

PRINCIPLES & LABS FOR  
**PHYSICAL  
FITNESS**



EIGHTH EDITION

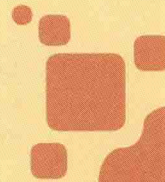
WERNER W. K. HOEGER | SHARON A. HOEGER



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**PHYSICAL  
FITNESS**

EIGHTH EDITION



**Werner W.K. Hoeger**  
*Boise State University*  
**Sharon A. Hoeger**  
*Fitness & Wellness, Inc.*



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***Principles and Labs for Physical Fitness,***  
**Eighth Edition**

**Werner W.K. Hoeger, Sharon A. Hoeger**

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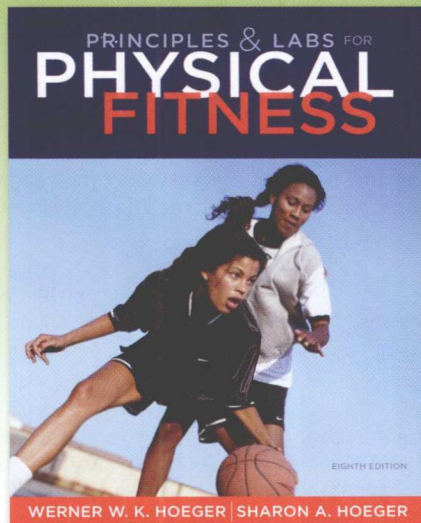
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# Your personal fitness story begins HERE



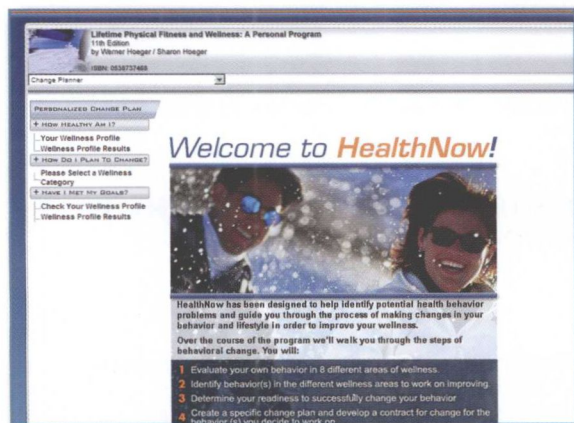
## Fitness requires a consistent, deliberate effort.

With the help of this text, you'll learn how to take control of your health and lifestyle habits so you can stay healthy, realize your potential, and discover your own personal fitness story.

This text focuses on such important fitness topics as body composition, cardio-respiratory endurance, and muscular strength and flexibility. Resources—including “Real Life Stories” case studies; portable, perforated reference cards; exercise videos; and online labs on CengageNOW™ and WebTutor™—help you turn active learning into active *living*, and achieve and maintain your personal health and wellness goals.

## Key Features:

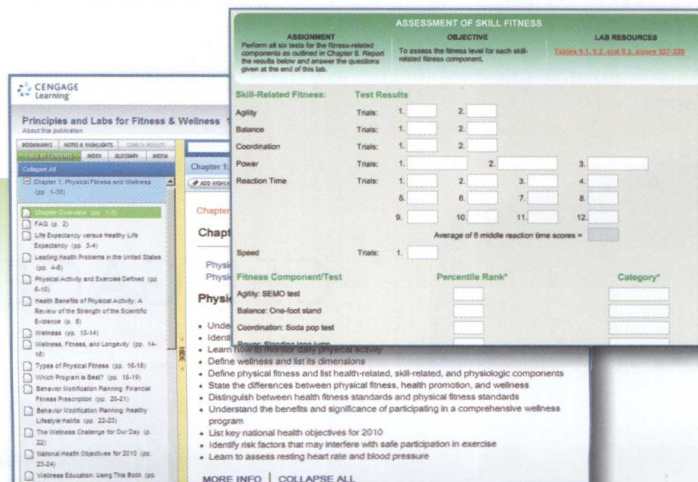
“Real Life Stories” case studies at the beginning of each chapter help you relate to chapter concepts and inspire you to take action in your own life.



**Health CourseMate** lets you review key topics through online labs, quizzes, videos, a behavior change planner, and a robust eBook—all at one interactive website.



Short exercise demonstration videos in CengageNOW™ and WebTutor™ show you how to properly perform each exercise and which muscles are utilized during each movement.





# Resources to Help You Succeed

## ONLINE RESOURCES

### GLOBAL HEALTH WATCH

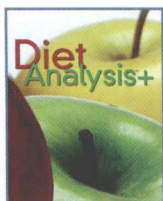
**Global Health Watch** gives you access to information from trusted academic journals, news outlets, and magazines, as well as statistics, videos, primary sources, case studies, and much more—all updated daily.



The more you study, the better the results. Make the most of your study time by accessing everything you need to succeed in one place. Read your textbook online, take notes, complete online labs, review flashcards, watch exercise videos, and take practice quizzes—online with **CourseMate**.



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**Diet Analysis Plus** allows you to track your diet and physical activity, and analyze the nutritional value of the food you eat so you can adjust your diet to reach your personal health goals—all while gaining a better understanding of how nutrition relates to, and impacts, your life. Diet Analysis Plus includes a 20,000+ food database; customizable reports; new assignable labs; custom food and recipe features; the latest Dietary Reference Intakes; and goals and actual percentages of essential nutrients, vitamins, and minerals. Updated for Fall 2010, new Diet Analysis Plus activities show you how the concepts you learn in the book relate to your personal health goals.

## ADDITIONAL RESOURCES

### Behavior Change Workbook

ISBN: 978-0-495-01145-3

This powerful workbook includes a brief discussion of the current theories behind making positive lifestyle changes, along with exercises to help you make those changes in your everyday life.

