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From Desert to Oasis

ARE "FOOD DESERTS" PREVENTING MILLIONS OF
AMERICANS FROM EATING WELL?



Healthy Diets

CHAPTER 2

LEARNING OBJECTIVES

- ▶ Identify the primary characteristics of a healthy diet (**Infographic 2.2**)
- ▶ Define processed food, and describe how minimally processed foods might contribute to a healthy diet (**Infographic 2.1**)
- ▶ Define nutrient and energy density, and describe why it is necessary to consider these factors when making food selections (**Infographic 2.3 and Infographic 2.4**)
- ▶ Identify the key excesses and inadequacies of the current average American diet (**Infographic 2.5**)
- ▶ List the core recommendations of the Dietary Guidelines for Americans, and discuss the significant changes that have occurred in dietary recommendations to Americans over time (**Infographic 2.6, Infographic 2.7, and Infographic 2.8**)
- ▶ Describe how the USDA's MyPlate can be used to design a healthy diet (**Infographic 2.9**)
- ▶ Explain what characteristics of a healthy diet are common around the world (**Infographic 2.11**)
- ▶ Identify the information that is required on food labels, and describe how this information can be used to select healthier foods (**Infographic 2.12 and Infographic 2.13**)
- ▶ Identify the types of claims that can be made on food labels, and discuss how their use is regulated by the FDA (**Infographic 2.14**)

A few years ago, Mari Gallagher met a group of 9-year-old boys living in Alabama who had never seen a strawberry. As a researcher who specializes in urban health, Gallagher was speaking at a local community center about the importance of eating well. She knew many people in the area were struggling to provide their families with healthy

Cathyrose Melloan / Alamy

In some communities, full-service grocery stores are hard to find.

Mari Gallagher, food researcher



Mari Gallagher Research & Consulting Group

PROCESSED FOOD

any food that is altered from its natural state through processing such as canning, chopping, cooking, freezing, or milling; processing often involves adding ingredients such as sugars and sodium-containing additives and preservatives

foods. To get a better idea of what kids were eating, Gallagher asked a group of young boys what their favorite foods were. Naturally, they listed things that many children enjoy—potato chips, cookies, pizza, and other treats. Then she asked if they enjoyed foods such as strawberries or grapes. “And they just looked at me like they didn’t know what those were,” she recalls. “Then they said they had never had them.”

The young boys Gallagher met are among the millions of Americans living in a food desert—a neighborhood or community with little access to a variety of affordable, healthy foods such as berries, oranges, leafy greens, and other fresh vegetables and fruits. The U.S. Department of Agriculture (USDA) classifies a food desert as an urban community where people are not living within a mile of a grocery store or a rural area 10 miles from a grocery store. In urban areas, there may be corner convenience stores with packaged snack foods and sweets. But getting to a grocery store that carries a wide variety of brands and products, along with abundant produce, dairy, and meat selections often requires a long bus ride, which some families don’t have time for or can’t afford. With limited access to and availability of grocery stores, people may increase their reliance on fast foods, packaged snacks, and **processed food** (often found in boxes or cans with multiple added ingredients) to meet their energy (caloric) needs. **(INFOGRAPHIC 2.1)**

INFOGRAPHIC 2.1 Ultra-Processed Foods *Processed foods exist along a continuum from those that are minimally processed to ultra-processed, convenience, and ready-to-eat foods that require little or no preparation. Decreasing the proportion of ultra-processed foods in the U.S. diet is likely to improve diet quality substantially.*



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for more on food processing and production in Chapter 14 Global Nutrition: Food Security and Sustainability.

? For each food type, identify the specific food in the processing continuum where nutrient and/or calorie content has first been unfavorably affected.

Healthy Diets Feature Variety, Balance, Adequacy, and Moderation

Not all processed foods are created equal. Processed foods encompass a wide range of food products, some of which can actually contribute favorably to nutrient intake and overall dietary quality. Minimally processed foods can be just as nutritious as their unprocessed counterpart, such as bagged spinach, frozen vegetables, canned tuna, or roasted nuts. However, foods that are “ultra,” or heavily, processed have multiple added ingredients and have undergone a series of steps for production from “farm to fork.” These foods are often formulated to be convenient to consume, highly palatable, and appealing, which may make them difficult to resist even when more nutritious options are available. Ultra-processed foods are abundant in convenience stores and check-out aisles; they include popular items such as sodas, frozen pizza and meals, packaged cookies and crackers, and packaged soups and noodles. Recent studies demonstrate that ultra-processed foods contribute a whopping 57.9% of the daily energy intake and nearly 90% of the intake of added sugars in the United States! Not surprisingly, there is an inverse relationship between intake of ultra-processed foods and overall dietary quality.

If the boys that Marie Gallagher interviewed had never seen common fruits and had limited access to other nutritious foods, chances are they were not eating a **healthy diet**. A healthy diet consists of a variety of foods chosen from across all of the major food groups—vegetables, fruits, grains, protein, and dairy—and provides the energy and essential nutrients we need. Each of the food groups provides a spectrum of nutrients and plays an important role in dietary adequacy. Any time a food group is restricted or eliminated because of access issues (or by personal choice), it is important to understand the role that food group plays in achieving nutrient adequacy and supporting good health and devise a plan to meet those nutritional needs through alternative food choices or dietary supplements.

The catch is, even those with ready access to a wide variety of foods don’t necessarily make choices that yield appropriate amounts of energy and essential nutrients. Availability is the only part of the equation. People make

food choices based on many other factors such as convenience, taste, price, emotions, and cultural and social influences.

HEALTHY DIETS FEATURE VARIETY, BALANCE, ADEQUACY, AND MODERATION

All types of healthy diets have a few qualities in common: a *variety* of foods, *balance* across food groups and macronutrients (carbohydrates, protein, and fats), and *adequate* amounts that provide the calories and essential nutrients necessary to maintain and promote optimal health. Considering the high rates of overweight and obesity in the United States, another key component to remember is *moderation*—not overindulging in any one type of food or in potentially harmful foods, such as those that contain excess amounts of sugar, salt, and unhealthy fat.

(INFOGRAPHIC 2.2)

First, let’s consider variety: Quite simply, this means choosing different foods, even those within the individual food groups. For example, the more varied your consumption of fruits and vegetables, the more likely you are to get a broad range of essential nutrients and health benefits from certain biologically active compounds, such as phytochemicals found in those foods. One way to ensure variety is to follow the advice to “eat a rainbow” by choosing foods of different colors, such as red peppers, green spinach, and orange carrots. Here’s a clue that food deserts don’t provide the basics of a healthy diet: Most of the food at corner convenience stores and fast-food restaurants is beige and brown—bread, soda, chips, and French fries, for instance.

Another important component of a healthy diet is balance: the right proportion of foods from each of the food groups and the appropriate amounts of calories, macronutrients, vitamins, and minerals. When we eat a variety of foods from all of the food groups, we are more likely to achieve a balanced diet. Again, living in a food desert can make it difficult to eat a balanced diet because most of the food available has disproportionately large amounts of calories, unhealthy fats, and refined carbohydrates, such as foods with added sugar and white bread.

HEALTHY DIET

an eating pattern characterized by variety, balance, adequacy, and moderation that promotes health and reduces risk of chronic disease

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For more on when dietary supplementation may be warranted in Spotlight D.

STAY TUNED

The determinants of eating behavior are discussed in Chapter 13 Nutrition During the College Years.

STAY TUNED

Phytochemicals are discussed in Spotlight C Plant-Based Diets.

INFOGRAPHIC 2.2 Components of a Healthy Diet


Adequacy, balance, variety, and moderation are the core characteristics of eating healthfully.



What core characteristic of a healthy diet is best promoted by eating a colorful diet?

Photo credit: Eli Ensor

Indeed, food deserts often provide people with more-than-adequate calories—there are plenty of sugary beverages, “junk” foods, and other calorie-rich options to choose from. But adequacy doesn’t just mean getting enough calories; it also includes getting enough essential nutrients such as vitamins, minerals, and proteins as well as other beneficial components of a healthy diet, such as fiber and phytochemicals. Recall from Chapter 1 that the Dietary Reference Intakes (DRIs) values help us determine adequate and appropriate intake for these dietary components based on our age, sex, and life stage.

UNDERSTANDING THE NUTRIENT DENSITY AND ENERGY DENSITY OF FOODS

Healthy diets emphasize foods with high **nutrient density**; these foods contain high nutrient levels relative to calorie content. Nutrient-dense foods are a “good deal”

nutritionally in that they provide many nutrients at a relatively lower calorie “cost.” Most vegetables, for example, are nutrient-dense because they provide many essential nutrients relative to their calorie content. Healthy diets also take into consideration the **energy density** of foods. (INFOGRAPHIC 2.3) Foods that have a high calorie content relative to weight are considered energy-dense. Nutrient-rich nuts fit this description, but many foods that are dense in calories tend to be low in nutrients, such as cookies and chips. In general, as the energy density of foods increases, the nutrient density decreases. Unfortunately, food deserts are generally well supplied with energy-dense, ultra-processed foods, whereas nutrient-dense fruits and vegetables are harder to find.

The water, fiber, and fat content of foods are the primary factors that determine energy density. As the water and fiber content of food increases, they generally decrease the energy density of food by adding weight

NUTRIENT DENSITY

the amount of nutrients supplied by a food in relation to the number of calories in that food; black beans, for example, provide much protein, fiber, vitamins, and minerals relative to their calories

ENERGY DENSITY

the amount of energy or calories in a given weight of food; generally presented as the number of calories in a gram (kcal/g)

Understanding the Nutrient Density and Energy Density of Foods

INFOGRAPHIC 2.3 Nutrient-Dense versus Energy-Dense Foods *Eating a low energy-dense diet allows you to eat a larger volume of food, all while maintaining energy balance.*



HIGH NUTRIENT DENSITY: Soup Meal 535 Cal., 846g total, 0.6 kcal/g

Nutrient-dense foods = foods with a high proportion of healthy nutrients relative to number of calories.

1 cup tomato soup (reduced-sodium variety, reconstituted with water)

1 cup plain nonfat yogurt

1 cup berries (1/2 cup raspberries, 1/2 cup blueberries)



Turkey sandwich (2-ounce deli style turkey breast, 1 cup spinach leaves, 2 tomato slices, 1/4 cup cucumber slices, 2 slices whole wheat bread)

Even though the meal on the left costs more, it provides more value nutrition-wise.

