

**American Council
on Exercise®**



ACE Personal Trainer Manual

Fourth Edition

*The Ultimate Resource
for Fitness Professionals*



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David Ohton has been the director of strength and conditioning at San Diego State University since 1985. After graduating from Arizona State University (ASU), he signed a free agent contract with the Kansas City Chiefs and attended graduate school at ASU with an emphasis in sports psychology and biomechanics while serving as a member of the strength and conditioning staff. Ohton is a long-time member of the National Strength and Conditioning Association and has published several articles in their periodical journal.

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F O R E W O R D

Like the American Council on Exercise itself, the *ACE Personal Trainer Manual* has long stood as the standard of excellence in the fitness industry. And like previous editions of this manual, this Fourth Edition of the *ACE Personal Trainer Manual* was written based on feedback from individuals who are active in the fitness world—practicing personal trainers, university professors, and industry experts—who worked together to create the Exam Content Outline (see Appendix B). This document presents the skills and knowledge that a personal trainer needs to have a successful career and should serve as a guide as you prepare for the ACE exam.

That said, this textbook also marks a shift in the way that ACE is presenting this content to aspiring and practicing fitness professionals. Gone are the days when a personal trainer could study resistance training, cardiorespiratory training, and flexibility training as isolated components of physical fitness. Modern fitness consumers demand comprehensive programs that are truly individualized based on their physical-activity levels, current health status, and needs and desires. And, though clients may not even know it, the programs must also take into account each individual's psychological readiness for change. The core challenge for any fitness professional is to somehow translate all of the feedback he or she receives from health-history forms, physical assessments, and conversations with the client into a successful program. The all-new ACE Integrated Fitness Training™ Model (ACE IFT™ Model) meets this challenge head on.

The ACE IFT Model addresses some of the most common concerns and questions offered by personal trainers. What is the best way to take advantage of that initial contact with a prospective client? What should be accomplished during a client's first handful of sessions? When is the best time to perform the seemingly endless array of available assessments, and how does the trainer know which ones are appropriate for a specific client? How does the personal trainer use the results of those assessments to design an exercise program for a client? And, finally, how does the trainer keep clients motivated and progressing over the long haul?

Answering that final question is really the key to becoming a successful personal trainer and having a long, rewarding career. Passing the ACE Certification Exam is only the first step. By joining the more than 50,000 current ACE-certified Fitness Professionals, you will be earning a distinguished mark of excellence. It is then up to you to become a leader in your community as we work together to make the world a more active and healthy place.

Make good use of this textbook and all else that ACE has to offer—and don't hesitate to contact us if you need any additional guidance. In closing, good luck and congratulations on taking this important first step.

Scott Goudeseune
President and CEO

INTRODUCTION

The American Council on Exercise is proud to introduce the Fourth Edition of its *ACE Personal Trainer Manual*. This all-new textbook, which was written by a group of 14 industry experts, is designed to fill an important need in the fitness industry.

In the past, many newcomers to personal training would read a textbook presenting fitness assessments, detailing resistance-, flexibility-, and cardiorespiratory-training programs, and providing motivational tools, and ask the same question—“Okay, so now what?” In other words, how does the reader assimilate all of this seemingly disparate information into a safe and effective training program for each of his or her clients?

The ACE Integrated Fitness Training™ (ACE IFT™) Model, which is a central feature of this new manual and is presented in **Part III: The ACE Integrated Fitness Training Model** (Chapters 5–12), should serve as a blueprint when meeting, assessing, and training clients, from recently sedentary adults who are just getting started and seek improved overall health to elite-level athletes working to enhance a specific aspect of their athletic performance. After introducing the various components of the ACE IFT Model, detailing the various assessments that personal trainers have at their disposal, and covering functional, resistance, and cardiorespiratory training, this part of the textbook closes with **Chapter 12: The ACE Integrated Fitness Training Model in Practice**. This chapter offers six case studies that are representative of the types of clientele that personal trainers can expect to see over the course of their careers. Each case study presents the health history of the client, along with his or her goals, and then follows the client over the course of the program, offering progression templates, discussing obstacles, and offering solutions along the way. This chapter is designed to help the reader synthesize the material presented in the previous seven chapters in a very practical sense. By combining the ACE IFT Model with appropriate leadership and implementation strategies as presented in **Part II: Leadership and Implementation** (Chapters 2–4), personal trainers can provide a truly individualized, integrated approach to achieving optimal health, fitness, and performance.

