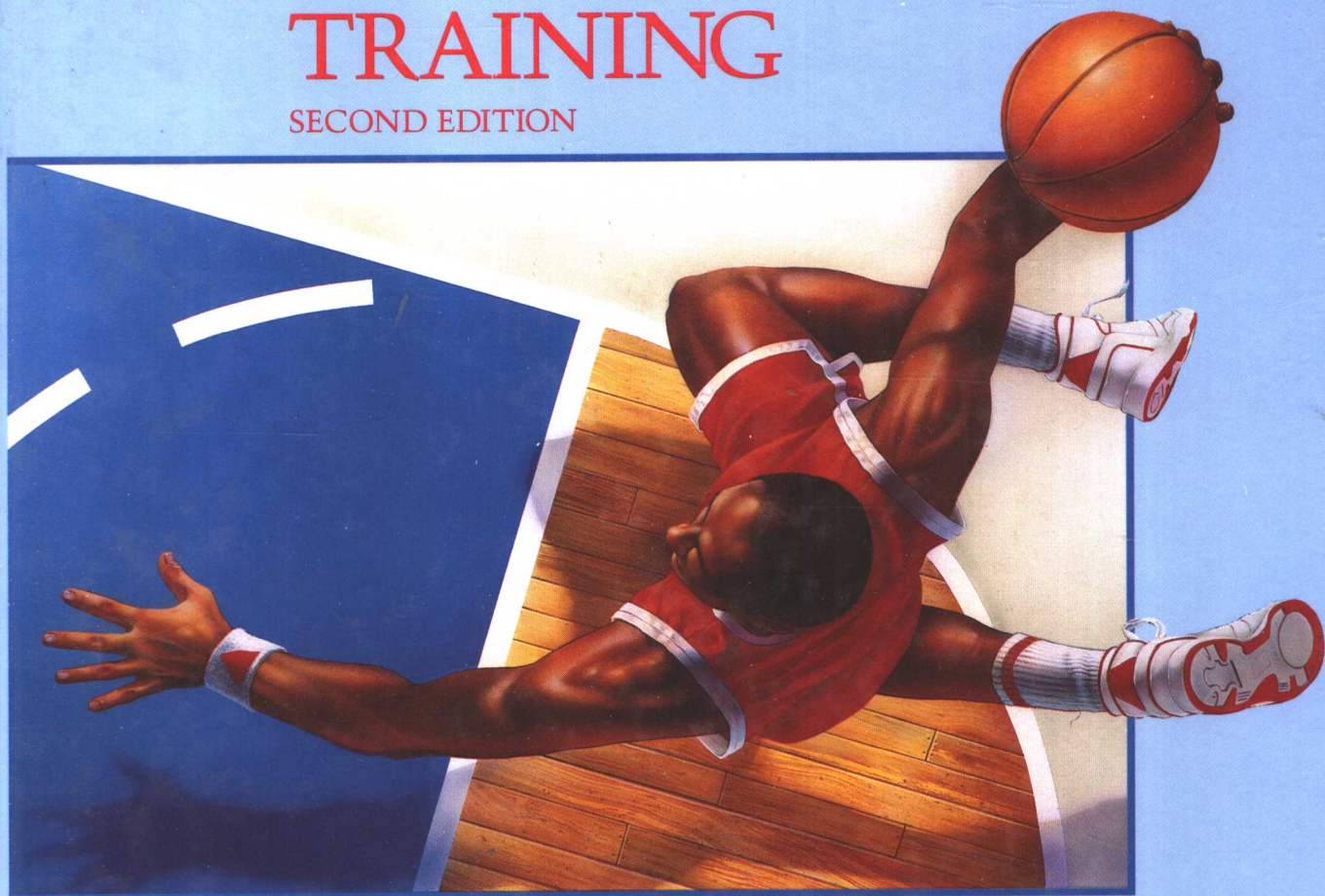

Essentials of
**ATHLETIC
TRAINING**

SECOND EDITION



Daniel D. Arnheim

with the assistance of

Marcia K. Anderson

Essentials of
**ATHLETIC
TRAINING**

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SECOND EDITION

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PREFACE

Purpose of Text

The second 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.

Who Is It Written for?

Essentials of Athletic Training is designed as a primary text for the student going into the field of coaching and/or physical education. Its major thrust is toward injury prevention and the immediate care of the most common sports injuries. Basic foundations are also provided for the student interested in more substantive areas of rehabilitation.

