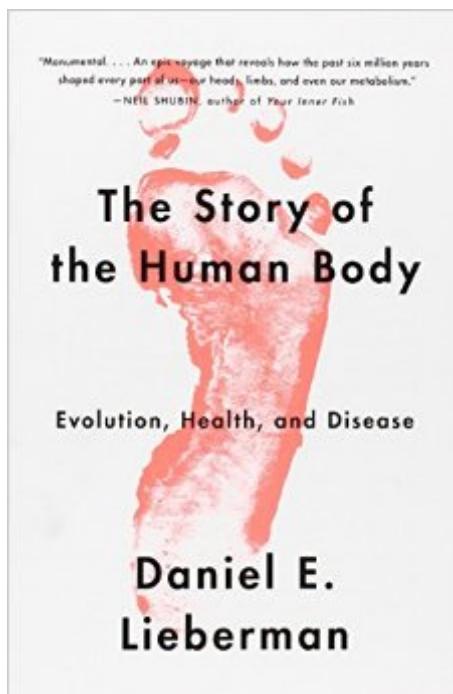


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The Story Of The Human Body: Evolution, Health, And Disease



Synopsis

In this landmark book of popular science, Daniel E. Lieberman gives us a lucid and engaging account of how the human body evolved over millions of years. He illuminates the major transformations that contributed to key adaptations to the body: the rise of bipedalism; the shift to a non-fruit-based diet; the advent of hunting and gathering; and how cultural changes like the Agricultural and Industrial Revolutions have impacted us physically. He shows how the increasing disparity between the jumble of adaptations in our Stone Age bodies and advancements in the modern world is occasioning a paradox: greater longevity but increased chronic disease. And finally "provocatively" he advocates the use of evolutionary information to help nudge, push, and sometimes even compel us to create a more salubrious environment and pursue better lifestyles. [With charts and line drawings throughout.]

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Customer Reviews

The first part of the book is about human evolution from apes to *Homo sapiens* with a lot of interesting information about hominins (AKA hominids) and how we became bipedal and developed language and culture. The second part is about how the rise of agriculture and then the industrial revolution changed the health of our bodies for better and for worse. The third part is about how to cope with what Lieberman calls "mismatch diseases" and "dysevolution." Lieberman's style is surprisingly readable considering that he has written scores of articles for peer-reviewed journals. There is some repetition (some of it on the same page!) but most of it is didactic because Lieberman is a teacher and he wants us to understand the great environmental and cultural changes that have

taken place in the last 50,000 years or so since we became behaviorally modern humans. He is an expert on the human body, especially the head and the feet. Known as "the barefoot professor" at Harvard where he is the head of the Department of Human Evolutionary Biology, Lieberman is at the pinnacle of his profession and so what he writes about the human body and the environment is highly significant. To give us as much information as possible, Lieberman begins in Part I with the Australopithecus apes and examines how they got around on two legs as they gradually evolved into the various archaic humans and finally into *Homo sapiens*. This early part of the book, about one-third of the total, gives the reader a good, contemporary understanding of the various early hominids such as *Homo erectus*, *Homo neanderthalensis*, *Homo rudolfensis*, etc. and how their bodies and habits differed from one another and from *Homo sapiens*. For example he notes how humans were better at throwing spears and rocks than apes and Neanderthals and how this ability (among other talents) helped humans to survive while the Neanderthal did not. The beginning of Part II is about the discovery and growth of agriculture and animal husbandry and how that caused an explosion in human populations while bringing about new hardships and diseases. He calls this "The Fruits and Follies of Becoming Farmers." On page 181 he quotes Jared Diamond who claimed that farming was the "worse mistake in the history of the human race." Chapter 9 of Part II examines how the industrial revolution brought about new diseases, hardships, challenges and the beginning of hitherto undreamed of riches for humans and of course the real beginning of the massive pollution that is threatening the planet. Part III is about chronic disease and other ailments of the modern world and how to cope in an environment radically different from the paleolithic one in which we evolved. It is here that Lieberman elucidates his concept of mismatch disease and dysevolution. The former refers to diseases of too much energy (over eating) and not enough physical activity that leads to obesity, type 2 diabetes, heart disease, etc. that is epidemic in developed countries. The latter (dyevolution) is the phenomenon by which we address the symptoms of these chronic ailments instead of the causes thereby perpetuating the diseases. An important point that Lieberman makes in the introduction and repeats elsewhere is that "many human adaptations did not necessarily evolve to promote physical or mental well-being." They evolved to "promote relative reproductive success (fitness)." (p. 13) On page 167 he expresses it this way: "we sometimes get sick because natural selection favors fertility over health, meaning we didn't necessarily evolve to be healthy." (!) This means that the tendency to get diseases like obesity and type 2 diabetes, and even Alzheimer's--diseases that do not reduce reproductive success until it becomes a moot point as we grow older--are mostly not selected against. The evolutionary mechanism that fashioned us simply turns a blind eye to diseases that mainly affect us after the prime reproductive years of our

