

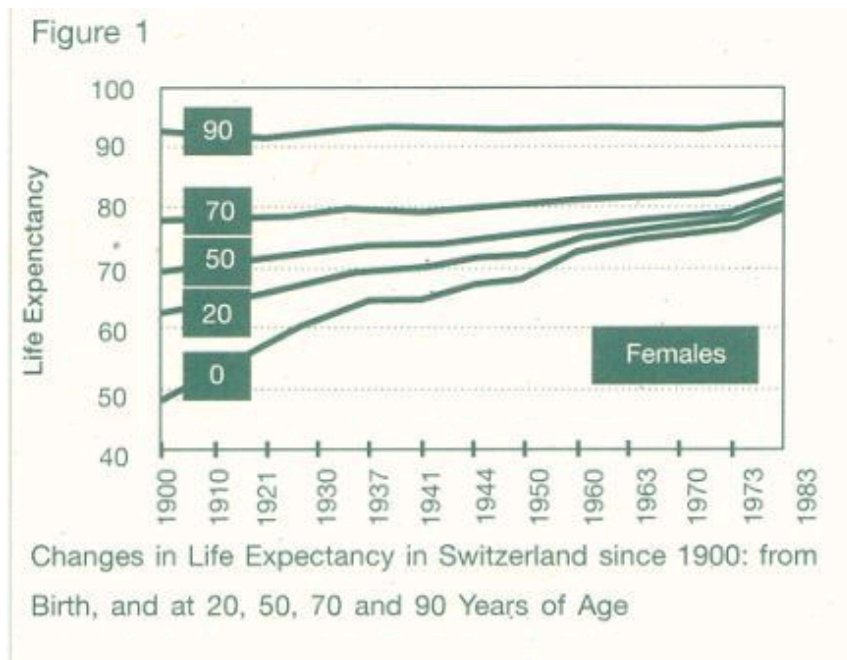
EUFIC-ÜBERSICHT

REFERENCE PAPER OF THE EUROPEAN FOOD INFORMATION COUNCIL

... Diet, Lifestyle and Life Expectancy (English only) ...

Reliable data from a number of sources, such as the World Health Organization and the Swiss Federal Office of Statistics, concerning changes in population life expectancy in various countries of the world shows that life expectancy, which is defined as the age to which half the population of a given age can expect to live, has been increasing for many years and is higher today than it has ever been in the recorded past. This is a very positive development for all who share the ever increasing interest in diet, health and lifestyle.

To illustrate this, the changes in life expectancy for Swiss women, from the beginning of this century is shown in Figure 1. The data shows that, since 1900, life expectancy in Switzerland has increased appreciably and consistently in all but the highest age group (at 90 years of age). Similar increases have also occurred for men over the same period.



Changes in Life Expectancy in Switzerland since 1900

These improvements that have occurred in Switzerland during this century are not exceptional. Figures 2, 3 and 4, based on data from WHO, show that similar changes have occurred in other European countries (such as Italy and the United Kingdom), as well as in non-European countries (such as Japan and the USA).

Figure 2 shows that the prospects from birth for living longer have increased in all five countries by around 5 years. Over the same period, life expectancy at the age of 45 has also increased in each country by more than 3 years (Figure 3), and by a similar amount among people aged 65, (Figure 4). The interesting feature of this data is that the increase in life expectancy of adults, at 45 and 65 is not a great deal less than the increase from birth (5 years at birth versus around 3 years for the adult age groups).

