This latest edition of *Principles of Athletic Training: A Guide to Evidence-Based Clinical Practice* continues to evolve in concert with the profession. Historically, the authors have tried diligently to stay on the cutting edge of the athletic training profession with regard not only to presenting a comprehensive and ever expanding body of knowledge but also with the latest techniques of delivering educational content to students. Most evident in this edition is an extensive update of the references that have been used to find the most current available research-based evidence in the professional literature that can be used by clinicians in their clinical practice to enhance patient outcomes.

One of the objectives throughout this text has been to incorporate the best available evidence to support the recommendations being made relative to patient care. The strength of those recommendations (SoR) based on the NATA Position, Official, and Consensus statements is identified within the text and can easily be found next to the reference where appropriate.

For the special tests presented in Chapters 18-25, the specificity, sensitivity, and positive and negative likelihood ratios are included wherever possible to show the usefulness and diagnostic accuracy of each of those tests based on the best available evidence in the literature.

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Chapter 1: The Athletic Trainer as a Health Care Provider
- Updated definition of the athletic training profession
- Updated the Mission statement of the NATA
- Added new information on the athletic model vs. the medical model of organizational infrastructure
- Reorganized and updated information on the process of becoming certified as an athletic trainer
- Discuss to process of transitioning to the Masters as the entry level professional degree
- Added information of the development of Specialty Certification
- Expanded information on the International Classification of Functioning Model
- Updated the list of available patient-related outcome measures used in sports medicine
- Added new information on work-life balance for athletic trainers
- Updated information on the NATA Code of Ethics

Chapter 2: Health Care Organization and Administration in Athletic Training
- Updated information on electronic health records and electronic medical records
- Added new information regarding writing progress notes
- Reorganized the discussion of general medical screening

Chapter 3: Legal Concerns and Insurance Issues
- Added new information on developing policies and procedures for team road trips
- Updated information on filing insurance claims
- Added new information on the NATA Political Action Committee
- Update the listing of current CPT codes for athletic trainers

Chapter 4: Fitness and Conditioning Techniques
- Added new information on the value of a dynamic warm-up prior to exercise
- Added a new mathematical formula for predicting maximum aerobic capacity
- Updated American College of Sports Medicine (ACSM) recommendations for exercise
- Reorganized and clarified discussion for how to calculate a target training heart rate.
- Updated information on high-intensity training
- Updated information on theories underlying muscle hypertrophy
- Updated information about how age is related to the ability to generate muscular force
- Added new information on the effects of strength training on skeletal muscle
- Added new information on a variety of strength training techniques
- Added new information on measuring joint range of motion with a goniometer or inclinometer.
- Updated information on stretching techniques
- Added new information on a dynamic progressive velocity flexibility program

Chapter 5: Nutrition and Supplements
- Updated information on creatine supplementation
- Added new information on gluten-free diets
- Updated information on ingestion and resynthesis of carbohydrates
- Added new information on the “train low and compete high” model
- Added new information on using ultrasound to measure tissue thickness
- Added new information on avoidance/restrictive food intake disorder (ARFID)

Chapter 6: Environmental Considerations
- Updated information on hyponatremia
- Updated information on fluid and electrolyte replacement
- Updated information on sunscreens
- Updated information on synthetic turf and its interaction with various shoe types

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Chapter 7: Protective Equipment
- Updated list of equipment regulatory agencies
- Updated the most recent football helmet warning label
- Updated information on wearing protective headgear in soccer
- Updated information on wearing faceguards, eye shields and protective eyewear
- Clarified the definition of a shoe upper
- Updated information on the effectiveness of ankle bracing
- Updated information on the effectiveness of functional knee braces

Chapter 8: Wrapping and Taping
- Updated information of the effects of ankle taping on proprioception
- Updated the effectiveness of Kinesiotape

Chapter 9: Mechanisms and Characteristics of Musculoskeletal and Nerve Trauma
- Updated information on recommendations for managing osteoarthritis

Chapter 10: Tissue Response to Injury
- Added new information on the importance of nutrition to the healing process
- Updated information on nerve healing
- Updated information on fracture immobilization
- Added caution about the use of medication to manage pain

Chapter 11: Psychosocial Intervention for Sports Injuries and Illnesses
- Added new information on the integrated model of psychological response to injury
- Added new information on the biopsychosocial model of psychological response to injury
- Added new information self-talk as a technique for cognitive restructuring

