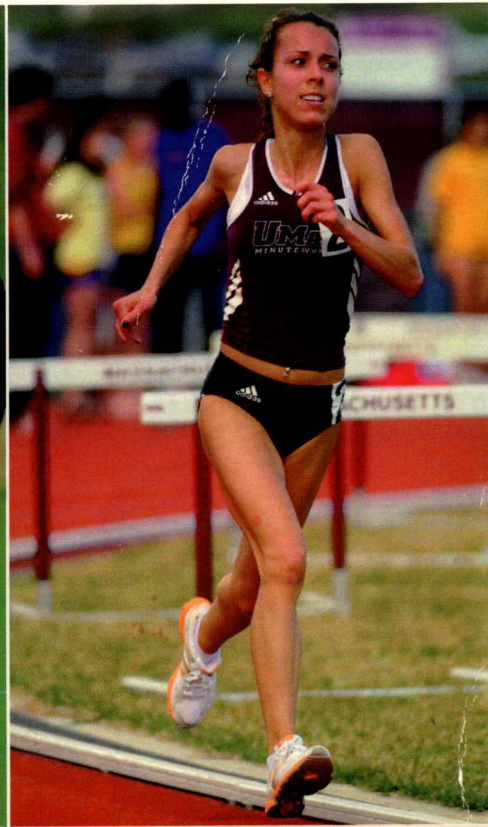
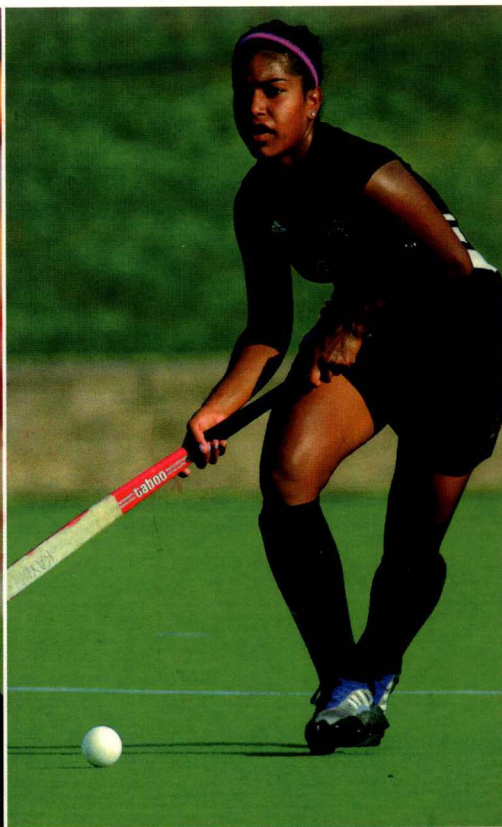
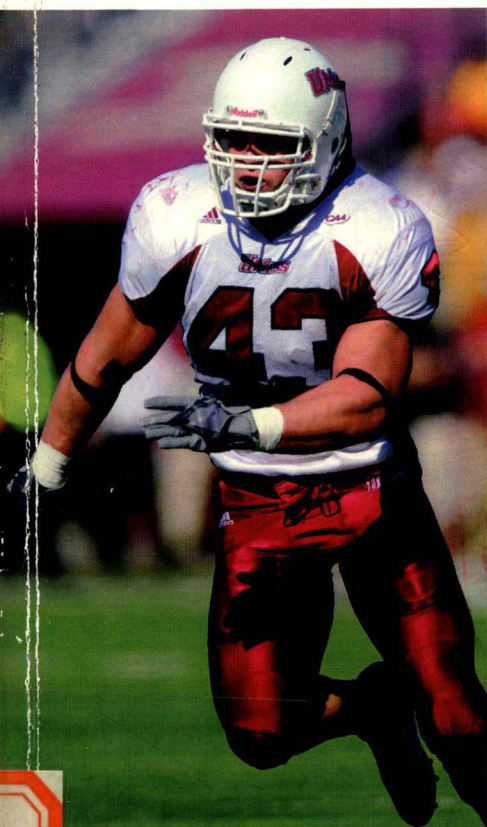


NUTRITION

AN APPLIED APPROACH

Janice Thompson & Melinda Manore

SECOND CUSTOM EDITION FOR UNIVERSITY OF MASSACHUSETTS AMHERST
KINESIOLOGY 110: HUMAN PERFORMANCE AND NUTRITION



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Taken from:

Nutrition: An Applied Approach, Second Edition
by Janice Thompson and Melinda Manore

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“To our Moms—your consistent love and support are the keys to our happiness and success. You have been incredible role models.”

“To our Dads—you raised us to be independent, intelligent, and resourceful. We miss you and wish you were here to be proud of, and to brag about, our accomplishments.”

ABOUT THE AUTHORS



Janice L. Thompson, Ph.D., FACSM

University of Bristol

University of New Mexico

Janice Thompson earned a Ph.D. from Arizona State University in exercise physiology and nutrition. She is currently Bristol University's Head of Department of Exercise, Nutrition, and Health Sciences and Professor of Public Health Nutrition. Her research focuses on designing and assessing the impact of nutrition and physical activity interventions to reduce the risks for obesity, cardiovascular disease, and type 2 diabetes in high-risk populations. She also teaches nutrition courses and mentors graduate research students.

Janice is a Fellow of the American College of Sports Medicine (ACSM) and a member of the American Society for Nutrition (ASN), the British Association of Sport and Exercise Science (BASES), and The Nutrition Society in the United Kingdom. Janice won an undergraduate teaching award while at the University of North Carolina, Charlotte. In addition to *Nutrition: An Applied Approach*, Janice co-authored the Benjamin Cummings textbooks *The Science of Nutrition* and *Nutrition for Life* with Melinda Manore. Janice loves cats, yoga, hiking, and cooking and eating delicious food. She likes almost every vegetable except canned peas and believes chocolate should be listed as a food group.



Melinda M. Manore, Ph.D., RD, FACSM

Oregon State University

Melinda Manore earned a Ph.D. in human nutrition with a minor in exercise physiology at Oregon State University (OSU). She is the past chair of the Department of Nutrition and Food Management at OSU, and is currently a professor in the Department of Nutrition and Exercise Sciences. Prior to her tenure at OSU, she taught at Arizona State University for 17 years. Melinda's area of expertise is nutrition and exercise, especially the role of diet and exercise in health, exercise performance, weight control, and micronutrient needs. She focuses on the nutritional needs of active women and girls.

