

Part B. Section 1: Introduction

Since first published in 1980, the Dietary Guidelines for Americans have provided science-based advice to promote health and reduce risk of major chronic diseases through optimal diet and regular physical activity. The Dietary Guidelines have traditionally targeted the healthy general public older than age 2 years, but as data continue to accumulate regarding the importance of dietary intake during gestation and from birth on, it also will become important to consider those younger than age 2 years in future Guidelines. Because of their focus on health promotion and risk reduction, the Dietary Guidelines form the basis of Federal food, nutrition education, and information programs.

By law (Public Law 101-445, Title III, 7 U.S.C. 5301 et seq.) the most recent edition of the Dietary Guidelines is reviewed by a committee of experts, updated if necessary, and published every 5 years. The legislation also requires that the Secretaries of the US Department of Agriculture (USDA) and US Department of Health and Human Services (HHS) review all Federal publications for the general public containing dietary guidance information for consistency with the Dietary Guidelines for Americans. This Report presents the recommendations of the 2010 Dietary Guidelines Advisory Committee (DGAC) to the Secretaries of Agriculture and of Health and Human Services for use in updating the Guidelines.

The 2010 DGAC Report is unprecedented in addressing an American public, two-thirds of whom are overweight or obese. Americans are making dietary choices in a highly obesogenic environment and at a time of burgeoning diet-related chronic diseases affecting people of all ages, ethnic backgrounds, and socioeconomic levels. The DGAC considers the obesity epidemic to be the single greatest threat to public health in this century. This Report is therefore focused on evidence-based guidelines and recommendations that are considered effective and useful in halting and reversing the obesity problem through primary prevention and changes in behavior, the environment, and the food supply.

The Role of Diet and Physical Activity in Health Promotion: Attenuating Chronic Disease Risks

A large proportion of deaths each year in the US result from a limited number of preventable and modifiable factors. The leading causes of death for the past two decades have been tobacco use and poor diet and physical inactivity (McGinnis, 1993; Mokdad, 2004). The number of deaths related to poor diet and physical inactivity is increasing and may soon overtake tobacco as the leading cause of death. As discussed in this Report, poor dietary intake has been linked to excess body weight and numerous diseases and conditions, such as cardiovascular disease (CVD) and type 2 diabetes (T2D)

and their related risk factors. Even if the overweight/obesity epidemic resolves, the problems of chronic disease would continue to be a major health problems because poor-quality diets, even in the absence of overweight/obesity, increase the risk some of our most common chronic diseases.

The reduction of chronic disease risk merits strong emphasis in our Nation for many reasons, especially because some groups in the population bear a disproportionate burden of chronic disease and attendant risk factors. The present report highlights the evidence that links diet and the different chronic diseases. It also summarizes and synthesizes knowledge regarding many individual nutrients and food components into recommendations for an overall total pattern of eating that can be adopted by the public. Although adherence to the Dietary Guidelines is low among the US population, evidence is accumulating that selecting diets that comply with the Guidelines reduces the risk of chronic disease and promotes health. Ultimately, individuals choose the types and amount of food they eat and the amount of physical activity they perform, but the current environment significantly enhances the over-consumption of calories and discourages the expenditure of energy. Both sides of this equation are discussed in greater detail throughout the Report.

Population Groups of Particular Concern

The Dietary Guidelines for Americans has traditionally provided guidance to healthy Americans. However, the 2010 DGAC recognizes that a large percentage of the American population now has diet-related chronic diseases or risk factors for them, and has accommodated this reality in its review of the evidence. Much of the evidence the Committee reviewed pertains to adults. However, given the importance of nutrition across the lifespan and the rapidly growing scientific literature on diet and children's health, several sections of the Report focus particular attention on this important population group. In addition, the Committee presents reviews of evidence on several questions pertaining to pregnant and lactating women and to older adults.

Children

Increasingly, studies are addressing the role of nutrition and physical activity in promoting health in children. A nutrient-dense, high-quality diet, sufficient but not excessive in calories, and regular daily physical activity are integral to promoting the optimal health, growth, and development of children. For example, the rapid rates of growth occurring during adolescence increase the need for dietary sources of iron and calcium during that period to higher amounts per 1,000 calories than required at any other stage of life.

