

Janet L.
Hopson

Rebecca J.
Donatelle

Tanya R.
Littrell



FOURTH EDITION

**GET
FIT**



**STAY
WELL!**



Pearson

Helping students find the path to lifelong fitness

Janet L.
Hopson

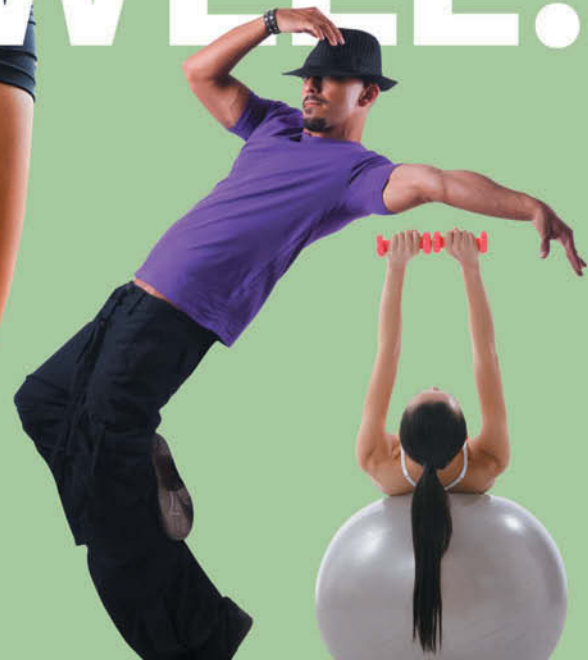
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Tools to help students adopt healthy habits today . . .

Putting It All Together

YOUR TOTAL FITNESS PROGRAM

Activate, Motivate,
& Advance **YOUR FITNESS**



Pull all your fitness programs together to create a comprehensive personal program—one that meets your own long-term goals. First, identify which exercises work for you and which ones you'd like to modify (refer to Figure 4.10 on pages 137–150, Figure 5.7 on pages 185–190, and Figure 5.8 on pages 191–192). Then, look at the following sample programs. Start at your current level and modify for your own preferences and rate of improvement.

ACTIVATE!

Warm-Up & Cool-Down

Warming-up prior to exercise is crucial! Start with gentle cardiorespiratory exercises for 5 to 10 minutes. After breaking a light sweat, add dynamic movements that increase your range of motion.

After your exercise session, cool down by moving at a slower pace until your heart rate and temperature fall to comfortable levels. Finish your cool-down with a few stretches.

Total Fitness Programs

Adjust intensity, volume, and training days to suit your personal fitness level and schedule.

P-1

NEW! Putting It All Together: Fitness Program

Building on what students learn in Chapters 1–5, the Putting It All Together: Fitness Program helps students to create an overall comprehensive fitness program that both incorporates the elements of fitness concepts discussed throughout the book and allows students to implement change today.

NEW! Integrated Labs and Programs

Where relevant, when students assess themselves in an end of chapter lab or a chapter exercise, the authors guide them to their appropriate starting level in the **Activate, Motivate, and Advance Programs**, on yoga, running, flexibility, and meditation, giving students the ability to do the lab activity in class and then enhance their own lifelong wellness by implementing the program on a daily basis at the appropriate starting level.

Section V: Cardiorespiratory Training Program Design

Plan a four-week cardiorespiratory training program, using resources available to you (facility, instructor, text). Complete the following training calendar (A = activity, I = intensity, T = time).

To get started: Review Programs 3.1 to 3.3 on pages 103–110 for running, cycling, and swimming. Choose a Beginning program if your Lab 3.2 fitness ratings are Fair or lower or the activity is new for you. Aim for an Intermediate program if your Lab 3.2 fitness ratings are Good, and try an Advanced program if your ratings are Excellent or above and you are used to this activity.

Four-Week Cardiorespiratory Training Program						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____
A: _____	A: _____	A: _____	A: _____	A: _____	A: _____	A: _____
I: _____	I: _____	I: _____	I: _____	I: _____	I: _____	I: _____
T: _____	T: _____	T: _____	T: _____	T: _____	T: _____	T: _____
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____
A: _____	A: _____	A: _____	A: _____	A: _____	A: _____	A: _____
I: _____	I: _____	I: _____	I: _____	I: _____	I: _____	I: _____
T: _____	T: _____	T: _____	T: _____	T: _____	T: _____	T: _____
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____
A: _____	A: _____	A: _____	A: _____	A: _____	A: _____	A: _____
I: _____	I: _____	I: _____	I: _____	I: _____	I: _____	I: _____
T: _____	T: _____	T: _____	T: _____	T: _____	T: _____	T: _____
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____
A: _____	A: _____	A: _____	A: _____	A: _____	A: _____	A: _____
I: _____	I: _____	I: _____	I: _____	I: _____	I: _____	I: _____
T: _____	T: _____	T: _____	T: _____	T: _____	T: _____	T: _____

Section VI: Tracking Your Program and Following Through

- Goal and Program Tracking:** Use the following chart or a web/app activity log to monitor your progress. Change the activity, intensity, or time of your workout plan to reflect your progress as needed.
- Goal and Program Follow-Up:** At the end of the course or at your short-term goal target date, reevaluate your cardiorespiratory fitness and ask yourself the following questions:
 - Did you meet your short-term goal or your goal for the course? If so, what positive behavioral changes contributed to your success? If not, which obstacles blocked your success?
 - Was your short-term goal realistic? What would you change about your goals or training plan?

And tomorrow.

NEW! Chapter 15, Maintaining Lifelong Fitness and Wellness

This chapter is now available in the printed text as well as the eText. The addition of the chapter within the printed text emphasizes the theme that the choices that students make today will impact the rest of their lives.

FIT BODY, FIT BRAIN??

Can **EXERCISE** improve your memory and reduce your risk of age-related cognitive decline? Recent research has demonstrated promising results!

HOW IT WORKS: Your BRAIN and MEMORY on regular aerobic EXERCISE

BENEFITS FOR KIDS
Aerobic physical activity among children is associated with improvements in:
 Cognition
 Academic achievement
 Behavior
 Psychosocial functioning (2, 3, 4)

BENEFITS FOR COLLEGE STUDENTS
In a small study, college students who worked out before tests did better than their sedentary counterparts. A 40-minute workout bumped up test results by one letter grade! (5, 6)

30-40 MINUTES
A systematic review of studies showed that regular exercise (minimum 30-40 minutes over at least six months) period significantly improved cognitive function and reduced rates of age-related cognitive decline, particularly when performed earlier in life. (3)

AND THE BENEFITS GO ON AND ON...

People who exercised regularly as young adults had:

- IMPROVED** cognition later in life
- BETTER** verbal memory
- FASTER** psychomotor speed at ages 43-55 years. (1, 3, 8)

In older adults, regular physical activity appears to:

- REDUCE** the risk of pre-senile dementia and more severe dementia
- HELP** the brain be more robust, and even at lower activity levels, it may slow the risk of Alzheimer's disease. (7, 8)

Maintaining Lifelong Fitness and Wellness

15

LEARNINGoutcomes

- LO 15.1** Define healthspan and relate it to life cycle, life span, and life expectancy.
- LO 15.2** Compare physiological age to chronological age and aging.
- LO 15.3** Discuss individual elements of lifelong personal fitness and wellness.
- LO 15.4** Describe the components of lifelong interpersonal wellness.
- LO 15.5** Identify ways to improve lifelong wellness within society.
- LO 15.6** List ways you can protect your wellness in the global environment.
- LO 15.7** Lay out a detailed plan for maximizing fitness and wellness throughout your life.

MasteringHealth™
Go online for chapter quizzes, interactive assessments, videos, and more!

449

Hallmark! GetFitGraphics

GetFitGraphic infographics highlight compelling topics in visually stunning presentations. For the 4th edition, these figures have been streamlined and updated with the latest information and data. **New!** Two new GetFitGraphics are included in this edition: Fit Body, Fit Brain? (Chapter 1) and What is Sitting Syndrome? (Chapter 2).

3 Conditioning Your Cardiorespiratory System

LEARNINGoutcomes

- LO 3.1** Identify the key structures of the cardiorespiratory system and state how they work together to provide oxygen to the body.
- LO 3.2** Outline how aerobic training improves your body's ability to use oxygen and provide the energy you need for exercise.
- LO 3.3** Describe the fitness and wellness benefits you can get from cardiorespiratory training.
- LO 3.4** Assess your cardiorespiratory fitness level on a regular basis using a variety of methods.
- LO 3.5** Implement a cardiorespiratory fitness program compatible with your goals and lifestyle.
- LO 3.6** Use the behavior modification strategies to maintain your new cardiorespiratory fitness program.
- LO 3.7** Incorporate strategies to prevent injuries during cardiorespiratory training.

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Go online for chapter quizzes, interactive assessments, videos, and more!

66

Study Plan

MasteringHealth™
Build your knowledge—and wellness—in the Study Area of MasteringHealth with a variety of study tools.

chapter summary

LO 3.1 How Does My Cardiorespiratory System Work?

- The **respiratory system** (also called the pulmonary system) consists of the air passageways and the lungs. Oxygen moves from the alveoli sac in the lungs into the capillary blood, while carbon dioxide moves in the opposite direction.
- The **cardiovascular system** consists of the heart and blood vessels. One "beat" of your heart consists of a full cycle (systole and diastole).
- Your body breaks down stored and consumed nutrients into **metabolizable energy systems**, the anaerobic, nonoxidative (anaerobic), and oxidative (aerobic) systems. At **rest**, your body maintains homeostasis by breaking down fat via the oxidative energy system. In **exercise**, your body will use all three systems to supply ATP depending upon the intensity and duration of the activity.

LO 3.2 How Does Aerobic Training Condition My Cardiorespiratory System?

