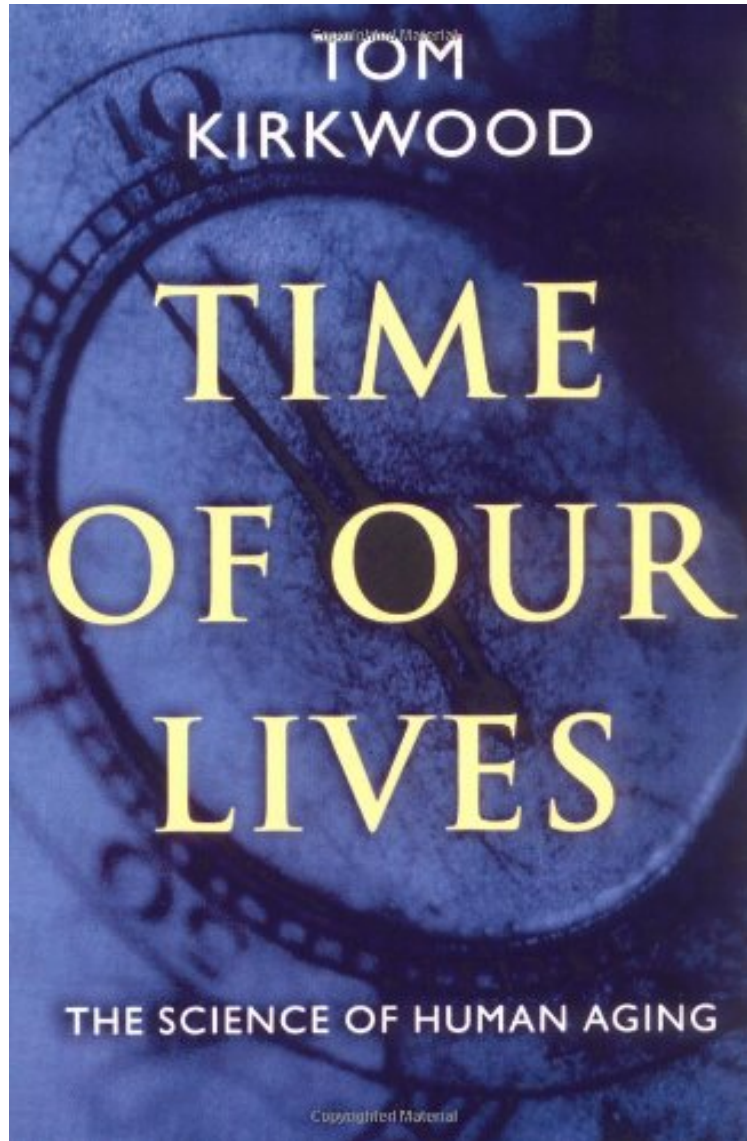


[Ebook free] Time of Our Lives: The Science of Human Aging

## Time of Our Lives: The Science of Human Aging

*Tom Kirkwood*

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**Tom Kirkwood : Time of Our Lives: The Science of Human Aging** before purchasing it in order to gauge whether or not it would be worth my time, and all praised Time of Our Lives: The Science of Human Aging:

0 of 0 people found the following review helpful. An Evolutionary basis for aging explained. Disposable soma theory. By Michael McClain This helped me grasp disposable soma theory on aging. This book discusses how given limited resources our body chooses to allocate resources to more reproductive desirable traits rather than spending resources on repair. Example would be if you have a 10 percent chance of dying in a year then after ten years more

