

American Dietetic Association Complete Food and Nutrition Guide

3RD EDITION

Roberta Larson Duyff
MS, RD, FADA, CFCS



John Wiley & Sons, Inc.

Praise for the
*American Dietetic Association Complete
Food and Nutrition Guide*

“ . . . jam-packed with practical eating and food safety tips.”

—USA Today

“This book will appeal to those who want to know a little bit about everything in nutrition but don’t have a science background.”

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“ . . . this nutrition bible is a good bet. This reputable resource separates fads from facts and answers questions from apples to zucchini, allergies to vegetarian diets.”

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“[A] remarkable reference.”

—Graham Kerr, author, culinary expert, TV personality

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Shape magazine

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—Tufts University Health & Nutrition Letter

“ . . . brings healthy eating and the family table together.”

—Chef Art Smith, author, Back to the Table: Reunion of Food and Family

“ . . . tackles most of the nutritional issues that concern Americans today . . . up-to-date and helpful.”

—Seattle Times

“ . . . in short, it’s a winner!”

—Washington Post

“It’s always refreshing to find a nutritionist interested in good taste!”

—Julia Child, author, culinary expert, TV personality

“A wealth of practical information [to] refer to time and time again.”

—Journal of Nutrition Education

“Excellent and thorough. . . . Includes solid, science-based content on many nutrition topics, up-to-date eating guidance, and ways to evaluate current nutrition research.”

—Johanna Dwyer, DSc, RD, professor, School of Nutrition and Medicine, Tufts University, and Director of Frances Stern Nutrition Center

“ . . . covers everything from deciphering food labels to maintaining a family-friendly kitchen to changing dietary needs as we age.”

—Cynthia Todd, St. Louis Post Dispatch

“ . . . solid all-around guide to nutrition that’s fun just to pick up and peruse . . . clear, straight-forward language . . . sure to become dog-eared over time.”

—Environmental Nutrition

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About the ADA

The American Dietetic Association is the largest group of food and nutrition professionals in the world. As the advocate of the profession, the ADA serves the public by promoting optimal nutrition, health, and well-being.

For more information . . .

Visit the ADA's Web site at <http://www.eatright.org>. The American Dietetic Association's Web site offers nutrition information for consumers and health professionals, and the Find a Dietitian feature to locate a dietetics professional in your area. The ADA's Consumer Nutrition Information line, at (800) 366-1655, also provides referrals to local registered dietitians as well as recorded nutrition messages in English and Spanish.

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Foreword

Food, nutrition, and physical fitness are the foundation of a healthy lifestyle in today's society. We eat to grow and develop, sustain life, and nourish our bodies, as well as to enjoy food and dining, share meals, and celebrate events. More and more, we equate certain foods and diet patterns with nutritional well-being and realize the complexities of choosing foods wisely. At the same time, however, new information is exploding on the quantity and quality of foods and nutrients needed for optimal health. Some findings may be confusing when one study seems to refute another or one food or nutrient is taken out of context of the total diet. What consumers need is a reliable source based on the best-available scientific evidence. The third edition of the *American Dietetic Association Complete Food and Nutrition Guide* is that source. Updated to reflect new research studies and government recommendations, including the 2005 Dietary Guidelines for Americans and the Dietary Reference Intakes, this comprehensive guide is the foundation of nutrition and physical activity advice for every age and stage of life.

One of the major contributions of this book is its wide and comprehensive scope. Beginning with a framework of food choices and solutions for healthful eating, this guide tackles topics important to

today's consumers, including nutrition and fitness standards, the essentials of weight maintenance, being supermarket savvy, eating away from home, diets for chronic disease prevention, food allergies, dietary supplements, and kitchen safety. This guide also examines terms you may have heard, but need to know more about—terms like “discretionary calories,” “energy density,” “*trans* fatty acids,” and “functional foods.” As a practical resource, this guide includes fact-filled sidebars, tables, and questionnaires that promote a healthy lifestyle. Recipes, food tips, nutrient charts, and self-help questions keep you informed and motivated. Features like “Your Nutrition Checkup” and “Label Lingo” give this guide a consistent and easy-to-access format. It is a resource that can be consulted again and again.

Scientific evidence will continue to accumulate substantiating the link between diet and a range of chronic diseases, and the *American Dietetic Association Complete Food and Nutrition Guide* will keep you well informed with its extensive list of organizations, Web sites, and resources. Please use and savor this guide for your own health and for those in your care.

Judith A. Gilbride, PhD, RD, FADA
President, American Dietetic Association

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To your health!

Roberta L. Duyff, MS, RD, FADA, CFCS
Author/Food and Nutrition Consultant
Duyff Associates, St. Louis, Mo.

About the Author . . . An award-winning author, national speaker, media writer, and food industry/government consultant, Roberta L. Duyff, MS, RD, FADA, CFCS, promotes the "power of positive nutrition" to consumers of all ages with practical, science-based, great-tasting ways to eat and stay active for health.

Among her books, Roberta has authored three other titles for ADA, including *365 Days of Healthy Eating from the American Dietetic Association*, as well as *Nutrition and Wellness* (a high school text) and several children's healthy eating books. She was the guiding force behind and contributor to the *American Dietetic Association Cooking Healthy Across America* cookbook as Chair of ADA's Food & Culinary Professionals Dietetic Practice Group. She has been recognized with ADA's prestigious Medallion Award for professional excellence, as an ADA Fellow, and with ADA's First Annual President's Lecture.

Unless otherwise noted, the nutrient and calorie data in this book were derived from the U.S. Department of Agriculture, Agricultural Research Service, 2005. *USDA National Nutrient Database for Standard Reference*, Release 18.

Introduction

The *American Dietetic Association Complete Food and Nutrition Guide* has been created for you as a practical, up-to-date resource for healthful eating and active living. From cover to cover, you'll see how smart eating—combined with physical activity—promotes your personal wellness. As important, you'll learn how healthful eating and flavor go hand in hand. And you'll learn how to take steps to customize healthful eating and active living choices—*for you!*

Now in its third edition, this reference for your personal health reflects the most updated, science-based advice for the American public. That includes the 2005 *Dietary Guidelines for Americans*, the fully updated Dietary Reference Intakes, and MyPyramid.

