



ALTERNATE EDITION

Thomas D. Fahey

Paul M. Insel

Walton T. Roth

FOURTH EDITION

# Fit & Well

CORE CONCEPTS AND LABS  
IN PHYSICAL FITNESS  
AND WELLNESS

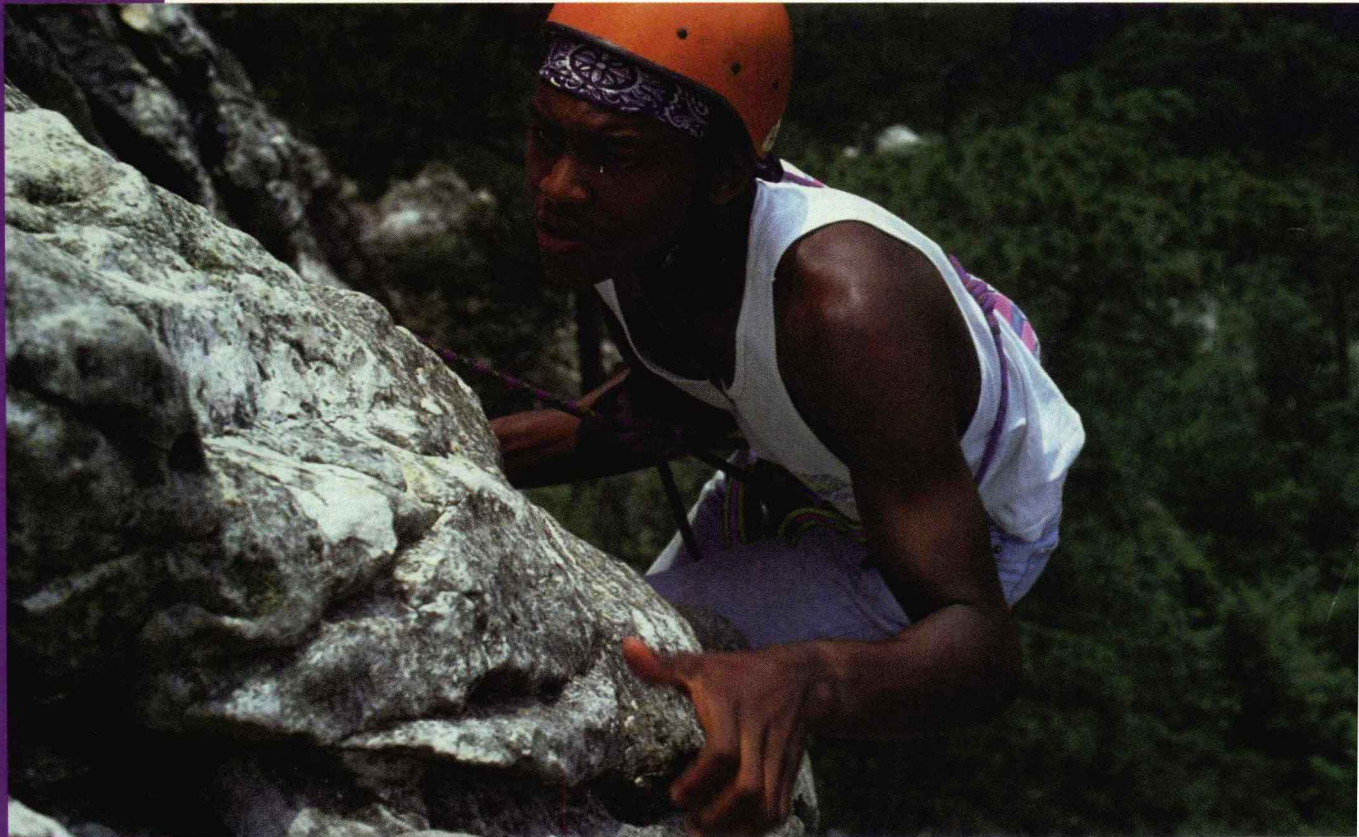


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Core Concepts and Labs in  
Physical Fitness and Wellness

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**Thomas D. Fahey**

*California State University, Chico*

**Paul M. Insel**

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# Preface

For today's fitness-conscious student, *Fit and Well: Alternate Edition* combines the best of two worlds. In the area of physical fitness, *Fit and Well* offers expert knowledge based on the latest findings in exercise physiology and sports medicine, along with tools for self-assessment and guidelines for becoming fit. In the area of wellness, it offers accurate, current information on today's most important health-related topics and issues, again with self-tests and guidelines for achieving wellness. To create this book, we have drawn on our combined expertise and experience in exercise physiology, athletic training, personal health, scientific research, and teaching. This special Alternate Edition contains the first 11 of the 15 chapters that appear in the full version of *Fit and Well*.