- Aerobic training increases the contraction strength and capacity of your heart, increasing your stroke volume.
- LO 3.3** What Are the Benefits of Improving My Cardiorespiratory Fitness?
 - Cardiorespiratory fitness decreases your risk of early disease and improves self-esteem, mood, sleep, immune functioning, sense of well-being, and overall physical functioning.

review questions

LO 3.1 1. Which circulation system delivers blood to the lungs?
 a. Pulmonary
 b. Lymphatic
 c. Hepatic
 d. Coronary

LO 3.2 2. Which energy system will provide most of the ATP during an hour-long bicycling ride?
 a. The immediate energy system
 b. The anaerobic energy system
 c. The creative phosphate energy system of the oxidative energy system
 d. The oxidative energy system

LO 3.3 3. Which of the following will decrease with regular aerobic training?
 a. Muscle fiber number
 b. Blood volume
 c. Resting heart rate
 d. Maximal cardiac output

CHAPTER 3 CONDITIONING YOUR CARDIORESPIRATORY SYSTEM 91

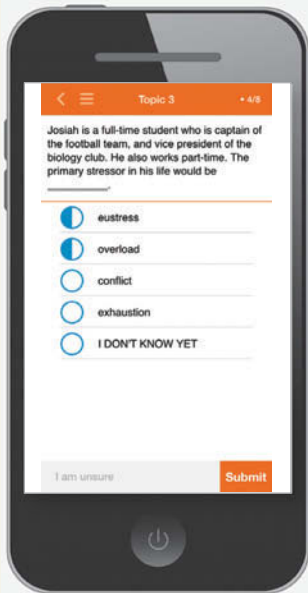
NEW! Study Plan tied to Learning Outcomes

Numbered learning outcomes now introduce every chapter and are tied directly to chapter sections, giving students a roadmap for their reading. Each chapter concludes with a Study Plan, which includes new summary points of the chapter and provides review questions to check understanding, all tied to the chapter's learning outcomes and assignable in MasteringHealth.

Continuous Learning Before, During, and After Class

BEFORE CLASS

Mobile Media and Reading Assignments Ensure Students Come to Class Prepared



NEW! Dynamic Study Modules help students study effectively by continuously assessing student performance and providing practice in areas where students struggle the most. Each Dynamic Study Module, accessed by computer, smartphone, or tablet, promotes fast learning and long-term retention.

NEW! Interactive eText 2.0 mobile app gives students access to the text whenever they can. eText features include:

- Now available on smartphones and tablets.
- Seamlessly integrated videos and other rich media.
- Accessible (screen-reader ready).
- Configurable reading settings, including resizable type and night reading mode.
- Instructor and student note-taking, highlighting, bookmarking, and search.



NEW! Pre-Lecture Reading Quizzes are easy to customize and assign

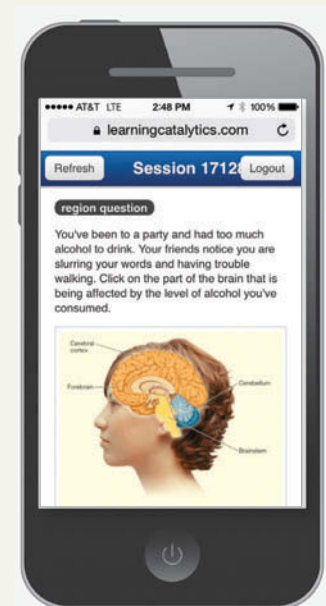
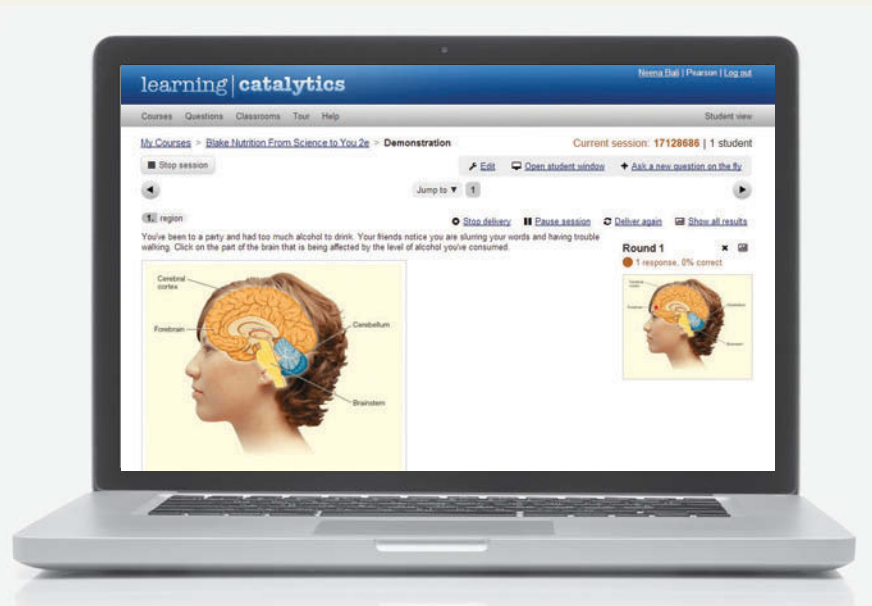
Reading Questions ensure that students complete the assigned reading before class and stay on track with reading assignments. Reading Questions are 100% mobile ready and can be completed by students on mobile devices.

with MasteringHealth™

DURING CLASS

Engage Students with Learning Catalytics

Learning Catalytics, a “bring your own device” student engagement, assessment, and classroom intelligence system, allows students to use their smartphone, tablet, or laptop to respond to questions in class.



AFTER CLASS

MasteringHealth Delivers Automatically Graded Health and Fitness Activities

NEW! Interactive Behavior Change Activities—Which Path Would You Take Have students explore various health choices through an engaging, interactive, low-stakes, and anonymous experience. These activities show students the possible consequences of various choices they make today on their future health. These activities are assignable in Mastering with follow-up questions.

As a student, you have many financial responsibilities. You have to pay for food, rent, textbooks, clothes, your cell phone, and other bills. Sometimes there isn't enough to go around. It's the beginning of the semester, and you have to pay for rent and books. You're stressed. What should you do?

Pay the rent and do without the books. There is no middle ground here, and I need a roof over my head. Rent it.

Consider my options. I can take on a roommate and buy the more cost-effective e-book or get the book from the reserve shelf in the library. Making the choice to scale back would cut my rent and book costs in half.

Consider "downshifting" or taking a step back. Perhaps, there are some unnecessary expenses you can cut out of your life. Doing so could help with your finances and your stress level.

continue

Continuous Learning Before, During, and After Class

AFTER CLASS

Other Automatically Graded Health and Fitness Activities Include . . .

The screenshot shows a lab interface with the title 'Laboratory 4.1: Evaluating Muscular Strength: The 1 RM Test'. It includes instructions on how to perform the 1 RM test, such as starting with a 5- to 10-minute warm-up and gradually adding weight. There are two photographs showing a person performing a seated chest press on a gym machine.

NEW! 20 Assignable Labs are now available as auto-graded, assignable labs within MasteringHealth.

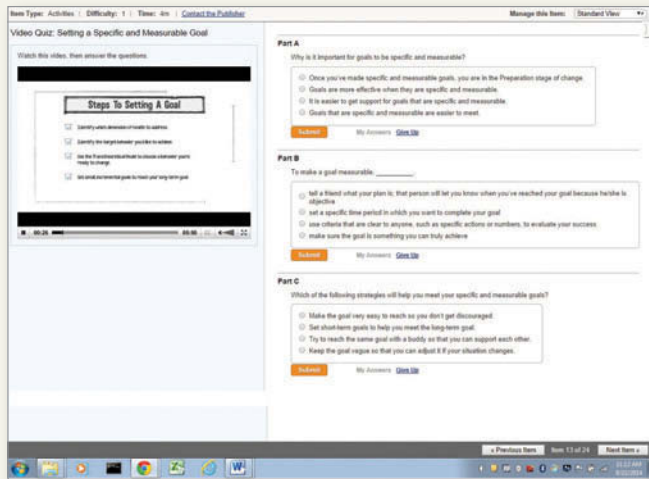
NEW! Coaching activities guide students through key health and fitness concepts with interactive mini-lessons that provide hints and feedback.

The screenshot shows a coaching activity interface with the title 'Coaching Activity: Maintaining Flexibility and Back Health'. It includes an image of people stretching. Below the image is a section titled 'Part B - Factors influencing Flexibility' with a list of nine numbered questions. A word bank on the left contains terms like arthritis, gait, tendon, organs, bursae, cartilage, soft tissue, men or women, genetics, synovial membrane, body type, temperature, and ligaments.

The screenshot shows a study plan interface with the title 'Study Plan for Chapter 9: Improving Your Physical Fitness'. It includes a 'STUDY PLAN' section with a 'Customize your study plan--and master your health!' button. Below this are two sections: 'Part A - LO 1. Describe the Health Benefits of Being Physically Active' and 'Part B - LO 2. Distinguish Between the Physical Activity Required for Health, Fitness, and Performance'. Each section has a list of multiple-choice questions.