### Walk4Life® Pedometer

ISBN: 978-0-495-01315-0

This handy tool tracks steps, elapsed time, and distance and includes a calorie counter and a clock to help you walk your way to better fitness.

### eCompanion

ISBN: 978-1-111-43045-0

Used as a companion to the eBook, this brief manual helps you synthesize your understanding of key concepts from the text. Features include chapter objectives and summaries, key terms, an interactive "Concept Check" section, review questions, and space for note taking.

### Careers in Health, Physical Education, and Sports, 2nd Edition

By Floyd/Allen

ISBN: 978-0-495-38839-5

This informative supplement explores different health-related careers and offers advice on how to prepare for the transition into the working world.

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PRINCIPLES AND LABS FOR  
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FITNESS**

EIGHTH EDITION



# Preface

People go to college to learn how to make a living. Making a good living, however, won't help unless people live active lifestyles that allow them to enjoy what they have. The American way of life does not provide the human body with sufficient physical activity to maintain adequate health. Many present lifestyle patterns are such a serious threat to our health that they actually increase the deterioration rate of the human body and often lead to premature illness and mortality.

Furthermore, the science of behavioral therapy has established that many of the behaviors we adopt are products of our environment. Unfortunately, we live in a "toxic" health/fitness environment. Becoming aware of how the environment affects our health is vital if we wish to achieve and maintain wellness. Yet we are so habituated to this modern-day environment that we miss the subtle ways it influences our behaviors, personal lifestyle, and health each day.

Research clearly indicates that people who lead an active lifestyle live longer and enjoy a better quality of life. As a result, the importance of sound fitness programs has assumed an entirely new dimension. The Office of the Surgeon General has determined that lack of physical activity is detrimental to good health and has identified physical fitness as a top health priority by stating that the nation's top health goals for the 21st century are exercise, smoking cessation, increased consumption of fruits and vegetables, and the practice of safe sex. All four of these fundamental healthy lifestyle factors are thoroughly addressed in this book.

Because of the impressive scientific evidence supporting the benefits of physical activity, most people in this country are aware that physical fitness promotes a healthier, happier, and more productive life. Nevertheless, the vast majority do not enjoy a better quality of life because they either are led astray by a multibillion dollar "quick fix" industry or simply do not know how to implement a sound physical activity program that will yield positive results. Only in a fitness course will people learn sound principles of healthy lifestyle factors, including exercise prescriptions that, if implemented, will teach them how to truly live life to its fullest potential.

*Principles and Labs for Physical Fitness* contains 11 chapters and 35 laboratories that serve as a guide to implement a comprehensive lifetime fitness program. This edition has been updated to include the latest information reported in the literature and at professional health, physical education, and sports medicine conferences. Students are encouraged to adhere to a well-balanced diet and a healthy

lifestyle to help them achieve wellness. To promote this, the book includes information on motivation and behavioral modification techniques that help the reader eliminate negative behaviors and implement a healthier way of life.

The emphasis throughout the book is on teaching students how to take control of their own fitness and lifestyle habits so they can make a deliberate effort to stay healthy and achieve the highest potential for well-being.

## NEW IN THE EIGHTH EDITION

This new edition of *Principles and Labs for Physical Fitness* has been revised and updated to conform with advances in the field and new recommendations by major national health and fitness organizations. New contents are based on information reported in literature and at professional health, physical education, exercise science, and sports medicine conferences.

New in this edition are individual *Real Life Stories* presented at the start of each chapter. Most students will be able to relate to these accounts as they encounter similar situations in their lives. In addition to the individual chapter updates listed below, new figures and photographs are included throughout the textbook.

- Chapter 1, "Why Physical Fitness," includes statistical updates related to the leading causes of death, life expectancy, and yearly health care costs in the United States. Included in the chapter are new information on the latest research studies linking physical activity and healthy lifestyle habits to health, longevity, and premature mortality; the new U. S. *National Physical Activity Plan*, *National Health Objectives for 2020*; and the *Physical Activity Readiness Questionnaire*.
- In Chapter 2, "Behavior Modification," the humanistic theory of change has been added. To further motivate individuals to change sedentary behavior, the relationship between excessive sitting and/or watching too much television and premature mortality is also included in this chapter. The data show that greater mortality is present even among individuals who spend most of the day sitting, even if they meet the minimum daily recommendation of moderate physical activity.
- The ever-increasing importance of vitamin D is examined in Chapter 3, "Nutrition for Wellness," with an expanded discussion on the benefits of this vitamin and how to obtain an adequate supply. Additional information is also included on probiotics, osteoporosis, multivitamin supplements, and advanced glycation end products (AGEs).



- Revised figures on the incidence of overweight and obesity trends in the United States have been added to Chapter 4, “Body Composition.” Additional changes to this chapter include updates on premature illness and mortality risks associated with having a large waist circumference (even when body weight is considered “normal”) and the effects of excessive body weight, in particular visceral fat, on health and well-being.
- Chapter 5, “Weight Management,” has been revised to conform with the new *Position Stand: Appropriate Physical Activity Intervention Strategies for Weight Loss and Prevention of Weight Regain for Adults* released in 2009 by the American College of Sports Medicine. A new section on the role of sleep deprivation plays in weight management and weight loss has been added to the chapter as well.
- In Chapter 6, “Cardiorespiratory Endurance,” the exercise prescription principles have been extensively revised, in particular in reference to the intensity and duration (quantity) of exercise, according to the newly released *ACSM’s Guidelines for Exercise Testing and Prescription* (2010) and the 2008 Federal Guidelines for Physical Activity. Also included are a section title Rate of Progression and additional information on the benefits of vigorous-intensity versus moderate-intensity exercise and volume versus intensity of training on health and longevity.
- As with cardiorespiratory endurance, the principles of strength training and muscular flexibility prescription were updated according to the latest ACSM guidelines. An enhanced section on the modes of stretching and updates on the best time to stretch and its relationship injuries are provided in Chapter 8, “Muscular Flexibility.”
- In Chapter 9, “Skill Fitness and Fitness Programming,” revisions were made to selected exercise considerations questions and a new *Fitness Trends* box has been included. Information has also been included on the controversial topic of shoeless running.
- To address the increased problem of sleep deprivation among college students, a new section on Sleep and Wellness, a new Stress Events Scale, and a Thirty-Second Body Scan have all been added to Chapter 10, “Stress Assessment and Management Techniques.”
- Data on the incidence and prevalence of cardiovascular disease, cancer, addictive behavior, and sexually transmitted infections were updated for Chapter 11. The underlying causes of death attributable to lifestyle-related risk factors for men and women in the United States according to the latest research are now included in the chapter. Guidelines for a graded exercise stress-electrocardiogram were revised according to the 2010 *ACSM Guidelines for Exercise Testing and Prescription*. New information is also provided on the effects on disease risk of substituting saturated fat with either simple carbohydrates (processed or re-

