

# FUNDAMENTAL CONCEPTS OF FITNESS AND WELLNESS

SECOND EDITION



Charles B. Corbin   Gregory J. Welk   William R. Corbin   Karen A. Welk

# Fundamental Concepts of Fitness and Wellness

Second Edition

**Charles B. Corbin**

*Arizona State University—East*

**Gregory J. Welk**

*Iowa State University*

**William R. Corbin**

*Yale University*

**Karen A. Welk**

*Mary Greeley Medical Center*

*Ames, Iowa*



Boston Burr Ridge, IL Dubuque, IA Madison, WI New York San Francisco St. Louis  
Bangkok Bogotá Caracas Kuala Lumpur Lisbon London Madrid Mexico City  
Milan Montreal New Delhi Santiago Seoul Singapore Sydney Taipei Toronto

FUNDAMENTAL CONCEPTS OF FITNESS AND WELLNESS, SECOND EDITION

Published by McGraw-Hill, a business unit of The McGraw-Hill Companies, Inc., 1221 Avenue of the Americas, New York, NY 10020. Copyright © 2006, 2001 by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of The McGraw-Hill Companies, Inc., including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 DOW/DOW 0 9 8 7 6 5

ISBN 0-07-307913-8

Publisher: *William Glass*  
Executive editor: *Nicholas R. Barrett*  
Director of development: *Kathleen Engelberg*  
Senior developmental editor: *Michelle A. Turenne*  
Executive marketing manager: *Pamela S. Cooper*  
Editorial and marketing coordinator: *Nancy Null*  
Media producer: *Lance Gerhart*  
Technology developmental editor: *Julia D. Ersery*  
Senior project manager: *Jill Moline-Eccher*  
Senior production supervisor: *Richard DeVitto*  
Designer: *Preston Thomas*  
Media supplement producer: *Ron Nelms, Jr.*  
Senior photo research coordinator: *Alexandra B. Ambrose*  
Art editor: *Emma Gbiselli*  
Freelance photo researchers: *David & Emily Tietz*  
Art director: *Robin Mouat*  
Cover design: *Preston Thomas*  
Interior design: *Ellen Pettengill*  
Typeface: *10/12 Janson*  
Compositor: *Precision Graphics*  
Printer: *RR Donnelley*

Cover image: © *Lori Adamski Peek/Getty Images/Stone*

The credits section for this book begins on page C-1 and is considered an extension of the copyright page.

**Library of Congress Cataloging-in-Publication Data**

Fundamental concepts of fitness and wellness / Charles B. Corbin . . . [et al.].—2nd ed.  
p. cm.

Includes bibliographical references and index.

ISBN 0-07-307913-8 (softcover : alk. paper)

1. Exercise. 2. Physical fitness. 3. Physical fitness—Problems, exercises, etc. I. Corbin, Charles B.

RA781.F86 2006

613.7--dc22

2004063186



# Lab Activities

<b>Lab 1A</b>	<b>Wellness Self-Perceptions</b>	<b>Lab 11B</b>	<b>Evaluating Muscular Endurance</b>
<b>Lab 1B</b>	<b>Fitness Stunts and Fitness Estimates</b>	<b>Lab 11C</b>	<b>Planning and Logging Muscle Fitness Exercises: Free Weights or Resistance Machines</b>
<b>Lab 2A</b>	<b>The Physical Activity Adherence Questionnaire</b>	<b>Lab 11D</b>	<b>Planning and Logging Muscle Fitness Exercises: Calisthenics or Isometric Exercises</b>
<b>Lab 2B</b>	<b>The Self-Management Skills Questionnaire</b>	<b>Lab 12A</b>	<b>Evaluating Body Composition: Skinfold Measures</b>
<b>Lab 3A</b>	<b>Readiness for Physical Activity</b>	<b>Lab 12B</b>	<b>Evaluating Body Composition: Height, Weight, and Circumference Measures</b>
<b>Lab 3B</b>	<b>The Warm-Up and Cool-Down</b>	<b>Lab 12C</b>	<b>Determining Your Daily Energy Expenditure</b>
<b>Lab 4A</b>	<b>Assessing Heart Disease Risk Factors</b>	<b>Lab 13A</b>	<b>Nutrition Analysis</b>
<b>Lab 5A</b>	<b>Self-Assessment of Physical Activity</b>	<b>Lab 13B</b>	<b>Selecting Nutritious Foods</b>
<b>Lab 6A</b>	<b>Physical Activity Attitude Questionnaire</b>	<b>Lab 14A</b>	<b>Evaluating Your Stress Level</b>
<b>Lab 7A</b>	<b>Planning and Self-Monitoring (Logging) Your Lifestyle Physical Activity</b>	<b>Lab 14B</b>	<b>Evaluating Your Hardiness</b>
<b>Lab 8A</b>	<b>Counting Target Heart Rate and Ratings of Perceived Exertion</b>	<b>Lab 14C</b>	<b>Evaluating Neuromuscular Tension</b>
<b>Lab 8B</b>	<b>Evaluating Cardiovascular Fitness</b>	<b>Lab 15A</b>	<b>Assessing Factors that Influence Health, Wellness, and Fitness</b>
<b>Lab 9A</b>	<b>Jogging/Running</b>	<b>Lab 15B</b>	<b>Planning for Improved Health, Wellness, and Fitness</b>
<b>Lab 9B</b>	<b>Planning and Logging Participation in Active Aerobics, Sports, and Recreation</b>	<b>Lab 15C</b>	<b>Planning Your Personal Physical Activity Program</b>
<b>Lab 10A</b>	<b>Evaluating Flexibility</b>		
<b>Lab 10B</b>	<b>Planning and Logging Stretching Exercises</b>		
<b>Lab 11A</b>	<b>Evaluating Muscle Strength: 1RM and Grip Strength</b>		

Look at what you get for free if you are buying this book new!

