

# *Concepts of Physical Fitness*

## *Active Lifestyles for Wellness*

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twelfth edition

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# Concepts of Physical Fitness

ACTIVE LIFESTYLES FOR WELLNESS

Twelfth Edition

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## Higher Education

### CONCEPTS OF FITNESS AND WELLNESS: A COMPREHENSIVE LIFESTYLE APPROACH, TWELFTH EDITION

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# Preface

## A Comprehensive Lifestyle Approach: Evolving in the New Century

Although the twelfth edition of *Concepts of Physical Fitness: Active Lifestyles for Wellness* contains many of the same features that have made it so successful over the past thirty-five years, it is also considerably different. 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. Though she will retire from the authorship team, many of the excellent features she contributed will still be present in the book. In recognition of her excellent contribution to this book and to our profession, we honor Ruth with a special author feature (see box).

Will Corbin, now an assistant professor of clinical psychology at Yale University, has become 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. The key is that each of the team members has different expertise, allowing us to have expert and up-to-date coverage in all areas.

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 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.

### 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 a 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 the twelfth edition of this book. Over the years, she has served numerous national organizations as an officer or a committee person, has presented numerous lectures, and is regularly cited in health and fitness publications. She received her doctorate from Indiana University and served on the faculties of Oklahoma State University and the University of Utah before her extended stay on the faculty at California State University at Long Beach.

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!



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

As is the case for all revisions of *Concepts of Physical Fitness*, all of the concepts in this edition contain updated information based on the most recent research reports from the scientific literature. Some of the highlights of the new content contained in this edition include

- Based on the recommendations of reviewers, the order of Concepts 4, 5, and 6 was changed. Information concerning the health benefits was moved earlier in the book because it provides the basis for Sections II through V. The concept on planning was moved to the beginning of Section III because it provides a basis for future planning for activities in the physical activity pyramid.
- New labs on factors influencing health, wellness, and fitness and evaluating fast food options
- Extensive new coverage of the environment and wellness
- Extensive new coverage of the importance of personal actions and social interactions to health, wellness, and fitness
- New information on warm-up
- New information on self-management skills, including added information about autonomous social support as a factor underlying adherence to healthy lifestyles
- Windchill chart revised based on new formula
- Revised apparent temperature classifications
- New maximal heart rate formula
- New information on dose-response and exercise and exercise and the immune system
- Added coverage of the many physical activity recommendations from various professional groups, such as the American College of Sports Medicine, the Surgeon General's Office, and the Institute of Medicine; guidelines are presented to help the reader decide which of the many recommendations to use in making personal decisions
- New swim test for cardiovascular fitness self-assessment
- Updated exercise illustrations, including new ball exercises for core fitness
- New information on walking and the use of pedometers to self-monitor lifestyle physical activity
- Reorganization of Concept 9, on active aerobics, sports, and recreation including new information on active aerobics
- New information about blood indicators of heart disease risk and a revised heart disease risk factor lab
- New descriptions of appropriate range of motion

- Revised and updated muscle fitness illustrations and exercises
- New posture information, including sitting postures and new information on prevention of back problems.
- Revised fitness rating chart
- New information 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 nutrition information concerning the glycemic index, fiber, food supplements, fast foods, and desirable options to fast foods; a new Appendix E includes a table of fast-food nutrition values
- Revised and reorganized concepts on stress with new coverage of coping strategies, sleep, and meditation
- In Concept 21, 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

## An All-New Design

As mentioned at the beginning of this preface, the twelfth 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/corbin12e](http://www.mhhe.com/corbin12e).

## New Tables, Figures, and Photos

More than seventy-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

Over twenty new technology features are included in this twelfth 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 twelfth edition retains many of the popular features that made the eleventh 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 composition, 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/corbin12e](http://www.mhhe.com/corbin12e)) 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

*Concepts of Physical Fitness: Active Lifestyles for Wellness*, twelfth 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 past editions, you will see that we have updated this edition with the most recent scientific information. As noted earlier, we have included two new labs. 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/corbin12e](http://www.mhhe.com/corbin12e).

