

# ESSENTIALS OF ATHLETIC TRAINING



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DANIEL D. ARNHEIM  
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ESSENTIALS OF  
*Athletic  
Training*  
*Fifth Edition*

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## ESSENTIALS OF ATHLETIC TRAINING, FIFTH EDITION

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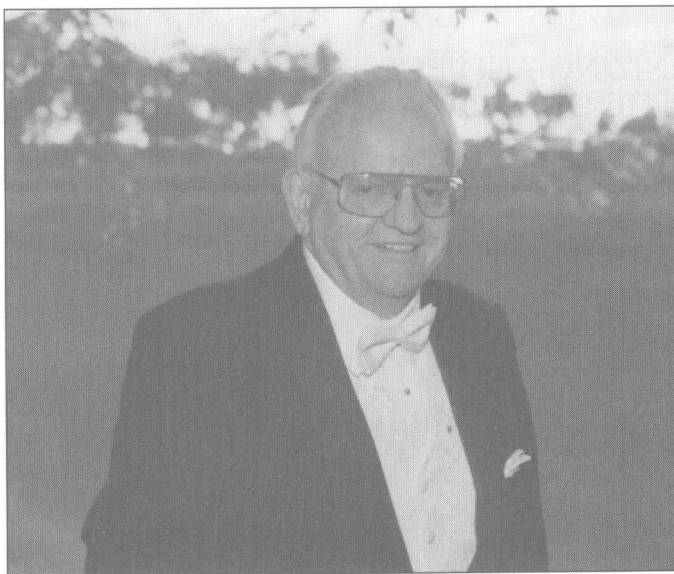
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## Remembering a Legacy



Our longtime author and friend, Daniel D. Arnheim, passed away April 11, 2000. Dr. Arnheim authored numerous textbooks in athletic training including *Essentials of Athletic Training*, as well as in elementary physical education, motor development, and adapted physical education. Among his most recognizable titles is *Principles of Athletic Training*, which is used by most students going into the field of athletic training.

Today, Dr. Arnheim is a legend among men and women who call themselves athletic trainers. For nearly 40 years, anyone who has taken an athletic training course has used one of his textbooks at one time or another. Any of the athletic trainers in the United States as well as throughout the world will recognize his name. He always focused on the needs of students and instructors who would use his books. He cared very much about the professional growth of students, as they hold the keys to the future of his chosen professions—education and athletic training. Dr. Arnheim touched the lives of the thousands of students and athletic trainers through the words in his books, and helped to shape the growth and the direction of athletic training as a profession. His impact as an athletic training educator will be missed. 🍀

William E. Prentice  
The Publishers

# Preface

## WHO SHOULD USE THIS TEXT?

The majority of students who take courses about the prevention and management of injuries which typically occur in an athletic population have little or no intention of pursuing athletic training as a career. However, it is also true that a large percentage of those students who are taking these courses are doing so because they intend to pursue careers in coaching, fitness, physical education, or other areas related to exercise and sport science. For these individuals, some knowledge and understanding of the many aspects of health care for both recreational and competitive athletes is “essential” for them to effectively perform the associated responsibilities of their job.

Other students who are personally involved in fitness, or training and conditioning, may be interested in taking a course that will provide them with guidelines and recommendations for preventing injuries, recognizing injuries, and learning how to correctly manage a specific injury. Thus, *Essentials of Athletic Training* has been designed to provide basic information on a variety of topics, all of which relate in one way or another to health care for the athlete.

*Essentials of Athletic Training* was created from the foundations established by another well recognized textbook, *Principles of Athletic Training*, currently in its tenth edition. Whereas *Principles of Athletic Training* serves as a major text for professional athletic trainers and those individuals interested in sports medicine, *Essentials of Athletic Training* is written at a level more appropriate for the coach, fitness professional, and physical educator. It provides guidance, suggestions and recommendations for handling athletic health care situations when an athletic trainer or physician is not available.

## ORGANIZATION AND COVERAGE

The fifth edition of *Essentials of Athletic Training* provides the reader with the most current information possible on the subject of prevention and basic care of sports injuries. The general philosophy of the text is that adverse effects of physical activity arising from participation in sport should be prevented to the greatest extent possible. However, the nature of participation in physical activity dictates that sooner or later injury may occur. In these situations, providing immediate and correct care can minimize the seriousness of an injury.

Overall, this text is designed to take the beginning student from general to more specific concepts. Each chapter focuses on promoting an understanding of the prevention and care of athletic injuries.

*Essentials of Athletic Training* is divided into three parts: *Organizing and Establishing an Effective Athletic Health Care System*, *Techniques for Preventing*

*or Minimizing Sport-Related Injuries, and Recognition and Management of Specific Injuries and Conditions.*

Part One, *Organizing and Establishing an Effective Athletic Health Care System*, begins in Chapter 1 with a discussion of the roles and responsibilities of all of the individuals on the “sports medicine team” who in some way impact the delivery of health care to the athlete. Chapter 2 provides guidelines and recommendations for setting up a system for providing athletic health care in situations where an athletic trainer is not available to oversee that process. In today’s society, and in particular for anyone who is remotely involved with providing athletic health care, the issue of legal responsibility and, perhaps more importantly, legal liability is of utmost concern. Chapter 3 discusses ways to minimize the chances of litigation and also to make certain that both the athlete and the coach are protected by appropriate insurance coverage.