Figure 2

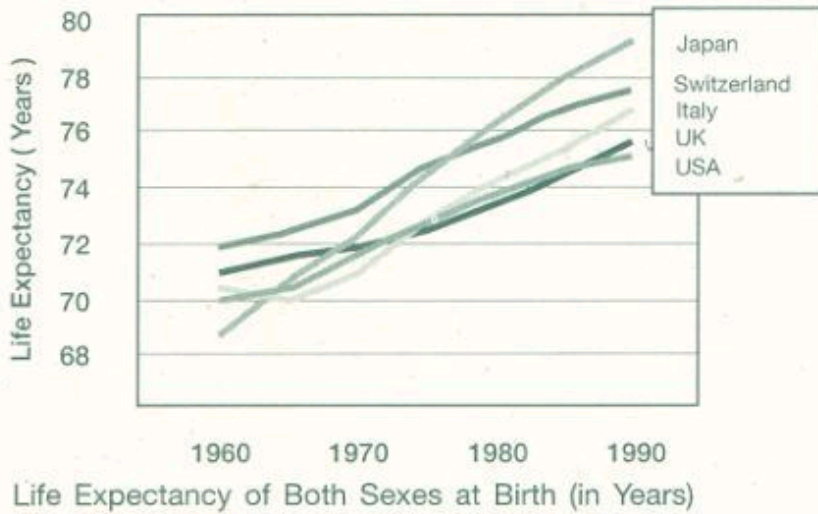
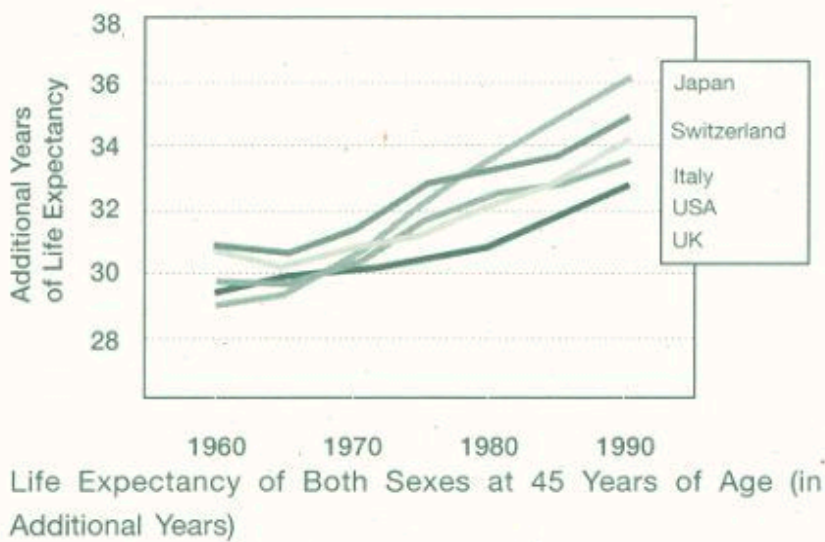
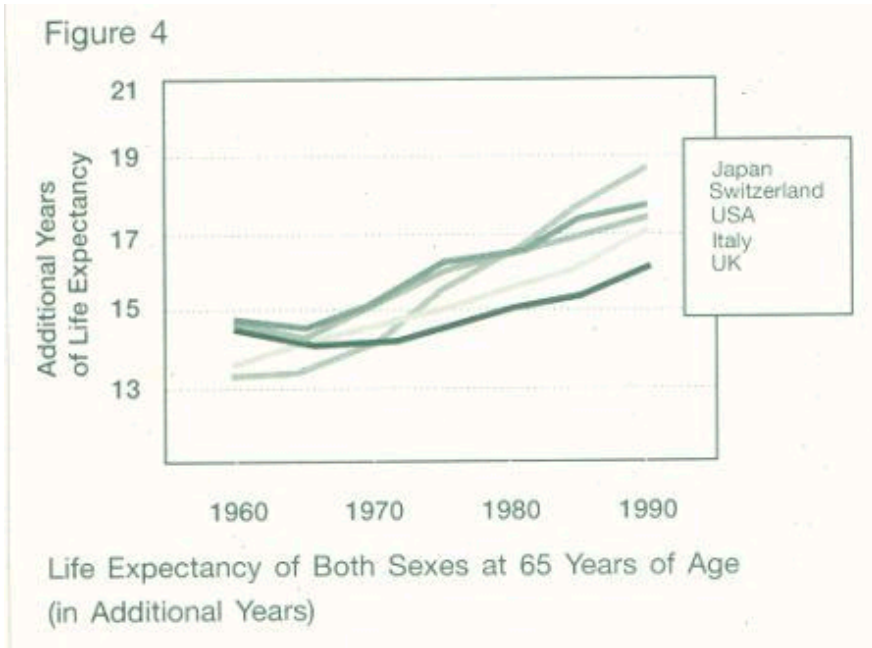