#### Computerized Test Bank

McGraw-Hill's Computerized Testing is the most flexible and easy-to-use electronic testing program available in higher education. The program allows instructors to create tests from book-specific test banks. It accommodates a wide range of question types, and instructors may add their own questions. Multiple versions of the test can be created. The program is available for Windows, Macintosh and Linux environments. It is located on the Instructor's Resource CD.

#### 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.

#### Instructional Videos

*Video 1: Introduction to Physical Fitness.* This video includes a statement of fitness philosophy, a look at important fitness objectives, including the Stairway to Lifetime Fitness, and a description of the fitness tests included in the *Concepts* books. Test descriptions include estimated 1 RM for strength, the trunk rotation test for flexibility, and the curl-up test for muscular endurance. Other fitness test descriptions are also described. This video may be viewed by instructors or shown to students to help them understand the various tests. It has been proven popular with both students and instructors. The HELP philosophy is part of the flow of the video presentation of concepts.




*Video 2: Introduction to Wellness.* This second instructional video defines wellness and puts wellness, health, and fitness in perspective for both students and instructors. The video helps establish common ground for the study of wellness. This proven video has helped provide the basic foundation for the study of wellness that is needed by many students.

## Student Self-Assessment Materials

*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/corbin12e](http://www.mhhe.com/corbin12e) 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

### Health and Human Performance Website

 [www.mhhe.com/hhp](http://www.mhhe.com/hhp) McGraw-Hill's Health and Human Performance Discipline Page provides a wide variety of information for instructors and students—including monthly articles that celebrate our diversity, text ancillaries, a “how to” guide to technology, study tips, and athletic training exam preparation materials. It includes professional organization, convention, and career information, and information on how to become a McGraw-Hill author. Additional features of the website include

- This Just In. This feature provides information on the latest hot topics, the best Web resources, and more—all updated monthly.
- Faculty support. Access online course supplements, such as lecture outlines and PowerPoint™ presentations, and create your own website with PageOut.
- Student Success Center. Find online study guides and other resources to improve your academic performance. Explore scholarship opportunities and learn how to launch your career.
- Author Arena. Interested in writing a textbook or supplement for the college market? Read the McGraw-Hill proposal guidelines and links to the Editorial Marketing teams, and meet and converse with our current authors.

### PageOut: The Course Website Development Center

 [www.pageout.net](http://www.pageout.net) PageOut enables you to develop a website for your course. The site includes

- A course home page
- An instructor home page
- A syllabus (interactive, and customizable and includes quizzing, instructor notes, and links to the Online Learning Center)
- Web links
- Discussions (multiple discussion areas per class)
- An online grade book
- Student Web pages
- Design templates

This program is now available to registered adopters of McGraw-Hill textbooks.

### Interactive CD-ROMs

*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.

### 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.

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# 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 *Concepts of Physical Fitness: Active Lifestyles for 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.

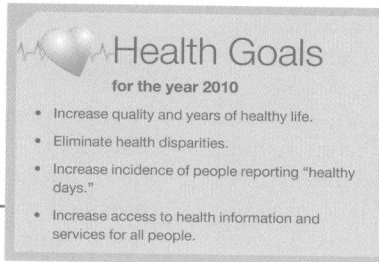
**Wellness** The integration of many different components (social, emotional-mental, spiritual, and physical) that expand one's potential to live (quality of life) and work effectively and to make a significant contribution to society. Wellness reflects how one feels (a sense of well-being) about life 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.

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

*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.

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.

## 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.

## 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.

## Introduction

 [www.mhhe.com/phys\\_fit/web01](http://www.mhhe.com/phys_fit/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

## 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

employers to rethink their recommendations. The strongest study to date used a prospective design to examine the factors influencing future back injury claim rates as well as self-reported back pain in a sample of 14,000 people. All were material-handling employees from over 160 companies. The study found that neither frequent back belt use nor a belt requirement in the store was related to these health outcomes. This study confirms previous reports indicating that the regular use of

Many concepts include self-assessments. These Lab Resource Materials 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.

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

LIFE SIZE MANNEQUINS

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 five inches). The measurement at this location is often done on the diagonal because of the natural line of the skin.

