

preface

To the Instructor

Since you teach nutrition, you undoubtedly find it a fascinating and challenging subject. You probably also find that teaching nutrition is a challenge in and of itself. Claims and counterclaims abound regarding the need for certain dietary components. For example, one group of researchers promotes a reduction in salt intake for the general population as a means of preventing hypertension. Other researchers assert that despite excess salt intakes, most North Americans maintain normal blood pressure values. This apparent dichotomy only adds to the challenge of teaching in a rapidly changing field.

As textbook authors, we understand the importance of providing accurate, balanced, and up-to-date coverage of nutrition topics, particularly those that are controversial. To provide students with a sound introduction to the study of nutrition, we draw on as many reliable sources as possible. This sixth edition of *Perspectives in Nutrition* reflects new material from the recently published Dietary Reference Intakes by the Food and Nutrition Board, articles in major nutrition and medical journals and leading nutrition and health newsletters, and chapters in *Present Knowledge in Nutrition*, edited by Bowman and Russell. We constantly scour the literature with the goal of providing clear and balanced perspectives on recent research so that you and your students can better understand and participate in the debates of current nutrition issues.

Personalized Approach to Nutrition

A prominent theme in nutrition today is *individuality*. Nutrition advice is not a one-size-fits-all proposition. For example, not all of us find that saturated fat in our diet raises our blood cholesterol values above recommended standards. Individuals respond differently, often idiosyncratically, to certain nutrients. The goal of understanding how nutrients affect us as individuals is a key objective of this text.

Moreover, even at this introductory level, we do not assume that all nutrition students are alike. We incorporate opportunities, such as the Take Action activities, for students to learn

more about their own health and nutrition. In this way, students can apply the knowledge they gain to improve their health. Throughout the chapters, we strive for the same objective as many of our colleagues, to educate students to become judicious consumers of both food and nutrition information. We seek to help students sort through the wealth of nutrition information and misinformation available to them. This text is designed to help them better understand and evaluate the nutrition information they encounter on cereal box labels, articles in popular magazines, nutrition- and diet-related websites, guidelines issued by government agencies, and more.

Once students have achieved a solid working knowledge of nutrition, our goal is to assist them in assessing their personal nutrition needs, rather than strictly adhering to every guideline issued for an entire population. After all, a population by definition includes a scope of varying genetic and cultural backgrounds, along with varying responses to diet.

As a final note, we know that students often come to this course with many preconceptions and questions about nutrition “hot topics.” To address students’ concerns, we have included coverage of topics that touch their lives: eating disorders, ethnic diets, nutritional supplements, phytochemicals, vegetarianism, diets for athletes, popular (fad) diets, and complementary and alternative medical practices. (See the Chapter Highlights section for examples.) Regardless of the topic, the overall emphasis remains the same—the importance of understanding one’s food choices and diet practices to best meet personal needs.

Intended Audience

We have developed this book with nutrition and science majors in mind. The chemistry, biochemistry, and physiology presented in the text assume that students have had at least some college-level science. Because this course often attracts students from a fairly broad range of majors, we have been careful to include examples and explanations that are relevant to nutrition, health education, human ecology, human performance, nurs-

ing, and other health-related majors. For students who wish to learn more or need assistance with the science involved in metabolism and body systems, additional information can be found in Appendix A, “Chemistry: A Tool for Understanding Nutrition” and Appendix C, “Human Physiology: A Tool for Understanding Nutrition.”

Key Revisions to the Sixth Edition

Creating a textbook is a dynamic process. Rather than simply updating facts and numbers with each new edition, we seek to be responsive to changing instructor and student needs. We challenge ourselves to take a fresh look at each new edition to find ways to refine and improve and make the book a better teaching tool all around. Many of the new features in the sixth edition are a direct result of feedback we have received from instructors. Their advice on the level and presentation of science has been invaluable. We have also learned a great deal from the students in the courses we teach. Their feedback can be seen in improved illustrations and clearer discussions of difficult concepts.

New Author Team

The most significant change in *Perspectives in Nutrition*, sixth edition, is the addition of two new co-authors: Jeffrey Hampl and Robert DiSilvestro. This edition benefits greatly from their professional areas of expertise and their experiences teaching introductory nutrition. Jeff’s extensive background in nutrition practice and community nutrition research and Bob’s keen interest and research in the micronutrients, have all been helpful in this revision.

Up-to-Date Nutrient Guidelines

A major component of this revision involves the updating of data and discussions related to the latest Dietary Reference Intakes. Also included are the latest guidelines from the National Cholesterol Education Program, American Heart Association, the American Medical Association, and the American Cancer Society, Inc.

Refocused Science Coverage

You will find many examples in this edition where we paid particular attention to addressing the level of science and to making the science more accessible for students. For example, Chapter 3, “Human Digestion and Absorption” now focuses on the gastrointestinal system, with coverage of related body systems included in the fifth edition moved to Appendix C, “Human Physiology: A Tool for Understanding Nutrition.” Although an interesting approach, the inclusion of all this material in one chapter made Chapter 3 too overwhelming for many of our re-

viewers, given the allotted amount of class time. The discussion of micronutrients has been simplified as well. For example, the Estimated Average Requirements for nutrients have been moved to Appendix M, such as for the B vitamins.

Throughout the book, there are many dynamic new illustrations that will help students grasp important scientific concepts with greater clarity. Chapters 3 and 4 contain many new digestion and metabolism diagrams. Complex subjects, such as glycolysis and the citric acid cycle, have been reinterpreted with color and omission of chemical structures to help students comprehend the steps involved in these processes. The more detailed depictions of these pathways are now in Appendix B.

Content Reorganization

Based upon feedback from instructors and our own classroom experiences, we have opted to make some adjustments to content coverage within the chapters. Some key examples include restoring the discussion of nutrition assessment to Chapter 2, “The Basis of a Healthy Diet.” In turn, coverage of the Exchange System has been moved from Chapter 2 to Appendix E to keep the chapter to a reasonable length and depth. Also in the micronutrient chapters (Chapters 9–12), each nutrient is now discussed first in terms of its food sources and RDA/AI, which is then followed by the effects of nutrient deficiency.

