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THE ACADEMY OF NUTRITION AND DIETETICS

Complete Food & Nutrition Guide

COMPLETELY UPDATED & REVISED

"The gold standard, go-to guide for reliable, practical nutritional information."

—ELLIE KRIEGER, MS, RD, bestselling author

Roberta L. Duyff, MS, RDN, FAND, CFCS

PRAISE FOR THE

ACADEMY OF NUTRITION AND DIETETICS

Complete Food and Nutrition Guide

"Nutrition is a confusing and ever-changing science. This book is a terrific guide, as Roberta Duyff boils down some of the most complicated issues into clear, concise, and easy-to-digest nuggets. From weight loss to healthy eating to physical activity, this book gives readers a bottom line that's solid, practical, realistic, and evidence-based. It's a trustworthy reference—and it has definitely secured a permanent spot on my bookshelf."
—Joy Bauer, MS, RDN, health and nutritition expert for NBC's *TODAY* show, best-selling author of *From Junk Food to Joy Food,* founder of Nourish Snacks

"Jam-packed with practical eating and food safety tips."
—USA Today

"Of the five books closest to my keyboard, this guide is one of the most frequently used. A dynamite resource!"
—Antonia Allegra, CCP, executive director, Symposium for Professional Food Writers; food, wine, and travel author

"Bottom line, this is the best consumer nutrition book out. It's user-friendly, and it's complete. From a tidbit to a chapter, if it matters in nutrition, Roberta Duyff has included it. This book is worth its weight in gold."
—Keith Ayoob, EdD, RD, Associate Professor of Pediatrics, Albert Einstein College of Medicine

"If you question what to eat, please don't surf the Internet. You'll end up confused and overwhelmed by too much information. Instead, trust this well-indexed resource for valid answers to any and all of your food and nutrition questions from brain health to gut health, infancy to aging, sports nutrition to mindful eating—apples to zucchini!"
—Nancy Clark, MS, RD, CSSD, author, *Nancy Clark's Sports Nutrition Guidebook*

"Sorting out the constantly changing world of nutrition information, diets, and weight loss fads can be tricky, but this book provides all the facts in an easy-to-read format."
—Connie Diekman, MEd, RD, Director of University Nutrition, Washington University

"Brimming with tips from baby food to eating for healthy aging."
—*Shape* magazine

"[The book] may be the ultimate healthy-eating primer. How often can it be said of a book that it may extend your life?"
—*Fitness* magazine

"Duyff really covers nutrition and healthy eating from all angles . . . without overusing the 'd' word [don't]."
—Tufts University Health & Nutrition Letter

"Brings healthy eating and the family table together."
—Art Smith, chef, 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

"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, Director of Frances Stern Nutrition Center

"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

"[An] easy-to-follow, masterful guide covering virtually everything you need to know about eating for optimal health. If you have only one food and nutrition book in your library, make sure that it's this one."
—Sharon Palmer, RDN, editor, *Environmental Nutrition,* author, *Plant-Powered for Life*

"Roberta Duyff has once again done an excellent job of combing through the voluminous nutrition-related scientific research to update this indispensable resource . . . tried and true, belongs on everyone's book shelf."
—Kathleen M. Zelman, MPH, RDN, Director of Nutrition, WebMD

"[It's] no doubt my go-to resource for food and nutrition information I can trust for years to come. Written in straightforward, easy-to-understand language, this evidence-based reference is a must-have for both consumers and professionals."
—Regina Ragone, MS, RDN, Food Director, *Family Circle*

"[An] invaluable resource for navigating through the complex world of food and health . . . important guidance for evaluating current nutrition research, critical given today's scientific and media environment."
—Sylvia Rowe, Chair, Health and Medicine Division (Institute of Medicine) Food Forum, Adjunct Professor, University of Massachusetts Amherst and Tufts Friedman School of Nutrition Science and Policy

ABOUT THE ACADEMY OF NUTRITION AND DIETETICS

The Academy of Nutrition and Dietetics is the world's largest organization of food and nutrition professionals, with more than 75,000 members committed to improving health and advancing the profession of dietetics through research, education, and advocacy.

FOR MORE INFORMATION . . .

Visit the Academy's Web site at www.eatright.org, where you'll find nutrition news, tips, and information. Click on "Find an Expert" to locate a registered dietitian nutritionist (RDN) in your area.

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www.hmhco.com

Unless otherwise noted, the nutrient and calorie data in this book were derived from the U.S. Department of Agriculture, Agricultural Research Service, 2016. USDA Food Composition Databases, USDA National Nutrient Database for Standard Reference, Release 28, ndb.nal.usda.gov/ndb

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ACADEMY OF NUTRITION AND DIETETICS

Complete Food and Nutrition Guide

5th Edition

Roberta Larson Duyff, MS, RDN, FAND, CFCS

HOUGHTON MIFFLIN HARCOURT
BOSTON NEW YORK 2017

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Foreword

For the past 100 years, the Academy of Nutrition and Dietetics has been dedicated to fostering lifelong health through food and nutrition. In 1917, a visionary group of women pioneered our profession as they applied their knowledge and service to the biggest food and nutrition challenge of the day—nourishing the population in the face of severe food shortages in the U.S. and Europe during World War I.

Today, the Academy is the world's largest organization of food and nutrition professionals and represents more than 100,000 registered dietitian nutritionists (RDNs) and nutrition and dietetics technicians, registered (NDTRs) working in hospitals, food service, academia, business, wellness, agriculture, and private practice. As the Academy embarks on our second century, we're about to chart a new vision, with a focus on solving the food and nutrition challenges of the 21st century.

This year, 2017, not only marks our organization's 100th anniversary, but also celebrates this book's fifth edition and over 20 years that this guide has supported our mission of improving the nation's health through research, education, and advocacy. As an award-winning bestseller, we are proud that the *Complete Food and Nutrition Guide* continues to be an accurate and up-to-date food and nutrition resource for so many individuals and families.

With this edition, author Roberta Duyff again presents a wealth of science-based and practical advice in an entertaining and easy-to-read style, and Academy members have also contributed their knowledge and expertise. Once again, this book serves as an indispensable nutrition and healthy eating guide for the public, as well as an important reference for registered dietitian nutritionists and other health care professionals. As the Academy continues to expand its reach in its second century, I am confident the fifth edition will have an important place on many bookshelves, as well as on tablets, computers, and other electronic devices.

Like previous editions, this resource remains the most comprehensive, authoritative, and current reference available on healthy eating. This book is all about choice, allowing the reader to personalize his or her own path to healthier eating—a theme that fits closely with the Academy's goals to support better decision making around food and to create a world where people and communities flourish because of the transformational power of food and nutrition.

As the Academy has grown and evolved over the years, so has this book. This edition includes expanded and updated guidance on the role food and eating habits can play in promoting a heathy lifestyle, enjoying the pleasures of food, and preventing and managing today's leading health concerns, such as obesity, heart disease, diabetes, cancer, food allergies, and foodborne illnesses. There is more on healthy eating for every age and stage of life, and there is important information on nutrition for both men and women.

This book will arm you with information to make the best healthy eating choices for you and your family—and perhaps to inspire those around you. If we all take just a little information from this book and share it with those close to us, we'll soon be helping our communities thrive in unprecedented ways.

I welcome you to now dive into the fifth edition of the Academy's *Complete Food and Nutrition Guide.* Happy reading and healthy eating to you and yours!

Lucille Beseler, MS, RDN, LDN, CDE, FAND
President, 2016–2017
Academy of Nutrition and Dietetics

Acknowledgments

For this and every earlier edition of the *Academy of Nutrition and Dietetics Complete Food and Nutrition Guide*, I am indebted to and thankful for the many professional experts and colleagues—in the fields of nutrition and dietetics, health, culinary arts, food sciences, and agriculture and in communications, education, public policy, and research—who have shared their insights, knowledge, and experience for all five editions of this book.

I am especially grateful to the Academy of Nutrition and Dietetics, for the honor and opportunity to write this comprehensive food and nutrition resource on behalf of the Academy's more than 75,000 members—and especially to *Betsy Hornick,* editor and registered dietitian nutritionist, who, since this book's very first edition and all subsequent editions over these twenty-plus years, has shared her food and nutrition expertise, insights, and editorial guidance, always with a commitment to excellence and sound science.

For these five editions, Academy of Nutrition and Dietetics staff has provided editorial and marketing opportunity and support. For this edition, *Jennifer Herendeen*, Senior Director, Publications, Resources, and Products and *Ryan Baechler*, Director, Publications, Resources, and Products, who lead the highly respected publishing efforts of the Academy; *Sharon Denny, Wendy Marcason, Jill Kohn,* and *Eleese Cunningham* in the Academy Knowledge Center, for their expertise in answering today's nutrition questions with evidence-based answers; *Georgia Gofis*, Director of Marketing, for her enthusiastic and ongoing promotional efforts; the many other *Academy staff* who have supported this edition; and the earlier *Academy editors* who continually made each of the previous editions better.

Bringing their professional expertise as registered dietitian nutritionists from many specialized areas of food, nutrition, and dietetics, the following Academy members provided careful review of this fifth edition, helping to ensure its accuracy, clarity, and relevance with the most current scientific evidence:

Susan E. Adams, Torey Armul, Jennifer Autodore, Keith Thomas Ayoob, Carol Bradley, Sheila Campbell, Andrea Canada, Vanessa Carr, Angela Chalé, Kristine Clark, Nancy Clark, Neva Cochran, Jaime Schwartz Cohen, Sherry Coleman Collins, Diana Cullum-Dugan, Connie Diekman, Suzanne Dixon, Cheryl L. Dolven, Allison Dostal, Lynn Dugan, Dana Elia, Nancy Patin Falini, Susan Finn, Molly Gee, Heather A. Goesch, Patricia Grace-Farfaglia, Cheryl Harris, Alice Henneman, A. Christine Hummell, Barbara J. Ivens, Amy Jones, Wendy Reinhardt Kapsak, Kim Kirchherr, Sally Kuzemchak, Shelley Maniscalco, Caroline Margolis, Liz Marr, Leah McGrath, Beth Ogata, Christine M. Palumbo, Amber Pankonin, Catharine Powers, Jean Ragalie-Carr, Elizabeth Rahavi, Paula Ritter-Gooder, Bonnie Roill, Sarah Romotsky, Christine Rosenbloom, Tami A. Ross, Liz Sanders, Abby Sauer, Jodie Shield, Janelle Smith, Marianne Smith Edge, Toby Smithson, Kris Sollid, Cathie Squatrito, Theresa Stretch, Chris Vogliano, Jill Weisenberger, Sheila C. Weiss, and *Adam Woodyard*.

Many more registered dietitians also have shared their expertise over the years as reviewers in previous editions, where they are recognized by name. Many thanks to them, as well.

Fact checking and updates of nutrient and calorie information, as well as the extensive list of additional resources are attributed to the thorough work of *Morgan Cooper* during her dietetic internship.

Registered dietitian nutritionists and other food, nutrition, and health professionals in government agencies, the food industry, and educational institutions throughout the country have served as ongoing resources and insightful experts. Thanks also goes to the organizations who granted permission for the use of their supporting illustrations and graphics.

The HMH team of editors and designers have provided exceptional editing, a fresh and contemporary design, and expert management—and have been a joy to work with: *Cindy Kitchel,* Editorial Director; *Melissa Fisch*, Editorial Assistant; *Marina Padakis Lowry*, Managing Editor; *Tai Blanche*, Art Director, and *Kevin Watt,* Lead Production Coordinator; as well as *Mary Goodbody*, Content Editor; *Kristi Hart*, Copy Editor; and *Gary Tooth*, Designer. Thank you!

A special thanks is given to *Linda Ingroia*, former Executive Editor, who championed and acquired this fifth new edition for Houghton Mifflin Harcourt, and to *Natalie Chapman*, former Publisher, who began the editing process.

