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Over the past couple of centuries, one of the most remarkable human achievements has been the apparently inexorable increase in life expectancy observed in most countries. For example, life expectancy of Japanese women has increased by about 40 years in the last 160 years and one in four Japanese girls born in the millennium year 2000 can expect to celebrate their 100th birthday. Sadly, in most cases the greater number of life years has brought with it more years of chronic morbidity – that much of humankind's experience of ill health and expenditure on medical and social care (especially in Western countries) are concentrated in the later years of life. Indeed, for a large proportion of common chronic medical conditions, age is the single greatest risk factor.

This worldwide increase in lifespan is evidence of considerable malleability in the ageing process and the challenge is to understand the factors influencing ageing so that strategies which facilitate healthy ageing (maintenance of the healthy ageing phenotype) can be maximised. Emerging evidence suggests that nutrition and lifestyle may be key environmental determinants of ageing because they have profound effects on the genomic and cellular damage which appears to be the fundamental cause of reduced function and increasing frailty which characterise physiological ageing. With this background, it was very timely for the British Nutrition Foundation to set up a Task Force to assess the role of nutrition and, to a lesser extent, physical activity in ageing. After an overview of the basic biology of ageing, we opted to take a systems approach and reviewed the evidence that nutrition influenced ageing of several of the major body organs and tissues (including brain, gastrointestinal tract, musculoskeletal tissues, eyes, cardiovascular and skin as well as the immune and endocrine systems). As far as possible, we focused attention on evidence from studies in humans rather than in experimental animals. Each chapter was drafted by one or two Task Force members and then critiqued by the rest of the Task Force.

It soon became clear that we need to take a life-course approach to nutrition and ageing and that, whilst there is encouraging epidemiological evidence that dietary choices influence ageing, there is a paucity of intervention studies which have tested the impact of particular nutrients, foods or dietary patterns on ageing in general or ageing of particular body systems. The significant gaps in knowledge are highlighted as priorities for future research and we hope that these recommendations will be useful to funding agencies, as well as to researchers, as increasing attention is focused on addressing the biological, medical and social aspects of the almost universal demographic shift in the age profiles of populations. In addition, as is now usual, this Task Force Report summarises the key points of each chapter in a question and answer format and considers the practical implications for public health.

In preparation of this Task Force Report, I have been privileged to work with a very talented and enthusiastic group of experts to whom I offer my grateful thanks. In addition, on behalf of the external Task Force members, I thank the BNF scientists who, in addition to authoring a number of chapters, provided a very efficient secretariat. Their support has been invaluable.

Professor John C. Mathers

Chair of the Task Force