Organization and Coverage

Essentials of Athletic Training was created from the foundations established by *Modern Principles of Athletic Training*. Whereas *Modern Principles of Athletic Training* serves as a major text for athletic trainers and those individuals interested in sports medicine, *Essentials of Athletic Training* is written for the coach and physical educator.

The general approach of the text is that adverse physical problems arising from sports participation should be prevented whenever possible. Secondly, when adverse problems do arise, quick and proper care can reduce their seriousness.

Essentials of Athletic Training is divided into three parts: Foundations; Sports Injury Causation, Response, and Management; and Sports Conditions. Overall, this text is designed to take the beginning student from general to more specific concepts. As the student progresses from the first to the last chapter, an understanding of the prevention and care of athletic injuries will result.

Part One, Foundations, consists of four chapters. Chapter 1 introduces the student to the origins and basic principles of athletic training, and the status of athletic training and sports medicine today. Chapter 2 presents the physical conditioning and psychological information important to the prevention of injuries. Chapter 3 covers basic principles of sound nutrition, nutrition problems and concerns unique to the athlete. Chapter 4 presents basic injury prevention with sport-specific recommendations for protective devices. In general Part

One gives the reader an overall look at athletic training as it relates to sports medicine and the major aspects of injury prevention.

Part Two, Sports Injury Causation, Response, and Management, includes five chapters. These chapters provide an understanding of how the body is susceptible to traumatic musculoskeletal injuries and how these injuries are classified, recognized, and evaluated. Chapter 5 reviews anatomy so that the reader will have the information necessary to recognize injury and injury potential. Chapter 6 supplies an organized guide to emergency procedures, and Chapter 7 presents additional information specific to healing and follow-up care. Chapter 8 is allocated to wound dressing and bandaging. All of the taping information has been gathered into Chapter 9 making taping instruction easier and more comprehensive.

Part Three, Sports Conditions, includes nine chapters covering major sports injuries that occur to the different body regions. Each of these chapters presents related anatomy, methods of prevention, and immediate and follow-up care.

New to This Edition

1. The expansion of the nutritional information into a complete chapter (Chapter 3, Nutrition) places additional emphasis on the importance of preventive nutrition.
2. Part Two, Sports Injury Causation, Response, and Management, now includes the chapters on selected emergency procedures, wound dressing and bandaging, and taping.
3. The taping information has been consolidated in Chapter 9, Taping, for a more concise presentation.
4. The material on physical susceptibility and classifying exposed and unexposed injuries have been combined in Chapter 5, Mechanisms, Characteristics, and Classifications of Sports Injuries. This new chapter is a comprehensive tool for presenting sports injury causation.
5. All chapters have been updated with the most current information available.
6. Chapter 18, Other Health Conditions and the Athlete, includes updated and expanded coverage on AIDS and its prevention, and a new section on steroid use.

Pedagogical Features

A number of teaching devices have been included in this text:

1. *Chapter objectives.* Objectives are presented at the beginning of each chapter to reinforce important learning goals.
2. *Color throughout the text.* A second color appears throughout the text to enhance the overall appearance and accentuate illustrations.

3. *Boxed material within chapters.* Important information such as special taping techniques have been boxed to make key information easier to find and to enhance the text's usefulness.
4. *Illustrations.* Numerous photographs and line drawings are presented to facilitate the student's comprehension of injury prevention and athletic training.
5. *Margin information.* For greater emphasis, key concepts, selected definitions, helpful training tips, salient points, and some illustrations have been placed in the margin throughout the text. These increase ease of reading and improve upon the teaching/learning process.
6. *Review questions and class activities.* A list of questions and suggested class activities follows each chapter for review and application of the concepts learned.
7. *References.* All chapters have a bibliography of pertinent references that includes the most complete and up-to-date resources available.
8. *Annotated bibliography.* As an additional aid to learning, relevant and timely articles, books, and topics from the current literature have been annotated to provide additional resources.
9. *Glossary.* A comprehensive list of key terms and their definitions are presented at the end of the text to assist students in reinforcing the content learned.
10. *Appendix.* The appendix provides the student with a helpful conversion table for units of measure.