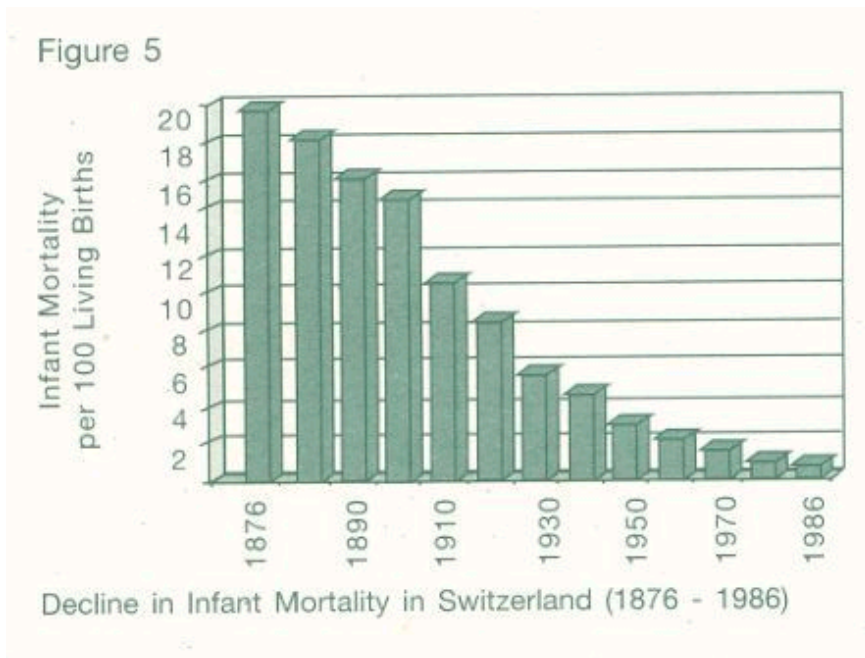
Figure 3





The Major Components

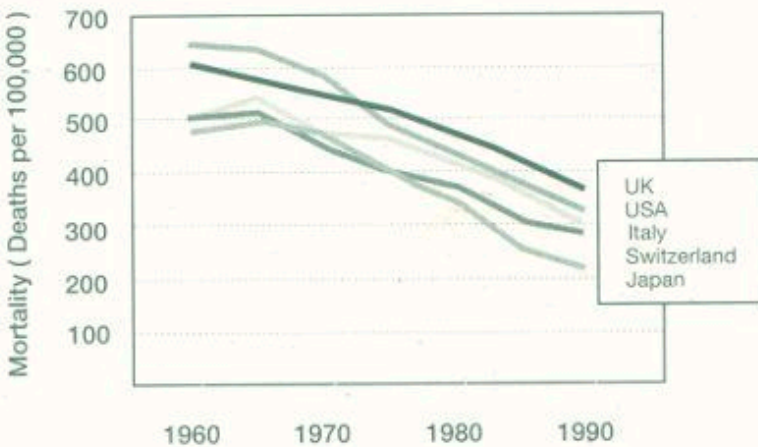
With respect to infants, the increase in life expectancy has come about because of a marked decline in infant mortality during the first year of life. This is illustrated in Figure 5, by data for Swiss infants. The rate has decreased from 19.7% of total live births in 1876, to 0.7% in 1986 and is now probably nearing its limit.



In adults, the significant change is a decline in the incidence of circulatory diseases, the most notable of which is heart disease. Heart disease is the principal cause of death in the world. The mortality rate from this type of disease has declined substantially over the last 30 years in many countries (Figure 6). In absolute numbers this is a decrease of around 240 deaths per 100,000 of the population per year during the thirty-year period. It is likely that the trend will continue.