Of course, to be successful as a personal trainer, there is other foundational information that individuals need to understand and be able to utilize. **Chapter 1: Role and Scope of Practice for the Personal Trainer** defines the personal trainer’s role within the healthcare continuum and details the scope of practice. In addition, this chapter discusses various avenues of career development for personal trainers.

Chapter 13: Mind-body Exercise explains how mind-body fitness, which includes everything from classical forms of yoga and tai chi to more contemporary options like the Alexander Technique and Nia, fits into the modern fitness industry. **Chapter 14: Training Special Populations** presents essential information for working with individuals with various diseases and disorders once they have been cleared to exercise by their physicians. These two chapters comprise **Part IV: Special Exercise Programming Topics**.

Part V: Injury Prevention and First Aid is also composed of two chapters. **Chapter 15: Common Musculoskeletal Injuries and Implications for Exercise** begins by explaining common tissue injuries before presenting guidelines for managing these common injuries, including rotator cuff injuries, carpal tunnel syndrome, ankle sprains, and plantar fasciitis. **Chapter 16: Emergency Procedures** discusses emergency policies and procedures for fitness facilities. Common emergencies are also discussed, ranging from choking and asthma to stroke and neck injuries.

The final two chapters combine to form **Part VI: Professional and Legal Responsibilities and Business Strategies**. **Chapter 17: Legal Guidelines and Professional Responsibilities**

addresses many of the standard legal and business concerns that personal trainers may have regarding business structure, employment status, contracts, insurance, and risk management. **Chapter 18: Personal-training Business Fundamentals** presents a topic new to ACE textbooks: how to thrive on the business side of your personal-training career. This chapter covers creating a brand, financial planning, choosing a business structure, and effective marketing practices.

Our goal when putting together this textbook was to meet the needs of personal trainers at every stage of their careers, from deciding whether to work as an employee or independent contractor to owning one's own fitness facility, from training people who walk in off the street to specializing in a niche clientele that allows you to increase your income and become a recognized expert in your community. We wish you good luck in your efforts and sincerely hope that this manual serves you well as you prepare to become an ACE-certified Personal Trainer and remains a trusted resource throughout your career.

Cedric X. Bryant, Ph.D., FACSM
Chief Science Officer

Daniel J. Green
Project Editor

Studying for the ACE Personal Trainer Exam

ACE has put together a comprehensive package of study tools that should serve as your core materials while preparing for the ACE Certification Exam. Using the following study tips will optimize your chances of success.

Begin by studying *ACE's Essentials of Exercise Science for Fitness Professionals*. This book covers the foundational knowledge that you will need to take full advantage of the training-specific information presented in the *ACE Personal Trainer Manual*, Fourth Edition. The authors of the *Personal Trainer Manual* wrote with the assumption that readers had already mastered the content presented in the *Essentials* book. For example, **Chapter 10: Resistance Training: Programming and Progressions** assumes an understanding of human anatomy and the physiology of training, both of which are presented in the *Essentials* book. If at any point in your reading you come across a topic that you are not entirely confident with, revisit the *Essentials* book to sharpen your understanding.

Each chapter of *ACE's Essentials of Exercise Science for Fitness Professionals* includes a Study Guide that will help you identify areas that require additional study time and more focused attention. In addition, multiple-choice questions are included that mirror the style and types of questions that are included on the ACE certification exams.