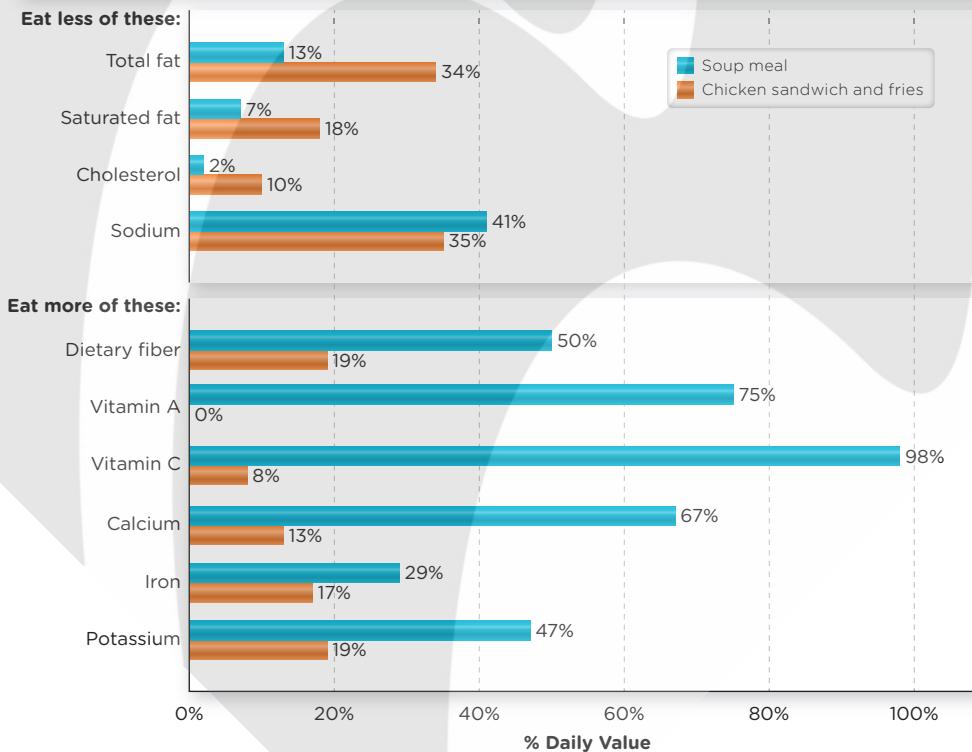
HIGH ENERGY DENSITY: Chicken Sandwich and Fries 535 Cal., 186g total, 2.9 kcal/g

Energy-dense foods = foods with a high number of calories for their weight.

French fries and 1 fast-food crispy chicken sandwich (on white bun with no cheese, mayonnaise, or vegetables)



NUTRITION FACTS: SOUP MEAL VERSUS CHICKEN SANDWICH AND FRIES

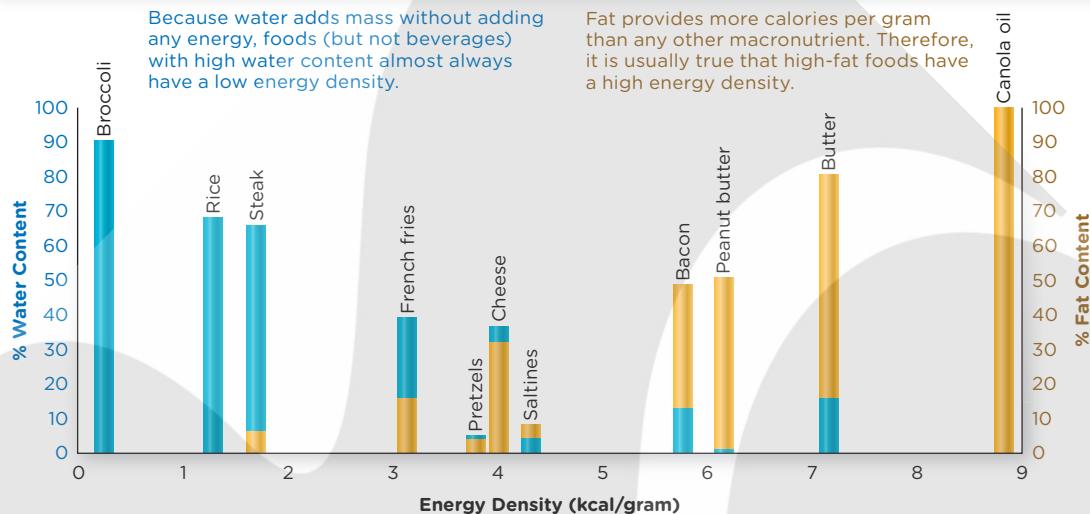


? Which meal will delay the return of hunger the longest? Why?

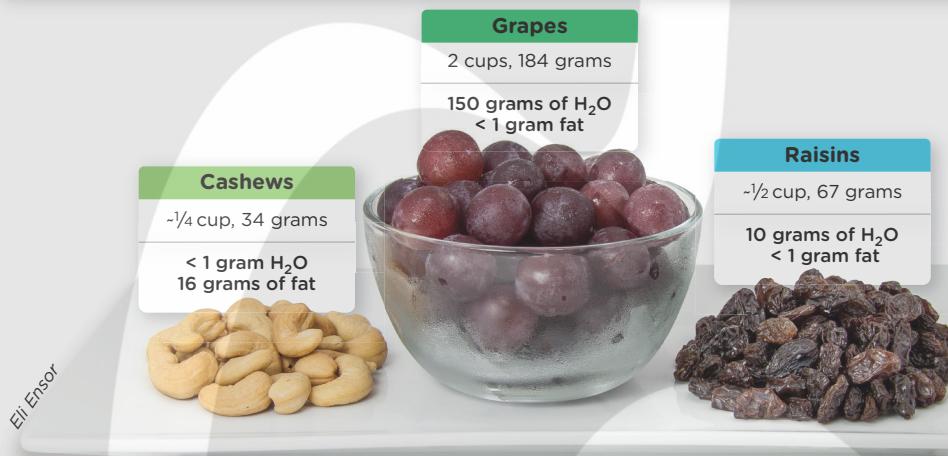
Photo credits (left to right): Martin Palombini/Getty Images, Eli Ensor, Eli Ensor

INFOGRAPHIC 2.4 Food Composition and Energy Density *The energy density of foods is influenced strongly by fat and water content. Increasing amounts of fat in foods increases energy density, whereas increasing water content in foods decreases energy density.*

FAT AND WATER CONTENT AND ENERGY DENSITY



WHAT YOU GET FOR 200 CALORIES:



Why does butter have slightly fewer calories per gram than canola oil?

and volume but no (or very few) calories. Fat content has the opposite effect—the more fat is added to food, the more energy dense it becomes because fat has more than twice as many calories per gram as either protein or carbohydrates. **(INFOGRAPHIC 2.4)**

Although historically there have always been people with little access to a variety of nutrient-dense foods, the problem of

food deserts in many cities started in the 1950s, says Gallagher, when wealthy residents moved away and grocery stores often went with them. Even some rural areas are at risk of becoming food deserts because local farms that used to provide a variety of produce have since been consolidated and converted into farms that grow mostly corn or soybeans, and rural residents must often travel long distances to reach full-service grocery stores.

Convenient but not necessarily nutritious. Convenience stores are a source of food in neighborhoods without a full-service grocery store, but the goods they stock are often calorie-dense and nutrient-poor.



Aurora Photos/Robert Harding

One city that Gallagher studied is Chicago, Illinois. In the 1990s, Chicago could be a desolate place. Beautiful historic buildings had become decrepit gathering places for drinking and street fights. Gallagher—who has a master’s degree in urban planning and community development—would pass block after block with no major grocery store. She says that it’s not prejudice that causes grocery stores to shy away from poor communities; it’s likely just a business decision. “If a developer goes around and sees there are no grocery stores, they assume people don’t want or need one; that there is no market for grocery stores.”

But over time, Gallagher participated in projects such as a successful urban community garden, which suggested that people living in neglected areas would eat healthy foods if they became available. She began analyzing block-by-block data on the location of grocery stores in Chicago, trying to identify patterns.

In 2006, over lunch with a representative of a bank headquartered in Chicago, she

casually mentioned the project she was working on. Perhaps she could conduct a research study where she analyzed data to determine whether people’s risk of dying of various diseases is at all related to the types of nearby stores. Intrigued by the research study, the bank “funded it right away,” recalls Gallagher.

Little did either of them know what she would find—and the firestorm it would spark.



LIMIT THESE: SOLID FATS AND ADDED SUGARS

Regardless of where you live, making food choices requires some planning and thought. Today, eating is all about options—every major grocery store is filled with innumerable types of breads, breakfast cereals, tomato sauces, and any other item imaginable. Most people can identify nutrient-dense foods such as vegetables, fruits, and whole grains. Realistically, though, there are many reasons

HEALTHY DIETS

ADDED SUGARS

sugars that are added to foods during processing, during food preparation, or at the table; not those that occur naturally in foods

SOLID FATS

fats that contain high amounts of saturated fats, which make them solid at room temperature. Reducing dietary solid fats is an important way to reduce saturated fat intake and excess calories

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Chapter 4

Carbohydrates covers the sources and health implications of added sugars.

people don't always opt for nutrient-dense foods. When you're hungry, it's often more convenient and more affordable to grab whatever is handy at a drive-up window or check-out aisle, such as a cheeseburger or a candy bar. In addition, after a stressful and tiring day, we can be especially vulnerable to those ultra-processed salty or sweet snacks. Such foods typically get most of their calories from saturated fats and **added sugars**. Added sugars are found in sweetened drinks such as sodas, energy drinks, and sports drinks as well as in desserts. Average American adults typically get approximately one-quarter of their calories from solid fats and added sugars. **(INFOGRAPHIC 2.5)**

Solid fats include butter, beef fat, chicken fat, pork fat, stick margarine, and shortening.

The fat in milk is also considered to be solid fat. Solid fats are foods such as butter, but also food ingredients such as shortening in cookies or cakes or the hydrogenated oils used to fry foods. A good way to reduce solid fat intake is to eat lean meats and significantly reduce the intake of cheese, pizza, desserts, and pastries.