Evidence documents the importance of optimal nutrition starting during the fetal period through childhood and adolescence because this has a substantial influence on the risk of chronic

disease with age (Warner, 2010). Eating patterns established during childhood often are carried into adulthood (Aggett, 1994). For example, those who consume fruits and vegetables or milk regularly as children are more likely to do so as adults (Aggett, 1994).

Today, too many children are consuming diets with too many calories and not enough nutrients, and they are not getting enough physical activity (less than half of children age 12 to 21 years exercise on a daily basis [HHS, 1996]). As a result, chronic disease risk factors, such as glucose intolerance and hypertension, which were once unheard of in childhood, are now increasingly common. T2D now accounts for up to 50 percent of new cases of diabetes among youths. One in 400 youths will have T2D by age 20 years. Excess weight, particularly around the abdomen, as well as too little physical activity, appears to be the basis for developing this disease early in life.

Pregnant and Lactating Women

Both pregnancy and lactation are critical periods during which maternal nutrition is a key factor influencing the health of both child and mother. Energy as well as protein and several mineral and vitamin requirements increase substantially during pregnancy, making the pregnant woman's dietary choices critically important (Christian, 2010; IOM, 1991; IOM, 2002; Picciano, 2003).

However, excess energy intake during pregnancy has become a major concern. Growing evidence indicates that overnutrition leading to unhealthy weight gain during pregnancy may greatly predispose the child to obesity. Insufficient micronutrient intake also continues to be a concern. For example, sufficient intake of folic acid, which is especially important for normal development of the embryo and fetus, is critical during the entire periconceptional period. Dietary factors also may contribute to impaired glucose tolerance, a common disorder of pregnancy that influences fetal growth and outcomes (Clapp, 1998; Saldana, 2004). Dietary contaminants, such as methyl mercury, may adversely affect fetal growth. Maternal diet, especially the intake of certain vitamins and alcoholic beverages, also may influence breast milk composition (Dewey, 1999; IOM, 1991).

Older Adults

The *65+ in the United States: 2005 Report* noted that the US population aged 65 years and older is expected to double in size within the next 25 years (He, 2005). By 2030, it is projected that one in five people will be older than age 65 years. Individuals age 85 years and older are the fastest growing segment of the older population. In 2011, the “baby boom” generation will begin to turn 65. As the number of older Americans increases, the role of diet quality and physical activity in reducing the progression of chronic disease will become increasingly important. The health of older Americans is improving, but many are disabled and suffer from chronic conditions. The proportion with a

disability fell significantly from 26.2 percent in 1982 to 19.7 percent in 1999 (Manton, 2001), yet 14 million people age 65 years and older reported some level of disability in Census 2000, mostly linked to a high prevalence of chronic conditions, such as CVD, T2D, hypertension, or arthritis.

The process of aging can influence how nutrients are used and can exacerbate the effect of poor diet quality on health. For example, aging may reduce nutrient absorption, increase urinary nutrient loss, and alter normal pathways of nutrient metabolism. These changes associated with aging can be compensated to some extent by a nutrient-dense diet that remains within calorie needs. Most important, modifications of diet and increases in physical activity have tremendous potential as a means to prevent or delay chronic disease in older persons. Older individuals achieve, in many instances, greater benefit from a given improvement in diet than do younger individuals (e.g., older individuals tend to be more responsive to the blood pressure-lowering effects of reducing salt intake) or from an increase in physical activity. As with children, adolescents and younger adults, data comparing people aged 65 to 74 years in 1988-1994 and 1999-2000 show a startling rise in the percentage of obese older adults. In men, the proportion grew from about 24 to 33 percent and in women from about 27 percent to 39 percent (He, 2005).

Furthermore, available data have repeatedly documented that older-aged persons can make and sustain behavior change, more so than their younger counterparts (DPP, 2002; DPP, 2009; Whelton, 1997). Such results highlight the importance of encouraging dietary changes throughout the lifespan, including older-aged persons.