To better address the needs of students at this level, we have replaced the Food Guide Pyramids in the macronutrient and micronutrient chapters with more complete lists of individual foods and their nutrient content. Each list is conveniently located in the margin next to the text discussion of food sources. If you still want to use the various pyramids in your teaching, these can be found on the Digital Content Manager 2003 CD.

High-Interest Learning Tools

We have also reevaluated the pedagogical aids within this edition. In addition to a beautiful new design layout, we attempt to draw students into the book through thought-provoking devices, such as the Case Scenarios that open each chapter (some are new). Our goal is to heighten student interest with real-life examples that they will revisit with the Case Scenario Follow-Up later in the chapter.

Each chapter also now includes Chapter Objectives that will help students identify the key concepts they should expect to master as they study. We typically start our lectures with specific objectives, and we hope you and your students will find these valuable as well.

Each chapter generally concludes with a list of about 18–20 Annotated References. While this list does not reflect every resource (i.e., most major nutrition and medical journals and popular health and nutrition newsletters) we consulted in writing this text, we have chosen these because they were especially helpful in verifying and updating chapter content. We hope both instructors and students will find the references useful.

Chapter Highlights

The following is a list of some of the key changes, updates, and enhancements that have been incorporated into the sixth edition chapters.

Chapter 1 What Nourishes You?

- CDC's latest data on leading causes of death in the United States
- Basic chemical structures of carbohydrates, proteins, and fats
- Influences on food choices
- Growing use of energy bars
- 1994 Dietary Supplement and Health Education Act
- New "Expert Opinion," *Who Are North America's Nutrition Experts?* by Dr. Anne M. Smith

Chapter 2 The Basis of a Healthy Diet

- A, B, C, D, Es of nutritional assessment
- Food and Nutrition Board's new Estimated Energy Requirements
- Alternative Food Guide Pyramids (e.g., discussion of Dr. Walter Willett's Healthy Eating Pyramid)
- Visual guide to food serving sizes
- Organic food logo

Chapter 3 Human Digestion and Absorption

- New case scenario on gastroesophageal reflux disease (GERD)
- Increased focus on the gastrointestinal system and less coverage of related body systems
- Figure on the pH scale showing pH values of common substances
- More realistic physiologic illustrations (e.g., GI tract sites of absorption)
- Diagram of enterohepatic circulation
- Updated "Expert Opinion," *Probiotics, Prebiotics, and Human Health* by Dr. Steve Hertzler

Chapter 4 Metabolism

- Debate over high-protein versus high-carbohydrate diets added to "Expert Opinion," *Why Is an Understanding of Energy Metabolism Important?* by Dr. Michael Keenan
- New "Nutrition Perspective," *Inborn Errors of Metabolism*
- Easier-to-comprehend illustrations on glycolysis and citric acid cycle

Chapter 5 Carbohydrates

- Clarification of oligosaccharide terminology
- Food and Nutrition Board's current definition of fiber and latest fiber recommendations
- Carbohydrate RDA
- Improved illustrations of carbohydrate digestion and absorption
- Sample 1600-kcal and 2000-kcal diets meeting the new fiber recommendations
- Coverage of Neotame (alternative sweetener)
- Table on glycemic index (GI) and glycemic load (GL) of common foods
- Chemical structures of alternative sweeteners
- Table comparing type 1 and type 2 diabetes

Chapter 6 Lipids

- Latest Food and Nutrition Board guidelines on fat and cholesterol intake
- New "Expert Opinion," *A Closer Look at Omega-3 and Omega-6 Fatty Acids and Related Eicosanoids* by Dr. Kenneth Broughton
- Sample 2400-kcal diet with 40% of energy as fat
- Improved figures on digestion and absorption of fat, and production of trans fatty acids
- Latest National Heart, Lung, and Blood Institute lipid profile guidelines

Chapter 7 Proteins

- Improved protein digestion and absorption figure
- Latest Food and Nutrition Board guidelines for protein intake
- Photos of kwashiorkor and marasmus
- New "Expert Opinion," *A New Appreciation for the Nut in Nutrition* by Dr. Penny M. Kris-Etherton
- Revised Vegetarian Diet Pyramid

Chapter 8 Alcohol

- Figure relating blood alcohol concentration and number of drinks
- Table summarizing benefits and risks of alcohol use
- New "Expert Opinion," *Alcoholism and Nutrition* by Dr. Charles Halsted
- Table showing the impact of binge drinking on college campuses

Chapter 9 The Fat-Soluble Vitamins

- New case scenario on nutrient supplement use
- Simplified discussions (e.g., absorption, transport, storage, and excretion of vitamin A; functions of vitamins D and E)
- New "Expert Opinion," *Carotenoids and Human Health: Beyond Conversion to Vitamin A* by Drs. Thomas Boileau and John Erdman
- Lists of food sources and RDA/AI values for each vitamin
- Updated discussion on use of multivitamin and mineral supplements
- Improved figures showing how retinoic acid directs cell differentiation and how retinal operates in vision

Chapter 10 The Water-Soluble Vitamins

- Easier-to-comprehend scientific discussions (e.g., functions of vitamin B-6; collagen synthesis)
- Steps within the homocysteine metabolism diagram more clearly displayed
- New "Expert Opinion," *Looking Beyond the Water-Soluble Vitamins: Phytochemicals in Health Promotion and Disease Prevention* by Dr. Clare Hasler
- Latest available cancer death statistics

Chapter 11 Water and the Major Minerals

- Revised water balance diagram better conveys concept of intake and output
- Blood calcium regulation diagram
- New "Expert Opinion," *The Many Benefits of Calcium in Your Diet* by Dr. Gregory Miller

Latest guidance surrounding estrogen replacement therapy and the use of bisphosphonate medications for prevention/treatment of osteoporosis

Chapter 12 Trace Minerals

More comprehensible science discussions (e.g., iron deficiency; functions of zinc)