Melinda is an active member of the American Dietetic Association (ADA) and the American College of Sports Medicine (ACSM). She is the past chair of the ADA Research Committee and the Research Dietetic Practice Group, and currently serves on the ADA Obesity Steering Committee. She is a Fellow of ACSM and is a member of the Board of Trustees. Melinda is also a member of the American Society of Nutrition (ASN) and the North American Association for the Study of Obesity (NASSO). Melinda is the past nutrition column author and associate editor for ACSM's *Health and Fitness Journal*, serves on editorial boards of numerous research journals, and has won awards for excellence in research and teaching. She has also co-authored the Benjamin Cummings textbooks *The Science of Nutrition* and *Nutrition for Life* with Janice Thompson. Melinda is an avid walker, hiker, and former runner who loves to cook and eat great food. She is now trying her hand at gardening, birding, and volunteering as a naturalist.

NUTRITION

An Applied Approach Second Edition

Janice Thompson
Melinda Manore

NEW! In-Depth sections

The **Second Edition** provides new **In Depth sections** of eight to ten pages that cover important topics—Alcohol, Vitamins & Minerals Overview, Phytochemicals & Functional Foods, and Global Nutrition, chosen because reviewers highly desired the addition of this content. The **In Depth section** covering vitamins and minerals maintains the functional approach while presenting a traditional micronutrient overview for students.

ENRICH DAILY LEARNING

with new and expanded tools

Expanded media package

The powerful media package for both instructors and students includes:

NEW! Lecture Teaching Tips CD-ROM is new for the Second Edition and provides several short segments in which authors Janice Thompson and Melinda Manore help instructors jumpstart their lectures for each of the micronutrient chapters.

MyNutritionLab, a comprehensive course management tool, contains numerous instructor and student resources.

MyDietAnalysis features a database of nearly 20,000 foods and multiple reports. Available online, on CD-ROM, and as single-sign-on with MyNutritionLab.

The Companion Website includes online quizzes and assessments, additional activities, and more.

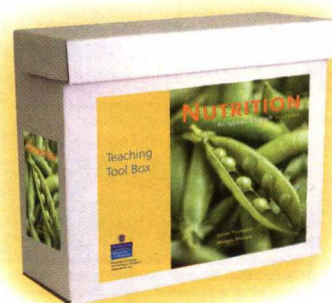
The Media Manager groups helpful presentation tools together to make preparing lectures easy.

NEW! 40 brand new animations built from the ground up just for introductory nutrition. Topics include glycolysis, protein synthesis, and basic digestion and absorption.

NEW! ABC News Lecture Launcher videos embedded into PowerPoint®.

NEW! Teaching Tool Box

The **Teaching Tool Box** enhances the teaching experience while making class preparation fast and easy. This resource provides unparalleled instructor support and contains all of the instructor tools such as the Media Manager and Access Kit to MyNutritionLab with MyDietAnalysis, plus many more.



THIS INNOVATIVE APPROACH TO

New features help students evaluate real-world information

NEW! In Depth sections

focus coverage of key topics—Alcohol, Vitamins & Minerals, Phytochemicals & Functional Foods, and Global Nutrition. Presented with a unique design, these sections can be covered quickly in lecture or stand alone as student resources for background information.

IN DEPTH

Global Nutrition

WANT TO FIND OUT...

- what kills 20% of Africa's children before they reach their fifth birthday? p.152
- how many Americans go to bed hungry? p.155
- why so many people starve to death in a world with surplus food? p.157
- what you can do to combat malnutrition? p.158

READ ON.

In Malawi, a small country in southern Africa, a widowed mother of three risks death to pull the stems of water lilies from crowded, polluted waters. To explore examples of this emptiness are increasingly common. She is not alone: across southern Africa, mismanagement, corruption, drought, lack of irrigation, and disease—especially infection with HIV—combine to ensure recurring cycles of hunger for millions of people. And hunger contributes to early death: in Malawi, one in ten mothers dies in childbirth, and nearly one in five children dies before reaching age five.*

The Food and Agriculture Organization of the United Nations (FAO) estimates that, worldwide, 800 million people are undernourished*. In parts of central Africa, more than 70% of the population goes hungry. Why is this so? Does malnutrition occur only in developed

Undernutrition is most prevalent in parts of sub-Saharan Africa and Southeast Asia.

Natural Disasters

In the summer of 2004, a drought in western Africa brought life-threatening undernutrition to about 20% of the population of Niger and Mali. Such natural disasters often result in widespread hunger because they destroy substantial amounts of local crops in a short time. Drought and other natural disasters, including floods, economic high winds, hurricanes, fires, and infestations by insects, viruses, or microbes can even result in famine, a severe food shortage affecting a large percentage of the population in a limited geographic area at a particular time.

War

Unfortunately, famine is often a man-made disaster. In 2004, a rebellion against the Sudanese government led to violent repression in the Darfur region of Sudan. Tens of thousands of people were either killed outright or died of starvation when crops and food supplies were burned. Hundreds of thousands more were relocated to concentration camps.

What Causes Hunger in Developing World?

Hunger exists in every nation of the world, however, its causes typically differ in developing vs. developed nations. In poor countries, the factors most commonly responsible for widespread hunger are natural disasters, war, overpopulation, and lack of access to food.

FALSE BACK TRUE

FIND THE QUACK

Christine is heading to her favorite department store at the mall when she notices a sign at a small kiosk:

Flush Your Fat Away! New fat magnet blocks fat absorption! Lose more than a pound a day! Eat whatever you want and lose all the weight you want! Your dieting days are over!

A trim young woman in a white lab coat hands her a flyer. It says that the product is a formulation of chitosan and is made from a type of carbohydrate called chitin found in the exoskeleton of shellfish. "Chitosan," says the flyer, "will bind to fats and prevent their absorption. All the fat you eat will simply be excreted with your normal bowel movements! This will cause you to lose a lot of weight very quickly: more than a pound every day, no matter how much you eat!" The product is sold in capsules, and the daily recommended dose is five per day. A bottle of 200 capsules costs \$40.

