# Table of Contents

How to Use This Study Guide ........................................................................ iv

Chapter 1  Role and Scope of Practice for the Personal Trainer ................... 2

Chapter 2  Principles of Adherence and Motivation ........................... 10

Chapter 3  Communication and Teaching Techniques ..................... 16

Chapter 4  Basics of Behavior Change and Health Psychology .......... 24

Chapter 5  Introduction to the ACE Integrated Fitness Training™ Model .... 32

Chapter 6  Building Rapport and the Initial Investigation Stage ........... 40

Chapter 7  Functional Assessments: Posture, Movement, Core, Balance, and Flexibility ...... 50

Chapter 8  Physiological Assessments ............................................. 58

Chapter 9  Functional Programming for Stability-Mobility and Movement .... 68

Chapter 10  Resistance Training: Programming and Progressions ........ 78

Chapter 11  Cardiorespiratory Training: Programming and Progressions ...... 90

Chapter 12  The ACE Integrated Fitness Training™ Model in Practice .......... 100

Chapter 13  Mind-body Exercise .................................................... 108

Chapter 14  Exercise and Special Populations .................................. 116

Chapter 15  Common Musculoskeletal Injuries and Implications for Exercise ........ 130

Chapter 16  Emergency Procedures .............................................. 140

Chapter 17  Legal Guidelines and Professional Responsibilities ............. 150

Chapter 18  Personal-trainer Business Fundamentals ....................... 160

Appendix A Certification Information Guide ................................. 170

Appendix B Answer Key ............................................................... 172
Welcome to Master the Manual, a study guide designed as a companion to the ACE Personal Trainer Manual, 4th Edition. The exercises in this book will help you master the basics of personal training by breaking them into manageable concepts that you can then apply to real-life situations.

Each chapter of the study guide is divided into sections. Getting Started introduces you to the material, providing objectives to concentrate on as you read the corresponding chapter in the manual. Expand Your Knowledge will test your comprehension through a variety of exercises and drills. Show What You Know exercises your ability to apply what you have learned to real-life situations. Some chapters will take you one step further, providing activities to further expand your skills in Practice What You Know. If you are using the ACE Personal Trainer Manual in conjunction with this study guide to prepare for the ACE Personal Trainer Certification Examination, you should focus not only on learning the concepts, but also on applying them to practical training situations. Finally, each chapter includes 10 multiple-choice questions that mirror the style and difficulty level of questions seen on the actual ACE exam.
Step One: Read
Read the student objectives for each chapter, then read the corresponding chapter in the ACE Personal Trainer Manual. Read one chapter at a time and be sure that you have mastered those concepts before moving on to the next chapter. As you read, look for the boldface vocabulary words.

Step Two: Define
After you have read each chapter, define the vocabulary words on a separate piece of paper. Write the definition even if you feel you already know it. Learning is a sensory experience, so the more senses you can involve in the learning process, the more you will be able to retain. Writing down definitions, or putting your thoughts into words, will help you remember the material more clearly.

Step Three: Exercises
After defining the vocabulary words, skim the chapter in the manual again. Attempt to do the exercises in the Master the Manual without looking at the manual. Check your answers against the key that appears in Appendix B, which begins on page 172. If you answer a question incorrectly, go back to the text and find out why your answer is wrong. Make a note to yourself for future reference. If you answered a question correctly, but feel you were guessing, go back to the manual and read that section again. Do not assume you will remember it.

Step Four: Final Notes
Now is the time to go back to the objectives on the first page of each Master the Manual chapter. Mark any areas you are unsure of or want to learn more about, and reread the related sections in the manual. Refer to the references and suggested reading lists at the end of each manual chapter to find sources for more information.

The focus of this study guide is on learning and retention. That is why we do not grade the exercises or relate the results to either a score or to your chance for success on the ACE exam. No textbook or study guide can predict your performance on a certification examination. If you feel you need additional preparation, you may contact ACE at www.acefitness.org or 800-825-3636 to get information on ACE exam preparation training programs.
Summary Review

Personal trainers must be prepared to work with clients ranging in age from youth to older adults, and ranging in health and fitness status from overweight and sedentary to athletic.