New “Nutrition Perspective,” *Modern Mineral Status Research: Searching for Subtleties*

Chapter 13 Energy Balance and Weight Control

More complete discussion of process of satiety

Photos of BodPod and DEXA scan

Discussion of Lap band procedure for gastric reduction surgery

More individualized approach to reducing energy intake

Chapter 14 Nutrition for Fitness and Sports

Appropriate use of energy bars and their nutrient composition

Updated fluid requirements for athletes

Expanded coverage of ergogenic aids in the “Nutrition Perspective”

Chapter 15 Eating Disorders: Anorexia Nervosa, Bulimia Nervosa, Binge-Eating Disorder, and Other Conditions

Revised figure comparing symptoms of anorexia nervosa and bulimia nervosa

New “Expert Opinion,” *A Closer Look at the Female Athlete Triad* by Dr. Jackie Berning

Chapter 16 Pregnancy and Breastfeeding

Improved let-down reflex figure

Latest macronutrient needs for pregnant women issued by the Food and Nutrition Board

New “Expert Opinion,” *Supporting Breastfeeding* by Mary Ellen Rivero

Chapter 17 Nutrition from Infancy Through Adolescence

Latest CDC growth charts for children

Latest macronutrient recommendations for infants and children issued by the Food and Nutrition Board

New “Expert Opinion,” *Obesity and Type 2 Diabetes in Childhood: Lessons from the Pima Indians* by Dr. Arline Salbe

Chapter 18 Nutrition During Adulthood

Simplified discussion of possible causes of aging

Simplified discussion of Alzheimer’s disease

Expanded coverage of complementary and alternative medical practices

Chapter 19 Food Safety

Additional microorganisms added to table on causes of foodborne illnesses

New “Expert Opinion,” *Food Safety: Why Should You Care?* by Dr. Lydia Medeiros

USDA’s food safety logo

Chapter 20 Undernutrition Throughout the World

Diagram showing downward spiral of poverty and poor nutrition

New “Expert Opinion,” *Food Security* by Dr. David Holben

Updated information on worldwide impact of AIDS

Expanded discussion of genetically modified foods

Special Acknowledgments

We would like to thank students Kim Didino, Wendy Wilson, Eric Souers, Becky Tippett, and Shadi Jurdi for their help with this revision. Kim and Wendy assisted in the development of each chapter and read the entire final draft. Eric, Becky, and Shadi helped proofread the manuscript. Our editor, Lynne Meyers, supported and assisted us through every step of the revision and facilitated decisions that arose as we planned and produced the sixth edition. Joyce Berendes diligently monitored the copyediting and production tasks. All these individuals contributed key expertise to the project.

Thank You to Reviewers and Contributors

As with each edition, our goal remains the same, to produce the most accurate, up-to-date, and useful textbook possible. These ambitious goals would not be possible without the meticulous, professional assistance of colleagues who have assisted us in so many ways. Their advice and suggestions have greatly helped refine the content of this edition. We owe our sincere thanks to the following individuals for providing feedback on the fifth edition, responding to the changes made in the sixth edition, contributing their insights on teaching as part of a nutrition education workshop, responding to e-mail surveys, or even sharing their opinions on the cover image. We, along with our editors, would like to recognize these educators whose contributions did so much to guide the direction of *Perspectives in Nutrition*, sixth edition.

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A Request to Professors Who Use This Book

As you might imagine, it is difficult to stay abreast of the vast range of nutrition science, following all the various controversies and new developments. We try our best but realize that sometimes we miss an element that deserves attention. If you find content that you question or believe warrants further consideration, feel free to contact us by mail, fax, or e-mail.

We extend our best wishes for success to you and your students.

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To the Student

Cholesterol, sports drinks, food labeling, bulimia nervosa, alternative sweeteners, vegetarianism, *Salmonella* foodborne illness, and genetically engineered foods—we suspect you have heard about these topics. Which topics are important enough to be a consideration in your life or in the life of someone you know?

Americans pride themselves on their individuality. Nutritional advice should be given accordingly. For example, not all of us have high blood cholesterol and other significant risk factors for developing premature cardiovascular disease. The need to tailor dietary advice to each person's individual nature is the basic approach of this book. First, you are given a brief introduction to the study of nutrition; then, how to be a knowledgeable consumer is discussed. With so much information available—both accurate and inaccurate—you should know how to make informed decisions about your nutritional well-being. Second, you are encouraged to learn the basic principles of nutrition and to discover how to apply the concepts in this book that pertain specifically to you.

The text discusses some of the most interesting and important elements of nutrition and food consumption to help you

understand both how your body works and how your food choices affect your health.

Features

Planning a New Way of Eating

Early in the text, many of the basic guidelines for planning a healthy diet are presented, including a description of the USDA Food Guide Pyramid, in Chapter 2. Later, in Chapter 13, the steps involved in setting nutritional goals and designing a diet plan to attain those goals are reviewed.

Understanding the World Around Us

In a college environment, it is often difficult to envision how real the problem of world hunger is. Chapter 20 examines the tragedy of undernutrition and the conditions that create it. The chapter allows you to explore possible solutions that offer hope for the future of our world.