Chapter 12: On-the-Field Acute Care and Emergency Procedures
- Updated information on hypertension
- Added new information on oxygen saturation level (SpO2)
- Updated information on the vacuum mattress splint
- Updated information from the *Spine Injury In Sport Group (SISG)* which has provided the most recent recommendations for the appropriate care of the spine injured athlete
- Clarified recommendations regarding when to use spinal motion restriction
- Clarified information on using a cervical spine collar
- Added new information on the Kendrick Extrication Device (KED)

Chapter 13: Off-the-Field Injury Evaluation
- Added new information on the Movement Efficiency (ME) Score
- Added new clinical prediction rules to Table13-14
- Updated the standard abbreviations and symbols used in medical documentation table
- Redefined the term objective findings
- Updated the Normal Laboratory Values of a Complete Blood Count (CBC) Panel
- Updated the Basic Metabolic Panel table
- Updated the Normal Laboratory Values of a Urinalysis table
- Added a Normal Blood Lipids Panel table
- Added new information on glucagon testing
- Added new information on spirometry

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Chapter 14: Infectious Diseases, Bloodborne Pathogens, and Universal Precautions
- Reorganized and clarified the innate immune response
- Updated information on hepatitis B, Hepatitis C and human immunodeficiency viruses
- Added new information on using antiretroviral (ART) therapy for treating and preventing HIV infection.
- Updated table on Behaviors That May Lead To Increased Risk of HIV Infection
- Added new information on testing procedures for HIV

Chapter 15: Using Therapeutic Modalities
- Added new information on Thermacare™ Heat Wraps
- Added new information on contrast baths
- Added new information on whole-body cryotherapy
- Clarified and reorganized information on types of electrical current and waveforms
- Clarified information on continuous current modulation
- Added new information on Hivamat®
- Added new information on transcranial electrical stimulation
- Added new information on a Rebound shortwave diathermy unit
- Updated and reorganized information on light therapy (LASER)
- Added new information on light emitting diodes (LED)
- Updated recommendations for ultrasound treatment
- Updated information on the non-thermal effects of ultrasound
- Added new information on extracorporeal shockwave therapy
- Updated information on cupping therapy

Chapter 16: Using Therapeutic Exercise in Rehabilitation
- Updated information on functional testing
- Added information on self-myofascial release therapy

Chapter 17: Pharmacology, Drugs, and Sports
- Clarified state and federal laws for athletic trainers administering and a dispensing medications
- Added new information on buying medications
- Added new information on storing medications
- Added new information on traveling with medications
- Added new updates on fluoroquinolones
- Added updates on anabolic steroid use
- Added new information of the use of electronic cigarettes (vaping)
- Added new information on cannabidiol and the use of medical marijuana
- Updated information on the use of opioids including Oxycodone and Fentanyl
- Added new information on the use of Narcan

Chapter 18: The Foot
- Updated and clarified information on structural variations in the foot.
- Updated information on over-pronation and over-supination
- Updated information on the use of orthotics
- Updated information on treatment for plantar fasciitis/fasciitis

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Chapter 19: The Ankle and Lower Leg
• Updated information on the use of taping, bracing and high-top shoes for preventing ankle sprains
• Updated information on cause of recurrent ankle sprains
• Added new information on the Star Excursion Balance Test
• Added new information on the Lower Quarter Y-Balance test
• Updated information on the treatment of acute ankle sprains and chronic ankle instability throughout
• Updated information on treatment decisions in managing compartment syndromes

Chapter 20: The Knee and Related Structures
• Added new information on the newly discovered anterolateral (ALL) ligament
• Clarified information on synovial joints
• Added the Lever Sign Test for assessing ACL injury
• Updated and added new information for prevention of ACL injuries
• Added new information on surgical repair techniques for a torn ACL
• Updated information on managing and treating patellar tendinopathy

Chapter 21: The Thigh, Hip, Groin, and Pelvis
• Clarified information on leg length discrepancy
• Updated information on groin strain
• Updated information on trochanteric bursitis
• Added new information on the Copenhagen Hip and Groin Outcome Score and the International Hip Outcome Tool
• Added new information on femoroacetabular impingement pain syndrome
• Updated information on Legg-Calve-Perthes disease
• Updated information on osteitis pubis

