"It is important to have basic knowledge of what we do and do not understand about growing old and what we can and cannot do to influence it. I trust Michael Rose as an expert in this territory."

— From the Foreword by ANDREW WEIL, M.D.

THE LONG TOMORROW

How Advances in Evolutionary Biology Can Help Us Postpone Aging

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The Long Tomorrow: How Advances in Evolutionary Biology Can Help Us Postpone Aging

The conquest of aging is currently within our grasp. It hasn't arrived however, writes Michael R. Rose, but a scientific juggernaut offers started rolling and is usually picking up speed. Rose describes how he made the well-known Methuselah Flies, fruit flies that live much longer than normal. In The Long Tomorrow, Rose offers us a delightfully created account of the modern technology of maturing, spiced with intriguing stories of his own career and leavened with the author's engaging sense of humor and rare ability to make contemporary analysis understandable to non-scientists. We see how a few of his earliest experiments helped demonstrate that "the power of natural selection" was key to understanding the aging process--a main breakthrough. The publication ranges from Rose's 1st experiments while a graduate student--counting a million fruit fly eggs, which got 3,000 hours during the period of a year--to some of his crucial scientific discoveries. An extended tomorrow is coming."--Malcolm Gladwell, The New Yorker Perhaps most interesting, we find that ageing hits a plateau and stops. We find out that rodents given fifteen to forty percent fewer calorie consumption live about that much longer, and that volunteers in Biosphere II, who resided on reduced calorie consumption for two years, all experienced improved vital indicators. Popular accounts of Rose's function have appeared in The New Yorker, Period magazine, and Scientific American, but The Long Tomorrow is the first full accounts of the exciting new science written for the overall reader. "Among his peers, Rose is known as a brilliantly innovative scientist, who has almost single-handedly brought the evolutionary theory of ageing from an abstract notion to one of the most thrilling topics in science. Equally essential, Rose surveys the entire field, offering colourful portraits of many leading researchers and shedding light on analysis findings from all over the world.

Summary of WHAT CAN CAUSE us to GET OLD Evolutionary biology attempts to describe how exactly we age by looking at genes within our DNA that either allow or force our bodies to age. Regrettably in nature's desire to populate the planet, it doesn't select for these genes as dominate. Why We Age group: What Technology Is Discovering about the Body's Journey Through Life (1997); The main point is there is absolutely no one-sentence description of why we age group.Artificially we have learned that selective breeding in race horses, show dogs, prize winning cattle, and other animals have produced fresh animals with desirable traits. Dr. We can not regrow cartilage which has worn apart.Could similar selective breeding in human beings produced an extended lived competition. As the story goes Henry Ford wanted to know which parts of his cars hardly ever wore out. Such may be the argument. The issue is that people are not really good at fixing stuff that go wrong with our bodies. But for the overall reader this book isn't the best for understanding why we age and die.. What we can find out about aging from fruit flies This is mostly a memoir about Professor Rose's career as an evolutionary biologist who studies aging in fruit flies and extrapolates that knowledge to humans. Microorganisms use our tissues for his or her reproduction or subsistence (e." (p. 134)Rose sees senescence as being the inadvertent product of the evolutionary process. There is no solitary gene that settings aging.Now, if we can fix one thing and then another and another, our death could be postponed. certainly why each is attracted sexually to those at the peak of their reproductive lives. His may be the standard look at that the evolutionary process becomes less and less in effect as we get additional and further from the onset of our reproductive age group until "the force" (as he phone calls it) is not in effect at all.This is an extremely tricky and subtle argument that requires a bit of reflection to totally understand. I understand when I first encountered it some years ago I found it hard to check out. It is usually still very hard to express. We can not repair a human brain that is deprived of oxygen for lots of minutes.Rose uses the analogy of Ford's Model T vehicle. Probably, nonetheless it would consider centuries. He discovered what these were and directed his production staff to make them cheaper so that they would wear out at about the same time as the rest of the car, thereby making his cars cheaper to create while increasing his profits without decreasing the longevity of his vehicles., viral and bacterial attacks). For example, genes coded to permit a body component to last one thousand years wouldn't normally be chosen (or unselected for that matter). Certainly any gene or genes that code for processes enduring past reproductive age would can be found in the genome only in a random style (if at all). Such genes would randomly show up and randomly die out.What this means is that following the onset of reproduction everything begins to breakdown in a more or less random fashion. For this reason members of the contrary sex (especially males) pick the young for mates. It can't be done. I think biologist and scientist will enjoy this book. Various other cells die due to something we ingested or due to accidents. The "Very long Tomorrow" in the title identifies his belief that "it really is still reasonable to hope that eventually the fantastic mass of people will be able to control their aging through pharmaceuticals and medication. If we become extremely, very good at fixing, death could be postponed for a long period. Rose says that nature follows a similar parsimonious production using its organisms. Toxicity kills off cells or changes their metabolism so the cells no more function correctly.The answer appears to be almost circular in that because older organisms have bodies that are already beginning to breakdown, they are in a disadvantage to younger organisms whose bodies are in peak form.The science fiction readers of Robert Heinlein's Lazarus Long books reflect a similar story, the hero is the consequence of centuries of such breeding.. There are a variety of better books (non-e of

them completely satisfying, incidentally). Like Ford's Model T, first one thing goes wrong and then another until finally something stops us from operating altogether. Instead a huge selection of genes are included so that the prospect of a single elixir or technique getting developed that could magically postpone aging and death is extremely unlikely.g. Can we lengthen longevity through diet, drugs and medicine - yes, we already have, and are continuing to take action. Combining all of this, Dr. Most of the fixing that takes place is through your body's own devices. Tissues are repaired, assaults to the skin patched up, bone tissues fused (after being established properly--that we are able to do). But we can not stop the growth of a cancer that has metastasized throughout the body without killing parts of the body itself. But i want to give it a try. Rose's research utilized fruit flies to produce brand-new generations that lived much longer. The fact that the contrary sex is usually biased in its choice additional accentuates the reproductive benefit of the young.Therefore the "very long tomorrow" will be gradual in coming and the length of this day will grow by small increments.What I hardly understand is this: why isn't the reproductive age of organisms itself indefinite? Or, to place the question another way, why should the youthful and inexperienced possess a reproductive benefit over the previous and experienced? Arteries become clogged and blood fails to flow to some tissues which die of starvation. The environment functions upon us in a variety of ways. Or to become more precise, that is why the young are drawn to the young; Almost as an apart and incidentally, Rose explains why we age group and finally die. The youthful have a longer future and so will be better in a position to give their offspring. And so on.For a far more detailed description of why we age, expressed in a different way, see my overview of The Biology of Death: Origins of Mortality (2004) by Andre Klarsfeld and Frederic Revah. Just look at the teenage pregnancy rate. It's like trying to explain a complex process within a phrase. Little insults accumulate. Good book to read, great with evolution This book was amazing and awesome. Rose provides written a publication that summarized the existing condition of knowlege in the field.etc. In addition to the opus cited above, here are three others: Austad, Steven N. Nature makes us want offspring youthful. Clark, William R. A Means to an End: The Biological Basis of Aging and Death (1999); and Hayflick, Leonard How and Why We Age (1994).Those thinking about Rose's career (and its ups and downs) and the type of his work with fruit flies will find this interesting. Become familiar with a lot about maturing from fruit flies. When I finished this reserve, I was surprised that a new author's first book was really good. Some cells move wildly reproductive and cancers develop.