Pedagogy

The sixth edition of *Perspectives in Nutrition* incorporates some important tools to help you learn the nutrition concepts in this text. Following is a guide to those tools:

1. Each chapter begins with a Refresh Your Memory box reminding you of previous chapter content (or coursework) that will be helpful to know for understanding the current chapter. Following this is a case scenario, which allows you to apply knowledge gained from the chapter in a real-life setting. An answer to each case scenario is provided in the chapter at the point at which the specific content needed to answer the case scenario is covered.
2. **Chapter Objectives** then help you focus your attention on key ideas in the chapter.
3. Throughout each chapter are **boldfaced key terms**, many of which are defined in the margin. All boldfaced terms appear with their definitions and pronunciations in the glossary at the end of the text.
4. Also throughout each chapter are **margin notes**, which further explain ideas, provide references to other chapters. Some URLs to nutrition-related websites are in these margin notes, as well as in the text itself.
5. The numerous **tables** throughout the text present major points.
6. The **Concept Checks**, which follow the major sections within each chapter, summarize key points. If you are having trouble understanding the material in the Concept Check, you should reread the preceding section.
7. Each chapter ends with a **summary**, which conveys the main ideas in the chapter, and **study questions**—both provide a review of chapter material.
8. **Annotated References** are provided to back up material presented in the chapter. If you are preparing a research paper for your class, or would just like more information on specific topics, consult these sources.
9. Also at the end of each chapter are **Take Action** boxes, which make major concepts presented in the chapter relevant to daily life. For example, you may be asked to look more carefully at your own diet, examine your family history, or apply information you've learned to friends or family.
10. **Critical Thinking** questions ask you to apply information as you learn it. This fosters understanding of the material.
11. **Nutrition Perspective** essays at the end of each chapter develop current topics in nutrition, often covered earlier in the chapter, in greater detail.
12. A variety of supplements to this text, including dietary analysis software, are available to you. These instructional

aids are designed to help you learn the major concepts developed in the text and prepare for class examinations.

13. The website www.mhhe.com/wardlawpers6 contains an **Online Learning Center**, with quizzes, flash cards, other activities, and web links designed to further help you learn about nutrition. This is organized according to each chapter in the book.

A Request to Students Who Use This Book

We try our best but realize that sometimes we miss a side of an argument that deserves attention or do not make something perfectly clear. If you find content that you question or believe warrants more detail or a clearer explanation, feel free to contact us by mail, fax, or e-mail.

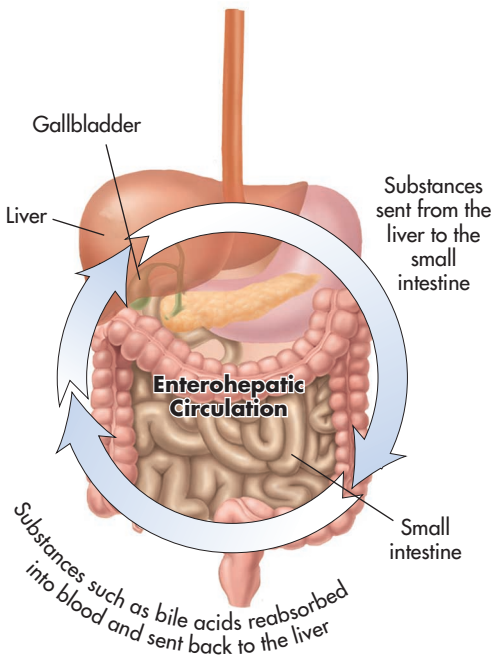
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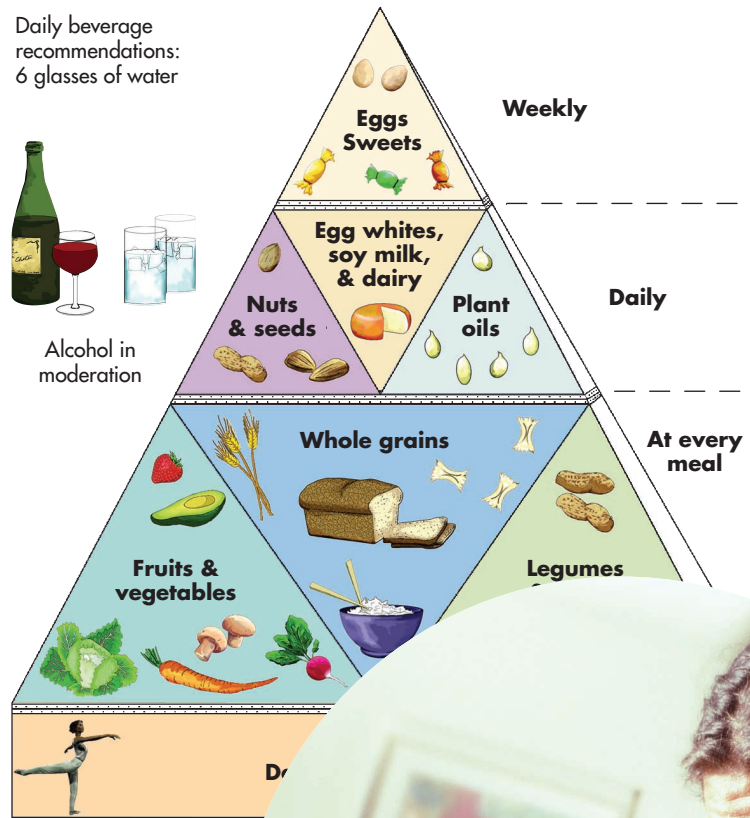
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Thoughtfully Crafted New Illustrations

The presentation of scientific concepts has been enhanced by dynamic new illustrations. Realistic renderings and careful color-coding of processes assist students in grasping difficult concepts.