lives. Another important point is that because humans evolved to be hunter-gatherers we are consequently optimally adapted to the way of life of a hunter-gatherer. This strongly suggests that (and is the main thrust of Lieberman's contention) we are NOT optimally adapted to either life in the big city or life on the farm. It may surprise some readers to learn that humans took a step backward in terms of easy living when we began to rely primarily on farming for subsistence. Lieberman refers to studies that show that not only did the instance of infectious disease increase as we became dependent on farming, but we actually got shorter in stature. We became more subject to a feast and famine way of life that led to more pain and suffering than hunter and gatherers experienced. Lieberman dismisses several of the explanations for why we became bipedal, such as seeing over tall grasses, freeing our forelimbs for carrying things, etc. He believes that climate change from forested land to savannahs "spurred selection for bipedalism in order to improve early hominins' ability to acquire fallback foods...when fruit was not available." (See the section entitled "Why Be a Biped" in Chapter 2, "Understanding Apes.") "Fallback foods" are roots, tubers, animals like turtles, etc. The salient point is that being bipedal allowed the early apes to cover larger amounts of ground in search of food, whereas tree-dwelling apes could not because knuckle walking is not nearly as efficient as walking upright on two legs. Among the wealth of insights that Lieberman makes about being human is this one about cooperation. ".[H]unter-gatherers are highly egalitarian and they place great stock in reciprocity.... In their "highly cooperative world...not sharing and being uncooperative can mean the difference between life and death. Group cooperation has probably been fundamental to the hunter-gatherer way of life for more than two million years." (pp. 75-76) There's a lot of information about nutrition, physical activity and lifestyle choices beginning in Chapter 10 "The Vicious Circle of Too Much." On a point of much contention among nutritionists Lieberman concludes: "Insulin thus makes you fatter, regardless of whether the fat comes from eating carbohydrates or fat." (See the entire argument in the section "How and Why We Are Getting Fatter?") As a means of fighting the mismatch diseases of obesity, type 2 diabetes, etc. Lieberman introduces in Chapter 13, "The Survival of the Fitter," the idea of "soft paternalism" by which he means governmental intervention to help discourage or tax unhealthy consumption of sodas and other highly processed junk foods. I'm not sure how I feel about this idea but I know many people would oppose it. What Lieberman does not present as a way to lessen human suffering is legal and assisted suicide. One last quote: "If there is any one most useful lesson to learn from our species' rich and complex evolutionary history, it is that culture does not allow us to transcend our biology." (p. 366)--Dennis Littrell, author of "Understanding Evolution and Ourselves"

'The Story of the Human Body' is a well-written book tailored for the curious nonscientist who wants to learn more about how our evolutionary history influences the sorts of ailments that we suffer from, particularly those that we often attribute to simple aging. This is a book primarily for the layman - if you've taken a good general life science course as a high school or college student you'll be able to survive the jargon just fine - and it's to author Daniel Lieberman's credit that he was able to write such an engaging, conversation book without overly simplifying the science behind his argument. The science itself is noncontroversial, and Lieberman does a great job distinguishing between the indisputable facts of the fossil record and what we can infer and assume based on our understanding of modern primitive peoples. Lieberman's central argument won't be new to anyone who's studied evolutionary theory and health sciences, but it's probably one that most people have not considered before. I'm particularly impressed with the last chapter of the book. Most recent science books I've read that are written for a nonprofessional audience tend to either fall apart toward the end or have ridiculous wrapups that have little connection to the text that preceded it. The last chapter of this book, on the other hand, reads like an extended essay examining the pragmatism of implementing our evolutionary knowledge to many of the potential solutions to improve our health. Truth be told, unless we're going to abandon civilization en masse and return to a hunter-gatherer lifestyle, any changes we make to get closer to the lifestyles that our bodies evolved for are going to necessarily be incomplete. But they will be for the better. And while I don't agree with all of Lieberman's arguments, it's difficult to contradict his primary conclusions. This isn't an overly easy read, and it isn't going to lead to an overnight improvement in your health, but it's well worth the effort you put into reading this book. Set aside a week or so to read it slowly.

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