

PART B. CHAPTER 2: INTEGRATING THE EVIDENCE

INTRODUCTION

This chapter provides an overview of the themes that emerged from the 2020 Dietary Guidance Advisory Committee's examination of the evidence pertaining to the questions addressed. This review and resulting recommendations are provided to the Secretaries of Agriculture (USDA) and of Health and Human Services (HHS) for the development of the *2020-2025 Dietary Guidelines for Americans*. The Committee's integrated review of the evidence to address the topics and questions in its charge strongly supports a life stage approach in the *2020-2025 Dietary Guidelines for Americans* that encompass dietary patterns that provide recommended nutrient intakes in a culturally acceptable manner.

This edition of the Committee's report is the first to extensively review the period from birth to age 24 months as well as to fully integrate evidence reviewed on pregnancy and lactation. This will enable USDA and HHS to take a full lifespan approach in its dietary recommendations.

A lifespan approach highlights the importance of implementing dietary patterns that are most associated with nutrition adequacy, energy balance, and reduced risk of diet-related chronic health conditions starting at the earliest life stages. This orientation further emphasizes the importance of adhering to these nutrient-dense dietary patterns throughout each subsequent life stage to meet nutritional needs appropriate to each life stage and to maintain health and well-being. Due to the high prevalence of obesity and obesity-related chronic diseases, this approach also emphasizes the consumption of foods within dietary patterns that reduce the risk of developing overweight and obesity and the co-morbid conditions associated with them, as well as the specific dietary patterns that are independently associated with the prevalence of chronic diseases, such as type 2 diabetes, cardiovascular disease (CVD), osteoporosis, hypertension and certain types of cancers. As opposed to a focus on weight status at one point in life, the recommended dietary intakes support healthy weight trajectories at each stage of life, including healthy growth and development from infancy through adolescence, appropriate weight gain during pregnancy, energy needs during pregnancy and lactation, weight stability during mid-life, and healthy body composition late in life. The recommended dietary intakes can help prevent excess weight gain at every life stage, and support health even apart from considerations of energy intake.

SETTING THE STAGE: THE PUBLIC HEALTH CHALLENGE

Part D. Chapter 1: Current Intakes of Foods, Beverages, and Nutrients of the Committee's report illustrates the public health challenge that arises from the high prevalence of chronic diseases that affect the American public, both children and adults, stemming from the dietary patterns that are currently consumed by Americans. Of substantial concern is the increasing prevalence of overweight and obesity beginning at younger ages that can be carried into later life stages and worsen in adulthood. These high rates are a driver for diet-related chronic disease risk and are strongly associated with adverse maternal and fetal outcomes, including pregnancy outcomes and initiation and duration of breastfeeding. More than 70 percent of American adults are overweight or obese and the prevalence of severe obesity has increased over the past two decades. The Committee included evidence from studies that included people with overweight and obesity to reflect this reality of our current population.

Additionally, statistics from the Centers for Disease Control and Prevention (CDC) indicate that 6 in 10 American adults have a chronic disease and 4 in 10 have 2 or more disease conditions.¹ Various factors contribute to the prevalence of chronic disease. Prominent among these are poor nutrition, lack of physical activity, and excessive alcohol use. The consequences of these chronic conditions affect all Americans, given their impact on quality of life, vulnerability to emerging infectious diseases, and the cost burden to society, particularly the health care system.

The 2010 Committee introduced the importance of dietary patterns in understanding the relationship between food choices and risk of chronic diseases. Their review was the catalyst for the Departments' Dietary Patterns Systematic Review Project,² which informed the 2015 Committee's review and their recommendation that thinking about diet and health relationships should evolve from food groups and nutrients to dietary patterns. The 2020 Committee has further expanded this approach, using a growing body of evidence. Data from What We Eat in America (WWEIA), the dietary intake component of the National Health and Nutrition Examination Survey (NHANES), were analyzed to determine the degree to which current American eating patterns are consistent with the *2015-2020 Dietary Guidelines for Americans* recommendations for reducing risk of chronic health conditions. The *2015-2020 Dietary Guidelines*³ recommended a healthful eating pattern for ages 2 years and older based on food groups to include as well as food groups and related food components to limit.