To offer *solutions* for your everyday eating dilemmas, this book is filled with practical advice—whatever your lifestyle or needs. From weight control to heart-healthy eating . . . supermarket shopping to eating out . . . food safety to kitchen nutrition . . . vegetarian eating to sports nutrition, handling food sensitivities, or other food-related health issues, you'll find many tips for ease, convenience, and good taste. Look for today's "hot" food issues, too: healthy weight, phytonutrients, foods with more benefits than from nutrients alone, dietary supplements, and food biotechnology, among others.

As your complete resource on nutrition, you can refer to this book again and again at every age and stage of your life—from choosing the healthiest baby food or feeding a child or teen, to dealing with the unique nutrition needs in a woman's life or the challenges of aging. It's also filled with advice for preventing, slowing, or dealing with heart disease, cancer, diabetes, and other common food-related health problems. This book is meant for you, and for all those you care about . . . perhaps a child, spouse, companion, aging parent, or friend.

For your personal nutrition "checkup," you'll find opportunities to assess your own everyday food choices. Start in chapter 1 with "Looking for 'Healthy Solutions'?" to identify your personal eating challenges. For more information, each question refers you to in-depth answers throughout the book. In fact, in almost every chapter, "Your Nutrition Checkup" gives you a close-up look at your own food decisions.

Whenever nutrition makes the news (print, television, radio, or online), this book can help you judge the headlines and separate sound fact from fad. Its food and nutrition advice comes from the American Dietetic Association, the authority the United States turns to for food and nutrition advice, with more than ninety years of nutrition expertise and research.

With questions posed to nutrition experts—in part through the American Dietetic Association’s Knowledge Center—thousands of consumers have helped shape the focus and content of the *American Dietetic Association Complete Food and Nutrition Guide*. We hope the answers to their food and nutrition questions will also answer many of yours. And we hope you’ll

find practical, positive ways to take simple steps to your own and your family’s good health!

Read, enjoy, be active, and eat healthy . . . for life!

Roberta Larson Duyff, MS, RD, FADA, CFCS
Author



PART I

Eat Smart, Live Well
It's about You!



Food Choices: A Fit You!

Your life is filled with choices! Every day you make thousands of choices, many related to food. Some seem trivial. Others are important. A few may even set the course of your life. But as insignificant as a single choice may seem, made over and over, it can have a major impact on your health—and your life!

This book is about choices—those you, your family, and your friends make every day about food, nutrition, and health. Within its pages, you'll find reliable nutrition information and sound advice, based on scientific evidence. It offers you practical ways to make healthful food choices in almost any situation and at every phase of life. And it encourages you to enjoy the pleasures of food. After all, taste is the number one reason most people choose one food over another.

Most important, the practical tips and flexible guidelines on its pages help you choose nutritious, flavorful foods to match your own needs, preferences, and lifestyle—even as your life and family situation change. Eating for health is one of the wisest decisions you'll ever make!

Fitness: Your Overall Health!

What does being fit mean to you? Perhaps being free of disease and other health problems? Or having plenty of energy, a trim or muscular body, or the ability to finish a 10K run or fitness walk? Actually, “fitness” is far broader and more personal. It refers to your

own *optimal health and overall well-being*. Fitness, or wellness, is your good health—at its very best.

Being fit defines every aspect of your health—not only your physical health but also your emotional and mental well-being. In fact, they're interconnected. Smart eating and active living are fundamental to all three. When you're fit, you have:

- Energy to do what's important to you and to be more productive
- Stamina and a positive outlook to handle the mental challenges and emotional ups and downs of everyday life, and to deal with stress
- Reduced risk for many health problems, including serious, often life-changing diseases, such as heart disease, cancer, diabetes, and osteoporosis
- The chance to look and feel your best
- Physical strength and endurance to protect yourself in case of an emergency
- A better chance for a higher quality of life, and perhaps a longer one, too

Fit Is Ageless

Fitness at every age and stage in life depends on healthful eating and active living. The sooner you make them your priorities, the better your health.

That, too, is what this book is all about—how to eat for health and stay physically active throughout the cycle of life, and enjoy great-tasting food along the way!

Good nutrition and regular physical activity are two lifestyle habits that promote fitness. But they are certainly not the only ones. To stay fit, make other lifestyle choices for good health, too: get adequate sleep, avoid smoking, manage stress, drink alcoholic beverages only in moderation (if you drink), wear your seat belt, observe good hygiene, get regular medical checkups, obtain adequate health care—to name a few.

Smart Eating: Fuel for Fitness

What does it take to be and to stay fit? You don't need special or costly foods, or fancy exercise equipment or a health club membership. You don't need to give up your favorite foods, or set up a tedious system of eating rules or calorie counting. And you don't need to hit a specific weight on the bathroom scale.

You've heard the term "nutrition" all your life. The food-fitness connection is what it's all about. In a



Your Nutrition Checkup

Ready for Healthier Eating?

Where do you fit on this "healthy eating" readiness test? Check one.

- "My food choices are okay as they are."* Okay, but read on to find out why you might consider taking a few steps in the future to eat for better health (and perhaps move more, too).
- "I'll change my eating habits sometime, but I can't make myself do it now."* Good initial thought. Check here for sensible, realistic ways to eat smarter (and move more)—but *now* rather than later. The sooner you start, the greater the benefits.
- "I'm ready to eat smarter, starting now."* Good. Look through these chapters for small steps to healthful eating that you can take. As you achieve them, try a few more. Be active, too.
- "I'm already a 'healthy eater.'"* Great, keep it up! Flip through the book for more practical ways to eat smart. In fact, get adventuresome with your eating. And take time for active living.
- "Healthy eating and active living are second nature to me."* Excellent! Share the practical advice here and your own success with someone else!



