



THIRD EDITION

# **FIT & WELL**

**Core Concepts  
and Labs in  
Physical Fitness  
and Wellness**

**THOMAS D. FAHEY**

**PAUL M. INSEL**

**WALTON T. ROTH**



# Fit & Well

## Core Concepts and Labs in Physical Fitness and Wellness

**THIRD EDITION**



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Mayfield Publishing Company  
Mountain View, California  
London • Toronto

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*Library of Congress Cataloging-in-Publication Data*

Fahey, Thomas D. (Thomas Davin)

Fit and well : core concepts and labs in physical fitness and wellness / Thomas D. Fahey, Paul M. Insel, Walton T. Roth.—3rd ed.

p. cm.

Includes bibliographical references and index.

ISBN 0-7674-0535-8

1. Physical fitness. 2. Health. I. Insel, Paul M. II. Roth, Walton T. III. Title.

GV481.F26 1998

613.7'043—DC21

98-21016

CIP

Manufactured in the United States of America

10 9 8 7 6 5 4

Mayfield Publishing Company

1280 Villa Street

Mountain View, CA 94041

*Sponsoring editor*, Michele Sordi; *developmental editors*, Kirstan Price, Susan Shook, Megan Rundel, and Kathleen Engelberg; *production editor*, Julianna Scott Fein; *manuscript editor*, Margaret Moore; *art director*, text designer, Jeanne M. Schreiber; *cover designer*, Laurie Anderson; *cover photo*, © Philip and Karen Smith/Tony Stone Images; *art manager*, Robin Mouat; *illustrators*, Joan Carol, Kristin Mount, Judy and John Waller, and Susan Seed; *photo researcher*, Brian Pecko; *manufacturing manager*, Randy Hurst. The text was set in 10.5/12 Berkeley Book by GTS Graphics, Inc., and printed on acid-free 45# Chromatone by Banta Book Group.

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a Web site does not indicate an endorsement by the authors or Mayfield Publishing Company, and Mayfield does not guarantee the accuracy of the information presented at these sites.

**Sources for Appendix C** Arbys, <http://www.arbysrestaurant.com>, Burger King, <http://www.burgerking.com>, Domino's Pizza, <http://www.dominos.com>, Jack in the Box, 1998, *Jack's Nutrition Facts*, <http://www.jackinthebox.com>, KFC, <http://www.kfc.com>, McDonald's, March, 1998 *Nutrition Facts*, <http://www.mcdonalds.com>, Taco Bell, 1997, *Nutritional Guide*, <http://www.tacobell.com>, Wendy's, 1998, *Nutrition/Ingredient Guide*, <http://www.wendys.com>

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# Preface

For today's fitness-conscious student, *Fit and Well* 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.

## 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, cardiovascular health, cancer, drugs, alcohol, STDs, and a multitude of others.

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 heart disease, cancer, and STDs.

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 THIRD EDITION

The basic content of *Fit and Well* remains unchanged in the third 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 to create a successful cardiorespiratory fitness program. 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 fitness program that develops all the components of fitness. This chapter also includes several 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. Chapters 11 and 12 focus on two of the most important reasons for making lifestyle changes: cardiovascular disease and cancer. Students learn the basic mechanisms of these diseases, how they are related to lifestyle, and what individuals can do to prevent them. Chapters 13 and 14 focus on other important wellness issues—addictive behaviors, including the use and abuse of tobacco, alcohol, and other drugs (Chapter 13) and sexually transmitted diseases (Chapter 14). Finally, Chapter 15 looks at four additional wellness topics: intimate relationships, aging, using the health care system, and environmental health.