Review the Exam Content Outline, which is presented in Appendix B of this book. This document was created by active members of the fitness industry and is the basis from which the ACE Personal Trainer Exam is written. Using this document to target your studies and identify areas of weakness will be a powerful study tool.

Use the *Master the Manual* to focus your studies as you work your way through the *ACE Personal Trainer Manual*. The *Master the Manual* uses the same format as the Study Guides in the *Essentials* book, with the addition of chapter summaries that point out key topics, and will be an invaluable tool as you prepare for the ACE Exam.

Other ACE study materials include the following:

- *Flashcards*: ACE's flashcards focus on foundational anatomy and physiology topics and feature detailed illustrations that will help strengthen your understanding of these essential topics.
- *Companion DVD for the ACE Personal Trainer Manual*: This DVD, which is included in the back of this book, presents many of the exercises and drills discussed in the textbook in a user-friendly, practical format. This will be a valuable tool whether you are teaching basic exercises to beginner clients or more advanced movement exercises for your more fit and experienced clients.
- *Glossary and Index*: Keep an eye out for boldface terms as you read. Each of these important terms is included in the book's glossary as a quick reference whenever a new concept is introduced. If you need more in-depth information on the topic, check the indexes of both the *Personal Trainer Manual* and the *Essentials* book.
- www.acefitness.org: The ACE website offers everything from calculators using equations commonly utilized in the fitness setting to online continuing education courses—which means that it will remain a valuable resource for tools and information throughout your fitness career.
- *ACE Resource Center*: ACE's Resource Center specialists are available to answer your questions as you prepare for the exam. The Resource Center can be reached at (800) 825-3636, ext. 796.

PART I

Introduction

Chapter 1

Role and Scope of Practice for the Personal Trainer

IN THIS CHAPTER:

The Allied Healthcare Continuum

The ACE Personal Trainer Certification

Defining “Scope of Practice”
Scope of Practice for ACE-certified Personal Trainers
Knowledge, Skills, and Abilities of the ACE-certified Personal Trainer
Professional Responsibilities and Ethics

Accreditation of Allied Healthcare Credentials Through the NCCA

Recognition From the Fitness and Health Industry
Recognition From the Education Community
Recognition From the Department of Labor

Career Development

Continuing Education
Degrees
Additional Fitness Certifications
New Areas of Expertise Within Allied Healthcare

Summary

TODD GALATI, M.A., is the certification and exam development manager for the American Council on Exercise and serves on volunteer committees with the Institute for Credentialing Excellence, formerly the National Organization for Competency Assurance. He holds a bachelor's degree in athletic training and a master's degree in kinesiology and four ACE certifications (Personal Trainer, Advanced Health & Fitness Specialist, Lifestyle & Weight Management Coach, and Group Fitness Instructor). Prior to joining ACE, Galati was a program director with the University of California, San Diego School of Medicine, where he spent 14 years designing and researching the effectiveness of youth fitness programs in reducing risk factors for cardiovascular disease, obesity, and type 2 diabetes. Galati's experience includes teaching classes in biomechanics and applied kinesiology as an adjunct professor at Cal State San Marcos, conducting human performance studies as a research physiologist with the U.S. Navy, working as a personal trainer in medical fitness facilities, and coaching endurance athletes to state and national championships.

CHAPTER 1



Role and Scope of Practice for the Personal Trainer

Todd Galati

The benefits resulting from regular physical activity are well documented (Table 1-1). After a comprehensive review of the research linking physical activity to health, the U.S. Department of Health & Human Services released the *2008 Physical Activity Guidelines for Americans*, the first comprehensive guidelines on physical activity to be issued by the U.S. government. These guidelines list the following major research findings regarding physical activity and its associated health benefits:

- Regular physical activity reduces the risk of many adverse health outcomes.
- Some physical activity is better than none.
- For most health outcomes, additional benefits occur as the amount of physical activity increases through higher intensity, greater frequency, and/or longer duration.