Ancillaries for the Instructor

Instructor's Manual: An Instructor's Manual is provided that keys the content and organization of *Essentials of Athletic Training* with *Modern Principles of Athletic Training*. Practical features include:

- Brief chapter overviews
- Learning objectives
- Key terminology
- Discussion questions
- Class activities
- Appendixes (answer keys, additional resources, and transparency masters)
- Perforated format, ready for immediate use

In addition, over 2300 examination questions are included. Each chapter contains true-false, multiple choice, and completion test questions. Worksheets including matching, short answer, listing, and essay questions can be used as self-testing tools for students or as additional sources for examination questions. The appendix includes part tests that can be used in evaluating student knowledge for each of the three parts of the text.

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Daniel D. Arnheim
Marcia K. Anderson

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FOUNDATIONS

- 1 Introduction to Athletic Training
- 2 Injury Prevention: Physical Conditioning and Psychological Considerations
- 3 Nutrition
- 4 Protective Sports Devices

Part One explores the origins of athletic training, the current status of sports injuries, and athletic training and sports medicine. The relationship of proper conditioning, nutrition, and protective equipment to injury prevention is discussed.

Chapter 1

INTRODUCTION TO ATHLETIC TRAINING

When you finish this chapter, you will be able to:

Describe the historical foundations of athletic training

Describe the role of a coach, athletic trainer, and team physician and their functions within an athletic training program

Describe the major legal concerns of the coach and the athletic trainer in terms of sports injuries and how negligence can be avoided

Identify major administrative tasks, including preparticipation examinations, facility management, insurance requirements, and budget concerns

Define collision, contact, and noncontact sports and the types of injuries they commonly induce

Define epidemiological data gathering of sports injuries

CHAPTER 1 is concerned with introducing the field of sports medicine/athletic training to the reader.

Sports medicine, of which athletic training is a major part, can be traced back in history to the earliest period of human existence. These early humans spent their daily lives in the pursuit of basic survival. A healthy, able body was absolutely necessary to forage for food effectively.

HISTORY OF ATHLETIC TRAINING

Sports medicine and athletic training in early civilizations are best reflected in the civilizations of ancient Greece and the early Roman empire. With the rise of the Greek civilization and its emphasis on achieving physical perfection through athletics came the professional specialties of coaching and the development of athletic training specialists.¹³ Professional coaches and trainers also played an important role in the life of the gladiators of the early Roman period.¹³ Galen, the greatest name in Roman medicine, served as a physician at gladiatorial contests, in addition to other pursuits. Herodicus, a Ro-

man physician for the ancient Olympic Games, was considered by many to be the first sports medicine physician.

Modern Sports Medicine and Athletic Training

Modern athletic training and the athletic trainer, although having roots in ancient Greece and the Roman empire, are for the most part unique to North America.¹³

After the fall of the Roman empire there was a complete lack of interest in sports competition. It was not until the beginning of the Renaissance that sports activities slowly regained popularity. Athletic training as we know it came into existence during the late nineteenth century with the firm establishment of intercollegiate athletics in the United States. The first athletic trainers of the era were hangers-on who rubbed down the athlete. Since they possessed no technical knowledge, their athletic training techniques were mainly composed of massage and home remedies.

The growth of the training profession in general has followed the growth of American football. Currently athletic training is one of the fastest growing paramedical fields under the umbrella of sports medicine. Sports medicine, as described by the American College of Sports Medicine (ACSM), is concerned with the study of the physiological, **biomechanical**, psychological, and pathological phenomena associated with exercise and athletics and the clinical application of the knowledge gained from this study to the improvement and maintenance of functional capacities for physical labor, exercise and athletics and to the prevention and treatment of disease and injuries related to exercise and athletics.¹³

biomechanical

Pertaining to the branch of study that applies the laws of mechanics to living organisms and biological tissues

Athletic training is a subspecialization of sports medicine providing a major link between a sports program and the medical community for the implementation of injury prevention, emergency care, and rehabilitation procedures.¹² It had evolved as a major paramedical profession when the National Athletic Trainers' Association (NATA) was formed in 1950.¹⁸

THE ATHLETE'S HEALTH AND SAFETY

Athletes, while participating in an organized sport, have every right to expect that their health and safety are of the highest priority at all times. A major rule to be considered by sports professionals is that the prevention of a health problem is much preferred over caring for the problem once it has occurred.