1. Do you think it is possible that four capsules of a carbohydrate substance could bind to and block the absorption of all of the fat an individual consumes throughout a day?
2. What do you think an individual would experience if all of the dietary fat eaten throughout each day were excreted in the feces?
3. Given that an individual needs to expend 3,500 more kcal than he or she consumes in order to achieve a loss of 1 pound of weight, discuss the possibility that the chitosan supplement can enable an individual to lose "more than a pound a day, no matter how much you eat."
4. How much would a consumer spend each day on the chitosan supplement if taken at the recommended dosage? Do you think the product is worth the investment? Why or why not?

Answers can be found at www.aub-bc.com/thompson.

282 CHAPTER 7 NUTRIENTS INVOLVED IN FLUID AND ELECTROLYTE BALANCE

Recommended Dietary Intake for Sodium

The AI for sodium is listed in Table 7.1. Most people in the United States consume two to four times the AI daily.

SHOPPER'S GUIDE

Sources of Sodium

Sodium is found naturally in many everyday foods, and many processed foods contain large amounts of added sodium. Because sodium is so abundant, it is easy for us to consume excess amounts in our daily diet. Try to guess which of the following foods contains the most sodium: 1 cup of tomato juice, 1 oz of potato chips, or 4 saltine crackers? Now look at Table 7.2 to find the answer. This table shows foods that are high in sodium and gives lower-sodium alternatives. Are you surprised to find out that all of these food items, the tomato juice has the most sodium? Below are some tips for lowering your sodium intake. Following them might help reduce your risk for hypertension.

Condiments can add sodium to your diet.

Tips for Reducing the Sodium in Your Diet*

- ✓ Follow the DASH diet plan (See Table 2.4, page 62).
- ✓ Look for the words low sodium when buying processed foods. These foods should contain 5% or less of the daily value.
- ✓ Look for the words no sodium when buying processed foods. These foods should contain 0% of the daily value.

*Some people with type 2 diabetes experience no symptoms. Source: Adapted from the American Dietetic Association, Dietetic Guidelines for Diabetes, 2nd ed., December 2005.

NEW! Find the Quack scenarios at the end of each chapter promote critical thinking and encourage students to become better consumers of nutrition information and more thoughtful judges of marketing claims.

ENHANCED! Shopper's Guides provide practical advice that help students choose foods that are good sources of specific vitamins and minerals when shopping, planning meals, or eating in the cafeteria. New for this edition, practical, bulleted lists of easy tips help students select foods that are good sources of particular nutrients.

LEARNING IS NOW EVEN BETTER!

New art helps students visualize and focus on core information

Nutrition Facts

Serving Size: 3/4 cup (30g)
Servings Per Package: About 14

Amount Per Serving	Cereal With 1/2 Cup	Cereal Skim Milk
Calories	120	160
Calories from Fat	15	15
% Daily Value**		
Total Fat 1.5g*	2%	2%
Saturated Fat 0g	0%	0%
Trans Fat 0g		
Polyunsaturated Fat 0g		
Monounsaturated Fat 0.5g		
Cholesterol 0mg	0%	1%
Sodium 220mg	9%	12%
Potassium 40mg	1%	7%
Total Carbohydrate 26g	9%	11%
Dietary Fiber 1g	3%	3%
Sugars 13g		
Other Carbohydrate 12g		
Protein 1g		
Vitamin A	0%	4%
Vitamin C	0%	2%
Calcium	0%	15%
Iron	25%	25%
Thiamin	25%	25%
Riboflavin	25%	35%
Niacin	25%	25%
Vitamin B6	25%	25%
Folate	25%	25%
Zinc	25%	25%

* Amount in cereal. One-half cup skim milk contributes an additional 65mg sodium, 6g total carbohydrate (6g sugars), and 4g protein.

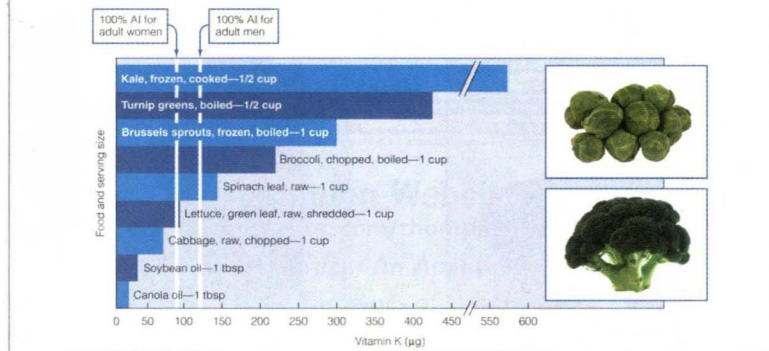
** Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat. Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary fiber		25g	30g
Calories per gram:			
Fat	9	•	Carbohydrate 4 • Protein 4

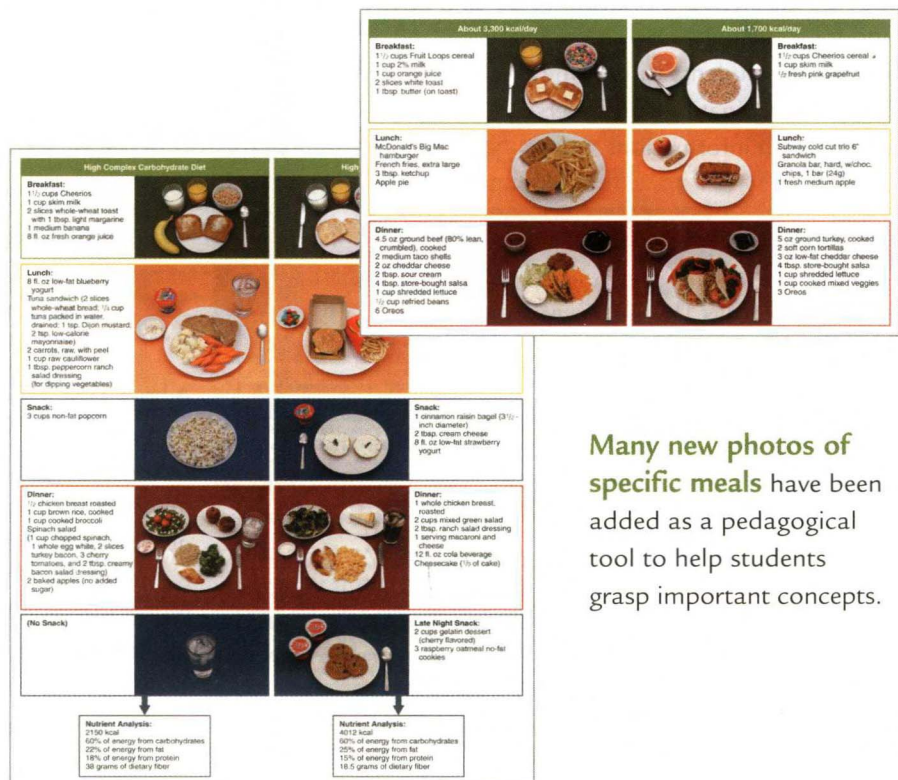
Nutrition Label Activities

teach students how to read and evaluate labels from real food products so they can make educated choices about the foods they eat. More Nutrition Label Activities have been added for the Second Edition.