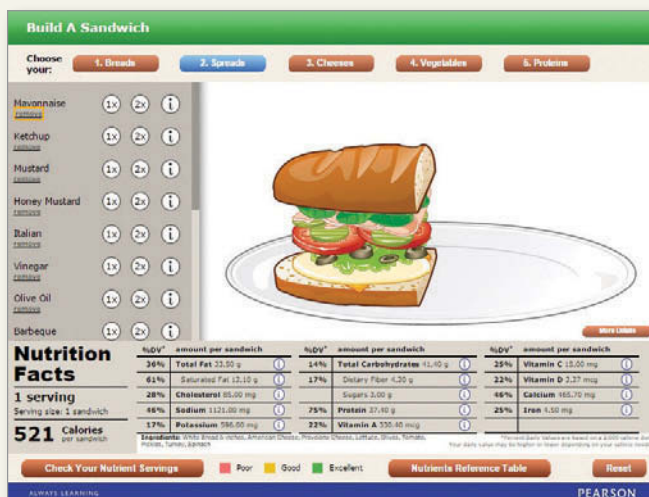
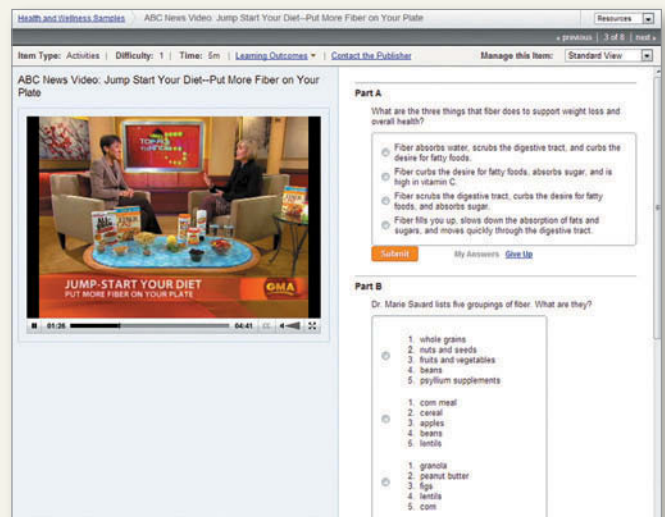
NEW! Study Plans tie all end-of-chapter material (including chapter review, summary points, and review questions), to specific numbered Learning Outcomes and Mastering assets. Assignable study plan items contain at least one multiple choice question per Learning Outcome and wrong-answer feedback.

with MasteringHealth™



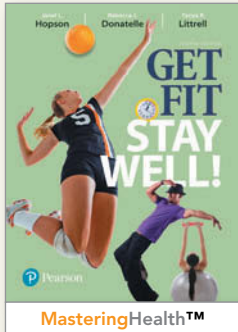
Behavior Change Videos are concise whiteboard-style videos that help students with the steps of behavior change, covering topics such as setting SMART goals, identifying and overcoming barriers to change, planning realistic timelines, and more. Additional videos review key fitness concepts such as determining target heart rate range for exercise. All videos include assessment activities and are assignable in MasteringHealth.

NEW! ABC News Videos bring health to life and spark discussion with up-to-date hot topics from 2012–2015. Activities tied to the videos include multiple choice questions that provide wrong-answer feedback to redirect students to the correct answer.



Updated! NutriTools Coaching Activities in the nutrition chapter allow students to combine and experiment with different food options and learn firsthand how to build healthier meals.

Resources for YOU, the Instructor



MasteringHealth™ provides you with everything you need to prep for your course and deliver a dynamic lecture, in one convenient place. Resources include:

Media Assets for Each Chapter

- ABC News Lecture Launcher videos
- Behavior Change videos
- PowerPoint Lecture Outlines
- PowerPoint clicker questions and Jeopardy-style quiz show questions
- Files for all illustrations and tables and selected photos from the text

Test Bank

- Test Bank in Microsoft Word, PDF, and RTF formats
- Computerized Test Bank, which includes all the questions from the printed test bank in a format that allows you to easily and intuitively build exams and quizzes.

Teaching Resources

- Instructor Resource and Support Manual in Microsoft Word and PDF formats
- Teaching with Student Learning Outcomes
- Teaching with Web 2.0
- Learning Catalytics: Getting Started
- Getting Started with MasteringHealth

Student Supplements

- Take Charge of Your Health Worksheets
- Behavior Change Log Book and Wellness Journal
- Eat Right!
- Live Right!
- Food Composition Table

Measuring Student Learning Outcomes?

All of the MasteringHealth assignable content is tagged to book content and to Bloom's Taxonomy. You also have the ability to add your own learning outcomes, helping you track student performance against your learning outcomes. You can view class performance against the specified learning outcomes and share those results quickly and easily by exporting to a spreadsheet.

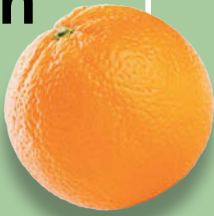
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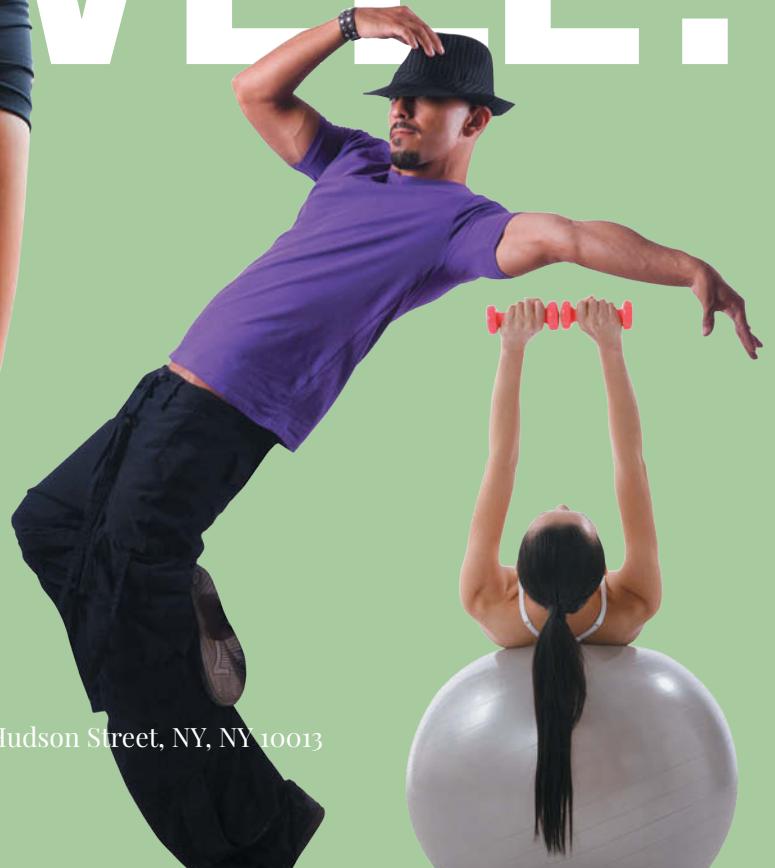


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GET FIT



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To the memory of Ruth and David Hopson, who taught me, by example and encouragement, to love fitness activity.—**JLH**

To the strong, intelligent, loving, and hard-working women who have motivated me and taught me to care about the important things—especially my mom, Agnes E. Donatelle.—**RJD**

To the memory of my loving grandmother Doretta Littrell Lawrence, a dance, fitness, and physical education professional who influenced many lives and inspired us all.—**TRL**

About the Authors

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Author and university lecturer, Janet L. Hopson has written or co-authored many books, including two popular non-fiction books on human pheromones and human brain development, and eight textbooks on general biology and wellness for college and high school students. Ms. Hopson teaches science writing at San Francisco State University. She holds B.A. and M.A. degrees from Southern Illinois University and the University of Missouri. She has won awards for magazine writing, and her articles have appeared in *Smithsonian*, *Psychology Today*, *Science Digest*, *Science News*, *Outside*, *Scientific American Mind*, and others. She is married and enjoys reading, traveling, gardening, golfing, swimming, tennis, and equestrian sports.

Rebecca J. Donatelle, Ph.D.

Dr. Rebecca J. Donatelle is a professor emeritus in public health at Oregon State University, having served as the department chair, Coordinator of the Public Health Promotion and Education Programs, and faculty member and researcher in the College of Health and Human Sciences. She has a Ph.D. in community health/health behavior, an M.S. in health education, and a B.S. with majors in both health/physical education and English. Her main research and teaching focus has been on the factors that increase risk for chronic diseases and the use of incentives and social supports in developing effective interventions for high-risk women and families. Her research has been published in numerous journals, and she has been a consultant, guest speaker, and presenter at professional conferences throughout the country. Dr. Donatelle is also the author of the highly successful introductory health textbooks *Access to Health*, *Health: The Basics*, and *My Health: An Outcomes Approach*. When she isn't writing textbooks, she spends her time playing acoustic guitar, gardening, keeping up with her Westies, and camping with friends in Oregon's quiet wooded areas.

Tanya R. Littrell, Ph.D.

Dr. Tanya R. Littrell is the Faculty Department Chair of the Fitness Technology Program at Portland Community College in Portland, Oregon. She has her Ph.D. in exercise physiology, M.S. in human performance, and a minor in nutrition from Oregon State University. She started her educational path with a B.S. in physical education and minor in biology from the University of Oregon. Dr. Littrell teaches exercise physiology, fitness assessment, fitness and aging, and general fitness in the Fitness Technology and Physical Education departments at PCC. She has been teaching lifetime fitness classes for undergraduates since 1998 and before that worked as a fitness director, instructor, and personal trainer. When Dr. Littrell isn't in the classroom, preparing to teach, coordinating the program, or writing, you can find her on the trails running or mountain biking, hiking, traveling, or spending quality time with family and friends.

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Preface

You may have noticed that health, fitness, and wellness are always trending topics! Visit online news sites or turn on the TV and you will undoubtedly find information about the benefits of exercise, the health risks associated with sitting too much, or the results of a recent nutritional study. At the same time, if you are a college student taking a fitness and wellness course, you may feel a sense of disconnect between those stories and your own life. You might wonder: What has any of this got to do with me?