likely you would be dead than not. If all of your resources were kept at keeping you alive when they could, say, increase the chance that you reproduce by 50% in the first two years at the cost of the last two then evolution would actually dictate your body to take away resources from repairing your biological systems in favor of the shorter term gain of increased chance of spreading your genes. 11 of 11 people found the following review helpful. A good and concise book on human aging for non-scientists. By Turgut Fettah Kosar I recently finished reading this book and found it to be quite interesting and helpful in understanding why and how we all age. I think Tom Kirkwood did a very good job in explaining the biological mechanisms and processes behind aging - at a level comprehensible to the general reader - without oversimplifying or neglecting the necessary subject matter. The book starts by talking about the social aspects and worldwide (also historical) statistics of human aging. Then the author introduces a theory of aging and gives an overview about the evolutionary, biological, physiological, and biochemical concepts and mechanisms, which is necessary to understand the aging process. In doing this, he also explains many aspects of cancer. The later chapters try to clarify the reason behind the gender- and geography-related differences in life expectancies. Finally, the last two chapters talk about the "do"s and "don't"s of "making more time". The bibliography section at the end of the book directs more interested readers to specific and more advanced sources about the material covered in the book. Although this book was generally fast-reading, I had to re-read some looong sentences two or even three times in order to put their heads and tails together. Also, I found the last two chapters a little anticlimactic. I guess I was expecting more than "don't smoke, eat right, exercise" type of recommendations. The author doesn't make many predictions about longevity enhancement in the future, but the short science fiction story at the end of the book kind of serves for this purpose. Still, the book deserves a five star rating in my humble opinion because it successfully explains a very complicated process to the layman without using scientific jargon. Also, the author does not go out on a limb and make unfounded or crazy predictions (like many famous science authors cannot resist the temptation of doing). 5 of 5 people found the following review helpful. Breezy anecdotal style punctuated by dagger-thrusts By Robert Hughes Don't be misled by the first few chapters. The style is relaxed, discursive, and laced with entertaining anecdotes which sometimes seem a little off-subject. The "disposable soma" theory of aging emerges in Chapter 6. The author first proposed this theory in a paper published in Nature in 1977, and he argues a convincing case. It is a simple but highly plausible theory, like Darwin's theory of evolution, and it defines a framework within which other theories of aging can be understood. DNA and cells are constantly under attack. They are under attack from such things as ultraviolet radiation, viruses, free oxygen released by normal mitochondrial metabolism, and the odd hiccup during DNA-copying. We have defences against these attacks: the immune-system, anti-oxidants, and a form of DNA proof-reading under which "cells could in principle be as accurate as they liked". BUT all these defences come at a cost. The germ cells are indeed protected at any cost: that is why life goes on forever. But it would be a waste of energy to protect the somatic cells in a way that would prolong life beyond the point at which accidental death would claim almost every individual. The maximum length of time that a member of a species would normally survive in the wild determines the degree of protection which the genes of the species are prepared to pay for. The irony is that we might be shortening our lives by drowning our bodies with oxidants generated by burning far more calories than we evolved to handle. If only those excess calories could be diverted into improving our internal "repairs maintenance" and so lengthen our lives instead! An excellent book, as iconoclastic in its way as Richard Dawkin's "Selfish Gene", though not as melodramatic.

By the year 2050 one in five of the world's population will be 65 or older, a fact which presages profound medical, biological, philosophical, and political changes in the coming century. In *Time of Our Lives*, Tom Kirkwood draws on more than twenty years of research to make sense of the evolution of aging, to explain how aging occurs, and to answer fundamental questions like why women live longer than men. He shows that we age because our genes, evolving at a time when life was "nasty, brutish, and short," placed little priority on the long-term maintenance of our bodies. With such knowledge, along with new insights from genome research, we can devise ways to target the root causes of aging and of age-related diseases such as Alzheimer's and osteoporosis. He even considers the possibility that human beings will someday have greatly extended life spans or even be free from senescence altogether. Beautifully written by one of the world's pioneering researchers into the science of aging, *Time of Our Lives* is a clear, original and, above all, inspiring investigation of a process all of us experience but few of us understand.