382 CHAPTER 9 NUTRIENTS INVOLVED IN BONE HEALTH



The Food Source Graphs have been redesigned for easier reading and to show the RDA or AI more clearly. Also included are new photos of foods which are high in the nutrient being covered, giving students an immediate snapshot of helpful food sources.



Many new photos of specific meals have been added as a pedagogical tool to help students grasp important concepts.

Features teach students how to APPLY AND EVALUATE NUTRITION INFORMATION

NUTRITION DEBATE

Is High-Fructose Corn Syrup the Cause of the Obesity Epidemic?

almost every day in the news we see headlines about obesity: "More Americans Overweight?", "The Pattern of America," "Obesity is a National Epidemic!" These headlines accurately reflect the state of weight in the United States. Over the past 30 years, obesity rates have increased dramatically for both adults and children. Obesity has become public health enemy number one, as many chronic diseases such as type 2 diabetes, heart disease, high blood pressure, and arthritis go hand in hand with obesity.

Of particular concern are the rising obesity rates in children. Although national health statistics do not distinguish between obesity and overweight in children, it is estimated that the prevalence of overweight in young children aged 2 to 5 years has doubled since the 1970s, while the rate of overweight in school-aged children (6 to 19 years of age) has tripled over this same time period.²⁰ Why should we concern ourselves with fighting obesity in children? First, it is well established that the treatment of existing obesity is extremely challenging, and our greatest hope of combating this disease is through prevention. Most agree that prevention should start with children at a very early age. Second, approximately 30% of children who are obese will remain obese as adults, affecting all of the health problems that accompany this disease. Young children are now experiencing type 2 diabetes, high blood pressure, and high cholesterol at increasingly younger ages, only compounding the devastating effects of these illnesses as they get older. We have reached the point where serious action must be taken immediately to curb the already growing crisis.

How can we prevent obesity? This is a difficult question to answer. One way is to better understand the factors that contribute to obesity, and then take actions to alter these factors. We know of many factors that contribute to overweight and obesity. These include genetic influences, lack of adequate physical activity, and eating foods that are high in fat, added sugar, and energy. While it is easy to blame our genetics, they cannot be held entirely responsible for the rapid rise in obesity that has occurred over the past 30 years. Our genetic makeup takes thousands of years to change; thus, humans who lived 50 or 100 years ago have essentially the same genetic makeup as humans who live now. The fact that obesity rates have risen so dramatically in recent years illustrates that we need to look more closely at how our

lifestyle changes over this same period have contributed to obesity.

One factor that has recently come to the forefront of nutrition research and policy making is the contribution of added sugars, particularly in the form of high-fructose corn syrup (HFCS), to overweight and obesity. As discussed earlier in this chapter, there is disagreement about whether added sugar does cause, and how much it might contribute to, obesity. Many nutrition researchers are beginning to draw attention to the potential role of HFCS in rising obesity rates. Before we discuss why these researchers are pointing to HFCS as a major cause of the obesity epidemic, it is important to understand what HFCS is and how it is metabolized in our bodies.

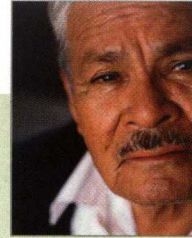
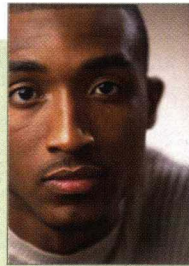
HFCS is made by first converting the starch in corn to glucose, and then converting some of the glucose to fructose through a process referred to as *enzymatic isomerization*. The result is an inexpensive corn-based syrup that has been used to replace sucrose and other simple sugars as a sweetener in foods and beverages. Fructose is sweeter than glucose. It is also metabolized differently from glucose, as it is absorbed further down in the small intestine and, unlike glucose, it does not stimulate insulin release from the pancreas. It also enters the cell by a transport protein that does not require the presence of



It is estimated that the rate of overweight in children has increased 100% since the mid-1970s.

157

Nutri-Cases are short case studies featuring five recurring characters that help students relate to and apply the material they learn in the chapter. These can be found throughout each chapter.



▼ A new Nutri-Case character has been introduced in the Second Edition. Judy, Hannah's mom, presents a middle-aged woman who is battling weight issues and is predisposed to some health risks.



End-of-chapter Nutrition Debates contain balanced, in-depth discussions of current issues and hot topics, such as high-fructose corn syrup and obesity, nutrigenomics, and vitamin and mineral supplementation. These debates encourage students to become more informed and discriminating consumers of nutrition and health information.

NUTRITION MYTH OR FACT?

Is Bottled Water Safer Than Tap Water?

Bottled water has become increasingly popular over the past 20 years. One industry source estimated that Americans drink approximately 7.5 billion gallons of bottled water each year, and that number continues to grow.² Many people prefer the taste, and feel that bottled water is safer than tap water. Is this true?

The water we drink in the United States generally comes from two sources: surface water and ground water. Surface water comes from lakes, rivers, and reservoirs. Common contaminants of surface water include runoff from highways, pesticides, animal wastes, and industrial wastes. Many of the cities across the United States obtain their water from surface water sources. Ground water comes from underground rock formations called aquifers. People who live in rural areas generally pump ground water from a well as their water source. Hazardous substances leaking from waste sites, dumps, landfills, and oil and gas pipelines can contaminate ground water.