Our primary goal in writing this textbook was simple: To help students realize that the lifestyle choices you make now—regardless of your current age—have real and lasting effects on your lifelong wellness. We also wanted to address the many challenges related to exercise, stress, nutrition, and other issues facing today's students and to create a flexible, personalized fitness and wellness program that works with your own goals and life demands. Finally, we wanted to help students bridge a common fact of life: There is a gap between knowing what we *ought* to do (e.g., exercise more, eat healthier foods, quit smoking, etc.) and actually *doing it*. Throughout this textbook, we emphasize that effective behavior change is both an individual and gradual process, based on realistic expectations and achievable short-term and long-term goals. With these aims in mind, the following are some of the unique features you'll find in *Get Fit, Stay Well!*

New to This Edition

- **Putting It All Together: Your Total Fitness Program.** This program, following the main text content, builds on the fitness principles covered in Chapters 1–5 and guides you in putting it all together to meet your fitness goals. This special section provides customizable four-week programs for beginning, intermediate, and advanced exercisers that show cardiorespiratory fitness, muscle fitness, flexibility, and back health exercises laid out into one easy-to-follow plan.
- **Chapter 15, Maintaining Lifelong Fitness and Wellness.** This chapter is now available in the printed text as well as the eText, and emphasizes that the choices students make today will impact the rest of their lives.
- **GetFitGraphics.** These infographics highlight compelling topics in visually stunning presentations. For the fourth edition, we have streamlined and updated selected infographics with the latest information and data. We include all new GetFitGraphics in Chapters 1 and 2.
- **Study Plan Tied to Learning Outcomes.** Numbered learning outcomes now introduce every chapter and are tied directly to chapter sections, giving students a roadmap for their reading. Each chapter concludes with a Study Plan, which includes new summary points of the chapter and provides review questions and critical thinking questions to check understanding, both tied to the chapter's learning outcomes and assignable in MasteringHealth™. Also new in the Study Plan is Check Out These eResources, a section pointing students to the most up-to-date online resources relevant to the chapter content.
- **New APPLY IT!/TRY IT! questions.** Found at the end of case studies and various feature boxes, these questions encourage critical thinking and help students apply the material to their own lives. These often supply step-by-step coaching suggestions and help readers to create and refine goals for behavior change.
- **Integrated Labs and Programs.** Where relevant, when students assess themselves in an end-of-chapter lab or a chapter exercise, the authors guide them to their appropriate starting level in the Activate, Motivate, & Advance Programs on yoga, running, flexibility, and meditation. This gives students the ability to do the lab activity in class and then enhance their own lifelong wellness by implementing the program on a daily basis at the appropriate starting level.
- **Vibrant design and engaging visual presentation of content.** Fine-tuning of the text design includes making headings more visible, integrating learning outcomes into the material, and pulling out references—all to enhance navigation and visual appeal.

- **Ongoing content improvements.** This edition makes literally thousands of improvements and revisions to text, art, pedagogical materials, and references based on advances within the fitness and wellness fields and on feedback from educators and readers.

Chapter-by-Chapter Changes

The authors have updated the fourth edition line by line to provide students with the most current information plus references for further exploration. This includes all data and statistics throughout the text. We have reorganized portions of chapters to improve the flow of topics, and added, updated, and improved upon figures, tables, photos, and feature boxes. The following is a chapter-by-chapter listing of noteworthy changes, updates, and additions.

Chapter 1: Changing Personal Behaviors for Optimal Wellness

- New Diversity box comparing young adults to others in leading causes of death and preventable risks
- New GetFitGraphic focused on whether exercise improves mental functioning
- New Q&A box analyzing how improved wellness benefits society
- New Tools for Change box focused on what influences your behaviors and your efforts to change
- Revised Q&A box on how to find reliable health information
- Updated coverage on provisions of the Affordable Care Act that are relevant to students
- New information on the importance of journaling and electronic activity monitoring systems (EAMS) in improving exercise behaviors

Chapter 2: Understanding Fitness Principles

- New GetFitGraphic on “Sitting Syndrome”
- Updated Tools for Change box with a checklist of tips for getting up and moving
- New section on pregnancy and exercise (moved from Chapter 15)
- New Q&A box to help you decide whether technology will help you get more fit

- Updated Diversity box on physical activity for everyone
- Updated American College of Sports Medicine (ACSM) recommendations
- New figure to determine your physical activity stage of change
- Updated pre-exercise screening questionnaire in Lab 2.1
- New Lab 2.3 to check your daily activity levels (steps and mileage)

Chapter 3: Conditioning Your Cardiorespiratory System

- Updated and expanded case study
- Updated information regarding lactic acid/lactate
- New Q&A box about hot trends in fitness
- New Tools for Change box with step-by-step guidance in selecting the right athletic shoe

Chapter 4: Building Muscular Strength and Endurance

- Expanded section on resistance training benefits in aging
- New Tools for Change box on alternate muscle fitness training equipment
- New Q&A box on using eccentric training to help you get stronger

Chapter 5: Maintaining Flexibility and Back Health

- Updated box on alternate ways to increase your range of motion without “stretching”
- Updated sections on posture, “text neck,” and risky activities and occupations for back pain

Chapter 6: Understanding Body Composition

- Updated BMI figures showing obesity classes
- Expanded discussion and photos of bioelectrical impedance analysis (BIA) assessment

Chapter 7: Improving Your Nutrition

- Numerous changes based on the new Dietary Guidelines for Americans 2015–2020

- Reorganized and expanded sections on special dietary needs, nutrition throughout the life cycle, and food safety
- Updated Tools for Change box on tips for outings to restaurants and Q&A box on whether to take supplements
- Streamlined and improved Tables 7.2 and 7.3 on vitamins and minerals
- New Table 7.6 on eating fruits and vegetables for healthful antioxidants
- New Figure 7.7 on food labeling requirements and changes
- Updated Lab 7.2 using current ChooseMyPlate.gov tracking tools

Chapter 8: Managing Your Weight

- New case study
- New Table 8.1 comparing name-brand diets
- New GetFitGraphic on weight loss myths
- New Figure 8.1 on trends in adult overweight and obesity; Figure 8.3: new obesity map of the US, and Updated Q&A box on diet drugs and surgery
- New coverage of the psychology of food craving and the role of gut microbes in weight gain

Chapter 9: Managing Stress

- New GetFitGraphic on stress caused by college debt
- New Q&A box on stress and emotional wellness
- New Tools for Change Box on solutions for Internet stress
- New Figure 9.3 on allostatic load
- New content on connections between stress and topics including inflammation, sugar consumption, and social networking
- New content on the role of gut microbes in stress response
- New coverage of stress in international students

Chapter 10: Reducing Your Risk of Cardiovascular Disease

- Significantly revised boxes: Q&A on salt, sugar, and CVD risk; Diversity box on college students and hypertension; Diversity box on men, women, and

CVD; Tools for Change box on eating for heart health; and Q&A box on diet drugs and surgery

- Updated information on connections between CVD risk and plaque, e-cigarettes, sugar, and genetics

Chapter 11: Reducing Your Risk of Diabetes and Other Chronic Diseases

- Significant revisions to Q&A box about how exercise reduces the risk of chronic disease
- Updated Figure 11.1 on proportion of college students with chronic conditions
- Updated content on inflammation and chronic disease and risks and treatments for diabetes, asthma, COPD, osteoporosis, and arthritis

Chapter 12: Reducing Your Risk of Cancer

- New Table 12.2 on cancer screening ages and frequencies
- Updated Tools for Change boxes on breast and testicular self-exams
- Updated coverage of skin, lung, breast, prostate, and colon cancers and leukemia

Chapter 13: Avoiding Substance Use, Abuse, and Addiction

- New Figure 13.6 on the dangers of e-cigarettes
- Revised Tools for Change box on how to cut down on drinking
- Updated Table 13.1 on substance use on campus

Chapter 14: Reducing Your Risk of Sexually Transmitted Infections

- Revised and updated Q&A boxes on the reliability of condoms and on student knowledge about STIs
- New Figure 14.1 on new annual cases of STIs, new Figure 14.3 on of chlamydia among various groups, new Figure 14.4 on new cases of syphilis, and new Figure 14.6 on HIV infection in men and women

Chapter 15: Maintaining Lifelong Fitness and Wellness

- New Table 15.2 on wellness in a compromised environment

- New Figure 15.1 on wellness habits across the life cycle and new Figure 15.4 on normal effects of aging on the body
- Revised Tools for Change box on being proactive with medical providers

Other Key Features

- *Unique Case Studies presented in each chapter* introduce a “character” who reflects the concerns, questions, and thought processes that students are likely to have themselves. Try It! and Apply It! questions at the end of the case studies encourage critical thinking and help students consider how the material applies to their own lives.
- *Labs employ a unique three-pronged approach:* (1) skill-acquisition labs, (2) self-assessment labs, and (3) action-plan labs. The labs not only measure a student’s current level of fitness/wellness, but also teach practical lifelong skills and encourage real behavior change. All labs are also available online in interactive PDF and/or auto-graded format and are assignable through MasteringHealth. Additional self-assessment labs are offered online in the Study Area in MasteringHealth.
- *Reflection questions* appear at the end of the labs, asking students to reflect on the choices they made or their results from the assessments.
- *The most modern strength-training presentation available* includes photos of more than 100 strength-training and flexibility exercises featuring actual college students, modern gym equipment, and options for students with limited access to equipment. Videos of the exercises in the book, as well as many alternate exercises, are available online in MasteringHealth.
- *A separate chapter on diabetes and other chronic diseases* makes this text a valuable reference for fitness and wellness courses because it emphasizes one of today’s national health epidemics.
- *A strong emphasis on behavior change appears throughout the text.* Try It!/Apply It! features suggest immediate action, while Tools for Change boxes provide tools for longer-term change. The Plan for Change labs ask students to write out an action plan for behavior change.

- *Q&A boxes* investigate common questions and concerns students may have in relation to chapter topics.
- *Diversity boxes* address topics relevant to diverse student populations, acknowledging that age, race, gender, disability, and individual life circumstances can result in specific fitness and wellness needs.
- *A running glossary* helps students easily review and master key terms.
- *Research citations* demonstrate the accuracy, currency, and scientific grounding for information presented in the text.
- *A pre- and post-course progress worksheet* included at the beginning of the book and available online allows students to assess their progress on key fitness/wellness assessments.

