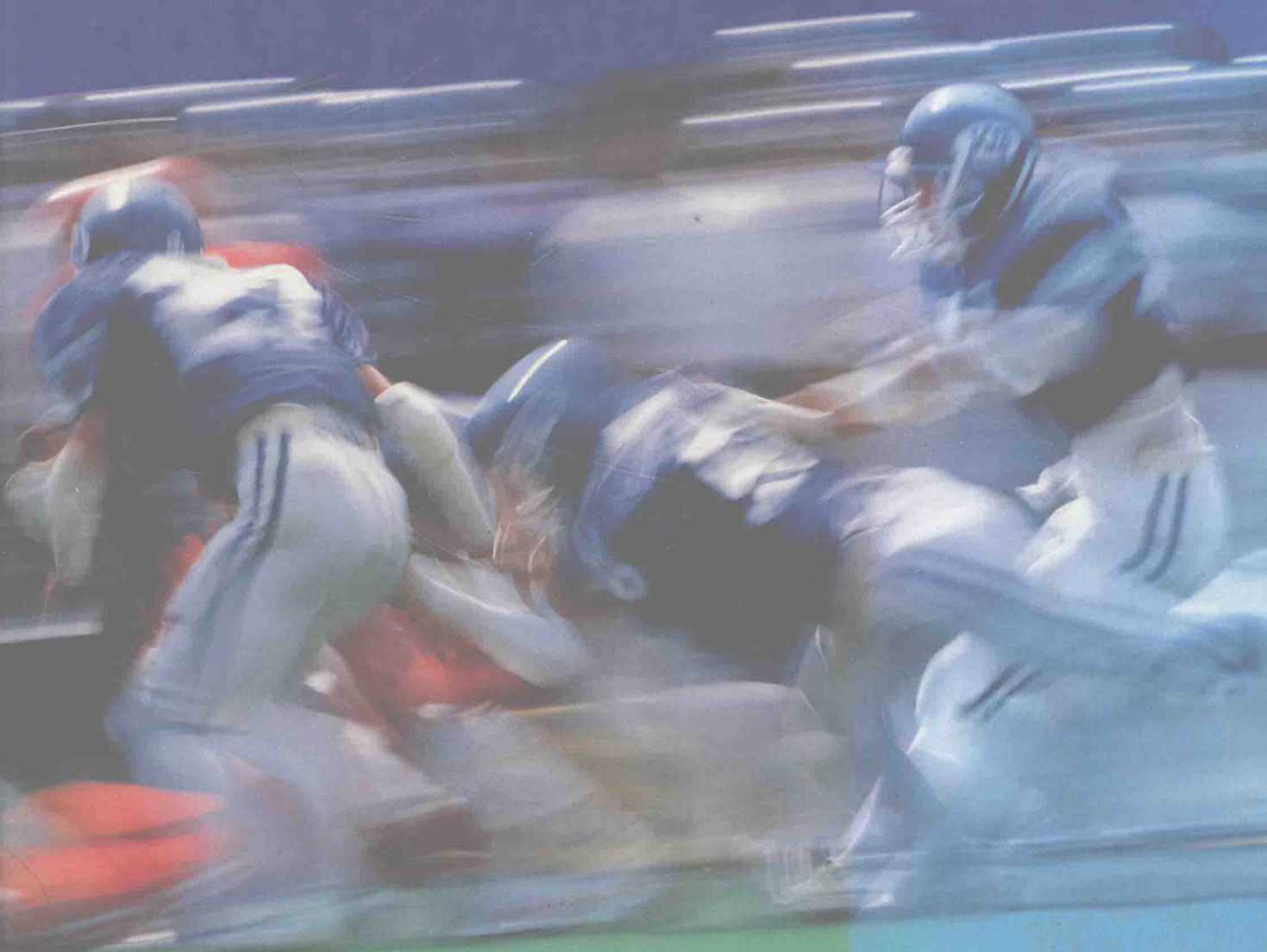


*Principles of*  
**ATHLETIC  
TRAINING**  
*Eighth Edition*



Daniel D. Arnheim

*P r i n c i p l e s   o f*

# ATHLETIC TRAINING

E i g h t h   E d i t i o n

**Daniel D. Arnheim, D.P.E., A.T.,C.**

Fellow, American College of Sports Medicine  
Professor Emeritus of Physical Education  
California State University  
Long Beach, California