As the Academy celebrates its 100-year anniversary, it's important to recognize the publishing history of this highly successful book and the publishing teams who brought their expertise to previous editions: Chronimed Publishing for the first edition and John Wiley & Sons for the second through fourth editions.

Through these five editions, many colleagues, friends, and family members have provided their consumer and professional perspectives and support. Among them, *Anne Piatek* and *Nancy Schwartz*—colleagues and registered dietitians—who first encouraged my authorship. And my mentors and academic advisors, *Edith Syrjala Eash, Dr. Diva Sanjur*, and *Dr. Hazel Spitze*, who encouraged my early career as a registered dietitian and as a food and nutrition educator and professional.

Special thanks to my husband, *Phil*, who has read every word in all five editions to help ensure clarity of the content and its positive voice, who has been "nourished" by the message, and who provided the loving support needed to continually update this resource.

And most important . . . thank you to all who've called this book their "bible" of healthy eating through its many editions, who've shared their insights for subsequent editions, and who've helped make this book a bestseller from the start. Now fully updated, I hope this resource will continue to be your "go-to" source for sound, healthy eating information and advice . . . at every age and stage of your life!

To your health!

Roberta Larson Duyff, MS, RDN, FAND, CFCS
Author/Food, Nutrition, and Culinary Consultant
Duyff Associates, St. Louis, MO

About the Author

. . . an award-winning author, national speaker, media spokesperson, and food and nutrition consultant, Roberta Larson Duyff, MS, RDN, FAND, CFCS, promotes "the power of positive nutrition" to those of all ages with practical, science-based, great-tasting ways to eat and stay active for health.

As a food and nutrition educator, Roberta's writing for school audiences spans more than thirty years, authoring works such as *Food, Nutrition and Wellness* (for schools), several children's healthy-eating books, and *Team Nutrition* and other educational resources. In popular media, her work and quotes have appeared nationally and regionally.

Focused on the "great tastes of good health," Roberta was the guiding force behind and contributor to the Academy's *Cooking Healthy Across America* cookbook. She has contributed to its *Food and Nutrition* magazine and is former Chair of the Academy's Food & Culinary Professionals Dietetic Practice Group. She serves in national and international leadership positions in the James Beard Foundation, Les Dames d'Escoffier, the Society for Nutrition Education and Behavior Foundation, and is an active member of the International Association of Culinary Professionals. She has held national positions within the American Association of Family and Consumer Sciences. Roberta has authored other titles for the Academy, including *365 Days of Healthy Eating*.

Among her professional awards, Roberta has been recognized by the Academy of Nutrition and Dietetics as an Academy Fellow and with its prestigious Medallion Award for professional excellence, its first Annual President's Lecture, and Missouri's Lifetime Achievement Award in nutrition and dietetics.

Both professionally and personally, Roberta embraces the cultural and global connections of food, nutrition, and good health.

Introduction

Making healthy food choices isn't always easy. Whether you want to provide healthy meals and snacks for your busy life . . . or stay fit to feel great, look good, and reduce your chances of a health issue . . . or simply sort through the latest nutrition news to find sound advice . . . this book is for you.

Now in its fifth edition, the *Academy of Nutrition and Dietetics Complete Food and Nutrition Guide* reflects the latest food and nutrition research; the 2015–2020 Dietary Guidelines for Americans; and many of today's food, culinary, and lifestyle trends. But it's much more!

Since its first edition, this resource has provided positive advice that's backed by sound, current science. It continues to be filled with practical (and often great-tasting) "can-do" ways to eat healthier and be more physically active, one step at a time.

What's new in this edition? It's all about food first—and your overall food and beverage choices over time, not a single food, meal, or snack.

As a complete resource on healthy eating, it covers:

- *A healthy eating plan*—flexible for your health needs, lifestyle, and food preferences . . . and how to judge food and drinks by their full powerhouse of nutrients. As a complete resource on healthy eating, it covers:
- *Today's food marketplace from farm to table*—food farming and processing, food shopping and labeling updates, food safety, nourishing and appealing meals and snacks prepared at home, and healthy, flavorful meals enjoyed away.
- *Healthy eating advice for every age and stage of life*—from feeding an infant, child, or teen, to the unique food and nutrition needs of women and of men (a new chapter), and the special challenges of aging.
- *Advice for common food-related health issues*—promoting gut health, a healthy weight, and immunity; preventing, slowing, and dealing with heart disease, cancer, diabetes, among others; managing a food allergy, celiac disease, or lactose intolerance; and addressing many other health issues.

You don't need to read this book from cover to cover. Instead use "Your Healthy Eating Check-ins" to assess your everyday food decisions and to find chapters and features that may relate to your own needs.

Look for countless topics—in-depth features and brief snippets—that capture your interest: perhaps eating meatless meals sometimes or always; limiting food waste; exploring uncommon fruits, vegetables, and whole grains; shopping online or at a farmers' market; doing recipe makeovers; making simple shifts to healthier eating; helping a child grow or prepare food; eating for sports performance; taking supplements wisely; knowing more about pre- and probiotics; judging food experiences in child or adult day care; overcoming mindless eating; using today's mobile or digital health options; finding trustworthy eating advice; supporting healthy eating for others; and so much more.

Questions posed by consumers like you have helped shape the *Academy of Nutrition and Dietetics Complete Food and Nutrition Guide*, from its successful first edition, and now to this fully updated one. Answers to their food and nutrition questions may answer many of yours as well.

This comprehensive resource can help you take easy, practical, and flavorful steps toward your everyday healthy eating decisions and good health.

From my table to yours, read, enjoy, be active, and eat healthy . . . for life!

Roberta Larson Duyff, MS, RDN, FAND, CFCS
Author/Food, Nutrition, and Culinary Consultant
Duyff Associates, St. Louis, MO

6

Shop with Nutrition Savvy

In this chapter, find out about . . .

- Making food labels work for you
- Max-ing your food dollar
- Food shopping with a healthy mindset
- Being an eco-friendly shopper
- Keeping food safe from store to kitchen

With thousands of items available in today's supermarkets, it's no wonder you have so many decisions to make! These days, you have more food facts and healthy eating information at your fingertips than ever before.

Think about food labels, brochures, and food TV. There also are in-store supermarket dietitians, pharmacists, and consumer-affairs professionals ready to help, and then there are the food blogs and websites available on handheld devices.

Where do you shop? A few decades ago traditional supermarkets handled most retail food business. Today, you have far more options (and many more food choices): specialty stores, natural- and health-food stores, restaurants, convenience stores—even gas stations, department stores, and drugstores. Online shopping (e-commerce) and mail-order businesses sell food to eat at home. More and more farmers' markets with local, fresh produce are cropping up in urban centers. And you can buy directly from farmers through farm stands and CSAs (Community Supported Agriculture).

MORE FOOD CHOICES, MORE FOOD DECISIONS

Every year US consumers have more variety and more new foods from which to choose. About twenty thousand new foods and drinks are introduced yearly, according to the USDA Economic Research Service, yet only a small percentage survive. And the average store stocks more than 42,000 items, according to the Food Marketing Institute.

Why not keep the status quo instead of introducing new foods every year? Changes in consumer demand and flavor preferences are the main reasons. For consumers, taste tops the list, notes 2016 consumer surveys from the International Food Information Council Foundation (IFIC), followed by price, healthfulness, convenience, and for many, sustainability (a term with no universal definition).

More food choices mean more to learn, more decisions to make, and more ways to eat for health. Today, you have options like these:

- *More local and regional foods.* If you're committed to local food, call yourself a locavore! Local food is generally grown or produced close to where it's purchased, perhaps in the same state or closer; "local" isn't a defined and regulated term—and it's not necessarily from a small or organic farm.

  Because it's closer in proximity, seasonal produce may be picked at the peak of ripeness. It may not be available all year long, so eating local means eating with the season. Supporting local and regional farmers' markets and agriculture offers a chance to explore foods from your region and perhaps reduce your carbon footprint.

- *More organic foods and more foods marketed as "GMO-free," "pesticide-free," or "hormone-free." See "Today's Agriculture" in chapter 5, page 113.*
- *More food marketed as environmentally friendly.* Increasingly, environmental responsibility from farm to store is part of the business bottom line. You're likely to see more marketing that deems the food "clean" or "sustainable" these days—although there's no regulated definition for either term.
- *More varieties of vegetables and fruits.* Produce departments, as well as the grocery and frozen-food aisles—stock a greater variety year-round, including exotics, tropicals, and different varietals. For example, a potato isn't just a potato anymore; it may be a Yukon Gold, a purple, or a fingerling. Depending on the season, a peach may be a Babcock, a doughnut, or a Honey Baby, and a watermelon may be an icebox Sugar Baby, a seedless Crimson, or a picnic Jubilee. *See "Vegetables: Have You Tried These" and "Fruit: What's New to You?" in chapter 2, pages 36 and 39.*
- *More grain varieties (including whole, ancient, and sprouted grains, nuts, and seeds.* For example, bread choices have shifted to more coarse-textured and dense whole-grain breads made with ancient grains. Breakfast cereals are made with amaranth, barley, kamut, and more, not just corn, oats, or wheat; pasta may be made with farro, quinoa, or spelt. And chia seeds, flaxseeds, and hemp seeds are finding their way into many food products. *See "Grains, Grains, and More Grains" in chapter 2, page 31.*
- *More fish options*: Fresh and frozen, wild-caught and farm-raised fish have found their way to supermarkets and specialty stores.

Today's Supermarkets: What's in Store?

No matter where you shop for food or what matters most to you, qualities of excellence matter:

- A store or market with clean display cases, grocery shelves, and floors
- Produce, meat, poultry, fish, and dairy foods with qualities of freshness
- Refrigerated cases that are cold, and freezer compartments that contain solidly frozen foods
- Salad bars, bulk bins, and other self-serve areas that are clean and properly covered
- Workers handling raw, deli, and other unpackaged foods who wear disposable gloves and change them after handling non-food items and again after handling raw food

- *More simple, fresh, and raw foods.* Supermarkets from coast to coast are expanding the variety of fresh, raw vegetables and fruits they carry. They also offer more "just-baked" breads, "freshly caught" fish, and even "made-to-order" sushi. Farmers' markets and specialty stores present similar and even more choices.
- *More convenience, too.* You can buy restaurant-style take-out to eat at home, steamed-to-order shellfish, and made-to-order wraps. Fresh bagged salad and stir-fry mixes, as well as meal kits and marinated ready-to-cook roasts and chicken breasts, are among items that just need assembly or simple cooking or heating. The freezer section is full of frozen skillet meals, bean burritos, and vegetarian lasagna and preprepared items.
- *More nutrition- and health-focused products.* Traditional foods have been modified as consumers become increasingly health aware. That includes new and leaner cuts of meat; dairy and other foods with probiotics for gut health; foods made with chia seeds, or soy or whey protein for a protein boost; and myriad gluten-free products for those with celiac disease.
- *More flavor and taste adventure—and more ethnic and specialty foods.* Growing food experiences and sophistication have brought more gourmet, artisan, and ethnic foods to mainstream stores. Just consider the many flavored vinegars and oils as well as condiments such as wasabi mustard and Sriracha catsup on today's store shelves.

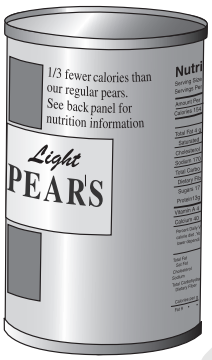
MORE SERVICES, TOO!

