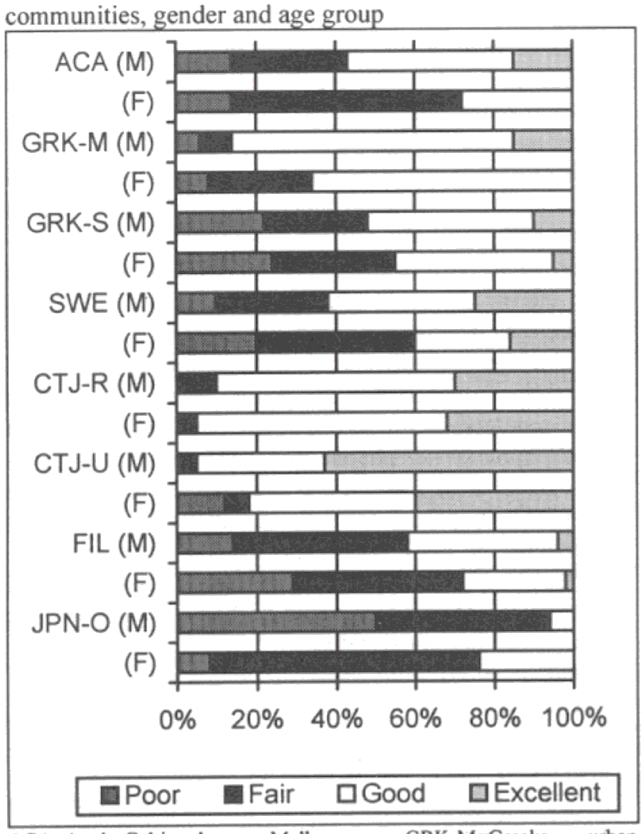
Figure 2. Self-rated health status of old elderly by study communities, gender and age group



ACA=Anglo-Celtic,urban, Melbourne; GRK-M=Greeks, urban, Melbourne; GRK-S=Greeks, rural, Spata, Greece; SWE=Swedes, urban, Gothenburg,; CTJ-R=Chinese, rural, Tianjin; CTJ-U=Chinese, urban, Tianjin; FIL=Filipinos, urban, Manila; JPN-O=Japanese, semi-urban, Okazaki

Reproductive phase and gender health differences

Women's lives were unduly shortened because of maternal mortality. Now this problem is largely resolved except in the least developed communities. Women usually live longer than men, probably in past because of long-term favourable effects of the reproductive period of life, notably in regard to macrovascular disease. The challenge is to understand what is unfavourable about being male, when the unfavourable factors operate, and to what extent they are nutritional. For one thing, the male of the human species is relatively expendable as far as a community's ultimate survival is concerned, as evidenced by the long, as opposed to the short term consequences, of loss of males in conflict at any one historical point in time. Once premature death through maternal mortality was largely overcome, apart from in the least developed societies, women consistently achieved greater longevity than men. These biological gender differences may have nutritional contributors. A good example of this line of reasoning comes from the studies of the contribution of abdominal fatness to the differences in cardiovascular mortality between men and women, which are largely lost when account is taken of abdominal fat[35-42]. Again, there is a loss of gender advantage by women in relation to cardiovascular disease once women develop diabetes, mostly non-insulin-dependent diabetes mellitus, in turn mostly attributable to abdominal fatness.

Yet again, men have more to gain by increasing their food variety (FV) than women, probably because they more often have low FV scores than women; this has been evident from the mortality data of the US NHANES studies[6]. Men also are likely to benefit through an intake of plant oestrogens, "female hormones", as far as risk of prostatic cancer is concerned.

Later life

In the early phase of life, there is considerable congruity between chronological and biological age and this congruity is progressively lost as we age. This suggests that there are various ways in which we may successfully age, or survive. Study of food habits in later life indicate that a considerable food cultural diversity may be associated with comparable health in later life[43] (Figure 2).

There is increasing evidence that progressive organ failure of various kind, ovarian[24], immune system[44-48], and cognitive function[49-52] may be partly nutritionally determined[53]. Some of the systems failures, most notably musculoskeletal, are retarded by the maintenance of higher levels of physical activity[54-56]. What characterizes ageing best is the decline in physical activity with an associated decline in food intake[57]. Physical activity is also likely to favourably affect functions like immune and cognitive function amongst the aged[58]. The full value of nutritional intake in later life may not be realized unless the aged are principally active[59].

The ability to decrease or increase intake without adverse consequences is a measure of nutritional reserve capacity, which declines with advancing years, but it may do so in different ways in different food cultures[43]. More formal measurement of nutritional reserve is required in the same way as has been achieved for other aspects of human physiology like cardiac or respiratory reserve.

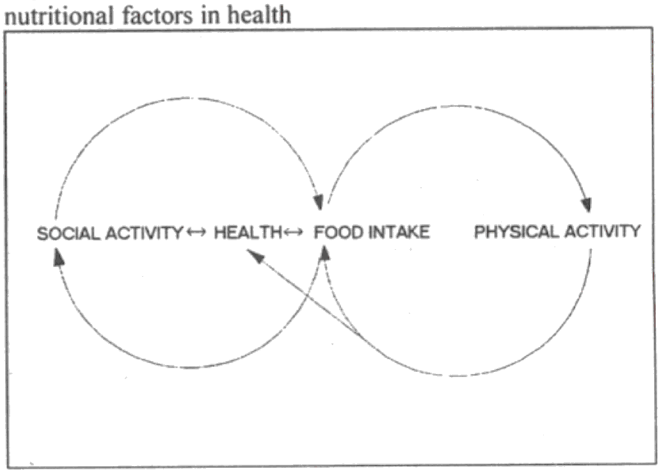
Minimizing adverse nutritional effects through the life span

The ability to minimize adverse nutritional effects through life will be generally dependent on:

(1) Social Activity[60]
(2) High food component density
(3) Food variety
(4) Physical activity, allowing more intake error
(5) Avoidance of substance abuse (tobacco, alcohol, unnecessary medication, meganutrient intake)

The multidirectionality of nutritional and non-nutritional factors in health, with operational differences throughout life are schematized in Figure 3.

Figure 3. Multi-directionality of nutritional and non-nutritional factors in health



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Dietary recommendations and guidelines which take into account maintenance, prevention and survival

旨在保養、預防和生存的膳食建議和指南

摘要

人們對以不同方式影響生命不同階段的營養與非營養因素，以及他們如何作用於生命某一階段，而在其後階段產生效應的興趣正在增加。要解釋這些問題需要大量人群縱向研究的數據，對基因表達的理解和控制，以及詳細的食物成份化學。而且，現在比以往對食物與健康關系的認識更加深入，例如與絕經、免疫功能和認知能力相關的問題。營養因素可作用於胎兒期、幼兒期、生長突增期、婦女生育期及其他各個生命階段。本文中對營養的考慮隨生命階段的不同而不同，包括生物年齡、編年年齡以及其他非營養的變量。例如，中度增加體力活動可增加人們膳食的靈活性；而避免物質濫用（如煙酒過量、不必需葯物及過量營養素的攝入）可明顯改善一些人的健康狀況，但仍存在高危人群，他們需要食物攝入方面的建議。社會、人類學、經濟及教育因素都在一生中發揮重要影響作用。例如，社會活動可刺激人們對食物的偏愛，而飲食的作用又可刺激社會活動 —— 這種影響健康的營養與非營養因素的相互作用，可以通過對老年人及跨文化研究中建立的食物與健康關系的模型來進行評價。爲將營養負效應降至最低，有必要對壽命及其他問題進行探討。

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