## OUR AIMS

Our aims in writing this book can be stated simply:

- To show students that becoming fit and well greatly improves the quality of their lives
- To show students how they can become fit and well
- To motivate students to make healthy choices and to provide them with tools for change

The first of these aims means helping students see how their lives can be enhanced by a fit and well lifestyle. This book offers convincing evidence of a simple truth: To look and feel our best, to protect ourselves from degenerative diseases, and to enjoy the highest quality of life, we need to place fitness and wellness among our top priorities. *Fit and Well* makes clear both the imprudence of our modern, sedentary lifestyle and the benefits of a wellness lifestyle.

Our second aim is to give students the tools and information they need to become fit and well. This book provides students with everything they need to create their own personal fitness programs, including instructions for fitness tests, explanations of the components of fitness and guidelines for developing them, descriptions and illustrations of exercises, sample programs, and more. In addition, *Fit and Well* provides accurate, up-to-date, scientifically based information about other key topics in wellness, including nutrition, weight management, stress, and cardiovascular health.

In providing this material, we have pooled our efforts. Thomas Fahey has contributed his knowledge as an exercise physiologist, teacher, and author of numerous exercise science textbooks. Paul M. Insel and Walton T. Roth have contributed their knowledge of current topics in health as the authors of the leading personal health textbook, *Core Concepts in Health*.

Because we know this expert knowledge can be overwhelming, we have balanced the coverage of complex topics with student-friendly features designed to make the book accessible. Written in a straightforward, easy-to-read style and presented in a colorful, open format, *Fit and Well* invites the student to read, learn, and remember. Boxes, labs, tables, figures, artwork, photographs, and other features add interest to the text and highlight areas of special importance.

Our third aim is to involve students in taking responsibility for their health. *Fit and Well* makes use of interactive features to get students thinking about their own levels of physical fitness and wellness. We offer students assessment tools and laboratory activities to evaluate themselves in terms of each component of physical fitness and each major wellness area, ranging from cardiorespiratory endurance and muscular strength to stress and heart disease.

We also show students how they can make difficult lifestyle changes by using the principles of behavior change. Chapter 1 contains a step-by-step description of this simple but powerful tool for change. The chapter not only explains the five-step process but also offers a wealth of tips for ensuring success. Behavior management aids, including personal contracts, behavior checklists, and self-tests, appear throughout the book. *Fit and Well's* combined emphasis on self-assessment, self-development in each area of wellness, and behavior change ensures that students not only are inspired to become fit and well but also have the tools to do so.

When students use these tools to make significant lifestyle changes, they begin to realize that they are in charge of their health—and their lives. From this realization comes a sense of competence and personal power. Perhaps our overriding aim in writing *Fit and Well* is to convey the fact that virtually everyone has the ability to understand, monitor, and make changes in his or her own level of fitness and wellness. By making healthy choices from an early age, individuals can minimize the amount



of professional medical care they will ever require. Our hope is that *Fit and Well* will help people make this exciting discovery: that they have the power to shape their own futures.

## CONTENT AND ORGANIZATION OF THE FOURTH EDITION

The basic content of *Fit and Well* remains unchanged in the fourth edition. Chapter 1 provides an introduction to fitness and wellness and explains the principles of behavior change. Chapters 2–7 focus on the various areas of physical fitness. Chapter 2 provides an overview, discussing the five components of fitness, the principles of physical training, and the factors involved in designing a well-rounded, personalized exercise program. Chapter 3 provides basic information on how the cardiorespiratory system functions, how the body produces energy for exercise, and how individuals can create successful cardiorespiratory fitness programs. Chapters 4, 5, and 6 look at muscular strength and endurance, flexibility, and body composition, respectively. Chapter 7 “puts it all together,” describing the nature of a complete program that develops all the components of fitness. This chapter also includes sample exercise programs for developing overall fitness.