**Make Healthy Choices That Fit Your Lifestyle
So You Can Do The Things You Want To Do.**

	BE REALISTIC Make small changes over time in what you eat and the level of activity you do. After all, small steps work better than giant leaps.
	BE ADVENTUROUS Expand your tastes to enjoy a variety of foods.
	BE FLEXIBLE Go ahead and balance what you eat and the physical activity you do over several days. No need to worry about just one meal or one day.
	BE SENSIBLE Enjoy all foods, just don't overdo it.
	BE ACTIVE Walk the dog, don't just watch the dog walk.

Source: The Dietary Guidelines Alliance, 2006; © Cattlemen's Beef Board and National Cattlemen's Beef Association.

nutshell, nutrition is how food nourishes your body. And being well nourished depends on getting enough of the nutrients your body needs—but not too much—and on keeping your weight within a healthy range.

At every stage in life, healthful eating fuels fitness. Well-nourished infants, children, and teens grow, develop, and learn better. Good nutrition helps ensure a healthy pregnancy and successful breast-feeding. Healthful eating and active living help people at any age feel their best, work productively, lower their risks for some diseases—and may even slow aging!

Today, our understanding of nutrition is based on years of scientific study. Interest in food and health actually has a long history and was even recorded by the ancient Greeks. But it wasn't until the nineteenth century that the mysteries of nutrition began to be solved. Since then, scientists have answered many nutrition questions. And research continues as they explore emerging questions about food, nutrients, and phytonutrients, and the roles they play in health.

Today we know that healthful eating along with active living are key to your healthy weight. They're essentials for dramatically lowering the risk for the main causes of disability and death in the United States: heart disease, certain cancers, type 2 diabetes, stroke, and osteoporosis. Good nutrition and regular physical activity also can lower risks for obesity, high blood pressure, and high blood cholesterol—all risk factors for serious disease.

Nutrition advice, with the consensus of today's nutrition experts, is supported by solid scientific evidence. So unlike the ancients, you have a valid basis for choosing food for health. It's up to you to apply nutrition principles and advice for your own well-being.

Smart Eating: Pleasure, Too!

Why do you choose one food over another? Besides the nutrition benefits, food is a source of pleasure, adventure, and great taste! It's no surprise that people entertain and celebrate with food, or look forward to a special dish.

Your own food choices reflect you and what's important to you: your culture, your surroundings, the people around you, your view of yourself, the foods available to you, your emotions, and certainly what you know about food and nutrition. To eat for health, you don't need to give up your food favorites. Simply learn how to fit them in. Good nutrition adds pleasure to eating—especially as you eat a greater variety of vegetables, fruits, whole-grain foods, and other nutrient-rich foods.

Throughout this book, you'll get plenty of guidance to do just that! You'll learn more about nutrition and wellness—and how you can eat foods you like, even try new foods, for eating promotes your personal fitness.

Smart Eating, Active Living: Guidelines for Americans

Healthful eating and active living: they're among your best personal investments! While your genes, age, surroundings, lifestyle, health care, and culture strongly influence your health, what *and* how much you eat and

how much you move are key to your fitness equation.

What's the secret? It's no secret at all, just solid advice. In a nutshell, most people need to eat fewer calories, be more active, and make wiser food choices.

The 2005 Dietary Guidelines for Americans reflect up-to-date scientific knowledge and advice for choosing a nutritious diet, maintaining a healthy weight, getting enough physical activity, and keeping food safe to avoid foodborne illness. By following the guidelines, you may reduce risk factors that lead to many chronic diseases.

Developed by the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (USHHS), the Dietary Guidelines present recommendations for all healthy Americans ages two and over. Updated every five years, these 2005 Dietary Guidelines offer the most current, science-based advice, reflecting what we know now. Will the guidelines be updated again? Certainly, as science answers even more food, nutrition, and health questions. Nutrition is, after all, a dynamic science: we're always learning more.

The Dietary Guidelines are based on strong scientific evidence that relates nutrition to promoting health and to lowering chronic disease risks. And they can help you meet the recommendations of the most recent Dietary Reference Intakes, *discussed later in this chapter*. An important premise: most nutrients should come from food! *For the 2005 Dietary Guidelines' key recommendations for the general population, refer to the Appendices.*

The Dietary Guidelines provide the scientific basis that underlies many nutrition initiatives: for example, for setting nutrition policies; for designing nutrition programs for infants and mothers, school food service providers, those receiving food stamps, older adults, and more; for teaching children about nutrition; and for communicating with consumers like you about sound nutrition and active living.

So, if you're not following the Dietary Guidelines' advice already, why not? And why not start now? Let's explore the nine key areas of advice from the 2005 Dietary Guidelines—and consider what they mean for your food and lifestyle choices! *You'll find the Dietary Guidelines' basics in this chapter, with much more about them throughout the book.*

Enough, but Not Too Much!

Adequate Nutrients within Calorie Needs

It's common knowledge: many Americans fall short on their nutrition report card!

Many consume more calories than they need—and too much saturated fat, *trans* fats, cholesterol, added sugars, and salt. On the flip side, both kids and adults often shortchange themselves on calcium, potassium, fiber, magnesium, and vitamin E. Many adults don't consume enough vitamins A (as carotenoids) and C, either. And others, too little vitamin B₁₂, folate, vitamin D, and iron.

To improve one's nutrient profile, the Dietary Guidelines advise: (1) eat a variety of nutrient-dense foods and beverages within and among the food groups (including more dark-green vegetables, orange vegetables, legumes, fruits, whole grains, and low-fat milk and milk products) and (2) limit foods with saturated fat, *trans* fats, cholesterol, added sugars, salt, and alcohol. Two tools can help you do that: MyPyramid from USDA and the Dietary Approaches to Stop Hypertension (DASH) eating plan. Both focus on what to eat—and how much.

Why variety? Different food groups—and the nutrients and other substances their foods provide—help keep you healthy in different ways. No one nutrient, food, or food group has all you need, and none works alone. Health benefits come when your overall eating plan is varied and healthful, without excessive calories.

Go Online

Track Your Food Choices, Make Your "Eat Smart" Plan!

