

NSCA Certification is excited to announce that a new edition of the most-preferred exam preparation textbook for the Certified Strength and Conditioning Specialist® (CSCS®) exam will be available in July 2008.

The third edition expands and applies the most current research and information in a logical format that reaffirms *Essentials of Strength Training and Conditioning* as the most prominent resource for students preparing for careers in strength and conditioning and for sport science professionals involved in training athletes.

The enhancements include:

- Restructured information about the body's adaptations to anaerobic and aerobic exercise training
- Greatly expanded information about performance-enhancing substances
- Up-to-date nutritional information, including recent research-based nutritional guidelines
- Additional sport-specific testing protocols and comprehensive normative and descriptive data tables
- New photographs of resistance training exercise technique
- New terminology for concepts related to the design of resistance training programs and periodization
- Concise explanations of speed and agility training guidelines
- Step-by-step guidelines on designing aerobic endurance training programs
- Revised descriptions of strength and conditioning staff duties and checklists for facility maintenance

These enhancements, plus the modernized artwork and the addition of instructor resources, continue to make this the textbook for the study and instruction of strength and conditioning. The third edition retains the study aids that made the second edition so popular. Each chapter begins with objectives and includes key points to guide the reader along the way. Key terms are boldfaced and listed at the end of the chapter, with page numbers indicating where they are explained in the chapter. Chapters include sidebars that apply the content, and later chapters include sample resistance training programs for three different sports. Detailed instructions and photos are provided for testing, stretching, resistance training and plyometrics. Finally, chapters end with multiple-choice study questions with an answer key at the end of the book.

In addition to the updated content, this edition includes newly created instructor resources. A comprehensive instructor guide contains chapter objectives, a chapter outline, Web sites, definitions of select key terms, application essay questions with suggested answers and links to related classroom activities for each chapter of the textbook. A PowerPoint presentation package contains more than 1,000 slides covering select text, art, tables and photos from the textbook to help guide lectures and class discussions.

Whether used for learning the essentials of strength training and conditioning, for preparing for a certification exam or as a reference by professionals, the *Essentials of Strength Training and Conditioning, Third Edition* textbook will help practitioners and the scientific community better understand how to develop and administer safe and effective training programs.

The *Essentials of Strength Training and Conditioning, Third Edition* textbook is currently available for preorder. For more information on NSCA Certification's existing preparation materials, please call toll-free 800-815-6826, e-mail exams@nsca-lift.org or visit www.nsca-cc.org.

TABLE OF CONTENTS

Section 1: Concepts and Applications of the Exercise Sciences

Chapter 1 Structure and Function of the Muscular, Neuromuscular, Cardiovascular, and Respiratory Systems

By Gary R. Hunter, PhD, and Robert T. Harris PhD

- Muscular System
- Neuromuscular System
- Cardiovascular System
- Respiratory System

Chapter 2 Bioenergetics of Exercise and Training

By Joel T. Cramer, PhD

- Essential Terminology
- Biological Energy Systems
- Substrate Depletion and Repletion
- Bioenergetic Limiting Factors in Exercise Performance
- Oxygen Uptake and the Aerobic and Anaerobic Contributions to Exercise
- Metabolic Specificity of Training

Chapter 3 Endocrine Responses to Resistance Exercise

By William J. Kraemer, PhD, Jakob L. Vingren, PhD, and Barry A. Spiering, PhD

- Synthesis, Storage, and Secretion of Hormones
- Muscle as the Target for Hormone Interactions
- Role of Receptors in Mediating Hormonal Changes
- Steroid Hormones Versus Polypeptide Hormones
- Heavy Resistance Exercise and Hormonal Increases
- Mechanisms of Hormonal Interactions
- Hormonal Changes in Peripheral Blood
- Adaptations in the Endocrine System
- Primary Anabolic Hormones
- Adrenal Hormones
- Other Hormonal Considerations

Chapter 4 Biomechanics of Resistance Exercise
Everett Harman, PhD

- Musculoskeletal System
- Human Strength and Power
- Sources of Resistance to Muscle Contraction
- Joint Biomechanics: Concerns in Resistance Training
- Movement Analysis and Exercise Prescription

Chapter 5 Adaptations to Anaerobic Training Programs
By Nicholas A. Ratamess, PhD

- Neural Adaptations
- Muscular Adaptations
- Connective Tissue Adaptations
- Endocrine Responses and Adaptations to Anaerobic Training
- Cardiovascular and Respiratory Responses to Acute Exercise
- Compatibility of Aerobic and Anaerobic Modes of Training
- Overtraining
- Detraining

Chapter 6 Adaptations to Aerobic Endurance Training Programs
By Ann Swank, PhD

- Acute Responses to Aerobic Exercise
- Chronic Adaptations to Aerobic Exercise
- Designing Aerobic Programs for Optimizing Adaptations
- External Influences on Cardiorespiratory Response
- Individual Factors Influencing Adaptations to Aerobic Endurance Training

