

# Introduction

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The papers in this volume address injury as a result of snow skiing and, to a limited extent, the skiing process. The topics discussed include biomechanics and injuries of the knee; epidemiology of skiing injury and the changing and persistent patterns of injury; the ski boot, behavior and risk factors; and one paper analyzing ski turning. These papers were presented at the Eighth International Symposium on Skiing Trauma and Safety held in Riksgräsen, Sweden, 15–21 May 1989. The meeting was sponsored by ASTM Committee F-27 on Snow Skiing and the International Society for Skiing Safety (ISSS).

ASTM undertook development of standards in skiing in 1972 when the formation of a subcommittee, F8.14, to the ASTM Committee on Sports Equipment and Facilities. The interest in skiing standards was sufficiently strong that F8.14 was uplifted to full committee status, Committee F-27, where it continues standards work under the chairmanship of L. R. Young.

In 1974, the ISSS was founded and the first symposium was held at the Laplandia Hotel in Riksgräsen, Sweden, the location of this Eighth Symposium. The ISSS provides a forum for the presentation and discussion of original findings, studies, research, observations, and experiences relating to safety in skiing in the broadest context. The participants in the symposia include both skiing professionals and amateurs whose interests concern equipment manufacture and distribution, engineering, medicine, academics, biomechanics, epidemiology, entrepreneurship, ski area operation, ski area design, ski instruction, ski patrol, and ski retail and others who enjoy skiing and want to work to improve safety in skiing. Only through regular international symposia can current ideas and progress be adequately discussed and the changing patterns of injury problems be clarified so that our common goal of making skiing a safer and more satisfying activity can be achieved.

Eight symposia were sponsored by the ISSS between 1974 and 1989, and ASTM cosponsored the fifth through the eighth. The first one was held in Riksgräsen in 1974 which is located 240 km north of the Arctic Circle. At the time, Riksgräsen was accessible only by train, but now both rail and road transportation are possibilities. The proceedings of the first symposium were published by *Orthopedic Clinics of North America* in January 1976. In April 1977, the second symposium was held in the Sierra Nevada Mountains near Granada, Spain, and the proceedings were published by University Park Press, Baltimore, 1977, in a volume titled *Skiing Safety*. The third and fourth symposia were held in Queenstown, New Zealand in July 1979 and in Bormio, Italy in June 1981. The proceedings of those symposia, titled *Skiing Safety III* and *Skiing Safety IV* were published by the Technischer Überwachungs-Verein Bayern in Munich in 1982. These volumes can be purchased from the ISSS Secretary-Treasurer, W. Hauser, in Munich. The fifth through eighth symposia volumes were published by ASTM in the Special Technical Publication Series under the titles *Skiing Trauma and Safety; Fifth (or Sixth or Seventh or Eighth) International Symposium*. The corresponding symposia were held in Keystone, Colorado, May 1983; Naeba, Japan, April 1985; and Chamonix, France, May 1987.

The four ASTM Special Technical Publication volumes contain refereed papers presenting what is known about skiing injury. We believe that there exist no more authoritative single sources on the current thinking and standards for research and development in the skiing injury field.

The symposium in Riksgräsen and the publication of this book celebrate 15 years of ISSS dedication to reducing the risk of snow skiing injury. Throughout this short but important history the ISSS has continued to meet its goals set forth in 1974 by continuing to bring forward programs at the leading edge of the skiing injury field. Credit for the technical achievements of the ISSS, and great thanks to skiers everywhere, is due to Dr. Einar Eriksson of the Karolinska Hospital in Stockholm. Dr. Eriksson was the founding father of the ISSS and its President until he stepped down at the Riksgräsen symposium. His enthusiasm, leadership, and breadth of interest bound the fabric of the Society during this critical period. Great thanks is due him by the Society and skiers everywhere who have, and will in the future, benefit from the work of the Society.

The articles presented in this book represent the considered opinions of the individual authors based on their studies, investigations, and sometimes conjectures. The reader must be aware that these are research papers on topics usually under development. Each paper has been reviewed by peers of the author, meaning that the standard of the presentation and the technical work supporting the discussion are sufficiently high to merit presentation of the author's work, conclusions, and opinions. Publication does not mean that the substance and conclusions represent the opinion of the reviewers, ASTM, or the editors. Most opinions and conclusions expressed in these papers should be expected to evolve and be clarified in future work.

This volume and the former ISSS-ASTM STP symposia volumes are excellent places to start if one wants to discover what is known about skiing injury and safety. They represent the most substantial body of literature in the field.

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