.com The blurb on the cover of this book may be slightly misleading: "A world authority shows why aging is neither inevitable nor necessary." This is true, for he does show theoretically why there is no need for us to age, i.e. that there is no "death gene" that determines, more or less precisely, our longevity. Just don't expect any miracle cures. From a layman's viewpoint, the evolutionary argument he constructs for the development of aging in species is well elucidated and highly convincing. Aging is not, according to the disposable soma theory expounded here, anything to do with population control or some such crudely deterministic mechanism, but rather the genes making the best of what are, after all, limited energy resources. Our soma cells (anything but the all-important and immortal germ-line cells by

which we reproduce) are constantly being replicated, a process that, carried out in any sort of energy-efficient manner, leaves room for error. And these errors are cumulative in effect; though the process is generally remarkably accurate, a faultily constructed cell cannot produce a perfect cell, and eventually our bodies will go wrong with fatal consequences. This mattered less when the conditions of life were such that reaching a state of senescence was relatively rare. But with the change in these conditions found in modern industrialized countries, the effects of this process have taken on a far greater significance. As well as the science (all very accessible to the nonscientist), Tom Kirkwood also engages the reader in an interesting and important discussion of the social and cultural implications of these changed conditions. For the time being, though, as far as any of us are concerned, aging is still inevitable. This book doesn't offer the hope of evading death or even delaying it that significantly, but it does offer up some hope: understanding a process can help to demystify it and dispel fear, and, as Kirkwood illustrates, it can help us to try and intelligently influence the processes at work in our favor. *Time of Our Lives* is an excellently written popular-science book for anyone who is concerned with the onslaught of the years. --Alisdair Bowles, .co.uk

From Publishers Weekly "Aging is neither inevitable nor necessary," declares British gerontologist Kirkwood in this unorthodox study. According to his hypothesis, which he calls the "disposable soma theory," aging occurs because genes treat organisms as dispensable, investing just enough in body maintenance to enable an organism to get through its life expectancy in the wild. Kirkwood believes that freshwater hydra and tubular pond animals with remarkable regenerative powers are immortal, a claim made by Argentinean biologist Daniel Martinez in the early 1990s. When it comes to humans, though, Kirkwood concedes that a fountain-of-youth elixir, whether obtained through gene-repair therapy or other means, is far in the future or may never exist. His survey of scientific research into the human aging process reveals clues about the origins of arthritis, memory loss, Alzheimer's disease and immune-system impairment. He dispenses sensible if unsurprising advice on how to slow one's own aging (exercise, eat fewer calories, keep up a healthy sex life, etc.) and examines anti-aging fads, including those involving melatonin, the steroid hormone DHEA and hormone replacement therapy for women. Kirkwood's more provocative ideas include an evolutionary theory to explain menopause and his argument that cancer is an accidental throwback to "immortal" cell-growth mechanisms that were meant to be switched off. He concludes with a weak science fiction scenario in which aging has been conquered and babies are created infrequently to replace individuals who die from accident or suicide. Agent, Felicity Bryan. (Aug.) Copyright 1999 Reed Business Information, Inc.

From Library Journal Of the many recent books on why and how we age, this is one of the best written. Kirkwood (biological gerontology, Univ. of Manchester) explains complex scientific concepts in a clear, entertaining, and personal way. In one example, he effectively uses an examination of causes of death in a remote Ghanaian village to explain how and why our lifespans in First World countries are so different from those of our ancestors. Among the topics he addresses are the evolutionary advantage of aging, the relationship of aging and cancer, why women live longer than men, Alzheimer's, and the future of gene therapy. He also addresses how to prolong life or at least improve the quality of it in later years. Unfortunately, there are no references to published research, though there is a bibliography. This is an asset to public libraries, but those preferring references might consider either Stephen Austad's *Why We Age* (Wiley, 1997) or John J. Medina's *The Clock of Ages* (LJ 3/15/96). AMarit MacArthur, Auraria Lib., Denver Copyright 1999 Reed Business Information, Inc.