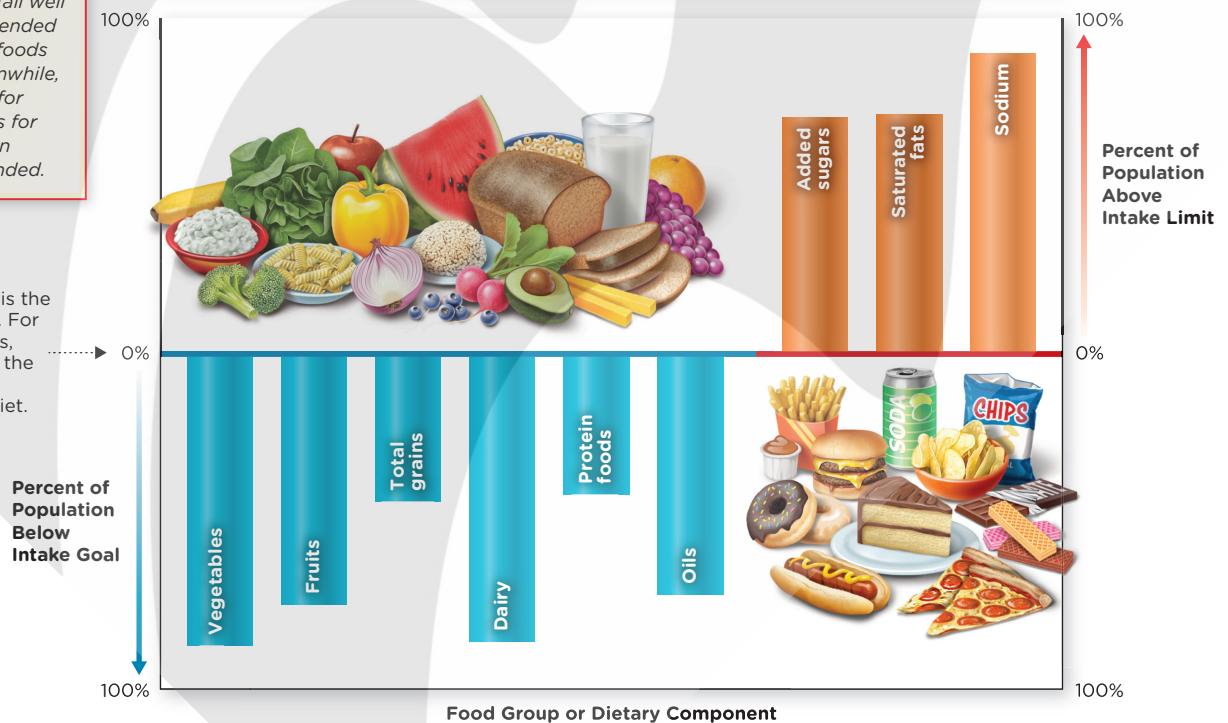
Solid fats are high in saturated fats, which are linked to an increased risk of heart disease and certain other disease but contribute few essential nutrients and no fiber. Solid fats contribute approximately 15% of total calories in the American diet, and reducing their consumption is an effective way to reduce the intake of saturated fats and excess calories and lower the risk of heart disease.

INFOGRAPHIC 2.5 How Do Americans Stack Up Against Food and Nutrient Recommendations?

PERCENTAGE OF THE U.S. POPULATION AGES 1 YEAR AND OLDER WHO DO NOT MEET EACH DIETARY GOAL OR LIMIT

American diets fall well below the recommended goal for beneficial foods and nutrients. Meanwhile, they exceed limits for foods and nutrients for which a reduction in intake is recommended.

The center line is the **GOAL** or **LIMIT**. For most Americans, moving toward the center line will improve their diet.



Data Sources: What We Eat in America, NHANES 2007–2010 for average intakes by age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.



What foods in your diet could you decrease the consumption of to reduce your intake of added sugars and saturated fats?

Although it's fine to eat energy-dense foods on occasion and in moderation, for many Americans, consuming excessive amounts of energy-dense foods and minimal amounts of nutrient-dense foods is a daily norm—contributing not only to unbalanced nutrition but also to obesity and other chronic diseases.

DIETARY GUIDELINES FOR AMERICANS

Sometimes the best food option isn't immediately obvious, so government agencies issue guidelines that make it easier to identify what's most nutritious. Those guidelines change with the times—during widespread economic crises that necessitated food rationing in the past, the focus was on being able to achieve adequate nutrient intake. But today, cheap calories are more abundant than ever, so the current guidelines focus on health promotion and disease prevention with recommendations that emphasize eating a variety of nutrient-dense foods while reducing intake of foods high in saturated fat, sodium, and added sugars.

To help people make nutritious choices, experts created tools such as the **Dietary Guidelines for Americans (DGA)**, which provide essential advice for how to eat healthfully and reduce the risk of chronic diseases. Since its creation in 1980, the DGA has been updated every five years by the U.S. Department of Agriculture (USDA) and the Department of Health and Human Services (HHS) according to the newest science-based information about nutrition and health, and the DGA provides the core of federal food and nutrition education programs. **(INFOGRAPHIC 2.6)**

The 2015 DGA focus on healthy eating patterns—the combinations of all of the foods and drinks that we consume over time, not specific foods or nutrients. Three healthy eating patterns are provided as examples: U.S.-style, Mediterranean-style, and Vegetarian, which can be adapted to meet personal preferences. It is emphasized that all foods consumed as part of a healthy eating pattern fit together like the pieces of a puzzle to meet our nutrient needs without exceeding limits for sodium, saturated fat, added sugars, and total calories. All of the pieces of this food puzzle are necessary

to promote good health and prevent disease.

The current dietary guidelines also focus on improving the diet of Americans by encouraging small shifts in eating habits to align our diet with these healthy eating patterns. Emphasis is placed on the need to substitute nutrient-dense foods and beverages for less healthy choices (those that are high in saturated fat, added sugars and/or sodium, and calories). **(INFOGRAPHIC 2.7)** Specifically, the DGA recommend that Americans consume a variety of fruits, vegetables, and protein foods (including fish, poultry, legumes, nuts, and lean meats). They also recommend that we replace refined grains with whole grains and solid fats with oils and limit the consumption of saturated fat (to 10% of total calories) and sodium.

The limit for sodium is set at 2300 milligrams per day for adults and children 14 years and older because excess sodium intake can increase the risk of high blood pressure (hypertension) and heart disease. For adults with prehypertension or hypertension, it is recommended that they further reduce sodium intake to 1500 milligrams per day to allow for greater reductions in blood pressure. For the first time, the 2015 DGA also specifically recommend that added sugars be limited to 10% of total calories. Because added sugars contribute calories to the diet but no essential nutrients, their consumption above recommended levels can make it difficult to meet nutrient requirements without consuming excess calories. Finally, because the environments we live, learn, and work in dramatically influence our behaviors, the dietary guidelines remind us that everyone has a role in supporting individuals as they shift their food and activity choices to improve their health. For example, the over 100,000 schools nationwide that participate in the National School Lunch Program must offer healthy meals that align with the DGA to ensure that the appropriate balance of foods is available and to receive federal reimbursement.

To put all of this food advice into action, the USDA, the agency that regulates

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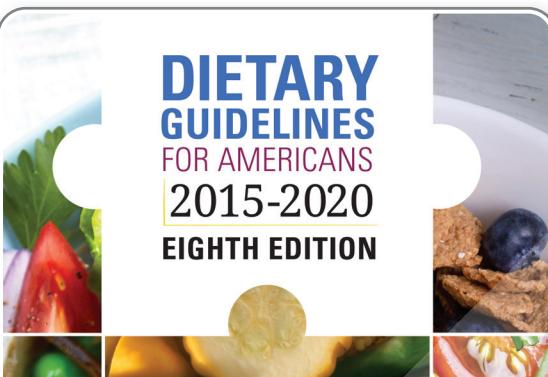
The relationship between saturated fats and disease risk is further explained in Chapter 5 and Spotlight B.

DIETARY GUIDELINES FOR AMERICANS (DGA)

national health guidelines that provide information and advice, based on scientific evidence, on how to choose a healthy eating plan

STAY TUNED

For more on the National School Lunch Program, see Spotlight F Childhood Nutrition.



**DIETARY
GUIDELINES
FOR AMERICANS
2015-2020
EIGHTH EDITION**

1 Follow a healthy eating pattern across the lifespan.

All food and beverage choices matter. Choose a healthy eating pattern at an appropriate calorie level to help achieve and maintain a healthy body weight, support nutrient adequacy, and reduce the risk of chronic disease.

2 Focus on variety, nutrient density, and amount.

To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts.

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

Consume an eating pattern low in added sugars, saturated fats, and sodium. Cut back on foods and beverages higher in these components to amounts that fit within healthy eating patterns.

4 Shift to healthier food and beverage choices.

Choose nutrient-dense foods and beverages across and within all food groups in place of less healthy choices. Consider cultural and personal preferences to make these shifts easier to accomplish and maintain.

5 Support healthy eating patterns for all.

Everyone has a role in helping to create and support healthy eating patterns in multiple settings nationwide, from home to school to work to communities.

INFOGRAPHIC 2.6 The 2015–2020 Dietary Guidelines for Americans

The main purpose of the dietary guidelines is to inform Americans about the development of federal food, nutrition, and health policies and programs. The primary audiences are policymakers as well as nutrition and health professionals, not the general public. MyPlate translates the dietary guidelines into easily implemented recommendations for the general public.

Follow a healthy eating pattern over time to help support a healthy body weight and reduce the risk of chronic disease.

A HEALTHY EATING PATTERN INCLUDES:

MyPlate messages for consumers:

	FRUITS Focus on whole fruits with little or no added sugar. Enjoy fruit as a snack or dessert.
	VEGETABLES Consume a variety of vegetables from all of the subgroups—dark green, red and orange, legumes, starchy, and other. Limit the use of salt, butter, or creamy sauces.
	PROTEIN Vary your protein routine. Include a variety of protein foods, including seafood, lean meats and poultry, eggs, legumes, and nuts, seeds, and soy products.
	DAIRY Substitute fat-free or low-fat milk and yogurt for cheese and sour cream.
	GRAINS Make half your grains whole grains. Limit grain desserts and snacks that contribute to intakes of added sugars and saturated fat.
	OILS A healthy eating pattern includes oils. Use oils such as canola, olive, and others instead of solid fats (such as butter and stick margarine, shortening, lard, and coconut oil).

A HEALTHY EATING PATTERN LIMITS:

	SATURATED FATS and TRANS FATS Limit the intake of saturated fat to 10% of total calories.
	ADDED SUGARS Limit the intake of added sugars to 10% of total calories. Drink water instead of sugary drinks.
	SODIUM Limit the intake of sodium to 2,300 mg per day, 1,500 mg per day for those with prehypertension or hypertension.

? Give an example of a specific grain product that often contains a significant amount of saturated fat.

Credits: U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015 - 2020 Dietary Guidelines for Americans. 8th Edition. December 2015. <http://health.gov/dietaryguidelines/2015/guidelines/>.

INFOGRAPHIC 2.7 Health Benefits Result from Small Shifts in Eating Habits *The 2015 edition of the dietary guidelines focuses on shifts to emphasize the need to make substitutions—that is, choosing nutrient-dense foods and beverages in place of less healthy choices—rather than increase intake overall.*



INCREASE FRUIT INTAKE, ESPECIALLY **WHOLE FRUITS.**



EAT A **VARIETY OF VEGETABLES** — ESPECIALLY DARK-GREEN, RED, AND ORANGE — AND BEANS AND PEAS.