fined) or polyunsaturated fat in the diet, and on the effectiveness of lowering salt intake in decreasing blood pressure and mortality risk. The dietary guidelines for cancer prevention were brought up to date in accordance to the latest recommendations. Current trends in drug abuse, including alcohol and cigarette smoking were also revised. Finally, using prevailing health information available in the literature, revisions and new questions were added to the *Life Expectancy and Physiological Age Prediction Questionnaire*.

## ANCILLARIES

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An eCompanion is now available to accompany the eBook for *Principles and Labs for Fitness & Wellness*. Students can carry this lightweight manual to class and use it to help synthesize their understanding of key concepts from the text. Features include chapter objectives, chapter summaries, key terms, an interactive "Concept Check" section, review questions, and space for note taking. A comprehensive study tool, the eCompanion assists in exam preparation, allows students to follow along in class without the printed book or computer, and reinforces the concepts presented in the text.
- **PowerLecture® CD-ROM. ISBN-10: 1-111-43043-8.** Designed to make lecture preparation easier, this CD-ROM includes more than 500 customizable Microsoft® PowerPoint® presentation slides with images from the text, new BBC video clips, and electronic versions of the Instructor's Manual and Test Bank. Also included is the ExamView® Computerized Test Bank, which allows you to create, deliver, and customize tests (both print and online) in minutes with this easy-to-use assessment and tutorial system. ExamView offers a Quick Test Wizard that guides you step by step through the process of creating tests while allowing you to see the test you are creating on the screen exactly as it will print or display online. You can build tests of up to 250 questions and, using ExamView's word-processing capabilities, you can enter an unlimited number of questions and can edit existing questions.
- **Behavior Change Workbook. ISBN-10: 0-495-01145-2.** The *Behavior Change Workbook* includes a brief discussion of the current theories behind making positive lifestyle changes, along with exercises to help students make those changes in their everyday lives.
- **Careers in Health, Physical Education, and Sport, second edition. ISBN-10: 0-495-38839-4.** This unique booklet takes students through the complicated process of picking the type of career they want to

pursue; explains how to prepare for the transition into the working world; and provides insight into different types of career paths, education requirements, and reasonable salary expectations. A designated chapter discusses some of the legal issues that surround the workplace, including discrimination and harassment. This supplement is complete with personal development activities designed to encourage students to focus on and develop better insight into their futures.

- **Walk4Life® Pedometer. ISBN-10: 0-495-01315-3.** Provided through an alliance with Walk4Life, the Walk4Life Elite Model pedometer tracks steps, elapsed time, and distance. Including a calorie counter and a clock, it can be integrated into class activities and is an excellent tool to encourage students to track their steps and walk toward better fitness awareness.
- **Instant Access Code for Diet Analysis Plus. ISBN-10: 0-538-49509-X.** Diet Analysis Plus is the market leading software, with a database of more than 20,000 foods that enable students to track their diet, generate reports, complete assignments, and gain a better understanding of how nutrition relates to their personal health goals.
- **Printed Access Code for Diet Analysis Plus. ISBN-10: 0-538-49508-1.** Diet Analysis Plus is the market leading software, with a database of more than 20,000 foods that enable students to track their diet, generate reports, complete assignments, and gain a better understanding of how nutrition relates to their personal health goals.
- **Readings for a Healthy Living. ISBN-10: 0-759-35944-X.** This reader features 12 articles written by author Dianne Hales and published in *PARADE* magazine. Readings include "Take Your Meds—The Right Way," "You Can Think Yourself Thin," "Getting Yourself Back on Track," "Too Tough to Seek Help," and "The Best Medical Help Online."
- **TestWell Online Assessment Access Card. ISBN-10: 0-495-01264-5.** This Web-based assessment tool allows students to answer 100 questions specific to their health status in relation to the six dimensions of wellness. Students are provided a 10-Step Behavior Change Guide for long-term positive behavior modifications. It can be used as a pre- or post-test to assess students' health status, and it can provide a venue for learning about the different dimensions of wellness. It executes immediate feedback based on students' responses and can contribute to classroom participation and overall learning assessment. TestWell offers a fun and easy Web-based activity for student enrichment.



## BRIEF AUTHOR BIOGRAPHIES



**Werner W.K. Hoeger** is a professor emeritus of the Department of Kinesiology at Boise State University. He remains active in research and continues to lecture in the areas of exercise physiology, physical fitness, and wellness.