Chapters 8, 9, and 10 treat three important areas of wellness promotion: nutrition, weight management, and stress management, respectively. It is in these areas that individuals have some of the greatest opportunities for positive change. Chapter 11 focuses on one of the most important reasons for making lifestyle changes: cardiovascular disease, the leading cause of death among Americans. Students learn the basic risk factors for cardiovascular disease and how they can make lifestyle changes to reduce their risk.

For the fourth edition, each chapter was carefully reviewed, revised, and updated. The latest information from scientific and wellness-related research is incorporated in the text, and newly emerging topics are discussed. The following list gives a sample of some of the new and updated material included in the fourth edition of *Fit and Well*:

- Dietary Guidelines for Americans, 2000
- New Dietary Supplements labeling requirements
- New American College of Sports Medicine (ACSM) guidelines for exercise
- Fad diets and diet aids
- “Performance aids”: nutritional supplements and drugs

- The role of moderate daily physical activity in wellness
- The female athlete triad
- Anger management and violence warning signs
- Prevalence of overweight and obesity
- Benefits of exercise for older adults
- Genetically modified foods, functional foods, food irradiation, food additives, and foodborne illnesses
- Additional stress management techniques, such as massage and biofeedback
- Body image and eating disorders

Research in the areas of health and wellness is ongoing, with new discoveries, advances, trends, and theories reported nearly every week. For this reason, no wellness book can claim to have the final word on every topic. Yet, within these limits, *Fit and Well* does present the latest available information and scientific thinking on important wellness topics. Taken together, the chapters of the book provide students with a complete, up-to-date guide to maximizing their well-being, now and through their entire lives.

## FEATURES OF THE FOURTH EDITION

This edition of *Fit and Well* builds on the features that attracted and held our readers' interest in previous editions. These features are designed to help students increase their understanding of the key concepts of wellness and to make better use of the book.

### Laboratory Activities

To help students apply the principles of fitness and wellness to their own lives, *Fit and Well* includes **laboratory activities** for classroom use. These hands-on activities give students the opportunity to assess their current level of fitness and wellness, to create plans for changing their lifestyle to reach wellness, and to monitor their progress. They can assess their daily physical activity, for example, or their level of cardiorespiratory endurance; they can design a program to improve muscular strength or meet weight-loss goals; and they can explore their risk of developing cardiovascular disease. Labs are found at the end of each chapter; they are perforated for easy use.



Many of the laboratory activities in the text are also found on the *Fit and Well Interactive Student CD-ROM*, a supplement described later in the preface. Labs that appear on the CD are indicated with a CD icon. For a complete list of laboratory activities, see p. xvi in the table of contents.

## Illustrated Exercise Sections

To ensure that students understand how to perform important exercises and stretches, *Fit and Well* includes three separate **illustrated exercise sections**, one in Chapter 4 and two in Chapter 5. The section in Chapter 4 covers a total of 23 exercises for developing muscular strength and endurance, as performed both with free weights and on weight machines. One section in Chapter 5 presents 12 stretches for flexibility, and the other presents 11 exercises to stretch and strengthen the lower back. Each exercise is illustrated with one or more full-color photographs showing proper technique.

## Sample Programs

To help students get started, Chapter 7 offers seven complete **sample programs** designed to develop overall fitness. The programs are built around four popular cardiorespiratory endurance activities: walking/jogging/running, bicycling, swimming, and in-line skating. They also include weight training and stretching exercises. Each one includes detailed information and guidelines on equipment and technique; target intensity, duration, and frequency; calorie cost of the activity; record keeping; and adjustments to make as fitness improves. The chapter also includes general guidelines for putting together a personal fitness program: setting goals; selecting activities; setting targets for intensity, duration, and frequency; making and maintaining a commitment; and recording and assessing progress.

## Boxes

Boxes are used in *Fit and Well* to explore a wide range of current topics in greater detail than is possible in the text itself. Boxes fall into five different categories, each marked with a special icon and label.



**Tactics and Tips** boxes distill from the text the practical advice students need to apply information to their own lives. By referring to these boxes, students can easily find information about such topics as becoming more active, rehabilitating athletic injuries, exercising in hot weather, adding whole-grain foods to the diet, judging serving sizes, helping a friend who has an eating disorder, breathing techniques for stress reduction, managing anger, and many others.