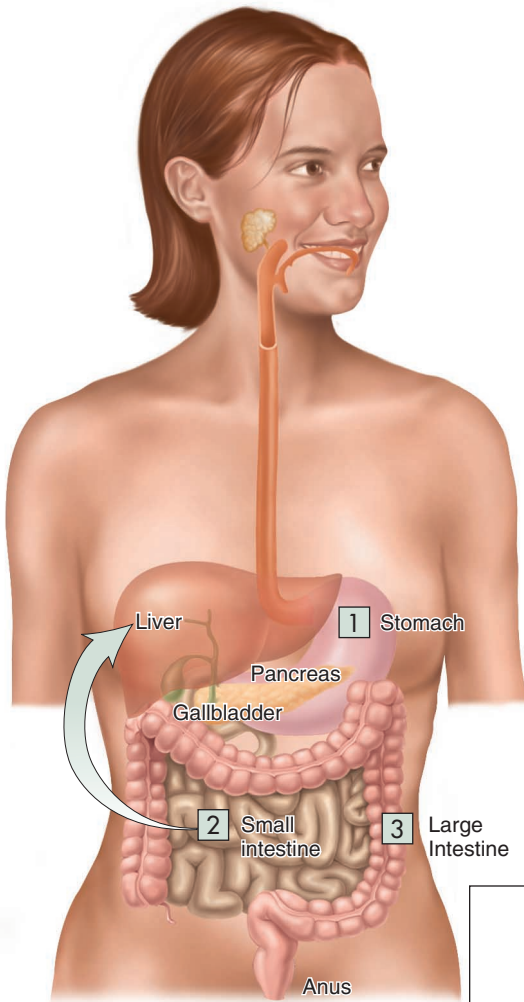


The Traditional Healthy Vegetarian Diet Pyramid

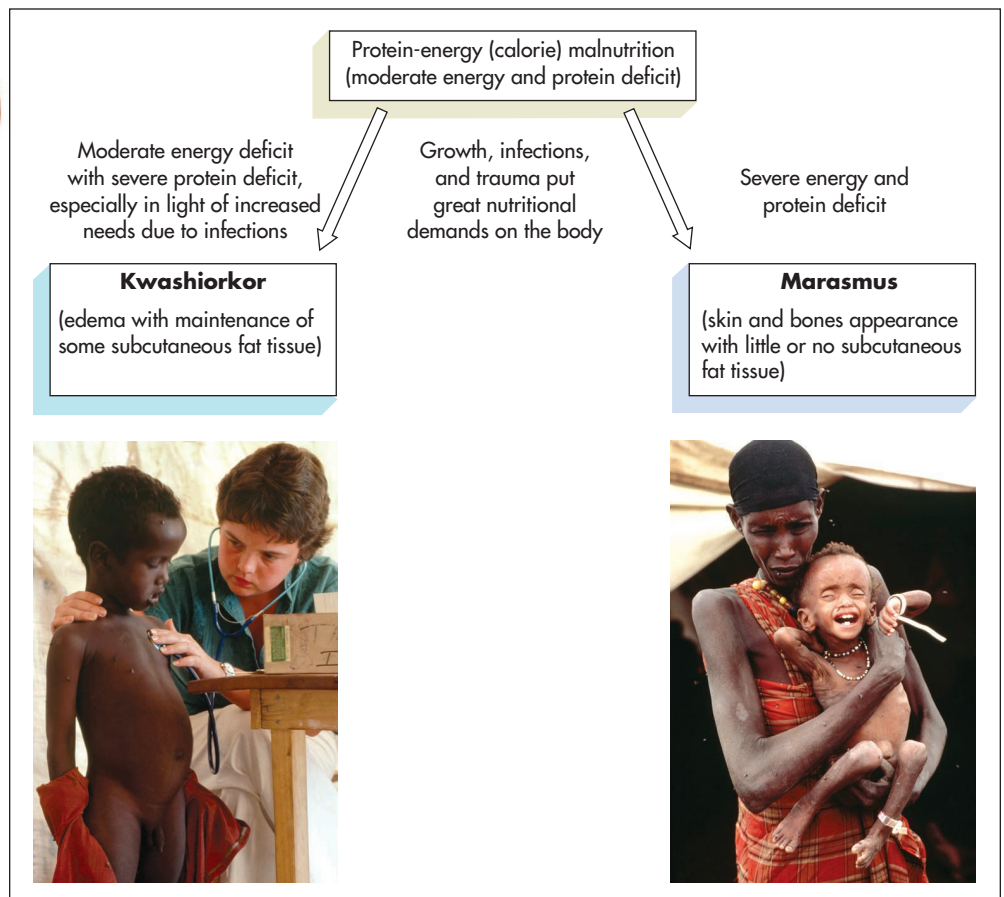


Dynamic Photographs

Over 100 new photographs of people in real-life situations help enliven and bring relevance to the text.



Organ	Nutrient Absorbed
1 Stomach	Alcohol (20% of total)
2 Small Intestine	Calcium, magnesium, Glucose, Amino acids, Fats, Most vitamins, Water, Alcohol (about 80% of total), Bile acids
3 Large Intestine	Sodium, Potassium, Some fatty acids, Gases



Expert Opinion

Looking Beyond the Water: Phytochemicals in Health and Disease Prevention

Clare M. Hasler, Ph.D.

In addition to vitamins and other macro- and micronutrients necessary for the growth, maintenance, and repair of body tissues, fat, carbohydrates, vitamins, and a plant-based diet contains numerous known as "phytochemicals" (e.g., carotenoids, flavonoids, and isothiocyanates), which are not absolutely essential for basic body function but nonetheless may play an important role in health enhancement.

Phytochemicals are secondary plant products that protect the plant from herbivores and pathogens.



Expert Opinion

Why Is Weight Management so Difficult?

Sachiko T. St. Jeor, Ph.D., R.D.

Currently we are expecting a worldwide epidemic of obesity; approximately 65% of adults in the United States are overweight (body mass index, or BMI, $\geq 85^{\text{th}}$ percentile of 25.0 to 29.9 kg/m^2) or obese (BMI in the $\geq 95^{\text{th}}$ percentile or $> 30.0 \text{ kg/m}^2$). This is a sad commentary on the history of weight gain over the past few decades. North Americans...

Second, little emphasis has been placed on weight maintenance or on the prevention of weight gain. This epidemic of obesity has been partially halted if...

...their weight. The weight maintenance... have better health profiles, ... being more physically active, ... solving and self-monitoring... and more "normalized" eating... port, and self-efficacy. The... difficulty of implementing weight... r weight management over...

Nutrition Perspective

Binge Drinking

College students are drinking more heavily and more frequently than ever before. Excessive alcohol consumption is an even bigger problem than illicit drug use on college campuses today (Table 8-5). Many college students consider drinking alcohol to be a "rite of passage" into adulthood. The heaviest drinking population in North America is young, Caucasian college students. Bars near campus typically promote heavy drinking. Alcohol producers frequently target college students with advertising and other marketing efforts. Adding to the overall problem is that typically half of all college students are not of legal drinking age. In fact, the overall cost related to alcohol abuse by those under...

