Advances in Exercise Physiology

Medicine and Sport

Vol. 9

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Published for and on behalf of the Research Committee, International Council of Sport and Physical Education, UNESCO

S. Karger • Basel • München • Paris • London • New York • Sydney

Proceedings of the International Symposium on Exercise and Sports Physiology held in conjunction with the 26th International Congress of Physiological Sciences, New Delhi, October 1974 at the National Institute of Sports, Patiala, Punjab, India

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In memoriam
Introduction

The present volume contains contributions presented at Patiala (Punjab) in 1974. The occasion was the Symposium on Exercise Physiology held at the Indian National Institute of Sport, in conjunction with the 26th International Congress of Physiological Sciences in New Delhi. Special relevance is attached to the results of the researches under review insofar as they have clarified problems whose outlines had been known for some time, but on which the very evidence that was made available at Patiala had been missing. I refer specifically to the definition of nature and scope of the well-known discipline of exercise physiology, as distinct from the more recently evolved discipline of record physiology, to the insight afforded by the studies reported in this volume on morphological and functional characteristics of red and white muscle fibers; and to the clarification of the role played by circulation and respiration, and by the muscular system respectively as determinants of different kinds of physical performances; also to the latter’s modifiability through environmental influences, such as air resistance, altitude, and heat.

Exercise physiology in its present form represents an integral part of sports medicine, side by side with clinical medicine sensu strictiori, traumatology, the role of exercise in rehabilitation, and moreover with the extensive field of sports for the physically and socially handicapped. The rapid growth of information on these subjects is documented in the 9 volumes of the Karger Series Medicine and Sport, to which the present treatise belongs. The study of exercise physiology has reached a stage in which it is possible to evaluate the state of knowledge of the discipline as well as to assess urgent needs for further information. As mentioned before, we possess ample information on the effect of exercise on circulation and respiration; likewise, we have reason to be satisfied with the current progress of research on muscle physiology, on thermoregulation and on altitude. But other sectors of exercise physiology still await exploration. For instance, during the ensuing years it will be necessary to intensify enquiries into neurological aspects of exercise whose elucidation promises to result in major advances of our knowledge. The three essays, The Acquisition of Skill, The Motor Functions of the Human Brain,
and The Physical Structure of Mind, contained in volumes 2, 6, and 8 of this series identify some of the most important issues in the field under reference. The Patiala meeting was held under the auspices of the Research Committee of the UNESCO International Council of Sport and Physical Education. It was well prepared by a competent team of Indian physicians and physiologists led by Dr. Anand, Director of the Indian National Institute of Sport, Dr. Mathur and Dr. Malhotra. To them and their Indian colleagues, I wish to express my thanks as well as the thanks of all participants in the Symposium.

Ernst Jokl