Today's supermarkets are more than a place to buy food. For example, many stores offer:

- *Culinary and nutrition education* through cooking classes; food demos and tastings; store or market tours conducted by registered dietitian nutritionists; websites and online magazines offering a wealth of food and nutrition information, healthy recipes, and meal ideas: some created by qualified nutrition experts and others, for mostly marketing.
- *More convenience*, provided by online ordering and home delivery, and store apps to locate what you need faster. Online or not, your supermarket may also offer meal kit delivery services with pre-portioned ingredients and step-by-step instructions, delivered to your home.
- *Neighborhood health services* such as blood pressure readings, vaccinations, in-store health seminars, discounts for local fitness clubs, personalized wellness plans, recipes for special health issues, and nutrition information and counseling.
- *Social space for gathering* with friends and community meeting space.
- *In-store cafes* for a quick meal, whether you're food shopping or not.
- *Support for community* food banks, local agriculture products, and "green" initiatives.

Food Labels: Decode the Package

Wrapped around almost every packaged food in the supermarket, you'll find a wealth of information. Regulated by the US Food and Drug Administration (FDA), packaged foods identify the common name of the product, name and address of the food manufacturer, net contents (by weight, measure, or count), ingredients, Nutrition Facts, and any common allergens it contains.



To make informed choices about nutrition and health, look for this label information, too:

- *Nutrient content claims* such as "no salt added" or "high-fiber" help you to easily find foods that meet specific nutrition goals. *See "Label Lingo" boxes in this chapter, as well as in other chapters for specific nutrient content claims.*
- *Nutrition Facts* give specifics about the calories and key nutrients in a single label serving/amount of the food. The Nutrition Labeling and Education Act (NLEA) of 1990 authorized the FDA to require nutrition labeling. Since 1994, this information has been required on virtually all food labels.

Your Healthy Eating Check-In

What's Your Shopping Savvy?

Like most consumers, flavor likely tops your list when you buy foods. And healthiness, price, convenience, and safety are important to shoppers, too. If that sounds like you, do you . . .

	Yes	No
1. Use the nutrition and ingredient information on food labels to make sound shopping decisions?	☐	☐
2. Look for nutrition information displayed near fresh foods: produce, meat, poultry, and fish?	☐	☐
3. Know what the dates on packaged foods mean and don't mean so you get the best quality, yet avoid wasting food?	☐	☐
4. Check packaging and cans to be sure they're clean and not damaged?	☐	☐
5. Know what to look for when picking peak-quality, fresh produce; raw meat, poultry, and fish; and refrigerated and frozen foods?	☐	☐
6. Try new-to-you ingredients from time to time to experience new flavors?	☐	☐
7. Take perishable foods home within thirty minutes of shopping and immediately refrigerate or freeze them?	☐	☐
8. Pack refrigerated and freezer foods in separate, insulated shopping bags to keep them cool until you get home?	☐	☐
9. Ask to have fresh meat, poultry, and fish bagged separately so their juices don't drip on other foods?	☐	☐
10. Take advantage of cents-off coupons and in-store specials found online or in print flyers?	☐	☐
11. Monitor prices as items are scanned at checkout?	☐	☐
12. Skip the urge to buy a food or drink just because you sampled it or see it in a big store display?	☐	☐
13. Buy only foods in the amount you'll use to avoid wasting food and expense?	☐	☐
14. Use unit-price codes on shelves to compare the cost of similar products?	☐	☐
15. Keep a shopping list to save shopping time and avoid impulse buys?	☐	☐
16. Keep shopping trips to a minimum—if so, you tend to buy no more than once or twice a week?	☐	☐
Total	___	___

The more times you checked "yes," the more savvy a shopper you are. Read on to learn more about these and other ways to shop smart and boost your score.

Now, after more than two decades, the format and nutrition information of this consumer resource are undergoing a transition—from the original, approved in 1993, to a new format, required by July 28, 2018 for larger food manufacturers. Companies with less than $10 million in annual sales have more time to comply. *See "Nutrition Facts: Comparing the Old and New" and "Nutrition Facts Update 2016" in this chapter, page 146.*

- *Ingredient lists* give an overview of the makeup of the contents, with the ingredients listed in order by weight from most to least.
- *Health claims* describe the potential health benefits of a food, nutrient, or food substance to perhaps reduce the risk of a chronic disease or condition.
- *Structure/function claims* describe the way a nutrient or food substance maintains or supports a normal body function. For example, it may say "helps maintain bone health" or "supports a healthy immune system."
- *Allergen labeling* identifies common allergens.

Beyond that, the label may provide voluntary information, including safety guidelines, preparation and storage tips, organic labeling, gluten-free labeling, and freshness dates, among other things. Some products also show nutrition information on the front of the package, provided voluntarily by the manufacturer for marketing, but this is not FDA regulated or required. When described on websites, products are subject to these same FDA labeling regulations.

Nutrition Facts: Comparing the Old and New

Source: US Food and Drug Administration.

NUTRIENT CONTENT CLAIMS: AT A GLANCE

Imagine rolling your cart through the supermarket. Your eyes dart from one food product to another. Some canned peaches say "no added sugar." Certain breakfast cereals are "high in fiber"; others are "fortified." On packages of deli meats you see the term "lean." The words "high in calcium" on a milk carton or "excellent source of calcium and vitamin D" on a juice carton catch your eye. And a box of cookies says "fewer calories." What does all this label language mean?

Known as nutrient content claims, these terms describe the amount of nutrients, fiber, or calories in food. They often appear on the front of the package for quick comparisons. Some claims can say "contains [*x amount*] of [*nutrient*]."

A nutrient content claim can help you spot the item you prefer, while the Nutrition Facts give more specifics about the nutrient content. For example, suppose you're comparing the fat in hot dogs. A term such as "lean" offers a general idea. For the amount of total fat—and saturated and possibly *trans* fats—in one label serving, you need to check the Nutrition Facts.

Nutrient content claims mean the same thing for all foods, no matter what food or which manufacturer makes the product. That's because these claims are defined strictly by regulation. Like Nutrition Facts, nutrient content claims are defined for a single label serving. However, the amount, or serving size, is set by FDA regulations—and may not necessarily be what you eat as one helping.

With the new Nutrition Facts labeling, some foods may no longer meet the criteria for a nutrition content claim; others may now comply. Food companies may also change the ingredients somewhat, too, to keep a nutrient content claim. For example, the FDA has begun a process of redefining what the term "healthy" means on food labels, to better reflect current knowledge on nutrients' contributions to health.

While the language of nutrient content claims is regulated, their use is optional by food companies. Many foods that meet the criteria for these claims don't carry these terms on the label. If you see a product with a nutrient content claim, use the % Daily Value (DV) in the Nutrition Facts to compare it to a similar food that doesn't carry a claim. *See "Label Lingo: What Nutrient Content Claims Mean" in this chapter, page 145, as well as in other chapters for definitions of nutrient content claims.*

NUTRITION: FACT CHECK!

Claims such as "low-fat, "no added sugar," or "calcium rich" may not mean the food is the healthiest option. You've got to check the Nutrition Facts,

as well as the ingredient list, for specifics, and then decide what works best for your own nutrition needs.

- Use the Nutrition Facts to pick nutrient-rich foods and to compare calories and nutrients in similar foods.
- Use the ingredient list, *discussed in "A Word About Ingredients" in this chapter, page 150*, to identify allergens and other ingredients of interest—type of oil or other fat, added sugars, whole grains, ingredients with sodium, and others.

Nutrition Facts appear on almost every packaged food. That includes packages of ground or chopped meat and poultry, such as hamburger or ground turkey. Most raw cuts of meat and poultry also have nutrition information on the label or on a store display.

Today, many fresh vegetables and fruits may be labeled voluntarily with nutrition information, too, either on the package or on a poster or pamphlet displayed nearby. If you don't find this information, ask the store manager to start providing it, or find this information online.

Nutrition Facts: Why Use Them

Nutrition Facts specifically state the amount of required nutrients and number of calories in one label serving of a food, as well as some that are listed voluntarily. Nutrient content claims on the product label such as "low in fat" or "more fiber" are quick-to-read descriptions and won't provide specific amounts. Check the Nutrition Facts for more specific information to help you make informed decisions, such as:

Label Lingo

What Nutrient Content Claims* Mean

Label term . . .	Means . . .
LOW	An amount specifically defined for each term, such as "low-calorie," "low-fat," or "low-cholesterol." Other terms: "few," "contains a small amount of," "low source of," "low in," "little," "a little."
REDUCED	Contains at least 25 percent fewer calories and 25 percent less fat, saturated fat, cholesterol, sugars, or sodium than a regular food. Look for information about the food it's being compared to. Other terms: "reduced in," "% reduced," "fewer," "lower," "lower in," "less."
HIGH	Contains 20 percent or more of the Daily Value** for a nutrient—for example, "high in vitamin C" or "high-calcium." Other terms: "excellent source of," "rich in."
GOOD SOURCE	Contains 10 to 19 percent of the Daily Value** for a nutrient—for example, "good source of fiber." Other terms: "contains," "provides."
MORE	Contains 10 percent or more of the Daily Value** for a nutrient—for example, "more fiber" or "more iron." You won't find it on meat or poultry products. Other terms: "enriched," "fortified," "added," "extra," "plus." *See "Additives: for Good Nutrition" in chapter 5, page 133, for definitions of enrichment and fortification.*
LIGHT	Contains one-third fewer calories or 50 percent less fat than the traditional version. A "low-calorie" or "low-fat" food with 50 percent less sodium might also be called "light." Other term: "lite." When "light" describes a product characteristic, such as "light brown sugar," it isn't a nutrient content claim.
HEALTHY	Low in fat and saturated fat, and contains 60 milligrams or less cholesterol per serving, 480 milligrams or less sodium per serving, and at least 10 percent of the Daily Value per serving of vitamin A, vitamin C, calcium, iron, protein, or fiber. Vegetables, fruits, and enriched cereal products can be labeled "healthy" without having 10 percent of the Daily Value or more of these nutrients per serving, but they must meet low-fat, low-saturated-fat, cholesterol, and sodium criteria. A meal or main-dish product must have 600 milligrams of sodium or less. (*Note:* The FDA is reevaluating this definition of "healthy" in light of evolving scientific evidence and changes in Nutrition Facts labeling.)
On meat, poultry, or fish, look for:	
LEAN	Contains less than 10 grams of total fat, 4.5 grams or less saturated fat, and less than 95 milligrams cholesterol per 3-ounce (and per 100 grams) cooked serving.
EXTRA LEAN	Contains less than 5 grams of total fat, less than 2 grams saturated fat, and less than 95 milligrams cholesterol per 3-ounce (and per 100 grams) cooked serving.

* FDA regulatory definition

**When compared with a label serving size of the traditional food.

Front-of-Package Nutrition Labeling

Many consumers want quick ways to identify and choose healthier foods. These often come in the form of seals, icons, or symbols that call out nutrition information and may appear on the front of a package (FOP) or next to FDA-regulated nutrient content or health claims.

The challenge: With many different symbols and systems, FOP labeling isn't consistent. Some FOP labeling programs simply bring information from the Nutrition Facts panel to the front of the package. Others have their own nutrient criteria (or scoring algorithms) to identify food products as better choices, or more nutrient rich; the way they score differs, and it's often proprietary. Without consistency, some FOP systems may overrate products' healthy qualities or may be more lenient with their own definitions. Just remember: They're used for marketing.

In recent years, the Grocery Manufacturers Association and the Food Marketing Institute established a voluntary FOP labeling initiative called "Facts Up Front." It's meant to help consumers easily find key facts about a single serving: the number of calories and the amounts of the nutrients that are best to limit: saturated fat, sodium, and sugar content per serving. It may also show one or two of the nutrients that many people need more of: If the product contains 10 percent or more of the Daily Value per serving of the nutrient and meets the FDA requirements for a "good source." The facts displayed come from the Nutrition Facts label, *see www .FactsUpFront.org*.