MasteringHealth for Instructors and Students

MasteringHealth is an online homework, tutorial, and assessment program designed to work with this text to engage students and improve results. Interactive, self-paced tutorials provide individualized coaching to help students stay on track. With a wide range of activities available, students can actively learn, understand, and retain even the most difficult concepts.

- **Pre-Lecture Reading Quizzes** ensure that students complete the assigned reading before class and stay on track with reading assignments. Reading Questions are 100 percent mobile ready and can be completed by students on mobile devices. They’re also easy-to-customize and assign, saving instructors valuable time.
- **Dynamic Study Modules** help students study effectively on their own by continuously assessing their activity and performance in real time. Here’s how it works: Students complete a set of questions with a unique answer format that also asks them to indicate their confidence level. Questions repeat until the student can answer them all correctly and confidently. Once completed, Dynamic Study Modules explain the concept using materials from the text. These are available as graded assignments prior to class, and accessible on smartphones, tablets, and computers. **NEW!** Instructors can now remove questions from Dynamic Study Modules to better fit their course.

- **eText 2.0** is now optimized for mobile:
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 - Instructor and student note-taking, highlighting, bookmarking, and search.
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 - Monitor responses to find out where your students are struggling
 - Rely on real-time data to adjust your teaching strategy
 - Automatically group students for discussion, teamwork, and peer-to-peer learning
- **Interactive Behavior Change Activities—Which Path Would You Take?** direct students to explore various health choices through an engaging, interactive, low-stakes, and anonymous experience. These assignable activities show students the possible consequences of various choices they make today on their future health.
- **25 Auto-gradable Labs** are now available as auto-graded, assignable labs within MasteringHealth, saving instructors' time.
- **Tough Topics Coaching Activities** guide students through key health and fitness concepts with interactive mini-lessons that provide hints and feedback, ensuring that learners comprehend the material.
- **Behavior Change Videos** are concise whiteboard-style videos that help students with the steps of behavior change, covering topics such as setting SMART goals, identifying and overcoming barriers to change, planning realistic timelines, and more. Additional videos review key fitness concepts such as determining target heart rate range for exercise. All videos include assessment activities and are assignable in MasteringHealth.
- **ABC News Videos** bring health to life and spark discussion with up-to-date hot topics from 2012 to 2015. Activities tied to the videos include multiple-choice questions that provide wrong-answer feedback to redirect students to the correct answer.
- **NutriTools Coaching Activities** in the nutrition chapter have been updated and allow students to combine and experiment with different food options and learn firsthand how to build healthier meals.
- **The Test Bank** in MasteringHealth includes multiple choice, true/false, and short-answer questions, allowing you to easily and intuitively build exams and quizzes. Questions are tagged to Bloom's taxonomy and global and book-specific student learning outcomes.
- **Additional instructor resources**—including PowerPoint® lecture outlines; PowerPoint clicker and Jeopardy-style quiz show questions; and .jpeg files for illustrations, tables, and selected photos from the text—further bolster the in-class experience.
- **Measuring Student Learning Outcomes?** All of the MasteringHealth assignable content is tagged to book content and to Bloom's taxonomy. Instructors also have the ability to add their own learning outcomes, helping to track student performance against their learning outcomes. Share results quickly and easily by exporting them to a spreadsheet.
- **The Study Area of MasteringHealth** is organized by learning areas: *See It* includes ABC News videos on important health topics and more than 100 exercise videos. *Hear It* contains MP3 chapter review files and audio case studies. *Do It* contains critical-thinking questions and web links. *Review It* contains study quizzes for each chapter. *Live It* will help jump-start students' behavior-change projects with assessments and resources to plan change.

Teaching Toolkit (Download Only)

The Teaching Toolkit resources replace the former printed Teaching Toolbox by providing everything you need to prep for your course and deliver a dynamic

lecture in one convenient place. Download all of these resources from the Instructor Resources tab in MasteringHealth:

For Lecture Prep

- *ABC News* Lecture Launcher videos
- PowerPoint® lecture outlines
- PowerPoint® clicker questions and Jeopardy-style quiz show questions
- Files for all illustrations and tables and selected photos from the text
- Test Bank:
 - Test Bank in Word® and RTF formats
 - Computerized Test Bank, which includes all the questions from the test bank in a format that allows you to easily and intuitively build exams and quizzes
- Instructor's Resource Support Manual
 - Organized by chapter, this useful guide includes objectives, lecture outlines, critical thinking and in-class discussion questions, references to figures, and *ABC News* Lecture Launcher video discussion questions, as well as teaching tips.
- Introduction to MasteringHealth
- Introductory video for Learning Catalytics
- Great Ideas: Active Ways to Teach Health & Wellness: This manual provides new ideas for classroom activities related to specific health and wellness topics, as well as suggestions for activities that can be adapted to various topics and class sizes.
- Teaching with Student Learning Outcomes
- Teaching with Web 2.0: How can you integrate blogs, Twitter, RSS feeds, and other relevant social media into your health and wellness class? Get ideas here for classroom and project activities that can be adapted to various topics and class sizes.

For Use with Students

- Take Charge of Your Health Worksheets: A total of 50 additional self-assessment exercises
- Behavior Change Log Book and Wellness Journal: This assessment tool helps students track daily exercise and nutritional intake and create a long-term nutritional and fitness prescription plan. It also includes a Behavior Change Contract and topics for journal-based activities.
- Eat Right! Healthy Eating in College and Beyond: This handy, full-color booklet provides students with practical guidelines, tips, shopper's guides, and recipes that turn healthy eating principles into blueprints for action. Topics include healthy eating in the cafeteria, dorm room, and fast food restaurants; planning meals on a budget; weight management; vegetarian alternatives; and how alcohol impacts health.
- Live Right! Beating Stress in College and Beyond: Live Right! gives students useful tips for coping with stressful life challenges both during college and for the rest of their lives. Topics include sleep, managing finances, time management, coping with academic pressure, and relationships. This book also presents an objective overview of some of the health-oriented products now being advertised.
- Food Composition Table

Contributors to Instructor Resources

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From Janet Hopson

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From Rebecca Donatelle

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Changing Personal Behaviors for Optimal Wellness

1



LEARNING outcomes

LO 1.1 Define wellness and identify where you are on the wellness continuum.

LO 1.2 Describe the dimensions of wellness and how they are interconnected.

LO 1.3 Explain the benefits of wellness for individuals and for society as a whole.

LO 1.4 Determine your stage in the behavior change process for one or more behaviors.

LO 1.5 Demonstrate skill at using the SMART goal-setting guidelines by creating a goal for changing one wellness behavior.

LO 1.6 Develop a behavior change contract with strategies you will use to plan, implement, and maintain your behavior changes, including the resources and supports that will ensure your success.

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SERENA

"Hi, I'm Serena. I come from a small town in Arizona and just started my freshman year at a big university 1,500 miles from home. It's

my first time living away from home, and it's been a struggle. My boyfriend and my friends are still in Arizona. My family has sacrificed a lot for me to be here. I probably shouldn't have taken so many classes for my first term. I'm hitting the books, but I can't seem to catch up. I'm sleeping only four hours per night and I'm tired all the time, feel like crying much of the time, and don't know how to get out of this slump. I don't have any friends yet because I don't take time to socialize. Several women on my floor have dropped out—too much partying during their first term! I feel like my life is out of control. What can I do?

Hear It!

To listen to this case study online, visit the Study Area in [MasteringHealth™](#).

Can you relate to Serena's problems? You are not alone. In a large survey, college students reported stress, anxiety, sleep difficulties, frequent colds, depression, and work issues as key factors negatively affecting their academic performance (see **Figure 1.1**).¹ Add too much time on extracurricular activities, social media, pressure to get good grades, and issues with money, roommates, friends, and family and today's college students face considerable challenges! It's not surprising that when asked to rate their overall health or wellness, just over 52.8 percent of them (59.9 percent of men and 49.7 percent of women) described it as *very good or excellent*, leaving just over 32 percent

to rate their health as merely *good* and the rest rating their health as only *fair or poor*.² Since young adulthood is the time when most people are in their

wellness Achieving the highest level of health possible in each of several dimensions

physical fitness The ability to perform moderate to vigorous levels of physical activity without undue fatigue

prime health years, we should be seeing higher percentages of very good and excellent health. Finding ways to improve on these percentages and achieve higher levels of health and wellness is a key focus of this text.

LO 1.1 What Is Wellness and How Well Am I?

Wellness is an active process in which people take steps to become more aware of, and make choices toward, a healthy and fulfilling life.³

To understand wellness, let's first consider the concept of *health*. While historically the term *health* meant merely the absence of disease, experts today view it as an inclusive term that encompasses everything from environmental health to the health of individuals, populations, and communities. *Wellness* often conveys a more personalized perspective on health defined as the achievement of the highest level of health possible in physical, social, intellectual, emotional, spiritual, and environmental dimensions.⁴ It describes a vibrant state in which individuals take responsibility for improving and maintaining their health, and are capable of adapting and effectively moving forward through life's challenges. Wellness is a process in which people actively work to be the best that they can be, to contribute to society, and to live up to their potential. In contrast, *health* is a broader term that includes the individual dimensions of wellness but has a major focus on community, health policy, health systems, and social and environmental factors affecting health.

In this book, we will sometimes use the terms *health* and *wellness* interchangeably. However, *wellness* typically refers to a more individualized, dynamic concept, requiring self-evaluation, thoughtful planning, and effort, but with the potential to bring great rewards. Central to wellness is **physical fitness**, or simply *fitness*, the ability to perform moderate to vigorous levels of physical activity without undue fatigue. Fitness is just one dimension of wellness, but we give it special attention in this book because it influences so many of the other dimensions and because the tools for improving fitness are readily available while you are a college student—a period in your life when you are able to make decisions and establish personal habits that will benefit you right now and for a lifetime.

Where Am I on the Wellness Continuum?