**Critical Consumer** boxes are designed to help students develop and apply critical thinking skills, thereby enabling them to make sound choices related to health and well-being. Critical Consumer boxes provide specific guidelines for choosing a health club and exercise footwear and equipment; for evaluating health news and

commercial weight-loss programs; and for using food labels and dietary supplement labels to make informed dietary choices.



**Dimensions of Diversity** boxes focus on the important theme of diversity. Most wellness issues are universal; we all need to exercise and eat well, for example. However, certain differences among people—based on gender, socioeconomic status, ethnicity, age, and other factors—do have important implications for wellness. Dimensions of Diversity boxes give students the opportunity to identify special wellness concerns that affect them because of who they are, as individuals or as members of a group. Topics of Dimensions of Diversity boxes include fitness for people with disabilities, gender differences in muscular strength, and ethnic foods.



**Wellness Connection** boxes highlight important links among the different dimensions of wellness—physical, emotional, social/interpersonal, intellectual, spiritual, and environmental—and emphasize that all the dimensions must be developed in order for an individual to achieve optimal health and well-being. Topics include the effects of exercise on mental functioning and how social support affects overall health.



**A Closer Look** boxes highlight current topics and issues of particular interest to students. These boxes focus on such topics as benefits of physical activity, exercise machines versus free weights, diabetes, risk factors for low-back pain, health implications of obesity, body image, osteoporosis, and many others.

## Vital Statistics

**Vital Statistics** tables and figures highlight important facts and figures in an accessible format. From tables and figures marked with the Vital Statistics label, students learn about such matters as the leading causes of death for Americans and the factors that play a part in each one; the relationship between level of physical fitness and mortality; the most popular fitness activities; the costs of smoking; and a wealth of other information. For students who learn best when material is displayed graphically or numerically, Vital Statistics tables and figures offer a way to grasp information quickly and directly.

## Common Questions Answered

Sections called **Common Questions Answered** appear at the ends of Chapters 2–11. In these student-friendly sections, the answers to frequently asked questions are presented in easy-to-understand terms. Included are such

questions as, Are there any stretching exercises I shouldn't do? Do I need more protein in my diet when I train with weights? Are kickboxing and Tae Bo effective forms of exercise? and, How can I safely gain weight?

### Quick-Reference Appendixes

Included at the end of the book are four appendixes containing vital information in an easy-to-use format. **Appendix A, Injury Prevention and Personal Safety**, is a reference guide to preventing common injuries, whether at home, at work, at play, or on the road. It also provides information on giving emergency care when someone else's life is in danger.

**Appendix B, Nutritional Content of Common Foods**, allows students to assess their daily diet in terms of 11 nutrient categories, including protein, fat, saturated fat, fiber, added sugar, cholesterol, and sodium. Keyed to the software available with the text, this guide puts vital nutritional information at students' fingertips.

**Appendix C, Nutritional Content of Popular Items from Fast-Food Restaurants**, provides a breakdown of the nutritional content of the most commonly ordered menu items at eight popular fast-food restaurants. Especially useful are the facts about calories, fat, and sodium in different items.

**Appendix D, Monitoring Your Progress**, is a log that enables students to record and summarize the results of the assessment tests they complete as part of the laboratory activities. With space for preprogram and postprogram assessment results, the log provides an easy way to track the progress of a behavior change program.

### Built-in Behavior Change Workbook

The built-in Behavior Change Workbook contains 15 separate activities that complement the lifestyle management model presented in Chapter 1. The workbook guides students in developing a successful program by walking them through each of the steps of behavior change—from choosing a target behavior to completing and signing a contract. It also includes activities to help students overcome common obstacles to behavior change.

### LEARNING AIDS

Several specific learning aids have been incorporated in *Fit and Well*. At the beginning of each chapter, under the heading **Looking Ahead**, five or six questions preview the main points of the chapter for the student and serve as learning objectives. Within each chapter, important terms appear in boldface type and are defined on the same or facing page of text in a **running glossary**, helping students handle new vocabulary.

**Chapter summaries** offer students a concise review

and a way to make sure they have grasped the most important concepts in the chapter. Also found at the end of chapters are **selected bibliographies** and sections called **For More Information**. These sections list books, journal articles, newsletters, organizations, hotlines, and Web sites that may be of interest to students, as well as campus and community resources.

