CISM Courses and Lectures No. 473

BIOMECHANICS AND SPORTS

edited by PAOLO B. PASCOLO

ERRATA CORRIGE

XXI Winter Universiads 2003

instead of

XI Winter Universiads 2003

CISM COURSES AND LECTURES

Series Editors:

The Rectors
Manuel Garcia Velarde - Madrid
Mahir Sayir - Zurich
Wilhelm Schneider - Wien

The Secretary General
Bernhard Schrefler - Padua

Executive Editor
Carlo Tasso - Udine

The series presents lecture notes, monographs, edited works and proceedings in the field of Mechanics, Engineering, Computer Science and Applied Mathematics.
Purpose of the series is to make known in the international scientific and technical community results obtained in some of the activities organized by CISM, the International Centre for Mechanical Sciences.

INTERNATIONAL CENTRE FOR MECHANICAL SCIENCES

COURSES AND LECTURES - No. 473

BIOMECHANICS AND SPORTS

PROCEEDINGS OF THE
XI Winter Universiads 2003

EDITED BY

PAOLO B. PASCOLO
UNIVERSITÀ DI UDINE

Springer-Verlag Wien GmbH

This volume contains 125 illustrations

Originally published by CISM, Udine in 2004.
SPIN 10992210

In order to make this volume available as economically and as rapidly as possible the authors' typescripts have been reproduced in their original forms. This method unfortunately has its typographical limitations but it is hoped that they in no way distract the reader.

ISBN 978-3-211-21210-3 ISBN 978-3-7091-2760-5 (eBook)
DOI 10.1007/978-3-7091-2760-5

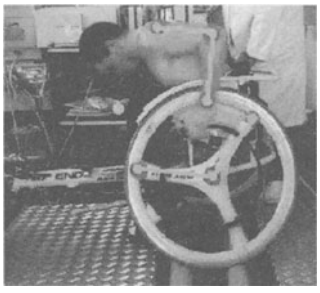
PREFACE

On XII Winter Universiads 2003, CISM offered its scientific contribution by hosting a confererence on mechanics applied to sports and, in general, to human movement.

A systematic debate on few specialized topics was out of the scope of the meeting; rather, the conference was conceived as a chance to overview experiences gained from several operators working on different aspects of biomechanics. Furthermore, not aiming at a comprehensive cover of such a complex argument, only some topics have been dealt with during the conference.

In this way the reader will face in these proceedings bioengineering aspects, control issues, techniques for the optimization of human performances as well as methods for the improvement of athletic equipments and devices. Biomechanical data and signal processing, biomaterials and robotics complete the proposed framework.

Further works were included in the poster session of the conference and are not presented here. We just mention an innovative use of a multibody code (Adams by MscSoftware) for the improvement of the design of ski-boots and some investigations on paraplegic subjects regarding electro-stimulated pedalling and optimisation of the wheel-chair propulsion.



Some works were consistent with the fact that 2003 was designated as European Year of Disabled People. Indeed, many innovations in sport and biomechanics could suggest interesting rehabilitative applications and a better prevention of some pathologies due to the exercise of some normal activities like professional cycling.

We hope that, even in the future, sport events like Universiads could be associated to scientific initiatives like the one presented here.

Paolo B. Pascolo

CONTENTS