The most common chemical used to treat and purify our water is chlorine. Chlorine is effective in killing many contaminants in our water supply. Water treatment plants also routinely check our water supplies for hazardous chemicals, minerals, and other contaminants. Because of these efforts, the United States has one of the safest water systems in the world.

The Environmental Protection Agency (EPA) sets and monitors the standards for public water systems. The EPA does not monitor private water systems. It publishes

Although bottled water may taste better than tap water, there is no evidence that it is safer to drink. Look closely at the label of your favorite bottled water. It may come directly from the tap! Some types of bottled water may contain more minerals than tap water, but there are no other additional nutritional benefits of drinking bottled water. As discussed in the Nutrition Label Activity, bottling plants use a variety of other treatments to disinfect water instead of chlorine, and many people feel these processes leave the water tasting better than water treated with chlorine.

Should you spend money on bottled water? The answer depends on personal preference and your source of drinking water. For instance, many supermarkets have a water filtration machine in the front of the store where you can purchase and fill your own bottles of water. These machines may not be cleaned and the filters not changed on a regular basis, making this water less safe than tap water. Some people may not have access to safe drinking water where they live, making bottled water the safest alternative water source. If you choose to drink bottled water, look for brands that carry the trademark of the International Bottled Water Association (IBWA). This association follows the regulations of the FDA. If you get your water from a water cooler, make sure the cooler is cleaned once per month by running half a gallon of white vinegar through it, then rinsing thoroughly with about 5 gallons of clean water. If you use a special filtration system at home, be familiar with the contaminants it filters from your water and make sure that you change the filters regularly as recommended.

TEST YOURSELF TRUE OR FALSE?

1. Calories are a measure of the amount of fat in foods. **True**
2. Proteins are not a primary source of energy for our bodies. **True**
3. All vitamins must be consumed daily to support good health. **True**
4. The Recommended Dietary Allowance is the maximum amount of nutrients that people should consume to support normal body functions. **True**
5. Federal agencies in the United States are typically poor sources of reliable nutrition information. **True**

Test Yourself answers can be found after the Chapter Summary.

A brief **Test Yourself** quiz at the beginning of each chapter piques students' interest in the topics to be covered by raising and dispelling common misconceptions about nutrition. The answers to these questions can be found at the end of each chapter.

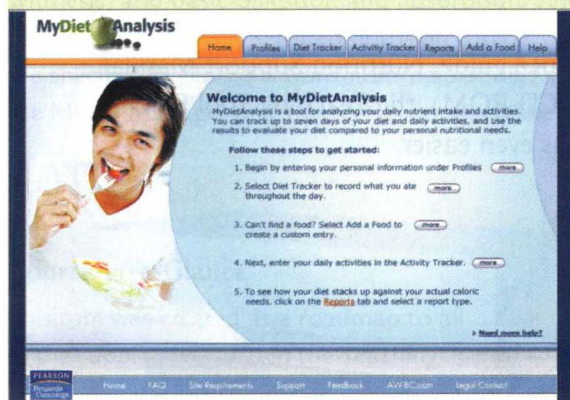
Nutrition Myth or Fact? boxes help dispel common misconceptions and teach students how to critically evaluate information they hear from advertising, mass media, and their peers.

An expanded media package that

REINFORCES CLASSROOM LEARNING

NEW! Assignable and gradable diet analysis assignments are now part of MyNutritionLab.

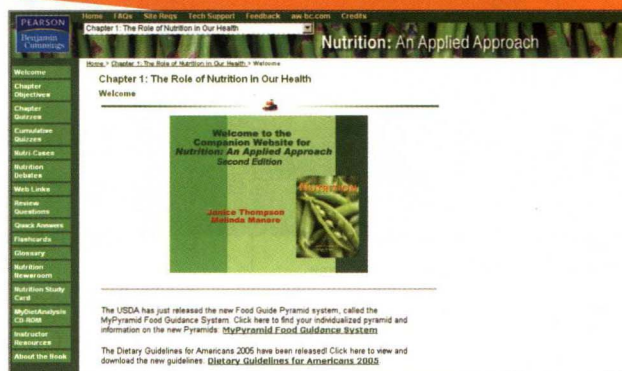
Once an instructor assigns a diet analysis case study and test, students can perform diet analysis that will automatically be scored and recorded in the gradebook with no extra work for the instructor.



MyDietAnalysis

www.mydietanalysis.com

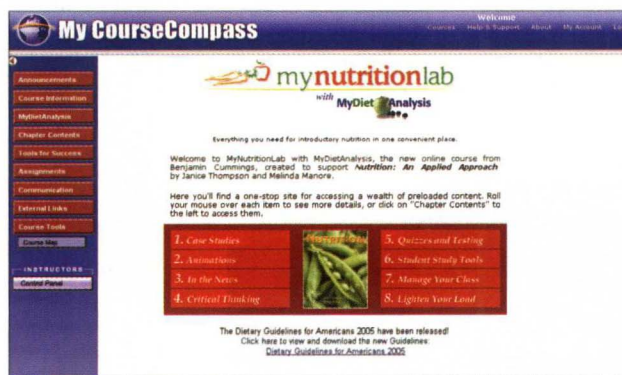
MyDietAnalysis offers an accurate, reliable, and easy-to-use program for your students' diet analysis needs. Developed by the nutrition database experts at ESHA Research, Inc. and tailored for use in college nutrition courses, MyDietAnalysis features a database of nearly 20,000 foods and multiple reports. MyDietAnalysis is available at a significant discount when packaged with the text. The new 2.0 CD-ROM features multiple profiles, a unique activity assessment, and a friendly user interface. The new 3.0 online version additionally features serving size help, more ethnic foods, and a unique annotation feature on reports so students can respond to the assignment right on the report.



Companion Website

www.aw-bc.com/thompson

The **Nutrition: An Applied Approach Companion Website** features four types of quizzes for each chapter, eight-chapter cumulative quizzes, Nutrition Debate assignments, Nutri-Case suggested answers, Web links, flashcards, glossary, eThemes of the *New York Times*, and answers to end-of-chapter questions. The multiple choice and essay questions help students prepare for exams, while other activities may be completed as homework or extra credit assignments.