### TEACHING TOOLS

Available with the fourth edition of *Fit and Well* is a comprehensive package of supplementary materials designed to enhance teaching and learning. Included in the package are the following items:

- Instructor's Resource Binder
- Transparency acetates
- Instructor's CD-ROM
- Computerized test bank
- Nutritional analysis software
- Students on Health: Custom Video to Accompany *Fit and Well*
- *Fit and Well* Web site
- *Fit and Well Interactive* Student CD-ROM
- Nutrition and Weight Management Journal
- Daily Fitness Log
- Internet guide

The **Instructor's Resource Binder** contains a variety of helpful teaching materials in an easy-to-use form.

- The **Instructor's Resource Guide**, prepared for the fourth edition by Diane Lowry, Kennesaw State University, includes learning objectives; extended chapter outlines; lists of additional resources; descriptions of the labs, transparencies, and hand-outs; and other teaching tools.
- The **Internet Handbook** provides a brief introduction to the Internet, a complete directory of all sites listed in the text and Instructor's Resource Guide, guidelines for evaluating Internet information, and worksheets with student Internet activities.
- The **Examination Questions**, completely revised and updated for the fourth edition by Rob Schurrer, Black Hills State University, include more than 1000 true/false, multiple-choice, and essay questions.
- **80 Additional Laboratory Activities** supplement the labs that are included in the text.
- More than **120 Transparency Masters and Hand-outs** are provided as additional lecture resources.

A set of 50 **transparency acetates**, half of which are in color, is also available as a lecture resource.

The **Instructor's CD-ROM** contains an **Image Bank** of more than 80 full-color images from the text, as well as images from the acetates, masters, and handouts. A complete set of **PowerPoint slides**, developed by Christopher M. Janelle, University of Florida, provides lecture outlines for each chapter of the book. The complete **Instructor's Resource Guide** can be downloaded from the CD and customized to fit any course organization. The CD can be used with both IBM-compatible and Macintosh computers.

The **computerized test bank** (Microtest III from Chariot Software Group) allows instructors to design tests using the provided test questions and/or their own questions. **Dine Healthy software** provides an easy way for students to evaluate the nutritional value of their current diet and to track their energy expenditure. Both programs are available for Windows and Macintosh.

**Students on Health: Custom Video to Accompany Fit and Well** features students from college campuses across the country discussing how their daily lives are affected by their choices in such wellness areas as exercise, nutrition, and stress. The accompanying Instructor's Video guide provides summaries of each segment and discussion questions. Other **videos, software, and multimedia**, on topics such as weight training, healthy diets, and heart disease, are also available.

Expanded for the fourth edition, the **Fit and Well Web site** (<http://www.mayfieldpub.com/fahey>) contains fully interactive resources for both instructors and students. Password-protected instructor's resources include a **syllabus builder** that allows instructors to construct and edit their syllabus, which can then be printed or accessed online. Other downloadable instructor's materials include PowerPoint slides, the Image Bank, and the Instructor's Resource Guide; Web-based testing options are also available. Student resources include the **Online Behavior Change Workbook**, Internet activities, interactive quizzes, chapter objectives and summaries, an extensive set of links, and guidelines for evaluating the credibility of online information.

New to the fourth edition, the **Fit and Well Interactive Student CD-ROM** is designed to help students learn and apply key concepts. From point-and-click activities featuring images from the text, students can see important concepts animated, hear pronunciations of key terms, and learn additional information. Interactive quizzes provide immediate feedback, and video segments highlight issues of special concern to students. Also included are a pronunciation guide to all key terms, all the images from the text, chapter objectives and summaries, and links to the *Fit and Well* Web site and the Online Behavior Change Workbook.

*Fit and Well Interactive* also includes **electronic versions of lab activities** and the **Daily Fitness Log**. The lab activities component calculates and prints the results of selected self-assessment and fitness tests; it also provides information about behavior change and a behavior

change contract. The fitness log can be used to track a fitness program for up to 40 weeks; students can print out their logs and graph their progress. The CD can be used with both IBM-compatible and Macintosh computers and can be packaged with the text for students.

