



Chapter 1

Introduction

In 1980, the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (HHS) released the first edition of *Nutrition and Your Health: Dietary Guidelines for Americans*. These Dietary Guidelines were different from previous dietary guidance in that they reflected emerging scientific evidence about diet and health and expanded the traditional focus on nutrient adequacy to also address the impact of diet on chronic disease.

Subsequent editions of the *Dietary Guidelines for Americans* have been remarkably consistent in their recommendations about the components of a health-promoting diet, but they also have changed in some significant ways to reflect an evolving body of evidence about nutrition, the food and physical activity environment, and health. The ultimate goal of the *Dietary Guidelines for Americans* is to improve the health of our Nation's current and future generations by facilitating and promoting healthy eating and physical activity choices so that these behaviors become the norm among all individuals.

The recommendations contained in the *Dietary Guidelines for Americans* traditionally have been intended for healthy Americans ages 2 years and older. However, *Dietary Guidelines for Americans, 2010* is being released at a time of rising concern about the health of the American population. Its recommendations accommodate the reality that a large percentage of Americans are overweight or obese and/or at risk of various chronic diseases. Therefore, the *Dietary Guidelines for Americans, 2010* is intended for Americans ages 2 years and older, including those who are at increased risk of chronic disease.

Poor diet and physical inactivity are the most important factors contributing to an epidemic of overweight and obesity in this country. The most recent data indicate that 72 percent of men and 64 percent of women are overweight or obese, with about one-third of adults being obese.⁹ Even in the absence of overweight, poor diet and physical inactivity are associated with major causes of morbidity and mortality. These include cardiovascular disease, hypertension,

9. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among U.S. adults, 1999-2008. *JAMA*. 2010;303(3):235-241.

type 2 diabetes, osteoporosis, and some types of cancer. Some racial and ethnic population groups are disproportionately affected by the high rates of overweight, obesity, and associated chronic diseases. These diet and health associations make a focus on improved nutrition and physical activity choices ever more urgent. These associations also provide important opportunities to reduce health disparities through dietary and physical activity changes.

Dietary Guidelines for Americans also recognizes that in recent years nearly 15 percent of American households have been unable to acquire adequate food to meet their needs because of insufficient money or other resources for food.¹⁰ This dietary guidance can help them maximize the nutritional content of their meals within their resource constraints. Many other Americans consume less than optimal intake of certain nutrients, even though they have adequate resources for a healthy diet. This dietary guidance and nutrition information can help them choose a healthy, nutritionally adequate diet.

Children are a particularly important focus of the *Dietary Guidelines for Americans* because of the growing body of evidence documenting the vital role that optimal nutrition plays throughout the lifespan. Today, too many children are consuming diets with too many calories and not enough nutrients and are not getting enough physical activity. Approximately 32 percent of children and adolescents ages 2 to 19 years are overweight or obese, with 17 percent of children being obese.¹¹ In addition, risk factors for adult chronic diseases are increasingly found in younger ages. Eating patterns established in childhood often track into later life, making early intervention on adopting healthy nutrition and physical activity behaviors a priority.

DEVELOPING THE DIETARY GUIDELINES FOR AMERICANS, 2010

Because of their focus on health promotion and disease risk reduction, the Dietary Guidelines form the basis for nutrition policy in Federal food, education, and information programs. By law (Public Law 101-445, Title III, 7 U.S.C. 5301 et seq.), the *Dietary Guidelines for Americans* is reviewed, updated if necessary, and published every 5 years. The process

to create each edition of the *Dietary Guidelines for Americans* is a joint effort of the USDA and HHS and has evolved to include three stages.