Current Topics of Note

The latest nutrition issues reported in the media are explained in clear, scientific terms. Students learn how to read beyond the headlines to make sound nutrition judgments.

Carbohydrate Needs

The RDA for carbohydrates is 130 g/day for adults. This is based on the amount needed to supply adequate glucose for the central nervous system, without having to rely on partial replacement of glucose by ketone bodies. Exceeding this amount so what is fine; The Food and Nutrition Board recommends that carbohydrate intake range from 45% to 65% of total energy intake.⁶ The average North American consumes 180 to 330 g of carbohydrates per day. The top five carbohydrate sources for U.S. adults are white bread, soft drinks, cookies and cakes (including doughnuts), sugars/syrups/jams, and potatoes. Clearly, many of us (teenagers included) need a closer look at our main carbohydrate sources and strive to improve our nutritional standpoint.¹²

In North America, carbohydrates supply about 50% of dietary energy for adults. Worldwide, however, carbohydrates account for about 70% of energy consumed. In some countries, carbohydrates account for up to 80% of energy consumed.

How Much Fiber Do We Need?

The Adequate Intake for fiber for adults is 25 g/day for women and 38 g/day for men. This is based on a goal of 14 g/1000 kcal in a diet. The rationale for this goal is the ability of fiber to reduce risk of cardiovascular disease (and diabetes). The Daily Value used for fiber on food and supplement labels is 38 g for men and 25 g for women.

Latest Dietary Reference Intakes

Throughout the text, content has been updated to reflect the recently released latest Dietary Reference Intakes. Students will have access to the latest guidelines for protein, carbohydrates, fiber, and fats.

Table 2-6 Comparison of Daily Values with the Latest RDAs and Other Nutrient Standards

Dietary Constituent	Unit of Measure	Current Daily Values for People Over 4 Years of Age
Total Fat†	g	<65
Saturated fatty acids‡	g	<20
Protein‡	"	50
Cholesterol§	"	<300
Carbohydrate‡	mg	300
Fiber	g	25
Vitamin A	"	5
Vitamin D	µg Retinol activity equivalents	15
Vitamin E	International units	15

A Personalized Approach to Nutrition

The authors provide ample opportunities for students to apply nutrition concepts and guidelines to their own lives. Real-life examples and individualized activities make the material relevant and help students learn to assess the validity of nutrition claims.

Case | Scenario

Jackie is a 21-year-old health-conscious individual in her third year of nursing school. She learned that a diet high in saturated fat can contribute to high blood cholesterol and that a diet high in fiber is beneficial for the heart. Jackie now takes a brisk 30-minute walk each morning before breakfast and she has started to cut as much fat out of her diet as she can, replacing it mostly with fruits and vegetables. A typical daily intake for Jackie now might begin with a bowl of Fruity Pebbles cereal with 1 cup of skim milk and 1/2 cup of apple juice. For lunch, she might pack a turkey sandwich on whole wheat bread with lettuce, tomato, and mustard; a small package of fat-free pretzels; and a handful of fat-free vanilla wafers. Dinner could be a large portion of whole wheat spaghetti with a small iceberg lettuce salad with lemon juice squeezed over it. Her snacks are usually baked chips, low-fat cookies, fat-free frozen yogurt, or the fat-free pretzels. She drinks diet soft drinks throughout the day as her main beverage.

Do you think this is a healthy way for Jackie to reduce fat in her diet? Point out some positive practices. What would you suggest changing in her diet to make it more heart healthy?



Table 5-3 Estimate Your Fiber Intake

To roughly estimate your daily fiber consumption, determine the number of servings of each food category listed below that you consumed yesterday. Multiply the serving amount by the value listed and then add up the total amount of fiber. How does your total fiber intake for yesterday compare with the general recommendation of 25 to 38 g of fiber per day for women and men, respectively?

Food	Servings	Grams
Vegetables (serving size: 1 cup raw leafy greens or 1/2 cup other vegetables)	_____	x 2
Fruits (serving size: 1 whole fruit; 1/2 grapefruit; 1/2 cup berries or cubed fruit; 1/4 cup dried fruit)	_____	x 2.5
Beans, lentils, split peas (serving size: 1/2 cup cooked)	_____	x 7
Nuts, seeds (serving size: 1/4 cup; 2 tbsp peanut butter)	_____	x 2.5
Whole grains (serving size: 1 slice whole-wheat bread; 1/2 cup whole rice, or other whole grain; 1/2 each pasta, rice, or other cereal; 1/2 each bagels or muffins)	_____	x 2

Take | Action

1. Could You or Someone You Know Have a Problem with Alcohol?

Problem drinking often has its seeds in the teen years. Significant health consequences of this practice typically arise in adulthood. A prominent contributor to 5 of the 10 leading causes of death in North America, misuse of alcohol is a common preventable health problem. The social consequences of alcohol dependency include divorce, unemployment, and poverty. The following questionnaire was developed by the National Council on Alcoholism. With this assessment, you can determine whether you or someone you know might need help. Answer the following questions by placing an "X" in the appropriate blank.

- | | Yes | No |
|--|-------|-------|
| 1. Do you occasionally drink heavily after disappointment, after a quarrel, or when someone gives you a hard time? | _____ | _____ |
| 2. When you have trouble or feel under pressure, do you drink more heavily than usual? | _____ | _____ |
| 3. Have you ever noticed that you're able to handle liquor better than you did when you first started drinking? | _____ | _____ |
| 4. Do you ever wake up the morning after you've been drinking and not remember part of the evening before? | _____ | _____ |
| 5. When you drink, do you ever feel dizzy, nauseated, or have a headache? | _____ | _____ |

Digital Content Manager CD-ROM

If you're looking for illustrations, photographs, tables, and animations to incorporate into your lecture presentations, handouts, or quizzes, this easy-to-use CD contains hundreds of digital assets from *Perspectives in Nutrition, 6e*. Simply click on the chapter folder, select an image, and you're ready to import the image into the application of your choice. It's that simple!