Chapter 22: The Shoulder Complex
• Updated information on prevention of shoulder injuries
• Clarified information on the full and empty can tests for the supraspinatus
• Added new information on the Bear Hug test and the Lift-off Test for subscapularis tears
• Added new information on subjective shoulder scale assessments including the Disability of Arm, Shoulder and Hand, Constant-Murley Shoulder Score and the Oxford Shoulder Score
• Added new information on techniques for reducing a dislocated shoulder and subsequent management
• Added new information on surgical versus non-surgical treatment of recurrent shoulder instability
• Updated information on rehabilitation of the shoulder joint

Chapter 23: The Elbow
• Updated information on the valgus and varus stress tests
• Added new information on the Single-Arm Seated Shotput test
• Added new information on the Upper Quarter Y-Balance test
• Added new information on the One-Arm Hop test
• Updated information of elbow contusions
• Updated information on muscle and tendon injuries about the elbow
• Updated information on olecranon bursitis
• Updated information on the effects of glenohumeral rotation deficit and valgus instability on ulnar collateral ligament injuries
• Updated information on both lateral and medial epicondylitis/epicondylitis
• Updated information on elbow osteochondritis
• Updated information on little league elbow
• Updated information on elbow dislocations

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Chapter 24: The Forearm, Wrist, Hand, and Fingers
- Updated information on the triangular fibrocartilage complex
- Updated information on trigger finger
- Updated information on mallet finger
- Updated information on boxer’s fracture of the metacarpals
- Updated information on distal phalangeal fractures

Chapter 25: The Spine
- Added new information on posture control shirts
- Updated information on the straight-leg raising test
- Updated information on cervical spine dislocations
- Updated information on recurrent and chronic low back pain
- Updated information on management of myofascial pain syndrome
- Updated information on management of lumbar ligament sprains
- Updated information on treating a herniated lumbar disk

Chapter 26: The Head, Face, Eyes, Ears, Nose, and Throat
- Added new information on the Vestibula/Ocular-Motor Screening Form in the Appendix
- Added new information on the King-Devick test
- Added new information of smartphone apps for evaluating balance
- Updated the new Sport Concussion Assessment Tool 5 (SCAT5)
- Updated the most recent information on managing concussions in athletes
- Added the new Graduated Return to Sport Strategy and the Graduated Return to School Strategy tables
- Updated information on managing recurrent concussions
- Updated information on chronic traumatic encephalopathy (CTE)
- Updated information on post-concussion syndromes
- Add new information of temporomandibular joint dislocations
- Updated information on the effective of mouthguards
- Added New information on a deviated septum
- Updated information on a nasal hematoma
- Updated information on corneal abrasions
- Updated information on conjunctivitis

Chapter 27: The Thorax and Abdomen
- Added new information on American Cancer Society Recommendation of breast cancer screening
- Updated information on sudden cardiac death in athletes
- Updated information on commotion cordis
- Updated information on kidney contusions and kidney stones
- Updated information on urinary tract infections
- Updated information on gastroesophageal reflux disease (GERD)
- Updated information on appendicitis
- Updated information on scrotal contusion
- Updated information on injury to the spleen
- Updated information on management of hernias
Chapter 28: Skin Disorders
- Updated information on management of calluses
- Updated information on management of friction blisters
- Added new information on the alternatives to sutures for wound closure
- Updated information on herpes viruses
- Updated information on spider bites
- Updated information on psoriasis

Chapter 29: Additional General Medical Conditions
- Updated information on treating the common cold
- Updated information on managing influenza
- Updated information on managing measles, mumps, and chicken pox and recommendation for vaccinations during childhood to prevent these diseases
- Updated information on viral pharyngitis
- Updated information on multiple sclerosis
- Updated information on amyotrophic lateral sclerosis
- Updated information on viral meningitis
- Updated information on diabetes mellitus
- Updated information on epilepsy
- Updated information on hypertension
- Updated recommendations for physical activity and exercise during pregnancy and the post-partum period

Appendix A: Addresses of Professional Sports Medicine Organizations
Appendix B: NATA Position, Official, Consensus, and Support Statements
Appendix C: Sports Medicine–Related Journals
Appendix D: The Process Leading to CAATE Accreditation of the Athletic Trainer as an Allied Health Care Professional
Appendix E: Sample Resume
Appendix F: NATA Code of Ethics
Appendix G: Manual Muscle Tests
Appendix H: Goniometric Measurements of Range of Motion
- All appendices revised to reflect current information and publications.
- New Appendix D details the accreditation process that allows the profession of athletic training to be recognized in the same context as other allied health care professions and to be held to similar professional and educational expectations.
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