Part Two, *Techniques for Preventing or Minimizing Sport-Related Injuries*, discusses a variety of topics which both individually and collectively can reduce the chances for injury to occur. Chapter 4 emphasizes the importance of making certain that the athlete is fit to prevent injuries. Chapter 5 discusses the importance of a healthy diet and giving attention to sound nutritional practices. Chapter 6 provides guidelines for selecting and using protective equipment. Chapter 7 details how to assess the severity of an injury and then provides specific steps which should be taken to handle emergency situations. Chapter 8 provides guidelines that can help reduce the chances of spreading infectious diseases by taking universal precautions dealing with bloodborne pathogens. Chapter 9 discusses the psychology of preparing to compete and proposes recommendations for how a coach should manage an injury. Chapter 10 looks at ways to minimize the potentially negative threats of various environmental conditions on the health of the athlete. Chapter 11 discusses the more common taping techniques which can be used to prevent new injuries from occurring and old ones from becoming worse. Chapter 12 includes a brief discussion of the general techniques which may be used in rehabilitation following injury.

Part Three, *Recognition and Management of Specific Injuries and Conditions*, begins with Chapter 13 which defines and classifies the various types of injuries which are most commonly seen in the physically active population.

Chapters 14 through 22 discuss injuries which occur in specific regions of the body including the foot; the ankle and lower leg; the knee; the hip, thigh, and groin; the shoulder; the elbow, wrist, forearm, and hand; the spine; the thorax and abdomen; and, the head and face. Injuries are discussed individually in terms of their most common causes, the signs of injury you would expect to see, and a basic plan of care for that injury. Chapter 23 provides guidelines and suggestions for managing various illnesses and other health conditions that may affect athletes and their ability to play and compete. Chapter 24 provides special considerations for injuries which may occur in young athletes.

## NEW TO THIS EDITION

- **New! *Coach's Corner*:** The Coach's Corner has been added in Chapters 1 through 12 and 24 to provide a checklist prepared specifically for the coach to help organize the details for a specific procedure discussed in that chapter.
- **New! *Dynamic Human 2.0 CD-ROM*:** New with this edition, the *Dynamic Human CD* is packaged with each new text purchased. References to the *Dynamic Human CD* appear in Chapters 14 through 22, and help to clarify the student's understanding of the anatomy for a particular body part.
- An expanded discussion of the relationship between the coach, athletic trainer, physician and the athlete's family.
- Changes in the roles and responsibilities of an athletic trainer as defined by the *National Athletic Trainers' Association*.
- Complete lists of supplies and equipment for the athletic training room, and for a field kit.
- Reorganized discussion of the potential legal liabilities of a coach overseeing the administration of an athletic health care program.
- An expanded discussion of the concept of periodization in a training and conditioning program.
- Updated information on the use of sport drinks for fluid replacement during physical activity.
- Significantly updated information of the use of various types of protective equipment.
- Updated information on new CPR techniques.
- A focused discussion about what the coach needs to know for off-the-field injury evaluation.
- Chapter 9, *Psychological Aspects of Sports Injury*, has been completely revised to offer practical suggestions when managing the psychology of the injured athlete.
- Managing bloodborne pathogens and taking universal precautions is given increased emphasis throughout the entire text.
- Updated information about lightning during an electrical storm.
- A scaled-down discussion of bandaging and taping focuses only on those specific techniques that a coach should know about and be able to perform.
- An example of a functional progression for returning an injured athlete to running is presented.
- A consistent presentation format covers the pertinent anatomy and assessment techniques throughout Chapters 14 to 22.
- New line drawings of human anatomical art is presented in Chapters 14 through 22.
- A significant revision and reorganization of Chapter 17, *The Thigh, Hip, Groin, and Pelvis*.



- A significant revision and expansion of information, particularly of finger injuries, is included in Chapter 19, *The Elbow, Forearm, Wrist, and Hand*.
- Chapter 22, *The Head, Face, Eyes, Ears, Nose, and Throat*, has been completely rewritten to reflect the most current information available, and includes an updated discussion of concussion and mild head injury.
- A discussion of creatine and androstenedione supplementation for performance enhancement has been added to Chapter 23.
- The latest statistics on youth sports injuries have been included in Chapter 24, *Young Athletes*.
- More *Critical Thinking Exercises* have been included throughout the text, enabling the coach to make practical applications to clinical settings.
- Chapter references have been updated and expanded.
- The websites recommended at the end of the chapters have been increased to reflect the expanding scope of the internet.