CONSUME HALF OF ALL GRAINS AS **WHOLE GRAINS.**



REPLACE SOLID FATS WITH **OILS** WHERE POSSIBLE.



AVOID FOOD AND BEVERAGES WITH **ADDED SUGARS.**

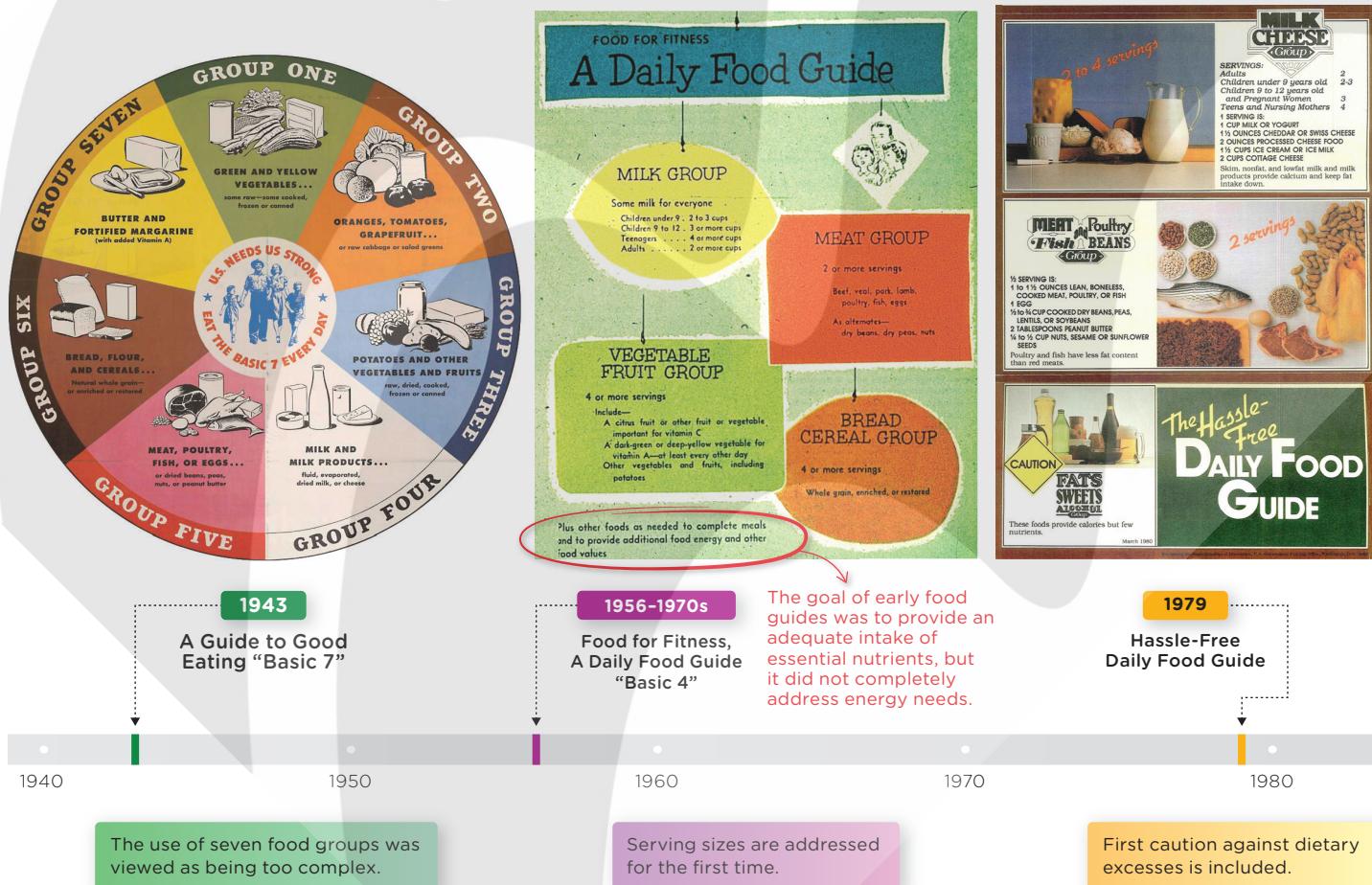


Photo credits: Eli Ensor

farming and food production, updates tools to make it easier for people to consolidate dietary advice when choosing meals. During the 1940s, for instance, the government promoted the “Basic 7,” in which people were encouraged to eat something from each of seven categories of foods (for example, meat, milk, and green/yellow vegetables). This system was designed to provide a foundation to help Americans meet nutrient needs when food

was scarce. The Basic 7 eventually became the “Basic 4” in the 1960s and 1970s, which painted a simpler picture of a nutritious diet but lacked specific guidance about fats, sugar, and calories. In the 1990s, a new Food Guide Pyramid ranked the five food groups by how much of each to consume per day. The iconic pyramid illustrated graphically the key concepts of variety, moderation, and proportion. After 20 years of promoting variations on the Food Guide Pyramid, in

INFOGRAPHIC 2.8 Evolution of U.S. Food Guides and MyPlate *MyPlate is the most recent graphic representation of healthy eating; it models food choices in step with current nutrition and health concerns in the United States. The dietary guidelines evolved over time in response to societal conditions and concerns, the effectiveness of previous dietary recommendations, and advancements in science that identify new dietary challenges that affect health.*



What food groups are currently represented in the MyPlate graphic, and in what proportion are they shown?

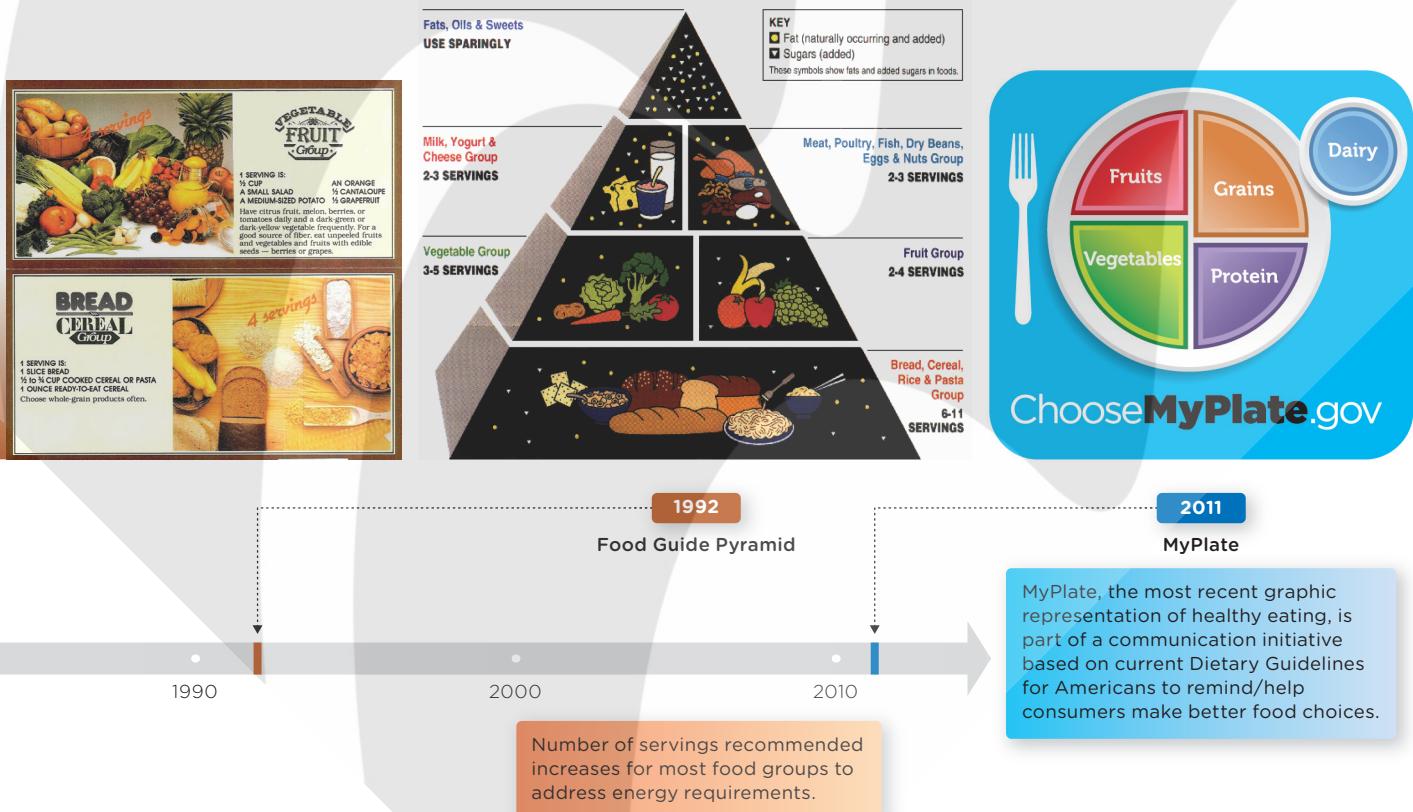
Photo credits (left to right): National Archives, Records of the Office of Government Reports; USDA/National Agricultural Library; USDA/National Agricultural Library; Center for Nutrition Policy and Promotion/USDA; Center for Nutrition Policy and Promotion/USDA

2011, the USDA released **MyPlate**—a new tool to help consumers make better food choices. **(INFOGRAPHIC 2.8)**

MyPlate is an illustration of a healthy meal on a “plate” divided into vegetables and fruits (slightly more vegetables than fruits), just under one-quarter from lean protein sources, and just over one-quarter from grains (at least half of which should be whole grains). One serving of dairy is indicated in a serving off to the side—as a cup of milk or carton of yogurt. The website <http://www.choosemyplate.gov> provides tips

and tools for tracking and moderating the intake of calories, solid fats, added sugars, and more. This website is where you can access a personalized diet plan (My Daily Food Plan), with more detailed recommendations about specific foods to eat each day and each week that essentially mirror those recommendations found in the DGA. But following advice about healthy diets can be especially challenging for individuals and families who have limited access to nutrient-dense, affordable, or varied foods. **(INFOGRAPHIC 2.9)**

MyPLATE
a visual presentation of foods from five food groups “on a dinner plate” to represent the ideal balance that will provide a spectrum of nutrients



INFOGRAPHIC 2.9 MyPlate Daily Checklist and Portion Sizes *MyPlate Daily Checklist is an online tool provided at ChooseMyPlate.gov. The plan below is for someone requiring 2200 kcal/day. Not all foods within a food group count equally toward the daily intake goals because some foods are more airy or more concentrated. Use the visual cues to determine portion sizes.*



MyPlate Daily Checklist

Find your Healthy Eating Style

Everything you eat and drink matters. Find your healthy eating style that reflects your preferences, culture, traditions, and budget—and maintain it for a lifetime! The right mix can help you be healthier now and into the future. The key is choosing a variety of foods and beverages from each food group—and *making sure that each choice is limited in saturated fat, sodium, and added sugars*. Start with small changes—“**MyWins**”—to make healthier choices you can enjoy.