Improving your wellness—moving toward that vibrant multidimensional state—is an ambitious but

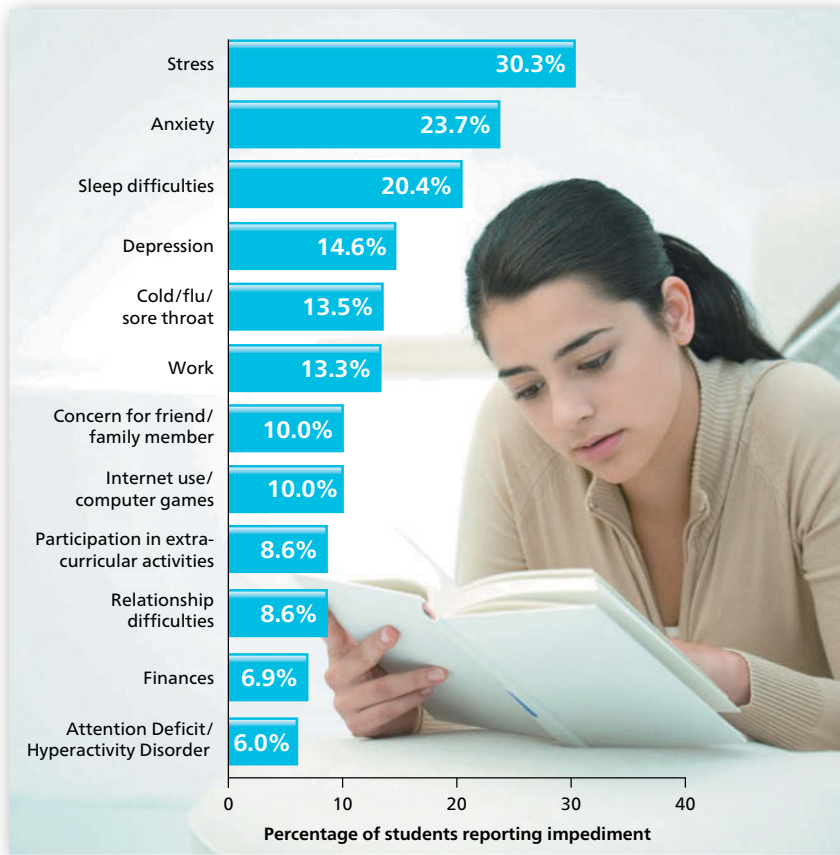


FIGURE 1.1 Major factors affecting student wellness and academic performance.

Data from American College Health Association, *American College Health Association—National College Health Assessment II: Reference Group Executive Summary, Fall 2015* (Hanover, MD: American College Health Association, 2016).

affect your wellness. Additionally, having access to high-quality medical care, nutritious food, good exercise facilities, and social support networks enhance positive behaviors. Unfortunately, some people are more at risk for health risks due to their macro social and physical environments.⁵ Although early adulthood is a period in life when you are most likely to reach your physiological health peak with fewer risks of lifestyle-related chronic illness, far too many young adults are “works in progress” when it comes to optimal wellness. This may be the ideal time to insure that your efforts reap positive rewards.

The first step? Assess how close you are now to your long-term goals.

achievable goal. The wellness patterns you establish during this course can change your life, affecting your fitness, success in relationships and career, susceptibility to disease, and the quality and quantity of your years. However, no single college course can address every health concern or guarantee a lifetime of wellness. Your age, socioeconomic status, education, neighborhood, personal history, genetic susceptibility to disease/disability, and physical environment all

We can picture wellness as a continuum of greater or lesser total soundness of body and mind (Figure 1.2). Understanding your current place on the **wellness continuum** is important for setting goals and changing wellness behaviors.

wellness continuum A spectrum of wellness states from irreversible damage to optimum wellness

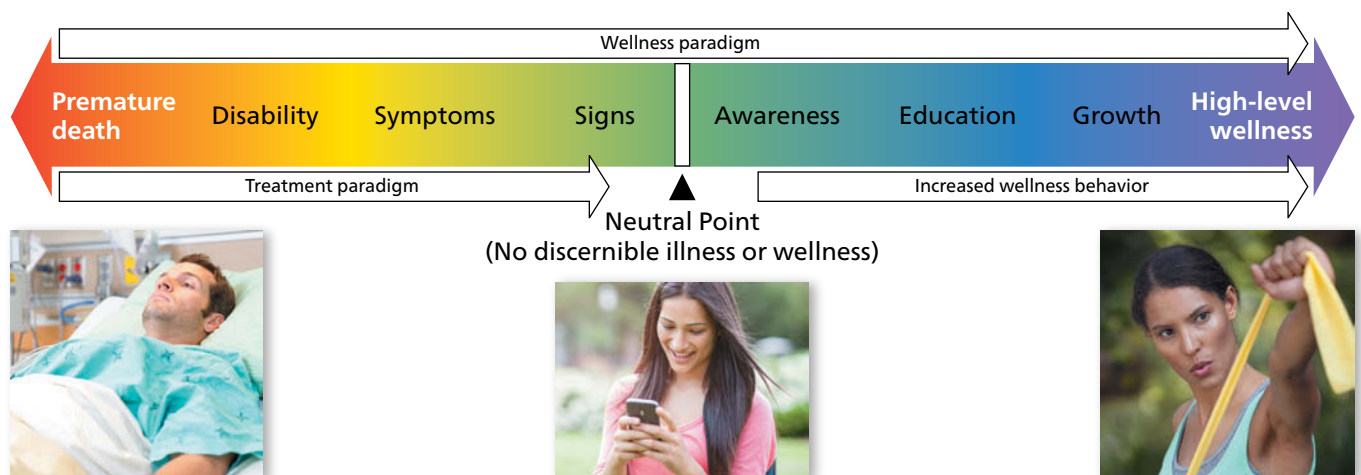


FIGURE 1.2 The illness-wellness continuum



FIGURE 1.3 Wellness is an optimal level of health in six interconnected dimensions of human experience.

LO 1.2 What Are the Dimensions of Wellness?

We can think of wellness as consisting of six primary dimensions (physical, social, intellectual, emotional, spiritual, and environmental) (Figure 1.3). Because wellness is a process, you may experience faster growth

physical wellness A state of physical health and well-being that includes body size and shape, body functioning, measures of strength and endurance, and resistance to disease

social wellness A person's degree of social connectedness and skills, leading to satisfying interpersonal relationships

intellectual wellness The ability to think clearly, reason objectively, analyze, and use brain power to solve problems and meet life's challenges

emotional wellness The ability to control emotions and express them appropriately at the right times; includes self-esteem, self-confidence, and other emotional qualities

emotional intelligence The ability to identify and manage your own emotions and those of others in productive ways

in one dimension than in others. The dimensions are interconnected, meaning that positive effort in one area can help you make progress in others and move you toward greater overall health and well-being.

Physical Wellness

Physical wellness encompasses all aspects of a sound body, including body size, shape, and composition; sensory sharpness and responsiveness; body functioning;

physical strength, flexibility, and endurance; resistance to diseases and disorders; and recuperative abilities. The physical state we call *fitness* includes measures of physical wellness and allows a person to exert physical effort without undue stress, strain, or injury. Your day-to-day choices and habits can support or undermine your physical wellness. Examples include your diet; amount and types of exercise; sleep patterns; level of stress; use of tobacco, drugs, or alcohol; participation in unsafe sex; observance of traffic laws; wearing helmets or seat belts; and whether you access healthcare (e.g., regular checkups, vaccinations, and treatment).

Social Wellness

Social wellness is the ability to have satisfying interpersonal relationships and maintain connections through diverse social networks. This includes being able to successfully interact with others, adapt to a variety of social situations, and act appropriately, regardless of setting. Whether you are shy and introverted or outgoing and extroverted, social wellness includes the ability and willingness to communicate clearly and effectively; establish intimacy through trust and acceptance; ask for and give support; maintain friendships over time; and interact within groups, such as on the job or in the community.

Intellectual Wellness

Intellectual wellness is the ability to use your brain power effectively to solve problems and meet life's challenges. It allows you to think clearly, quickly, creatively, and critically; use good reasoning and make careful decisions; and learn from your successes and mistakes. However, it is more than pure intellect. It involves being open-minded and non-judgmental; exposing yourself to new ideas, beliefs' and people; being able to listen and think about others, opinions and trying to see all sides of an issue; having a thirst for knowledge and information; being culturally competent and multiculturally aware; and acknowledging that there are often no simple answers to big questions in life.⁶

Emotional Wellness

Emotional wellness refers to the ability to control your emotions and express them appropriately at the right times. An aspect of emotional wellness that gained increasing attention is **emotional intelligence**—the ability to identify and manage our emotions in positive ways. This involves being aware of your own emotions and triggers for them, being able to calm others (and

yourself) when overly reactive, and being able to listen to others' frustration or grief.⁷

Unfortunately, emotional wellness and overall mental health are growing concerns on campus. Several reports that stress, anxiety, and depression are soaring on college campuses have surfaced, with campuses scrambling to help students cope with multiple demands.⁸ It may surprise you to know that nearly 50 percent of mental illness begins by age 14, and 75 percent of lifetime mental health problems begin before age 24.⁹ College students are particularly vulnerable as evidenced by the fact that 64 percent of those who drop out of college do so because of mental or emotional health issues.¹⁰ Improving emotional wellness requires developing positive *self-esteem*; *self-efficacy* (confidence); coping with stress, anger, and negativity; and developing an appropriate balance of emotional dependence and independence. Importantly, it also requires that people who have problems recognize that they need help, know where to go for help, and can access those services.

Spiritual Wellness

For some people, **spiritual wellness** may involve a belief in a supreme being or a way of life prescribed by a particular religion. For others, spiritual wellness is a feeling of oneness with others and with nature, and a sense of meaning or value in life. Developing spiritual wellness may deepen one's understanding of life's purpose; allow a person to feel part of a greater spectrum of existence; and promote feelings of love, joy, peace, contentment, and wonder over life's experiences. It may also provide a means of coping with challenges that seem overwhelming.