Illustrations, Photos, and Tables

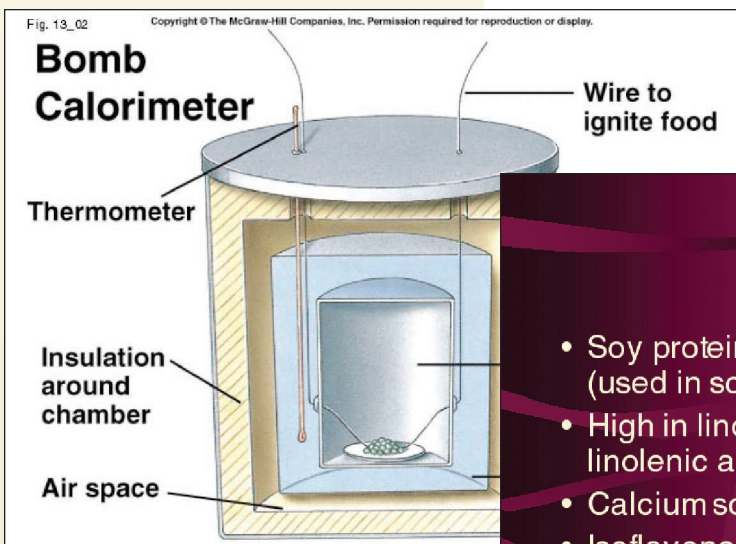
Full-color digital files of the art and tables in *Perspectives in Nutrition* are logically organized and allow you to easily customize your classroom materials.

Table 5-6 Glycemic Index (GI) and Glycemic Load (GL) of Common Foods

Reference food glucose = 100
 Low GI foods—below 55
 Intermediate GI foods—between 55 and 70
 High GI foods—more than 70

Food	Servin Size	Glycemic Index	Carbohydrate (g)	Glycemic Load (GL)
Pastas/Grains				
Brown rice	1 cup			
White, long grain	1 cup			
White, short grain	1 cup			
Spaghetti	1 cup			
Vegetables				
Carrots, boiled				
Sweet corn				
Potato, baked				
New (red) potato, boiled				

Food	Servin Size	Glycemic Index	Carbohydrate (g)	Glycemic Load (GL)
2 Tbsp. measure				Low GL foods—below 15 Intermediate GL foods—between 15 and 20 High GL foods—more than 20
2 tsp. salad dressing, peanut butter, margarine, etc.				
Medium/small fruit				
1/2 to 2/3 cup measure				
1 standard bagel				
Bagel or English muffin				
1/2 to 3/4 cup				
Baked potato; ground or chopped loads; 1/2 cup = 2 oz				
Large fruit (or 1 cup volume)				
Apple or orange				
1 cup				
Ready-to-eat breakfast cereal				



Soy

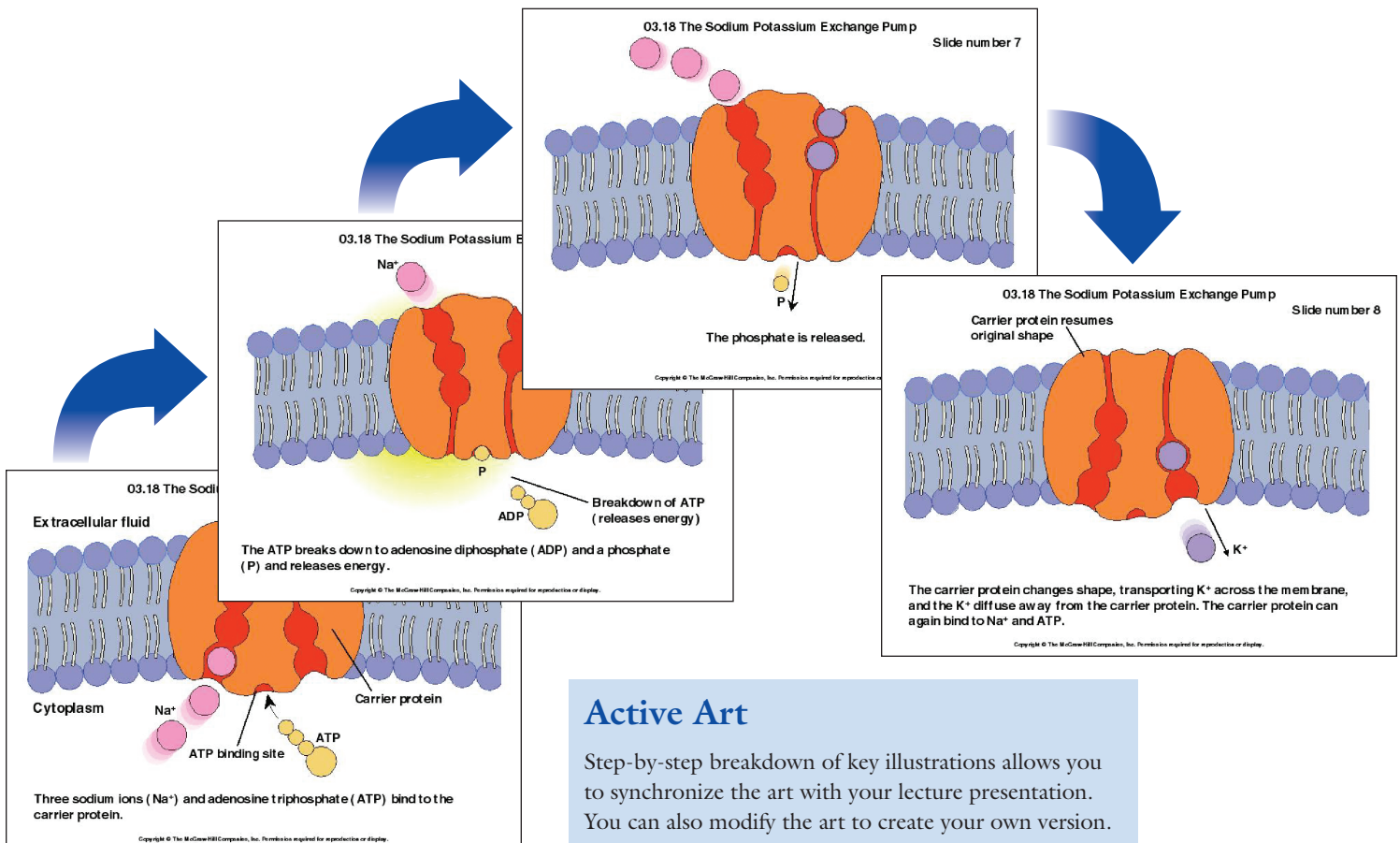
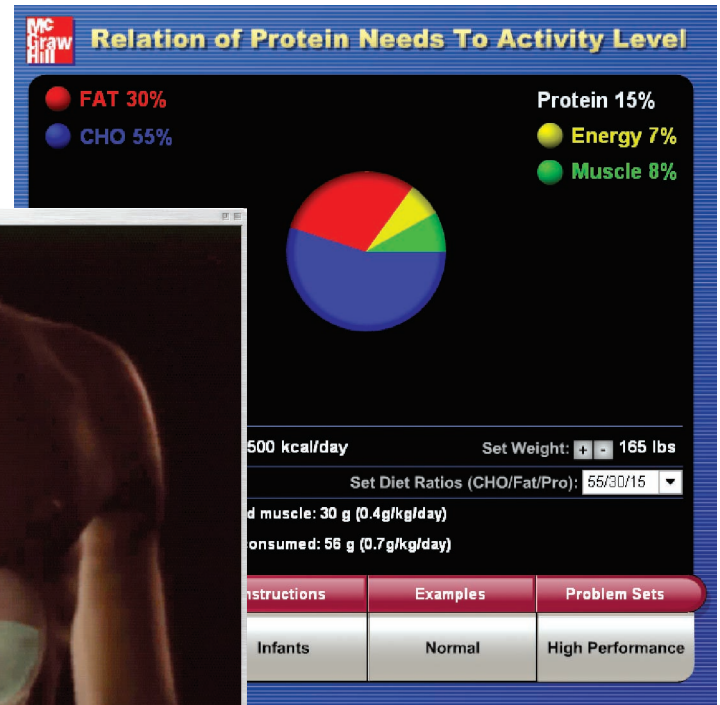
- Soy protein is similar to animal protein (used in school lunches)
- High in linoleic acid and linolenic acid
- Calcium source and bone health
- Isoflavones
- Cardiovascular disease
- Cancer