**William E. Prentice, Ph.D., P.T., A.T.,C.**

Associate Professor of Physical Education, Exercise, & Sport Science  
Associate Clinical Professor of Physical Therapy  
Coordinator of the Sports Medicine Program  
The University of North Carolina  
Chapel Hill, North Carolina  
and  
Director of Sports Medicine Education and Fellowship Programs  
Healthsouth Rehabilitation Corporation  
Birmingham, Alabama

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EIGHTH EDITION

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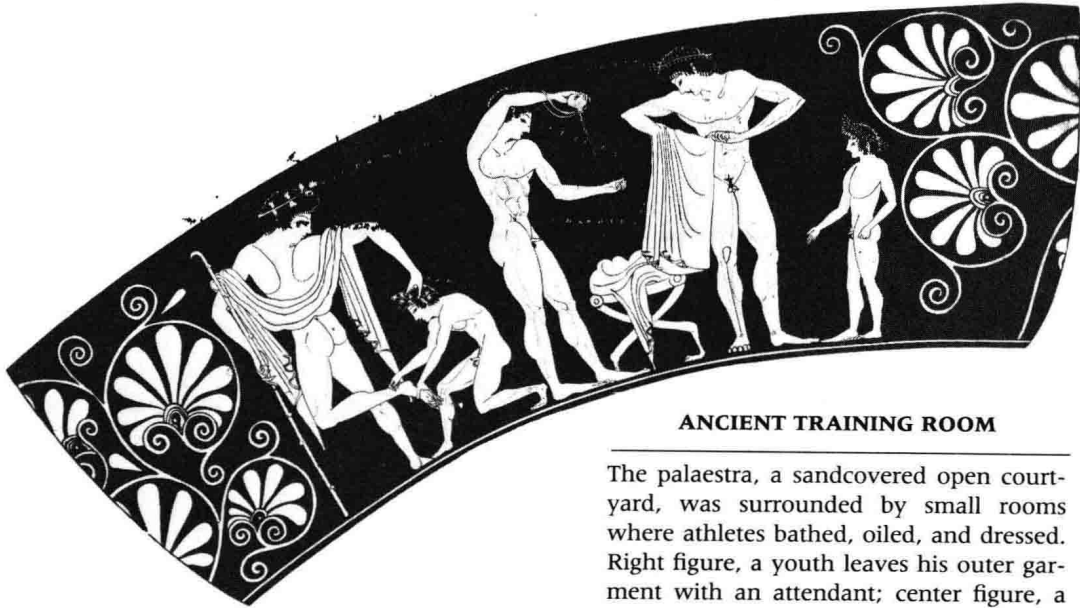
ATHLETIC  
TRAINING

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E i g h t h   E d i t i o n

*The Science of Sports Medicine:  
Injury Prevention, Causation, and Management*

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**ANCIENT TRAINING ROOM**

The palaestra, a sandcovered open courtyard, was surrounded by small rooms where athletes bathed, oiled, and dressed. Right figure, a youth leaves his outer garment with an attendant; center figure, a competitor oils his body before entering the palaestra; left figure, an attendant removes a thorn from an injured athlete.

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# Preface

**T**he eighth edition of *Principles of Athletic Training* continues to provide the reader with the most current information available in athletic training and sports medicine. Since the first edition, this text has been considered the leader in the field of athletic training. The eighth edition continues this tradition with the addition of William E. Prentice as coauthor to ensure the highest quality of research and writing in this and subsequent editions. Additionally, the change in the title to *Principles of Athletic Training* further reflects our commitment to the most timely and current information possible.

The essential philosophy of this edition of *Principles of Athletic Training* remains the same as in the past editions. This book is designed to lead the student from *general* to *specific* concepts. As the reader progresses from beginning to end, he or she will gradually begin to understand the complex subject of athletic training/sports medicine. With understanding, an increased grasp of medical and scientific vocabulary also results. As in all past editions, a major premise is that prevention of adverse health conditions comes before any other consideration.

A great deal of agonizing thought and planning always goes into the revisions of *Principles of Athletic Training*. The eighth edition has been no exception. Developing this edition included serious consideration of suggestions made by students, as well as detailed feedback from reviewers and other authorities in the field. Consequently, the eighth edition presents the major dynamic trends inherent in the field of athletic training/sports medicine. Furthermore, it is our sincere hope that this edition will move the field of athletic training/sports medicine forward to a new level of excellence.

## Who is it Written For?

*Principles of Athletic Training* is designed primarily as an introductory text to the field of athletic training. It is designed for both athletic trainers and coaches as well as for courses concerned with the scientific and clinical foundations of athletic training and sports medicine. Practicing athletic trainers, physical therapists, and other health and safety specialists involved with physically active individuals will also find this text valuable.