Personal trainers should have a solid understanding of the research linking physical activity to health, as well as knowledge of guidelines for physical activity, such as the 2008 Physical Activity Guidelines for Americans developed by the U.S. Department of Health & Human Services.

The Allied Healthcare Continuum

Personal trainers should understand the roles of the professionals in the following specialty areas within allied healthcare, as well as the role of fitness professionals in relation to other members of the healthcare team:

• Physicians/nurse practitioners
• Rehabilitation professionals
• Nutritional support
• Mental health practitioners
• Alternative healthcare (licensed) professionals
• Trainers/instructors

The ACE Personal Trainer Certification

A qualified and effective ACE-certified Personal Trainer has an understanding of the following concepts:

• Definition of “scope of practice”
• Scope of practice for ACE-certified Personal Trainers
• Knowledge, skills, and abilities of the ACE-certified Personal Trainer
• Education and experience required to service clients
• Preparation recommendations and testing requirements for sitting for the ACE Personal Trainer Exam Certification
• Professional responsibilities and ethics
  ✓ ACE Code of Ethics
  ✓ ACE Professional Practices and Disciplinary Procedures
  ✓ Certification period and renewal
  ✓ Client privacy
  ✓ Referral
  ✓ Safety
  ✓ Supplements
  ✓ Ramifications of offering services outside the scope of practice
Accreditation of Allied Healthcare Credentials

The ACE-certified Personal Trainer should understand the importance of third-party accreditation from a credible organization like the National Commission for Certifying Agencies, as well as the following concepts related to the advancement of personal training within the allied healthcare environment:

- Recognition from the fitness and health industry
- Recognition from the education community
- Recognition from the department of labor

Career Development

Every personal trainer should have a general idea of the career path that he or she wants to follow. After setting a career plan, a personal trainer can use it as a template for researching and selecting continuing education to work toward his or her goals by understanding the opportunities available in the following areas:

- Continuing education
  - Advanced knowledge
  - Specialization
- Degrees
- Additional fitness certifications
- New areas of expertise within allied healthcare

Getting Started

This chapter introduces the role of the ACE-certified Personal Trainer within the healthcare community and provides guidelines for staying within the defined scope of practice. This chapter also covers safety concerns in a fitness facility, as well as consultation and privacy issues. After completing this chapter, you will have a better understanding of:

- The knowledge, skills, and abilities associated with being a successful personal trainer
- The ACE Code of Ethics
- ACE’s Professional Practices and Disciplinary Procedures
- How the ACE certification has received recognition from the fitness and health industry, the education community, and the department of labor
- The importance of a career-development plan

Reading Assignment

Read Chapter 1 of the ACE Personal Trainer Manual, 4th edition, paying special attention to the boldface terms in the chapter. After you have read the chapter, define those terms on a separate piece of paper.
Expand Your Knowledge

I. List the eight research findings regarding physical activity and its associated health benefits included in the 2008 Physical Activity Guidelines for Americans.

a. _____________________________________________________________________

b. _____________________________________________________________________

c. _____________________________________________________________________

d. _____________________________________________________________________

e. _____________________________________________________________________

f. _____________________________________________________________________

g. _____________________________________________________________________

h. _____________________________________________________________________

II. What differentiates the 2008 Physical Activity Guidelines for Americans from guidelines and recommendations previously published by the U.S. government? _______________

______________________________________________________________________

______________________________________________________________________

______________________________________________________________________

III. List the six reasons why the U.S. Department of Labor expects the employment of fitness workers to increase between 2006 and 2016 more quickly than the average for all occupations.

a. _____________________________________________________________________

b. _____________________________________________________________________
c. ________________________ teach patients the importance of implementing their treatment plans.

d. ________________________ lead patients through therapeutic exercise and teach them to perform additional exercises at home to facilitate rehabilitation.

e. ________________________ teach athletes exercises to prevent injury and take them through therapeutic exercises following injury.

f. ________________________ teach clients proper nutrition through recipes, meal plans, food-preparation methods, and implementation of specialized diets.