Dr. Hoeger completed his undergraduate and master's degrees in physical education at the age of 20 and received his doctorate degree with an emphasis in exercise physiology at the age of 24. He is a Fellow of the American College of Sports Medicine and also of the Research Consortium of the American Alliance for Health, Physical Education, Recreation, and Dance. In 2002, he was recognized as the Outstanding Alumnus from the College of Health and Human Performance at Brigham Young University. He is the recipient of the 2004 first Presidential Award for Research and Scholarship in the College of Education at Boise State University. In 2008, he was asked to be the keynote speaker at the VII Iberoamerican Congress of Sports Medicine and Applied Sciences in Mérida, Venezuela, and was presented with the Distinguished Guest of the City recognition. He also served as keynote speaker at the 2010 Western Society for Kinesiology and Wellness in Reno, Nevada.

Dr. Hoeger uses his knowledge and personal experiences to write engaging, informative books that thoroughly address today's fitness and wellness issues in a format accessible to students. Since 1990, he has been the most widely read fitness and wellness college textbook author in the United States. In 25 years, he has published a total of 50 editions of his 9 fitness and wellness-related titles. Among the textbooks written for Wadsworth Cengage Learning are *Lifetime Physical Fitness & Wellness: A Personalized Program*, eleventh edition; *Fitness & Wellness*, eighth edition; *Principles and Labs for Physical Fitness*, eighth edition; *Wellness: Guidelines for a Healthy Lifestyle*, fourth edition; and *Water Aerobics for Fitness and Wellness*, third edition (with Terry-Ann Spitzer Gibson).

Dr. Hoeger was the first author to write a college-level fitness textbook that incorporated the "wellness" concept. In 1986, with the release of the first edition of *Lifetime Physical Fitness & Wellness: A Personalized Program*, he introduced the principle that to truly improve fitness, health, and quality of life and achieve wellness, a person needed to go beyond the basic health-related components of physical fitness. His work was so well received that every fitness author immediately followed his lead in the field.

As an innovator in the field, Dr. Hoeger has developed many fitness and wellness assessment tools, including fitness tests such as the Modified Sit-and-Reach, Total Body Rotation, Shoulder Rotation, Muscular Endurance, Muscular Strength and Endurance, and Soda Pop Coordination Tests. Proving that he "practices what he preaches," at 48, he was the oldest male competitor in the 2002 Winter Olympics in Salt Lake City, Utah. He raced in the sport of luge along with his then-17-year-old son Christopher. It

was the first time in Winter Olympics history that father and son competed in the same event. In 2006, at the age of 52, he was the oldest competitor at the Winter Olympics in Turin, Italy.



**Sharon A. Hoeger** is vice president of Fitness & Wellness, Inc., of Boise, Idaho. Sharon received her degree in computer science from Brigham Young University. She is extensively involved in the research process used in retrieving the most current scientific information that goes into the revision of each textbook. She is

also the author of the software that accompanies many of the fitness and wellness textbooks. Her innovations in this area since the publication of the first edition of *Lifetime Physical Fitness & Wellness: A Personalized Program* set the standard for fitness and wellness computer software used in this market today.

Sharon is a co-author in five of the nine fitness and wellness titles. Husband and wife have been jogging and strength training together for more than 34 years. They are the proud parents of five children, all of whom are involved in sports and lifetime fitness activities. Their motto: "Families that exercise together, stay together." Sharon also served as Chef de Mission (Head of Delegation) for the Venezuelan Olympic Team at the 2006 Olympic Winter Games in Turin, Italy.

## Acknowledgments

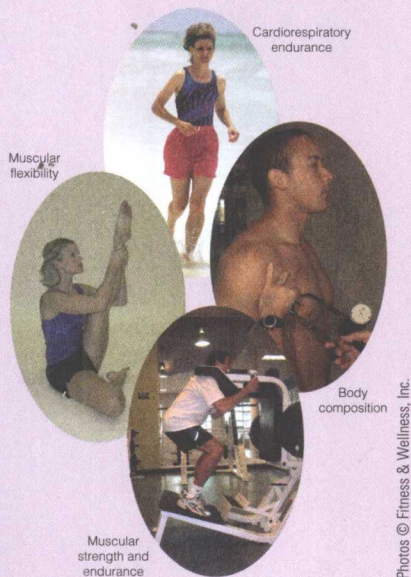
The completion of the eighth edition of *Principles and Labs for Physical Fitness* was made possible through the contributions of many individuals. In particular, we would like to express our gratitude to the reviewers of the tenth edition; their valuable comments and suggestions are most sincerely appreciated.

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We wish to thank Anna Lusting for her valuable assistance in the compilation of the *Real Life Stories*. We also express deep gratitude to the following individuals for their kind help with new photography in this edition: Brad Anderson, Amber Fawson, Kyle Perry, David Gonzalez, Angela Hoeger, Michelle Despain Hoeger, Jorge Kleiss, and Jon and Cherie Hoeger.



# HEALTH-RELATED COMPONENTS OF PHYSICAL FITNESS



Photos © Fitness & Wellness, Inc.

**Cardiorespiratory endurance** The ability of the lungs, heart, and blood vessels to deliver adequate amounts of oxygen to the cells to meet the demands of prolonged physical activity.

**Body composition** The fat and non-fat components of the human body; important in assessing recommended body weight.

**Muscular strength** The ability of a muscle to exert maximum force against resistance (for example, 1 repetition maximum [or 1 RM] on the bench press exercise).

**Muscular endurance** The ability of a muscle to exert submaximal force repeatedly over time.

**Flexibility** The achievable range of motion at a joint or group of joints without causing injury.

## HEALTHY LIFESTYLE HABITS

Research indicates that adhering to the following 12 lifestyle habits will significantly improve health and extend life.

### I PLAN TO

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

### I DID IT

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

1. Participate in a lifetime physical activity program.
2. Do not smoke cigarettes.
3. Eat right.
4. Avoid snacking.
5. Maintain recommended body weight through adequate nutrition and exercise.
6. Sleep 7 to 8 hours each night.
7. Lower your stress levels.
8. Be wary of alcohol.
9. Surround yourself with healthy friendships.
10. Be informed about the environment.
11. Increase education.
12. Take personal safety measures.