Food Group Amounts for 2,200 Calories a Day

Fruits	Vegetables	Grains	Protein	Dairy
2 cups	3 cups	7 ounces	6 ounces	3 cups
Focus on whole fruits	Vary your veggies	Make half your grains whole grains	Vary your protein routine	Move to low-fat or fat-free milk or yogurt
Focus on whole fruits that are fresh, frozen, canned, or dried.	Choose a variety of colorful fresh, frozen, and canned vegetables—make sure to include dark green, red, and orange choices.	Find whole-grain foods by reading the Nutrition Facts label and ingredients list.	Mix up your protein foods to include seafood, beans and peas, unsalted nuts and seeds, soy products, eggs, and lean meats and poultry.	Choose fat-free milk, yogurt, and soy beverages (soy milk) to cut back on your saturated fat.
<p>Limit Drink and eat less sodium, saturated fat, and added sugars. Limit:</p> <ul style="list-style-type: none"> Sodium to 2,200 milligrams a day. Saturated fat to 24 grams a day. Added sugars to 55 grams a day. 				

It is important to consume all of the vegetable subgroups because each subgroup contributes a different combination of nutrients.

VISUAL CUES FOR ESTIMATING PORTION SIZES



PORTION SIZE EQUIVALENTS IDENTIFY THE AMOUNTS OF FOODS FROM EACH FOOD GROUP WITH SIMILAR NUTRITION CONTENT

Grains (what counts as an ounce?)

- 1 slice of bread
- 1/2 cup of cooked pasta or rice
- 8 grams of whole grains per ounce is approximately “half whole grain”
- 1 cup of ready-to-eat cereal
- 1 mini bagel (large bagel = 4 ounces)
- 3 cups popped corn

Vegetables (what counts as a cup?)

- 1 cup raw or cooked vegetables
- 1 cup of vegetable juice
- 2 cups of raw, leafy greens

Fruit (what counts as a cup?)

- 1 cup of fruit
- 1 cup of 100% juice
- 1/2 cup of dried fruit

Dairy (what counts as a cup?)

- 1 cup of milk or yogurt
- 1 cup calcium-fortified soymilk
- 1 1/2 ounces hard cheese (cheddar, mozzarella, Parmesan)
- 2 ounces processed cheese (American)
- 2 cups cottage cheese
- 1 1/2 cups ice cream
- 1 cup frozen yogurt

Protein (What counts as an ounce?)

- 1 ounce of meat, poultry, fish
- 1 large egg
- 1 tbsp. peanut butter
- 1/2 ounce of nuts or seeds
- 1/4 cup cooked beans or peas
- 2 tbsp. hummus

? *How much peanut butter counts as an ounce of protein? How would you estimate that quantity?*

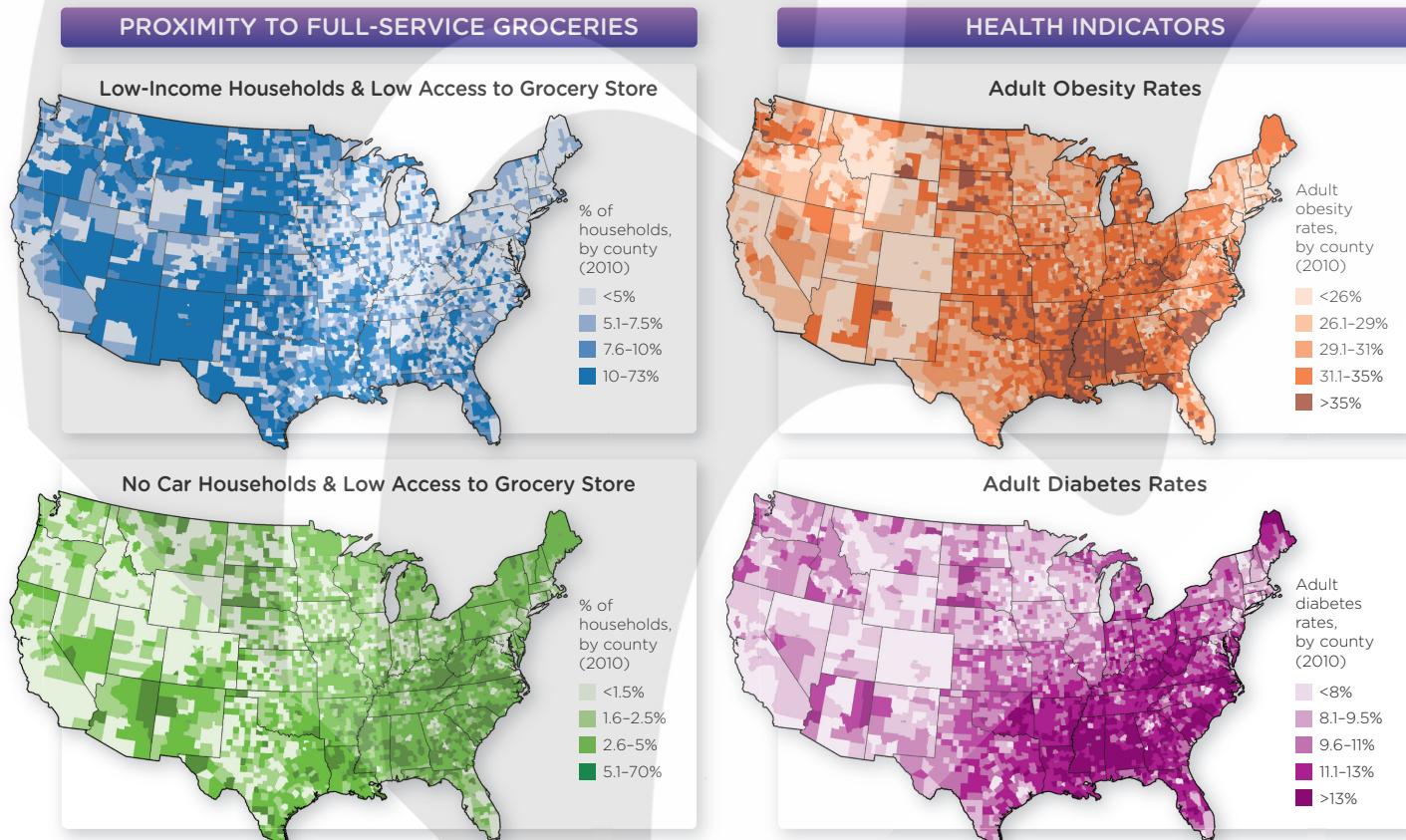
Photo credits (top—all): Center for Nutrition Policy and Promotion/USDA; (bottom—baseball): Pavel Hlystov/Shutterstock; (bottom—thumb): foto76/Shutterstock; (bottom—all others): Eli Ensor

In 2006, after spending months reviewing data from across Chicago, Gallagher found that more than 600,000 residents were in that very situation: They were living in food deserts—large, mostly poor areas with little or no access to full-service grocery stores that sell a variety of healthy foods, including low-fat dairy, lean protein sources, whole grains, and produce. And these residents, mostly African Americans, were more likely to be obese and die prematurely from diet-related chronic disease such as diabetes, heart disease, and cancer. The same pattern of disease was evident even when Gallagher used statistical tools to remove

the influence of race, income, education, and other factors that could affect health— independent of access to nutritious foods. Soon after she released the report on her consulting company’s website and issued a press release, Gallagher was inundated by calls from the media. She even talked about her research on CNN. She believed, “It was the starkness of the findings that caught everyone’s attention.”

Gallagher realized that the problem wasn’t just in Chicago. In Birmingham, Alabama, she found that nearly 90,000 people live in food deserts, including more than 20,000 children (INFOGRAPHIC 2.10)—and

INFOGRAPHIC 2.10 Food Desert Map *The two maps on the left show the proximity of full-service groceries to two groups for whom healthy food is often difficult to procure: low-income households and households without access to a vehicle. Scientists are still exploring the links between food deserts and health by investigating how the nonavailability of fresh food may spur obesity, diabetes, and other diet-related conditions (shown in the maps on the right).*



? What areas of the country have high levels of diabetes and also obesity?

Source: USDA/ERS

those who had equal or better access to stores that sell only unhealthy foods were more likely to lose years of their lives to chronic diseases linked to dietary causes. In Washington, D.C., she found that pregnant women who lived at least a half mile from the nearest full-service grocery store were 10% more likely to give birth to an overweight baby; when they lived at least one mile from a grocery store, that risk rose to 20%.

In Pennsylvania, the entire city of Chester—with more than 34,000 residents—has not had a single full-service grocery store since 2001. “We have heard stories of a mom who had to get two taxicabs for her and her four kids to bring home all their bags from the grocery store,” said Marlo DelSordo of Philabundance, a local food bank and hunger relief organization. “She could only afford to go once or twice per month.”

The residents of food deserts were finding it next to impossible to eat nutrient-dense diets. “If you have to take a couple of buses to get a head of lettuce, it’s not feasible for you to eat a healthy diet,” Gallagher declared.



Global Nutrition

It wasn’t just the United States that put food deserts on the map. In 2002, researchers described what happened to residents in a deprived area in Leeds, United Kingdom, after the opening of a major grocery store. Nearly half of the people they surveyed switched to the new store as their main food source, and their diets improved. The researchers estimated that one measure of a healthy diet was the amount of vegetables and fruits consumed, a measure that also works when evaluating diets from around the world.

Geographic location and culture along with food availability and access have an enormous impact on what people eat. However, when considering what constitutes a healthy diet, the variety of dietary patterns found in various regions of the world share key attributes. They focus on

eating more plant-based foods, including vegetables, fruits, whole grains, and beans. Meals include lean proteins from a variety of sources and healthy fats, which are present in foods such as avocados, olive oil, nuts, and some types of fish. Healthy eaters minimize their intake of unhealthy fats (lard, butter, and fatty meats), added sugars, and salt; choose appropriate portion sizes; and stay physically active.

Like the United States, many countries have developed visual depictions such as pyramids or plates to provide dietary advice, but other graphics are effective tools in relaying the information. In France, dietary guidelines are illustrated as stairs. Foods you can eat frequently are found at the top of the stairs, those that should only be consumed in small quantities are found at the bottom, and those foods to limit are hidden in a magnifying glass. **(INFOGRAPHIC 2.11)** However, a major concern across much of the developing world is not primarily about limiting the consumption of unhealthy food choices, but rather ensuring adequate access to enough calories and nutrients.