New copies of *Fundamental Concepts of Fitness and Wellness*, 2nd edition, come with the following special resource to help you succeed in class and beyond:

**Password for Premium Content on the Online Learning Center for *Fundamental Concepts of Fitness and Wellness* ([www.mhhe.com/corbin2e](http://www.mhhe.com/corbin2e))**

The passcode card bound into the front of your text includes your password to the premium resources found on the Online Learning Center for this text. The Online Learning Center includes tools to help you succeed in your course, such as learning objectives, self-quizzes and glossary flashcards for review, and extensive links to key resources. The password gives you access to additional tools as well as articles and current news that can help you as a professional.

If you have purchased a used copy of this book, you can purchase access to the premium content for the Online Learning Center separately; visit the book's Online Learning Center ([www.mhhe.com/corbin2e](http://www.mhhe.com/corbin2e)) for more details.

# IMPORTANT

HERE IS YOUR REGISTRATION CODE TO ACCESS MCGRAW-HILL PREMIUM CONTENT AND MCGRAW-HILL ONLINE RESOURCES

For key premium online resources you need THIS CODE to gain access. Once the code is entered, you will be able to use the web resources for the length of your course.

Access is provided only if you have purchased a new book.

If the registration code is missing from this book, the registration screen on our website, and within your WebCT or Blackboard course will tell you how to obtain your new code. Your registration code can be used only once to establish access. It is not transferable.

## To gain access to these online resources

1. USE your web browser to go to: **mhhe.com/corbin2e**
2. CLICK on "First Time User"
3. ENTER the Registration Code printed on the tear-off bookmark on the right
4. After you have entered your registration code, click on "Register"
5. FOLLOW the instructions to setup your personal UserID and Password
6. WRITE your UserID and Password down for future reference. Keep it in a safe place.

If your course is using WebCT or Blackboard, you'll be able to use this code to access the McGraw-Hill content within your instructor's online course.

To gain access to the McGraw-Hill content in your instructor's WebCT or Blackboard course simply log into the course with the user ID and Password provided by your instructor. Enter the registration code exactly as it appears to the right when prompted by the system. You will only need to use this code the first time you click on McGraw-Hill content.

These instructions are specifically for student access. Instructors are not required to register via the above instructions.

The McGraw-Hill Companies

**Mc  
Graw  
Hill** **Higher  
Education**

Thank you, and welcome to your  
McGraw-Hill Online Resources.

0-07-307917-0 t/a  
Corbin  
Fundamental Concepts of  
Fitness & Wellness, 2E

RP8K-BOY5-XFAM-VO09-QLUH

**REGISTRATION CODE**  
REGISTRATION CODE

The McGraw-Hill Companies

**Mc  
Graw  
Hill** **Higher  
Education**

# Fundamental Concepts of Fitness and Wellness



# Preface

## Fitness and Wellness: Respecting the Past and Looking to the Future

The second edition of *Fundamental Concepts of Fitness and Wellness* has an all new look. The design of the book is entirely new. The intent of the new design is to create an attractive look while incorporating several new pedagogical features.

Just as the look of the book has evolved, so has the authorship team. Greg Welk (Iowa State University), because of his increased contribution, has become second author. Ruth Lindsey, who retired as professor at California State University–Long Beach several years ago, has now decided to retire from writing as well (see box). Though she will retire from the authorship team, many of the excellent features she contributed will still be present in the book.

Will Corbin, now an assistant professor of clinical psychology at Yale University, has become the third author. Karen Welk, a physical therapist, is the newest member of the author team. Karen has considerable experience as a physical therapist and is currently employed by the Mary Greeley Medical center in Ames, Iowa. The new team offers experience as well as youthful energy and allows us to have expert and up-to-date coverage in all areas of each individual's expertise.

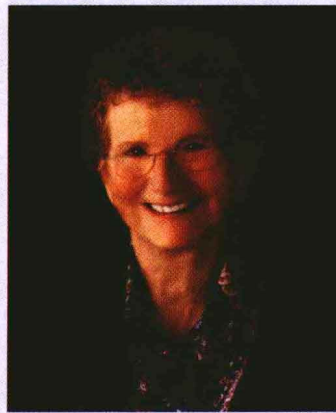
Our content continues to evolve as we learn more about fitness, wellness, and healthy lifestyles. In our early editions, we focused on trying to get people fit and well. To be sure, fitness is an important product, as is wellness, another product of healthy lifestyle change. But scientific advances have shown that health, wellness, and fitness (all

### Dedication

The authors wish to dedicate this book in loving memory of **Charles Samuel "Charlie" Corbin** (April 22, 2004–July 18, 2004), son of Will and Suzi Corbin, grandson of Cathie and Chuck Corbin and **Alyson Welk** (April 30, 1995–June 2, 2003), daughter of Karen and Greg Welk.

### A Tribute to Ruth Lindsey

#### Retiring Author



Dr. Ruth Lindsey, professor emeritus at California State University–Long Beach, is a recognized national leader in physical activity and fitness with special expertise in biomechanics, kinesiology, questionable exercises, nutrition, and physical activity for senior adults. She

is the author of more than a dozen books, including *Body Mechanics*, *The Ultimate Fitness Book*, *Concepts of Fitness and Wellness*, and *Concepts of Physical Fitness*. Her early books in biomechanics pioneered the field and provided the basis for much of what we currently know about safe versus questionable exercises. Dr. Lindsey's writings on back care are considered classics.

Dr. Lindsey was one of the original authors of *Concepts of Physical Education*, the predecessor of this edition.