In the first stage, an external scientific Dietary Guidelines Advisory Committee (DGAC) is appointed to conduct an analysis of new scientific information on diet and health and to prepare a report summarizing its findings. The Committee's analysis is the primary resource for the two Departments in developing the *Dietary Guidelines for Americans*. The 2010 DGAC used a systematic evidence-based review methodology involving a web-based electronic system to facilitate its review of the scientific literature and address approximately 130 scientific questions. The methodological rigor of each study included in the analysis was assessed, and the body of evidence supporting each question was summarized, synthesized, and graded by the Committee (this work is publicly available at <http://www.nutritionevidencelibrary.gov>). The DGAC used data analyses, food pattern modeling analyses,¹² and reviews of other evidence-based reports to address an additional 50 questions.

The DGAC report presents a thorough review of key nutrition, physical activity, and health issues, including those related to energy balance and weight management; nutrient adequacy; fatty acids and cholesterol; protein; carbohydrates; sodium, potassium, and water; alcohol; and food safety and technology. Following its completion in June 2010, the DGAC report was made available to the public and Federal agencies for comment. For more information about the process and the Committee's review, see the *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010* at <http://www.dietaryguidelines.gov>.

During the second stage, the Departments develop the policy document, *Dietary Guidelines for Americans*. The audiences for this document include policymakers, nutrition educators, nutritionists, and health care providers. Similar to previous editions, the 2010 edition of *Dietary Guidelines for Americans* is based on the Advisory Committee's report and a consideration of public and Federal agency comments. The Dietary Guidelines science-based recommendations are used for program and policy development. In the third and final stage, the two Departments develop messages

10. Nord M, Coleman-Jensen A, Andrews M, Carlson S. Household food security in the United States, 2009. Washington (DC): U.S. Department of Agriculture, Economic Research Service. 2010 Nov. Economic Research Report No. ERR-108. Available from <http://www.ers.usda.gov/publications/err108>.

11. Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of high body mass index in U.S. children and adolescents, 2007-2008. *JAMA*. 2010;303(3):242-249.

12. Food pattern modeling analyses are conducted to determine the hypothetical impact on nutrients in and adequacy of food patterns when specific modifications to the patterns are made.

THE HEAVY TOLL OF DIET-RELATED CHRONIC DISEASES

Cardiovascular Disease

- 81.1 million Americans—37 percent of the population—have cardiovascular disease.¹³ Major risk factors include high levels of blood cholesterol and other lipids, type 2 diabetes, hypertension (high blood pressure), metabolic syndrome, overweight and obesity, physical inactivity, and tobacco use.
- 16 percent of the U.S. adult population has high total blood cholesterol.¹⁴

Hypertension

- 74.5 million Americans—34 percent of U.S. adults—have hypertension.¹⁵
- Hypertension is a major risk factor for heart disease, stroke, congestive heart failure, and kidney disease.
- Dietary factors that increase blood pressure include excessive sodium and insufficient potassium intake, overweight and obesity, and excess alcohol consumption.
- 36 percent of American adults have prehypertension—blood pressure numbers that are higher than normal, but not yet in the hypertension range.¹⁶

Diabetes

- Nearly 24 million people—almost 11 percent of the population—ages 20 years and older have diabetes.¹⁷ The vast majority of cases are type 2 diabetes, which is heavily influenced by diet and physical activity.
- About 78 million Americans—35 percent of the U.S. adult population ages 20 years or older—have pre-diabetes.¹⁸ Pre-diabetes (also called impaired glucose tolerance or impaired fasting glucose) means that blood glucose levels are higher than normal, but not high enough to be called diabetes.

Cancer

- Almost one in two men and women—approximately 41 percent of the population—will be diagnosed with cancer during their lifetime.¹⁹
- Dietary factors are associated with risk of some types of cancer, including breast (postmenopausal), endometrial, colon, kidney, mouth, pharynx, larynx, and esophagus.

Osteoporosis

- One out of every two women and one in four men ages 50 years and older will have an osteoporosis-related fracture in their lifetime.²⁰
- About 85 to 90 percent of adult bone mass is acquired by the age of 18 in girls and the age of 20 in boys.²¹ Adequate nutrition and regular participation in physical activity are important factors in achieving and maintaining optimal bone mass.