For the third 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 third edition of *Fit and Well*:

- The Surgeon General's report on physical activity and health

- Exercise recommendations from the American College of Sports Medicine
- The 1998 Dietary Reference Intakes for vitamins and minerals, including recommendations for supplements
- Energy (ATP) production for exercise
- Binge drinking on college campuses
- Stress-management techniques
- Exercise and dietary recommendations for special population groups and people with special health concerns
- Prescription drugs for weight loss
- Spiritual wellness
- Dietary fats and health
- Eating disorders
- Addictive behavior
- HIV treatment and testing
- Safe use of air bags

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 THIRD 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 level of cardiorespiratory endurance, for example, or their daily energy balance; they can design a program to improve muscular strength or meet weight-loss goals; they can explore their risk of developing cardiovascular disease or cancer; and they can



examine their attitudes and behaviors in relation to alcohol use and STDs. Labs are found at the end of each chapter; they are perforated for easy use.



Many of the laboratory activities in the text can also be found on the Lab Activities and Fitness Log Software, a student supplement described later in the preface. Labs that appear in the software are indicated with a disk 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 22 exercises for developing muscular strength and endurance, as performed both with free weights and on Nautilus equipment. 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—new to the third edition—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, proper weight training technique, reducing fat in the diet, helping a

friend who has an eating disorder, breathing techniques for stress reduction, responsible drinking behavior, preventing STDs, 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 fitness centers, exercise footwear and equipment, and health insurance; for evaluating health news and commercial weight-loss programs; and for using food labels to make informed dietary choices.



**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, preventive medicine, osteoporosis, and many others.



**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 cardiorespiratory endurance, ethnic foods, and the relationship between poverty and cancer risk.



**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. Included in Wellness Connection boxes are topics such as how exercise improves mood and mental functioning, how support group participation improves the survival of cancer patients, and how spiritual wellness affects overall health and well-being.

### 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; populations of special concern for obesity; incidence of cancer by site and gender; routes of HIV infection; 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 2–14. In these student-friendly sections, the answers to the most-often-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? If I stop weight training, will my muscles turn to fat? Does drinking benefit health? How can I safely gain weight? and, Who should have an HIV test?

### 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 and treating common injuries, whether at home, at work, at play, or on the road. It includes such information as how to treat poisoning, choking, and burns; how to prevent injuries from falls, fires, and motor vehicle crashes; how to be safe when walking, jogging, and biking; and how to protect oneself from assault and rape, including acquaintance rape. It also provides information on giving emergency care when someone else's life is in danger. A chart shows proper technique for administering the Heimlich maneuver and performing rescue breathing.

**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 and about the proportion of fat calories to total calories.

**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 new built-in Behavior Change Workbook complements the lifestyle management model presented in Chapter 1. Based on the behavior change activities that appeared in the second edition, the workbook contains 15 separate activities. It 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 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 further resources that can often be found on campus or in the community.

### TEACHING TOOLS

Available with the third 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
- Image Bank and PowerPoint® Presentation CD-ROM
- Students on Health and Wellness: Custom Video to Accompany *Fit and Well*
- Computerized test bank
- Nutritional analysis software
- Mayfield *Fit and Well* Web site

- Nutrition and Weight Management Journal
- Daily Fitness Log
- Lab Activities and Fitness Log Software
- 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 third edition by Meredith Busby at the University of North Carolina, Chapel Hill, includes learning objectives; extended chapter outlines; lists of additional resources, including books and articles, videos, software, Internet sites, and other multimedia tools; and descriptions of the labs and transparencies.
- The new **Internet Handbook** includes a brief introduction to the Internet, a complete directory of all the sites listed in the text and Instructor's Resource Guide, guidelines for evaluating information from the Internet, and student Internet activities.
- The **Examination Questions**, completely revised and updated for the third edition by John D. Emmett, Eastern Illinois University, include over 1000 true/false, multiple choice, and essay questions.
- Over 70 **Additional Laboratory Activities**, formatted for easy duplication and distribution, supplement the labs that are included in the text.
- Over 100 **Transparency Masters and Handouts** are provided as additional lecture resources.

The set of **transparency acetates** includes 50 acetates, half of which are in color. The transparencies provide material suitable for lecture and demonstration purposes and complement the transparency masters in the Instructor's Resource Binder.