Want a snapshot view of what you eat and how much you move for a day, several days, or even weeks? Judge your meals and snacks and your physical activity online—and see how they match advice from the 2005 Dietary Guidelines. MyPyramid Tracker, an interactive tool available online at USDA's www.MyPyramid.gov, helps you assess your food choices and physical activity level. It also helps you see how well you balance the energy (calories) you consume with how much you use in physical activity.

Healthful eating is about balance, too: balancing the calories you take in with the calories you use. Get the most nutrition from your calories. Choose nutrient-dense foods (foods with substantial amounts of nutrients, yet relatively few calories). And keep calories under control as you follow nutrient and food group advice.

For more about vitamins, minerals, and phytonutrients, refer to chapter 4, with specific nutrient information for infants, children, and teens in chapters 15 and 16, and women and older adults in chapters 17 and 18. Explore MyPyramid in chapter 10 and the DASH eating plan in chapter 22.

"Weight" for Health

Weight Management

Despite known risks, overweight and obesity have become national and global epidemics, and not just for adults. Overweight among children and teens has risen dramatically within the past two decades. Key reasons? In the United States, typical eating and lifestyle patterns provide more calories (energy) than many people need: too many consumed, too few burned in physical activity.

That said, some people don't need to lose weight. Instead they need to strive to keep their healthy weight over the years or gain some if they're underweight.

Are you at your healthy weight? Appearance or fitting into a clothes size are commonly cited reasons to maintain a healthy weight. Yet, even a few pounds of excess weight may be riskier than you think. Research shows that too much body fat increases risks for high blood pressure and unhealthy blood lipid (fats) levels as well as type 2 diabetes, heart disease, stroke, gall bladder disease, breathing problems, gout, osteoarthritis, and certain cancers. Did you know that excess body weight is linked to premature death, too?

No matter what your age, pay attention to your weight. Two measures can help you judge your body fat: body mass index (BMI) and waist size. Abdominal fat has more potential health risk than body fat in other spots. (Strenuous workouts build muscle; extra weight from muscle isn't a problem.) What's your "measure" of fitness? *Check chapter 2 to learn how to find out.*

As an adult, set your goal on achieving or keeping

a weight that's healthy for you. Your calorie needs decrease gradually over time. To combat “weight creep” over time, slowly cut back on your food and beverage calories and move more. If you are overweight and need to drop a few pounds, aim for slow, steady weight loss. Cut your calories, but keep your nutrient intake adequate—and move! And if you have a health problem or take medication, check with your healthcare provider before starting.

The chance of becoming overweight or obese as adults declines when children and teens keep their healthy weight as they grow. The advice for kids who are mild to moderately overweight: help them slow or prevent continued weight gain so they can grow and develop normally. More active play, fewer sit-down activities (TV, video and computer games), and healthful eating are their best strategies.

At any age, a healthy weight is key to a long, healthy, and productive life. The smart way to a healthy weight range is all about balance: calories from food and drinks balanced with calories used. To eat fewer calories, go easy on added sugars, fats, and alcoholic drinks, and choose sensible portions. Keep physically active, too.

For more about weight management, refer to chapter 2. For specific Dietary Guidelines' advice on healthy weight for children, pregnant and breast-feeding women, and those with chronic disease, check chapters 16, 17, and 22.

Move It!

Physical Activity

Wellness takes more than healthful eating! Regular physical activity promotes health, a sense of well-being, and healthy weight. Yet most Americans don't get enough.

For adults, at least 30 minutes of moderately intense physical activity on most days reduces chronic disease risks. If you move longer or with more vigor, you get even more benefits. Sixty minutes of moderate to vigorous activity on most days helps prevent gradual, unhealthy weight gain that may come with adulthood. Need to lose weight during your adult years? You may need 60 to 90 minutes of moderate activity daily. Children and teens need at least 60 minutes on most, if not all, days of the week. *Refer to “Moderate Activity: What Is It?” in this chapter.*

Get active . . . stay active . . . become more active. Spread out your activity, or do it all at once; either way you get benefits. If you have been inactive, start gradually. Work up to longer, more intense activities.

For overall fitness, fit in a variety of activities:

- *For flexibility*, try stretching, yoga, and dancing.
- *For strength*, try weight-bearing activities (walking, tennis) for bone strength, and resistance exercise, such as carrying groceries or weight lifting, to build muscles.
- *For cardiovascular fitness*, try aerobic activities (running, distance biking) that increase your heart rate and breathing.

Unless you have a health problem, you probably can start moving more now! Talk to your healthcare provider first if you have an ongoing health problem—including heart disease, high blood pressure, diabetes, osteoporosis, arthritis, or obesity—or if you're at high risk for heart disease. Men over age forty and women over age fifty need to check with their doctor, too, if they plan vigorous physical activity, have risk factors for chronic disease, or have health problems. *For Dietary Guidelines' advice on physical activity for pregnant and breast-feeding women and for older adults, refer to chapters 17 and 18.*

Fruits, Veggies, Whole Grains, Milk—Priorities!

Food Groups to Encourage

Eating a variety of nutrient-packed foods every day is basic to good nutrition and health! Today we know

Have You Ever Wondered?

. . . *if your exercise level is of moderate intensity?* Take the “talk-sing” test to find out. If you can talk comfortably as you move, that's moderate activity. If you're too breathless to talk, that activity may be vigorous. If your goal is moderate activity, you might need to slow down. (Remember: Vigorous activity has added benefits.) And if you can sing, that's light-intensity activity; step up your pace! *For another way to target your workout intensity, refer to “Your Physical Activity: How Intense?” in chapter 19.*

MODERATE ACTIVITY: WHAT IS IT?

If some activities use more energy than others, you may wonder . . . just what does “moderate physical activity” really mean? It equates to the energy you need to walk 2 miles in 30 minutes.

Moderate physical activity uses about 3½ to 7 calories a minute, 150 calories a day, or about 1,000 calories a week. For that amount of energy expenditure, you might spend more time on less vigorous activities, such as brisk walking, or spend less time on more vigorous activities, such as running.