Although currently there's no standardized, science-based criteria for FOP nutrition labeling, FDA regulations may come in the future. Until then, use FOP labeling as only one tool for quick information. However, just because a product provides FOP facts doesn't mean the food is more nutritious. Turn to the Nutrition Facts label, which is regulated by law, to make informed judgments about the calories and nutrients in food products.

- To compare calories and nutrients in similar foods
- To find foods with nutrients you may underconsume, such as calcium, as well as fiber
- To find foods with fewer of the nutrients you may need to limit, such as saturated fat, *trans* fat, and sodium
- To help you make food tradeoffs. (If you plan to eat a higher-calorie snack, the label can help you trade off and find other foods with fewer calories.)
- To choose foods that match a special health need, perhaps to cut calories to manage weight, to limit sodium (salt) to manage blood pressure, or to count carbohydrates to manage diabetes

This may surprise you: Fat-free products aren't always low in calories, and sugar-free products aren't always low in calories or low in fat! That's why you need to read and understand the Nutrition Facts.

Nutrition Facts: How to Use Them

As Nutrition Facts transition to the new format, you'll gradually find products displaying the new Nutrition Facts alongside products with the original Nutrition Facts. Original or new, here's how to make the Nutrition Facts work for you:

Step One: Start with label servings—the serving size and number of servings per container.

Serving sizes—set by government regulations—are expressed in familiar kitchen measures (e.g., teaspoon, tablespoon, cup). A label serving may be different from the portion size you actually eat; studies show that most people underestimate portion sizes.

By law, the serving size on the label must be based on amounts of food and drink that people customarily consume, not on what people *should* be eating—and not necessarily what *you* may consider to be one helping. For the new Nutrition Facts format (*"Nutrition Facts Update 2016" in this chapter, page 146*), serving sizes will more realistically reflect what people eat and drink these days.

Nutrition Facts apply to the amount of food or beverage in one label serving, not necessarily to the amount in the whole container. A 14-ounce can of ready-to-eat soup or 1½ ounces of chips may look like a single serving to you, but the Nutrition Facts may show a different serving size.

If you eat the amount for two servings, you eat twice the calories and nutrient amounts, too. Check the number of servings in a container and the size of each serving so you won't be misled. If you compare two or more similar foods, check to be sure the serving size is the same.

Step Two: Check the calories in a label serving.

Calories count, so pay attention. To help manage your weight, know the calories per serving and in the portion size you eat. If a label says that three cookies and 100 calories equal a serving, and you eat six cookies, you've doubled the calories and eaten two servings.

Step Three: Note the nutrients.

Unless their amounts are insignificant, some nutrients must appear in the Nutrition Facts. Required nutrients are those that are typically over- or underconsumed and so are linked to major health issues. *You'll read more about these nutrients later in this book.*

Those required on the original Nutrition Facts label are total fat, saturated fat, *trans* fat, cholesterol, total carbohydrates, sugars, protein, vitamins A and C, calcium, and iron. In addition to these required nutrients, others may be listed: some are voluntary; others are mandatory when a nutrient content claim is made. For example, if the label says "fortified

with vitamin E" or "high in folate," then vitamin E or folate must appear in the Nutrition Facts.

Step Four: Use the % Daily Values (DVs) to get the most nutrition for your calories.

Generally speaking, % DVs show how the amount in one label serving of a food contributes to the total 2,000-calorie-a-day diet for some nutrients. If it shows 15% DV for iron, one serving has about 15 percent of the iron many people need for the day, which means the whole day, not a single meal or a snack.

Use % DVs to help you: (1) limit some nutrients such as sodium to the maximum advised for the day, and (2) get enough of others such as calcium to meet your daily nutrient recommendation. For example, for bone health, look for foods such as fat-free or low-fat milk or yogurt that have 20% DV or more for calcium. To limit sodium, find foods with 5% DV or less for sodium. For heart health, choose foods with less saturated and *trans* fats.

A few points of clarification:

- Daily Values used for labeling are averages for healthy adults, not necessarily optimal nutrient amounts advised for you. You may need more or less than the % DV for some nutrients. Be aware that the Daily Values for many nutrients—including calcium, vitamin D, sodium, and fiber—were revised for the new Nutrition Facts label; *see "% Daily Values: What Are They Based On?" in the appendix, page 786, for a complete list of Daily Value (original and new).*
- Daily Values aren't the same as the Dietary Reference Intakes (DRIs), *described "Nutrients: How Much?" in chapter 1, page 6. Also see "Dietary Reference Intakes" in the appendix, page 780, for details about the DRIs.*
- No Daily Values were established for *trans* fats or sugars for the original Nutrition Facts; sugars in the original Nutrition Facts reflect both natural and added sugars. The new Nutrition Facts provide % DVs for added sugars, listed separately.
- The % DV for total fat is not the same as the dietary advice: "Eat 20 to 35 percent of total calories from fat." The latter applies to the DRIs for everything you eat and drink for the day, not to a single food, beverage, meal, or snack. The % DV for total fat shows whether the food itself is high or low in fat.

Use the "5–20 guide" as a quick guide to label reading. For any nutrient:

- Five percent or less is low: For nutrients you need to limit, look for foods with a 5% DV or less.
- Twenty percent or more is high: For nutrients you need more of, look for foods with a 20% DV or more.

Note: The "5–20 guide" doesn't define a food as good or bad. Instead, it helps interpret how much of certain nutrients the food contains.

Step Five: Check the footnote.

The footnote on the original Nutrition Facts label shows Daily Values for some nutrients for two calorie levels—2,000 and 2,500 a day. They're maximum amounts for total fat, saturated fat, cholesterol, and sodium—and target amounts for total carbohydrate and fiber. This footnote is general advice and may not be right for you. The new Nutrition Facts has a different footnote.

Step Six: Check the calories-per-gram conversion.

In the original Nutrition Facts, this is the math that shows the number of calories in 1 gram each of fat, carbohydrate, and protein. *Note:* Fat supplies more than double the calories per gram (9 calories) than carbohydrate and protein do (4 calories per gram each).

See "A Closer Look . . . Nutrition Facts Update 2016," in this chapter, page 146, for a summary of the new Nutrition Facts.

A WORD ABOUT INGREDIENTS

Imagine that you reach for a can of vegetable soup. The ingredient list is like a recipe and differs from the Nutrition Facts. This list tells you what ingredients are in the soup.

Next time you reach for any mixed food, check what ingredients are listed first, second, and third on the label. By regulation, any food with more than one ingredient must carry an ingredient list on the label. All ingredients are listed in descending order by weight, from most to least. Canned vegetable soup that lists tomatoes first contains more tomatoes by weight than anything else.

Sometimes the ingredient list gives the source as well. For example, "tomato puree" may be followed by "(water and tomato paste)," and "Vegetable Oil" would be followed by "(contains one or more of the following: Corn Oil, Soybean Oil, or Safflower Oil)."

Looking for foods with less sodium, saturated fats, and added sugars, and without *trans* fats? The ingredient list can help you.

What else may appear on the ingredient list? Nutrients added for enrichment or fortification, or additives used to retain the appeal (color, texture, shape), add flavor, prevent spoilage, or provide a function such as yeast to make dough rise. *See "Additives: Their Place on the Plate" in chapter 5, page 132.*

The ingredient list is a useful tool for people with special food needs, such as:

- Those with cultural preferences or religious needs including, for example, those who avoid pork or other meats, or shellfish
- Vegetarians, including vegans, who avoid foods made with ingredients from animal sources
- Those with a food allergy (perhaps to peanuts or eggs), a food intolerance (perhaps to lactose, sulfites, or other ingredients), or celiac disease or non-celiac gluten sensitivity (to avoid gluten-containing ingredients)

A Closer Look . . .

Nutrition Facts Update 2016

Ready for the "new look"? The Nutrition Facts is getting a "face-lift" to make it easier for you to use the latest scientific evidence and healthy eating recommendations for your food and drink decisions.

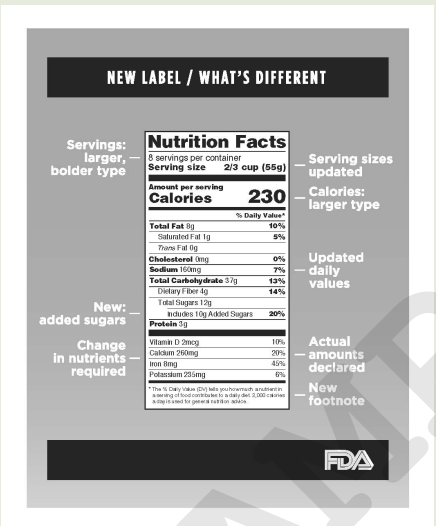
Most Nutrition Facts updates fit into three categories:

1. *Updated nutrition information* to reflect current scientific evidence and nutrition advice, to reduce the risk of chronic diseases such as cardiovascular disease, obesity, high blood pressure and stroke, and to encourage an adequate intake of essential nutrients.
   - *Nutrients of public health concern:* The mandatory list of vitamins and minerals is changing to those that aren't adequately consumed—and are linked to chronic disease risk: calcium, vitamin D, potassium, and iron. Metric amounts as well as DVs are required for mandatory vitamins and minerals. Vitamins A and C are no longer required.
   - *No "calories from fat":* Since scientific evidence indicates that the type of fat is more important to public health than total fat, this will no longer appear.
   - *Added sugars:* The mandatory listing of added sugars with a % DV will provide consumers with more information about added sugars in foods and drinks.
   - *Daily Values:* DVs have been revised for some nutrients, including calcium, sodium, dietary fiber, and vitamin D. In addition, amounts of vitamins A, D, and E will be shown in metric measures instead of international units (IU)—milligrams or micrograms—as well as in the %DV. *See "% Daily Values: What Are They Based On" in the appendix, page 786, for the new DVs.*
2. *Updated serving size requirements and labeling for certain packages:*
   - *Serving sizes:* The serving sizes, or Reference Amount Customarily Consumed (RACCs), are changing to more realistically reflect what people really eat and drink. And they may differ from servings shown on www.ChooseMyPlate.gov/. For example, the reference amount for yogurt is decreasing from 8 to 6 ounces. The amount for ice cream has been ½ cup and is increasing to ⅔ cup. Soda has been 8 ounces, now increasing to 12 ounces. On average, people eat more today than they did when Nutrition Fact labeling began more than 20 years ago.
   - *Servings in a package*: Some food products previously labeled as more than one serving will instead be labeled as a single serving, for example a 20-ounce can of soda or a 15-ounce can of soup. That's because people typically drink or eat them in one sitting.
   - *Dual columns*: Some foods that are packaged as larger than a single serving must be labeled in two ways: amounts "per serving" and "per package"/"per unit." They're foods or drinks such as a pint of ice cream or a 24-ounce soda that could be consumed either all at once or as several smaller servings. That shows how many calories and nutrients you get if you consume the whole package or container at one time.

For those sensitive to artificial food color, the colors are named individually, not just listed as "coloring." If an ingredient list isn't clear to you, write or call the food manufacturer.

See chapter 23, page 653, for more about food sensitivities, including food allergies and lactose intolerance, and celiac disease; also see "Food-Allergen Labeling," and "Gluten-Free Labeling," page 151, in this chapter.

3. *Refreshed design to feature information that reflects links to key public health issues such as obesity.*



You also will see these changes:

- *Bolder and larger type:* "Calories," "servings per container," and the "Serving size" declaration will be more prominent and easier to see.
- *New footnote:* To make the % Daily Values easier to understand, it will read: "The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice." The original footnote will be gone.
- *New information for carbs:* "Includes Added Sugars" will show right below "Total Sugars," And "Total Sugars" is a part of "Total Carbohydrates."

HEALTH "INFO": CLAIMS AND MORE

The "real estate" on a product label may carry useful health information that goes beyond its nutrient and ingredient content.