13. American Heart Association. Heart Disease and Stroke Statistics, 2010 Update At-A-Glance. http://www.americanheart.org/downloadable/heart/1265665152970DS-3241%20HeartStrokeUpdate_2010.pdf.

14. Centers for Disease Control and Prevention. Cholesterol Facts. <http://www.cdc.gov/cholesterol/facts.htm>.

15. American Heart Association. Heart Disease and Stroke Statistics, 2010 Update. Table 6-1. <http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.109.192667>.

16. Egan BM, Zhao Y, Axon RN. U.S. trends in prevalence, awareness, treatment, and control of hypertension, 1988–2008. *JAMA*. 2010;303(20):2043–2050.

17. Centers for Disease Control and Prevention. National Diabetes Fact Sheet, 2007. http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf.

18. Centers for Disease Control and Prevention. National Diabetes Fact Sheet, 2007. http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf. Estimates projected to U.S. population in 2009.

19. National Cancer Institute. Surveillance Epidemiology and End Results (SEER) Stat Fact Sheets: All Sites. <http://seer.cancer.gov/statfacts/html/all.html>.

20. National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). NIH Osteoporosis and Related Bone Diseases National Resource Center. http://www.niams.nih.gov/Health_Info/Bone/Osteoporosis/default.asp#h.

21. National Osteoporosis Foundation. Fast Facts. <http://www.nof.org/node.40>.

and materials communicating the Dietary Guidelines to the general public.

A ROADMAP TO THE DIETARY GUIDELINES FOR AMERICANS, 2010

Dietary Guidelines for Americans, 2010 consists of six chapters. This first chapter introduces the document and provides information on background and purpose. The next five chapters correspond to major themes that emerged from the 2010 DGAC's review of the evidence, and Chapters 2 through 5 provide recommendations with supporting evidence and explanations. These recommendations are based on a preponderance of the scientific evidence for nutritional factors that are important for promoting health and lowering risk of diet-related chronic disease. Quantitative recommendations always refer to individual intake or amount rather than population average intake, unless otherwise noted.

Although divided into chapters that focus on particular aspects of eating patterns, *Dietary Guidelines for Americans* provides integrated recommendations for health. To get the full benefit, individuals should carry out these recommendations in their entirety as part of an overall healthy eating pattern:

- **Chapter 2: Balancing Calories to Manage Weight** explains the concept of calorie balance, describes some of the environmental factors that have contributed to the current epidemic of overweight and obesity, and discusses diet and physical activity principles that can be used to help Americans achieve calorie balance.
- **Chapter 3: Foods and Food Components to Reduce** focuses on several dietary components that Americans generally consume in excess compared to recommendations. These include sodium, solid fats (major sources of saturated fats and *trans* fats), cholesterol, added sugars, refined grains, and for some Americans, alcohol. The chapter explains that reducing foods and beverages that contain relatively high amounts of these dietary components and replacing them with foods and beverages that provide substantial amounts of nutrients and relatively few calories would improve the health of Americans.

- **Chapter 4: Foods and Nutrients to Increase** focuses on the nutritious foods that are recommended for nutrient adequacy, disease prevention, and overall good health. These include vegetables; fruits; whole grains; fat-free or low-fat milk and milk products;²² protein foods, including seafood, lean meat and poultry, eggs, beans and peas, soy products, and unsalted nuts and seeds; and oils. Additionally, nutrients of public health concern, including potassium, dietary fiber, calcium, and vitamin D, are discussed.
- **Chapter 5: Building Healthy Eating Patterns** shows how the recommendations and principles described in earlier chapters can be combined into a healthy overall eating pattern. The USDA Food Patterns and DASH Eating Plan are healthy eating patterns that provide flexible templates allowing all Americans to stay within their calorie limits, meet their nutrient needs, and reduce chronic disease risk.
- **Chapter 6: Helping Americans Make Healthy Choices** discusses two critically important facts. The first is that the current food and physical activity environment is influential in the nutrition and activity choices that people make—for better and for worse. The second is that all elements of society, including individuals and families, communities, business and industry, and various levels of government, have a positive and productive role to play in the movement to make America healthy. The chapter suggests a number of ways that these players can work together to improve the Nation's nutrition and physical activity.