## TRY IT

Look at the list above and indicate which habits are already a part of your lifestyle. What changes could you make to incorporate some additional healthy habits into your daily life?

## ESTIMATED NUMBER OF STEPS TO WALK OR JOG A MILE BASED ON GENDER, HEIGHT, AND PACE

		Pace (min/mile)					
		Walking			Jogging		
Height		20	18	16	15	12	10
Women							
5'0"	2,371	2,244	2,117	2,054	1,997	1,710	1,423
5'4"	2,315	2,188	2,061	1,998	1,943	1,656	1,369
5'8"	2,258	2,131	2,005	1,941	1,889	1,602	1,315
6'0"	2,202	2,075	1,948	1,885	1,835	1,548	1,261
Men							
5'2"	2,310	2,183	2,056	1,993	1,970	1,683	1,396
5'6"	2,253	2,127	2,000	1,937	1,916	1,629	1,342
5'10"	2,197	2,070	1,943	1,880	1,862	1,575	1,288
6'2"	2,141	2,014	1,887	1,824	1,808	1,521	1,234

Prediction Equations (pace in min/mile and height in inches):

Walking Women:  $\text{Steps/mile} = 1,949 + [(63.4 \times \text{pace}) - (14.1 \times \text{height})]$

Men:  $\text{Steps/mile} = 1,916 + [(63.4 \times \text{pace}) - (14.1 \times \text{height})]$

Running Women and Men:  $\text{Steps/mile} = 1,084 + [(143.6 \times \text{pace}) - (13.5 \times \text{height})]$

Source: Werner W. K. Hoeger et al., "One-mile step count at walking and running speeds," *ACSM's Health & Fitness Journal*, Vol 12(1):14-19, 2008.

**Physical activity** Bodily movement produced by skeletal muscles; requires expenditure of energy and produces progressive health benefits. Examples include walking, taking the stairs, dancing, gardening, yard work, house cleaning, snow shoveling, washing the car, and all forms of structured exercise.

**Exercise** A type of physical activity that requires planned, structured, and repetitive bodily movement with the intent of improving or maintaining one or more components of physical fitness.

**Moderate physical activity** Activity that uses 150 calories of energy per day, or 1,000 calories per week.

**Vigorous activity** Any exercise that requires a MET level equal to or greater than 6 METs (21 mL/kg/min). 1 MET is the energy expenditure at rest, 3.5 mL/kg/min, and METs are defined as multiples of this resting metabolic rate (examples of activities that require a 6-MET level include aerobics, walking uphill at 3.5 mph, cycling at 10 to 12 mph, playing doubles in tennis, and vigorous strength training).

**Physical fitness** The ability to meet the ordinary as well as the unusual demands of daily life safely and effectively without being overly fatigued and still have energy left for leisure and recreational activities.

**Wellness** The constant and deliberate effort to stay healthy and achieve the highest potential for well-being. It encompasses seven dimensions—physical, emotional, mental, social, environmental, occupational, and spiritual—and integrates them all into a quality life.

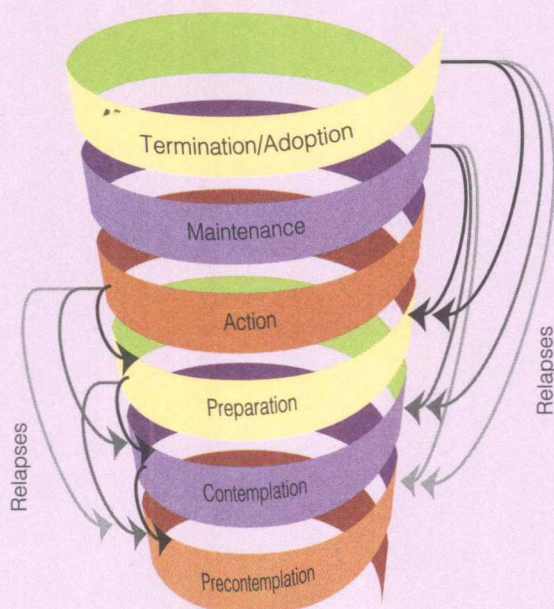
**Health-related fitness** Fitness programs that are prescribed to improve the individual's overall health.

**Health** A state of complete well-being—not just the absence of disease or infirmity.

**Risk factors** Lifestyle and genetic variables that may lead to disease.



## STAGES OF CHANGE: MODEL OF PROGRESSION AND RELAPSE



**Behavior modification** The process of permanently changing negative behaviors to positive behaviors that will lead to better health and well-being.

**Motivation** The desire and will to do something.

**Transtheoretical model** Behavioral modification model proposing that change is accomplished through a series of progressive stages in keeping with a person's readiness to change.

**Precontemplation stage** Stage of change in the transtheoretical model in which an individual is unwilling to change behavior.

**Contemplation stage** Stage of change in the transtheoretical model in which the individual is considering changing behavior within the next 6 months.

**Preparation stage** Stage of change in the transtheoretical model in which the individual is getting ready to make a change within the next month.

**Action stage** Stage of change in the transtheoretical model in which the individual is actively changing a negative behavior or adopting a new, healthy behavior.

**Maintenance stage** Stage of change in the transtheoretical model in which the individual maintains behavioral change for up to 5 years.

**Termination/adoption stage** Stage of change in the transtheoretical model in which the individual has eliminated an undesirable behavior or maintained a positive behavior for more than 5 years.