New to the third edition, the **Image Bank and PowerPoint® Presentation CD-ROM** includes an image bank of over 80 images from the third edition that can be displayed, printed, or imported into presentation software. The PowerPoint slides, prepared by Christopher M. Janelle at the University of Florida, can be customized to fit any lecture. The CD-ROM also includes material from the Instructor's Resource Guide in editable format as well as versions of selected transparency acetates and masters suitable for use with presentation software. It is compatible with both IBM and Macintosh computers.

Also new to the third edition is **Students on Health and Wellness: Custom Video to Accompany Fit and Well**. Filmed with students at college campuses across the country, this unique video is designed to stimulate critical thinking and class discussion. The 8- to 10-minute segments focus on key wellness concerns—fitness, nutrition, stress, intimate relationships, alcohol, tobacco, STDs, and personal safety. The accompanying Instructor's

Video Guide provides summaries of each segment and discussion questions.

The **computerized test bank** (Microtest III from Chariot Software Group) allows instructors to design tests using the questions from the test item file and/or their own questions. It is available for Macintosh and Windows. **DINE Healthy software** provides an easy way for students to evaluate the nutritional value of their current diet; it also includes an exercise section that allows students to track their energy expenditures. **Other videos, software, and multimedia**, on topics such as weight training, body composition, healthy diets, and heart disease prevention, are also available.

Also new to the third edition is the **Mayfield Fit and Well Web site** (<http://www.mayfieldpub.com/fahey>). The site includes up-to-date links to useful Internet resources, student study questions that provide immediate feedback, a customized syllabus builder for instructors, and more.

Several practical items for students can be shrink-wrapped with the textbook:

- The **Nutrition and Weight Management Journal**, new to the third edition of *Fit and Well*, guides students in assessing their current diet and making appropriate changes.
- The **Daily Fitness Log** is a 48-page booklet that contains logs for students to plan and track the progress of their general fitness and weight training programs for up to 40 weeks.
- The **Lab Activities and Fitness Log Software** presents lab activities and fitness logs in an electronic format (Macintosh or Windows). The software calculates and prints out the results of selected self-assessments and fitness tests; it also includes information about behavior change and a behavior change contract. Students can print out their logs and graph the progress of their fitness program. A disk icon indicates which lab activities from the text are also found on the software; see p. xvi in the table of contents for a complete list.
- Also new to the third edition is **Mayfield's Quick View Guide to the Internet for Students of Health and Physical Education**, by Jennifer Campbell and Michael Keene at the University of Tennessee, Knoxville. It provides step-by-step instructions on how to access the Internet; how to find, evaluate, and use information about wellness; how to communicate via e-mail and chat rooms; how to use listservs and newsgroups; 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).



## A NOTE OF THANKS

Many people have contributed to the production of *Fit and Well*. The book has benefited from their thoughtful commentaries, expert knowledge, and helpful suggestions. We are deeply grateful for their participation in the project.

### Academic reviewers of the first edition:

Liz Applegate, University of California, Davis  
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### Academic reviewers of the second edition:

Viviane L. Avant, University of North Carolina-Charlotte  
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Carol Plugge, Lamar University  
Steve Sedbrook, Fort Hays State University  
Marilyn Strawbridge, Butler University

We are also grateful to the staff of Mayfield Publishing Company and the *Fit and Well* book team, without whose efforts the book could not have been published. Special thanks to Michele Sordi, sponsoring editor; Kirstan Price, Susan Shook, Megan Rundel, and Kate Engelberg, developmental editors; Julianna Scott Fein, production editor; Jeanne M. Schreiber, art director; Robin Mouat, art manager; Marty Granahan, permissions editor; Brian Pecko, photo researcher; Randy Hurst, manufacturing manager; Heather Collins, production assistant; Michelle Rodger-son, marketing manager; and Jay Bauer, product manager.

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