When examining *global nutrition*, researchers gather data on and evaluate the diets of people across continents and cultures and seek connections between regional diets and diseases, both noncommunicable diseases (those not caused by infection, such as heart disease, cancer, and diabetes) as well as infectious diseases. In addition, data on global nutrition not only reveal trends towards energy-dense, nutrient-poor diets, but also remind us that a number of people in the world are without adequate food to eat and that deaths in the developing world are often related to undernutrition. For example, it is estimated that undernutrition is a significant factor leading to nearly half of all deaths of children under the age of 5. Within this context, study in global nutrition considers *nutritional sustainability*, how food production systems throughout the world can provide the essential nutrients for the current world population of almost 8 billion people to maintain or achieve good health without compromising the nutritional needs of future generations.

INFOGRAPHIC 2.11 Food Guides around the World *Despite cultural and agricultural differences, international recommendations have common messages for their populations in choosing and consuming a healthy diet. To see more international dietary food guides, visit www.fao.org/nutrition/education/food-based-dietary-guidelines/en/.*

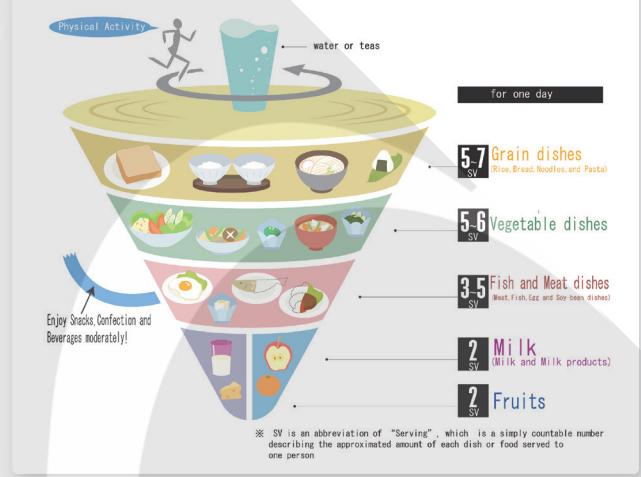
COMMON CHARACTERISTICS

Most healthy diet-plans emphasize:

- Eat more plant foods, including vegetables, fruits, whole grains, and beans.
- Choose lean protein foods from a variety of sources.
- Consume less sugar and salt.
- Choose healthy fats while moderating total fat intake.
- Control portion sizes.
- Be physically active.

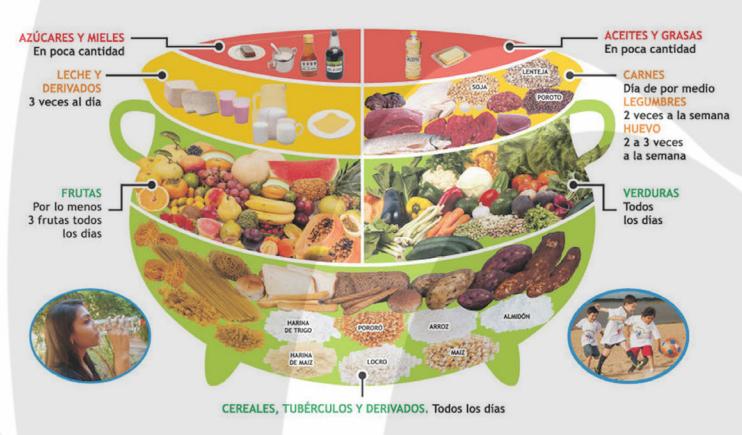


Japanese - Diet Spinning Top



2005 Ministry of Agriculture, Forestry and Fisheries, Japan

Paraguay - Nutrition Pot



French - Diet Steps



www.ineps.sante.fr/illustration Frédéric PASQUIER - Pascal MONCAPUZAN.

? Name three ways each of the international diet and lifestyle recommendations differ from those provided by MyPlate.

Sustainability essentially means the use of resources at rates that do not exceed the capacity of Earth to replace them.

Although undernutrition remains an area of major concern, particularly for the children of the world, the World Health Organization (WHO) reports that most of the world’s population live in countries where overweight and obesity lead to more deaths than underweight. Thus, according to the WHO, the result is that many countries now face a “double burden of

malnutrition”—a coexistence of undernutrition and overweight, obesity, and noncommunicable diseases.

In the world today, more than 1 billion people are overweight or obese, whereas roughly 860 million suffer from hunger, with nearly 2 billion more deficient in micronutrients (experiencing undernutrition), according to a 2012 research gathered through the concerted efforts of the World Food Programme, the International Fund for Agriculture Development,

SUSTAINABILITY
the ability to meet our current needs without compromising the ability of future generations to meet their needs

STAY TUNED
For more information on the causes and health consequences of obesity, see Chapter 11.

and the Food and Agriculture Organization. Poverty is a common denominator in malnutrition cases worldwide. It is important to recognize that an increased risk of an early death is not the only consequence of malnutrition. Individuals who are malnourished often have a poorer quality of life, experiencing reduced work capacity, impaired mental functioning, increased susceptibility to both infectious and chronic diseases, and unrelenting anxiety over how they will obtain their next meal.

Back in the United States, Mari Gallagher's identification of food deserts helped put this issue on the map, but not everyone is convinced that food deserts are a significant cause of poor nutrition and obesity. To collect nationwide data, Helen Lee, PhD, a researcher at MDRC, a nonprofit social policy research organization, launched a study that compared the location of food stores with residents' income and the health of their children. In 2012, she found that poor neighborhoods did, in fact, have more fast-food and convenience stores per square mile than wealthier neighborhoods, but the poorer neighborhoods also had more grocery stores, including those that sold meat and fresh produce, than wealthier neighborhoods. Some of these might have been ethnic stores that cater to certain groups, but they carried a variety of healthy options. And a sample of children from a range of different neighborhoods that were followed from kindergarten to fifth grade showed that those with better access to nutritious foods in their neighborhoods were no less likely to become obese.

The trouble with much of food desert research, explains Lee, is that it simply *correlates* food deserts to income and obesity but doesn't show that lack of access to nutritious foods is the *cause* of residents' unhealthy eating habits. "Grocery stores have a lot of healthy foods, but they have a lot of bad ones, too. You can spend your whole budget in the chips and processed food aisles, easily." People choose foods based on many factors other than access, such as taste, cost, convenience, and even label claims.

Furthermore, compared to food deserts, the presence of urban *food swamps* has

recently been found to better predict obesity rates in the United States. Food swamps are areas that have a high density of restaurants and stores selling high-calorie fast food and junk food compared to the availability of healthier food options. Researchers found that the disproportionate availability of establishments selling unhealthy, energy-dense foods promoted the consumption of unhealthy foods and seemed to negate the positive effect of a nearby grocery store. This was found to be particularly true in areas where the population was less mobile due to limited access to their own or public transportation.

Gallagher also acknowledges that simply giving people access to fresh food doesn't mean they'll eat it—but it's a start. "We have stressed throughout the course of our work that simply plopping down a grocery store does not mean that these problems are instantly solved," says Gallagher. "But if we have access, we also have the power to choose an apple over a candy bar, at least a little more often."



UNDERSTANDING THE LABELING ON FOOD

To assist people in making nutritious purchases at the grocery store, consumer, public health, and medical organizations led a campaign in the 1980s calling for federal legislation that required **food labeling** using a standardized format. At the time, manufacturers were not required to provide details of nutritional content, and any voluntary labeling on foods was inconsistent.

In 1990, after several years of effort, the U.S. Congress passed the **Nutrition Labeling and Education Act (NLEA)** giving the **Food and Drug Administration (FDA)** the authority to require products sold in the United States to provide detailed nutrition information, as well as requiring nutrition and health claims for foods to comply with government standards. Since the NLEA went into effect, little changed in the appearance and components of the food label until a new version was introduced in May 2016. The only

FOOD LABELING

the declaration on a food package that describes the nutrient content and serving size of a food

NUTRITION LABELING AND EDUCATION ACT (NLEA)

legislation that allows the FDA to require nutrition labeling of most prepared foods and of dietary supplements

FOOD AND DRUG ADMINISTRATION (FDA)

the government agency responsible for the supply of safe food, regulation of additives, and labeling

change prior to this occurred in 2006, when the FDA began requiring manufacturers to list the amount of trans fat present in their foods. In response to this new requirement, many manufacturers removed or dramatically reduced the trans fat content in their products, thus demonstrating that the requirement for nutrition labeling can also serve as an incentive for food manufacturers to produce or modify their food products to improve the nutritional profile.

Although the NLEA was an important first step in providing nutrition information to consumers to assist them in making informed food choices, many found labels confusing and difficult to understand. The new food labeling requirements and format are intended to make food labels easier for consumers to use and to reflect new scientific information regarding diet and health. As the mandatory implementation of the new food labels has seen delays, consumers will likely see both the old and new labels on products for an undetermined time.

Both the old and new food labels must include a *Nutrition Facts Panel* that provides specific information about the calorie content and nutritional values for specific components. On every food label, you will see serving size, number of servings, and number of calories per serving, as well as information on the amount of dietary fat, cholesterol, dietary fiber, dietary sodium, carbohydrates, proteins, and four other vitamins and minerals (in addition to sodium) in each serving. Although the old and new labels are similar, by using larger and/or bolder type for “Calories,” “servings per container,” and “Serving size,” the new label emphasizes key information that consumers need to make informed decisions about the foods they eat. In addition, the reference amount used to set the serving size for many foods has been increased to better reflect the amounts of foods and beverages that people actually eat. For example, the serving size of ice cream has increased from 1/2 cup to 2/3 cup, and a serving of soda has increased from 8 ounces to 12 ounces. Because packaging size often affects how much people eat, adjustments have been

made to the labeling requirements so that people can easily understand how many calories and nutrients they are receiving if they consume the whole package (such as a 20-ounce bottle of soda rather than the 12-ounce standard serving). Also, “Added Sugars” must now be indicated on the label as research shows that it is difficult to meet nutrient needs while staying within calorie limits when calories from added sugars contribute more than 10% of total daily energy intake. These and other key changes in the new food label are highlighted in **INFOGRAPHIC 2.12** and **INFOGRAPHIC 2.13**.

Percent Daily Value (%DV)

The **percent Daily Value (%DV, or DV)** serves as a guide to the level of key nutrients in one serving of food. Developed specifically for use on food labels, the DV can help guide consumers toward better selections. Expressed as a percentage of recommended intakes within a 2000 kilocalories per day diet, consumers can see how foods might add up in helping them meet—or, in some cases, not exceed—dietary goals. Of course, people’s daily caloric needs vary, but the %DV can still serve as a frame of reference.