**Processes of change** Actions that help a person achieve change in behavior.

**Self-efficacy** One's belief in the ability to perform a given task.

**Goals** The ultimate aims toward which effort is directed.

**SMART** An acronym used in reference to Specific, Measurable, Attainable, Realistic, and Time-specific goals.

**Objectives** Steps required to reach a goal.

## STEPS FOR SUCCESSFUL BEHAVIOR MODIFICATION

- |  |                        |
|--|------------------------|
| <p><b>I PLAN TO</b></p> <p><input type="checkbox"/> 1. Acknowledge that you have a problem.</p> <p><input type="checkbox"/> 2. Describe the behavior to change (increase physical activity, stop overeating, quit smoking).</p> <p><input type="checkbox"/> 3. List advantages and disadvantages of changing the specified behavior.</p> <p><input type="checkbox"/> 4. Decide positively that you will change.</p> <p><input type="checkbox"/> 5. Identify your stage of change.</p> <p><input type="checkbox"/> 6. Set a realistic goal (SMART goal), completion date, and sign a behavioral contract.</p> <p><input type="checkbox"/> 7. Define your behavioral change plan: List processes of change, techniques of change, and objectives that will help you reach your goal.</p> <p><input type="checkbox"/> 8. Implement the behavior change plan.</p> <p><input type="checkbox"/> 9. Monitor your progress toward the desired goal.</p> <p><input type="checkbox"/> 10. Periodically evaluate and reassess your goal.</p> <p><input type="checkbox"/> 11. Reward yourself when you achieve your goal.</p> <p><input type="checkbox"/> 12. Maintain the successful change for good.</p> | <p><b>I DID IT</b></p> |
|--|------------------------|

### TRY IT

In your Online Journal or class notebook, record your answers to the following questions:

Have you consciously attempted to incorporate a healthy behavior into or eliminate a negative behavior from your lifestyle? If so, what steps did you follow, and what helped you achieve your goal?

## COMPUTATION FOR FAT CONTENT IN FOOD

Nutrition Facts			
Serving Size 1 cup (240 ml)			
Servings Per Container 4			
Amount Per Serving			
<b>Calories</b>	120	Calories from Fat	45
% Daily Value*			
<b>Total Fat</b>	5g		8%
Saturated Fat	3g		15%
Trans Fat	0g		0%
<b>Cholesterol</b>	20mg		7%
<b>Sodium</b>	120mg		5%
<b>Total Carbohydrate</b>	12g		4%
Dietary Fiber	0g		0%
Sugars	12g		
<b>Protein</b>	8g		
Vitamin A	10%	Vitamin C	4%
Calcium	30%	Iron	0%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Fiber		25g	30g
Calories per gram:			
Fat	9	Carbohydrate	4
		Protein	4
Percent fat calories = (grams of fat × 9) ÷ calories per serving × 100			
5 grams of fat × 9 calories per grams of fat = 45 calories from fat			
45 calories from fat ÷ 120 calories per serving ×			



	Current Percentage	Recommended Percentage*
Carbohydrates:	50%	45–65%
Simple	26%	Less than <b>25%</b>
Complex	24%	20–40%
Fat:	34%	20–30%**
Monounsaturated:	11%	Up to 20%
Polyunsaturated:	10%	Up to 10%
Saturated:	13%	Less than 7%
Protein:	16%	10–35%

**\*\*Up to 35% is allowed for individuals with metabolic syndrome who may need additional fat in the diet.**

	Calories	Total Fat (grams)	Saturated Fat (grams)	Percent Fat Calories
<b>Taco Bell</b>				
Bean Burrito	370	10	4	24
Crunchy Taco	170	10	4	53
Double Decker Taco	330	13	5	36
Gordita Supreme, Chicken	270	10	4	33
Taco Salad, Chicken Ranch	910	54	10	53
<b>Subway</b>				
Veggie Delite (6")	230	3	1	12
Turkey Breast (6")	289	4	1	13
Tuna (6")	530	30	6	51
Sweet Onion Chicken Teriyaki	380	5	1	12
Cold Cut Combo (6")	410	16	6	35
Meatball Marinara	580	23	9	36

Continued on back

Using the above list, make a list of which super foods you can add to your diet and when you can eat them (snacks/meals). List meals that you can add these foods to.



	Calories	Total Fat (grams)	Saturated Fat (grams)	Percent Fat Calories
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### KFC

Spicy Crispy Breast (1)**	420	25	5	54
KFC Double Down	540	32	10	53

### Burger King

Whopper	760	46	15	55
Double Whopper	1,060	69	27	59
Old Fashioned Ice Cream Shake (med)	760	41	29	49

### TRY IT

Using the above information, record in your Online Journal or class notebook ways you can restructure fast-food consumption to decrease caloric value and fat and saturated fat content in your diet.

	Calories	Total Fat (grams)	Saturated Fat (grams)	Percent Fat Calories
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### Arby's

Regular Roast Beef	350	16	6	41
Roast Chicken Club	520	28	7	49
Market Fresh Roast Beef & Swiss	810	42	13	47

### Wendy's

Baconator Single	610	34	14	50
1/4 lb. Single	470	21	8	40
Ultimate Chicken Grill	340	7	2	19
Chicken Club	630	30	10	43
French Fries (med)	410	19	4	42
Frosty (chocolate/medium)	410	10	7	22



## SELECTING NUTRITIOUS FOODS

Do you regularly follow the habits below?