IV. Fill in the blanks.

V. List the nine principles of conduct included in the ACE Code of Ethics that ACE-certified Professionals are guided by as they interact with clients, the public, and other health and fitness professionals.

VI. Define “scope of practice.” ________________________
VII. List three possible ramifications for ACE-certified Professionals who allow their certifications to expire.

a. _____________________________________________________________________

b. _____________________________________________________________________

c. _____________________________________________________________________

VIII. Review the following client scenarios and write an (A) if the personal trainer’s response is appropriate or an (I) if the personal trainer’s response is inappropriate.

a. A client has sore shoulders following a long weekend of painting in his home.
   Response: ____ The trainer discusses proper technique for icing the shoulders.

b. A client tells the trainer that she is depressed and tired because she was up late fighting with her husband.
   Response: ____ The trainer discusses the situation with his or her boss and makes recommendations for improving the situation.

c. A client tells the trainer that he is going to try the Atkins® diet in order to lose weight for his wedding, which is two months away.
   Response: ____ The trainer helps the client understand the recommendations and offers tips and recipes to help him get started on the diet.

d. A client wants to purchase amino-acid supplements at the club to take as part of his marathon-training program and asks the trainer for his or her opinion.
   Response: ____ The trainer tells the client that amino-acid supplements may enhance endurance and delay fatigue, and probably would help with his training program.

e. The trainer notices that a client stands with a lordotic posture and notes that the client has displayed a weak core in previous workouts.
   Response: ____ The trainer implements a program to improve strength and flexibility in the core.

IX. List four factors that should be considered when selecting continuing education courses.

a. _____________________________________________________________________

b. _____________________________________________________________________

c. _____________________________________________________________________

d. _____________________________________________________________________
Multiple-choice Questions

1. The PRIMARY purpose of professional certifications is to _________________.
   A. Provide the professional with additional education to enhance his or her knowledge, skills, and abilities
   B. Enhance a professional’s resume for employment and/or higher compensation
   C. Protect the public from harm by assessing if candidates meet established levels of minimum competence
   D. Confirm a candidate’s understanding of key concepts following the completion of a bachelor’s degree

2. Which of the following is WITHIN the scope of practice for personal trainers?
   A. Counseling clients through life experiences that negatively impact program adherence
   B. Screening clients for exercise limitations to facilitate exercise program design
   C. Evaluating client injuries while designing rehabilitative exercise programs
   D. Recommending effective supplements for clients who skip meals

3. Which of the following is OUTSIDE of the ACE-certified Personal Trainer scope of practice?
   A. Developing exercise programs for clients who have type 2 diabetes and medical clearance for exercise
   B. Providing guidance, motivation, and feedback to empower individuals to adhere to their exercise programs
   C. Implementing post-rehabilitative exercise programs for clients following their physicians’ recommendations
   D. Conducting a VO2 max test to determine a client’s need for referral to his or her physician

4. At what point does a candidate for the ACE Personal Trainer Certification (or any other ACE certification) agree to uphold the ACE Code of Ethics?
   A. While registering for an ACE certification exam
   B. Once the candidate earns his or her first ACE certification
   C. Upon receiving a printed copy of the ACE Code of Ethics with the printed ACE certification
   D. When accepting his or her first job as an ACE-certified Personal Trainer