Approved Health Claims

To date, health claims have been approved by the FDA for use on food labels for the following categories:

- Calcium, Vitamin D, and Osteoporosis
- Dietary Lipids (Fat) and Cancer
- Dietary Saturated Fat and Cholesterol and Risk of Coronary Heart Disease
- Dietary Non-cariogenic Carbohydrate Sweeteners and Dental Caries
- Fiber-containing Grain Products, Fruits, and Vegetables and Cancer
- Folic Acid and Neural Tube Defects
- Fruits and Vegetables and Cancer
- Fruits, Vegetables, and Grain Products that Contain Fiber, Particularly Soluble Fiber, and Risk of Coronary Heart Disease
- Sodium and Hypertension
- Soluble Fiber from Certain Foods and Risk of Coronary Heart Disease
- Soy Protein and Risk of Coronary Heart Disease
- Stanols/Sterols and Risk of Coronary Heart Disease

Source: U.S. Food and Drug Administration, 2016.

This list does not include approved qualified health claims. *To learn the details of these approved health claims, visit www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm2006876.htm.*

To use health claims:

- Remember, your food choices are just one factor that can reduce your risk for certain health problems. Genetics, physical activity, and smoking are among other factors that affect your health and risks for disease.
- Make shopping decisions using information from the whole label, not just the health claim. Check the Nutrition Facts to see if the product is right for you.

Health Claims

How might a food promote your health? Check the health claims. They link food or food components—in part of an overall healthy eating plan—with a lowered risk for some chronic diseases. Strictly regulated by the FDA, health claims are supported by scientific evidence. Foods that do meet the criteria may not carry a health claim.

With so much emerging science on nutrition and health, you might find approved qualified health claims on packages, too. They also indicate a relationship between a food component and health or reduced disease risk; however, qualifying language must appear with it. The reason? Supportive scientific evidence isn't conclusive.

Structure/Function Claims

Structure/function claims such as "helps promote urinary tract health" describe how a nutrient or food substance may affect your health. These claims *cannot* suggest any link to lowered risk for disease.

Unlike health claims, structure/function claims don't need prior FDA approval or review before putting them on the package label, but they are subject to FDA enforcement. They must be truthful and not misleading.

? Have you ever wondered?

. . . why you don't see % Daily Values for protein? Adjustments for protein's digestibility make calculating a % DV difficult. If the food is touted with a nutrient content claim—perhaps "high in protein"—then % DV for protein must be shown on the Nutrition Facts. All foods meant for infants, toddlers, and young children must show % DV for protein on the Nutrition Facts. Getting enough protein isn't a health concern for most older children, teens, and adults, except for some older adults, so it usually isn't listed with a % DV.

. . . why a food with "no sugar added" shows grams of total sugars on the Nutrition Facts? Vegetables, fruits, milk, grains, and beans and peas have naturally occurring sugars. "Sugars" in the original Nutrition Facts represent the total grams of added plus naturally occurring sugars. The new Nutrition Facts show a % DV for added sugars, as well as grams of total sugars. To identify added sugars, such as corn syrup, invert sugar, and corn sweeteners, in a food product, check the ingredient list. *See "Check the Ingredients" in chapter 11, page 367.*

. . . if either of these foods has added sugars: raw apple slices or honey? While both are sweet, the answer is neither one. The apple slices contain only natural sugars, so they have 0 grams of added sugars.

Honey is more complicated. Straight from the jar, the sugar in honey is naturally present, so the new Nutrition Facts will show it as 0 grams of added sugars, too. However, if honey was added to sweeten a packaged food, then the Nutrition Facts will show honey as added sugars.

. . . if a product labeled "0 grams *trans* fats per serving" is really *trans*-fat free? A product with less than ½ gram *trans* fat per label serving can be labeled as "0 *trans* fats."

Labels—and You

What's the best way to shop for good nutrition? Use food labels—nutrient content claims, health claims, ingredient lists, and Nutrition Facts—to choose nutrient-rich foods that fit your healthy eating plan, your nutrient and health needs, and your calorie target!

With the Nutrition Facts, always start with the serving size and the servings in the container, considering the portions you usually eat, too. Then consider other factors—are you:

- Concerned about weight? Compare the calories.
- Managing blood glucose (blood sugar)? Pay special attention to carbohydrates, including added sugars in the ingredient list and in new Nutrition Facts, and the fiber content.
- At risk for heart disease or high blood pressure? Check the saturated fat, *trans* fat, and sodium content. Key in on fats (for heart health) and sodium (for blood pressure).
- Concerned about loss of bone density? Look at the % DV for calcium and vitamin D.

Consider these two examples:

Example 1: Spaghetti sauce. To decrease sodium:

1. Look for a product with the nutrient content claim of "reduced sodium" or "low sodium."
2. Check the Nutrition Facts for the exact sodium content in one label serving. Compare it to other spaghetti sauces before you buy.
3. Check the ingredient list to find the sodium-containing ingredients.

Example 2: Granola bar. To limit calories:

1. Check how many calories are in one label serving.
2. Check how many servings the package contains and what the serving size is.
3. Calculate the calories in the amount of the granola bar you'll eat.

Dietary Guidance Statements

Dietary guidance statements describe the health benefits of broad categories of foods. For example, "Diets rich in fruits and vegetables may reduce the risk of some types of cancer and other chronic diseases."

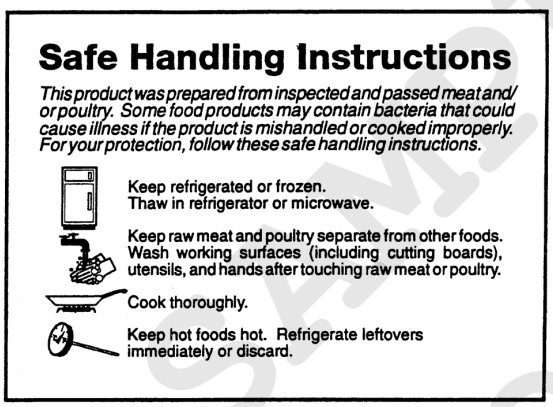
Food-Allergen Labeling

Allergen labeling is required on foods or food groups containing a major food allergen or a protein from these allergens: milk, eggs, fish (e.g., bass, cod, flounder), crustacean shellfish (e.g., crab, lobster, shrimp), peanuts, tree

nuts, (e.g., almonds, pecans, walnuts), wheat, and soybeans. These allergens account for over 90 percent of all food allergies and represent the foods most likely to result in severe or life-threatening reactions. Allergen labeling may appear in the ingredient list or in a statement at the end of that list. Wherever it appears, allergens must be identified by common names. For example, the label may say: "Contains milk, egg, peanuts." The label also might provide a disclaimer, such as "Made in a facility that also processes peanuts."

Food Safety and Handling Tips

For your good health, some food labels offer guidance on food safety and handling. To reduce the risk of foodborne illness, raw and partially cooked meat and poultry products must be labeled with guidelines for safe handling. Each of the simple graphics—a refrigerator, hand washing, fry pan, and meat thermometer—represents a safe-handling tip.



Cartons of shell eggs also have safe-handling instructions (*see below*) to help control *Salmonella* contamination. Eggs that have been treated to destroy *Salmonella*—by in-shell pasteurization, for example—are not required to carry safe-handling instructions.

SAFE HANDLING INSTRUCTIONS:
To prevent illness from bacteria: keep eggs refrigerated, cook eggs until yolks are firm, and cook foods containing eggs thoroughly.

See chapter 7, page 191, for in-depth information on food safety and handling.

Gluten-Free Labeling

"Gluten-free," "no gluten," "without gluten," "free of gluten." Foods with less than 20 parts per million (ppm) of gluten can be labeled voluntarily as gluten-free, even if naturally gluten-free, such as fresh vegetables and fruits and spring water. That applies to all foods regulated by the FDA including imported foods as well as dietary supplements. Meat, poultry, unshelled eggs, which are regulated by the USDA, distilled spirits, many wines, and malted beverages aren't covered by this regulation.

Why not zero ppm? Amounts below 20 ppm can't be detected reliably. Experts in celiac disease indicate that 20 ppm can be tolerated by those with celiac disease. Any grain, including oats—other than the gluten-containing grains of wheat, rye, barley, or their crossbred hybrids like triticale—can be labeled gluten-free if any unavoidable gluten from cross-contact situations is less than 20 ppm.

Several organizations have developed symbols that identify certified gluten-free foods, such as these:

Source: Gluten Intolerance Group.

Source: National Foundation for Celiac Awareness.

Source: Celiac Support Association.

The use of a gluten-free logo isn't required. If used, it must be consistent with FDA labeling regulations and can't interfere with required labeling. A symbol can't substitute for the terms "gluten-free," "no gluten," "free of gluten," or "without gluten."

Since gluten-free labeling is voluntary, a food may be gluten-free even if it doesn't say so. Some products may include a statement such as "Produced in a facility that also produces wheat." If you have celiac disease, contact the brands or food manufacturers for information on their testing and safety protocols.

Health Warnings

Some foods are required to carry health warnings:

- Foods and beverages made with aspartame (a nonnutritive sweetener) carry a warning for those with phenylketonuria (PKU). Aspartame contains the amino acid phenylalanine, which people with PKU can't metabolize; *see "Aspartame" in chapter 11, page 369; "Have you ever wondered . . . if nonnutritive sweeteners are safe to consume during pregnancy?" in chapter 17, page 554; and "Aspartame: PKU Warning," in chapter 23, page 679.*
- The term "Contains Sulfites" appears on beer and wine labels, dried fruit, and some salad seasonings for those who are sulfite sensitive; *see "Sulfite Sensitivity: Mild to Severe" in chapter 23, page 678.*
- Alcohol-containing beverages carry warnings for pregnant women; *see "Pregnancy and Alcoholic Beverages: Don't Mix!" in chapter 18, page 549.*
- Unpasteurized juice and juice products, including cider, must carry a food-safety warning if sold across state lines. For example:

WARNING: This product has not been pasteurized and therefore may contain harmful bacteria that can cause serious illness in children, the elderly, and persons with weakened immune systems.

MORE FOR FOOD LABEL READERS

A few more moments with food labels can teach you even more about the food inside the package.

Type of food. The product name tells what's in the container. Besides specifically naming the food, it tells the form. This could be a description such as smooth or chunky, sliced or whole, or miniature—often important to know when following a recipe.

Net contents. Food labels tell the total amount in the container, either in volume, count, or net weight. Net weight refers to the food amount inside the container, including any liquid.

For juice products, total percent juice content. Fruit and vegetable juices that are only juice may be labeled "100 percent juice." Juice drinks, which contain other ingredients, can't carry this statement.

A "100 percent juice" may—or may not—supply 100 percent of the Daily Value for vitamin C. That said, juices offer more nutrients and phytonutrients than just vitamin C. Many juices are fortified with additional nutrients, too.

Juice "drinks," "beverages," or "cocktails" (containing some juice, but not 100 percent juice) may be fortified to provide 100 percent of the Daily Value for some nutrients. Typically, these beverages have added sugars but probably not the full array and amounts of nutrients and phytonutrients in 100 percent juice. *See "Juice, Juice Drink, or Fruit Drink?" in chapter 4, page 88.*

Name and full address of the manufacturer, packager, or distributor. Need to contact a food company with your consumer questions and concerns? Look for a consumer service phone number or website address. If the food manufacturer, packager, or distributor is not in the United States, the label must state the country and mailing code.

Country of origin. As of 2009, many food commodities were required to carry a country-of-origin label (COOL). This included wild and farm-raised fish and shellfish; fresh and frozen vegetables and fruits; peanuts, pecans, and macadamia nuts; and ginseng. For some items such as produce or seafood, this information might appear on a display tag, too. In 2016, cuts of beef and pork as well as ground beef and pork were removed from the list of commodities that were subject to the COOL regulation.

COOL *only* tells you where the food is from—not more, not less. It's not a food-safety program. Specialty stores such as fish markets are exempt, although they may provide the information voluntarily.