To select nutritious foods:

I PLAN TO	I DID IT	
<input type="checkbox"/>	<input type="checkbox"/>	1. Given the choice between whole foods and refined, processed foods, choose the former (apples rather than apple pie, potatoes rather than potato chips). No nutrients have been refined out of the whole foods, and they contain less fat, salt, and sugar.
<input type="checkbox"/>	<input type="checkbox"/>	2. Choose the leaner cuts of meat. Select fish or poultry often, beef seldom. Ask for broiled, not fried, to control your fat intake.
<input type="checkbox"/>	<input type="checkbox"/>	3. Use both raw and cooked vegetables and fruits. Raw foods offer more fiber and vitamins, such as folate and thiamin, that are destroyed by cooking. Cooking foods frees other vitamins and minerals for absorption.
<input type="checkbox"/>	<input type="checkbox"/>	4. Include milk, milk products, or other calcium sources for the calcium you need. Use low-fat or non-fat items to reduce fat and calories.
<input type="checkbox"/>	<input type="checkbox"/>	5. Learn to use margarine, butter, and oils sparingly. A little gives flavor, a lot overloads you with fat, calories, and increases disease risk.
<input type="checkbox"/>	<input type="checkbox"/>	6. Vary your choices. Eat broccoli today, carrots tomorrow, and corn the next day. Eat Chinese today, Ital-

Continued on back

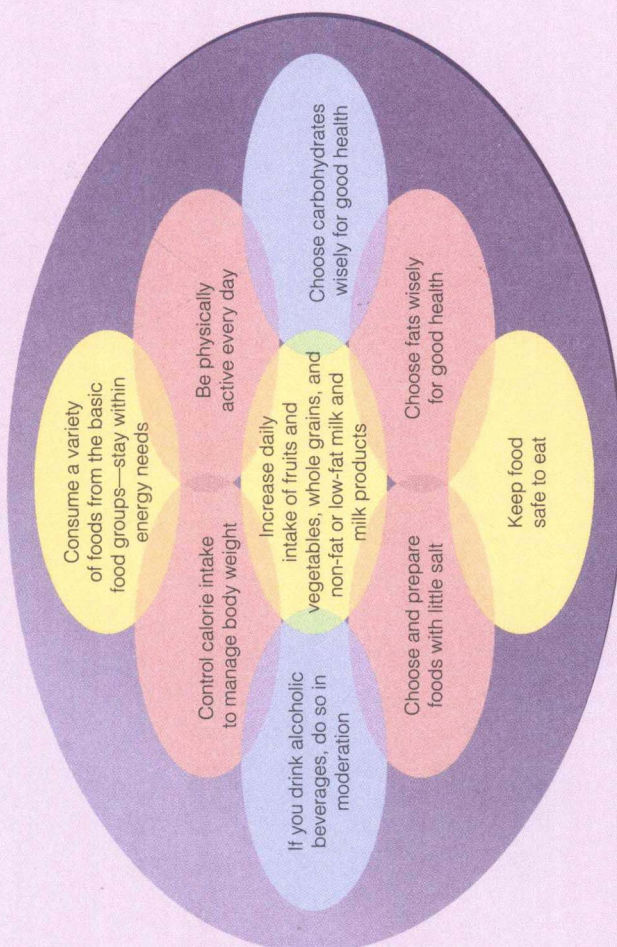
## GUIDELINES FOR A HEALTHY DIET

I PLAN TO

I DID IT

- |                          |                          |  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Base your diet on a large variety of foods.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Consume ample amounts of green, yellow, and orange fruits and vegetables.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Eat foods high in complex carbohydrates, including at least three 1-ounce servings of whole-grain foods per day. |
| <input type="checkbox"/> | <input type="checkbox"/> | Obtain most of your vitamins and minerals from food sources.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Eat foods rich in vitamin D.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Maintain adequate daily calcium intake and consider a bone supplement with vitamin D <sub>3</sub> .              |
| <input type="checkbox"/> | <input type="checkbox"/> | Consume protein in moderation.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Limit daily fat, trans fat, and saturated fat intake.  |
| <input type="checkbox"/> | <input type="checkbox"/> | Limit cholesterol consumption to less than 300 mg per day.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Limit sodium intake to 2,400 mg per day.   |
| <input type="checkbox"/> | <input type="checkbox"/> | Limit sugar intake.  |
| <input type="checkbox"/> | <input type="checkbox"/> | If you drink alcohol, do so in moderation (one daily drink for women and two for men).                           |

Continued on back



**Nutrition** Science that studies the relationship of foods to optimal health and performance.

**Nutrients** Substances found in food that provide energy, regulate metabolism, and help with growth and repair of body tissues.

**Glycemic index (GI)** A measure that is used to rate the plasma glucose response of carbohydrate-containing foods with the response produced by the same amount of carbohydrate from a standard source, usually glucose or white bread.

**Glycemic load** A numeric value calculated by multiplying the GI of a particular food by its carbohydrate content in grams and dividing by 100. The usefulness of the glycemic load is based on the theory that a high-glycemic-index food eaten in small quantities provides a similar effect in blood sugar rise as a consumption of a larger quantity of a low-glycemic food.

**Trans fatty acid** Solidified fat formed by adding hydrogen to monounsaturated and polyunsaturated fats to increase shelf life.

**Omega-3 fatty acids** Polyunsaturated fatty acids found primarily in cold-water seafood, flaxseed, and flaxseed oil; thought to lower blood cholesterol and triglycerides.

**Vitamins** Organic nutrients essential for normal metabolism, growth, and development of the body.

**Minerals** Inorganic nutrients essential for normal body functions; found in the body and in food.

**Dietary Reference Intakes (DRI)** A general term that describes four types of nutrient standards that establish adequate amounts and maximum safe nutrient intakes in the diet: Estimated Average Requirements (EAR), Recommended Dietary Allowances (RDA), Adequate Intakes (AI), and Tolerable Upper Intake Levels (UL).

**Estimated Average Requirement (EAR)** The amount of a nutrient that meets the dietary needs of half the people.

**Recommended Dietary Allowance (RDA)** The daily amount of a nutrient (statistically determined from the EARs) that is considered adequate to meet the known nutrient needs of almost 98 percent of all healthy people in the United States.

**Adequate Intake (AI)** The recommended amount of a nutrient intake when sufficient evidence is not available to calculate the EAR and subsequent RDA.

**Upper Intake Level (UL)** The highest level of nutrient intake that seems safe for most healthy people, beyond which exists an increased risk of adverse effects.