MyNutritionLab

www.mynutritionlab.com

MyNutritionLab, powered by CourseCompass™, features everything needed to teach introductory nutrition in one convenient place, including PowerPoint® slides, Test Bank questions, Instructor's Manual materials, and more. Features for students include animations and activities; ABC News videos; eBook; interactive drag-and-drop activities; Nutrition Debate activities that can be emailed to professors; and answers to the Nutri-Cases, Find the Quack, and end-of-chapter Review Questions. Research Navigator™, which provides three databases of credible and reliable source materials, is included. MyDietAnalysis 3.0 is also available as a single sign-on to MyNutritionLab.

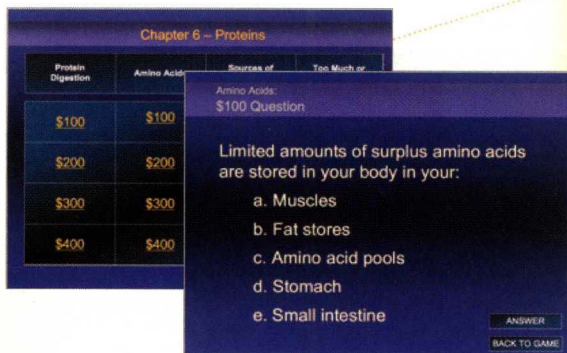
Think Inside the Box!

A course planning kit that saves you hours of time



NEW! Media Manager

The Media Manager contains lecture presentation slides; JPEG and PowerPoint® formats of all figures, graphs, and illustrations from the book as well as selected photos; selected pieces of stepped-out art; animations from MyNutritionLab; ABC News videos; Quiz Show Powerpoints for each chapter; PRS-enabled clicker questions; and Word® files of other instructor supplements.

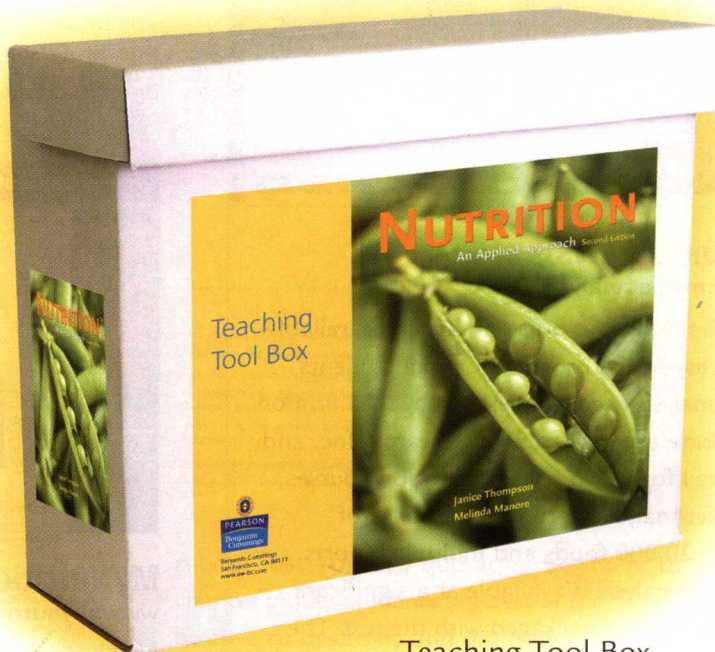


Quiz Show game

Students look forward to going to class when you make use of these questions styled after the popular TV game show *Jeopardy*. Provided in PowerPoint format, you can use these questions to launch discussions of a topic, or to reinforce key concepts.

NEW! The Teaching Tool Box provides easy access to all the teaching resources in one convenient place.

By including all of the instructor supplements (Instructor's Guide, Test Bank, Computerized Test Bank, Transparency Acetates, Media Manager, Instructor Access to MyNutritionLab with MyDietAnalysis) along with valuable student supplements (*Eat Right!*, Student Study Guide), and unique lecture and prep tools (Course-at-a-Glance guide, Nutrition Support Manual, Lecture Teaching Tips CD-ROM), the Teaching Tool Box helps make prepping for class even easier.



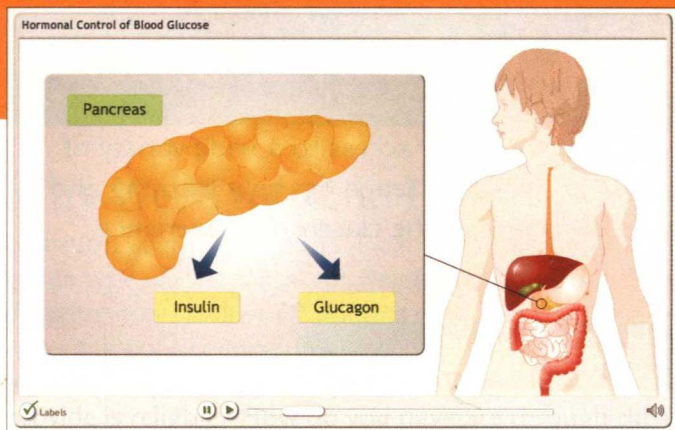
Teaching Tool Box

978-0-321-53653-2 | 0-321-53653-3

MyNutritionLab

www.mynutritionlab.com

This online resource provides everything instructors need to teach introductory nutrition in one convenient place. MyNutritionLab's course management system is loaded with valuable teaching resources that make giving assignments and tracking student progress easy.



NEW! 40 brand new animations

These animations were built from the ground up just for introductory nutrition. Topics include glycolysis, protein synthesis, and basic digestion and absorption. Animations are provided for carefully selected nutrition topics, 26 of which are specifically geared toward non-majors, and are located in the Media Manager and the MyNutritionLab Web site.

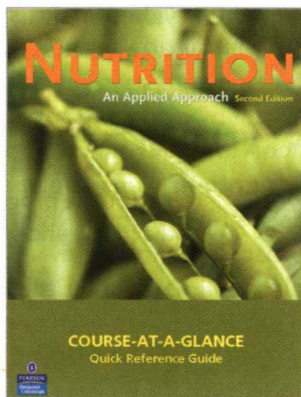


NEW! Lecture Teaching Tips CD-ROM

Authors Janice Thompson and Melinda Manore ease instructors into teaching with the functional approach. The Lecture Teaching Tips CD-ROM provides several short segments, helping instructors jumpstart their lectures for each of the micronutrient chapters. This CD-ROM also contains a segment that can be shown in class that walks students through the textbook.

