



## On Longevity and Related Concerns

Life Expectancy at Birth is a statistical measure of the average time an organism is expected to live, based on the year of its birth, its current age and other demographic factors including gender.

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In the Bronze Age and the Iron Age, it was 26 years; in 2010 it was 67.2 years. For recent years, in Swaziland, Life Expectancy at Birth is about 49, and in Japan it is about 83. The betterment of medical sciences, improvement in sanitation and conditions of living, the advent of antibiotics, are some of the major factors that can be attributed to this global increase in Average Life Expectancy at Birth.

In ancient times, some curious minds searched for some magic formulation in order to make humans immortal. However, the methods they employed were pseudoscientific. Nevertheless, the quest for increasing the lifespan of human beings is still dominating such curious minds and it is now backed by science!

### Scientific Endeavours to Promote Longevity

- A startup called Rejuvenate Bio is claiming to make pets younger by using gene therapies. They plan to employ the lessons learnt for this exercise, for humans as well.
- An organization by the name Better Humans strives to radically extend healthy lifespans, end human diseases, improve human cognition and wellbeing. They base their studies on DNAs collected from human beings who have lived for a century or more.
- Similarly, Strategies for Engineered Negligible Senescence Research Foundation repair, remove or render harmless the cellular damages that occur in old age.

### Why Stop Aging?

- Aging is considered to be a new adversary for humankind which poses many issues and challenges like: **untreatable diseases like Alzheimer's, increased risks to transmissible diseases, increased pressure on aging homes, strain on medical resources, reduced productivity, resources spent on care, so on and so forth.**

- The entire *Aging industry* is developing not only **for the sake of scientific research but also for the potential economic benefits associated with taking care of age and the aged.**

## Approaches Used

1. **Biomedical Gerontology:** This approach focuses on root causes of aging and stops them before damage accumulates. This includes drugs that target metabolic pathways.
2. **Rejuvenation Biotechnology:** This approach is concerned with repair and maintenance of the cells and tissues that are undergoing degeneration with age.

## Ethical Concerns Associated with Longevity

The increasing focus on making the man almost immortal in this age almost ignores the fact that there is **a limit to population carrying capacity of our planet.** Given the rate at which human beings are polluting the earth by their activities, longevity is going to prove a bane for our future generations who will inherit an earth full of plastic, poisonous gases, and little water.

A large section of population struggles for basic necessities like food, shelter and water. The scientific community must line up their efforts to make the quality of life better for them rather than **using up our resources to provide a long life to a handful of rich** who, on the average, already live longer than the poor. It is obvious that these therapies will be accessible to only those who can pay for it. This will further deepen the already burgeoning inequality in the world.

**Wildlife** faces the most adverse impacts of the increase in the length of human lives. This was confirmed by a study by the University of California, Davis researchers. The **biodiversity** on earth is balanced by a number of factors, lifespans of organisms being one of them. Increased life expectancy means that people live longer and affect the planet longer; each additional year being another year of additional carbon footprint, additional ecological footprint, the additional use of natural resources, etc.

The methods used to achieve the goal of longer lives for humankind are themselves under the scanner. **Technologies like gene therapy have been in question for ethical and religious reasons.** For eg. Gene therapy for unborn babies is considered to be tampering with the natural process of birth and growing up, and may not be according to the desires of the future, yet-unborn individual. It is probable that the therapies yielding impact of age affect other human traits as well (especially psychological) which may pose a threat to the human race in long term.

Assigning a more positive value to the length of life, rather than its social, cultural, spiritual, and intellectual value is a very superficial view. **Human life is more of a relative entity defined by one's sociocultural capital and intellectual achievements rather than by how long one lives.** The real ethical challenge for aging societies, therefore, should be to improve the conditions for life in the community, and not how to stop ageing as such. After all, not all natural processes need tweaking, at least not as of yet.