

FIT & WELL

Core Concepts and Labs in Physical Fitness and Wellness



FAHEY // INSEL // ROTH // WONG

FOURTH CANADIAN EDITION

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Core Concepts and Labs in
Physical Fitness and Wellness

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**Fit & Well: Core Concepts and Labs in Physical Fitness and Wellness
Fourth Canadian Edition**

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Preface

For today's fitness-conscious university/college student, the fourth Canadian edition of *Fit & Well* combines the best of two worlds. In the area of physical fitness, *Fit & Well* offers expert knowledge based on the latest findings in exercise physiology and nutrition, along with tools for self-assessment and guidelines for becoming fit. In the area of wellness, it offers accurate, current information on today's most important health-related topics and issues, again with self-tests and guidelines for achieving wellness. The text provides comprehensive advice on wellness-related behaviour and practising a healthier way of life, as well as thorough coverage of health-related fitness and nutrition. *Fit & Well* provides the reader with comprehensive advice on making informed choices about food and promotes behavioural change throughout the text. Making informed choices is the *Fit & Well* difference.

Content and Organization of the Fourth Canadian Edition

In the fourth Canadian edition of *Fit & Well*, the organization of the text follows the format of fitness and wellness courses. Instructors do not have to jump around in the text to meet the needs of their course.

Chapter 1 provides an introduction to fitness and wellness and explains the principles of behaviour change. Chapters 2–6 and 9 focus on the various areas of fitness.

Chapter 2 provides an overview, discussing the components of fitness, the principles of physical training, and the factors involved in designing a well-rounded, personalized exercise program.

Chapter 3 provides basic information on how the cardiorespiratory system functions, how the body produces energy for exercise, and how individuals can create successful cardiorespiratory fitness programs. Additional information has been added to Chapter 3 on the benefits of cardiorespiratory endurance exercise for children and adolescents.

Chapters 4, 5, and 6 look at muscular strength and endurance, flexibility and low-back health, and body composition. Sections include core strength training and the physiology of stretching, with added information on training with and without equipment.

Chapters 7 and 8 investigate nutrition and weight management and their impact on the physical dimension of wellness. This edition includes information on alternate diets such as First Nations, Métis, Inuit, and the Vegetarian Food Guide Pyramid.

Chapter 9 “puts it all together,” describing the nature of a complete program that develops all the components of fitness. This chapter also includes complete sample exercise programs.

Chapters 10 and 11 focus on two of the most important reasons for making lifestyle changes: cardiovascular disease and cancer. Students learn the basic mechanisms of these diseases, how they are related to lifestyle, and what individuals can do to prevent them. Finally, Chapter 12 looks at four additional wellness topics: interpersonal relationships, aging, the health care system, and environmental health.

Preface

There are some significant changes to this fourth edition. A new **Mental Health Tip** box has been included in many chapters. This box aims to incorporate information and tips on challenging the mental wellness dimension in each chapter topic. In addition, chapters now include **new and up-to-date photos** that better depict activities for areas such as flexibility and muscle training.

The fourth Canadian edition of *Fit & Well* has been completely revised to include updated Canadian examples, references, data, and statistics. Coverage of the latest version of Canada's Food Guide has been included, along with Canada's Physical Activity Guide, physical fitness testing, PHE Canada, and the Canadian Association for Health, Physical Education, Recreation, and Dance (CAHPERD).

Chapter-by-Chapter Changes

Chapter 1, Introduction to Wellness, Fitness, and Lifestyle Management

- The book’s key message—that students need to take responsibility for their own fitness and wellness—has been given a new emphasis throughout this chapter, in strong but subtle terms. The **In Focus** feature (“Financial Wellness”) complements the discussion of the six widely recognized dimensions of wellness and focuses on the importance of mastering basic personal financial skills. The feature has been expanded since the last edition, and includes especially relevant information for students on the dangers of becoming dependent on credit cards.
- The discussions of the National Wellness Goals have been refined to focus on the newest round of initiatives to tackle obesity in Canada.
- All of the chapter’s considerable statistical material has been updated to reflect the latest information on morbidity, mortality, and measures of quality of life.