The Committee's comparison of current intakes to these recommendations across various energy levels and life stages indicated that, across all age groups ages 2 years and older, the intake of fruits and vegetables, dairy products, and whole grains is less than recommended and

the balance among protein sources (i.e., plant, seafood, meat, poultry, eggs, and dairy) does not meet recommendations for most groups. The underconsumption of these food groups leads to less than recommended intake of specific nutrients and increased disease risk.

Additionally, the food components of added sugars, solid fats, and sodium, which are highlighted as components to limit, are consumed in excess of recommendations. These components are derived primarily through consumption of sweetened beverages (including coffee and tea), desserts and sweet snacks, candy and sugars, breakfast cereals and bars, burgers and sandwiches, higher fat dairy products, food items that are predominantly fat (e.g., butter, lard, hydrogenated oils), and mixed dishes, such as pizza. Across all life stages, many of these foods also contribute to total grain consumption that is predominantly refined grains rather than whole grains. The overconsumption of foods high in added sugars, saturated fats, and sodium is associated with displacement of more nutritious foods from the eating pattern, excess intake of fats associated with CVD risk, and can result in excess energy consumption that results in weight gain. These and additional nutritional considerations exist at each life stage (see **Part D. Chapter 1**).

The *2015-2020 Dietary Guidelines for Americans* did not include recommendations specific to the ages of birth to 24 months to enable a similar comparison for this age group. However, recommendations developed by CDC and the American Academy of Pediatrics (AAP) are available and comparison of current intake patterns to these recommendations illustrates that improvements are needed (see **Part D. Chapter 5: Foods and Beverages Consumed During Infancy and Toddlerhood** and **Part D. Chapter 6: Nutrients from Supplements During Infancy and Toddlerhood**). Such gaps include lower than optimal rates of initiation and duration of breastfeeding, the introduction of complementary foods and beverages (CFB) too early, especially in formula-fed infants, and the feeding of foods and beverages that primarily contribute energy to the diet rather than needed nutrients (e.g., added sugars from sugar-sweetened beverages [SSB]). Overall, the diet quality is higher in young children and tends to decline with age.

Efforts are needed at every life stage to improve typical eating patterns and reinforce the recommended eating patterns for Americans to achieve adequate nutrient intakes, avoid excess energy intake, and lower risk of chronic diseases. The gaps between recommended and current eating patterns across all life stages after the first year of life illustrate certain trends in diet quality across the life stages but also suggest that improving diet quality at one stage could result in beneficial effects in all subsequent life stages, if a better diet quality is carried forward.

IMPORTANCE OF CONSIDERING LIFE STAGE IN THE DIETARY GUIDELINES FOR AMERICANS

The chapters of this report are organized by life stage, based on available evidence about the relationship of diet to health outcomes unique to pregnancy, lactation, birth through age 24 months, childhood and adolescence, and maturity, from young to older adults. However, this timeline is continuous and underlying core concepts that are important for health promotion and disease prevention hold throughout.

Achieving goals at each life stage not only supports health at that point in time, but also provides a sound basis for transitioning to the next life stage from a position of nutritional advantage. For example:

- Maternal nutritional status before and during pregnancy influences pregnancy outcomes, initiation and continuation of breastfeeding and human milk composition, as well as the health of the infant and the mother. The influence of dietary patterns that are associated with lower risk of overweight and obesity, diet-related chronic health conditions, and all-cause mortality begins in utero, with maternal nutrition playing a role in fetal development and continuing postpartum through lactation.
- Rapid weight gain in the first year of life is consistently related to risk of childhood obesity, and development of overweight and obesity in childhood, particularly adolescence, often tracks into adulthood and increases the risk and severity of associated co-morbidities over time.
- Bone mass, including peak bone mass, is influenced by dietary patterns in childhood and adolescence, and influences the time course to onset of osteoporosis.