**Abdominal skinfold**—Make a mark on the skin approximately 1 inch to the right of the navel. Make a vertical measurement at that location for the Jackson-Pollock Method and horizontally for the Dumasgum Method. (See page 189.)

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

**Calf skinfold**—Make a mark on the inside of the calf of the right leg at the level of the largest calf size (girth). Place the foot on a floor or other elevation so that the knee is bent at approximately 90 degrees. Make a vertical measurement at the mark.

**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 faced upward; place the fist against a wall. With the right hand, place the caliper over the skinfold as it "hangs freely" on the back of the tricep (pull away from the tip of the shoulder to the elbow).

290

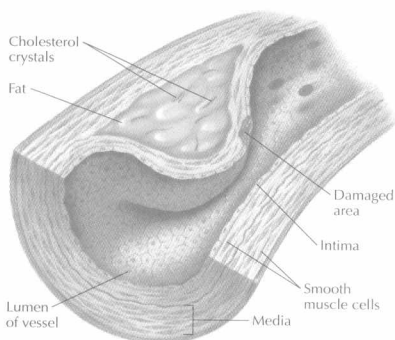


Figure 2 ► Atherosclerosis.

intima, of the artery (see Figure 2). Substances associated with blood clotting are attracted to the damaged area.

Table 1 ► Cholesterol Classification

	Total Cholesterol
Optimal	—
Near optimal	—
Desirable	<200
Borderline	200–240
High risk	>240

Source: Third Report of the National

Heart Disease and Stroke Prevention Guidelines (see Table 1). There are subtypes of LDL, but their small size and high risks. These subtypes are included in most current guidelines. There is no doubt that they will help us to understand them. Recently, the FDA has approved a test that, when combined with other factors, predicts future heart disease.

reached in the twenties age. Though muscular endurance is not as dramatic as strength. As people grow older, and muscular endurance declines, it is not as dramatic as strength. As people grow older, and muscular endurance declines, it is not as dramatic as strength.

size the weaker person. endurance (the number of pounds), a percentage of your maximum does not have an and women can compete for endurance activities. In women have done as well as men, the women at the end do as well as the men on endurance.

related to cardiovascular disease. Cardiovascular disease efficiency of the heart and respiratory system. It is less these systems, such as lung. Muscular endurance the local skeletal muscles. Most forms of cardio-

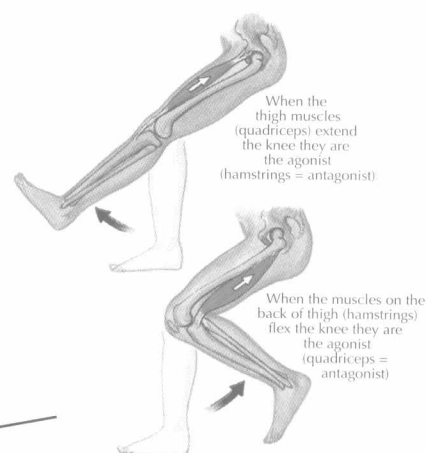


Figure 2 ► Agonist and antagonist muscles.

the antagonist. If the quadriceps become too strong relative to the antagonist hamstring muscles, the risk for injury increases (see Figure 2).

## Illustration Program

Instructional full-color illustrations and photographs here and throughout the book enhance learning with an exciting visual appeal.

## On the Web

Web icons appear to indicate supplemental materials that are available on the Web. Look for the icons throughout your book. To access the information, simply type the Web address provided next to the icon and you will be taken directly to the supplementary information.

### Strategies for Action

A self-assessment of risk factors can help you modify your lifestyle to reduce risk for heart disease. [www.mhhe.com/phys\\_fit/web04](http://www.mhhe.com/phys_fit/web04) Click 10. The Heart Disease Risk Factor Questionnaire in Lab 4A will help you assess your personal risk for heart disease. The questionnaire helps you to become aware of each of the risk factors for heart disease described in this concept. Note that a section called *Extra Points* is included to allow you to assess your risk using results of blood tests. Although the questionnaire is educationally useful in making you aware of risk factors, it is not a substitute for a regular medical exam. When you have your regular physical exam, it would

be wise to ask for a blood test, especially as you grow older or if your score on the questionnaire is high.