Chapter 2, Basic Principles of Physical Fitness

- Includes the most recent statistics available from Statistics Canada and the Physical Activity Monitors on the physical activity and exercise habits of Canadians.
- The discussion of exercise recommendations has been refined to show how the Canadian Physical Activity Guidelines are in line with recommendations from other agencies.
- Significant new points have been added on the health benefits of cardiorespiratory endurance training and skill (neuromuscular)-related fitness training.

Chapter 3, Cardiorespiratory Endurance

- All statistics have been updated to reflect the latest data from authoritative sources.
- The **Wellness in the Digital Age** box has been updated to include a brief discussion on fitness trackers that are now more commonly used.
- The chapter presents a wide variety of activities that benefit one’s cardiorespiratory health, and challenges students to pick the activity that would best fit with their daily routine.

Chapter 4, Muscular Strength and Endurance

- The chapter presents several basic strength and endurance exercises that students can easily use to assess their fitness level, and challenges them to pick one exercise and set goals for improvement.
- Enumerates more ways than ever to develop muscular strength and endurance without going to the gym.
- Introduces new and up-to-date photos depicting exercises for training with and without weights, and using common fitness centre machines.
- Includes a discussion on alternate training methods such as carrying exercises and cross training.

Chapter 5, Flexibility and Low-Back Health

- Incorporates easy-to-follow new photos showing recommended flexibility training activities and low-back exercises for preventative care.
- Includes new statistics on the prevalence of osteoporosis and low bone mass.
- Presents a set of basic exercises one can do at home to strengthen the lower back and prevent or alleviate back pain.

Chapter 6, Body Composition

- Makes further distinctions between overweight and obesity.
- Includes newly updated statistics from Statistics Canada on the prevalence of overweight and obesity in Canada.
- Explains the potential link between obesity and infertility.
- Provides new statistics on the prevalence of all types of diabetes, including prevalence among specific ethnic groups.
- Clarifies the use of BMI as a “tracking” method and the potential inaccuracies in using this method.

Chapter 7, Nutrition

- The entire chapter has been updated, where applicable, to discuss the Food and Nutrition Board, and Health Canada’s Guidelines for Canadians.
- The discussion of sodium intake has been updated to reflect Health Canada’s latest recommendation that most Canadians—not just those with risk factors for heart disease—reduce their sodium intake to 1500 mg per day.
- The discussion of Canada’s Food Guide has been complemented by the addition of the Dietitians of Canada Vegetarian Food Guide Rainbow.
- The discussion of glycemic index and glycemic response has been expanded to help students understand the role that carbohydrates play in insulin and glucose levels.

Chapter 8, Weight Management

- Reiterates the latest statistics on overweight and obesity in Canada, and discusses the health implications of overweight and obesity.
- Challenges students to examine their own weight, think of reasons they may have gained weight, and list ways they can begin reducing their weight right away.
- **Critical Consumer** box “Is Any Diet Best for Weight Loss?” has been updated to include high-protein diets and more discussion on popular diets.
- Explains how very simple, small steps—such as cutting back on soda—can have a direct impact on weight loss.
- Introduces new data on the impact of psychosocial factors on weight loss among university/college students.

Chapter 9, Putting Together a Complete Fitness Program

- Promotes the use of resistance bands as an easy way to incorporate weight training into a total workout program.
- Introduces a variety of digital motivational programs for use with smartphones, which can help beginning exercisers stick with a program.
- Provides updated research into the benefits and drawbacks of drinking bottled water, and the product’s effects on the environment.

Chapter 10, Cardiovascular Health

- All statistics have been updated to reflect the latest data from authoritative sources.
- Expanded discussions of heart attack symptoms and preventative measures.

- Instructions for recognizing a heart attack, stroke, and cardiac arrest have been updated to reflect the latest recommendations from Canada’s Heart and Stroke Foundation.

Chapter 11, Cancer

- All statistics have been updated to reflect the latest data from authoritative sources, including the Canadian Cancer Society’s Canadian Cancer Statistics, 2014.
- Provides updated guidelines for Pap tests.
- Outlines new federal regulations for sunscreens and sunscreen labelling.
- Focuses on the importance of early detection in successful cancer treatment.
- The chapter includes all the latest cancer screening guidelines from the Canadian Cancer Society, as well as the ACS’s updated guidelines for performing breast and testicle self-exams.

