

Medical Aspects of Harsh Environments, Volume 1.

Kent B. Pandolf, PhD and Robert E. Burr, MD.

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Medical Aspects of Harsh Environments, Volume 2.

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These two volumes are new additions to the Textbooks of Military Medicine series, and provide a broad knowledge of physiology, pathophysiology, and treatment for exposure to these harsh environments. Although these volumes are written with the military physician in mind, many physiologists may find these textbooks quite useful. For the seasoned investigator, these books serve as a wonderful reference, while the new investigator may find these texts useful as a resource and introduction for new areas of potential research endeavors.

Volume 1 is an expansive work describing the medical conditions caused by heat and cold exposure. This publication is broad in scope, ranging from a historical perspective to current information on the physiologic changes associated with heat or cold exposure, signs and symptoms at the time of patient presentation, psychological issues, as well as prevention and treatment of heat- and cold-related environmental illnesses and injuries. The first half of volume 1, section I, addresses hot environments. In particular, there are specific chapters discussing human adaptation to hot environments; physical exercise in hot climates; pathophysiology of heatstroke; prevention of heat illness; and clinical diagnosis, management, and surveillance of exertional heat illness. Section II of volume 1 discusses injuries caused by cold-related environments. To this end, there are chapters pertaining to physiological and psychological responses to cold stress and hypothermia, prevention of cold injuries, and clinical aspects of cold injury. In addition, there are chapters about nonfreezing cold injury, treatment of accidental hypothermia, and cold-water immersion injury. This is not a complete list of the chapters presented, but is intended to illustrate the diversity of information offered.

Like volume 1, volume 2 is divided into two sections; section III discusses topics associated with mountain settings, while section IV explores medical issues related to special environments. Volume 2 describes the human adaptation to these harsh environments, as well as the physical, cognitive, and psychological effects of exposure. Although one would expect a discussion on acute mountain sickness, high-altitude cerebral edema, and high-altitude pulmonary edema, and section III delivers, there are also chapters on human adaptation, physical performance, and neurological status at high terrestrial altitudes. Section IV discusses the physiology and treatment pertaining to special environments, including shipboard medicine, hyperbaric medicine of diving, supersonic aviation, spaceflight, and chemical-biological protective suits.

While much of the science is directly related to military experience, there are significant portions of both volumes that come openly from basic research laboratories. It is the mix of basic and applied physiology that is presented that makes these volumes so useful. Graduate programs in physiology, and medical programs offering an applied physiology curriculum, may find this series beneficial, using the volumes as the textbooks for their courses, or at least as a reference book. In addition, the extensive use of illustrations and tables enables the reader to more fully understand the discussion, and adds immensely to the overall value of the product. The summary section of each chapter is informative and concise, while the references are extensive. Finally, the list of acronyms and comprehensive index at the end of each volume are very helpful, and references material in the both volumes. In conclusion, if you conduct research or teach in the field of applied physiology, you will find this series very practical and functional.

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