Environmental Wellness

While we often think of the word *environment* in terms of nature, environmental wellness is much more all-encompassing. It includes the macro environment we live and work in, the schools we attend, and the communities and neighborhoods where we spend much of our time. **Environmental wellness** entails understanding how the environment can positively or negatively affect you and your role in preserving, protecting, and improving the world around you.

Related Dimensions of Wellness

Occupational and *financial wellness* overlap with other wellness areas, and are sometimes considered their own dimensions. For our purposes, we include them as a related category under the larger environmental wellness dimension. Your wellness in these areas can dramatically

caseSTUDY



SERENA

"I am the first one in my family to go to college. My mom and dad are divorced and my mom took on another part-time job to help pay for tuition. I really want her to be proud of me, but I'm finding it hard to keep

up. I go to classes, eat on the run, and study the rest of the time. Yesterday, I got the first "C" in my life! My anxiety is growing and I'm feeling overwhelmed. Maybe I'm not "college material." Yesterday, I dozed through two of my classes and didn't hear much of the lecture. I also have a cold I can't shake. I know I should exercise and eat better, but there is never enough time. My diet is lousy and I drink way too much coffee! I can't tell my mom because she would only worry, and my high school friends seem to be drifting away."

APPLY IT! Do you recognize any of Serena's issues in yourself or other students? Which dimensions of wellness are problems for Serena? Where would you place her on the wellness continuum? Where would you place yourself? What steps could she take to improve her situation?

TRY IT! Today, identify your strongest wellness dimensions, your weakest ones, and the first one you would like to improve.

This week, create a wellness balance chart and plan the balance you would like to achieve (see **Lab 1.2**). **In two weeks**, chart any improvements and readjust your plan, if necessary.

Do It!

Access these labs at the end of the chapter or online at **MasteringHealth™**.

Hear It!

To listen to this case study online, visit the Study Area in **MasteringHealth™**.

affect your overall wellness. If you ask family members and friends about their current problems, many will identify their jobs or finances as top stressors in their lives. In fact, according to a recent survey of job satisfaction, 55 percent of American workers reported being dissatisfied with their jobs—with the youngest workers (those under age 25) reporting the highest level of dissatisfaction ever recorded!¹¹

spiritual wellness A feeling of unity or oneness with people and nature and a sense of life's purpose, meaning, or value; for some, a belief in a supreme being or religion

environmental wellness An appreciation of how the external environment can affect oneself, and an understanding of the role one plays in preserving, protecting, and improving it

Occupational wellness is the level of happiness and fulfillment you experience in your work as well as possible hazards or health risks you face on the job. An important component of occupational wellness is whether an individual feels valued and that their opinions matter. Contrary to what people often think, job satisfaction and motivation are not closely tied to high wages. When your goals align with those of your employer and you feel you are contributing, occupational wellness is more likely.¹²

Financial wellness is the ability to successfully balance your financial needs and wants with your income, debts, savings, and investments. If you cannot pay your bills, it can be hard to think of much else and this dimension can overshadow and unbalance the others. Students who successfully navigate financial challenges will experience less stress and have a greater chance of improved wellness. (See Chapter 9 for more information about the relationship between stress and finances, and strategies for coping with money-related problems.)

Balancing Your Wellness Dimensions

You may have healthy relationships, but no fondness for exercise. Perhaps your spiritual life is rich, but you have trouble juggling academic demands. Virtually everyone is stronger in some dimensions of wellness than others and these may fluctuate wildly during various times in life. Trying to improve all six wellness dimensions is a lifelong goal. One approach is to go slow and set achievable goals, focusing on those dimensions with the most pressing need, while working on the others in a steady, but relaxed and motivated way. Your brain and body, your thoughts and emotions, your actions and reactions, your relationship to yourself and others—all are interconnected and integrated. Likewise, the dimensions of wellness are interrelated. For example, increasing your exercise and activity and improving your eating habits may help you improve in other areas, such as sleep quality, stress and mood, body composition, and decreased risks for type 2 diabetes.¹³

occupational wellness A level of happiness and fulfillment in work, including harmony with personal goals, appreciation from bosses and co-workers, and a safe workplace

financial wellness The ability to balance and manage financial needs and wants with income, debts, savings, and investments

healthy life expectancy The years a person can expect to live without disability or major illness

LO 1.3 Why Does Wellness Matter?

Wellness has many benefits for both individuals and society.

Good Wellness Habits Can Help You Live a Longer, Healthier Life

In spite of significant increases in recent years, the average life expectancy at birth for males is 76.4 years and for females 81.2 years in the United States, well below at least 40 other countries in the world.

Although we spend the most for health care, we lag in life expectancy and infant mortality—two key indicators of overall health status.¹⁴ Importantly, our average **healthy life expectancy**—the

years a person can expect to live without disability or major illness—is about 68 for males and 71 for females (Figure 1.4).¹⁵

See It!

Watch “101 Year Old’s Secret to Longevity” at [MasteringHealth™](#).

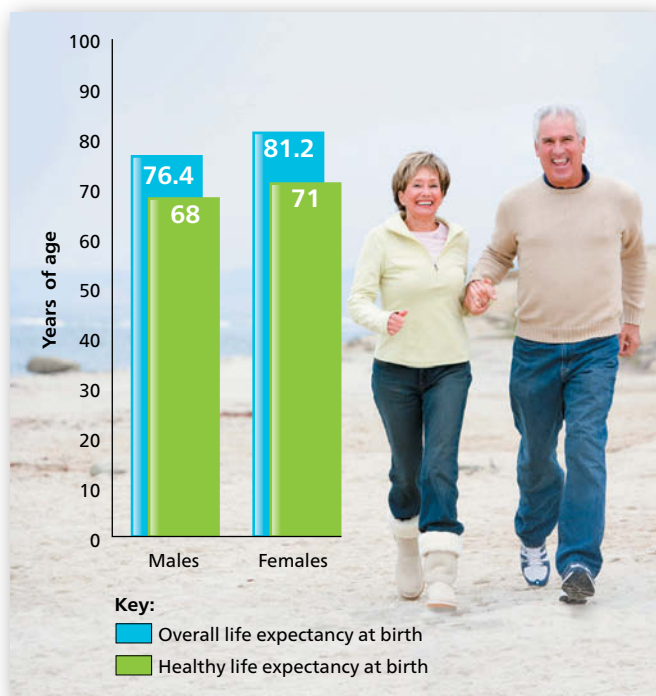


FIGURE 1.4 Healthy life expectancy is the number of years a person lives in good health. Healthy years are an important wellness goal.

Data from J. A. Salomon et al., “Healthy Life Expectancy for 187 Countries, 1990–2010: A Systematic Analysis for the Global Burden Disease Study, 2010,” *Lancet* 380, no. 9859 (2012): 2144–62, doi: 10.1016/S0140-6736(12)61690-0; C. Murray et al., “Global, Regional, and National Disability-Adjusted Life Years (DALYs) for 306 Diseases and Injuries and Healthy Life Expectancy (HALE) for 188 Countries, 1990–2013: Quantifying the Epidemiological Transition,” *Lancet* (2015), doi: [http://dx.doi.org/10.1016/S0140-6736\(15\)61340-X](http://dx.doi.org/10.1016/S0140-6736(15)61340-X); World Health Organization, “Global Health Observatory Data Repository: Life Expectancy Data by Country,” 2013, <http://apps.who.int/gho/data/view.main.680?lang=en>

Young Adults Have Preventable Risks

Look closely at the causes of death for people ages 15 to 24, and you'll find that more died from accidents than from most other causes combined (**Table 1.1**).¹⁶ By making better wellness choices—such as wearing seat belts and bike helmets, and avoiding risky behaviors such as driving under the influence of drugs or alcohol—you can reduce your risk of premature death in an accident.

For all age groups, significant proportions of the five leading causes of death are related to risk factors that are *modifiable*—meaning that you can often control them. These risks include high blood pressure, tobacco use, alcohol use, high cholesterol, obesity, low fruit and vegetable intake, and physical inactivity.

In fact, compelling new research highlights the continued importance of physical activity in youth and early

adulthood as a potent risk reduction strategy for many of our chronic diseases. Improving fitness in these early years may be particularly important in reducing risks of heart disease and diabetes later in life.¹⁷

Living a **sedentary** life also increases the danger of **hypokinetic diseases**—conditions that can be triggered or worsened by too little movement or activity, such as obesity, back pain, arthritis, and high blood pressure. In fact, watching television or sitting at a desk for six hours per day could shorten your life by five years, while engaging in sufficient leisure-time

sedentary Physically inactive; exerting physical effort only for required daily tasks and not for leisure-time exercise

hypokinetic diseases Conditions that can be triggered or worsened by too little movement or activity, such as obesity, back pain, arthritis, and high blood pressure