Chapter 12, Wellness for Life

- This chapter discusses the process of aging and a new **The Evidence for Exercise** feature examines whether exercise can delay the effects of aging.
- The Canadian health care system is examined as it relates to life-long health.
- The chapter emphasizes ways individuals can take personal responsibility for improving the health of the environment and ensuring that their personal health is not negatively affected by the environment.
- Introduces the concept of sustainability, including sustainable energy and sustainable development, and the potential positive impact of sustainable practices on the environment.
- Expanded discussion related to air quality and smog, the greenhouse effect, and global warming.

Chapter 13, Stress (available on connect)

- The chapter more clearly defines and differentiates the concepts of acute stress and chronic stress.
- Explains the effects of chronic stress on the body’s aging process.
- Expands the discussion of psychoneuroimmunology (PNI).

Chapter 14, Substance Use and Misuse (available on connect)

- The definition of addiction has been revised for clarity and it is now considered a “substance use disorder,” focusing on dependence and abuse. These terms are further defined and described.
- Statistics on alcohol use and abuse have been updated, based on the latest data from sources such as Health Canada and the Canadian Addictions Survey.
- Statistics on alcohol-related accidents, injuries, deaths, and arrests have been updated.
- Statistics on tobacco use have been updated, based on the latest data from the Canadian Tobacco Use Monitoring Survey, Health Canada, and the Canadian Addictions Survey.

Chapter 15, Sexually Transmitted Infections (STIs) (available on connect)

- Statistics throughout the chapter have been updated to reflect the latest available information from sources such as the Public Health Agency of Canada, the World Health Organization, and the Canadian Public Health Association.
- The overview of the major STIs, including HIV/ AIDS, has been streamlined for easier retention.
- The **Dimensions of Diversity** feature (“HIV Infection around the World”) reflects the latest global prevalence estimates from the Joint United Nations Programme on HIV/AIDS.

Key Features and Learning Aids

The *Fit & Well* learning system continues to provide the information students need to start their journey to fitness and wellness. *Fit & Well's* authoritative, science-based information is written by experts who work and teach in the field of exercise science, physical education, and health education. *Fit & Well* provides accurate, reliable, current information on key health and fitness topics while also addressing issues related to mind–body health, research, diversity, gender, and consumer health. Text features and interactive activities include self-assessments and fitness labs, a daily fitness and nutrition log, sample programs, and a wealth of behaviour change tools and tips.

Critical Consumer boxes help students navigate the numerous and diverse set of health-related products currently available.



Dimensions of Diversity boxes address the ways that our personal backgrounds influence our health strengths, risks, and behaviours.



The Evidence for Exercise boxes demonstrate that physical activity and exercise recommendations are based on solid scientific evidence.



In Focus boxes explore current trends and topics in fitness and wellness, such as high-interval training and exercising with kettlebells, stability balls, and medicine balls.



Personal Challenge boxes challenge students to do something immediately to assess and enhance their fitness or wellness.



Take Charge boxes distill from the text the practical advice students need to apply information to their own lives.



Wellness in the Digital Age boxes focus on the many new fitness and wellness-related devices and applications that are appearing every day.



Learning Objectives

Each chapter begins with a list of **Learning Objectives** that preview the main points of the chapter for the student.

LEARNING OBJECTIVES

After reading this chapter, you should be able to

- LO1** Describe the dimensions of wellness
- LO2** Identify the major health problems in Canada today and discuss their causes
- LO3** Describe the behaviours that are part of a fit and well lifestyle

Test Your Knowledge

Each chapter opens with **Test Your Knowledge**—a series of three multiple choice and true-false questions, with answers. These self-quizzes facilitate learning by emphasizing key points, highlighting common misconceptions, and sparking debate.

TEST YOUR KNOWLEDGE

1. Which of the following lifestyle factors is the leading preventable cause of death among Canadians?
 - a. excess alcohol consumption
 - b. cigarette smoking
 - c. obesity
2. The terms *health* and *wellness* mean the same thing.