More broadly, adopting dietary patterns that favor foods that provide energy with little or no recommended nutrients or fiber early in life may initiate subclinical biologic processes that lead to disease expression in later years and this can be exacerbated by high levels of use of such foods throughout the lifespan. Conversely, establishing and perpetuating dietary patterns that favor fruits, vegetables, whole grains, lean meats, fish, nuts and appropriate dairy foods, should minimize diet-related chronic disease risk. Figure B2.1 depicts the Committee's 2 major themes of considering *dietary patterns* within and across *life stages* to support health and wellness. This figure builds upon Figure D8.1 (see **Part D. Chapter 8: Dietary Patterns**), which highlights the connections between dietary patterns, their component parts, and health outcomes, by integrating the importance of these factors across the life stages.

Figure B2.1. Foods and beverages consumed at each life stage can affect health and wellness within and across life stages



This figure depicts the connection between dietary patterns and their component parts within and across life stages. Diet quality runs throughout each component of the pattern. As an individual adheres to a healthy dietary pattern, health and wellness improve. Conversely, less healthy patterns can negatively influence health and wellness. Social determinants of health and individual factors, such as food access, food security, and environmental settings, also play a role in influencing the diet quality of a dietary pattern. Achieving a healthy dietary pattern at each life stage not only supports health and wellness at that point in time, but also provides a sound basis for transitioning to the healthy dietary pattern most appropriate for the next life stage.

Most of the available evidence on dietary patterns that the Committee reviewed was derived from studies conducted in adults, with fewer studies among children. Nevertheless, the importance of sound nutrition in early life and across life stage transitions is evident and building acceptance and preferences for healthful dietary patterns at early ages is important. Infants younger than age 6 months depend on a single food, preferably human milk, and through their early years require that a parent, guardian or caregiver nourish them in a manner that promotes a healthy lifestyle, supporting physical growth and cognitive and behavioral development. Existing evidence supports that breastfeeding and appropriate early nourishment are important for reducing risk factors for diet-related chronic diseases (e.g., obesity, type 2 diabetes, and atopic conditions, such as asthma and food allergies) that may begin during childhood. An infant's first exposure to flavor is through amniotic fluid followed by human milk.⁴ The AAP

recommends that a healthful dietary pattern during infancy includes breastfeeding and that complementary foods be introduced no earlier than age 4 months and preferably not until about age 6 months. Children ages 6 to 12 months need foods that are even more nutrient-dense than typical family foods, particularly with respect to iron and zinc.

Additionally, exposure to allergenic complementary foods (e.g., peanuts and eggs) during the first year of life is associated with lower risk of food allergy and other allergic conditions that may be induced by food, such as atopic dermatitis. Introducing a variety of foods at this time that fit a pattern consistent with good health, prepared in a safe-for-age way, has the potential to favorably influence food preferences and health outcomes. The evidence reviewed is consistent with this approach. By age 2 years, children are consuming a variety of foods that other members of their family also are consuming.

Throughout childhood and adolescence, children are exposed to the dietary patterns available in their household, school, and community. During later childhood, as children spend more time out of the home in daycare or school, additional influences on their eating behaviors and new foods and eating occasions become a part of their routine. Adolescents acquire ever-greater independence in their food choices as they mature, but they also remain financially and emotionally linked to parents or guardians where healthy lifestyles, if reinforced, may help sustain such behaviors. The onset of puberty, along with menarche, growth spurts, and hormonal changes, is a crucial time to reinforce the need for physical activity and for meeting requirements for specific nutrients, such as iron, while maintaining a healthful eating pattern. Eventual transition to autonomy from parental influences and the formation of bonds with others often brings new culinary experiences and preferences, creating new challenges for establishing eating patterns consistent with health and longevity. When sub-optimal patterns persist or are followed consistently in adulthood, they are a significant contributor to the risk and prevalence of chronic diseases at this stage of life,

In older adults, changes in metabolism, due in part to age-related loss in skeletal muscle, and physical activity may require adjustments in eating frequency and portion sizes. They also may generate special needs for selected nutrients, such as protein and vitamin B₁₂, especially among women.