COMMON CHORES	DURATION	Less Vigorous, More Time* ↑ ↓ More Vigorous, Less Time	SPORTING ACTIVITIES	DURATION
Washing and waxing a car	45–60 min.			Playing volleyball
Washing windows or floors	15–60 min.		Playing touch football	30–45 min.
Gardening	30–45 min.		Walking 1¾ miles (20 min./mile)	35 min
Wheeling self in wheelchair	30–40 min.		Basketball (shooting baskets)	30 min.
Pushing a stroller 1½ miles	30 min.		Bicycling 5 miles	30 min.
Raking leaves	30 min.		Dancing fast (social)	30 min.
Walking 2 miles (15 min./mile)	30 min.		Water aerobics	30 min.
Shoveling snow	15 min.		Swimming laps	20 min.
Stairwalking	15 min.		Basketball (playing a game)	15–20 min.
			Jumping rope	15 min.
			Running 1½ miles (15 min./mile)	15–20 min.

* Some activities can be performed at various intensities. The suggested durations correspond to the expected intensity of effort.

Source: *Practical Guide to the Identification, Evaluation and Treatment of Overweight and Obesity in Adults*, National Institutes of Health, 2001.

much more about health-promoting nutrients found in these nourishing foods.

That means making fruits, vegetables, whole grains, and fat-free and low-fat milk and milk products a personal priority. Eat more of these nutrient-rich foods while you keep your calories under control—and your chances of developing chronic diseases, such as heart disease, stroke, type 2 diabetes, some cancers, and osteoporosis, likely will go down.

Fruits and vegetables . . . Despite their health benefits, many people don't consume enough. Yet, whether they're fresh, frozen, canned, or dried, fruits and vegetables are the major sources of several vitamins and minerals, including vitamins A (as carotenoids) and C, folate, and potassium. And they deliver fiber and other phytonutrients with potential health-promoting qualities.

Exercise Your Options

For more about the benefits of physical activity—and ways to be more physically active—check here:

- *For most healthy people, including those managing their body weight* . . . “Get Physical!” in chapter 2.
- *For children* . . . “Get Up and Move!” in chapter 16.
- *For teens* . . . “Move Your ‘Bod’” in chapter 16.
- *For older adults* . . . “Never Too Late for Exercise” in chapter 18.
- *For travelers* . . . “When You're on the Road” in chapter 19.
- *For athletes* . . . “Athlete's Guide: Winning Nutrition” in chapter 19.

Ten Reasons to Make the “Right Moves”

Whether you're involved in sports or simply live an active lifestyle, physical activity pays big dividends. Physical activity is the “right move” for fitness—for almost everyone, not just for athletes. Consider just a few reasons why:

1. *Trimmer body.* If you're physically active, you'll have an easier time maintaining a healthy weight, or losing weight and keeping it off if you're overweight. *For more about physical activity for weight management, refer to chapter 2, “Your Healthy Weight.”*

2. *Less risk for health problems.* An active lifestyle—or a sports regimen—can help protect you from many ongoing health problems.

Studies show that regular physical activity helps lower risk factors. For example, physical activity lowers total and LDL (“bad”) cholesterol and triglyceride levels while boosting the HDL (“good”) cholesterol level, controls blood pressure, and improves blood sugar levels. Your risks for heart disease, high blood pressure, type 2 diabetes, and certain cancers go down when you fit physical activity into your daily life.

Active living may also reduce or eliminate the need for medication to lower blood lipids, lower blood pressure, or manage diabetes.

3. *Stronger bones.* Regular, weight-bearing activities—such as walking, running, weight lifting, and cross-country skiing—help make your bones stronger. Even in adulthood, weight-bearing exercise helps maintain your bone strength and reduce your chance of fractures and osteoporosis.

4. *Stronger muscles.* Strength-training activities, such as lifting weights, at least two times a week, keep your body strong for sports and everyday living. When you're strong, it's easier to move, carry, and lift things. When you exercise your muscles, you also give your heart a workout. It's a muscle, too. A strong heart pumps blood and nutrients more easily through your 60,000 miles of blood vessels.

5. *More endurance.* You won't tire as easily when you're physically active. And you may have more stamina during the rest of the day, too.

6. *Better mental outlook.* Active people describe feelings of psychological well-being and self-esteem when they make active living a habit. It's a great way to reinforce that “can do” attitude and positive outlook.

7. *Stress relief and better sleep.* Research shows that physical activity helps your body relax and release emotional tension. That promotes longer, better-quality sleep, and you may fall asleep faster.

8. *Better coordination and flexibility.* Your body moves with greater ease and range of motion when you stay physically active.

9. *Injury protection.* When you're in shape, you more easily can catch yourself if you slip or trip . . . and can move away from impending danger more quickly.

10. *Feel younger longer.* Research suggests that physical activity slows some effects of aging. Active people have more strength and mobility, and fewer limitations.

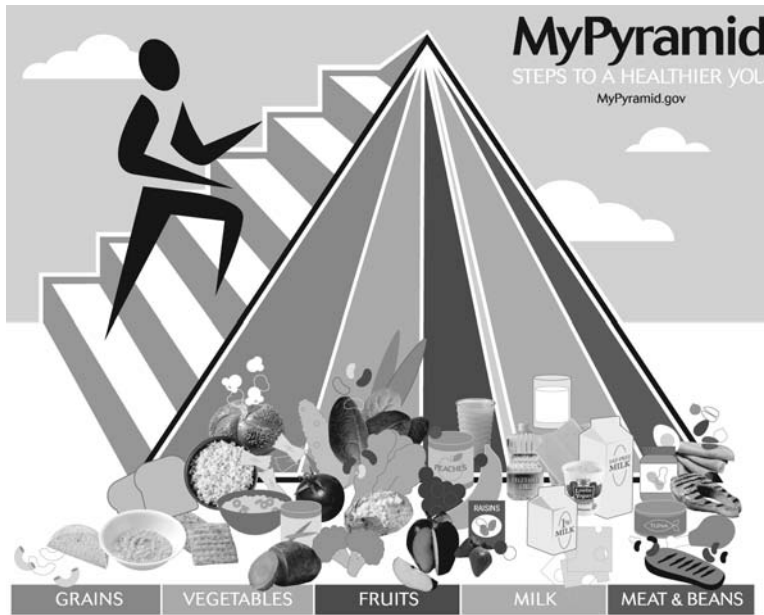
The nutritional content of fruits and veggies differs, so vary your choices. Choose dark-green, orange, starchy vegetables, legumes (dry beans), and other vegetables several times weekly. How much? If you need 2,000 calories a day, the advice is 2 cups of fruit and 2½ cups of vegetables daily. Adjust the amount slightly if you need more or fewer calories. *Check the Appendices for the right amount for you.*