Ask Yourself

Ask Yourself questions help students retain what they've learned in each chapter by applying and examining the concepts.

Ask Yourself



QUESTIONS FOR CRITICAL THINKING AND REFLECTION

When you think about the types of physical activity you engage in during your typical day or week, which ones use the immediate energy system? The nonoxidative energy system? The oxidative energy system? How can you increase activities that use the oxidative energy system?

Fitness and Wellness Tips

Fitness and Wellness Tips catch students' attention and get them thinking—and doing something—about their fitness and wellness.

Fitness Tip



Visualization is such a powerful technique that Olympic athletes learn how to harness it for peak performance. It works for average people, too. Set a small fitness goal, then imagine yourself doing it—as clearly and as often as you can. Visualization can help you believe in yourself, and belief can be a step toward success!

Wellness Tip



If you're overweight, losing as little as 2 or 3 kilograms can significantly reduce your risk of developing diabetes. To learn more, visit the Canadian Diabetes Association's website at <http://www.diabetes.ca>.

Mental Health Tip

The new **Mental Health Tip** boxes allow students to consider the relationship of their mental dimension with each chapter topic. These boxes serve to reinforce the need to prioritize this dimension whenever possible.

Mental Health Tip

Another way to contribute towards your behaviour change is to be confident about your change process. Adopt a positive outlook, take pride in your good qualities while recognizing your insecurities, and live in the present. Engage in the process so that you become a participant of change.

Career Options In . . .

Career Options In . . . boxes introduce students to different career paths.

CAREER OPTIONS IN...



Wellness

TEACHING: university or college-level instructor; junior high or high school teacher.

COMMUNITY-BASED: wellness program coordinator; disease-specific agency specialist, e.g., YMCA/YWCA.

Vital Statistics

Vital Statistics tables and figures highlight important facts and figures in an accessible format. From tables and figures marked with the Vital Statistics label, students learn about such matters as the leading causes of death in Canada and the factors that play a part in each one; the relationship between lifestyle and quality of life; public health achievements of the twentieth century; the most popular fitness activities; the effects of binge drinking on college and university students; and a wealth of other information. For students who learn best when material is displayed graphically or numerically, Vital Statistics tables and figures offer a way to grasp information quickly and directly.

TABLE 1.2

VITAL STATISTICS

Leading Causes of Death in Canada, 2011

Rank	Cause of Death	Number of Deaths
1	Malignant neoplasms (cancers)	72 476
2	Diseases of heart (heart disease)	47 627
3	Cerebrovascular diseases (stroke)	13 283

Running Glossary

Within each chapter, important terms appear in boldface type and are defined in a **running glossary**, helping students handle new vocabulary.

slow-twitch fibres Red muscle fibres that are fatigue-resistant but have a slow contraction speed and a lower capacity for tension; usually recruited for endurance activities.
fast-twitch fibres White muscle fibres that contract rapidly and forcefully but fatigue quickly; usually recruited for actions requiring strength and power.
intermediate fibres A muscled fibre that responds somewhere in between the speed, endurance, and contractile force of slow- and fast-twitch fibres.

Illustrated Exercise Sections

To ensure that students understand how to perform important exercises and stretches, the fourth Canadian edition of *Fit & Well* includes three **illustrated exercise sections**, one in Chapter 4 and two in Chapter 5. The section in Chapter 4 covers exercises for developing muscular strength and endurance, as performed with your body weight, with free weights and on weight machines. One section in Chapter 5 presents stretches for flexibility, and the other presents exercises to stretch and strengthen the lower back. Each exercise is illustrated with one or more full-colour photographs showing proper technique. Digital video clips of the exercises from the text and key lab activities are available online.