For the nutrients that we sometimes eat too much of (total fat, saturated fat, cholesterol, and sodium), the DV represents the *maximum* amount to eat per day. In contrast, the DVs for carbohydrates and the nutrients listed below it on the food label (such as fiber, calcium, and iron) represent the *minimum* amount that we should consume each day, and our goal is to consume at least 100% of the DV for these nutrients. For other nutrients (for example, trans fats and sugars), there is not enough research to establish a specific reference DV.

Ingredients List

The NLEA also requires an **ingredients list**, which is another useful tool to use when making purchases, as it provides more specific information about what the food product contains. The ingredients must be listed in descending order of amount, measured by weight. Other label requirements include that all juices must indicate the percentage of fruit juice content, and all foods must list any

PERCENT DAILY VALUE (%DV)

an estimation of the amount of a specific nutrient contained in a serving, expressed as a percentage of the Daily Value, based on a daily intake of 2000 kcal; DVs were developed specifically for nutrition labels

INGREDIENTS LIST

a list of ingredients on a food package presented in descending order of amount, measured by weight, according to the guidelines set out in NLEA

INFOGRAPHIC 2.12 Changes to the Nutrition Facts Panel
ORIGINAL LABEL

Nutrition Facts	
Serving Size 2/3 cup (55g) Servings Per Container About 8	
Amount Per Serving	
Calories 230	Calories from Fat 72
% Daily Value*	
Total Fat 8g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	12%
Dietary Fiber 4g	16%
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily value 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
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

NEW LABEL

Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per serving	
Calories	230
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 200mg	20%
Iron 8mg	45%
Potassium 235mg	6%
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

1. SERVINGS: The number of "Servings Per Container" and the "Serving Size" are now in larger and/or bolder type. In many cases, servings sizes have been increased to better reflect what people actually consume today. Packaging size determines whether the nutrition information reflects a single serving and/or the whole package.

2. "CALORIES" is now larger and in bold type.

3. FATS: "Calories from Fat" has been removed because research show that the type of fat consumed is more important than the amount.

4. ADDED SUGARS: Sugars that have been added during food processing or packaging must be indicated on the label in grams and as a percent Daily Value (%DV).

5. NUTRIENTS: The list of nutrients that are required on the label have been changed. Vitamin D and potassium are now required, and Vitamins A and C are not. For the four nutrients listed here, the actual amount (in milligrams or micrograms) as well as the %DV must be listed. In addition, the daily values for nutrients have been updated to reflect current scientific evidence. The daily values are the reference amounts of nutrients that are used to calculate the %DV.

6. FOOTNOTE: The footnote at the bottom of the label has been changed to better explain the meaning of %DV.

The original date of July 2018 for the mandatory implementation of the new label has been delayed until January 1, 2020. Consequently, you will see both the old and new labels on products until that time.



Which nutrients have been added to the food label? Which have been removed?

ingredient that could cause an allergic reaction, such as milk, peanuts, sulfites, and eggs.

Many foods include *color additives* to enhance natural colors, add color to otherwise "colorless" foods, or help identify flavors (for example, yellow for lemon or purple for grape). Without them, colas wouldn't be brown and mint-flavored ice cream wouldn't be green. All color additives must be approved by the FDA before they may be used in food. Any pigment or coloring derived from natural materials can be listed simply as "artificial colors," but any FDA-certified coloring derived from synthetic chemicals must be listed by name (such as FD&C Blue No. 2, which is approved for use in baked goods,

cereals, snack foods, ice cream, confections, and yogurt).

Claims on Food Labels

The NLEA also regulates the claims that can appear on food and dietary supplement labels that inform consumers of the health-related attributes of these products. For instance, manufacturers will make **nutrient content claims** that describe the level of a nutrient in a food using terms such as *low*, *high*, *excellent source*, *light*, or *reduced*. The FDA regulates the use of these terms to ensure that they are used consistently with all types of food products. The term *healthy* is considered to be an implied nutrient content claim, and products

NUTRIENT CONTENT CLAIMS

declarations on food packages to indicate a possibly beneficial level of nutrient content (for example, "high fiber" and "low fat"), federally regulated to be consistent with labeling laws

INFOGRAPHIC 2.13 Navigating the Nutrition Facts Panel *The Nutrition Facts Panel provides key nutrition information to assist consumers in making informed food choices.*

SERVING SIZE: The information that appears on the label will differ for certain size packages. As shown here, packages that contain two to three servings are required to use dual-column labeling that shows information for a single serving as well as for the whole package. For packages that contain more than one standard serving but less than two, the information on the label will be for the whole package only. Compare the quantity you usually eat to the size of the serving on the label.

Nutrition Facts	
About 2 servings per container	
Servings size	About 17 crisps (28g)

Calories	Per serving	Per package
	120	260

CALORIES (kcal): This is the amount of the total energy in one standard serving of the food and/or the whole package, depending on the package size.

LIMIT THESE NUTRIENTS: The goal is to stay below 100% of these nutrients per day. Most Americans eat enough or too much of these nutrients. Excess consumption of these nutrients can increase the risk of several chronic diseases.

		% DV*		% DV*
Total Fat	3.5g	4%	7g	9%
Saturated Fat	0g	2%	1g	5%
Trans Fat	0g		0g	
Polyunsaturated Fat	2g		4g	
Monounsaturated Fat	1g		2g	
Cholesterol	0mg	0%	0mg	0%
Sodium	160mg	7%	340mg	5%

% DAILY VALUE: The %DVs are based on a 2,000-calorie (kcal) diet and indicate how much one serving contributes to the total daily diet (Daily Value) of these nutrients. The %DVs make it easy to compare similar products in order to choose healthier options. Just be certain that the serving sizes and calorie contents are similar.

Daily Value Quick Guide

- 5% or less is low
- 20% or more is high

GET ENOUGH OF THESE NUTRIENTS: Getting enough of these nutrients can improve overall health and may reduce the risk of several chronic diseases.

Total Carb.	22g	8%	46g	17%
Dietary Fiber	1g	5%	3g	11%
Total Sugars	2g		5g	
Incl. Added Sugars	2g	3%	3g	6%
Protein	2g		4g	
Vitamin D	0mcg	0%	0mcg	0%
Calcium	6mg	0%	12mg	0%
Iron	0mg	0%	1mg	2%
Potassium	226mg	4%	479mg	10%

The %DV for protein is not required unless the product makes a protein claim, or the product is used for children or infants less than 4 years of age.



Steven Nizielski

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

FOOTNOTE: This explains that the %DVs are to help consumers understand the nutrition information in the context of a total daily diet. This may be omitted if the label is too small.

Ingredients: Dried Potatoes, Corn Starch, Corn Oil Sugar, Sea Salt, Soy Lecithin, Dextrose, and Annatto Extracts.
CONTAINS SOY INGREDIENTS.

INGREDIENTS LIST: Ingredients are listed in descending order by weight. Major food allergens (such as soy) must be identified by name somewhere in the ingredients list.

? What is the greatest number of grams that a package of this product can contain for the Nutrition Facts Panel to have only one column that shows the nutrient content for the whole package?

must be low in saturated fat, cholesterol, and sodium and contain at least 10 percent of the Daily Value per serving of either potassium or vitamin D.

Health claims describe the link between a food, food component, or dietary supplement substance and a reduction in the risk of a disease. All health claims that appear on food products and dietary supplement labels must be approved by the FDA based on Significant Scientific Agreement (SSA) about publicly available scientific evidence. The FDA also

allows the use of qualified health claims for conventional foods and dietary supplements when the evidence linking a food, food component, or supplement to a reduced risk of a disease is emerging but is not well enough established to meet the SSA standard for a true health claim. For example, the number of studies demonstrating a beneficial effect may be limited, or the results of studies may be inconsistent. Qualifying language is included to indicate that the evidence supporting the relationship is limited—for instance, you

HEALTH CLAIMS

a statement on a packaged food or dietary supplement that indicates a link between a food, food component, or dietary supplement and a reduction in the risk of a disease; all health claims must be approved by the FDA

STAY TUNED

for more on the types and use of health claims in Spotlight D Dietary Supplements.

STAY TUNED

for further discussion on energy needs in Chapter 11.

**STRUCTURE/
FUNCTION CLAIMS**

a statement on the label of a packaged food or a dietary supplement about how that product might affect the human body's structure ("calcium builds strong bones") or function ("antioxidants maintain cell integrity")

might read on the product label of a food with added omega-3 fatty acids that "supportive but not conclusive research shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease." But even qualified claims must be approved by the FDA based on the quality and strength of the scientific evidence.

Finally, **structure/function claims** describe the role of a nutrient or dietary substance in maintaining normal physiological structures and functions and overall health but may not have any relationship to disease. "Heart healthy," "maintains bowel regularity," or "helps support immunity" are examples of structure/function claims. Food and dietary supplement manufacturers can make such claims, but they are not evaluated or regulated by the FDA. Labels containing these claims must state in a disclaimer that the FDA has not evaluated the claim and that the product is not intended to diagnose, treat, cure, or prevent any disease. **(INFOGRAPHIC 2.14)**

Food labels don't always make it easier to eat healthfully. A recent survey of more than 25,000 people worldwide found that more than half have difficulty understanding food labels. And just because labels are there doesn't mean people use them; other research has shown that less than 25% of teenagers choose foods based on nutritional labels and that men who say they read food labels are only slightly leaner than men who don't.

MENU LABELING

The Nutrition Facts Panel is designed to help guide our selections when we shop, but what about our choices at restaurants and other eating establishments? With foods and beverages consumed away from home making up about one-third of our calorie intake, the FDA now requires that restaurant chains with 20 or more locations post calorie information on their menus and menu boards. Likewise, vending machine operators with 20 or more vending machines are required to disclose calorie information for items sold. Intended to assist consumers in making informed choices, restaurants are

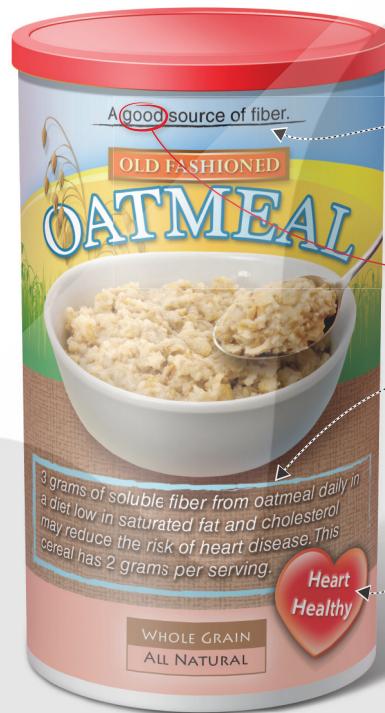
to display calorie content or range (for meals with multiple ingredients or variations) next to permanent menu items. More detailed nutrition information must also be available online or in print by request. But as with calorie and nutrient values on food labels, consumers who pay attention to the "numbers" must have some understanding of how food selections fit within their overall nutrient and energy needs.