Whole grains . . . While most people eat enough grain products overall, few consume enough whole grains. The Dietary Guidelines now advise: make at least half your grains whole. What are whole grains?

They're foods made from the entire grain kernel, which includes the fiber-rich bran and germ, and the endosperm. Refined grains contain mostly the endosperm.

Why emphasize whole grains? They're important sources of fiber (typically underconsumed), other phytonutrients, and some key vitamins and minerals. Eating three or more one-ounce equivalents of whole-grain foods daily may lower your chances for some chronic diseases and may help you manage your weight, too.

If at least half of your grains are whole, what about



Source: www.MyPyramid.gov.

the other half? Make them enriched or whole grain, too. Enriched grain products are fortified with certain B vitamins and iron to replace those lost when grains are refined. They're also fortified with folic acid; whole grains may or may not be. *Refer to chapters 5 and 6 for more about whole-grain foods.*

Dairy foods . . . Calcium-rich dairy foods have many health benefits, including bone health. Yet dairy foods often come up short for children, teens, and even adults. The Dietary Guidelines advise: each day consume 3 cups of fat-free or low-fat milk or the equivalent in other milk products, such as low-fat yogurt or low-fat cheese. If you don't or can't drink milk, try lactose-free milk products and/or calcium-fortified foods and beverages.

For more about all five food groups and how to plan healthful meals and snacks, learn about MyPyramid in chapter 10 and the DASH eating plan in chapter 22. Check chapter 16 for specific advice for children and teens.

Know Your Limits

Fats

Fat is a nutrient, essential for your health—and for children's growth. Besides supplying energy, it contains essential fatty acids and carries some fat-soluble vita-

mins (A, D, E, and K) and carotenoids (phytonutrients) into your bloodstream. Fat helps you stay healthy in other ways, too. Yet, it's well known that too much saturated fat, *trans* fats, and cholesterol are linked to a higher risk for unhealthy levels of blood cholesterol and for heart disease. High-fat diets tend to be high in saturated fats and excess calories.

Although many people consume less total fat, saturated fat, and cholesterol than a decade ago, many Americans still consume too much. For health, eating less than 10 percent of your calories from saturated fat and less than 300 milligrams of cholesterol per day are goals to strive for. Keep *trans* fatty acids as low as possible.

Limit your total fat intake to 20 to 35 percent of your calories (energy). And get most of your fat from foods such as fish, nuts, and vegetable oils, which contain mostly heart-healthy polyunsaturated and monounsaturated fatty acids. *Dietary Guidelines for fat are somewhat different for children and teens; refer to chapter 16.*

On the flip side, an eating pattern that's too low in fats and oils, with less than 20 percent of calories from fat, isn't healthful either. It's likely low in vitamin E and essential fatty acids. When dietary fat levels dip below 20 percent, blood levels of HDL (good) cholesterol and triglycerides often change in an unhealthy way.

Among the fat-savvy guidelines: learn to choose and prepare lean meat, fish, and poultry; low-fat and fat-free foods, such as milk and milk products; and dry beans. You'll learn how in this book. *For more about fat, saturated fat, trans fats, and cholesterol in a healthful eating plan, refer to "Fat Facts," chapter 3.*

Make Your Calories Count!

Carbohydrates

It's true that carbohydrates are important for healthful eating. Two forms of carbohydrates—sugars and starches—are your body's main energy sources. Fiber, a nondigestible carbohydrate, has other health bene-

fits. A high-fiber eating plan can lower your risk for heart disease and help keep your gastrointestinal tract healthy. And a new research area explores the link between fiber and lower risk for type 2 diabetes.

What foods have “carbs”? Fruits, vegetables, grain products, and milk—all nutrient-rich—contain carbohydrates naturally. Fruits and dairy foods, for example, have natural sugars. Grain products, vegetables, and fruits contain starches (complex carbohydrates) that break down into sugars during digestion. In many processed and prepared foods and drinks, sugars are added for flavor and function. To the human body, sugars look and act alike, regardless of their sources.

Yet, it’s important to choose your “carbs” wisely! The Dietary Guidelines advise: choose fiber-rich fruits, vegetables, and whole grains often because they’re nutrient-rich! Enjoy mostly whole fruit, which has more fiber, rather than fruit juice. Fit in legumes (dry beans and peas) several times weekly. And make at least half your grain choices whole.

Added sugars supply calories, but few nutrients. Notes the *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans 2005*: those who consume a lot of added sugars from food or drinks tend to take in more calories and fewer vitamins and minerals. And there’s a likely link between drinking sugary drinks and weight gain. To get enough nutrients and reduce calories, choose and prepare foods and beverages with little added sugars.

How do you know which foods and drinks have added sugars? Check the ingredient list on food labels. Be aware, Nutrition Facts list only amounts of total carbohydrates and total sugars, not added sugars. *Chapter 11 gives label reading tips.*

What about tooth decay? Both sugars and starches contribute to decay. For a healthy smile, brush and floss regularly and consume foods and drinks with sugars or starches less frequently. Drinking fluoridated water helps prevent decay, too; most bottled water isn’t fluoridated.

For more about “carbs,” refer to chapters 5 and 6.

Check the Nutrition Facts!