Over the years, hundreds of thousands of students have been exposed to Dr. Lindsey's writings. On behalf of those students and their teachers, the co-authors of this book honor Dr. Lindsey for her many contributions related to the areas of fitness, health, and wellness. Ruth Lindsey, enjoy your retirement!

products) are not things you can “do” to people. You have to help people help themselves. Educating them and giving them the self-management skills that help them adopt healthy lifestyles can do this.

The focus of the new millennium is on the *process*. Healthy lifestyles, or what a person does, rather than what a person can do, constitute process. If a person does the



process (i.e., adopt a healthy lifestyle), positive changes will occur to the extent that change is possible for that specific person. As noted in the first concept of the book, lifestyles are the most important factors, influencing health, wellness, and fitness. Healthy lifestyles (the processes) are also within a person's individual control. *Any person* can benefit from lifestyle change, and any person can change a lifestyle. These lifestyle changes will make a difference in health, fitness, and wellness for all people.

The emphasis on lifestyle change in the twelfth edition is consistent with the focus of national health objectives for the new millennium. Though the principal national health goals are to increase years and quality of life (products) for all people, the methods of accomplishing these goals focus on changing lifestyles. As we move into the new century, we must adopt a new way of thinking to help all people change their lifestyles to promote health, fitness, and wellness.

## Our Basic Philosophy

### The HELP Philosophy

Over time, the features of our book evolve. However, the HELP philosophy on which the book is based remains sound. We believe that the “new way of thinking” based on the HELP philosophy serves us, the faculty who choose our book, and the students who use it. **H** is for *health*. Health and its positive component—wellness—are central to the philosophy. Health, fitness, and wellness are for all people. **E** is for *everyone*. **L** is for *lifetime lifestyle change*, and **P** is for *personal*. The goal is to HELP all people to make personal lifetime lifestyle changes that promote health, fitness, and wellness.

To assure that the book is consistent with the HELP philosophy and to be sure it is useful to everyone, we include discussions to adapt healthy lifestyles based on personal needs. Separate sections are *not* included for specific groups, such as older people, women, ethnic groups, or those with special needs. Rather, we focus on healthy lifestyles *for all people* throughout the book.

### Meeting Higher-Order Objectives

The “new way of thinking” based on the HELP philosophy suggests that each person must make decisions about healthy lifetime lifestyles if the goals of longevity and quality of life are to be achieved. What one person chooses may be quite different from what another chooses. Accordingly, our goal in preparing this edition is to help readers become good problem solvers and decision makers. Rather than focusing on telling them what to do, we offer information to help readers make informed choices about lifestyles. The stairway to lifetime fitness and wellness that we present helps readers

understand the importance of “higher-order objectives” devoted to problem solving and decision making.

## New Content

Much new information is included in the second edition of *Fundamental Concepts of Fitness and Wellness*. A summary of the new information follows.

- Based on the recommendations of reviewers, the order of Concepts 4, 5, and 6 was changed. Information concerning the health benefits of activity was moved earlier in the book to provide a basis for Sections II to VI. The concept on planning was moved to the beginning of Section III because it provides a basis for future planning for activities.
- The totally new design includes new pedagogical features such as Technology Updates, Study Resources, Strategies for Action and In the News.
- Statistics, web addresses, and suggested readings for all concepts have been updated.
- Updated statistics are included for life expectancy, causes of death, and health disparities.
- New information on wind-chill (new chart), warm-up, self-management skills, autonomous social support, walking and pedometers, exercise balls, and exercises for core fitness is included.
- The most recent statistics concerning participation in physical activity guidelines from several organizations including ACSM. Information is also included concerning the new President's Challenge program for promoting lifetime physical activity.
- A new maximum heart rate formula is included.
- A new swim test of cardiovascular fitness is included.
- New information is included on dose response, blood indicators of heart disease, range of motion, muscle fitness exercises (with new illustrations), and posture/back care.
- New national blood pressure standards are included as well as new information on deep vein thrombosis.
- A new body fatness rating chart is included.
- New information is included on micronutrients (vitamins, minerals) and macronutrients (carbohydrate, protein, and fat) based on recommendations of the Food and Nutrition Board of the Institute of Medicine.
- Additional information about the glycemic index, fiber, food supplements, and fast foods is presented.
- Revised and reorganized concept on stress is provided.
- Concept 15 contains a new comprehensive model of healthy lifestyle planning that provides additional coverage of spirituality; the new model integrates physical, social, intellectual, work, and spiritual environments with suggestions for prayer, meditation, and support. Also new information concerning cities with the best emergency medical systems is included.



## An All-New Design

As mentioned at the beginning of this preface, the second edition has a completely new design. The new design includes aesthetic features created with the intent of making the book attractive and pleasing to the eye. Some examples of these features include a new color scheme, new concept opener pages, new color tabs, new icons for various concept features, new lab format, and new presentation of the basic concept headers.

## New Pedagogical Features of the Design

Whereas much of the new design was created to make the book look good, many of the features were created for educational reasons. For example, concepts within book sections are color-coded, as are *Lab Resource Materials* and tear-out labs. Concept openers, labs, *Lab Resource Materials*, and exercise tables include color tabs that help students locate the materials they are looking for. Tables and charts are color-coded and have alternating bands to help students locate materials contained in them. Special features have an icon or a logo with a special design and color code to make them easy to find. The tear-out labs can easily be identified by their unique color.

## Online Labs

The popular labs are now available online. To access the labs, visit the Online Learning Center at [www.mhhe.com/corbin2e](http://www.mhhe.com/corbin2e).