PowerPoint Lecture Outlines

A complete PowerPoint lecture outline with illustrations from the textbook is available for every chapter. Use the outline as is or modify it to match your specific course needs.

Animations

Animations found on the Digital Content Manager CD-ROM allow you to harness the visual impact of processes in motion. You can import the animations into presentations or online course materials.



Active Art

Step-by-step breakdown of key illustrations allows you to synchronize the art with your lecture presentation. You can also modify the art to create your own version.

This online resource is home to a wide variety of resources for instructors and students, all coordinated to *Perspectives in Nutrition, 6e*. For students, this site acts as a complete online Study Guide to help them get the most from their study time.

Chapter Quizzes and Activities

Students can test their knowledge by taking chapter quizzes and get immediate feedback on their answers. Crossword puzzles, vocabulary activities, and more boost student confidence in mastering new content.

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Perspectives in Nutrition, 6/e
Gordon M. Wardlaw, Ohio State University
ISBN: 0072442123
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Perspectives in Nutrition is an introductory nutrition text, appropriate for the majors and mixed majors nutrition courses. This student-focused text presents the major concepts in nutrition including the body's use of food nutrients and diet planning throughout the life cycle. The text places special emphasis on the application of nutrition principles in everyday life by exploring the health consequences of nutrition practices.

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Crossword Puzzle
(See related pages)

Across
1. Glucose bonded to glucose.
2. A six-carbon monosaccharide that forms a six-membered ring with oxygen in the ring. Found as such in blood, and in table sugar source to fructose, also known as dextrose.
3. A form of diabetes in which ketosis is not commonly seen, insulin therapy can be used but is often not required. This form of the disease is often associated with obesity.
4. Low blood glucose that follows about a day of fasting.

Down
1. Glucose bonded to another sugar glucose.
2. An alternative sweetener that yields no energy to the body; it is 300 times sweeter than sucrose.
3. A form of an unsaturated fatty acid, usually a monounsaturated one when found in food, in which the hydrogen on both carbons forming the double bond is on opposite sides.

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Carbohydrates

Flashcards

DEFINITION

STARCH-DIGESTING ENZYME FROM THE SALIVARY GLANDS OR PANCREAS.

TERM

NEXT

REMOVE CARD

RANDOMIZE DECK

CARDS REMAINING
55

CLICK ON THE "TERM" OR "DEFINITION" TO FLIP THE CARD OVER.
PRESS "NEXT" TO MOVE ON TO THE NEXT TERM.
PRESS "REMOVE CARD" TO REMOVE THE CURRENT CARD FROM THE DECK.
PRESS "RANDOMIZE DECK" TO PUT ALL THE CARDS BACK IN THE DECK AND RESTART.

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Results Reporter
Out of 25 questions, you answered 17 correctly, for a final grade of 68%.

17 correct (68%)
8 incorrect (32%)
0 unanswered (0%)

Please answer all questions

Your Results:
The correct answer for each question is indicated by a ✓.

1 INCORRECT Glucose is the preferred source of energy for which of the following?
 A) Brain cells
 B) Red blood cells
 C) Central nervous system
 D) All of the above
 Feedback: Glucose is the primary fuel source for cells of the central nervous system, but other cells listed use it as well.

2 CORRECT Which of the following is another name for glucose?
 A) dextrose.
 B) disaccharide.
 C) levulose.
 D) all of the above.
 Feedback: Another name for glucose is dextrose.

3 CORRECT Polysaccharides are made of:

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