Sodium and Potassium

Salt is a combination of two nutrients: sodium and chloride, which help your body regulate fluids and blood

pressure. Sodium itself is naturally present in many foods—and so is potassium. So why have Dietary Guidelines’s advice for sodium and potassium?

Most Americans consume much more sodium than they need. For many people, the higher their salt intake, the higher their blood pressure. High blood pressure, in turn, increases the risk for heart disease, stroke, heart attacks, and kidney disease. During their lifetime, many Americans will develop high blood pressure. That said, a potassium-rich eating pattern helps counteract the effects of sodium on blood pressure.

Advice for most people: consume less than 2,300 mg (approximately 1 teaspoon of salt) of sodium daily. For those with high blood pressure, African Americans, and middle-aged and older adults, try to limit sodium intake to 1,500 milligrams daily, while consuming 4,700 milligrams of potassium from food. This is wise advice for healthy people, too, who may not know if their blood pressure is sodium-sensitive.

What’s the main source of sodium and potassium? Food itself. For sodium, it’s mostly from processed food, not the salt shaker. And for potassium, from many fruits and vegetables.

To lower the risk for high blood pressure or delay its onset if you’re sodium-sensitive, the general advice is to go easy on salt (and sodium) and consume more potassium. Choose and prepare foods with little salt. Use Nutrition Facts on food labels to find foods with less sodium and more potassium. And consume plenty of potassium-rich foods, such as fruits and vegetables. *For more about salt, sodium, and potassium in a healthful eating plan, refer to chapters 4 and 7.*

Go Easy, If at All

Alcoholic Beverages

Do you enjoy an occasional drink? If so, drink alcoholic beverages only in moderation. That means up to one drink a day for women and two for men. A drink is 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof distilled spirits.

On their own, alcoholic beverages offer calories but essentially no nutrients, so they don’t nourish your body. In fact, calories from heavy drinking make it difficult to get enough nutrients without overdoing your calorie budget: a potential weight problem. When calories from alcohol replace those from nutritious

food and beverages, the risk for poor nutrition goes up—especially for heavy drinkers.

Moderate drinking for middle-aged and older adults (not younger adults) may have some health benefits, perhaps lowering the risk for heart disease.

Generally speaking, more than moderate drinking isn't advised. What are the risks? Too much alcohol impairs judgment, which can lead to accidents and injury, and perhaps to dependency and addiction for some. Excessive drinking is linked to serious health problems, including some liver and pancreatic diseases, damage to the heart and the brain, and, during pregnancy, to a greater likelihood of mental retardation, birth defects, and behavioral and psychosocial problems for the baby.

Can moderate drinking be an issue? Perhaps for some. Heavy drinking is linked to higher chances of accidents and injuries, high blood pressure, stroke, certain cancers, violence, and suicide. During pregnancy moderate drinking may increase the risks for behavioral and developmental problems for the child. And as little as one drink a day may slightly increase a woman's risk for breast cancer.

When should you avoid drinking? Whenever you put yourself and others at risk! Don't drink at all . . . *if you can't control your drinking, if you're a child or teen, if you plan to work with equipment that takes attention, skill, or coordination, if you plan to drive or operate machinery, if you're taking medications that may interact with alcohol, if you have certain medical conditions, or if you're pregnant, trying to become pregnant, or breast-feeding.*

For more about alcoholic beverages and advice for consuming them, refer to "Alcoholic Beverages: In Moderation" in chapter 8.

For Your Health's Sake

Food Safety

Healthful eating is about more than *what* you eat; it's also about *how* you keep food safe from harmful bacteria and viruses (the biggest food safety problem), chemicals, and other contaminants. Foodborne illness strikes millions of Americans each year, causing mild to severe, even life-threatening symptoms. The effects may last a few hours or days, or for weeks, months, or years. Young children, pregnant women, older

adults, and those with weakened immune systems or some chronic diseases are especially vulnerable.

Keeping food safe is up to you, not just the responsibility of farmers, food manufacturers, retailers, and restaurant workers. Many cases of foodborne illness could be avoided if consumers handled food carefully: keep food clean; cook it to safe internal temperatures; separate raw, cooked, and ready-to-eat foods; chill perishable foods promptly; and defrost properly.

Refer to chapter 12 for an in-depth look at foodborne illness and how to keep food safe and healthful. You'll also find specific Dietary Guidelines's advice on food safety for infants, young children, pregnant women, older adults, and those with impaired immunity.

Your Food Choices: The Inside Story

While you enjoy the sensual qualities of food—the mouth-watering appearance, aroma, texture, and flavor—your body relies on the life-sustaining functions that nutrients in food perform. Other food substances, including phytonutrients (or plant substances), appear to offer even more health benefits beyond nourishment. What's inside your food?

Nutrients—Classified Information

Your body can't make most nutrients from food, or produce energy, without several key nutrients. You need a varied, adequate supply of nutrients from food for your nourishment—and life itself.

Your food choices are digested, or broken down into nutrients, then absorbed into your bloodstream and carried to every cell of your body. Most of the body's work takes place in cells, and food's nutrients are essential to your body's "do list." More than forty nutrients in food, classified into six groups, have specific and unique functions for nourishment. Their work is linked in partnerships for your good health.