Selecting physical activities from the physical activity pyramid can help you achieve the health benefits described in this concept. Section III of this book is dedicated to helping you plan a comprehensive physical activity program designed to reduce risk for hypokinetic disease and to enhance wellness. The lab activities at the end of each concept in Section III and the lab activity for Concept 21 are designed to help you plan for lifelong physical activity.

### Study Resources

Check out additional online study resources for this concept in the Student Edition of the Online Learning Center at [www.mhhe.com/corbin12e](http://www.mhhe.com/corbin12e).

### Web Resources

American Cancer Society [www.cancer.org](http://www.cancer.org)  
American Diabetes Association [www.diabetes.org](http://www.diabetes.org)  
American Heart Association [www.heart.org](http://www.heart.org)  
Canadian Diabetes Association [www.diabetes.ca](http://www.diabetes.ca)  
Centers for Disease Control and Prevention [www.cdc.gov](http://www.cdc.gov)  
Healthy People 2010 [www.health.gov/healthypeople](http://www.health.gov/healthypeople)  
National Stroke Association [www.stroke.org](http://www.stroke.org)  
National Osteoporosis Foundation [www.nof.org](http://www.nof.org)

### Suggested Readings

Additional reference materials for Concept 4 are available at [www.mhhe.com/phys\\_fit/web04](http://www.mhhe.com/phys_fit/web04) Click 11.

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Friedenreich, C. M., et al. 2001. Relation between intensity of physical activity and breast cancer risk reduction. *Medicine and Science in Sports and Exercise* 33(9):1538–1545.

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Gorman, C. 2003. The number one killer of women. *Time* 161(17):61–66.

Ivey, F. M., et al. 2003. A single bout of walking exercise enhances endogenous fibrinolysis in stroke patients. *MSSE* 35(1):193–199.

Lee, I. M., and S. N. Blair. 2002. Cardiorespiratory fitness and stroke mortality in men. *Medicine and Science in Sports and Exercise* 34(4):592–595.

Lee, I., and R. S. Paffenbarger. 2001. Preventing coronary heart disease: The role of physical activity. *The Physician and Sportsmedicine* 29(2):37–52.

**Hyperkinetic Conditions** Diseases/illnesses or health conditions caused by or contributed to by too much physical activity.

## Strategies for Action

Located toward the end of each concept, these strategies provide information and suggest labs that can help promote self-management skills to achieve your healthy lifestyle goals.

## Web Resources and Suggested Readings

At the end of each concept, URLs help you find quality online resources. Recent references are provided to help you read more about current topics.

# Brief Contents

## Section I

### Lifestyles for Health, Wellness, and Fitness 1

- 1 Health, Wellness, Fitness, and Healthy Lifestyles: An Introduction 1
- 2 Using Self-Management Skills to Adhere to Healthy Lifestyle Behaviors 21

## Section II

### An Introduction to Physical Activity 35

- 3 Preparing for Physical Activity 35
- 4 The Health Benefits of Physical Activity 49
- 5 How Much Physical Activity Is Enough? 67

## Section III

### The Physical Activity Pyramid 79

- 6 Learning Self-Planning Skills for Lifetime Physical Activity 79
- 7 Lifestyle Physical Activity 91
- 8 Cardiovascular Fitness 103
- 9 Active Aerobics, Sports, and Recreational Activities 125
- 10 Flexibility 143
- 11 Muscle Fitness 165

## Section IV

### Physical Activity: Special Considerations 207

- 12 Safe Physical Activity and Exercises 207

- 13 Body Mechanics: Posture and Care of the Back and Neck 223

- 14 Performance Benefits of Physical Activity 249

## Section V

### Nutrition and Body Composition 273

- 15 Body Composition 273
- 16 Nutrition 307
- 17 Managing Diet and Activity for Healthy Body Fatness 333

## Section VI

### Stress Management 347

- 18 Stress and Health 347
- 19 Stress Management, Relaxation, and Time Management 361

## Section VII

### Making Informed Choices 383

- 20 Recognizing Quackery: Becoming an Informed Consumer 383
- 21 Toward Optimal Health and Wellness: Planning for Healthy Lifestyle Change 399