## New Tables, Figures, and Photos

More than eighty-five new tables, figures, and photos are included. Some of the figures and photos are done with a special treatment called text wrapping. This allows pictures to be integrated in the text. This method also helps us present complex information in an easy-to-understand way. Several new anatomical illustrations have been added.

## Technology Update Features

Each concept has a new technology features included in this second edition. These features describe technological advances relating to health, wellness, and fitness lifestyles. Examples include global positioning systems and heart rate watches.

## In the News Features

These features include information that is so current that much of it was added right before the book went to press.

## New Web Materials

Over the years, we have prided ourselves on being current. We have provided Web icons in the book that allow students to access current information exclusively related to our book, as well as more generic information. Access to Web materials has been made easier by including the book Web address for the accompanying Online Learning Center at the top of each left-hand page. As in the past, specific URLs appear in the body of the text as well as at the end of each concept.

## Expanded Coverage for North America

New statistics for all of North America have been added to those typically presented for the United States. Several Canadian websites have been included, as have been new statistics, and a color version of the Canadian food guide is included.

## Factual Updates

As is true with all of our new editions, facts, statistics, references, and other information are updated throughout.

## Deleted Content

One of the problems that we have encountered over time has been the lengthening of the book because of the expansion of knowledge related to health, wellness, and fitness. In this edition, we made a conscious effort to cut words to save space and to allow new material to be added without lengthening the book. Also, the new design is more efficient, allowing us to add new information.

## Popular Continuing Features

The second edition retains many of the popular features that made the previous edition so successful. Some of these features are as follows:

## Pedagogically Sound Organization

Planning and self-management strategies are presented early to familiarize students with basic principles and guidelines that will be used in later planning. Preparation strategies and basic activity principles follow. Each type of health-related fitness and the type of activity that promotes each component of fitness are included in the next section. This section is organized around the physical activity pyramid. Special considerations—including safe exercise, care of the back and neck, posture, and performance—are included in the next section. Other priority healthy lifestyles are the focus of nutrition, body compo-

sition, and stress-management sections. The final section is designed to help students become good health, wellness, and fitness consumers.

## Strategies for Action

At the end of each concept, *strategies for action* are provided. These are suggestions for putting content into action. Many of these strategies require readers to perform or practice self-assessment or other self-management techniques.

## Magazine Format

The attractive new design supports student reading and studying with an appealing magazine format. This format has been shown to be educationally effective and has been well received by users.

## Activity Features

Exercises for each part of physical fitness are illustrated and described in easy to locate tables. Opportunities to perform the exercises are provided in the labs.

## Web Icons

The Web icons unique to this book allow learners to locate (at point of use) additional pictures, tables, and figures that illustrate concepts presented in the book. Web addresses to supplemental resource materials, such as a self-study guide, sample exam questions, and definitions of terms, as well as other enrichment materials, are also provided on the Online Learning Center and in the *Web Resources* section at the end of each concept. The Web address for the Online Learning Center ([www.mhhe.com/corbin2e](http://www.mhhe.com/corbin2e)) is included as a header at the top of each left-facing page.

## Attractive and Easy-to-Use Labs

The attractive and popular labs are designed to get users involved in practicing self-management skills that will promote healthy lifestyle change. The labs are in a bright, attractive, and educationally effective format. They are easy to find and easy to use. In many cases, lab resource materials that aid the student in performing lab activities precede them. These resources are retained in the book even when the labs are torn out. This allows future use of such materials as fitness self-assessments. The physical activity labs are designed to get people active early in the course and ultimately to allow each user to plan his or her own personal activity program.

## Focus on Self-Management Skills

The educational effectiveness of a book depends on more than just presenting information. If lifestyle changes are to be implemented, there must be opportunities to learn how to make these changes. Research suggests that learning self-management skills is important to lifestyle change. A section on self-management skills is included early in the book, and additional discussions of how to practice and implement these skills is included throughout the book.

## Health Goals for the Year 2010

The health goals are based on the health goals for the new millennium (Health Goals for the Year 2010). These goals are provided at the beginning of each concept to help readers relate content to goals.

## What's in This for You?

This student guide follows the Preface and is designed to help students use the features of the book more effectively. Instructors are encouraged to urge students to read this section prior to using the book.

## Terms at Point-of-Use

It greatly pleased us that the *Surgeon General's Report on Physical Activity and Health* adopted our physical fitness definitions. Just as we have led the way in defining fitness, we now include state-of-the-art definitions related to wellness and quality of life. These—and all other definitions—are now included at the first point-of-use to make them easier to locate.

## Continued Use of Conceptual Format

We use concepts rather than chapters, and each concept contains factual statements that follow concise informational paragraphs. This tried-and-true method has proven to be educationally sound and well received by students and instructors.

## Pedagogical Aids

### Web Resources

Located at the end of every concept, additional websites are listed to provide students with additional online resources that supplements the content just learned.

## Suggested Readings

Because students want to know more about a particular topic, a list of readings is given at the end of each chapter. Most suggested readings are readily available at bookstores or public libraries.



## Appendices

*Fundamental Concepts of Fitness and Wellness*, second edition, includes six appendices that are valuable resources for the student. The metric conversion chart; metric conversions of selected charts and tables; calorie guide to common foods; calories of protein, carbohydrates, and fats in foods; calorie, fat, saturated fat, cholesterol, and sodium content of selected fast-food items; and Canada's food guide to healthy eating are included for your use.

## Ancillaries

### A Note for Instructors

As with the previous edition, you will see that we have updated this edition with the most recent scientific information. We have designed experiences to promote higher-order thinking. There is another consideration we think to be important. As usual, we have worked to keep the price of the book low.

As always with our *Concepts* books, an extensive list of ancillary materials is available to help you provide the most effective instruction. Brief descriptions of these materials follow.

