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### Exercise Immunology

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BOOK REVIEWS

**ANTI-HIV NUCLEOSIDES: PAST, PRESENT AND FUTURE**

Hiroaki Mitsuya  
Chapman & Hall, New York, 1997  
178 pp.

This excellent multi-author book is part of the Medical Intelligence unit series, and presents an in-depth account of anti-HIV nucleosides. In six chapters it covers structure-anti-retroviral activity relationships (H Mitsuya), pharmacology (DG Johns), therapy (L Welles and R Yarchoan), drug resistance (Z Gu and MA Wainberg), and combination therapies (RW Shafer and TC Merigan). 2,2'-Dideoxynucleosides, such as AZT, have become the main drugs in the fight against the HIV viral infection, and Chapter 1 describes the intricacies of the structure activity relationships for this class of compounds. The dideoxynucleosides inhibit reverse transcriptase activity by causing chain termination during transcription. A particular problem is that long-term therapy with these drugs leads to drug resistance. The fidelity of the RT process is poor (mutation rate is 1 per 10000 base pairs) and this contributes to the development of drug resistance. Therapeutic modalities to counter this important complication are described in Chapters 3 and 5, and include combination therapy with two 2,2'-dideoxynucleosides, or a 2,2'-dideoxynucleoside and an HIV protease inhibitor. Each of the chapters is well referenced, including references from the 1996 literature (the goal of the publisher is an accelerated program that leads to publication within 90-120 days of receipt of the manuscript). In addition, each of the chapters is amply illustrated with the chemical structures of the different nucleosides, and tabulated compilations of information on clinical trials, drug dosages, toxicity, and HIV-1

mutations. In his concluding remarks, Dr. Mitsuya characterizes the current state of anti-retroviral therapy for HIV-1 as one of cautious optimism, but counsils us that there is much yet to do and that many unexpected challenges may lie ahead.

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### **EXERCISE IMMUNOLOGY**

Bente Klarland Pedersen  
Chapman & Hall, New York, 1997  
206 pp.

The aim of this monograph is to “tell a good story” about the progress of exercise immunology over the past ten years. In a series of eleven chapters, the editor with the help of his current and former PhD students has assembled an authoritative account of the effect of exercise on the immune system. Various aspects of the topic are covered including the effects of acute and chronic exercise, role of stress hormones (e.g. cortisol, beta-endorphin), hypoxia, hyperthermia, glutamine, cytokines (interleukins, tumor necrosis factor), age, and nutrition. Special consideration is given to the effect of exercise on infection and particularly in patients infected with the human immunodeficiency virus (HIV). The function of the immune system is enhanced by moderate exercise, but intense exercise is detrimental to immune function. The biochemical findings from animal models and from studies of patients that have undergone different degrees of exercise are carefully documented in numerous and extensive tabulations of literature data. Increased susceptibility to infection following long-duration exercise is explained by the “open window hypothesis” in which temporary suppression of the immune system provides the opportunity for infection by bacteria and viruses. In Chapter 11 the role of physical activity on the risk for cancer is discussed. A series of three extensive tables documents the findings of more than fifty studies on the effect of physical activity on breast, colon, rectal, prostate, and testicular cancer. Evidence is accumulating for a possible protective role of

exercise in colon cancer, and a similar trend is emerging for breast and prostate cancers. The authors present a balanced account of this controversial topic. This book provides an excellent snapshot of the issues and data in the area of exercise and the immune system, and it continues the high standards of the other books in the “rapid publication” Intelligence Unit series.

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