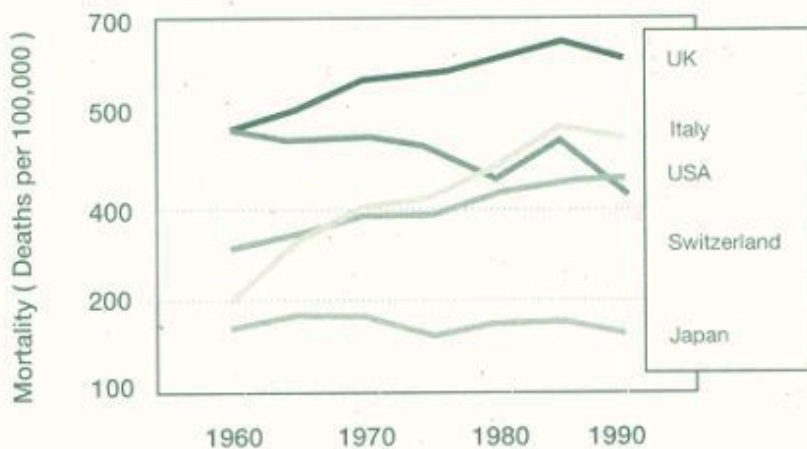
Figure 6



Mortality Through Diseases of the Circulatory System (All Ages Deaths per 100,000)

The second principal cause of death is cancer. Mortality over the last 30 years from cancer has either stabilised (e.g. Japan and Switzerland) or is increasing slightly (e.g., Italy, USA and UK). In absolute terms, the overall situation for the five countries shown in Figure 7 is a slight increase in mortality of around 11 deaths per 100,000 of the population between 1960 and 1990.

Figure 7



Mortality Through Malignant Neoplasms (All Ages, Deaths per 100,000)

The reason why

It is, of course, impossible to attribute the increase in life expectancy during the last 100 years or so to any one particular reason or factor. Improvement in medical care has without doubt played a prominent part in the decline of infant mortality. More advanced obstetric techniques, better perinatal and postnatal care, as well as increased vaccination against fatal infant diseases such as measles, diphtheria, polio and whooping cough, have all contributed to the overall improvement.

With adults, as for infants, there has also been a significant, and undeniable, contribution from better medical treatment but the situation is not as clear. Several studies have been done to evaluate the relative contribution of preventive and therapeutic practices to the reduction of, for example, cardiovascular mortality. Most of them have concluded that prevention and treatment have had almost equal impact. Factors in prevention have included, better food availability, variety and balance, more appropriate nutrition, recognition of the benefits of physical activity and a reduction in smoking habits.

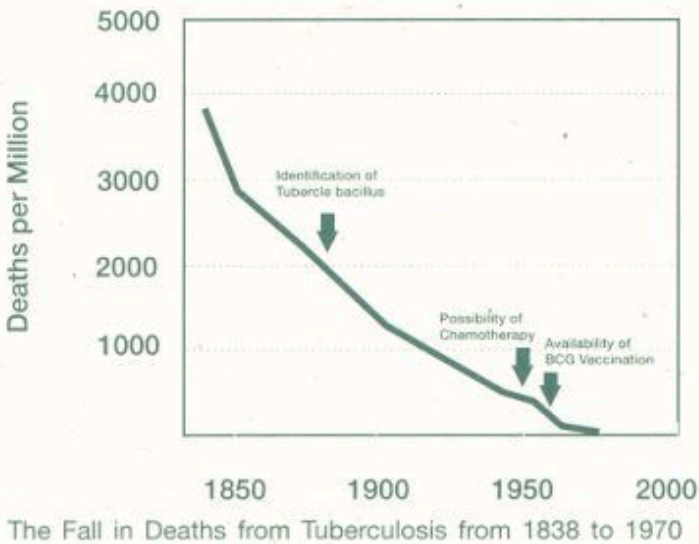
The genetic aspect is also important as illustrated by the fact that in virtually every population in the world, women live longer than men - by an average of 7.0 years when estimated from birth and 5.4 years at 50 years of age. The exact explanation for this phenomenon is not known. Since this occurs almost universally, it would seem to be irrespective of differences in culture,



diet or lifestyle.