## Instructor's Resource Materials

### Instructor's Resource CD

#### Course Integrator Guide

This includes all the features of a useful instructor's manual, such as learning objectives, suggested lecture outlines, suggested activities, media resources, and Web links. It also integrates the text with all the health resources McGraw-Hill offers, such as the Online Learning Center, Image Presentation PowerPoint™, HealthQuest CD-ROM, *Healthy Living* Video Clips CD-ROM, and the Health and Human Performances website. The guide also includes references to relevant print and broadcast media. Instructors can access the guide at [www.mhhe.com/corbin2e](http://www.mhhe.com/corbin2e).

#### Computerized Test Bank

McGraw-Hill's EZ Test is a flexible and easy-to-use electronic testing program available in higher education. The program allows instructors to create tests from book spe-

cific items. It accommodates a wide range of question types and instructors may add their own questions. Multiple versions of the test can be created and any test can be exported for use with course management systems such as WebCT, BlackBoard or PageOut. The program is available for Windows and Macintosh environments.

### Image Presentation PowerPoint™

The Image Presentation is an electronic library of visual resources. It comprises images from the text displayed in PowerPoint™, which allows the user to view, sort, search, use, and print catalog images. It also includes a complete, ready-to-use PowerPoint™ presentation, which allows users to play chapter-specific slideshows.


## Student Self-Assessment Material

### Dietary Analysis Software

Available for Windows and Macintosh computers, this user-friendly diet analysis software allows students to track their food intake over a period of days and generate a variety of easy-to-read reports and graphs. The program tracks over 30 nutrient categories. Students can choose from nearly 8,000 foods or add their own to the database. Other features include a weight management function and a website devoted to diet analysis-related resources.

## Internet Resources

### Online Learning Center

 [www.mhhe.com/corbin2e](http://www.mhhe.com/corbin2e) This website offers resources to students and instructors. It includes downloadable ancillaries, Web links, student quizzes, additional information on topics of interest, and more. Resources for the instructor include

- Course Integrator Guide
- Downloadable PowerPoint™ presentations
- Lecture outlines
- Discussion questions
- Concept summaries

Resources for the student include

- Flashcards
- Online labs
- Interactive quizzes

## Interactive CD-ROM

### HealthQuest CD-ROM

*HealthQuest* is designed to help students explore the behavioral aspects of personal health and wellness through a state-of-the-art interactive CD-ROM. Your students will be able to assess their current health and wellness status, determine their health risks, and explore options and make decisions to improve the behaviors that impact their health. Adopters of this text can obtain

more information from your local McGraw-Hill sales representative.

## Print Publications

### *Daily Fitness and Nutrition Journal* by McGraw-Hill

This logbook helps students keep track of their diet and exercise programs, and it serves as a diary to help students log their behaviors.



# Acknowledgments

The evolution of this book would not have been possible without the input of those who have used the book and those who have provided us with reviews. At the risk of inadvertently failing to mention someone, we want to acknowledge the following people for their role in the development of this book.

First, we would like to acknowledge a few people who have made special contributions over the years. Linus Dowell, Carl Landiss, and Homer Tolson, all of Texas A & M University, were involved in the development of the first *Concepts* book, and their contributions were also important as we helped start the fitness movement in the 1960s.

Other pioneers were Jimmy Jones of Henderson State University, who started one of the first *Concepts* classes in 1970 and has led the way in teaching fitness in the years that have followed; Charles Erickson, who started a quality program at Missouri Western; and Al Lesiter, a leader in the East at Mercer Community College in New Jersey. David Laurie and Barbara Gench at Kansas State University, as well as others on that faculty, were instrumental in developing a prototype concepts program, which research has shown to be successful.

A special thanks is extended to Andy Herrick and Jim Whitehead, who have contributed to much of the development of various editions of the book, including excellent suggestions for change. Mark Ahn, Keri Chesney, Chris MacCrate, Guy Mullins, Stephen Hustedde, Greg Nigh, Doreen Mauro, Marc vanHorne, along with other employees of the Consortium for Instructional Innovation and the Micro Computer Resource Facility at Arizona State University, and Betty Craft, Ken Rudich, and Fred Huff and other employees at the Distance Learning Technology Program at Arizona State University, deserve special recognition.

Second, we wish to extend thanks to the following people who provided comments for the current editions of our *Concepts* books: Eugene B. Blackwell, Surry Community College (NC); Joseph W. Bubenias, Hofstra University and Queensborough Community College; Dawn Ketterman-Benner, Moravian College (PA); R. Cody McMurtry, Newberry College (SC); and Jan Sholes, Frederick Community College (MD).