**Daily Values (DVs)** Reference values for nutrients and food components used in food labels

**Phytonutrients** Compounds thought to prevent and fight cancer; found in large quantities in fruits and vegetables.

Continued on back



- ☐ ☐ Consider taking a daily multivitamin (preferably one that includes vitamin D<sub>3</sub>).

### TRY IT

Carefully analyze the above guidelines and note the areas where you can improve your diet.

Work on one guideline each week until you are able to adhere to all of the above guidelines.

- ☐ ☐ 7. Load your plate with vegetables and unrefined starchy foods. A small portion of meat or cheese is all you need for protein.
- ☐ ☐ 8. When choosing breads and cereals, choose the whole-grain varieties.

#### To select nutritious fast foods:

- ☐ ☐ 9. Choose the broiled sandwich with lettuce, tomatoes, and other goodies—and hold the mayo—rather than the fish or chicken patties coated with bread-crumbs and cooked in fat.
- ☐ ☐ 10. Select a salad—and use more plain vegetables than those mixed with oily or mayonnaise-based dressings.
- ☐ ☐ 11. Order chili with more beans than meat. Choose a soft bean burrito over tacos with fried shells.
- ☐ ☐ 12. Drink low-fat milk rather than a cola beverage.

#### When choosing from a vending machine:

- ☐ ☐ 13. Choose cracker sandwiches over chips and pork rinds (virtually pure fat). Choose peanuts, pretzels, and popcorn over cookies and candy.
- ☐ ☐ 14. Choose milk and juices over cola beverages.

### TRY IT

Based on what you have learned, list strategies you can use to increase food variety, enhance the nutritive value of your diet, and decrease fat and caloric content in your meals.

**Supplements** Tablets, pills, capsules, liquids, or powders that contain vitamins, minerals, antioxidants, amino acids, herbs, or fiber that individuals take to increase their intake of these nutrients.

**Antioxidants** Compounds such as vitamins C and E, beta-carotene, and selenium that prevent oxygen from combining with other substances in the body to form harmful compounds.

**Registered dietitian (RD)** A person with a college degree in dietetics who meets all certification and continuing education requirements of the American Dietetic Association or Dietitians of Canada.



## DISEASE RISK ACCORDING TO BODY MASS INDEX (BMI)

BMI	Disease Risk	Classification
<18.5	Increased	Underweight
18.5–21.99	Low	Acceptable
22.0–24.99	Very Low	Acceptable
25.0–29.99	Increased	Overweight
30.0–34.99	High	Obesity I
35.0–39.99	Very High	Obesity II
≥40.00	Extremely High	Obesity III

*Continued on back*

**Body composition** The fat and non-fat components of the human body; important in assessing recommended body weight.

**Percent body fat** Proportional amount of fat in the body based on the person's total weight; includes both essential fat and storage fat; also termed fat mass.

**Lean body mass** Body weight without body fat.

**Essential fat** Minimal amount of body fat needed for normal physiological functions; constitutes about 3 percent of total weight in men and 12 percent in women.

**Storage fat** Body fat in excess of essential fat; stored in adipose tissue.

**Dual energy X-ray absorptiometry (DXA)** Method to assess body composition that uses very low-dose beams of X-ray energy to measure total body fat mass, fat distribution pattern, and bone density.

**Hydrostatic weighing** Underwater technique to assess body composition; considered the most accurate of the body composition assessment techniques.

**Skinfold thickness** Technique to assess body composition by measuring a double thickness of skin at specific body sites.

**Body mass index (BMI)** Technique to determine thinness and excessive fatness that incorporates height and weight to estimate critical fat values at which the risk for disease increases.

**Android obesity** Obesity pattern seen in individuals who tend to store fat in the trunk or abdominal area.

**Gynoid obesity** Obesity pattern seen in people who store fat primarily around the hips and thighs.

**Waist circumference (WC)** A waist girth measurement to assess potential risk for disease based on intra-abdominal fat content.

## TIPS FOR LIFETIME WEIGHT MANAGEMENT

Maintenance of recommended body composition is one of the most significant health issues of the 21st century. If you are committed to lifetime weight management, the following strategies will help:

- |   |   |
|---|---|
| <input type="checkbox"/> I PLAN TO<br><input type="checkbox"/> I DID IT | <input type="checkbox"/> Accumulate 60 to 90 minutes of physical activity daily.<br><input type="checkbox"/> Exercise at a vigorous aerobic pace for a minimum of 20 minutes three times per week.<br><input type="checkbox"/> Strength train two to three times per week.<br><input type="checkbox"/> Use common sense and moderation in your daily diet.<br><input type="checkbox"/> Manage daily caloric intake by keeping in mind long-term benefits (recommended body weight) instead of instant gratification (overeating).<br><input type="checkbox"/> "Junior-size" instead of "super-size."<br><input type="checkbox"/> Regularly monitor body weight, body composition, body mass index, and waist circumference. |
|---|---|

## PHYSICAL ACTIVITY GUIDELINES FOR WEIGHT MANAGEMENT

The following physical activity guidelines are recommended to effectively manage body weight:

- |   |  |
|---|--|
| <input type="checkbox"/> I PLAN TO<br><input type="checkbox"/> I DID IT | <input type="checkbox"/> 30 minutes of physical activity on most days of the week if you do not have difficulty maintaining body weight (more minutes and/or higher intensity if you choose to reach a high level of physical fitness).<br><input type="checkbox"/> 60 minutes of daily activity if you want to prevent weight gain.<br><input type="checkbox"/> Between 60 and 90 minutes each day if you are trying to lose weight or attempting to keep weight off following extensive weight loss (30 pounds of weight loss or more).<br>Be sure to include some high-intensity/low-impact activities at least twice a week in your program. |
|---|--|