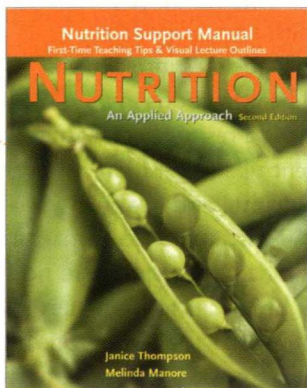
Course-at-a-Glance

This tool was created as a roadmap to all of the supplements within the Teaching Tool Box and serves as a handy orientation and syllabus converter. Arranged by both quarter and semester at the top, the Course-at-a-Glance lists references for all instructor and student supplements on a chapter-by-chapter basis.



ABC News Lecture Launcher Videos

Created in partnership with ABC News, these 15 clips range from 5–10 minutes in length and can be used to stimulate classroom discussion. Digital versions of the videos are integrated into the PowerPoint lecture outlines.



Nutrition Support Manual

This key manual provides a visual outline of lectures presented chapter by chapter with key terms, animation references, discussion questions, videos, images, and more. Also included are sample syllabi, teaching tips for first-time instructors, and helpful lecture ideas from experienced instructors involving assessment, technology, collaborative learning, and more.

Teaching and Learning Solutions

Instructors and students have access to a wide variety of ancillary material to facilitate teaching, help learning and retention, and contribute to the classroom experience.

For Instructors

Teaching Tool Box

978-0-321-53653-2 | 0-321-53653-3

Includes: Media Manager featuring a Quiz Show game, Computerized Test Bank, 40 brand new animations, and ABC News video clips; Instructor Manual; Transparency Acetates; Nutrition Support Manual; Printed Test Bank; Course-at-a-Glance; Lecture Teaching Tips CD-ROM; MyNutritionLab with MyDietAnalysis Instructor Access Kit.

Great Ideas in Teaching Nutrition Newsletter

This newsletter compiles your colleagues' best teaching ideas from the classroom. It offers instructors access to innovative ideas suitable for teaching to a large lecture hall or a small group.

Nutrition Video Series

Nutrition and fitness videos by Films for the Humanities include videos on topics such as supplements, diet and cancer, the Food Guide Pyramid, and life in the fast food lane. Contact your Benjamin Cummings sales representative for details.

MyNutritionLab or

MyNutritionLab with MyDietAnalysis 3.0

www.mynutritionlab.com

Course Management Technologies:

WebCT www.aw-bc.com/webct

Blackboard www.aw-bc.com/blackboard

These course management systems contain preloaded content such as testing and assessment question pools, animations, and activities and include the entire Companion Website.

For Students

Study Guide

978-0-321-53650-1 | 0-321-53650-9

This guide has been updated to reflect the new material in the main text. It offers a wide variety of interesting, relevant, and challenging questions to encourage students to review core concepts. It also contains chapter objectives and key terms.

Nutrition: An Applied Approach Companion Website

www.aw-bc.com/thompson

MyNutritionLab or

MyNutritionLab with MyDietAnalysis 3.0

www.mynutritionlab.com

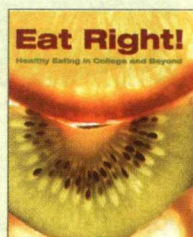
MyDietAnalysis 3.0 Premium Website

www.mydietanalysis.com

MyDietAnalysis 2.0 CD-ROM

978-0-321-53468-2 | 0-321-53468

Powered by ESHA Research, Inc., MyDietAnalysis 2.0 is an easy-to-use online program that allows students to track their diet and activity, and generate and submit reports electronically.



Eat Right! Healthy Eating in College and Beyond

978-0-8053-8288-4/0-8053-8288-7

By Janet Anderson, et al.

This handy, full-color 80-page booklet provides practical guidelines, tips, shopper's guides, and recipes so students can put healthy eating guidelines into action. Topics include: How to choose healthy foods in a cafeteria, dorm room, and fast food restaurants; eating on a budget; weight management tips; vegetarian alternatives; and guidelines on alcohol and health.

Welcome to *Nutrition: An Applied Approach, Second Edition!*

Why We Wrote the Book

Nutrition gets a lot of press. Pick up a magazine and you'll read the latest debate over which type of diet is best for weight loss; turn on the TV and you'll hear a Hollywood star describe how she lost 50 pounds without exercising; scan the newspaper and you'll discover the politics surrounding the creation of new enhanced "designer" foods. How can you evaluate these sources of nutrition information and find out whether the advice they provide is reliable? How do you navigate through the endless recommendations and come up with a way of eating that's right for you—one that supports your physical activity, allows you to maintain a healthful weight, and helps you avoid chronic disease?

We Wrote This Book to Help You Answer These Questions

Nutrition: An Applied Approach began with our conviction that both students and instructors would benefit from an accurate and clear textbook that links nutrients to their functional benefit. As authors and instructors, we know that students have a natural interest in their bodies, their health, their weight, and their success in sports and other activities. By demonstrating how nutrition relates to these interests, ***Nutrition: An Applied Approach*** empowers students to reach their personal health and fitness goals. Throughout the chapters, material is presented in a lively narrative that continually links the facts to students' situations, lifestyles, and goals. Information on current events and research keeps the inquisitive spark alive, illustrating that nutrition is not a "dead" science, but rather the source of considerable debate. The content of ***Nutrition: An Applied Approach*** is appropriate for non-nutrition majors, but it also includes information that will challenge students who have a more advanced understanding of chemistry and math. We present the "science side" in an easy-to-read, friendly narrative, with engaging features that reduce students' fears and encourage them to apply the material to their lives. Also, because this book is not a derivative of a majors text, the writing and the figures are cohesive and always level-appropriate.

As teachers, we are familiar with the myriad challenges of presenting nutrition information in the classroom, and we have included the most comprehensive ancillary package available to assist instructors in successfully meeting these challenges. We hope to contribute to the excitement of teaching and learning about nutrition: a subject that affects every one of us, a subject so important and relevant that correct and timely information can make the difference between health and disease.

New in the Second Edition

The goals for this edition included providing the most up-to-date and accurate nutrition information currently available, and optimizing the students' ability to learn this information and apply it to their daily lives. To achieve this we have added new features, provided a great deal of updated information from recent scientific studies, and enhanced the already excellent tables and art program to ensure that ***Nutrition: An Applied Approach*** is the most updated and easiest-to-use resource for nutrition students that is currently available.