Weight Training Exercises: Body Weight



Exercise 1

Air Squats

Instructions: (a) Keep your back straight and head level; stand with feet slightly more than shoulder-width apart and toes pointed slightly outward. Hold your hands out in front of you. (b) Squat down until your

Sample Programs

To help students get started, Chapter 9 offers four complete **sample programs** designed to develop overall fitness. The programs are built around four popular cardiorespiratory endurance activities: walking/jogging/running, and calisthenic circuit training, and include strength training and stretching exercises. Each program includes detailed information and guidelines on equipment and technique; target intensity, duration, and frequency; calorie cost of the activity; record keeping; and adjustments to make as fitness improves. Plus, three more complete programs—for cycling, swimming, and rowing machine—can be found online. The chapter also includes general guidelines for putting together a personal fitness program: setting goals; selecting activities; setting targets for intensity, duration, and frequency; maintaining a commitment; and recording and assessing progress.

SAMPLE PROGRAMS FOR POPULAR ACTIVITIES

The following sections present sample programs based on different types of cardiorespiratory activities—walking/jogging/running and calisthenics circuit training—are presented below. Each sample program includes regular cardiorespiratory endurance exercise, resistance training, and stretching. Read the descriptions of the programs you're considering, and decide which will work best for you based on your present routine, the potential for enjoyment, and adaptability to your lifestyle. If you choose one of these programs, complete the personal fitness program plan in Lab 9.1, just as if you had created a program from scratch.

Common Questions Answered

Sections called **Common Questions Answered** appear at the end of Chapters 2–13. In these student-friendly sections, the answers to frequently asked questions are presented in easy-to-understand terms. Included are such questions as these: “Do I need more protein in my diet when I train with weights?” “How can I safely increase exercise intensity to build fitness?” “Can physical training limit flexibility?” and “How can I tell if I’m allergic to a food?”

Common Questions ANSWERED

- Q** Do I need a special diet for my endurance exercise program?
- A** No. For most people, a nutritionally balanced diet contains all the energy and nutrients needed to sustain an exercise program. Don’t waste your money on unnecessary vitamins, minerals, and protein supplements. (Chapter 7 has information about putting together a healthy diet.)
- Q** How can I measure how far I walk or run?
- A** The simplest and cheapest way to measure distance is with a pedometer, which counts your steps. Although stride length varies among individuals, 2000 steps typically equals about 1.6 km, and 10 000 steps equals

Tips for Today and the Future

Chapter-ending **Tips for Today and the Future** sections provide a very brief distillation of the major message of each chapter, followed by suggestions for a few simple things that students can try right away and in the near future. Tips for Today and the Future are designed to encourage students and to build their confidence by giving them easy steps they can take immediately and in the next few days and weeks to improve their wellness.

Tips for Today and the Future



You are in charge of your health! Many of the decisions you make every day have an impact on the quality of your life, both now and in the future.

RIGHT NOW YOU CAN

- Go for a 15-minute walk.
- Have a piece of fruit for a snack.

Chapter Summaries

Chapter summaries offer students a concise review and a way to make sure they have grasped the most important concepts in the chapter.

SUMMARY

- Wellness is the ability to live life fully, with vitality and meaning. Wellness is dynamic and multidimensional; it incorporates physical, emotional, intellectual, spiritual, interpersonal and social, environmental, and financial dimensions.
- People today have greater control over and greater responsibility for their health than ever before.

For Further Exploration

End-of-chapter **For Further Exploration** sections offer suggestions for student resources that can be found online to build fitness and wellness. These sections also list recommended books, newsletters, organizations, hotlines, and websites.

FOR FURTHER EXPLORATION

Organizations, Hotlines, and Websites

The Internet addresses (also called uniform resource locators, or URLs) listed here were accurate at the time of publication.

Centers for Disease Control and Prevention. Through phone, fax, and the Internet, the CDC provides a wide variety of health information.

800-311-3435; 888-CDC-FAXX (CDC Fax)

Hands-on Laboratory Activities

To help students apply the principles of fitness and wellness to their own lives, *Fit & Well* includes **laboratory activities** for classroom use. These hands-on activities give students the opportunity to assess their current level of fitness and wellness, to create plans for changing their lifestyle to reach wellness, and to monitor their progress. They can assess their daily physical activity, for example, or their level of cardiorespiratory endurance; they can design a program to improve muscular strength or meet weight-loss goals; and they can explore their risk of developing cardiovascular disease or cancer. Many labs end with a section labelled “Using Your Results,” which guides students in evaluating their scores, setting goals for change, and moving forward. Labs are found at the end of each chapter and are also available in an interactive format online.