5. ACE-certified Personal Trainers must complete a minimum of 20 hours of continuing education every two years to maintain their certifications. The PRIMARY reason ACE has established this minimum continuing-education requirement is to help ACE Personal Trainers to _________________.
   A. Earn promotions so they can advance their careers
   B. Increase their earning potential by adding new specialty certificates to their resumes
   C. Enhance their resumes to attract more clients
   D. Stay current with the latest exercise science research and guidelines for fitness and health
6. Which of the following is **WITHIN** the ACE-certified Personal Trainer scope of practice?
   A. Helping clients gain a better understanding of portion sizes and healthful foods so they can make better choices
   B. Providing clients with recipes and shopping lists for four weeks to get them on track with healthful eating
   C. Conducting 24-hour dietary recalls to help clients learn where they have micronutrient deficiencies
   D. Educating clients about resting metabolic rate (RMR) and the need to consume fewer calories than RMR to lose weight

7. A personal trainer who wants to provide massage to help clients who have tight or sore muscles can do so **ONLY** if _________________.
   A. The personal trainer has extensive knowledge about the benefits of massage
   B. The client gives his or her consent for the massage
   C. The personal trainer becomes a licensed massage therapist
   D. The massage therapist is not available and the personal trainer has some training

8. What do the credentials for registered dietitians (R.D.), occupational therapists (OTR), athletic trainers (ATC), registered nurses (RN), and massage therapists (LMT) all have in common with certifications from the American Council on Exercise?
   A. Each of them requires a bachelor’s degree as a minimum eligibility requirement
   B. They are all accredited by the National Commission for Certifying Agencies
   C. All of them require CPR, AED, and first aid as eligibility requirements
   D. As allied healthcare professions, they share the same scope of practice

9. Which of the following is **MOST** accurate regarding personal trainers recommending supplements to their clients?
   A. The personal trainer should only recommend those supplements covered under his or her professional liability insurance
   B. Unless the personal trainer has other credentials such as an R.D. or M.D., he or she does not possess the qualifications to legally recommend supplements
   C. The personal trainer should become educated about the specific supplements before making any recommendations
   D. Due to potential complications from taking supplements with other medications, personal trainers should recommend only plant-based supplements

10. ACE-certified Personal Trainers looking to advance their knowledge, skills, and abilities beyond their ACE Personal Trainer Certification would be **BEST** served by earning which of the following additional certifications?
    A. A second NCCA-accredited personal-trainer certification
    B. A certification covering sports nutrition and supplementation from a fitness industry organization
    C. An additional personal-training certification from an organization that is not NCCA-accredited
    D. An advanced fitness certification (e.g., ACE-AHFS, ACE-LWMC) that is NCCA-accredited
I. Purpose
The purpose of this information is to provide you with insight into the American Council on Exercise’s (ACE) certification process. By understanding how the examination is developed, we believe you can better prepare for the exam. ACE follows the highest standards for professional and occupational certification tests, taking measures to uphold validity, reliability, and fairness for all candidates in our examinations.

II. How is the exam developed?
The ACE certification examinations are developed by ACE and volunteer committees of experts in the field(s) in cooperation with CASTLE Worldwide, Inc., an independent testing agency. The exam development process involves the following steps:

A. Job Analysis
A committee of experts in the fitness field thoroughly analyzes the job requirements and develops an outline of the knowledge and skills necessary to perform the job competently.

B. Validation Study
A research survey is then conducted to determine if the job analysis is valid. This survey is sent to thousands of randomly selected fitness professionals for input and validation. The final outcome is the Exam Content Outline (see Appendix B in the ACE Personal Trainer Manual).

C. Item Writing
A national panel of experts develops questions for the exam. Questions are tied specifically to the validated Exam Content Outline, which resulted from the job analysis. All questions are also referenced to an acceptable text or document and further validated for importance, criticalness, and relevance. CASTLE then reviews the questions for the degree to which they adhere to generally accepted testing guidelines.

D. Exam Construction
The questions are then reviewed in detail one more time by the examination committee before being placed on the final exam forms.

E. Cut Score Determination
Once the final exam is constructed, the exam committee rates the difficulty of each question and the passing point is then determined by statistical analysis of the committee ratings. This analysis adjusts for variability in the ratings and gives benefit to the test candidate.
F. Continual Exam Evaluation

Once the exam process is completed, continual evaluation and analysis of each question help to ensure validity. The examination is revised each year, with items being reworked or replaced. Approximately every five years the exam-development process begins again with a new job analysis.