Appendices A-1

References R-1

Credits C

Index I

# Contents

Preface x

Acknowledgments xvi

What's in This for You? xviii

## Section I

### Lifestyles for Health, Wellness, and Fitness 1

#### 1 Health, Wellness, Fitness, and Healthy Lifestyles: An Introduction 1

National Health Goals 2


Introduction 2

Health and Wellness 2

Physical Fitness 6

Healthy Lifestyles 10

The HELP Philosophy 11

 Strategies for Action 12

Web Resources 13

Suggested Readings 13

 In the News 14

**Lab Resource Materials:** The Healthy Lifestyle Questionnaire 15

**Lab 1A** Wellness Self-Perceptions 17


**Lab 1B** Fitness Stunts and Fitness Estimates 19

#### 2 Using Self-Management Skills to Adhere to Healthy Lifestyle Behaviors 21

Making Lifestyle Changes 22

Factors That Promote Lifestyle Change 23

Self-Management Skills 25

 Strategies for Action 28

Web Resources 29

Suggested Readings 30

 In the News 30

**Lab 2A** The Physical Activity Adherence Questionnaire 31

**Lab 2B** The Self-Management Skills Questionnaire 33

## Section II

### An Introduction to Physical Activity 35

#### 3 Preparing for Physical Activity 35

Factors to Consider before Beginning Physical Activity 36

Factors to Consider during Daily Physical Activity 38

Physical Activity in the Heat 40

Physical Activity in Other Environments 41

Soreness and Injury 43

Web Resources 44

Suggested Readings 44

 In the News 44





**Lab 3A** Readiness for Physical Activity 45

**Lab 3B** The Warm-Up and Cool-Down 47

#### 4 The Health Benefits of Physical Activity 49

Physical Activity and Hypokinetic Diseases 50

Physical Activity and Cardiovascular Diseases 51

Physical Activity and the Healthy Heart 52

Physical Activity and Atherosclerosis 52

Physical Activity and Heart Attack 54


Physical Activity and Other Cardiovascular Diseases 55

Physical Activity and Other Hypokinetic Conditions 56

Physical Activity and Aging 59

Health, Wellness, and Fitness Promotion 60

Hypokinetic Disease Risk Factors 62

 Strategies for Action 63

Web Resources 63

Suggested Readings 63

 In the News 64

**Lab 4A** Assessing Heart Disease Risk Factors 65

#### 5 How Much Physical Activity Is Enough? 67

The Principles of Physical Activity 68

The FIT Formula 69

The Physical Activity Pyramid 70

Physical Activity Patterns 74

 Strategies for Action 75

Web Resources 76

Suggested Readings 76

 In the News 76

**Lab 5A** Self-Assessment of Physical Activity 77

### Section III

## The Physical Activity Pyramid 79

#### 6 Learning Self-Planning Skills for Lifetime Physical Activity 79

Step 1: Clarifying Reasons 80


Step 2: Identifying Needs 81

Step 3: Setting Personal Goals 84

Step 4: Selecting Activities 86

Step 5: Writing Your Plan 86

Step 6: Evaluating Progress 86

 Strategies for Action 87

Web Resources 87

Suggested Readings 87

 In the News 88

**Lab 6A** Physical Activity  
Attitude Questionnaire 89

#### 7 Lifestyle Physical Activity 91

Adopting an Active Lifestyle 92

The Health Benefits of Lifestyle Physical Activity 95

How Much Lifestyle Physical Activity Is Enough? 96

 Strategies for Action 99

Web Resources 99

Suggested Readings 99

 In the News 100

**Lab 7A** Planning and Self-Monitoring (Logging)  
Your Lifestyle Physical Activity 101

#### 8 Cardiovascular Fitness 103

Cardiovascular Fitness 104

Cardiovascular Fitness and Health Benefits 107

Threshold and Target Zones for Improving  
Cardiovascular Fitness 109

Percent of Heart Rate Reserve (HRR) Method 112

Percent of Maximal Heart Rate Method 112

 Strategies for Action 114

Web Resources 115

Suggested Readings 115

 In the News 116