In addition to these chapters, *Dietary Guidelines for Americans, 2010* provides resources that can be used in developing policies, programs, and educational materials. These include Guidance for Specific Population Groups (Appendix 1), Key Consumer Behaviors and Potential Strategies for Professionals to Use in Implementing the 2010 Dietary Guidelines (Appendix 2), Food Safety Principles and Guidance for Consumers (Appendix 3), and Using the Food Label to Track Calories, Nutrients, and Ingredients (Appendix 4). These resources complement existing Federal websites that provide nutrition information and guidance, such as www.healthfinder.gov, www.nutrition.gov, www.mypyramid.gov, and www.dietaryguidelines.gov.

22. Milk and milk products also can be referred to as dairy products.

KEY TERMS TO KNOW

Several terms are used throughout *Dietary Guidelines for Americans, 2010* and are essential to understanding the principles and recommendations discussed:

Calorie balance. The balance between calories consumed in foods and beverages and calories expended through physical activity and metabolic processes.

Eating pattern. The combination of foods and beverages that constitute an individual's complete dietary intake over time.

Nutrient dense. Nutrient-dense foods and beverages provide vitamins, minerals, and other substances that may have positive health effects with relatively few calories. The term “nutrient dense” indicates that the nutrients and other beneficial substances in a food have not been “diluted” by the addition of calories from added solid fats, added sugars, or added refined starches, or by the solid fats naturally present in the food. Nutrient-dense foods and beverages are lean or low in solid fats, and minimize or exclude added solid fats, sugars, starches, and sodium. Ideally, they also are in forms that retain naturally occurring components, such as dietary fiber. All vegetables, fruits, whole grains, seafood, eggs, beans and peas, unsalted nuts and seeds, fat-free and low-fat milk and milk products, and lean meats and poultry—when prepared without adding solid fats or sugars—are nutrient-dense foods. For most Americans, meeting nutrient needs within their calorie needs is an important goal for health. Eating recommended amounts from each food group in nutrient-dense forms is the best approach to achieving this goal and building a healthy eating pattern.

Finally, the document has additional appendices containing nutritional goals for age-gender groups based on the Dietary Reference Intakes and the Dietary Guidelines recommendations (Appendix 5), estimated calorie needs per day by age, gender, and physical activity level (Appendix 6), the USDA Food Patterns and DASH Eating Plan (Appendices 7-10), tables that support individual chapters (Appendices 11-15), and a glossary of terms (Appendix 16).

Sources of information

For more information about the articles and reports used to inform the development of the *Dietary Guidelines for Americans*, readers are directed to the *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010* and the related Nutrition Evidence Library website (<http://www.nutritionevidencelibrary.gov>). Unless otherwise noted, usual nutrient, food group, and selected dietary component intakes by Americans are drawn from analyses conducted by the National Cancer Institute (NCI),²³ a component of HHS's National Institutes of Health, and by USDA's Agricultural Research Service (ARS),²⁴ using standard methodologies and data from the National Health and Nutrition Examination Survey (NHANES). Additional references are provided throughout this document, where appropriate.

IMPORTANCE OF THE DIETARY GUIDELINES FOR HEALTH PROMOTION AND DISEASE PREVENTION

A growing body of scientific evidence demonstrates that the dietary and physical activity recommendations described in the *Dietary Guidelines for Americans* may help people attain and maintain a healthy weight, reduce the risk of chronic disease, and promote overall health. These recommendations accommodate the varied food preferences, cultural traditions, and customs of the many and diverse groups who live in the United States.

A basic premise of the Dietary Guidelines is that nutrient needs should be met primarily through consuming foods. Foods provide an array of nutrients and other components that are thought to have beneficial effects on health. Americans should aim to consume a diet that achieves the Institute

23. National Cancer Institute (NCI). Usual dietary intakes: food intakes, U.S. population, 2001-2004. Risk Factor Monitoring and Methods. <http://riskfactor.cancer.gov/diet/usualintakes/pop/#results>. Updated January 15, 2009. Accessed April 10, 2010.