Table 1-1**Health Benefits Associated With Regular Physical Activity****Children and Adolescents***Strong evidence*

- Improved cardiorespiratory and muscular fitness
- Improved bone health
- Improved cardiovascular and metabolic health biomarkers
- Favorable body composition

Moderate evidence

- Reduced symptoms of depression

Adults and Older Adults*Strong evidence*

- Lower risk of early death
- Lower risk of coronary heart disease
- Lower risk of stroke
- Lower risk of high blood pressure
- Lower risk of adverse blood lipid profile
- Lower risk of type 2 diabetes
- Lower risk of metabolic syndrome
- Lower risk of colon cancer
- Lower risk of breast cancer
- Prevention of weight gain
- Weight loss, particularly when combined with reduced calorie intake
- Improved cardiorespiratory and muscular fitness
- Prevention of falls
- Reduced symptoms of depression
- Better cognitive function (for older adults)

Moderate to strong evidence

- Better functional health (for older adults)
- Reduced abdominal obesity

Moderate evidence

- Lower risk of hip fracture
- Lower risk of lung cancer
- Lower risk of endometrial cancer
- Weight maintenance after weight loss
- Increased bone density
- Improved sleep quality

- 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.
- Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial.
- Health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those in every studied racial and ethnic group.
- The health benefits of physical activity occur for people with disabilities.
- The benefits of physical activity far outweigh the possibility of adverse outcomes.

These findings reinforce what fitness professionals have known for years; the human body was meant to move and, when it does so with regularity, it responds to the stress of physical movement with improved fitness and health. Guidelines with similar goals and recommendations have been published in the past by the American College of Sports Medicine (ACSM) and American Heart Association (AHA) (2007), U.S. Department of Health & Human Services and U.S. Department of Agriculture (USDA) (2005), International Association for the Study of Obesity (Saris et al., 2003), Institute of Medicine (2002), and the U.S. Department of Health & Human Services (1996). But, 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.

Even with well-established guidelines for physical activity, the majority of healthcare professionals have little or no formal education or practical experience in designing and leading exercise programs. Physicians often give patients recommendations to exercise, but they generally do not provide specific instructions for *how* to exercise. ACE-certified Personal Trainers, therefore, play a vital role in allied healthcare by providing services that help clients participate

U.S. Department of Health & Human Services (2008). *2008 Physical Activity Guidelines for Americans: Be Active, Healthy and Happy*. www.health.gov/paguidelines/pdf/paguide.pdf

Note: The Advisory Committee rated the evidence of health benefits of physical activity as strong, moderate, or weak. To do so, the Committee considered the type, number, and quality of studies available, as well as consistency of findings across studies that addressed each outcome. The Committee also considered evidence for causality and dose response in assigning the strength-of-evidence rating.

Role and Scope of Practice for the Personal Trainer

in effective exercise programs that result in positive health and fitness improvements.

In the past, personal trainers have primarily worked with fitness enthusiasts in traditional fitness facilities. This role is changing due to the increasing number of adults and children who are **overweight** or obese and have related health issues. Personal trainers must now 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. The need for personal trainers to help combat the rising **obesity** epidemic has led to a positive outlook for personal training as a profession.

The Allied Healthcare Continuum

The allied healthcare continuum is composed of health professionals who are credentialed through certifications,

registrations, and/or licensure and provide services to identify, prevent, and treat diseases and disorders. Physicians are at the top of the allied healthcare pyramid, evaluating patients to diagnose ailments and implement treatment plans that can include medication, surgery, rehabilitation, or other actions. Physicians are assisted in their efforts by nurses, physician's assistants, and a number of other credentialed technicians. When ailments or treatment plans fall outside their areas of expertise, physicians refer patients to specialists for specific medical evaluations, physical or occupational therapy, psychological counseling, dietary planning, and/or exercise programming.

Physicians and nurses teach patients the importance of implementing their treatment plans. **Physical therapists** and **occupational therapists** lead patients through therapeutic exercise and teach them to perform additional exercises at home to facilitate rehabilitation.