Throughout all the life stages, physical activity levels, sleep quality and duration, and other unique personal lifestyle factors may affect health and nutrient requirements. Knowledge of healthful dietary patterns and strategies to reinforce healthy behaviors should be promoted and encouraged in all settings of home life, work, and play (e.g., daycare, schools, workplace food service) and at all life stages to promote improved health outcomes. Such knowledge and

communications are needed in a manner that is relevant to the setting and the life stage. Integrating the evidence reviewed for the topics addressed in this report, the 2020 Committee concludes that every life stage provides an opportunity to make food choices that promote health and well-being and reduce risk of diet-related chronic disease.

DIETARY PATTERNS PROVIDE A FRAMEWORK FOR THE DIETARY GUIDELINES RECOMMENDATIONS WITHIN AND ACROSS LIFE STAGES

Evidence on the association between dietary patterns and reduced risk of diet-related chronic diseases has expanded substantially since the 2015 Committee's review of this topic,⁵ further supporting and strengthening the idea that dietary patterns are a useful foundation for the recommendations in the *2020-2025 Dietary Guidelines for Americans*. From this evidence base, it is clear that the most important features of dietary patterns are the quality and types of foods recommended for greater intake and the nature of the foods to be used in a more limited fashion. Dietary patterns can be characterized in various ways and can have different names and descriptions that are not always consistent or transparent with respect to the foods included or excluded from the pattern. Consequently, the Committee focused on the important features of dietary patterns to evaluate their relationship to health.

An advantage of the dietary pattern approach is the emphasis on foods that people can choose to eat rather than on specific nutrients for which food sources may be unfamiliar to many consumers. This approach to communication illustrates how food choices as a whole, rather than isolated food components, are important for healthful eating practices. It also provides the flexibility to tailor food combinations that are not just healthful, but also appealing to population subgroups and take into account cultural and culinary preferences. Dietary recommendations are only as good as the level of adherence to them, and respecting culture-based preferences with relevant eating patterns should help improve adherence and health outcomes.

Across several types of experimentally defined dietary patterns and types of studies, the Committee found strong evidence that, in adults, a core dietary pattern characterized as higher in vegetables, fruits, nuts, legumes, whole grains, lean meats and seafood, appropriate dairy foods, and unsaturated vegetable oils, while being lower in red and processed meats, saturated fatty acids and cholesterol, and beverages and foods with added sugars is associated with reduced risk of all-causes of mortality. For women who are pregnant, a similar healthful dietary pattern is associated with reduced risk of poor maternal-fetal outcomes.

In addition, the evidence reviewed indicates that these core elements of the dietary pattern are appropriate across life stages from childhood (ages 2 years and older) to older adulthood. In early childhood, elements of healthful dietary patterns that should be preserved as young children transition into later childhood include higher intakes of dairy, vegetables, and fruits, as well as lower intakes of added sugars, saturated fats, and sodium. In some studies in adults, where alcohol consumption was considered in the context of the healthy dietary pattern, lower intakes of alcohol were associated with more favorable outcomes compared to higher intakes. The healthfulness of this dietary pattern was affirmed across several other outcomes, including CVD, type 2 diabetes, risk of overweight and obesity, bone health, and several cancers. In addition, the recommendations and conclusions in chapters that evaluated evidence from studies on seafood, saturated fats, non-alcoholic and alcoholic beverages, and added sugars reinforce the nature of this dietary pattern. The core elements of this dietary pattern are consistent with the Key Recommendations outlined in the *2015-2020 Dietary Guidelines for Americans*.