Organic labeling. The Organic Foods Production Act and the National Organic Program, part of the USDA's Agricultural Marketing Service, ensure that the production, processing, and certification of organic foods are standardized. The term "organic" has legal label definitions. Knowing what they mean will help you make informed decisions.

Products that are certified organic are produced without genetic engineering. Natural fertilizers and pesticides are allowed in organic farming, but synthetic substances are prohibited. They may bear the "USDA Organic" seal. *See "Organic Farming" in chapter 5, page 122.* Food labels may indicate one of three classifications for "organic":

- *"100 percent organic"*: The product must contain only organically produced ingredients (except for water and salt).

A Closer Look . . .

Deciphering Package Dates, Reducing Food Waste

You can't see inside the package, so how do you know if it's fresh or safe to eat? Billions of dollars of food are wasted annually because people don't understand product dating. Learn what these dates mean so you don't waste food!

Product dating isn't standardized. Except for infant formula, product dating usually isn't mandatory, either. For formula, the date applies to when the formula is at peak nutritional quality, not the safety of the formula.

Dates often indicate peak flavor and freshness, not when the food is unsafe to eat. Many nonperishable foods remain safe to eat long after the package date. Contact the food manufacturer if you questions. And check FoodKeeper App from the US Department of Health and Human Services: www.foodsafety.gov/keep/foodkeeperapp/. *See "Cupboard, Pantry, Fridge, and Freezer Storage" in chapter 7, page 197, for more about storage times.*

Food manufacturers determine both the way dates are expressed and what they mean. The date could be meant for the store or for you. Product dates are written in several different ways, too, such as "12-15" or "1215" or "Dec. 15," all meaning December 15.

- *"Sell by" or pull date:* This is the last day the store should sell a food so it remains fresh for home storage. This allows you a reasonable time to enjoy it at peak quality after purchase. It is not an "eat or toss by" date.
- *"Use by" date:* This is the last date advised for use while the product is at peak quality, as determined by the manufacturer. These are *not* food-safety dates.
- *"Best if used by" date:* This is the last date advised for use for optimal flavor and quality. For example, the label may say, "Best if used by 1-31-18." It's *not* a purchase-by or food-safety date.
- *"Closed or coded" dates:* These are packing numbers for use by the manufacturer. You might see a pack date, which is when the item was produced or packaged.

Remember, these dates are for quality and optimum freshness—not for food safety. Depending on the food and whether it has been stored properly, it's likely safe beyond this date and until it reaches your table.

- *"Organic"*: The product must contain at least 95 percent organically produced ingredients (except for water and salt). The other 5 percent are ingredients that aren't available in organic form or that appear on an approved list.
- *"Made with organic ingredients"*: Processed foods may bear this label if they contain at least 70 percent organic ingredients—for example, "soup made with organic peas, potatoes, and carrots." The regulation also identifies production methods that can't be used.

If it's labeled organic, the product's name and the address of the certifying organization must appear—with one exception. Small farmers (less than $5,000 in organic sales annually), including those who may sell in small farmers' markets, don't need certification. Still, their label claims must be truthful and in compliance with organic labeling laws—but talk to the farmer to learn more.

Organic labeling regulations don't change food labeling regulations, administered by the FDA and the USDA's Food Safety and Inspection Service. Being labeled as organic doesn't mean a food is more healthy or more nutritious. Terms such as "all-natural," "free-range," or "hormone-free" don't mean organic.

Labeling for foods produced with or without genetic engineering. Currently the FDA has provided guidance for the voluntary labeling by manufacturers to inform consumers who want to know if a food was produced using genetic engineering. This labeling must be truthful and not misleading. Although the terminology used is not yet regulated, the FDA has made recommendations for a food product (or its ingredients):

- If not developed using bioengineering, genetic engineering, or modern biotechnology, the FDA advises claims such as "not bioengineered," "not genetically engineered," and "not genetically modified through the use of modern biotechnology."
- If developed using bioengineering, genetic engineering, or modern biotechnology, the FDA advises claims such as "genetically engineered," "This product contains cornmeal from corn that was produced using modern biotechnology," or "Some of our growers plant soybean seeds that were developed through modern biotechnology to be drought tolerant."

In 2016, regulations were passed that will require food companies to disclose GMO (genetically modified organism) ingredients as a text label, a symbol, or an electronic code readable by smart phones. Rules for this labeling are expected to be written in two years (2018), with a compliance date later. With this regulation, federal regulations pre-empt state laws. *See "Labeling: When You Want to Know" in chapter 5, page 126, for more about non-GMO labeling.*

Grading and inspection symbols on some products. These symbols indicate that foods have met certain standards set by the government:

- *Inspection stamps* on fresh and packaged meats and poultry mean the food is wholesome and was slaughtered, packed, or processed under sanitary conditions.

Have you ever wondered?

. . . what the code on the lid or the bottom of canned foods means? A series of letters or numbers identifies the plant location, exact date of processing, and perhaps even the work shift or time. This lets manufacturers rotate the stock and locate it in case of a recall. These codes aren't meant as "use by" dates. Codes differ from one food company to another. If you can't read the code but wish to, contact the company, using the toll-free number, website address, or address on the label.

. . . what "natural" on a label means? Defining a food product as "natural" is difficult because the food has probably been processed and is no longer only a product of the earth. That said, the FDA has not developed a definition over the years for using the term "natural" or its derivatives, and it hasn't objected to the use of the term if the food does not contain added color, artificial flavors, or synthetic substances. However, due to consumer requests and changes in food ingredients and production, the FDA is exploring the use of the term "natural" in food labeling. Stay tuned. For meat and poultry, the term is defined by the US Food Safety and Inspection Service (FSFS) to mean no artificial ingredients or added color and is only minimally processed. "Minimally processed" means that processing can't fundamentally change the product and the label must state the meaning of the term "natural."

Label Confusion?

Food packages may carry other attention-grabbing, marketing terms implying a ""halo" of health. But what do these terms really mean? There are no consistent definitions—and some may lead to shopper confusion. These are among the terms with no current federal government–regulated definitions for food labeling, but which may turn up on packaging:

- doctor-recommended
- eco-friendly
- energy
- green
- naturally raised, naturally grown
- high-quality
- local
- no additives
- sustainable
- wholesome

Label Lingo

What Other Label Claims Mean

Besides nutrition and health claims, some labels carry other label terms.

Label Term . . .	Means . . .
FRESH	Food in its raw state. The term can't be used on food that has been frozen or heated, or on food that contains preservatives.
FROZEN FRESH OR FRESH FROZEN	Food that is quickly frozen while very fresh shortly after harvest
QUICKLY FROZEN	Food that is frozen using a system that freezes the center of the food fast but with virtually no deterioration
HOMOGENIZED	Milk that has been processed to break up and separate the milk fat, which makes its texture smooth and uniform
NATURAL	No regulatory definition by FDA, which has not objected to the use of the term if the food contains no artificial ingredient or added color or synthetic substances. The label must explain the use of the term "natural" (e.g., "no added colorings or artificial ingredients"). For meat and poultry, the term is defined by FSIS to mean no artificial ingredients or added color, and only minimal processing.
PASTEURIZED	Food such as raw milk, raw eggs, and fresh juice that has been heated to a temperature high enough to destroy bacteria and inactivate most enzymes that cause spoilage
ULTRA- PASTEURIZED	Food such as cream that has been heated to a temperature higher than for pasteurization, which extends the time it can be stored in the refrigerator or on the shelf
UHT (ULTRA-HIGH TEMPERATURE)	Food that has been heated to a temperature even higher than for ultra-pasteurization and packaged in a sterile container; this allows it to be stored unopened without refrigeration for up to three months. Once opened, it must be refrigerated.

- *Food grades*—for example, on some types of meat, poultry, eggs, dairy foods, and produce—suggest standards of appearance, texture, uniformity, and perhaps taste. With the exception of marbling fat in meat, food grading does not suggest nutrient value. *Grading for meat, poultry, and eggs is discussed in "Meat: Buying Tips" and "Eggs: Buying Tips" in this chapter, pages 164 and 172.*

Preparation instructions. Some products suggest oven or microwave times and temperatures, or perhaps other preparation or serving tips. Some offer recipes.

Kosher symbols. The term "kosher" means "proper" or "fit" in Hebrew. Kosher symbols indicate that the food has met the standards of a Jewish food inspector, done in addition to a government safety inspection. The kosher code, which may appear on foods throughout the store, doesn't imply any nutritional qualities.

Often the word "Pareve" is written next to these symbols, meaning the food has neither meat nor dairy ingredients. During March and April, a large "P" next to the symbols means it's kosher for Passover.

Star-K OU OK KOF-K

Halal and Zabiah Halal symbols. Products prepared by federally inspected meatpacking plants and handled according to Islamic dietary law and under Islamic authority may bear Halal and Zabiah Halal references.

CERTIFIED HALAL حلال ISLAMIC FOOD AND NUTRITION COUNCIL OF AMERICA

Universal Product Code (UPC). Black bars of different widths, which identify the manufacturer and the food, on package labels are used by stores and manufacturers for inventory control, marketing information, and price scanning.

Your Food Dollar: More Nutrition, Less Waste

Good news: You don't need to give up good nutrition for a reasonable grocery bill! But how do you save money, as well as time and hassle, when you shop for food? And how do you get the most nutrition for your food dollar—and limit waste? Being an educated consumer who has smart shopping habits and knows what's needed is the main way. It's also important to be aware of marketing ploys that tempt you to buy beyond your shopping list. Know thyself!

PLAN AHEAD

Planning menus ahead lets you buy just what you need, avoid wasted food, lower your food costs, and prevent the time and stress of unneeded shopping trips and the last minute dilemma: "what's for dinner?" To plan well, keep the following in mind:

- Know your food budget; know what you typically spend. Adjust your menus, as needed, to get the most nutrition for your food dollar.
- Keep a running grocery list, written and posted in your kitchen, or use an app with a built-in database on your smart phone or tablet. Track routine purchases, and note ingredients for recipes you plan to prepare. Some apps convert recipes into shopping lists.

  Organize your list by category to match the store layout—for example, produce department, dairy case, meat counter, deli, bakery, frozen foods, and grocery aisles. Before you shop and as you plan, check your food inventory—pantry, fridge, freezer—to use what you have on hand.

  Whatever method you use, a shopping list jogs your memory, saves money at the store, saves shopping time, and simplifies any online shopping or shopping by those who assist you. It also may keep you from buying what you don't need. Stick to your list.
- Stock up on staples, or the foods you use often, so you can prepare healthy meals without a trip to the store. That includes vegetables and fruits in all forms: fresh, frozen, canned, dried, and 100 percent juice. When available in your own kitchen, you're more likely to eat enough vegetables and fruits. Every cook has his or her own unique list of staples.
- Buy and prepare the right amount. If food goes uneaten, you've wasted food and money.

USE COUPONS, STORE SPECIALS, AND APPS

Use these tools to stretch your food budget:

- Download or clip coupons, but only for items you really need. Some apps aggregate coupons from many store flyers; some can alert you to their expiration date.

  Be alert: Items with coupons aren't always the best buy. Another brand or a similar food might be cheaper and perhaps more nourishing, even without a coupon.
- Check supermarket specials in store circulars, newspaper inserts, or online. Plan menus around them; some apps can help. If the store runs out of an item on special, ask for a rain check. Be aware of "limit" signs ("limit three per customer") and messages such as "two for $5.00" (not "$2.50 each"), which are marketing ploys to get you to buy more. Research shows they work!
- Choose apps that make shopping trips easier. Besides being a handy place to keep shopping lists, the best apps also scan bar codes, deliver coupons, and let you share family shopping tasks.
- Sign up for a loyalty program—if it offers benefits that match your needs. Besides savings, you may get advance e-mail/online notices of in-store specials, cash-back offers, reward cards, coupons, recipes, nutrition and health tips, and reminders of products you buy frequently.
- Take advantage of seasonal produce. In season, the price for fresh vegetables and fruits may be lower, and the produce may be more flavorful with more varietals. Depending on where you live, you might shop at a farm or local farmers' market. What's seasonal depends on the growing season and conditions where you live.