Third, we want to acknowledge the following people who have aided us in the preparation of past editions: Debra Atkinson, Iowa State University; Rose Schmitz, Texas A & M University; Dixie Stanforth, University of Texas at Austin; Kenneth R. Turley, Harding University; and James R. Whitehead, University of North Dakota; Virginia L. Hicks, University of Wisconsin at Whitewater; Jon Kolb, University of Calgary; J. Dirk Nelson, LeTourneau University (TX); Patricia A. Zezula, Huntington College (IN); Craig Koppelman, University of Central Arkansas; Robert W. Rausch, Jr., Westfield State College; Amy P. Richardson, University of Central Arkansas; Terry R. Tabor, University of North Florida; Sharon Rifkin, Broward Community College; William B. Karper, University of North Carolina at Greensboro; Larry E. Knuth, Rio Hondo College; Maridy Troy, University of Alabama at Tuscaloosa; Kenneth L. Cameron, United States Military Academy at West Point; Thomas E. Temples, North Georgia College & State University; Bridget Cobb, Armstrong Atlantic State University; Tillman (Chuck) Williams, Southwest Missouri State University; Mary Jeanne Kuhar, Central Oregon Community College; Jennifer L. H. Lechner, St. Petersburg Junior College; Laura Switzer, Southwestern Oklahoma State University; Robert L. Slevin, Towson University; Karen (Pea) Poole, University of North Carolina at Greensboro; Paul Downing, Towson University; David Horton, Liberty University; Lindy S. Pickard, Broward Community College; Laura L. Borsdorf, Ursinus College; Frederick C. Surgent, Frostburg State University; James A. Gemar, Moorhead State University; Vincent Angotti, Towson University; Judi Phillips, Del Mar College; Joseph Donnelly, Montclair State University; Harold L. Rainwater, Asbury College; Candi D. Ashley, University of South Florida; Dennis Docheff, United States Military Academy; Robin Hoppenworth, Wartburg College; Linda Farver, Liberty University; Peter Rehor, Montana State University; Martin W. Johnson, Mayville State University; Keri Lewis, North Carolina State University; J. D. Parsley, University of St. Thomas; Marika Botha, Lewis-Clark State College; Robert J. Mravetz, University of

## Interactive CD-ROM

### HealthQuest CD-ROM

*HealthQuest* is designed to help students explore the behavioral aspects of personal health and wellness through a state-of-the-art interactive CD-ROM. Your students will be able to assess their current health and wellness status, determine their health risks, and explore options and make decisions to improve the behaviors that impact their health. Adopters of this text can obtain

more information from your local McGraw-Hill sales representative.

## Print Publications

### *Daily Fitness and Nutrition Journal* by McGraw-Hill

This logbook helps students keep track of their diet and exercise programs, and it serves as a diary to help students log their behaviors.



Akron; Debra A. Beal, Northern Essex Community College; Roger Bishop, Wartburg College; David S. Brewster, Indiana State University; Ronnie Carda, University of Wisconsin–Madison; Curt W. Cattau, Concordia University; Cindy Ekstedt Connelley, Catawaba College; J. Ellen Eason, Towson State University; Bridgit A. Finley, Oklahoma City Community College; Diane Sanders Flickner, Bethel College; Judy Fox, Indiana Wesleyan University; Earlene Hannah, Hendrix College; Carole J. Hanson, University of Northern Iowa; John Merriman, Valdosta State College; Beverly F. Mitchell, Kennesaw State College; George Perkins, Northwestern State University; James J. Sheehan, Fitchburg State College; Mary Slaughter, University of Illinois; Paul H. Todd, Polk Community College; Susan M. Todd, Vancouver Community College–Langara Campus; Kenneth E. Weatherman, Floyd College; Newton Wilkes, Bridget Cobb, John Dippel, and Todd Kleinfelter, Northwestern State University of Louisiana; and John R. Webster, Central Connecticut State University. A special thanks is extended to Patty Williams, Ann Woodard, Laurel Smith, Bill Carr (Polk Community College), James Angel, Jeanne Ashley, Stanley Brown, Ronnie Carda, Robert Clayton, Melvin Ezell, Jr., Brigit Finley, Pay Floyd, Carole Hanson, James Harvey, John Hayes, David Horton, Sister Janice Iverson, Tony Jadin, Richard Krejei, Ron Lawman, James Maret, Pat McSwegin, Betty McVaigh, John Merriman, Beverly Mitchell, Sandra Morgan, Robert Pugh, Larry Reagan, Mary Rice, Roberts Stokes, Paul Tood, Susan Todd, Marjorie Avery Willard, Karen Cookson, Dawn Strout, Earlene Hannah, Ken Weatherman, J. Ellen Eason, William Podoll, John Webster, James Shebban, David Brewster, Kelly Adam, Lisa Hibbard, Roger Bishop, Mary Slaughter, Jack Clayton Stovall, Karen Watkins, Ruth Cohoon, Mark Bailey, Nena Amundson, Bruce Wilson, Sarah Collier, Carl Beal, George Perkins, Stan Rettew, Ragene Gwin, Judy Fox, Diane Flickner, Cindy Connelley, Curt Cattau, Don Torok, and Dennis Wilson.

Finally, we want to acknowledge others who have contributed, including Virginia Atkins, Charles Ciciarella, Donna Landers, Susan Miller, Robert Pangrazi, Karen Ward, Darl Waterman, and Weimo Zhu. Among other important contributors are former graduate students who have contributed ideas, made corrections, and contributed in other untold ways to the success of these books. We wish to acknowledge Jeff Boone, Laura Borsdorf, Lisa Chase, Tom Cuddihy, Darren Dale, Bo Fernhall, Ken Fox, Connie Fye, Louie Garcia, Steve Feyrer-Melk, Sarah Keup, Guy LeMasurier, Kirk Rose, Jack Rutherford, Cara Sidman, Scott Slava, Dave Thomas, Min Qui Wang, Jim Whitehead, Bridgette Wilde, and Ashley Woodcock.

## Author Acknowledgments

A very special thanks goes to David E. Corbin of the University of Nebraska at Omaha and Jodi Hickman LeMasurier. Dr. Corbin is a health educator who has provided valuable assistance. Jodi spent many hours researching photos for this book and developed the index. We especially appreciate the Spanish translation of vocabulary terms by Julio Morales from Lamar University, as well as the thorough and excellent proofreading by Bob Widen for this edition. We also want to thank Cara Sidman for developing the current test bank materials and for her excellent assistance in so many other ways. Finally we want to thank Ron Hager and Lynda Ransdell for their assistance with the development of the Web resources and the development of the test bank materials for past editions.

Finally, we would like to thank all past editors (there have been many) and our current editors, Michelle Turenne, Jill Moline-Eccher, and Nick Barrett who do the tedious jobs that make these excellent books possible.