The extent of the knowledge explosion in the field of sports medicine in general and athletic training in particular is truly mind-boggling. The athletic trainer is broadly becoming a specialist in numerous aspects of an athlete's health and safety.

## New Content Features

Along with the updating of content for the most current presentation possible, new content features that can be found in the eighth edition include:

- A separate chapter specifically on Organizational and Administrative Considerations (Chapter 26). Placing all material that is pertinent to the proper administration of an athletic training program in one chapter, it contains expanded information on the budgeting and purchasing of supplies,

training room design and operation, and the importance of record keeping and legal concerns.

- A discussion of recent AMA recognition of athletic training as a health care profession. Chapter 1 examines how this enhances the position and growth of the athletic trainer within the allied health field. It also discusses program conformity to the standards established by the Committee on Allied Health Education and Accreditation (CAHEA) and the requirements for obtaining certification as an athletic trainer.
- Includes a new discussion of injury prevention through maintenance and improvement of cardiorespiratory endurance. This addition supplements the discussions of training and conditioning to successfully achieve injury prevention.
- Chapter 18, the Knee and Related Structures, has been thoroughly revised to accommodate many of the numerous injuries that can affect this complex joint. Detailed evaluation techniques and specific tests classify instabilities and new illustrations depict various testing positions.
- Other new topics include the rapid form immobilizer, the sports physical therapist, various types of artificial surfaces, the McConnell technique for treating patellofemoral pain, new illustrations of various mobilization techniques, laser therapy, injuries to the temporomandibular joint, and acupuncture and acupuncture to provide the most timely information available.
- Expanded discussions are provided on the roles and responsibilities of the athletic trainer, primary and secondary assessments, heat-related problems, electrical muscle stimulation, functional progressions, closed kinetic chain activities, the shoulder joint, and structural deformities that can significantly effect the kinetic chain.
- A computerized Test Bank is now available for the IBM personal computer to qualified adopters.

### Organizational Changes

To better help students understand the flow of ideas, the eighth edition has been changed from five to six parts.

Part One, *Introduction*, has been reduced from two to one chapter to provide an in-depth look at the athletic trainer and the sports medicine team. These two topics have been brought together to provide better continuity of ideas and to look at the major roles of personnel and the services they provide in sports health and safety. The role of the athletic trainer is discussed in detail.

Part Two, *Injury Prevention*, retains its four chapters in the same order. Chapter 2, *Physical Conditioning and Training*, provides an in-depth look at the many exercise variables that assist in injury prevention. A suggested flexibility exercise series is included. Chapter 3, *Nutritional Considerations*, looks at all aspects of an athlete's diet and discusses such issues as fadism, the pregame meal, alternative eating patterns, and eating disorders. A number of tables have also been added for nutritional guidance for the athlete. Chapter 4, *Protective Sports Devices*, includes information about both commercial and customized protective equipment as well as other sports devices. Chapter 5, *Psychological Stresses*, focuses on the psychological aspects of injury prevention and other health factors.

Part Three, *Basic Foundations of Sports Trauma*, consists of two chapters. Chapter

6, retitled *Classification, Characteristics, and Mechanism of Sports Injuries*, discusses injuries from a cellular point of view, as well as mechanical forces that produce injuries and the body's susceptibility to sports trauma. Acute and chronic injuries are classified according to current medical terminology. Chapter 7, *Tissue Response to Injury*, has been updated and includes sclerotomic and dermatomic pain responses.

Part Four, *Management Skills*, consists of seven chapters. Chapter 8, *Emergency Procedures*, includes new illustrations of various mobilization techniques. Chapter 9, retitled *General Evaluation Procedures*, has been reorganized to exemplify the most common approach utilized in orthopedics. Chapter 10, *Environmental Considerations*, addresses the numerous environmental factors that affect the athlete, and now includes field conditions and surfaces. Chapter 11, *Taping and Bandaging*, includes current information on taping techniques. Chapter 12, *Therapeutic Modalities*, provides a fundamental introduction to this important area. Chapter 13, *Exercise Rehabilitation*, is reorganized to conform with the healing stages. Manual therapy has been expanded to include mobilization and manipulation. Chapter 14, retitled *Drugs and Sports*, discusses over-the-counter drugs, prescription drugs, and drug abuse and includes a section on drug testing.

