

VOLUME 2

ASPETAR SPORTS MEDICINE COLLECTION

Edited by **Nebojsa Popovic**



ASPETAR
SPORTS MEDICINE JOURNAL



ASPETAR SPORTS MEDICINE COLLECTION – VOLUME 2

Published By:

Aspetar Orthopaedic and Sports Medicine Hospital
Sport City Street
P.O. Box 29222,
Doha, Qatar

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Tel +974 4413 2000
info@aspetar.com
www.aspetar.com

Print run: 1,000

Printed in Qatar by Aspire Printing Press

Distribution:

Marketing Department, Aspetar

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ASPETAR

SPORTS MEDICINE JOURNAL

Aspetar Sports Medicine Journal is a free publication produced and distributed by Aspetar Orthopaedic and Sports Medicine Hospital, member of the Aspire Zone Foundation.

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www.aspetar.com/journal

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ASPETAR SPORTS MEDICINE COLLECTION

VOLUME 2

PART C: INJURIES OF THE UPPER EXTREMITY
PART D: INJURIES OF THE LOWER EXTREMITY

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PREFACE

No man has the right to be an amateur of physical training. It is a shame for a man to grow old without seeing the beauty and strength of which his body is capable.

SOCRATES

This 2400 year-old message from the Greek philosopher continues to resonate in the contemporary world when interest in sport and fitness has never been higher. Professional and recreational sports participation for all ages and both sexes has been flourishing in every part of globe. This brings with it a significant number of sports injuries. Recent epidemiological data from USA point to almost 9 million annual sports and recreation-related injuries. These affected the lower extremity (42%), upper extremity (30%) and head and neck (16%). About half of the sports and recreation injuries episodes resulted in treatment at doctors' offices, other health clinics, or hospitals. As nations continue to recognize the importance of physical activity and sport to maintain health of populations, sports injuries are a significant clinical and public health problem.

Sports injury, in the broad sense, refers to the kinds of injuries that most commonly occur during sports or exercise. Injuries happen more in certain types of participants than others, and the incidence of injury depends on time, place, and certain environments. A practical classification of injuries divides them into two categories — acute and chronic. Acute sport injuries, often easily-recognized, cause sudden onset of symptoms following a traumatic event. Overuse injuries follow repetitive intrinsic overuse or extrinsic overload that results in microrupture of soft tissue that is further compromised by an imperfect healing process.

The purpose of Volume 2 of the Aspetar Sport Medicine Collection is to share knowledge about sports injuries that present most frequently in clinical settings — outpatient visits and hospital care in both the public and private healthcare systems. For that reason you will find in this volume: imaging modalities of sports injuries, many original surgical techniques, and innovative physiotherapy protocols. A recurring theme across chapters is the importance of a detailed history with mechanism of injury and full clinical examination of the injured athlete before thinking of imaging.



To reflect the clinical approach to patients, Volume 2 was divided into two parts: upper and lower extremity injury. The predominant role of the lower extremity is to manoeuvre the athlete's body in the environment while the upper extremities function is to manipulate the environment. To deliberately oversimplify, in many cases in sport the lower extremities put athletes in position to perform a task and the upper extremity is then called on to accomplish the task. In the much more complicated real world, another branch of science — biomechanics — helps us to better understand mechanisms of sports injuries.

Kinematics quantify the motion of a system and kinetics quantify the forces and torques that cause that motion. By using kinematics and kinetics, the typical motion during various sports can be quantified and compared to determine the relative risk and injury potential. A thorough biomechanical analysis (of both repetitive sport-specific motions and of specific injury mechanisms) is essential when customizing treatment especially a rehabilitation. Articular congruity, capsuloligamentary competency, and well-balanced dynamic muscle control are the three major elements of the ultimate goals of our multidisciplinary treatment of the major joints of our elite athletes.

I am honoured to have had opportunity to select this collection of excellent papers of my prestigious colleagues that focus on injuries of upper and lower extremity. Each one is written by an expert in their field. I would especially like to thank the chapter editors: Pieter D'Hooghe, Mats Brittberg, Khalid Al-Khelaifi, Rod Whiteley, Zarko Vuckovic, Adam Weir and Gregoire Chick for their excellent work and insightful introduction. They are all trusted sports medicine clinicians and trusted researchers — preeminent mentors in our specialty. I hope that this collection will be a complementary guide for clinicians who manage patients with sports-related injuries.

Professor Dr. Nebojsa Popovic
Editor-in-Chief

ACKNOWLEDGEMENT

One of the greatest pleasures in editing this book, is to be able to acknowledge and thank so many people from all around the World for their enormous amount of help and encouragement over so many years.

I am grateful to our Aspetar founder, **H.H. Sheikh Jassim Bin Hamad Al Thani**, The Personal Representative of the **Amir**, and **Aspetar executive board** for their support for the Aspetar Sport Medicine Journal and this Collection.

I am fortunate to have many friends who has been very happy to help, whenever they have been asked over the years. Some of my colleagues have been approached many times for their opinions or editorial suggestions. I apologize for not accepting their suggestions on every occasion. My editorial board has played a major role in making this Collection happen. My thanks go to **Ivan Stankovic**, Managing Editor & Designer, who has been incredibly patient with me the whole time. To my editorial team of young enthusiastic and skilled people: **Velvet, Jake, Nicola, Nasim** and **Catriona**. And to **Peter** – thank you for your editorial and grammatical corrections.

My chapter editors: **Pieter, Rod, Khalid, Gregoire, Zarko, Adam**, and **Mats**, and **all the authors**. All my efforts over the past ten years would not have been possible without the full support of all my **Qatari friends**. Thank you for your friendly wisdom and patient encouragement on each, and every, occasion – I'm very grateful.

Nebojsa Popovic MD, PhD



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