The three persons having the closest relationship to the athlete are the coach, the athletic trainer, and the team physician. Ideally, they should work together as an injury prevention team.⁷

The Coach

The coach is directly responsible for preventing injuries by seeing to it that the athlete has undergone a preventive injury conditioning program. He or she must ensure that sports equipment, especially

protective equipment, is of the highest quality and is properly fitted. The coach must also make sure that protective equipment is properly maintained. A coach must be keenly aware of what produces injuries in his or her particular sport and what measures must be taken to avoid them. A coach should be able, when called upon, to apply proper first aid. This is especially true in cases of serious head and spinal injuries (Fig. 1-1).

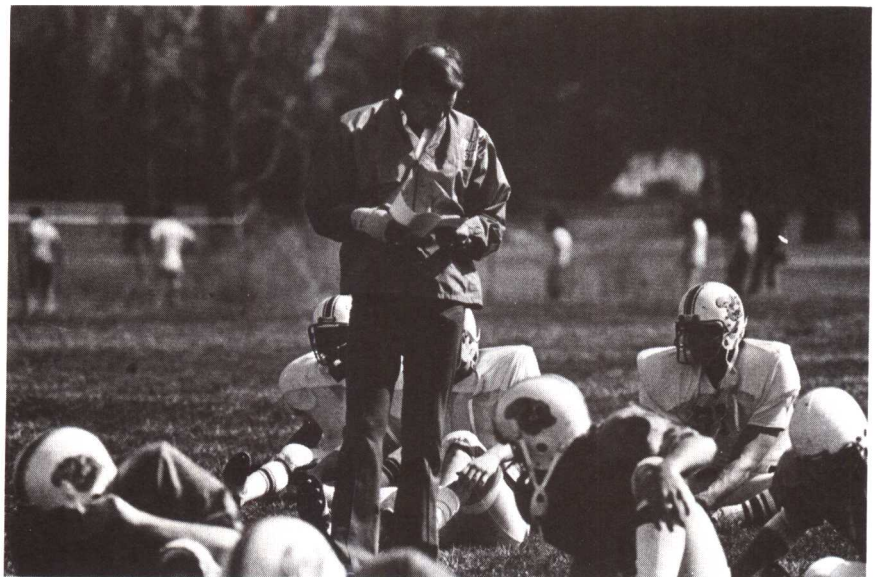
It is essential that a coach have a good understanding of skill techniques as well as environmental factors that may adversely affect the athlete. Poor biomechanics in such skill areas as throwing and running can lead to overuse injuries of the arms and legs, whereas overexposure to heat and humidity may cause death. The fact that a coach is experienced in coaching does not mean that he or she knows proper skill techniques. It is essential that coaches engage in a continual process of education to further their knowledge in a particular sport.

In the absence of an athletic trainer the coach must be able to carry out preventive measures such as taping; recognize signs of major injuries, especially those that may be life threatening or catastrophic; perform first aid; and properly get the injured athlete to medical care. To do so the coach must have a first aid certification and must have taken an introductory course in athletic training.

Coaches work closely with athletic trainers; therefore, each must develop awareness of and insight into the other's problems so that there is optimum care of the athlete. Athletic trainers must develop patience and must earn the respect of the coaches so that their judg-

Figure 1-1

The coach is directly responsible for preventing injuries in his or her sport.



ment in all training matters is fully accepted. Athletic trainers must also avoid questioning the abilities of the coaches and must restrict their opinions to athletic training matters. In health matters the coach should not play athletic trainer or physician.

The Certified Athletic Trainer

Athletic training, more specifically the athletic trainer, is a major link between the athletic program and the medical community for the implementation of preventive measures, emergency care, and injury management.⁷ Ideally, every organized sports program should have a professional athletic trainer on its staff. Too often, however, a coach or student trainer assumes these responsibilities.

As mentioned earlier, the athletic trainer is a highly educated and well-trained professional. The titles *athletic trainer* and *athletic training* remain because of tradition. In reality, *trainer* is synonymous with *coach*, and *training* with *coaching* or *teaching*. A better title to describe the role of an athletic trainer is *sports therapist* or perhaps *sports medicine therapist* (Fig. 1-2).

Qualifications of the Professional Athletic Trainer

The professional athletic trainer is expected to be a college graduate with extensive background in biological and health sciences, having taken specific courses in athletic training. He or she should be certified by the NATA and should hold a cardiopulmonary resuscitation (CPR) certification.



Figure 1-2

The athletic trainer is a major link between the athletic program and the medical community.