CONSIDER YOUR TIMING

Timing your shopping trip right can help in many ways:

- Try to shop less often for major stock-ups if that works for you. Likely you'll spend less on impulse items—and save time and fuel cost. More trips for major shopping can add up to more money spent and potentially to more food waste if you buy more than used and needed. A quick after-work stop for a fresh item for a meal is different.
- Eat before you shop. Even a small snack can prevent you from being hungry when you shop. This helps you avoid impulse buys from store sampling, buying too much, and being tempted to buy a candy bar at checkout.
- Shop during off-hours if you can: early morning, late evening, or midweek. You'll shop faster, perhaps with less stress.
- If you can, walk or bike to the store for small purchases when you have time. If you need to hand carry food home, you may skip the urge to buy extras—and you'll get exercise, too!

SHOP WITH INTENT

Being a mindful shopper is as important as being a mindful eater. These are ways to "mind" your food expenses and the quality of your food choices:

- Shop with a basket or smaller cart, which may encourage you to buy less or only what you need.
- Use food labels to find foods that match your needs and compare their nutrition, *as discussed in "Food Labels: Decode the Package" in this chapter, page 144.*
- Decide what quality and form of food you need. For example, if you're making a casserole, chunk light tuna may be fine. But more expensive solid white tuna has more eye appeal in a tuna-vegetable salad.

Shopping List: Stocking a Healthy Kitchen

In Your Kitchen Cabinet . . .

- Baking ingredients (baking soda, baking powder, cocoa powder)
- Barley (whole)
- Beans (canned, dry)
- Beans, refried (canned, fat-free, reduced fat, vegetarian)
- Bread and rolls (whole wheat or mixed grain)
- Broth (beef, chicken, vegetable; canned, reduced sodium, reduced fat)
- Bulgur
- Cereal (whole-grain, fortified)
- Condiments (ketchup, mustard)
- Cornstarch
- Couscous (perhaps whole wheat)
- Flour (whole wheat, unbleached white whole wheat)
- Fruit (canned in own juice or light syrup, dried)
- 100 percent fruit spread
- Gingersnaps or vanilla wafers
- Herbs and spices (dry)
- Juice (100 percent), fruit and vegetable, (boxed)
- Milk, evaporated fat-free (skim)
- Milk powder (nonfat dry)
- Nuts
- Pasta (spaghetti, macaroni, others, perhaps whole grain or fiber rich)
- Pasta sauce
- Peanut butter, other nut butters (almond, cashew)
- Rice (brown, white)
- Salad dressing (perhaps reduced fat)
- Salsa or picante sauce
- Sugar (granulated, brown, powdered/confectioners')
- Tuna or salmon (canned and packed in spring water, vacuum packed)
- Vegetable oil cooking spray
- Vegetable or other oil (canola, olive, peanut, soybean, others)
- Vegetable soup (canned, perhaps reduced sodium)
- Vegetables (canned, perhaps reduced sodium)
- Vinegar (apple cider, balsamic, rice, others)

In a Cool, Dry Place . . .

- Garlic
- Onions
- Potatoes, sweet potatoes
- Shallots

In Your Refrigerator* . . .

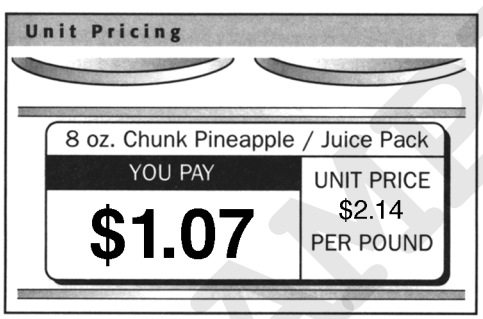
- Apples
- Celery
- Cheese (regular, reduced fat)
- Cheese, Parmesan
- Deli meats, lean, perhaps reduced or low sodium (sliced turkey or chicken breast)
- Eggs (or egg substitute)
- Garlic
- Green onions (scallions)
- Greens (kale, lettuce, spinach, others)
- Juice (100 percent), fruit and vegetable
- Lemons
- Milk (fat-free, low-fat, perhaps whole)
- Mushrooms
- Oranges
- Tortillas (perhaps whole wheat, corn)
- Vegetables (carrots, green beans, others)
- Yogurt (perhaps Greek)

In Your Freezer* . . .

- Frozen cut fruits and berries (assorted)
- Frozen fish fillets
- Frozen green bell peppers (chopped)
- Frozen onions (chopped)
- Frozen vegetables without sauce (assorted)
- Frozen whole-wheat waffles or bagels
- Frozen yogurt or fruit sorbet
- Fruit juice (100 percent) concentrate
- Lean ground beef
- Pork loin
- Skinless chicken breasts or thighs

*Buy fresh produce, meat, poultry, and fish as you need them.

- Buy the economy size or a family pack only if it's cheaper, and if you have enough storage space.
- While warehouse stores may charge less, you may not save if you must buy large amounts, especially if food spoils and must be discarded. For foods that freeze, take time to repackage them into smaller amounts in freezer bags and then freeze for later use.
- Check unit prices on supermarket shelves. They make cost comparisons easier, especially for similar foods in different-size containers. Prices are given as cost per unit rather than price per package or container. The unit might be an ounce, a pint, a pound, or some other measurement. The largest container isn't always the cheapest.



- Compare the prices of private-label brands, store brands, and generic brands. Store brands and generic products may cost less since they don't have the same promotional costs. The quality is likely similar.
- Stock up on canned and other nonperishable foods when they're on sale. At home, rotate your food supply so that the "first in" is the "first out."
- Buy perishable foods in amounts that will be consumed during their peak quality. An extra bunch of broccoli that spoils in the refrigerator is no savings.
- Consider buying from bulk bins if your store has them. Without the expense of packaging or branding, bulk foods often cost less, and they're usually the same foods you find on supermarket shelves. For best advantage, buy just the amount you need. Foods such as dried fruit, pasta, rice, other grains, snack mixes, and spices are among those sold in bulk.

  While buying unpackaged bulk foods has advantages, packaging has different benefits, such as offering convenience and providing product information about nutrition, storage and use and about the food manufacturer. By protecting a product's cleanliness and safety and perhaps extending its shelf life, packaging can contribute to less wasted food.
- Consider the cost of convenience. Prepared, presliced, and precooked foods usually cost more. For example, ready-to-grill beef kabobs cost more than buying beef to make your own. However, depending on your schedule, labor-saving and step-saving, these ingredients may be worth the price.

  Convenient, innovative packaging such as squirt bottles and ready-to-serve pouches often add to the cost; decide if the benefits are worth the added packaging cost.
- If available, and if you qualify, take advantage of senior citizen discount days.
- Remain flexible. If you see a better bargain or a new food (perhaps a vegetable or fruit), adjust your menu.
- Plan menus that combine more costly ingredients with more affordable ingredients, such as fruits, vegetables, whole grains, and low-fat or fat-free dairy foods as the main feature. Use small amounts of lean meats.

"Small-Household" Shopping

If you're a household of one or two, how can you maximize your food dollar? Besides general cost-saving tips, you might save in other ways:

- Buy frozen, free-flow vegetables and fruits in bags. As long as they aren't thawed, you can pour out as much as you need and then reseal and return the bag to the freezer.
- Look for single-serving foods: juice, yogurt, frozen meals, soup, and pudding, among others. These give you a greater variety of food on hand. "Singles" may help with portion control, too.
- Economy-size packages? Share with a friend.
- Decide if the bigger package with the lower unit price is really a saving. If you can't use it all, it's not.
- Shop from bulk bins for small amounts.
- At home repackage meat, poultry, and fish into single portions in freezer wrap or plastic freezer bags. Freeze for later.
- Ask the butcher or the produce manager to repackage a smaller amount of fresh meat, poultry, or produce.
- Buy produce that keeps longer in the refrigerator: broccoli, Brussels sprouts, cabbage, carrots, parsnips, potatoes, sweet potatoes, turnips, apples, grapefruit, melons, oranges, pears, and tangerines.
- Shop for convenience. Often, mixed salad greens (perhaps from the salad bar) or raw vegetables already cut and mixed for stir-fry dishes or salads cost less than individual foods bought in quantity.
- Buy small loaves of bread, or wrap and freeze what you won't use right away.

- Be aware of marketing tactics. End-of-the-aisle displays, called endcaps, and store sampling are meant as attention grabbers. When you stop and look, you are more likely to buy. In the aisles, the best bargains may be at the top or bottom of the shelf, not at eye level.
- Be savvy about the marketing approach, referred to as "green washing" or "green sheen." The term "green" is undefined and unregulated. This type of marketing may suggest that foods are more environmentally friendly than they really are. Marketing phrases that imply the product is better for the Earth don't necessarily mean better for you.

  To buy with sustainability in mind, learn about the food, such as how and where it's grown and produced—and consider your own food preparation and eating: are you wasting food?
- Pay attention at checkout. Put down the magazine or your cell phone. See that prices scan as advertised or as indicated on the shelf label, especially for sale items. Common checkout errors are: sale items not programmed into the computer; charging for the weight of packaging; and in some states, taxing nontaxable items. Check your receipts.

Click Here! Links to Know . . .

- Food Value Analysis, comparing the cost of homemade to prepared food
  www.foodvalueanalysis.org

Shopping for Food Online

Here's a projection to chew on: Online grocery shopping will add up to $100 billion sales by 2019, four times a much as in 2014, according to Packaged Facts!

With improved ordering and better delivery services, the convenience of online shopping is trending among those who have less time or less ability to shop in traditional supermarkets. Many online grocers are designed for time-pressed families; you might multitask with food shopping while waiting for an appointment. Online shopping may also be a good solution for older adults or those with physical limitations. *Bonus:* You may avoid impulse buying (although the ease of shopping may add food expense).

If you decide to be an online food shopper, these tips may save you time, energy, and money:

- Find the right online service for your needs. A few questions to ask: Do you want nonperishables only, fresh produce only, or both? Does the service offer the brands you like? Is there a membership or delivery fee that costs more than any savings? Is the delivery the same day or next day? Where will it be delivered; will you be home? Is there a minimum order? Does it offer easy online coupons or other promotions? Does it keep an order history? Does your local grocer offer a delivery service, perhaps without a membership fee?
- Keep a list of staples you want to keep on hand. Some online services have an interactive list you can use and modify for your needs.
- Use your label savvy. Since you can't see or touch food items, you need to be especially attentive to the label information and unit prices as you compare and choose.
- Click around the website for recipes and to learn more about the food, its ingredients (perhaps allergens), its preparation and storage, and perhaps its producer. If you count on package labeling for information such as high fiber, gluten free, or low saturated fat, look for that too.
- For specials, check the sales expiration date before confirming your order to make sure an item is charged to you within the sale period.
- Scroll through your options. Often a grocery search lists more costly items before generic or store brands.
- Be cautious with auto-reorder to avoid food waste. Before clicking "yes" to items you've bought before, check your kitchen inventory and consider whether you'll use the item.
- For perishables, find a service that provides the freshness and quality you want, at affordable prices. Check that the delivery matches your schedule. You might decide to order only produce that doesn't bruise easily such as apples, corn, and pineapple and save other items for trips to the store.
- Assess the benefits. Calculate your time and money savings and decide if this was the best option for you. If products are mishandled, contact customer service.
- Look for more, such as information about new or better-for-you foods, shopping and food safety tips, and perhaps online "talk time" with a supermarket dietitian.