The Committee considered studies from the United States and abroad, with broad representation across a number of populations and demographic groups. This suggests that no matter where in the world a healthful dietary pattern is consumed, using the foods unique to the culture and region, a consistent association occurs. One major implication of this consistency of findings is that individuals have the opportunity to use a range of foods to customize the dietary pattern to meet their own individual preferences and lifestyle needs. With this type of pattern, a variety of foods within the designated food groups can be included to fit preferences based on culture, regional food availability, sensory appeal, or other individual factors and context such as income. This pattern also embodies a range of flexibility in the balance of macronutrients that can be achieved while still meeting the overall goals of the dietary pattern. Ultimately, this pattern of eating, no matter the designated research label, is highly flexible and customizable.

The Committee also examined whether specific macronutrient-defined dietary patterns are associated with a reduced risk of diet-related chronic diseases. It did not examine evidence relating certain macronutrient profiles (i.e., ratios of carbohydrates, fats, and protein to energy intake) to weight loss or treatments for specific diseases or categories of disease. From this evaluation, the Committee found that characterizing a macronutrient profile alone is not sufficient to evaluate the predictive value of these dietary patterns to promote health and reduce risk of diet-related chronic diseases. To evaluate macronutrient-based dietary patterns, an understanding of the quality of the included food choices is needed to provide an assessment of health outcomes. A reductionist approach that focuses on a single macronutrient or food

component is not sufficient to identify its potential contributions to disease risk. These components must be put into the context of the total composition of the diet to be useful in making evidence-based recommendations. Several examples illustrate the importance of providing a bridge from studies on a single macronutrient or food component to relevant dietary patterns:

- For infants fed human milk, during the period of complementary feeding, patterns that include iron- and zinc-rich foods (e.g., meats, fortified cereals) and that also provide adequate protein and other minerals and vitamins, are essential to healthy growth and development.
- Added sugars is a food component to limit in the diet. However, the connection to a healthful dietary pattern is the evidence on limiting the foods in the diet that are the top sources of added sugars (e.g., sweetened beverages, including additions to coffee and tea, and sweet snacks and desserts).
- Few Americans achieve or exceed the Adequate Intake for dietary fiber, and a dietary pattern that encourages the intake of fiber-rich foods, including whole grains, fruits, vegetables, nuts and legumes, and other plant-based foods would be beneficial to increase fiber intakes.
- To reduce saturated fat intake, the dietary pattern should replace sources of saturated fat with sources of polyunsaturated fats by substituting certain animal-source foods, especially processed meats and certain high-fat dairy products, with sources of polyunsaturated fats, such as seafood, seeds, nuts, legumes, and appropriate vegetable oils. In addition, if meat and dairy foods are included in the dietary pattern, choosing lean cuts and lower fat dairy options is preferred.

Importantly, these examples work together to improve overall dietary quality and nutrient density. As illustrated by food pattern modeling (see **Part D. Chapter 12: Added Sugars**), replacing typical food choices that are high in added sugars and saturated fats with more nutrient-dense food choices improves the nutritional quality of the diet for adolescent girls and can help them achieve a healthy energy balance.

As noted above, a powerful aspect of using a dietary patterns approach for the *2020-2025 Dietary Guidelines for Americans* is that it enables multiple adaptations to fit cultural, personal and individual needs and preferences in food choices. Individuals may not have the tools to assess and align their dietary choices with the evidence-based patterns studied in the scientific literature but they can incorporate the core elements of a healthful pattern. The Committee used

food pattern modeling to illustrate these core elements of dietary patterns that are consistent with these recommendations. As done in previous editions of the *Dietary Guidelines for Americans*, the 2020-2025 edition can provide examples of ways to modify an individual's dietary pattern to meet different energy needs and food preferences. Such a tool can also illustrate where specific gaps in nutrient intake might occur within a pattern and how to address them.