The Future of Personal Training

The U.S. Department of Labor (DOL), Bureau of Labor Statistics (2009), refers to the professionals in the fitness industry as Fitness Workers, with Personal Trainers classified as the primary profession within the industry. The DOL defines the nature of the job of personal trainers as working "one-on-one with clients either in a gym or in the client's home. They help clients assess their level of physical fitness and set and reach fitness goals. Trainers also demonstrate various exercises and help clients improve their exercise techniques. They may keep records of their clients' exercise sessions to monitor clients' progress toward physical fitness. They may also advise their clients on how to modify their lifestyles outside of the gym to improve their fitness."

Expected Growth in Personal-training Jobs

According to the DOL, employment of fitness workers is projected to increase by 27% between 2006 and 2016. This expected increase is much faster than the average for all occupations, and is attributed to a number of factors, including the following:

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

Personal-trainer Qualifications

See "Recognition From the Department of Labor" on page 17 for the DOL's statement regarding the importance of obtaining a quality personal-training certification.

Athletic trainers teach athletes exercises to prevent injury and take them through therapeutic exercises following injury.

Registered dietitians teach clients proper nutrition through recipes, meal plans, food-preparation methods, and implementation of specialized diets. While these professionals might also give patients or clients guidelines for general exercise (e.g., “try to walk up to 30 minutes per day, most days of the week”), few of them actually teach clients *how* to exercise effectively. This is where personal trainers hold a unique position in the allied healthcare continuum.

The majority of personal trainers will work with apparently healthy clients, helping them improve fitness and health. Experienced personal trainers with advanced education and training will generally have the skills necessary to work with clients who have special needs for exercise programming following medical treatment for an injury or disease. An advanced fitness professional providing

post-rehabilitative exercise programs will need to have a solid position within the local healthcare community. In more clinical settings, the advanced fitness professional may work under the direction of a physician, physical therapist, or other rehabilitation professional, while in a club setting he or she may be more autonomous. In all situations, it is crucial for the fitness professional to stay within the boundaries of his or her education, certification, and legal **scope of practice**, and to work closely with each client’s referring physician and other healthcare providers to ensure that the exercise program is complementary to their treatments. Refer to Chapter 18 for tips on how to utilize these relationships to expand a personal-training business.

It is important that every personal trainer understands the role of fitness professionals in relation to the other members of the healthcare team (Figure 1-1). Each client will generally have a primary care physician

Figure 1-1
Specialty areas within allied healthcare



Note: AHFS = Advanced Health & Fitness Specialist; LWMC = Lifestyle & Weight Management Coach

Role and Scope of Practice for the Personal Trainer

who is responsible for his or her general medical care. If the client is referred by his or her physician, the personal trainer should obtain written permission from the client to communicate with the referring physician to provide regular reports regarding the client's progress with the exercise program. Even when clients do not have a physician's referral, it is important for the personal trainer to maintain confidential records that include the client's program, progress, and health-history information.

The ACE Personal Trainer Certification

The decision to pursue certification as a personal trainer is an important step in being recognized as a competent professional. The ACE Personal Trainer Certification Program was developed to assess candidate competency in making safe and effective exercise program decisions for apparently healthy clients. Candidates who achieve a passing score on the ACE Personal Trainer Certification Exam meet or exceed the level of competency required to work as a professional personal trainer with minimum supervision. In the credentialing world, this threshold of professional competence is referred to as the "minimum competency" required for a person to work in the profession. The primary purpose of a certification is always to protect the public from harm by assessing if the professional meets established levels of competence in the knowledge, skills, and abilities necessary to perform the job in a safe and effective manner. For the professional, a certification can separate him or her from others who have not proven themselves to be at the same level of competence.