Non-medical factors, such as better living conditions and hygiene, better food availability, variety and balance and improved nutrition, have also played a significant role but direct and clear evidence for their individual importance is difficult to obtain. Indirectly, however, their potential importance can be judged by the fact that declines in mortality from certain diseases have preceded medical advances in the treatment of the particular diseases. An example of this is tuberculosis (McKeown, 1976). Figure 8 shows that the mortality from tuberculosis in England and Wales, which was very high at the beginning of the 19th century, had declined by about 50% by 1880, the year that the causative tubercle bacillus itself was first identified. Mortality had substantially declined even further by the mid 20th century, when the first effective treatment and vaccines were developed.

Figure 8



In the case of tuberculosis, therefore, the advancement of medicine was obviously secondary to that of other changes occurring within this particular population. Among the likely explanations for the decline in tuberculosis before the advent of medical treatment, are improved housing conditions and better hygiene.

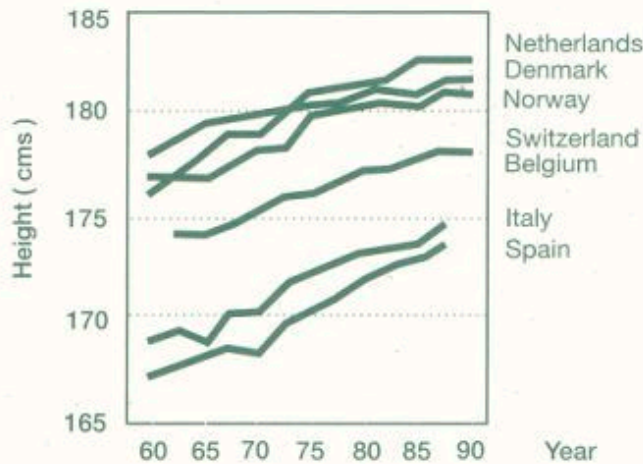
The influence of food availability and nutrition in promoting health is no longer news and it is generally accepted that these factors have also played some role in the observed increases in life expectancy.

Again direct evidence for this is very difficult to find but there certainly have been improvements in nutritional status in many populations over the same period of time. Changes of body height may suggest a correlation.

The height of army conscripts in Europe, for example, has increased markedly since 1960 (Figure 9). Although a difference in height has always existed between the countries (north-south bias), in all of them the average height of the conscripts increased between 5-8 cm during the 30 year period shown in the figure.



Figure 9



The Increase in Height of 18-Year Old Army Conscripts (1960-1990)

The Future

The question for the future is whether there is an upper limit to human life expectancy and, if there is, when it will be reached in the next decade, some- time during the 21st century, or perhaps even never? Theoretical estimations (Olshansky et al., 1990), however, put the maximum life expectancy from birth at 85 years of age for any population of both men and women. Today, the average for many European populations stands at between 77-79 years. Are Europeans nearing their maximum limit? Only time will tell.

Some Conclusions

It is obvious that many components have been involved in making our lives safer and healthier. This conclusion is by no means new. Hippocrates, stated something similar over 2,000 years ago - in the 5th century BC:

"Positive health requires knowledge of man's primary constitution and the powers of various foods, both those natural to them and those resulting from human skills. But eating alone is not enough for health. There must be exercise, of which the effects must likewise be known. The combination of these two things makes regimen, when proper attention is given to the seasons of the year, the changes of the winds, the age of the individual and the situation of his home".

Interestingly, Hippocrates incorporates almost every element that we now consider important for improving health and increasing our chances of longer life - namely, genetic makeup, food availability (both fresh and processed), nutrition, exercise, sanitation and hygiene, the weather and a subtle reference to medicine.

In conclusion, it would appear that, when judged by changes in life expectancy, health in our modern society is improving all the time and is not, as is often suggested, getting worse. Progress in medical care, better living conditions and hygiene, better food supply, improved nutrition and the importance of physical activity can be associated with this development.

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