More and more brick-and-mortar supermarkets offer online shopping. As this option grows, look for more online stores that sell specialty foods or foods from small producers.

Have you ever wondered?

. . . if it's healthier to just shop the outside perimeter of the store? If you've heard advice to shop mostly the perimeter, that's old school. Today's stores have many different layouts. For example, some have themed areas in center store, while others display their fresh produce there. Some stores have in-store cafes that occupy part of the perimeter.

Even if your supermarket displays fresh vegetables and fruits, fresh meat and poultry, fresh fish, dairy, and bakery around the perimeter, you'll miss a lot of good flavor and good nutrition if you avoid the middle. Mid-store grocery aisles display items such as barley, brown rice, oatmeal, quinoa, nuts, dried fruit, olive and canola oils, and healthy convenience foods such as canned vegetables and fruits, low-sodium broth, and 100% vegetable juice. And freezer aisles provide many nourishing frozen items including vegetables and fruits. Wherever you shop, get to know the store layout to make the best use of your time and supermarket savvy.

. . . what a "food desert" is? It refers to geographic areas (often urban) without access to affordable fruits, vegetables, whole grains, low-fat or fat-free milk, and other foods that make up the full range of a healthy diet. The result? The ability to make nourishing food choices is limited. Since higher-calorie, lower-nutrient foods might be the options instead, food deserts may play a role in the obesity epidemic and some chronic health problems.

Do you think you live in a food desert? There's no precise definition, but this government website offers insight: www.ers.usda.gov/data/fooddesert. Even if you do, you can take steps to eat healthy—maybe even start or participate in an urban garden.

The Store: Shopping for Health, Flavor, and Convenience

Filling your shopping cart? Let's tour the supermarket, department by department, focusing on shopping tips for high-quality, nutritious, and safe foods—that match your needs.

Certainly the "shopping trip" on the next few pages won't cover all the foods sold today; and new products, including more variety and more better-for-you products, constantly come on the market. However, some shopping savvy for each food category can help you make healthy and perhaps more economical shopping decisions. *See chapter 5, page 511, for more about food—from farm to market.*

PRODUCE DEPARTMENT

Supermarkets carry about 300 types of vegetables and fruits. They're most nutritious and best tasting at peak quality.

Raw Veggies and Fruits: Buying Tips

1. Check the produce department. Besides being clean, organized, and appealing, raw vegetables and fruits should be held at a proper temperature. Most are chilled; a fine mist helps keep greens crisp; being soggy promotes growth of mold or rot.

Fresh from the Farmers' Market?

With thousands of farmers' markets in operation in the United States and more opening every year, you get a chance to talk directly to growers and producers and perhaps find products you can't find elsewhere: different varietals of vegetables and fruits; artisan cheeses; fresh or potted herbs; cut flowers; homemade sauces; oven-fresh baked goods; organically certified foods; meat, poultry, or eggs from nearby producers; or fresh fish. And it's a great shopping option for getting more vegetables and fruits in your food plan!

Be aware that the produce sold may—or may not—be fresh from the field. Some markets feature only nearby growers. Others sell brokered products from the same commercial markets that supermarkets buy from. And some sell both. Ask the market manager.

For food safety and great shopping:

- Bring a clean carry bag, basket, or several, perhaps insulated. Use separate bags for raw and cooked foods. Also keep uncooked meat, poultry, and fish separate from other foods, including dairy foods, to avoid cross contamination. Some markets don't allow plastic bags.
- Pay attention to the food-safety practices of the vendor: cleanliness, gloves or clean utensils for handling food, covered garbage cans, clean bags.
- Go early for the best selection; check the market website ahead of time if there is one. Walk through the market first to see what's available and then make your choices.
- Shop with flexibility. Markets change with the season and the local growers and vendors who come to market.
- Take time to talk to the growers and learn from them. Many small farmers are eager to talk about their growing methods and how they care for their animals. They may even invite you for a farm visit!
- Pack your purchases so they don't get crushed; take perishables home right away.

Freshness: How to . . . Judge Produce

Here are guidelines for choosing the freshest produce for optimal flavor and quality.

FOR FRUITS . . .

APPLES	Firm with smooth, clean skin and good color. Avoid fruit with bruises or decay spots.
APRICOTS	Plump with as much golden-orange color as possible. Blemishes, unless they break the skin, will not affect flavor. Avoid fruit that is pale yellow, greenish-yellow, very firm, shriveled, or bruised.
ASIAN PEARS	Fragrant, unbruised fruit with little or no brown spots. They are hard when ripe, unlike traditional pears.
AVOCADOS	Green to purplish-black skin with a smooth to bumpy texture, and yellow-green, soft flesh. When ripe, it yields to gentle pressure. Most are sold unripe.
BANANAS	Plump with uniform shape at the desired ripeness level. Avoid fruit with blemished or bruised skins.
BLUEBERRIES	Plump and firm with a light-grayish bloom, which is the thin coating on the surface. Check the carton to avoid signs of mold.
CANTALOUPES	Slightly oval shape, 5 inches or more in diameter, with yellow or golden (not green) background color and heavy for size. Signs of sweetness include pronounced netted (netlike markings) rind and a few tiny cracks near the stem end. Smell the melon; it should be noticeably fragrant. At home, check for ripeness before you eat it; the stem area will be slightly soft when ripe.
CHERRIES	Plump, firm sweet or sour cherries with stems attached. Sweet cherries with reddish-brown skin have the best flavor. Avoid fruit that is overly soft or shriveled or has dark stems.
DATES	Plump and soft with smooth, shiny skin. Avoid fruit that is shriveled or has sugar crystals or mold on the skin.
GRAPEFRUITS	Firm, thin-skinned, smooth, and heavy for its size, and flat at both ends. Avoid fruit with a pointed end or thick, deeply pored skin.
GRAPES	Plump, firm grapes that are firmly attached to pliable green stems. Avoid fruit that is soft or wrinkled and that has bleached-looking areas at the stem end.
HONEYDEW MELONS	Waxy white rind barely tinged with green and weighs at least five pounds. Fully ripe fruit has a cream-colored rind; the blossom end should give to gentle pressure.
KIWIFRUIT	Evenly firm fruit with a rough, fuzzy brown skin. For ripeness, slightly soft with gentle handling.
LEMONS	Firm, thin, bright-colored, and smooth skin. Generally, rough-textured lemons have thicker skins and less juice than fine-skinned varieties.
LIMES	Firm, thin, bright-colored, and smooth skin.
MANGOES	Usually quite firm when sold and must be ripened further at home before eating. Avoid fruit with shriveled or bruised skin. When ripe, it will give to gentle pressure.
NECTARINES	Orange-yellow (not green) background color between areas of red. Ripe nectarines feel slightly soft with gentle handling, but not as soft as ripe peaches.
ORANGES	Firm, thin-skinned, and bright-colored. Avoid fruit with any hint of softness or whitish mold at the ends.
PAPAYAS	Soft like a peach and has more yellow than green in the skin. Most must be ripened further at home in a loosely closed paper bag at room temperature. Avoid bruised or shriveled fruit showing any signs of mold or deterioration.
PEACHES	Creamy or yellow background color. Ripe peaches feel slightly soft with gentle handling. Avoid green, extra-hard, or bruised fruit.
PEARS	Firm. Pears gradually ripen after picking. When the stem end yield to gentle pressure, it's ready to eat.
PINEAPPLES	Plump with dark-green leaves, heavy for size, and a sweet smell. Avoid fruit with soft or dark spots, areas of decay, or fermented odor, or with dry leaves.
PLANTAINS	Firm when green, yields to gentle pressure when yellow, and slightly soft and black when ripe. Avoid fruit that is moldy or cracked.

Freshness: How to . . . Judge Produce *(continued)*

PLUMS	Plump, smooth skins. Ripe plums are slightly soft at the tip end and feel somewhat soft with gentle handling. Avoid fruit soft spots, bruises, or shriveled skin.
POMEGRANATE	Plump, round, and heavy for its size. Avoid fruit that is shriveled.
RASPBERRIES AND BLACKBERRIES	Firm, plump, and well shaped. If soft or discolored, they are overripe. Avoid containers that look stained from overripe berries or have signs of mold.
STRAWBERRIES	Firm, shiny, and bright red colored, with fresh, green, and intact cap. Avoid leaky, mushy, or shriveled berries. Check the carton to avoid signs of mold.
WATERMELONS	Heavy for its size, well shaped, and with rind and flesh colors characteristic of the variety. Ripe melons are fragrant and slightly soft at the blossom end. A melon that sloshes when shaken may be overripe. Stem should be dry and brown, not green. When thumped, you should hear a low-pitched sound, indicating a full, juicy interior.
FOR VEGETABLES . . .	
ARTICHOKES	Tight, compact heads that feel heavy for their size. Surface brown spots don't affect quality.
ASPARAGUS	Firm, brittle spears that are bright green almost their entire length, with tightly closed tips.
BEANS (GREEN OR WAX)	Slender, crisp, bright-colored, and blemish free. Avoid mature beans with large seeds and swollen pods.
BEETS	Small to medium size, firm, and smooth-skinned, with fresh-looking, deep-green leaves.
BELL PEPPERS	Bright-colored, glossy, firm, and well shaped. Avoid peppers with soft spots or gashes.
BOK CHOY	Heads with bright-white stalks and glossy dark leaves. Avoid heads with slippery brown spots on the leaves.
BROCCOLI	Compact clusters of tightly closed, dark-green florets. Avoid heads with yellow florets or thick, woody stems.
BRUSSELS SPROUTS	Firm, compact, fresh-looking, bright-green, and heavy for their size.
CABBAGE	Firm heads that feel heavy for their size and outer leaves that have good color and are blemish free.
CARROTS	Firm, clean, and well shaped with bright, orange-gold color. Carrots with their tops still attached are likely to be freshest.
CAULIFLOWER	Firm, compact, creamy-white heads with florets pressed tightly together, and crisp, bright-green leaves. A yellow tinge and spreading florets indicate over-maturity. Avoid heads with brown spots.
CELERY	Crisp, rigid, green stalks with fresh-looking leaves. Avoid celery with limp stalks.
CELERY ROOT (CELERIAC)	Small and firm, with few knobs and rootlets. Avoid those with soft spots.
CORN	Fresh-looking ears with green husks, moist stems, and silk ends free of decay or worm injury. When pierced with a thumbnail, kernels should squirt some juice. Tough husks indicate over-maturity.
CUCUMBERS	Firm, dark-green, and slender but well shaped. Soft or yellow cukes are over-mature.
DAIKON (ASIAN RADISH)	Firm and not wrinkled.
EDAMAME (IMMATURE SOYBEANS IN THE POD)	Tender, bright-green pods with no yellowing.
EGGPLANTS	Firm, heavy for their size, with taut, glossy, deeply colored skin and bright-green stems.
FENNEL	Fragrant, celerylike stalks with a bulbous base and feathery leaves.

(continued)

Sound, positive, and practical advice for you and your family, at every age and stage of life

Finding food and nutrition information and guidance you can trust is challenging in today's world. The choices you make every day about food and nutrition really do matter—and they impact your health and well-being now and throughout your life. This fully updated, award-winning resource clarifies the complex, and sometimes confusing, information about what and how to eat—at home and away, in nearly any situation.

Comprehensive and easy to use, this fifth edition is packed with flexible guidelines, real-world tips, and simple tools, it's designed to help you make informed, appealing food and beverage choices that personalize your own path to healthy eating and active living.

Reflecting the 2015–2020 Dietary Guidelines for Americans, as well as today's food marketplace and lifestyle trends, this guide balances the "whys and hows" of healthy eating with practical solutions, including:

- **Making choices for wellness:** Guidelines for smart eating and active living, healthy meals for busy lives, the Mediterranean diet, plant-based eating, smart snacks, mindful eating, sports nutrition, dietary supplements
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