Carbohydrates. As your body's main source of energy, or calories, carbohydrates are starches (complex carbohydrates) and sugars. *Chapter 5, "Carbs: Simply Complex," addresses them.*

Fiber, another form of complex carbohydrate, aids

digestion, promotes health, and offers protection from some diseases. Despite its role in health, fiber isn't a nutrient because it is not digested and absorbed into the body. *See chapter 6, "Fiber: Your Body's Broom."*

Fats. Fats supply energy. They support other functions, too, such as nutrient transport, growth, and being part of many body cells. Fats are made of varying combinations of fatty acids. All fatty acids aren't the same. Some are more saturated (harder at room temperature); others, more unsaturated. Fatty acids that your body can't make are considered "essential." *You'll learn about fat and cholesterol (a fatlike substance) in chapter 3.*

Proteins. Proteins are sequenced combinations of amino acids, which build, repair, and maintain all your body tissues. Your body makes nonessential amino acids; others are considered "essential" from food because your body can't make them. Especially when carbohydrates and fats are in short supply, proteins provide energy. If they're broken down and used for energy, amino acids can't be used to maintain body tissue. *For more about amino acids, refer to chapter 20, "The Vegetarian Way."*

Vitamins. Vitamins work like spark plugs, triggering chemical reactions in body cells. Each vitamin regulates different body processes. Because their roles are so specific, one cannot replace another. *To learn more, refer to chapter 4, "Vitamins, Minerals, Phytonutrients: Variety on Your Plate."*

Minerals. Somewhat like vitamins do, minerals spark body processes. They, too, have unique job descriptions. *Refer to chapter 4.*

Water. Water makes up 45 to 75 percent of your body weight—and it's a nutrient, too. It regulates body processes, helps regulate your body temperature, carries nutrients and other body chemicals to your cells, and carries waste products away. *For more about water, see chapter 8, "Fluids: The Power of Water."*

Nutrients: How Much?

Everyone around you needs the same nutrients—just in different amounts. Why differences? For healthy people, age, gender, and body size are among the reasons. Children and teenagers, for example, need more

Feel Better Today, Stay Healthy for Tomorrow

Here's what the Dietary Guidelines advise. *Tip:* MyPyramid offers easy steps to get there!

- *Make smart choices from every food group . . . in an eating plan that emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products, that includes lean meat, poultry, fish, beans, eggs, and nuts, and that's low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars.*
- *Find your balance between food and physical activity . . . by balancing the calories you take in from food with the calories you spend each day.*
- *Get the most nutrition out of your calories . . . by choosing nutrient-rich foods (foods with more nutrients and fewer calories) from each food group every day. Pick fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products more often.*

Source: Based on 2005 Dietary Guidelines for Americans.

of some nutrients for growth. Pregnancy and breastfeeding increase the need for some nutrients, too, and for food energy. Because their bodies are typically larger, men often need more of most nutrients than women do.

How much of each nutrient do you need? Dietary Reference Intakes (DRIs), established by the Food and Nutrition Board of the Institute of Medicine, National Academy of Sciences, include daily nutrient recommendations for healthy people in the United States and Canada, based on age and gender. The DRIs include four types of recommendations:

- *Recommended Dietary Allowances (RDAs)* are recommended levels of nutrients that meet the needs of almost all healthy individuals in specific age and gender groups. Consider this advice as your goals.
- *Adequate Intakes (AIs)* are similar in meaning to RDAs. They're used as guidelines for some nutrients that don't have enough scientific evidence to set firm RDAs.
- *Tolerable Upper Intake Levels (ULs)* aren't recommended amounts. In fact, there's no scientific

consensus for recommending nutrient levels higher than the RDAs to most healthy people. Instead, ULs represent the maximum intake that probably won't pose risks for health problems for almost all healthy people in a specific age and gender group.

- *Estimated Average Requirement (EAR)* is used to assess groups of people, not individuals.

For carbohydrates, fats, and proteins (all macronutrients), which supply calories (energy), you might also see an *Acceptable Macronutrient Distribution Range (AMDR)*. That range not only reflects what's enough. It's also the amount linked to reduced chronic disease risk. Consuming more than the AMDR may increase the risks for certain chronic diseases and/or for coming up short on essential nutrients.

Groups of experts regularly review the DRIs, using the most current research evidence, and update the dietary recommendations. *A listing of the DRIs appears in the Appendices.*

How do you use the DRIs? For the most part, you don't need to add up the numbers; it takes considerable effort to calculate the nutrients in all your food choices, then make an assessment with DRIs. If you choose to do that, remember, however, that the recommendations—RDAs and AIs—apply to your average nutrient intake over several days, not just one day and certainly not one meal.

More Than Nutrients: Foods' Functional Components

Food contains much more than nutrients! Science is beginning to uncover the benefits of other substances in food: phytonutrients (including fiber), omega fatty acids, conjugated linoleic acid, and pre- and probiotics, to name a few. Described as “functional,” these substances do more than nourish you. They appear to promote your health and protect you from health risks related to many major health problems, including heart disease, some cancers, diabetes, and macular degeneration, among others.

At least for now, no DRIs exist for the functional components in food, except for fiber. And scientists don't yet fully understand their roles in health. However, within this book, you'll get a glimpse of emerg-

ing knowledge about functional substances in food. You're bound to hear more, as new studies about functional substances in food unfold.

Healthful Eating, Active Living: One Step at a Time!

The sooner you invest in your health, the greater the benefit! If you're ready to eat smarter or move more, use these goal-setting steps to invest in your health and the health of your family, one easy step at a time.

Audit your food choices and lifestyle. Start by keeping track of what you eat or drink, along with how much, when, and why; for example, do you snack when you feel stressed or bored? Use a food log to pinpoint eating behaviors you want to change. *Refer to “Dear Diary . . .” in chapter 2 for tips on keeping a food log, or use MyPyramid Tracker described earlier. Take the personal assessments in “Your Nutrition Checkup” throughout the book.*

Set personal goals. Know what you want—perhaps a healthier weight or lower cholesterol levels. And be realistic. Change doesn't mean giving up a food you like. However, smaller portions, different ways of cooking, or being more physically active give you more “wiggle room” to occasionally enjoy foods with more calories.

Make a plan for change. Divide big goals, such as “I will eat better,” into smaller, more specific goals, such as “I will eat more vegetables.” List practical steps to achieve your goals. For example:

Goal: Eat more whole-grain foods.

Steps: Make sandwiches and French toast with whole-grain bread. Switch to brown rice. Eat oatmeal or oat flakes for breakfast. Snack on plain popcorn. Add whole barley to vegetable soups.

Be patient. Make gradual changes. Change for the long run takes time, commitment, and encouragement. Most health goals take a lifelong commitment. Stick with your plan, even if success takes time. Remember that small steps toward reaching a goal add up over time!