TABLE 1-1 Leading Causes of Death in the United States, 2014

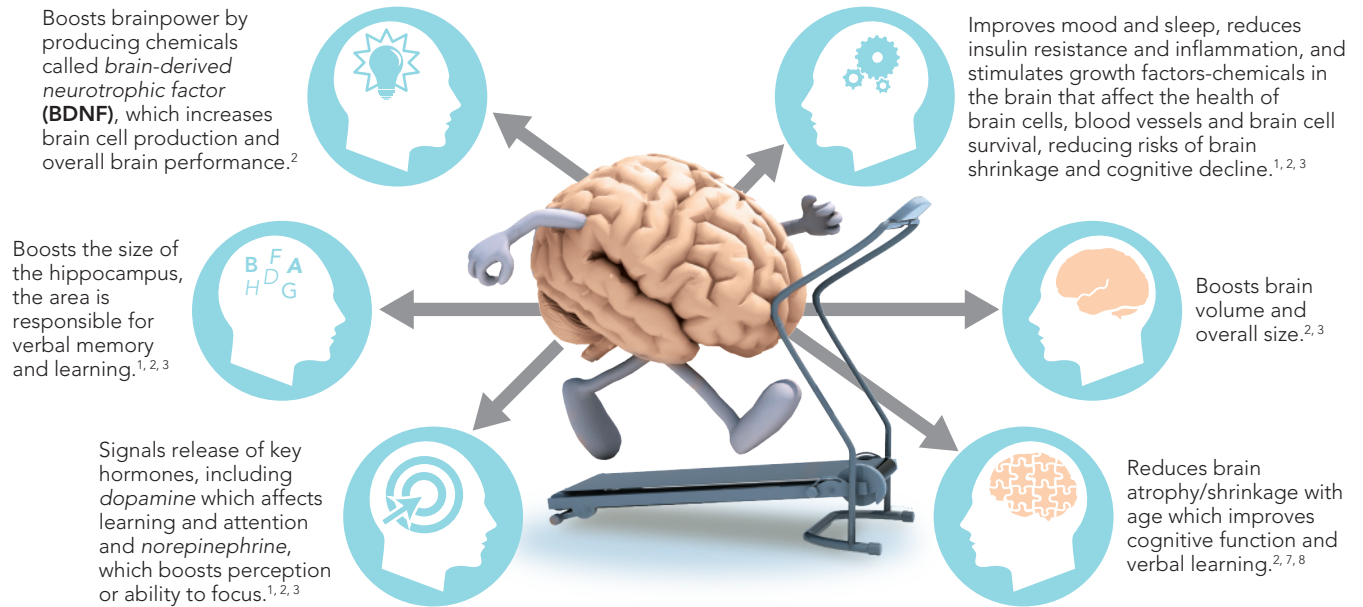
Rank	Ages			All Ages
	15-24	25-34	35-44	
1	Unintentional Injury 11,836	Unintentional Injury 17,357	Unintentional Injury 16,048	Heart Disease 614,348
2	Suicide 5,079	Suicide 6,569	Malignant Neoplasms 11,267	Malignant Neoplasms 591,699
3	Homicide 4,144	Homicide 4,159	Heart Disease 10,368	Chronic Low Respiratory Disease 147,101
4	Malignant Neoplasms 1,569	Malignant Neoplasms 3,624	Suicide 6,706	Unintentional Injury 136,053
5	Heart Disease 953	Heart Disease 3,341	Homicide 2,588	Cerebrovascular 133,103
6	Congenital Anomalies 377	Liver Disease 725	Liver Disease 2,582	Alzheimer's Disease 93,541
7	Influenza & Pneumonia 199	Diabetes Mellitus 709	Diabetes Mellitus 1,999	Diabetes Mellitus 76,488
8	Diabetes Mellitus 181	HIV 583	Cerebrovascular 1,745	Influenza & Pneumonia 55,227
9	Chronic Low Respiratory Disease 178	Cerebrovascular 579	HIV 1,174	Nephritis 48,146
10	Cerebrovascular 177	Influenza & Pneumonia 549	Influenza & Pneumonia 1,125	Suicide 42,773

Source: Data from Centers for Disease Control and Prevention, National Vital Statistics System—National Center for Health Statistics, WISQARS, “Ten Leading Causes of Death by Age, United States, 2014,” March 2015, www.cdc.gov/injury/wisqars/pdf/leading_causes_of_death_by_age_group_2014-a.pdf

FIT BODY, FIT BRAIN??

Can **EXERCISE** improve your memory and reduce your risk of age-related cognitive decline? Recent research has demonstrated promising results!

HOW IT WORKS: Your **BRAIN** and **MEMORY** on regular aerobic **EXERCISE**



BENEFITS FOR KIDS

Aerobic physical activity among children is associated with improvements in

- ✓ Cognition
- ✓ Academic achievement
- ✓ Behavior
- ✓ Psychosocial functioning (2, 3, 4)

BENEFITS FOR COLLEGE STUDENTS

In a small study, college students who worked out before tests did better than their sedentary counterparts. A 40-minute workout bumped up test results by one letter grade! (5,6)



30-40 MINUTES



A systematic review of studies showed that regular exercise sessions lasting 30-40 minutes over at least a six-month period significantly improved cognitive function and reduced rates of age-related cognitive decline, particularly when performed earlier in life. (3)

AND THE BENEFITS GO ON AND ON...

People who exercised regularly as **young adults** had

- ▶ **IMPROVED** cognition later in life
- ▶ **BETTER** verbal memory
- ▶ **FASTER** psychomotor speed at ages 43-55 years. (1, 3, 8)



In **older adults**, regular physical activity appears to

- ▶ **REDUCE** the risk of pre-senile dementia and more serious dementia.
- ▶ **HELP** the brain be more robust, and even at lower activity levels, it may slow the risk of Alzheimer's disease. (7, 8)



activity could lengthen it by nearly that much.¹⁸ **Figure 1.5** illustrates health benefits of regular physical activity.

The American College of Sports Medicine recommends that all healthy adults between the ages of 18 and 65 strive for at least 150 minutes of moderate exercise per week (or 75 minutes of vigorous exercise or a combination of the two).¹⁹

However, in 2014, 25.4 percent of adults and 15.2 percent of youth reported no physical activity in the last month.²⁰ Only 20.6 percent of adults met the recommended guidelines for aerobic and muscle strengthening activity.²¹ The high percentages of overweight and

obese adults provide more evidence that most Americans are too inactive.²² Indeed, we are one of the most sedentary and overweight nations on earth.²³

Good Wellness Habits Benefit Society as a Whole

If Americans could raise their levels of wellness, they would have fewer health issues, be more productive, and spend less money on health care. In fact, the country as a whole would benefit. While the focus of this text is primarily about you, it is important to remember that your actions ultimately affect others (see Q&A: How Does Improved Wellness Benefit Society? on page 11).

See It!

Watch "New Study Shows Exercise May Build Brain Power" at [MasteringHealth™](#).

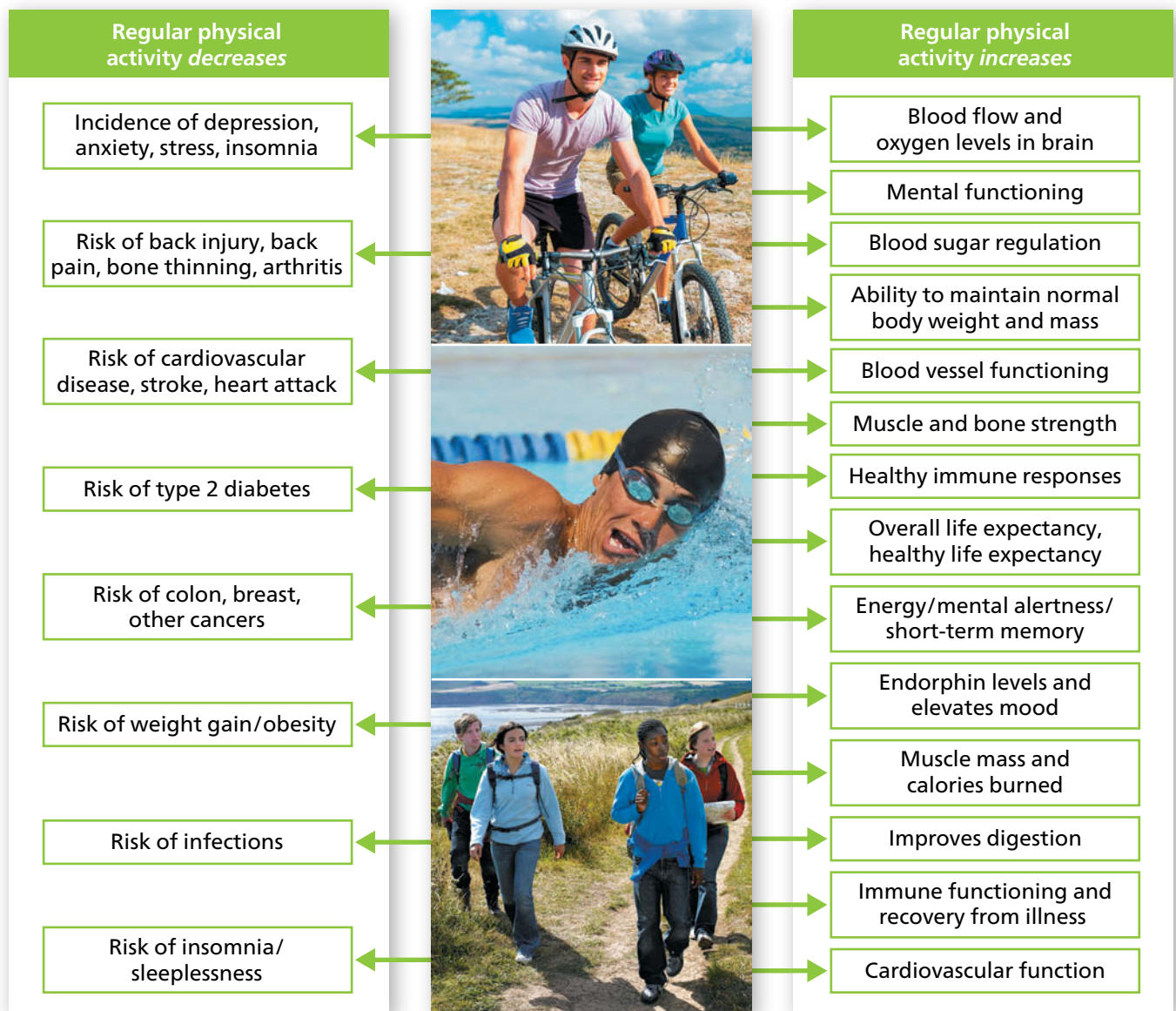


FIGURE 1.5 Regular physical activity results in both short- and long-term health benefits.