III. How is the exam administered?

An independent testing agency is used to administer all ACE examinations to ensure exam security, integrity, and the elimination of bias. Be assured that all of the policies that ACE follows concerning exam administration are required to maintain these high standards.

IV. Who is eligible to take the exam?

Anyone who is at least 18 years of age and has a valid CPR certification is eligible to take the ACE certification exam. For the ACE Personal Trainer Certification Examination it is assumed that the examinee will be competent in the areas described in the Exam Content Outline found in Appendix B of the ACE Personal Trainer Manual. For information concerning fees, registration procedures, and testing dates and sites, please contact ACE at the following address for an Exam Information Brochure.

American Council on Exercise
4851 Paramount Drive
San Diego, CA 92123
(800) 825-3636
www.acefitness.org
Chapter 1: Role and Scope of Practice for the Personal Trainer

Expand Your Knowledge

I. (a) Regular physical activity reduces the risk of many adverse health outcomes. (b) Some physical activity is better than none. (c) For most health outcomes, additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration. (d) Most health benefits occur with at least 150 minutes a week of moderate-intensity physical activity, such as brisk walking. Additional benefits occur with more physical activity. (e) Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial. (f) Health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those in every studied racial and ethnic group. (g) The health benefits of physical activity occur for people with disabilities. (h) The benefits of physical activity far outweigh the possibility of adverse outcomes.

II. The 2008 Guidelines mark the first time the U.S. government has confirmed that fitness is an important part of medicine and that fitness professionals are important members of the allied healthcare continuum.

III. (a) Increasing numbers of baby boomers who want to stay healthy, physically fit, and independent; (b) Reduction in the number of physical-education programs in schools; (c) Growing concerns about childhood obesity; (d) Increasing club memberships among young adults concerned about physical fitness; (e) An aging population seeking relief from arthritis and other ailments through individualized exercise, yoga, and Pilates; (f) A need to replace workers who leave fitness occupations each year

IV. (a) Physicians and nurses; (b) Physical and occupational therapists; (c) Athletic trainers; (d) Registered dietitians

V. (a) Provide safe and effective instruction; (b) Provide equal and fair treatment to all clients; (c) Stay up-to-date on the latest health and fitness research and understand its practical application; (d) Maintain current CPR certification and knowledge of first-aid services; (e) Comply with all applicable business, employment, and intellectual property laws; (f) Maintain the confidentiality of all client information; (g) Refer clients to more qualified health or medical professionals when appropriate; (h) Uphold and enhance public appreciation and trust for the health and fitness industry; (i) Establish and maintain clear professional boundaries

VI. A scope of practice defines the legal range of services that professionals in a given field can provide, the setting in which those services can be provided, and the guidelines or parameters that must be followed.

VII. (a) Not being able to advertise the fact that they hold the ACE certification until it is renewed; (b) Discontinued professional liability insurance; (c) Loss of employment

VIII. (a) A; (b) I; (c) I; (d) I; (e) A

IX. (a) Checking if the course will be at the appropriate level; (b) Seeing if the instructor has the appropriate qualifications to teach the course, (c) Learning if the course is ACE-approved or will have to be petitioned for continuing education credits; (d) Determining if the education provided is within the scope of practice

Multiple-choice Questions
(1) C; (2) B; (3) D; (4) A; (5) D; (6) A; (7) C; (8) B; (9) B; (10) D

Chapter 2: Principles of Adherence and Motivation

Expand Your Knowledge

I. (a) Motivation; (b) 50; (c) Adherence; (d) Activity history

II. (a) P; (b) P; (c) E; (d) A; (e) P; (f) A; (g) P; (h) E; (i) P; (j) E

III. (a) Locus of control is defined as the degree to which people attribute outcomes to internal factors, such as effort and ability, as