Part Five, *Specific Sports Conditions*, consists of Chapters 15 through 25, all of which have received major updating and some reorganizing. For example, Chapters 16, *The Foot*, and 17, *The Ankle and Lower Leg*, have been reorganized to include acute and chronic conditions in both chapters. Chapter 20, *the Abdomen and Thorax*, exclusively covers the trunk, whereas Chapter 22, *The Head and Face*, exclusively covers this content. Chapter 21, *the Spine*, now includes all coverage of the cervical, thoracic, and lumbar spine in one location. Throughout Part Five, the terms *etiology*, *symptoms* and *signs*, *prevention*, and *management* have been consistently applied for ease of reading and better understanding. Discussions include musculoskeletal problems, injury prevention, and pathomechanics producing overuse stress syndromes.

The new Part Six, *Athletic Training Administration*, now contains a separate chapter specific to organizational and administrative concerns of athletic training.

## Pedagogical Aids

Numerous pedagogical devices are included in this edition:

- *Chapter Objectives* Goals begin each chapter to reinforce important key concepts to be learned.
- *Margin information* Key concepts, selected definitions, helpful training tips, and illustrations are placed in the margin throughout the text for added emphasis and ease of reading and studying.
- *Anatomy* Where applicable, extensive discussion of anatomy is presented and illustrated throughout the text.
- *Boxed material within chapters* Important information has been boxed to make key information easier to find and to enhance the text's flexibility and appearance.
- *Color throughout text* Color is used throughout the text to accentuate and clarify illustrations and textual material.
- *New photographs and line drawings* Many new photographs and color line drawings have been added.



- *Color illustrations* Fourteen full-color illustrations are included in Chapter 15 to depict common skin conditions.
- *Management plans* In selected chapters, sample management plans are presented as examples of treatment procedures.
- *Chapter summaries* Each chapter's salient points are summarized to reinforce key content.
- *Review questions and class activities* Located at the end of each chapter, review questions and class activities are provided to enhance the learning process.
- *References* References have been extensively updated to provide the most complete and current information available.
- *Annotated bibliography* For students and instructors who want to expand on the information presented in each chapter, an annotated bibliography has been provided.
- *A detailed glossary* An extensive list of key terms and their definitions is presented to reinforce information in one convenient location.
- *Appendix* The appendix contains a conversion table for metric units of measure.

## Ancillaries

### ■ **Instructor's Manual**

Developed for the eighth edition, the Instructor's Manual was prepared by Robert Schneider, P.T., A.T.C. of the University of North Carolina at Chapel Hill. It includes:

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

In total, approximately 2000 examination questions are included. Reviewed by instructors of the course for accuracy and currency, each chapter contains true-false, multiple choice, and completion test questions. The worksheets in each chapter also include a separate Test Bank of matching, short answer, listing, essay, and personal or injury assessment questions that can be used as self-testing tools for students or as additional sources for examination questions.

### ■ **Computerized Test Bank**

A new computerized version of the Test Bank from the Instructor's Manual is available for the IBM personal computer to qualified adopters. This software provides a unique combination of user-friendly aids and enables the instructor to select, edit, delete, or add questions and construct and print tests and answer keys.

### ■ **Transparencies**

Twenty-four acetate transparencies of important illustrations, tables, and charts are available to maximize the instructor's teaching and the student's learning process and is available to qualified adopters.

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**Daniel D. Arnheim**  
**William E. Prentice**

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PART

1

# Introduction

## 1 The Athletic Trainer and the Sports Medicine Team

Part One explores the origins of athletic training, and the present challenges for preventing and caring for these injuries. The major attributes of the athletic trainer and the athletic training profession are discussed in detail.

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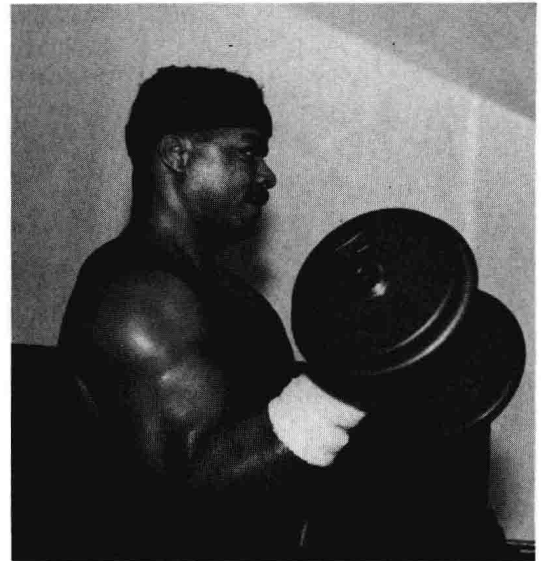
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