The What We Eat in America data illustrate that the typical choices many Americans make among food groups are likely to result in excess energy intake and inadequate intake of foods that could improve the nutritional quality of their eating pattern. One of the most important steps many Americans can take to achieve a dietary pattern associated with health and lowered risk of chronic diseases is to identify the foods that provide energy with little or no recommended nutrients or fiber in their current eating pattern, reduce their intake of these items, and shift their food choices to more healthful foods and beverages to meet energy goals. Such an approach enables individuals to focus on strategies to improve their dietary pattern that are most relevant at their life stage and can be carried forward to the next stage.

CONTEXT FOR THE *DIETARY GUIDELINES FOR AMERICANS*

The *Dietary Guidelines for Americans* have informed Federal nutrition policies since they were first published in 1980. The 2020 Committee has added to the evidence supporting the recommendations that are in the current edition and expanded the evidence in new and emerging areas. The strength of the *Dietary Guidelines for Americans* is their basis in the most credible scientific evidence relating to the dietary factors associated with health and disease risk reduction.

Although Americans still need to make many dietary improvements, it is important to note that some healthful changes in food composition and intake have occurred. For example, the implementation of labeling requirements for *trans* fat and manufacturing changes have resulted in substantial reductions in *trans* fat intake. Consumers also have changed their behaviors, resulting in some modest reductions in the intake of added sugars and sugar sweetened beverages, and have made small changes to include more sources of whole grains into their diets. Many Americans also have greater knowledge of dietary factors that are associated with their health status. However, more effort is needed to encourage behavior change, consistent with individual food preferences, that results in healthier food choices and dietary patterns. The translation of the Committee's scientific review into the *Dietary Guidelines for Americans* should

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extend beyond topics incorporated within the specific questions addressed by the Committee and should include related dietary practices that remain of public health concern including those that have been reviewed by previous Committees. These include, but are not limited to, keeping the intake of *trans* fats low, reducing sodium intake, building and maintaining bone mass, preventing dental caries, maintaining hydration, making healthful snacking choices, and maintaining at least a moderate level of physical activity and appropriate sleep patterns in daily life.

The 2020 Committee was asked to address certain questions that consider not only what individuals eat but how they eat. For example, the Committee considered questions about the frequency of eating occasions, but found that evidence was insufficient to draw scientific conclusions on this aspect of eating patterns. However, this question is important to pursue in future cycles. Eating behaviors in the United States have changed markedly since the inception of the *Dietary Guidelines for Americans*. Snacking is more prevalent—almost universal—and recently, many Americans have chosen to follow varying temporal meal patterns (e.g., meal skipping, intermittent fasting) to achieve targeted health outcomes. Additionally, new technologies related to production, processing, and delivery of foods (e.g., increased convenience) influence food choices as well as eating frequency and portion sizes. Understanding how these factors influence health and well-being is important in making dietary recommendations.

Based on its experience, the Committee believes that continuing to examine the information contained in current, nationally representative surveillance data on food intake may provide insights into these areas to inform dietary guidelines. For the birth to age 24 months population, it is especially important to examine the “how” of feeding behaviors, not just the “what” aspect. Parents, guardians and caregivers exert the primary influence on dietary intake for the first few years of life. Dietary intakes of children resemble those of their parents, suggesting the importance of understanding more about this feeding environment to improve dietary intake during childhood. For children, their food intake data should be linked to their family’s intake data to track these patterns over time to better understand how best to support consumption of foods and food patterns linked to better health outcomes in children and improve population health. Although the Committee has provided some references to these areas in its report, further examination of this topic is important for future editions of the *Dietary Guidelines for Americans*.

The Committee’s review and discussion, as well as the public comments submitted during the Committee’s review period, reinforce the need to consider the *Dietary Guidelines for*

Americans in the context of the food environment and the overall food system. Such topics include areas such as sustainability of the food supply and food insecurity (i.e., the chronic or episodic limited access to safe, nutrient-dense foods to support health), which is experienced by many Americans. Improved understanding also is needed of approaches to encourage behavior change to better meet the recommendations for healthful eating. The *2015-2020 Dietary Guidelines for Americans* included the Social-Ecological Model to illustrate how various sectors have a role in improving eating and physical activity behaviors, and this information remains relevant for implementation of the *2020-2025 Dietary Guidelines for Americans* and can be adapted to understand how the structural barriers and facilitators of behavior related to food choice vary across the lifespan.

