Life at the Extremes: The Science of Survival

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Amazon.com "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 From Publishers Weekly 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. See all Editorial Reviews

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