

The Institutes

OPINION PIECE

WHY WE NEED A WAR ON AGEING

Based on Professor Julian Savulescu's presentation to a 2009 World Economic Forum session: 'Live Long and Prosper'.

There is no normal human life span, or if there is, it was very short. Life-expectancy for the ancient Romans was circa 23 years; today the average life-expectancy in the world is circa 64 years.

For the past 150 years life-expectancy in the countries where it is highest has increased at a very steady rate of 3 months per year.

100 000 people die per day from age-related causes. 150 000 people die per day in total. Cardiovascular disease (strongly age-related) is emerging as the biggest cause of death in the developing world.

The more we understand about the biochemical processes involved in senescence the more we find that they look like disease processes. At the level of genetics and biochemistry, there simply does not seem to be any meaningful distinction between "processes predisposing to or constituting disease" and "normal ageing".

Ageing is not an evolutionary adaptation. In the Pleistocene, when life-expectancy is estimated to have been a mere 20 years, too few of our ancestors survived to ripe old age for evolution to favor investment in stronger anti-ageing defenses.

The tortoise, by contrast, whose ancestors were less accident-prone thanks to their protective shells, enjoys anti-ageing defenses robust enough for a lifespan upwards of 150 years. Other animals have been genetically engineered to live significantly longer: (<http://www.practicaethicsnews.com/practicaethics/2007/11/supermouse-and-.html>).

We will all age, if we live long enough. We should understand why turtles age slower than us. And we should use that knowledge to stave off ageing.

Last week brought an exciting breakthrough. Scientists identified a jellyfish which could be immortal: (<http://www.timesonline.co.uk/tol/news/uk/science/article5594539.ece>)

Jellyfish usually die after reproduction, but *Turritopsis* instead returns to a sexually immature stage, rejuvenating itself for future development and propagation, potentially indefinitely. Medically-induced rejuvenation of

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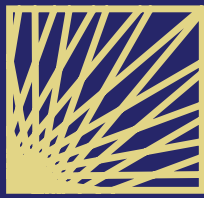
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organs and tissues is no longer science fiction: it is simply the application of regenerative medicine to the molecular and cellular damage of ageing. Just as for the repair and maintenance of man-made machines, this approach can in principle postpone age-related ill-health indefinitely.

Anti-ageing research is scandalously under-funded. In the US, a vast proportion of the funding doled out by the National Institute of Ageing is given to research on Alzheimer's disease. According to one estimate (from circa 2004), only about 0.02% of the money spent by the National Institutes of Health (of which the NIA is part) is spent on fundamental ageing research. Funding ought to be perhaps 1,000 times greater. Even if we only hastened progress to a cure for ageing by one year, that is brought it forward by one year, that's about 30 million lives saved. Every year we delay finding a cure, 30 million people die.

Objections can be overcome. Extending healthy lifespan might create various problems and challenges. But for any possible problem that might arise, we should ask: "Is this problem so bad that it is worth sacrificing up to 100,000 lives per day to avoid having to solve it?" If the answer is obviously no, we should look for solutions.

Some say we have an obligation to die and turn the world over to the next generation.

How long each generation should live raises deep questions about intergenerational relations, quality of life and burden of care. However healthy and able older people may be economically productive, self supporting and a source of knowledge, experience and care for younger generations. The answers are not clear, especially when life extension is coupled with life enhancement.

At any rate, since few of us believe there is a positive moral obligation to have children, that is to create future people, the obligation to create new generations must be weak

Others fear that a longer life would result in boredom and a gradual loss of meaning. This would be more likely if one was a solitary Methuselah. But in a world where many of those close to us also lived longer, the greatest source of human well-being – deep human relations – would remain intact and arguably grow richer as that network expanded across generations.

There is little empirical support that longer good life loses meaning. Research shows that life-satisfaction remains relatively stable into old age. One survey of 60,000 adults from 40 nations discovered a slight upward trend in life-satisfaction from the 20s to the 80s in age

The challenge is to create longer and better life. We should aim for drugs to prevent normal memory decline, interventions to keep us physically and mentally active. Viagra is a good example. It deals with one effect of normal human ageing.

Our goal should be more, much more, longer and better life. We need a war on ageing.

Billions of dollars have been spent preparing for a flu epidemic. The Spanish flu killed 20 million people. Ageing kills 30 million every year. It is the most under-researched cause of death and suffering relative to its significance. Whatever breakthroughs occur in medicine or health care generally, at the moment we face the inevitability of ageing. That might not be necessary.