Changes in Diet and Physical Activity as a Means to Reduce Health Disparities

Of substantial concern are disparities in health among racial and ethnic minorities and among different socioeconomic groups. For example, Blacks have a higher prevalence of elevated blood pressure and a greater incidence of blood pressure-related diseases, such as stroke and kidney failure, than do non-Blacks (DGAC, 2004). Also, several subgroups of the population (e.g., Mexican-Americans, American Indians, and Blacks) have a strikingly high prevalence of overweight and obesity, even beyond that of the already high prevalence rates observed in the general population. Furthermore, it is well-recognized that individuals of lower socioeconomic status have a higher incidence of adverse health outcomes than do individuals of higher socioeconomic status. Dietary patterns differ among different groups, with individuals of lower education and income consuming fewer servings of vegetables and fruit than those with more education and higher income (USDA, 2004). While the reasons for such disparities are complex and multi-factorial, available research is sufficient to advocate certain dietary changes and increased physical activity as a means to reduce disparities.

The effects on blood pressure of a reduced sodium intake, increased potassium intake, and an overall healthy dietary pattern provide an example of how dietary changes could reduce health disparities. Although both Blacks and non-Blacks consume excess sodium, Blacks tend to be more sensitive to the effects of sodium than are non-Blacks. Likewise, Blacks tend to be more sensitive to the blood pressure-lowering effects of increased potassium intake. Ironically, the average potassium intake of Blacks is less than that of non-Blacks. The Dietary Approaches to Stop Hypertension (DASH) diet, an example of a healthy dietary pattern that emphasizes vegetables and fruits, has been shown in clinical trials to lower blood pressure to a greater extent in Blacks than in non-Blacks. Yet, Blacks tend to consume fewer fruits and vegetables than do non-Blacks.

Such evidence exemplifies important, yet underappreciated, opportunities to reduce health disparities through dietary changes.

From the 2010 DGAC Report to the Dietary Guidelines for Americans

A major goal of the 2010 DGAC is to summarize and synthesize the evidence to support USDA and HHS in developing nutrition recommendations that reduce the risk of chronic disease while meeting nutrient requirements and promoting health for all Americans.

The US Government uses the Dietary Guidelines as the basis of its food assistance programs, nutrition education efforts, and decisions about national health objectives. For example, the National School Lunch Program and the Elderly Nutrition Program incorporate the Dietary Guidelines in menu planning, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) applies the Dietary Guidelines in its educational materials, and the Healthy People 2010 objectives for the Nation include objectives based on the Dietary Guidelines. The evidence described here in the 2010 DGAC Report, which will be used to develop the 2010 Dietary Guidelines for Americans, will help policymakers, educators, clinicians, and others speak with one voice on nutrition and health and to reduce the confusion caused by mixed messages in the media. The DGAC also hopes that the 2010 Dietary Guidelines for Americans will encourage the food industry to grow, manufacture, and sell foods that promote health and contribute to appropriate energy balance.

A Guide to the 2010 DGAC Report

This report contains several major components. Part A provides an Executive Summary to the Report. Part B sets the stage for the Report through this Introduction. It also provides a synthesis of major findings in two complementary chapters. The first chapter describes a health-promoting total

diet approach that combines the intake of foods, calories, and nutrients. The second chapter integrates the Report's major cross-cutting findings and provides specific recommendations for how Americans and different sectors throughout the Nation can put the Report's evidence-based dietary recommendations into action.

Part C describes the methodology the DGAC used to conduct its work and review the evidence on diet and health. Part D is the Science Base. In this Part, the DGAC's subcommittees present their specific findings in chapters focused on energy balance and weight management; nutrient adequacy; fatty acids and cholesterol; protein; carbohydrates; sodium, potassium, and water; alcohol, and food safety and technology.

The Report concludes with several Appendices, including a compilation of the Committee's scientific conclusions, a glossary, a brief history of the Dietary Guidelines for Americans, a listing of the food pattern analyses conducted for the 2010 DGAC, a summary of the process used to collect public comments, biographical sketches of DGAC members, and Acknowledgments.

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