

**The Upper
Extremity**
in Sports Medicine



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The Upper Extremity in Sports Medicine

NOT FOR RESALE

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To my family for their endless and steadfast enthusiasm, support and understanding.

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To my parents, who started me on the right road, gave me just enough direction and told me that with diligence and hard work, the path you end up on is the one you desire.

Elliott B. Hershman, M.D.

Foreword

In 1986, Drs. Nicholas and Hershman published two monumental volumes entitled *The Lower Extremity and Spine in Sports Medicine*. In his foreword to these books, Dr. Robert Larson described Dr. Nicholas' treatment philosophy: with any injury there are alterations in the function of adjacent joints and in the athlete as a whole. This "linkage mechanism" serves as a unifying theme to both books. Dr. Nicholas has stressed a multidisciplinary approach to athletic injuries.

The Upper Extremity in Sports Medicine now completes the task of providing the sports medicine practitioner with a comprehensive resource on sports injuries of the musculoskeletal system. The publication of this vol-

ume is extremely timely. The explosion of information on the knee in the 1970s and early 1980s was followed by a similar phenomenon for the shoulder in the late 1980s. This book consolidates and clearly presents the new information.

The chapters of this distinguished text reflect the wide experience and acknowledged expertise of the authors. The editors help the reader by summarizing the key points in each chapter throughout the text. Although this work enriches the entire field of sports medicine, the ultimate benefactor will be the individual athlete.

Bertram Zarins, M.D.

Preface

To focus only on the area of injury and its treatment causes us to lose perspective on the injury's broader implications to the body's interrelated systems. In our companion volume, *The Lower Extremity and Spine in Sports Medicine*, we showed that function can be altered in sites distant both distally and proximally from the injury. In this volume on the upper extremity and cervical spine, we continue our efforts to show that all parts of the linkage system work together and therefore can be disrupted together. One must bear in mind that all systems and parts of the body are linked; damage to one system or part has implications for the other systems or parts. In the lower extremity, for example, an ankle injury can cause one to lose strength in proximal segments of muscle far removed from the injury site, such as those that govern hip abduction. When an injury is treated as an entity unto itself, without regard for the other physical systems that may be involved, other problems, such as contractures from disuse and immobilization, may develop. In the upper extremity, injury to the arm, for example, will cause residual disability in scapular and cervical muscle strength, or shoulder or elbow range of motion. Further effects of such weakness and disability can impact on the ability to use and consume oxygen, which will disrupt the economy of motion and impede efficient cardiorespiratory function. One goes on from there to an athlete's stress reactions about inability to perform, which affects his psychologic well-being.

One injury can have wide-ranging effects throughout the body, and disciplines such as anatomy, physiology, pathology, biomechanics, cardiology, kinesiology, and others become united in the sense of each having an answer to the question, "what is wrong?" Therefore in athletic injuries, the whole body must be involved in rehabilitation; power development must not be restricted to just the injured hand, or elbow, or shoulder. It must be a total-body approach, since the body itself is a total and linked system.

Not only the musculoskeletal system is affected by an orthopaedic injury. When muscle

weakness causes a person to strain in an activity, the cardiorespiratory system perceives an extra load; this extra load puts maximum demands on the heart and can cause cardiac problems. When the demands of an activity cannot be satisfied, a person can injure himself, even to the point of a heart attack.

We like to conceptualize the comprehensive care of the athlete as the "7 Ps": performer, performance demand, pathology, practice, prescription, practitioner, and prevention. The performer must be aware of the performance demand of his activity, and practice to perfect his performance. As well, the practitioner, through awareness of pathologic conditions both inherent in the human body and peculiar to a particular athlete (history of injury, body type), formulates a prescription for that athlete's safe performance of the sport, and thereby encourages prevention of an injury. This concept recognizes the multidisciplinary aspects of sports medicine, and combines them into a total approach to treatment and rehabilitation.

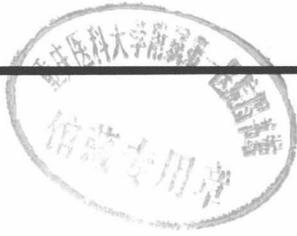
We at the Nicholas Institute of Sports Medicine and Athletic Trauma, the first hospital-based institute of its kind in the country, have worked for many years to develop the concept of linkage as part of our treatment program. At the Institute, patients are given a program of treatment that encompasses the entire physical system, not just the injury. For example, a hand patient is given strengthening exercises for the arm, shoulder and chest. The body as an integrated system means that the level action in joints such as the elbow and shoulder also involve links in the cervical spine, the upper back, and torso. Motion in the elbow, for example, translates into the shoulder and scapular muscles. Malfunction of any of the links necessarily affects smooth translation, in effect turning a ripple into a tidal wave and disrupting normal movement throughout the linkage. What this means is that an elbow injury that prevents normal elbow movement can cause problems in the scapular region. A whole spectrum of disabilities can flourish throughout the linkage system of the body, caused by one injury affect-

ing one joint in one area. Viewing the body dimensionally as an x y z axis, one can understand how an injury in x can reverberate to y and then into z in linked fashion.

Exercise programs must be tailored to meet the ultimate demands of sport, and rehabilitation must involve the total linkage system,

including the athlete's psychologic profile. Such an approach will not only be cost-effective in terms of care, but will also serve the patient well in his daily life.

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