Chapter 7 Age- and Sex-Related Differences and Their Implications for Resistance Exercise
By Avery D. Faigenbaum, EdD

- Children
- Female Athletes
- Older Adults

Chapter 8 Psychology of Athletic Preparation and Performance
By Bradley D. Hatfield, PhD, and Evan B. Brody, PhD

- Definition of Key Concepts in Sport Psychology
- How the Mind Affects the Athlete's Physical Performance
- Ideal Performance State
- Motivational Phenomena
- Influence of Arousal on Performance
- Mental Management of Physical Resources: Controlling Psychological Processes

Chapter 9 Performance-Enhancing Substances
By Jay R. Hoffman, PhD, and Jeffrey R. Stout, PhD

- Types of Performance-Enhancing Substances
- Hormones
- Dietary Supplements

Chapter 10 Nutritional Factors in Health and Performance
By Kristin Reimers, PhD

- Role of the Nutritionist
- How to Evaluate the Adequacy of the Diet
- Macronutrients
- Micronutrients
- Fluid and Electrolytes
- Precompetition and Postexercise Nutrition
- Weight and Body Composition
- Eating Disorders: Anorexia Nervosa and Bulimia Nervosa
- Obesity

Section 2: Testing and Evaluation

Chapter 11 Principles of Test Selection and Administration
By Everett Harman, PhD

- Reasons for Testing
- Testing Terminology
- Evaluation of Test Quality
- Test Selection
- Test Administration

Chapter 12 Administration, Scoring, and Interpretation of Selected Tests
By Everett Harman, PhD, and John Garhammer, PhD

- Measuring Parameters of Athletic Performance
- Selected Test Protocols and Scoring Data
- Statistical Evaluation of Test Data

Section 3: Exercise Techniques

Chapter 13 Warm-Up and Stretching

By Ian Jeffreys, PhD

- Warm-Up
- Flexibility
- Types of Stretching
- Static Stretching Techniques
- Dynamic Stretching Techniques

Chapter 14 Resistance Training and Spotting Techniques

By Roger W. Earle, MA, and Thomas R. Baechle, EdD

- Exercise Technique Fundamentals
- Spotting Free Weight Exercises
- Resistance Training Exercises

Section 4: Program Design

Part I: Anaerobic Exercise Prescription

Chapter 15 Resistance Training

By Thomas R. Baechle, EdD, Roger W. Earle, MA, and Dan Wathen, MS

- Step 1: Needs Analysis
- Step 2: Exercise Selection
- Step 3: Training Frequency
- Step 4: Exercise Order
- Step 5: Training Load and Repetitions
- Step 6: Volume
- Step 7: Rest Periods

Chapter 16 Plyometric Training

By David H. Potach, MPT, and Donald A. Chu, PhD, PT

- Plyometric Mechanics and Physiology
- Plyometric Program Design
- Age Considerations
- Plyometrics and Other Forms of Exercise
- Safety Considerations
- Plyometric Drills

Chapter 17 Speed, Agility, and Speed-Endurance Development
By Steven S. Plisk, MS

- Movement Mechanics
- Running Speed
- Agility
- Methods of Developing Speed and Agility
- Program Design

Part II : Aerobic Exercise Prescription

Chapter 18 Aerobic Endurance Exercise Training
By Benjamin H. Reuter, PhD, and Patrick Hagerman, PhD

- Factors Related to Aerobic Endurance Performance
- Designing an Aerobic Endurance Program
- Types of Aerobic Endurance Training Programs
- Application of Program Design to Training Seasons
- Special Issues Related to Aerobic Endurance Training

Part III: Applying Exercise Prescription Principles

Chapter 19 Periodization
By Dan Wathen, MS, Thomas R. Baechle, EdD, and Roger W. Earle, MA

- Responses to Training Stress
- Periodization Cycles
- Periodization Periods
- Applying Sport Seasons to the Periodization Periods
- Undulating (Nonlinear) Versus Linear Periodization Models
- Example of a Macrocycle

Chapter 20 Rehabilitation and Reconditioning
By David H. Potach, MPT, and Terry L. Grindstaff, DPT

- Sports Medicine Team
- Types of Injury
- Tissue Healing
- Rehabilitation and Reconditioning Strategies

Section 5: Organization and Administration

Chapter 21 Facility Organization and Risk Management

By Michael Greenwood, PhD, and Lori Greenwood, PhD

- General Aspects of New Facility Design
- Existing Strength and Conditioning Facilities
- Assessing Athletic Program Needs
- Designing the Strength and Conditioning Facility
- Arranging Equipment in the Strength and Conditioning Facility
- Maintaining and Cleaning Surfaces
- Maintaining and Cleaning Equipment
- Scheduling the Strength and Conditioning Facility
- Litigation Issues

Chapter 22 Developing a Policies and Procedures Manual

By Boyd Epley, MEd, and John Taylor, MS

- Mission Statement and Program Goals
- Program Objectives
- Job Titles, Descriptions, and Duties of the Strength and Conditioning Staff
- Staff Policies and Activities
- Facility Administration