# What's in This for You?

Students, are you looking for health, wellness, and fitness information online? Working hard to get in shape? Trying to improve your grade? All the features in *Fundamental Concepts of Fitness and Wellness* will help you do this and more! Take a look.

## Concept Statement

A concept statement is included at the beginning of each concept. The content elaborates and expands on each concept statement.

## Health Goals

The content of each concept is designed to help you meet national health goals outlined in *Healthy People 2010*.

## Technology Update

The *Technology Update* features include information about a technological innovation that is related to the content of the concept.

**Illness** The ill feeling and/or symptoms associated with a disease or circumstances that upset homeostasis.

**Wellness** The integration of many different components (social, emotional-mental, spiritual, and physical) that expand one's potential to live (quality of life) and work effectively and to make a significant contribution to society. Wellness reflects how one feels (a sense of well-being) about life as well as one's ability to function effectively. Wellness, as opposed to illness (a negative), is sometimes described as the positive component of good health.

**Quality of Life** A term used to describe wellness. An individual with quality of life can enjoyably do the activities of life with little or no limitation and can function independently. Individual quality of life requires a pleasant and supportive community.

**Lifestyles** Patterns of behavior or ways an individual typically lives.

2 Section I ► Lifestyles for Health, Wellness, and Fitness

www.mhhe.com/corbin2e

*Good health, wellness, fitness, and healthy lifestyles are important for all people.*



**Health Goals**  
for the year 2010

- Increase quality and years of healthy life.
- Eliminate health disparities.
- Increase incidence of people reporting "healthy days."
- Increase access to health information and services for all people.

### National Health Goals

At the beginning of each concept in this book is a section containing abbreviated statements of the national health goals from the document *Healthy People 2010: National Health Promotion and Disease Prevention Objectives*. These statements, established by expert groups representing more than 350 national organizations, are intended as realistic national health goals to be achieved by the year 2010. These objectives for the first decade of the new millennium are intended to improve the health of those in the United States, but they seem important for all people in North America and in other industrialized cultures throughout the world. The health objectives are designed to contribute to the current World Health Organization strategy of "Health for All." This book is written with the achievement of these important health goals in mind.

### Introduction

www.mhhe.com/fund/web01 Click 01. The first national health goals were developed in 1979 to be accomplished by the year 1990. The focus of those objectives was on reduction in the death rate among infants, children, adolescents, young adults, and adults. Except for reducing death rates among adolescents, those goals were met and the average life expectancy was increased by more than 2 years by the 1990s. Those first national health objectives gave way to the *Healthy People 2000* objectives, designed to be accomplished by the turn of

the century. The emphasis in these objectives shifted from reduction in premature death to disease prevention and health promotion. While many of these objectives have been achieved, others have yet to be accomplished.

For *Healthy People 2010*, achieving the vision of "healthy people in healthy communities" is paramount. Two central goals have been established. First, the goals emphasize quality of life, well-being, and functional capacity—all important wellness considerations. This emphasis is based on the World Health Organization's focus on quality of life and its efforts to break down the artificial divisions between physical and mental well-being. Second, the national health goals for 2010 take the "bold step" of trying to "eliminate" health disparities as opposed to reducing them. Consistent with national health goals for the new millennium, this book is designed to aid all people in adopting healthy lifestyles that will allow them to achieve lifetime health, wellness, and fitness.

### Technology Update Internet Access

This book provides a number of ways to help you access reliable health and wellness information from the Internet. The *On the Web* icons throughout the book include URLs that provide additional information and links to informative sites on the Internet. The list of *Web Resources* at the end of each concept provide URLs for various organizations that provide high-quality health information. The *On the Web* and *Web Resources* features can be accessed electronically (without typing the URL) by visiting the Online Learning Center address that is featured at the top of every even-numbered page of the book. This site also includes a number of study aids, including concept outlines, concept terms, and sample quiz questions to help you apply the information in the book.

### Health and Wellness

**Good health is of primary importance to adults in our society.** When polled about important social values, 99 percent of adults in the United States identified "being in good health" as one of their major concerns. The two other concerns expressed most often were good family life and good self-image. The 1 percent who did not identify good health as an important concern had no opinion on any social issues. Among those polled, none

## Definition Boxes

All terms that are bold in your book are defined in an accompanying definition box to reinforce this information.



## In the News

This feature is located at the end of each concept. *In the News* is designed to provide very current information about health, wellness, and fitness.



## In the News

### The Healthy Eating Pyramid

The food guide pyramid has been highly publicized and promoted as a guide to healthy eating. It was intended to serve as a tool to help consumers implement the Dietary Guidelines for Americans, published jointly by the USDA and the U.S. Department of Health and Human Services. The guidelines are updated every five years, but the pyramid has not been updated since 1992. The continued epidemic of obesity in the country has caused health experts to question some of the underlying premises in the food guide pyramid.

The most notable limitation is the lack of attention to the quality of food items at each level of the pyramid. Carbohydrates are considered to be the base of the food pyramid, but emphasis should be placed on high-quality

how your food affects you. Other specific "bricks" in the pyramid are

- Whole-grain foods (at most meals)
- Plant oils
- Vegetables (in abundance) and fruits (two to three times per day)
- Fish, poultry, and eggs (zero to two times per day)
- Nuts and legumes (one to three times per day)
- Dairy or calcium supplement (one to two times per day)
- Red meat and butter (use sparingly)
- White rice, white bread, potatoes, pasta, and sweets (use sparingly)
- Multiple vitamin (daily)
- Alcohol (in moderation)

## Tables of Exercises

Many concepts include illustrations of exercises that you can use to develop health-related fitness, to care for the back and neck, or to improve posture. These exercises are included in tables at the end of the concepts. Complete descriptions of proper technique are included with the illustrations.

