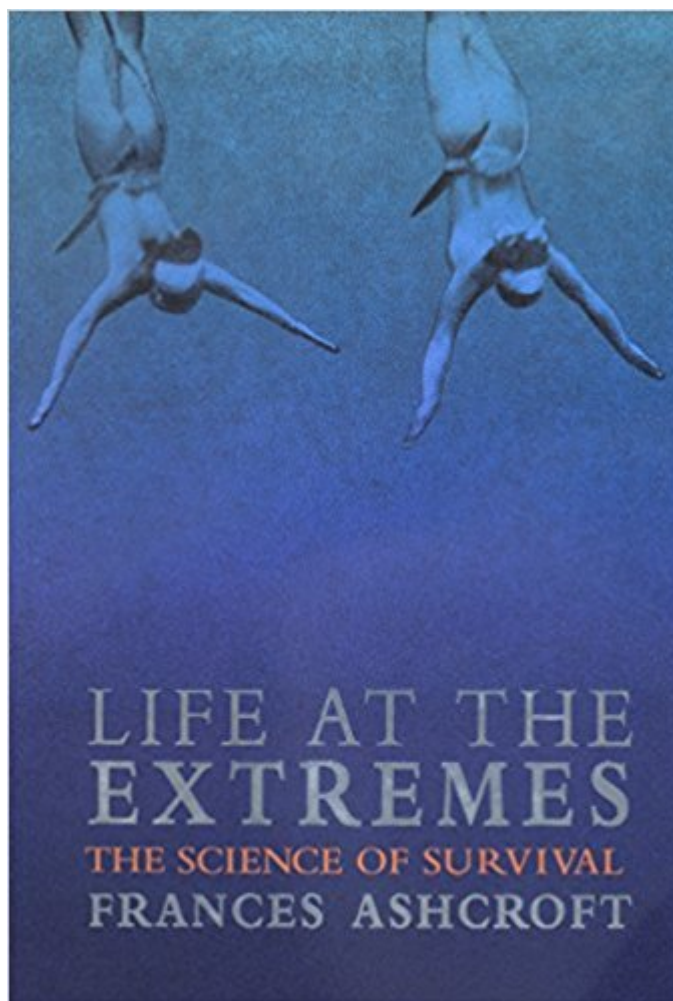


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# Life At The Extremes: The Science Of Survival



## Synopsis

The challenge of scaling the highest mountain, exploring the deepest ocean, crossing the hottest desert, or swimming in near-freezing water is irresistible to many people. Life at the Extremes is an engrossing exploration of what happens to our bodies in these seemingly uninhabitable environments. Frances Ashcroft weaves stories of extraordinary feats of endurance with historical material and the latest scientific findings as she investigates the limits of human survival and the remarkable adaptations that enable us to withstand extreme conditions. What causes mountain sickness? How is it possible to reach the top of Everest without supplementary oxygen, when passengers in an airplane that depressurized at the same altitude would lose consciousness in seconds? Why do divers get the bends but sperm whales do not? How long you can survive immersion in freezing water? Why don't penguins get frostbite? Will men always be faster runners than women? How far into deep space can a body travel? As she considers these questions, Ashcroft introduces a cast of extraordinary scientific personalities; inventors and explorers who have charted the limits of human survival. She describes many intriguing experiments and shows how scientific knowledge has enabled us to venture toward and beyond ever greater limits. Life at the Extremes also considers what happens when athletes push their bodies to the edge, and tells of the remarkable adaptations that enable some organisms to live in boiling water, in highly acidic lakes, or deep in the middle of rocks. Anyone who flies in an airplane, sails the high seas, goes skiing or walking in the mountains, or simply weathers subzero winters or sweltering summers will be captivated by this book. Full of scientific information, beautifully written, and packed with many fascinating digressions, Life at the Extremes lures us to the very edge of human survival.