The Committee has not evaluated evidence related to these topics and they are not part of our conclusions and recommendations. However, the Committee encourages the Secretaries to identify mechanisms to examine the connections between the recommendations in the *Dietary Guidelines for Americans* and these aspects of the food system and food environment. Health status and a sustainable food system are both complex entities that are dependent on multiple interacting factors that are particularly important in low socioeconomic populations that are at high risk for nutrition sensitive health conditions. Understanding and mapping these factors can enable decision-making that supports the health and well-being of the U.S. population. Such an examination and development of relevant connections are important for making the types of system-oriented changes that will enable more Americans to take steps to improve their diet and lower their risk of overweight, obesity, and diet-related chronic diseases. Partnerships among Federal agencies can be a mechanism to initiate such a discussion. USDA and HHS have acted on many of the recommendations in the 2017 National Academies of Sciences, Engineering, and Medicine (NASEM) report *Redesigning the Process for Establishing the Dietary Guidelines*,⁶ and the Committee encourages further follow up on the recommendation from this report that, “The secretaries of USDA and HHS should commission research and evaluate strategies to develop and implement systems approaches into the DGA. The selected strategies should then begin to be used to integrate systems mapping and modeling into the DGA process.”

RESOURCES THAT ARE IMPORTANT FOR SCIENCE-BASED DIETARY GUIDELINES FOR AMERICANS

The expectation is that the *Dietary Guidelines for Americans* will be reviewed and released every 5 years so that these Guidelines reflect “the preponderance of scientific and medical knowledge that is current at the time the report is prepared”.⁷ To meet this standard and provide science-based advice to the Secretaries, the Committee based its conclusions and recommendations on robust, well-defined protocols for systematic reviews of peer-reviewed literature, analysis of data from NHANES, food composition data that can be used for modeling, and the Dietary Reference Intakes (DRIs) established by NASEM (**Part C. Methodology**). Because these elements are essential for establishing the scientific base for the *Dietary Guidelines for Americans*, the Committee has identified in **Part E. Future Directions**, the priority needs for future research. Research that informs the development of the guidelines must meet the standards that enable their inclusion in systematic reviews. The Committee benefitted from having the recent updates to the DRIs (e.g., calcium, vitamin D, sodium, and potassium), as well as access to the data on prevalence of disease and food intake from NHANES, food composition data from USDA, and the systematic reviews from the Pregnancy and Birth to 24 Months Project.⁸ This latter project was conducted after the *2015-2020 Dietary Guidelines for Americans* was released.

For the next cycle of the Dietary Guidelines process, the DRIs for macronutrients, for the ages of birth to 24 months, and for pregnancy and lactation need to be updated so that they provide current knowledge on nutrient requirements based on these life stages. The inclusion of pregnancy, lactation, and birth to age 24 months is an important addition to the *Dietary Guidelines for Americans*. However, the evidence to answer the questions in the birth to age 24 months population was often scarce or insufficient, pointing to the need for additional research in this area as well as the need for data related to human milk composition as a part of dietary patterns in this age group. The inclusion of all life stages in the *Dietary Guidelines for Americans* also highlights the importance of longitudinal data from intergenerational studies to examine sequential life-stage influences on dietary exposures and interactions with health outcomes.

CONSIDERATIONS FOR UPDATING THE GUIDELINES

The *2015-2020 Dietary Guidelines for Americans* identified 5 principles as overarching guidelines. This Committee's analysis reinforces the continuing relevance of these overarching guidelines and suggests modifications and expansion of these guidelines to reflect new evidence. These suggestions on the overarching guidelines are in addition to the specific conclusions and advice to USDA and HHS in each chapter.