**Table 6 The Basic 8 for Free Weights**

**5. Wrist Curl**  
This exercise develops the muscles of the fingers, wrist, and forearm. Sit on a bench with the back of one forearm on the bench, arm and hand hanging over the edge. Hold a dumbbell in the fingers of that hand with the palm facing forward. To develop the flexors, lift the weight by curling the fingers then the wrist through a full range of motion. Slowly lower and repeat. To strengthen the extensors, start with the palm down. Lift the weight by extending the wrist through a full range of motion. Slowly lower and repeat. Note: Both wrists may be exercised at the same time by substituting a barbell in place of the dumbbell.

**6. Dumbbell Rowing**  
This exercise develops the muscles of the upper back. It is best performed with the aid of a bench or chair for support. Grab a dumbbell with one hand and place opposite hand on the bench to support the trunk. Slowly lift the weight up until the elbow is parallel with the back. Lower the weight and repeat to complete the set. Switch hands and repeat with the opposite arm. The exercise can also be performed with one leg kneeling on the bench.

**7. Half-Squat**  
This exercise develops the muscles of the thighs and buttocks. Stand erect, feet turned out 45 degrees. Bend knees, spread hands in a comfortable position. Squat slowly, keeping back straight, eyes ahead. Bend knees to approximately 90 degrees, and keep knees over feet. Pause, then stand. Repeat. Spotters are needed. Variation: Substitute dumbbell in each hand at sides.

**8. Lunge**  
This exercise develops the thigh and buttock muscles. Place a barbell or weight bar support with slightly less than shoulder width apart, controlled forward and to drop on heels. Stride with opposite leg to return to lunge. Repeat with other leg, remaining slowly in a straight line with alternating legs.

**Table 6 The Basic 8 for Free Weights**

**1. Bench Press**  
This exercise develops the chest (pectoral) and triceps muscles. Lie supine on bench with knees bent and feet flat on floor in stride position. Grasp bar at shoulder level. Push bar up until arms are straight. Return and repeat. Do not arch lower back. Note: Feet may be placed on floor if lower back can be kept flattened. Do not put feet on the bench if it is unstable.

**2. Overhead (Military Press)**  
This exercise develops the muscles of the shoulders and arms. Sit erect, bend elbows, palms facing forward at chest level with hands spread (slightly more than shoulder width). Have bar touching chest, toward feet (comfortable distance). Tighten your abdominal and back muscles. Move bar to overhead position (arms straight). Lower bar to chest position. Repeat. Caution: Keep arms perpendicular and do not allow weight to move backward or wrists to bend backward. Spotters are needed.

**3. Biceps Curl**  
This exercise develops the muscles of the upper front part of the arms (biceps). Stand erect with back against a wall, palms forward, bar touching thighs. Spread feet in comfortable position. Tighten abdominal and back muscles. Do not lock knees. Move bar to chin, keeping body straight and elbows near the sides. Lower bar to original position. Do not allow back to arch. Repeat. Spotters are usually not needed. Variation: Use dumbbell and sit on end of bench with feet in stride position; work one arm at a time, or use dumbbell with the palm down or thumb up to emphasize other muscles.

**4. Triceps Curl**  
This exercise develops the muscles on the back of the upper arms (triceps). Sit erect, elbows and palms facing up, bar resting behind neck on shoulders, hands near center of ear. Feet spread. Tighten abdominal and back muscles. Keep upper arms stationary. Raise weight overhead, return bar to original position. Repeat. Spotters are needed. Variation: Substitute dumbbells (one in each hand, or one held in both hands, or one in one hand at a time).

## Lab Resource Materials

Many concepts include self-assessments. These concepts have a *Lab Resource Materials* section on the pages preceding the labs for that concept. They are designed to help the reader perform the self-assessments properly. They are included on non-tear out pages so that they can be used for repeat self-assessments.

**Lab 5A Self-Assessment of Physical Activity**

Name: \_\_\_\_\_ Section: \_\_\_\_\_ Date: \_\_\_\_\_

**Purpose:** To estimate your current levels of physical activity from each category of the physical activity pyramid.

**Procedures:**

- Place an X over the circle that characterizes your participation in each category in the pyramid.
- Determine if you met the national goal for each type of activity. Place an X over the "yes" circle if you met the goal in each area (see Results).

**Physical Activity Pyramid:**

- Level 4 (Top):** Inactivity. In the last week, were you inactive in all areas below?
- Level 3:** In the last week, how many days did you perform 30 minutes of at least moderate, vigorous, or recreational activity?
- Level 2:** In the last week, how many days did you perform 30 minutes of at least moderate, vigorous, or recreational activity?
- Level 1 (Bottom):** In the last week, how many days did you perform 30 minutes of at least moderate, vigorous, or recreational activity?

## Tear-Out Labs

These are located at the end of each concept, and are designed to help you self-assess, self-monitor, and self-plan healthy lifestyles.

**Evaluating Body Fat**

**Skinfold Locations for Men**

**Chest skinfold:** Make a mark above and to the right of the right nipple (one-half the distance from the midline of the side and the nipple). The measurement at this location is often done on the diagonal because of the natural line of the skin.

**Thigh skinfold:** Same as for women (see previous page).

**Self-Measured Tricep Skinfold for Both Men and Women**

This measurement is made on the left arm so that the caliper can easily be read. Hold the arm straight at shoulder height. Make a fist with the thumb facing upward. Place the fist against a wall. With the right hand, place the caliper over the skinfold as it "traps" the tissue on the back of the tricep halfway from the tip of the shoulder to the elbow.