## Book Information

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## Customer Reviews

"It is an extraordinary coincidence," writes English physiologist Frances Ashcroft, "that the highest peak on Earth is also about the highest point at which humans can survive unaided." A coincidence, to be sure, and, like many other milestones of the limits of human endurance, one known to us through the joint efforts of scientists, mountain climbers, explorers, and athletes. Ashcroft's book is a thoroughly engaging survey of those limits and their origins in the nature of things, of what happens to human beings in the most difficult environmental conditions. She writes, for instance, of why it is that astronauts have trouble standing after returning to Earth (because, in part, their leg muscles quickly atrophy outside of terrestrial gravity); of how the famed Japanese pearl divers condition themselves to attain such extraordinary underwater depths; of how and why the consumption of carbohydrates and caffeine can improve athletic performance; of why British children so easily suffer heat exhaustion on trips to such semitropical venues as, say, Disneyworld, whereas young Saudis can tolerate much higher temperatures (but would likely not thrive in an English winter). Backed by extensive field research--the author has climbed Mount Kilimanjaro, sweated it out in Japanese hot tubs, and run after her share of buses--as well as by a wealth of laboratory studies, Ashcroft's book is of great appeal to anyone who wishes to test the world's limits--or their own.

--Gregory McNamee

Ashcroft, a professor of physiology at Oxford, offers a fascinating compendium of facts about what it takes to endure intense heat and cold, the pressure of the deep sea, the lack of pressure and oxygen at high altitudes and the void of space, as well as what is necessary to perform such demanding sports as sprinting. She takes readers step by step through the intricacies of each. For example, in her chapter on mountain climbing, readers receive a brief history of "mountain sickness" and accounts of its effects; a tutorial on atmospheric pressure, how we become acclimated to the lack thereof and the dangers of airplane depressurization; there is also a sidebar on why birds can fly over Everest without suffering. Similarly, her chapter on deep-sea diving covers the perils of pressure, why people get the bends and whales don't, how Japanese fisherwomen can swim incredibly deep and how technology has helped us reach so far down. Her chapters on surviving heat and cold are particularly interesting, illustrating how the human body regulates its temperature and offering many accounts of why, for instance, people survived being lost in the desert and

trapped in freezing water. Throughout, Ashcroft also explains how animals have adapted to horrific conditions far better than humans have, despite the efforts of foolhardy scientists to see how far their own bodies can be pushed. This is a worthwhile read both for those who participate in extreme sports and those who prefer to enjoy them from the comfort of an armchair. (Oct.) Copyright 2000 Reed Business Information, Inc.

Almost finished reading this book. It's "extremely" informative and interesting. The author has a captivating style that keeps you turning the pages. Illustrations and captions add even more information. Temperatures are in Celcius, so keep a conversion calculator handy if you're used to Fahrenheit. She covers not only the human extremes (and why we're affected) but other life forms at extremes. Perhaps not for everyone, so try the sample first.

This book is a fascinating read! Brilliantly written, easy-to-understand, and gives a perspective on the human body from various angles. I have studied medicine, and even in our course, did we not get as much context & story behind the development of our understanding of the human body, as I found in this book. Even so, it has been written in a language that can be understood by anyone, without dumbing down the information. We are truly a magnificent design!

I think this is a very interesting and original book written with scientific language yet comprehensible to majority of unprepared readers. Author gives a lot of examples of extremes and their affect on human body. Even photos correspond to the narrative. If someone wants to read about the limits of our bodies and reactions of our animal friends on the extremes this book is for you. I want to thank its author for such a masterpiece! Well done!

Frances Ashcroft's first Book. An introduction to ehr outstanding book, "the Spark of Life", which I have read 5 or 6 times.

Frances Ashcroft is a talented author, it isn't necessary to be a science major to enjoy this book. Full of amazing facts, how any lifeforms can exist at such extremes and have learned to thrive under such conditions will leave the reader with an expanded worldview, and a desire to learn even more about science.

An amazing book for people who are into the possibility of extraterrestrial life and also those who

fear that the demise of our own ecosystem will lead to an end to life on our planet as we know it. The best thing you can tell someone who insist life cannot exist outside our biosphere is "vent fish", these fish that live 5000 feet deep on the ocean floor where there is no light and the only source of food is the sulfur blowing from volcanic vents. This book is all about life in the harshest of places. This line from the introduction: "Environmental extremes are not the prerogative of the adventurous few - with the help of technology, all of us can tolerate severe conditions with equanimity." reminds me of the movie "True Stories" where John Goodman asked God to do something about all these malls and parking lots, so God created people who love malls and parking lots!!! Life At The Extremes might be a how-to guide to this uncertain future we are blindly racing into... It's a must read for environmentalists and ufologists alike. Remy C.

Very informative, lots of details on Physiology of Human Explorers, and is very well written. She is very very historicalalso...

Bought for a class at school.

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