Quick-Reference Appendices

Included at the end of the book are two appendices containing vital information in an easy-to-use format.

Appendix A, Nutritional Content of Popular Food Items, provides students with a link to assess their nutritional intake with Health Canada’s Canadian Nutrient File. This appendix also lists some common fast food restaurant URLs for students to access nutrition guides.

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

Built-in Behaviour Change Workbook (Available on connect)

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

Behaviour Change Workbook

This workbook is designed to take you step by step through the process of behaviour change. The first eight activities in the workbook will help you develop a successful plan—beginning with choosing a target behaviour and moving through the program planning steps described in Chapter 1, including the completion and signing of a behaviour change contract. The final seven activities will help you work through common obstacles to behaviour change and maximize your program’s chances of success.

Teaching and Learning Tools



Learn without Limits

McGraw-Hill Connect® is an award-winning digital teaching and learning platform that gives students the means to better connect with their coursework, with their instructors, and with the important concepts that they will need to know for success now and in the future. With Connect, instructors can take advantage of McGraw-Hill Education's trusted content to seamlessly deliver assignments, quizzes and tests online. McGraw-Hill Connect is a learning platform that continually adapts to each student, delivering precisely what they need, when they need it, so class time is more engaging and effective. Connect makes teaching and learning personal, easy, and proven.

Connect Key Features:

SmartBook®

As the first and only adaptive reading experience, SmartBook is changing the way students read and learn. SmartBook creates a personalized reading experience by highlighting the most important concepts a student needs to learn at that moment in time. As a student engages with SmartBook, the reading experience continuously adapts by highlighting content based on what each student knows and doesn't know. This ensures that he or she is focused on the content needed to close specific knowledge gaps, while it simultaneously promotes long-term learning.

Connect Insight®

Connect Insight is Connect's new one-of-a-kind visual analytics dashboard—now available for instructors—that provides at-a-glance information regarding student performance, which is immediately actionable. By presenting assignment, assessment, and topical performance results together with a time metric that is easily visible for aggregate or individual results, Connect Insight gives instructors the ability to take a just-in-time approach to teaching and learning, which was never before available. Connect Insight presents data that helps instructors improve class performance in a way that is efficient and effective.

Simple Assignment Management

With Connect, creating assignments is easier than ever, so instructors can spend more time teaching and less time managing.

- Assign SmartBook learning modules.
- Instructors can edit existing questions and create their own questions.
- Draw from a variety of text specific questions, resources, and test bank material to assign online.
- Streamline lesson planning, student progress reporting, and assignment grading to make classroom management more efficient than ever.

Smart Grading

When it comes to studying, time is precious. Connect helps students learn more efficiently by providing feedback and practice material when they need it, where they need it.

- Automatically score assignments, giving students immediate feedback on their work and comparisons with correct answers.
- Access and review each response; manually change grades or leave comments for students to review.
- Track individual student performance—by question, assignment or in relation to the class overall—with detailed grade reports.
- Reinforce classroom concepts with practice tests and instant quizzes.
- Integrate grade reports easily with Learning Management Systems including Blackboard, D2L, and Moodle.

Instructor Library

The Connect Instructor Library is a repository for additional resources to improve student engagement in and out of the class. It provides all the critical resources instructors need to build their course.

- Access Instructor resources.
- View assignments and resources created for past sections.
- Post your own resources for students to use.

Instructor Resources

- *Instructor's Manual*
- *Computerized Test Bank*
- *Microsoft® PowerPoint® Slides*

Superior Learning Solutions and Support

The McGraw-Hill Education team is ready to help instructors assess and integrate any of our products, technology, and services into your course for optimal teaching and learning performance. Whether it's helping your students improve their grades, or putting your entire course online, the McGraw-Hill Education team is here to help you do it. Contact your Learning Solutions Consultant today to learn how to maximize all of McGraw-Hill Education's resources.

For more information, please visit us online: <http://www.mheducation.ca/he/solutions>

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