Each of the overarching guidelines is listed below in bold and by number and is followed by suggestions for ways they can be updated. These suggestions reflect the Committee's recommendation that the *2020-2025 Dietary Guidelines for Americans* incorporate a recognition of the special nutrient concerns that exist at each life stage. Recognizing these concerns can help Americans improve their dietary practices at that life stage and potentially influence the practice of healthful food choices at the next life stage. Dietary patterns can incorporate foods consistent with cultural preferences and socioeconomic factors and should be structured around the identified core foods that meet nutrient needs, are associated with health, and reduce risk of chronic disease.

1. Follow a healthy eating pattern across the lifespan.

Suggested Update for 2020-2025: This guideline should introduce the importance of a healthful dietary pattern to support each life stage and of maintaining healthful dietary patterns across each life stage. For the *2020-2025 Dietary Guidelines for Americans*, the life stages include pregnancy and lactation, birth to age 24 months, children ages 2 years and older, adolescents, and adults. Concepts that the Committee recommends be included in the overarching guidelines:

- a. Initiate a healthful dietary pattern early in life for infants and young children.
- b. Follow a healthful dietary pattern appropriate for the nutritional needs of each life stage.
- c. Modify the dietary pattern over the lifespan to meet the nutritional needs of each life stage.

2. Focus on variety, nutrient density, and amount.

Suggested Update for 2020-2025: The Committee's review focused on the core elements of healthful dietary patterns, including the nutritional quality of food choices when incorporating variety. The review also focused on frequency of eating, as determinants of the amount of food consumed. Concepts that the Committee recommends be included in the overarching guidelines:

- a. Focus on nutritional quality of food choices, portion size and frequency of eating.
- b. For the earliest life stage, focus on breastfeeding and human milk for optimal nutrition and gradual introduction of a variety of nutrient-rich complementary foods during the second half of infancy.

3. Limit calories from added sugars and saturated fats and reduce sodium intake.

Suggested Update for 2020-2025: The Committee's review emphasized the importance of identifying the foods to limit or replace in the diet to limit intake of certain food components. For those who consume alcoholic beverages, current evidence indicates that lower intakes are better than higher intakes and some groups should not drink alcoholic beverages. Concepts that the committee recommends be included in the overarching guidelines:

- a. Limit foods and beverages that are sources of added sugars, saturated fats, alcohol, and salt to reduce intake of excess energy, solid fats, and sodium.
- b. Replace foods and beverages that are sources of added sugars, saturated fats, alcohol, and sodium with more healthful choices.
- c. In the first 2 years, foods such as sugar-sweetened beverages should be avoided.

4. Shift to healthier food and beverage choices.

Suggested Update for 2020-2025: The Committee's review found that this approach is linked to achieving the first guideline. In addition, this approach can help individuals understand that it is never too late to start making improvements in their dietary pattern. To use this approach effectively, an individual will need to recognize what food and beverage choices are most important to shift. Concepts that the Committee recommends be included in the overarching guidelines:

- a. Shift eating patterns to food and beverage choices that have a higher nutrient-to-energy ratio
- b. Shift to higher quality food and beverage choices at every age to achieve a more healthful dietary pattern.

5. Support healthy eating patterns for all.

Suggested Update for 2020-2025: The Committee’s discussion emphasized the importance of supporting the ability of all Americans at all ages to have access to foods that enable a healthful dietary pattern. To support access to healthful foods and dietary patterns for all Americans, consideration needs to be given to the cultural, ethnic, and socioeconomic factors that influence food preferences and access to healthful foods and beverages, as well as the importance of tools and resources for individuals to plan and monitor their diets.

Concepts that the Committee recommends be included in the overarching guidelines:

- a. Support access to healthful foods and beverages in all food environments for all Americans at all ages.
- b. Promote and support breastfeeding.
- c. Support healthful eating patterns for all ages where people live, learn, work, play, and gather.

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