Other practical items for the student can also be shrinkwrapped with the text:

- **The Nutrition and Weight Management Journal** guides students in assessing their current diet and making appropriate changes.
- The **Daily Fitness Log** contains logs for students to plan and track the progress of their general fitness and weight training programs for up to 40 weeks.
- Available in a new edition is **Mayfield's Quick View Guide to the Internet for Students of Health, Physical Education, and Exercise Science, Version 2.0**. It provides step-by-step instructions on how to access the Internet; how to find, evaluate, and use online information about fitness and wellness; and many other topics.

If you have any questions concerning the book or teaching package, please call your local Mayfield sales representative or the Marketing and Sales Department at 800-433-1279. You may also e-mail Mayfield at [calpoppy@mayfieldpub.com](mailto:calpoppy@mayfieldpub.com).

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### Academic reviewers of the first three editions:

Mary Jo Adams, Illinois State University  
Liz Applegate, University of California, Davis  
Viviane L. Avant, University of North Carolina at Charlotte  
E. Harold Blackwell, Lamar University  
Elaine H. Blair, Indiana University of Pennsylvania  
Laura L. Borsdorf, Ursinus College  
Susan Brown, Johnson County Community College  
Vicki Boye, Concordia College  
William J. Considine, Springfield College  
Arlene Crosman, Linn-Benton Community College  
Robert Cross, Salisbury State University  
Todd Crowder, U.S. Military Academy  
Anita D'Angelo, Florida Atlantic University  
Jean F. Dudley, San Antonio College  
Michael A. Dupper, University of Mississippi  
Robert Femat, El Paso Community College  
Richard J. Fopeano, Rowan College of New Jersey  
Carol A. Giroud, Monmouth University



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 Dorothy P. Haugen, Bethel College  
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 Joyce Huner, Macomb Community College  
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 Lois M. Smith, University of Maryland, Eastern Shore  
 Jack Stovall, Salisbury State University  
 Karen Teresa Sullivan, Marymount University  
 Mark G. Urtel, Indiana University–Purdue University at  
 Indianapolis  
 Ann Ward, University of Wisconsin–Madison  
 Glenn R. West, Transylvania University  
 Christopher J. Womack, Longwood College  
 Anthony Zaloga, Frostburg State University

**Special fitness consultants for the third edition:**

Warren D. Franke, Iowa State University  
 David C. Nieman, Appalachian State University  
 Michael Pollock, University of Florida

**Technology focus group participants:**

Ken Allen, University of Wisconsin–Oshkosh  
 Lisa Farley, Butler University  
 Barbara Greenburg, Butler University  
 Bill Johnson, Stephen F. Austin State University

Rita Nugent, University of Evansville  
 Patricia Dotson Pettit, Nebraska Wesleyan University  
 Carol Plugge, Lamar University  
 Steve Sedbrook, Fort Hays State University  
 Marilyn Strawbridge, Butler University

**Academic reviewers of the fourth edition:**

Joel R. Barton III, Lamar University  
 Phillip Bogle, Eastern Michigan University  
 Bill Brewer, Rochester Institute of Technology  
 Ronnie Carda, University of Wisconsin–Madison  
 Barbara Coleman, Northern Michigan University  
 Dale DeVoe, Colorado State University  
 Karen Avery Hixson, Salem College  
 Shahla Khan, Kennesaw State University  
 Alan M. Kramer, Abraham Baldwin College  
 Michelle Miller, Indiana University  
 Dennis M. Mishko, Keystone College  
 Deb Power, Iowa State University  
 Gary Preston, Gainesville College  
 Jerry J. Swope, Millersville University

**Special fitness consultants for the fourth edition:**

Patty Freedson, University of Massachusetts–Amherst  
 Lawrence A. Golding, University of Nevada at Las Vegas

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*Thomas D. Fahey*  
*Paul M. Insel*  
*Walton T. Roth*

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Ⓛ Indicates a laboratory activity that is also found on the Lab Activities and Fitness Log Software.

# Introduction to Wellness, Fitness, and Lifestyle Management

1



## LOOKING AHEAD

After reading this chapter, you should be able to answer these questions about wellness, fitness, and behavior change:

- What is wellness?
- What are the major health problems in the United States today, and what are their principal causes?
- What behaviors are part of a fit and well lifestyle?
- What is physical fitness, and why is it important to wellness?
- What are the components of a behavior change program?