The Visual Walkthrough on pp. vii–xiv provides information about the new features in the Second Edition. For specific changes to each chapter, please see below.

Chapter 1:

- Added a brand-new Nutrition Debate on nutrigenomics.
- Expanded and revised the scientific method section, with a new figure illustrating the scientific method and more terms defined in the margin.
- Updated **FIGURE 1.2** with the newest information from the CDC.
- Deleted content describing *Healthy People 2010*.
- Still introduced and described vitamins and minerals, but moved some of the content to the *In Depth* on vitamins and minerals.
- Slightly simplified and clarified the You Do the Math box for calculating energy for carbohydrates, fat, and protein.
- Replaced the Nadia Nutri-Case character with Judy, a working mom (Hannah's mother) who struggles with overweight and is at risk for diabetes.

Chapter 2:

- Added several new figures to better explain concepts (**FIGURES 2.4, 2.6, 2.8**).
- Added multiple meal photos to show visually what food and amounts would look like (**FIGURES 2.12** and **2.15**).
- Expanded content on nutrient claims and health claims on food labels.
- Expanded content on portion distortion.
- Expanded practical information on how to eat out more healthfully.
- Tightened up information on the DASH diet and the Exchange System diet plan.
- Updated Nutri-Cases to provide information that is more applicable to students' lives.
- Added a new Judy Nutri-Case to give a real-life example of how type 2 diabetes affects a person's health.
- Moved alcohol information to the *In Depth* on alcohol.

Chapter 3:

- Added a brand-new Nutrition Debate on celiac disease.
- Added a new figure on sensory, social, and learned factors involved in appetite.
- Added a new Highlight box on eating cues.
- Removed the box on medicines used for heartburn and GERD.
- Added a new Nutrition Label Activity on food allergen labeling.
- Moved information on probiotics to the *In Depth* on phytochemicals and functional foods.

Chapter 4:

- Added a brand-new Nutrition Debate focusing on high-fructose corn syrup and rising obesity rates, including a new figure.
- Altered the organization of the chapter so that functions of carbohydrates are covered before digestion.
- Expanded detail on fiber.

- Expanded information on type 2 diabetes, while maintaining appropriate focus on type 1 diabetes.
- Added a discussion of glycemic load.
- Expanded definitions of forms of added sugars.
- Edited **FIGURE 4.5** (amounts of carbohydrate and fat used during differing exercise intensities) to add illustrations and pie charts that are easier to read and understand.
- Added a new **FIGURE 4.7** to illustrate how a high-fiber diet may help to reduce blood cholesterol levels.
- Revised the fiber content table into a bar graph to show information more visually (**FIGURE 4.14**).
- Created a new **FIGURE 4.15** of high-carbohydrate diets with photos of meals.
- Changed the Highlight box on risk factors for diabetes from a table-like format to a quiz for students.
- Added a new Judy Nutri-Case on testing Hannah for diabetes.

Chapter 5:

- Altered the organization of the chapter so that functions of fats are covered before digestion.
- Added a new **FIGURE 5.2** showing the structures of single bonds versus double bonds in fatty acids.
- Revised the table of dietary fat sources into a graph to show information more visually (**FIGURE 5.4**).
- Added a new **FIGURE 5.12** of an adipose cell.
- Combined a table and figure to produce a new **FIGURE 5.17** on the descriptions, functions, and chemical components of lipoproteins.
- Added more detail on hydrogenation of fats and its effect on health.
- Added a new Shopper's Guide section on practical tips for improving the type and quantity of fat in your diet.
- Updated the Nutrition Debate on "bad" foods with information about new *trans* fat legislation and other developments.

Chapter 6:

- Altered the organization of the chapter so that functions of proteins are covered before digestion.
- Expanded information on nutrients of concern for those consuming vegan diets.
- Updated information on mad cow disease.
- Expanded text to describe gene expression in **FIGURE 6.4**.
- Added a new **FIGURE 6.5** on protein turnover.
- Add discussion and expanded **FIGURE 6.6** to include quaternary structure of proteins.
- Created a new **FIGURE 6.8** with meal photos of complementary food combinations.

- Redesigned **FIGURE 6.10** to show a mechanistic diagram of fluid shifts that cause edema plus photos of non-edemic and edemic feet.
- Added information on nitrogen balance, including a new **FIGURE 6.13**.

Chapter 7:

- Added a new Nutrition Label Activity box on water bottle labels.
- Added a new **FIGURE 7.6** on depolarization and repolarization.
- Changed the water content of foods table to a visually appealing graph (**FIGURE 7.7**).
- Revised **FIGURE 7.8** to show cups of water for fluid intake and output.

Chapter 8:

- Expanded the discussion of how retinal helps to make vision more clear.
- Added a new Judy Nutri-Case on vitamin C.
- Included more information about secondhand smoke being a carcinogen.
- Included new photos of scurvy, a healthy lung vs. a cancerous lung, and the physical effects of smoking.
- Included more information about UV rays from tanning beds as a carcinogen.
- Included more current research on antioxidants as they relate to cancer and CVD.
- **FIGURE 8.11** revised to show conversions between rhodopsin and opsin.

Chapter 9:

- Condensed information on bone density assessment to be more appropriate for a non-majors audience.
- Added new information on calcium and weight loss.
- Added new information on the call to increase vitamin D recommendations.
- Deleted information on other bone disorders, as they were not nutrition-related.
- Updated the Nutrition Debate on HRT and potential health risks.
- Added a more detailed **FIGURE 9.5** illustrating regulation of blood calcium.
- Added a new **FIGURE 9.7** to compare various foods/serving sizes that are equivalent in calcium to one 8-fl. oz glass of skim milk.
- Added a new **FIGURE 9.8** of a calcium quiz to give students an opportunity to quickly estimate their own calcium intake.
- Revised **FIGURE 9.9** to include chemical structures of vitamin D.
- Added a new **FIGURE 9.10** to show a map of the United States and latitudes where sunlight is inadequate during winter months.

Chapter 10:

- Changed the nutrient content tables to graphs for each nutrient.
- Added a Shopper's Guide section with tips for iron intake.
- Added more background/history for each nutrient.
- Added information on the function of the nutrients.
- Rearranged the chapter for easier reading.
- Condensed many tables to provide more focused information.