24. Agricultural Research Service (ARS). Nutrient intakes from food: mean amounts consumed per individual, one day, 2005-2006. Food Surveys Research Group, ARS, U.S. Department of Agriculture. www.ars.usda.gov/ba/bhnrc/fsrg. 2008. Accessed April 10, 2010.

of Medicine’s most recent Dietary Reference Intakes (DRIs), which consider the individual’s life stage, gender, and activity level. In some cases, fortified foods and dietary supplements may be useful in providing one or more nutrients that otherwise may be consumed in less than recommended amounts. Another important premise of the Dietary Guidelines is that foods should be prepared and handled in a way that reduces risk of foodborne illness. All of these issues are discussed in detail in the remainder of this document and its appendices.

USES OF THE DIETARY GUIDELINES FOR AMERICANS, 2010

As with previous editions, *Dietary Guidelines for Americans, 2010* forms the basis for nutrition policy in Federal food, nutrition, education, and information programs. This policy document has several specific uses.

Development of educational materials and communications

The information in this edition of *Dietary Guidelines for Americans* is used in developing nutrition education and communication messages and materials. For example, Federal dietary guidance publications are required by law to be consistent with the Dietary Guidelines.

When appropriate, specific statements in *Dietary Guidelines for Americans, 2010* indicate the strength of the evidence (e.g., strong, moderate, or limited) related to the topic as summarized by the 2010 Dietary Guidelines Advisory Committee. The strength of evidence is provided so that users are informed about how much evidence is available and how consistent the evidence is for a particular statement or recommendation. This information is useful for educators when developing programs and tools. Statements supported by strong or moderate evidence can and should be emphasized in educational materials over those with limited evidence.

When considering the evidence that supports a recommendation, it is important to recognize the difference between *association* and *causation*. Two factors may be associated; however, this association does not mean that one factor necessarily

DESCRIBING THE STRENGTH OF THE EVIDENCE

Throughout this document, the Dietary Guidelines note the strength of evidence supporting its recommendations:

Strong evidence reflects consistent, convincing findings derived from studies with robust methodology relevant to the population of interest.

Moderate evidence reflects somewhat less evidence or less consistent evidence. The body of evidence may include studies of weaker design and/or some inconsistency in results. The studies may be susceptible to some bias, but not enough to invalidate the results, or the body of evidence may not be as generalizable to the population of interest.

Limited evidence reflects either a small number of studies, studies of weak design, and/or inconsistent results.

For more information about evaluating the strength of evidence, go to <http://www.nutritionevidencelibrary.gov>.

causes the other. Often, several different factors may contribute to an outcome. In some cases, scientific conclusions are based on relationships or associations because studies examining cause and effect are not available. When developing education materials, the relationship of associated factors should be carefully worded so that causation is not suggested.

Development of nutrition-related programs

The Dietary Guidelines aid policymakers in designing and implementing nutrition-related programs. For example, the Federal Government uses the Dietary Guidelines in developing nutrition assistance programs such as the National Child Nutrition Programs and the Elderly Nutrition Program. The Dietary Guidelines also provide the foundation for the Healthy People national health promotion and disease prevention objectives related to nutrition,



which set measurable targets for achievement over a decade.

Development of authoritative statements

The *Dietary Guidelines for Americans, 2010* has the potential to offer authoritative statements as a basis for health and nutrient content claims, as provided for in the Food and Drug Administration Modernization Act (FDAMA). Potential authoritative statements

should be phrased in a manner that enables consumers to understand the claim in the context of the total daily diet. FDAMA upholds the “significant scientific agreement” standard for authorized health claims. By law, this standard is based on the totality of publicly available scientific evidence. Therefore, for FDAMA purposes, statements based on, for example, evidence that is moderate, limited, inconsistent, emerging, or growing, are not authoritative statements.