Fitness professionals who earn the ACE Personal Trainer Certification are competent to work as professional personal trainers for apparently healthy individuals and small groups with minimal supervision. This does not mean that an ACE-certified Personal Trainer knows everything there is to know about personal training, just as successfully passing one's

medical board exams does not mean that the individual knows everything there is to know about medicine. Instead, by earning an ACE Personal Trainer Certification, the professional has proven his or her competence in applying knowledge to make safe and effective exercise-programming decisions in a variety of practical situations, while minimizing client risk and exposure to harm (e.g., physical, emotional, psychological, financial, or other harm).

Defining "Scope of Practice"

A scope of practice defines the legal range of services that professionals in a given field can provide, the settings in which those services can be provided, and the guidelines or parameters that must be followed. Many factors go into defining a scope of practice, including the education, training, and certifications or licenses required to work in a given field, the laws and organizations governing the specific profession, and the laws and organizations governing complementary professions within the same field. Most laws defining a profession are determined and regulated by state regulatory agencies, including licensure. As a result, the scope of practice for licensed practitioners can vary from state to state in a given profession. In addition, most professions have organizations that serve as governing bodies within the profession that set eligibility requirements to enter educational programs or sit for certification exams, and establish codes for professional conduct and disciplinary procedures for professionals who break these codes.

The laws, rules, and regulations that govern a profession are established for the protection of the public. The laws governing a personal trainer's scope of practice and the ramifications faced by trainers who provide services that fall outside the defined scope are detailed in Chapter 17. The eligibility and certification requirements to work within this legal scope of practice are defined by the professional organizations that offer personal-trainer certifications. These organizations also establish codes of ethical conduct and mandate that they are upheld

by certified professionals and applicants in all actions related to personal training. It is crucial for practitioners in every industry to be aware of the scope of practice for their given profession, to ensure that they practice within the realm of the specific education, experience, and demonstrated competency of their credential.

Scope of Practice for ACE-certified Personal Trainers

Fitness professionals as a collective group have a general scope of practice (Table 1-2). While this table provides general guidance, each professional must know what is within

the specific scope of practice for his or her credential. The ACE-certified Personal Trainer scope of practice is presented in Figure 1-2. ACE-certified Personal Trainers must work within this defined scope of practice to provide effective services to their clients, gain and maintain support from the healthcare community, and avoid the legal ramifications of providing services outside their professional scope.

Personal trainers should never provide services that are outside their defined scope of practice. For example, a personal trainer may be asked nutrition questions by clients wanting to reduce weight and/or **body fat**. Personal

Table 1-2

IDEA Personal Fitness Trainers' Scope of Practice

Fitness Professionals DO NOT:	Fitness Professionals DO:
Diagnose	<ul style="list-style-type: none"> • Receive exercise, health, or nutrition guidelines from a physician, physical therapist, registered dietitian, etc. • Follow national consensus guidelines for exercise programming for medical disorders • Screen for exercise limitations • Identify potential risk factors through screening • Refer clients to an appropriate allied health professional or medical practitioner
Prescribe	<ul style="list-style-type: none"> • Design exercise programs • Refer clients to an appropriate allied health professional or medical practitioner for an exercise prescription
Prescribe diets or recommend specific supplements	<ul style="list-style-type: none"> • Provide general information on healthy eating, according to the MyPlate Food Guidance System • Refer clients to a dietitian or nutritionist for a specific diet plan
Treat injury or disease	<ul style="list-style-type: none"> • Refer clients to an appropriate allied health professional or medical practitioner for treatment • Use exercise to help improve overall health • Help clients follow physician or therapist advice
Monitor progress for medically referred clients	<ul style="list-style-type: none"> • Document progress • Report progress to an appropriate allied health professional or medical practitioner • Follow physician, therapist, or dietitian recommendations
Rehabilitate	<ul style="list-style-type: none"> • Design an exercise program once a client has been released from rehabilitation
Counsel	<ul style="list-style-type: none"> • Coach • Provide general information • Refer clients to a qualified counselor or therapist
Work with patients	<ul style="list-style-type: none"> • Work with clients