## PEDAGOGICAL FEATURES

- *Chapter objectives*. Objectives are presented at the beginning of each chapter to reinforce learning goals.
- *Focus Boxes*. Important information is highlighted to provide additional content that supplements the main text.
- *Margin information*. Key concepts, selected definitions and pronunciation guides, helpful training tips, and illustrations are placed in margins throughout the text for added emphasis, and ease of reading and studying.
- *Illustrations and photographs*. These crucial tools are presented to facilitate the student's comprehension of athletic training.
- *Critical Thinking Exercises*. Included in every chapter, these brief case studies correspond with the accompanying text and help students apply the content just learned. Solutions for each exercise are located at the end of the chapters.
- *Coach's Corner*. New checklists prepared specifically for the coach to help organize the details of a specific procedure when managing athletic health care.
- *Chapter summaries*. Chapter content is summarized and bulleted to reinforce key concepts and aid in test preparation.
- *Review questions and class activities*. A list of questions and suggested class activities follows each chapter for review and application of the concepts learned.
- *Dynamic Human 2.0 CD-ROM*. Provides instructions on how to access relevant sections of the *Dynamic Human CD-ROM* for each chapter in Part 3.



- *References.* All chapters have a bibliography of pertinent references that includes the most complete and up-to-date resources available.
- *Annotated bibliography.* To further aid in learning, relevant and timely articles, books, and topics from the current literature have been annotated to provide additional resources.
- *Websites.* A list of useful websites is included to direct the student to additional relevant information that can be found on the internet.
- *Color throughout the text.* A second color appears throughout the text to enhance the overall appearance, and accentuate and clarify illustrations.
- *Glossary.* A comprehensive list of key terms and their definitions are presented at the end of the text.
- *Appendixes.* For those students interested in learning more about athletic training, Appendixes A through C provide information about recognition of the athletic trainer as an allied health professional, employment settings for the athletic trainer, and the requirements for certification as an athletic trainer.
- *Back cover.* Helpful charts for metric and celsius conversions are found inside the back cover.

## ANCILLARIES

### Instructor's Manual and Test Bank

Developed for the fifth edition, the *Instructor's Manual and Test Bank* was prepared by Meredith Petschauer, M.A., A.T.C. Practical features include the following:

- Brief chapter overviews
- Learning objectives
- Key terminology
- Discussion questions
- Class activities
- Worksheets
- Worksheet answer keys
- Test bank
- Appendix of additional resources
- Transparency masters
- Perforated format, ready for immediate use

### Computerized Test Bank

A computerized version of the Test Bank, MicroTest 3, is available to qualified adopters. This software enables the instructor to select, edit, add, or delete questions, and to develop tests and answer keys. Each chapter contains multiple-choice, true-false, and short essay questions, keyed according to level of difficulty.

## Dynamic Human CD

With each purchase of a new text, the *Dynamic Human 2.0 CD-ROM* is included providing an excellent reference that enables students to comprehend the anatomy within the text through the use of its graphics and animation.

## Web Resources

*McGraw-Hill's Human Performance Supersite*. The human performance supersite provides a wide variety of information for instructors and students, from text information to the latest technology. It includes professional organization, convention, and career information. Link to the on-line catalog to find the perfect text or ancillary for your course. Additionally, web links are also provided here for all our course offerings. Visit the website at [www.mhhe.com/hper/physed/humanperformance](http://www.mhhe.com/hper/physed/humanperformance)

Additional features of the supersite include:

- *This Just In*. This link provides featured articles, related publications, web resources, and more updated monthly.
- *Faculty Support*. This links to PageOut, online supplements, Online Learning Centers, PowerWeb, and much more.
- *Student Success Center*. This helps students to locate new study skills, job hunting tips, and web links to assist in preparing for the job search and career development.
- *Author Arena*. Contact our authors, visit their websites, and see our featured *Author of the Month* here.

*Essentials of Athletic Training homepage*. Developed specifically for the fifth edition of *Essentials of Athletic Training*, a PowerPoint presentation has been prepared, and can be downloaded from the Instructor Center. Additionally, a link to PageOut, our web-based program which can be used to help create your own website, is included here. Visit the *Essentials of Athletic Training* homepage at [www.mhhe.com/hper/physed/arnheim\\_ess](http://www.mhhe.com/hper/physed/arnheim_ess)

## ACKNOWLEDGMENTS

Special thanks are extended to Michelle Turenne, with whom I have enjoyed a long-standing relationship as my Development Editor on this and several other projects. As always she has provided invaluable guidance in the preparation of the fifth edition of *Essentials of Athletic Training*.

Meredith Petschauer from the University of North Carolina has been responsible for preparing the Instructor's Manual and Test Bank which accompanies this text. Her efforts have provided a much needed educational resource for individuals teaching a course in athletic injuries and I certainly appreciate the manner in which she has completed her part of this project. I would also like to thank Dr. Elizabeth Hedgpeth from the University of North Carolina for her contribution of the *Psychological Aspects of Sports Injury* chapter. Her input on the project is greatly appreciated.

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**William E. Prentice**

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