Surveys have demonstrated that only about one in ten adults can accurately estimate the number of calories they should consume in a day for their weight and physical activity. Thus, knowing how menu items fit within their individual needs can be a challenge. Restaurants are required to post a statement regarding daily caloric intake (for example, "2000 calories a day is used for general nutrition advice, but calorie needs vary"). Although the effect of menu labeling on selection and consumption of calories appears to vary among groups (women, for example, are more likely to use calorie postings), ongoing research supports the value of providing point-of-purchase nutrition information.

In addition to government planning, companies and advocacy groups are experimenting with different ways to present nutrition information and recommendations that they hope will be easier to follow, such as symbols that appear on the front of packages. For instance, the United Kingdom has established a "traffic light" system where the amount of calories, sugar, fat, saturated fat, and salt are presented on the front of the package in green, yellow, or red according to the healthfulness of the choice. However, manufacturers are not obligated to use the system. In the United States, consumers might see Guiding Stars in supermarkets that rate the nutritional quality of food with one, two, or three stars, reflecting information from the Nutrition Facts Panel and the ingredients list.

To urban-health researcher Gallagher, nutrition information and recommendations may do little to help people

INFOGRAPHIC 2.14 Food Label Regulations *The Food and Drug Administration (FDA) regulates the claims that can be made on food and dietary supplement labels.*



Nutrient Content Claim

Describes the level of a nutrient or dietary substance in a product using terms such as *Good Source*, *High*, or *Reduced*.

Good: 10%-19% of the DV per serving
High or Excellent: $\geq 20\%$ of the DV per serving

Health Claim

Describes the link between a food, food component, or dietary supplement substance and reduced risk of a disease.

Structure/Function Claim

Describes the role of a nutrient or a dietary substance in maintaining health.

LABELING REGULATIONS FOR SPECIFIC TYPES OF CLAIMS

Nutrient Content Claims

- Most nutrient content claims apply only to nutrients with a DV.
- Exceptions are relative claims that compare content of other foods (i.e., “reduced,” or “light”).
- The word *healthy* may only be used for foods that provide healthy levels of fat, cholesterol, and sodium.

Health Claims

- Must be approved by the FDA.
- Must always use “may” or “might” to describe the ability of the product to reduce the risk of the disease.
- Not allowed on products containing high amounts of sodium, total or saturated fat, or cholesterol.
- Not allowed on foods with little natural nutritional value (the “jelly bean rule”).

Structure/Function Claims

- Must not make any link (directly or implied) to a disease or health-related condition.
- They are supposed to be truthful and not misleading.
- Not reviewed or authorized by the FDA.
- When on a dietary supplement label:
 - the manufacturer must have evidence that the claim is truthful.
 - a disclaimer must state that the FDA has not evaluated the claim and that the product is not intended to diagnose, treat, cure, or prevent any disease.



Would the claim “prevents diabetes” be allowed on a food label without FDA approval? Why or why not?

Retrofitted buses increase access to fresh produce for residents of urban food deserts.



Courtesy Greg Helgeson



Courtesy Twin Cities Mobile Market, Amherst H. Wilder Foundation

make better food choices if they don't have sufficient access to more nutritious options. Since 2006, when results of her first study of Chicago's food deserts were released, she has helped the city identify six sites that would benefit significantly from a large grocery store. At one of those sites, her data suggest that adding a grocery store would take 24,000 people out of a food desert, which by Gallagher's estimates could have profound effects on disease prevention and overall mortality for these individuals and families. But improving access doesn't have to be as major a project as building an entirely new store, she says. Simply upgrading corner stores by adding fresh foods or establishing mobile food markets that travel to neighborhoods in need could make a big difference.

In 2010, the retail chain Walmart hired Gallagher to develop a plan that would entirely eliminate all food deserts from Chicago. That same year drugstore chain Walgreens announced that it would start to sell fruits and vegetables in 10 areas identified as food deserts. Thanks to the increase in access, since 2006, food deserts

are affecting approximately 250,000 fewer people. "In the next 10 or 15 years, I see the problem of food deserts being solved. But we'll still be dealing with the other issues that drive unhealthy habits."

That's because access is not the "silver bullet" to get people to make healthy choices and lose weight, she says; just building grocery stores where there are none will not solve all of the country's nutrition woes. So she and her colleagues are conducting experiments to find ways to encourage shoppers to make healthy choices, such as providing selection information on supermarket shelves for food products and changing the placement of nutritious food in grocery stores to increase visibility.

If policymakers don't address the problem of food deserts, they can't expect people to follow their dietary advice, says Gallagher. "It is disingenuous to preach 'follow the food pyramid' or 'eat your fruits and vegetables' if you don't provide access to those foods."



CHAPTER 2 BRING IT HOME

What's in a claim?

With your grocery list in hand, you reach for crackers and notice a “reduced-fat” variety of your favorite brand. Using the two product labels below, compare the Nutrition Facts Panel and ingredients listing to address these questions:

1. Complete this table using the Nutrition Facts Panels for the original and reduced-fat cracker varieties shown below. (Note: Reduced-fat refers to a product's nutrient content claim to contain at least 25% less fat than the original version.)
2. What is the difference between the % daily value (DV) for total and saturated fat? How might calorie

content make a difference when comparing DVs of two similar products?

3. Besides differences in total and saturated fat content, do you observe any other differences?
4. Review the ingredient list for each of these products. What are the differences in ingredients or the order of ingredients between the two products?
5. Which of these two products would you consider purchasing? Why?
6. Would you consider either of these crackers to be a food product that should be a regular choice or an occasional part of one's diet? Explain.

	Total Fat (g)	Total Fat %DV	Saturated Fat (g)	Saturated Fat %DV	Sodium (mg)	Sodium %DV	Total Carbohydrate (g)	Dietary Fiber (g)	Total Sugars (g)
Crackers-original									
Crackers-reduced fat									
Differences (+/-)									

BUTTERY CRACKERS

Nutrition Facts
Serving size 5 crackers (15g)
Amount Per Serving
Calories 80

	% Daily Value*
Total Fat 4.5g	6%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 105mg	5%
Total Carbohydrate 10g	4%
Dietary Fiber 0g	0%
Total Sugars 1g	
Includes 1g Added Sugars	2%
Protein 0g	0%
Vitamin D 0mcg	0%
Calcium 26mg	2%
Iron 0.36mg	2%
Potassium 47mg	0%

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

INGREDIENTS: UNBLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE (VITAMIN B1), RIBOFLAVIN (VITAMIN B2), FOLIC ACID), SOYBEAN OIL, SUGAR, PARTIALLY HYDROGENATED COTTONSEED OIL, SALT, LEAVENING (CALCIUM PHOSPHATE AND/OR BAKING SODA), HIGH FRUCTOSE CORN SYRUP, SOY LECITHIN, MALTED BARLEY FLOUR, NATURAL FLAVOR.

REDUCED FAT BUTTERY CRACKERS

Nutrition Facts
Serving size 5 crackers (15g)
Amount Per Serving
Calories 70

	% Daily Value*
Total Fat 2g	3%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 150mg	7%
Total Carbohydrate 11g	4%
Dietary Fiber 0g	0%
Total Sugars 2g	
Includes 2g Added Sugars	4%
Protein 0g	0%
Vitamin D 0mcg	0%
Calcium 26mg	2%
Iron 0.72mg	4%
Potassium 47mg	0%

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

INGREDIENTS: UNBLEACHED ENRICHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE (B1), RIBOFLAVIN (B2), FOLIC ACID), SOYBEAN OIL, SUGAR, PARTIALLY HYDROGENATED COTTONSEED OIL, LEAVENING (CALCIUM PHOSPHATE AND/OR BAKING SODA), SALT, HIGH FRUCTOSE CORN SYRUP, SOY LECITHIN, NATURAL FLAVOR.



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KEY IDEAS

A healthy diet is a pattern of eating characterized by variety, balance, adequacy, and moderation that promotes health and reduces risk of chronic disease.

A healthy diet emphasizes nutrient-dense foods that provide a higher proportion of nutrients relative to calories.

A healthy diet balances energy-dense and nutrient-dense foods. Energy density is a measure of the calorie content of a food relative to its given weight.

Decreasing the proportion of ultra-processed foods available to the consumer is a rational and effective way to improve dietary quality in the United States.

The Dietary Guidelines for Americans (DGAs) provide evidence-based recommendations for healthy eating patterns that emphasize variety and nutrient density, limit calories from added sugars and saturated fats, reduce sodium intake to reduce risk of chronic disease, and promote overall health. Revised every five years, the DGAs are the cornerstone of federal nutrition policy and nutrition education initiatives.

MyPlate (at www.choosemyplate.gov) is based on the DGAs and provides a visual representation of the ideal balance of food groups.

International food guides share common recommendations of consuming more plant-based foods, choosing lean protein sources, limiting intake of sugar and sodium, minimizing intake of unhealthy fats, controlling portion sizes, and increasing physical activity.

The Nutrition Labeling and Education Act (NLEA) of 1990 gives the Food and Drug Administration (FDA) the authority to oversee the labeling of food products and standardizes the presentation of nutrition information on food labels.

The Nutrition Facts Panel provides specific information about the serving size, calorie content, and other mandatory nutrition information.

The percent Daily Value (or %DV) on the Nutrition Facts Panel is the percent of a nutrient provided by a standard serving of a food in relation to the approximate goal for that nutrient. Percent Daily Values are based on a 2000-calorie diet.

The NLEA established guidelines for the three types of claims that can be used on food and dietary supplement labels: nutrient content claims, health claims, and structure/function claims.

Nutrient, health, and structure/function claims on a food or dietary supplement label are statements regulated by the FDA that refer to nutrient content, potential health benefits, or the specific structure or function effects of a food or food component in the body. Health claims are evaluated and approved by the FDA; structure/function claims are not.

NEED TO KNOW

Review Questions

- Which of the following is true with regard to a healthy diet?
 - A healthy diet emphasizes nutrient-dense over energy-dense foods.
 - A healthy diet provides calories and nutrients in amounts necessary to promote good health.
 - A healthy diet is characterized by adequacy, balance, variety, and moderation.
 - All of the above.
- Emphasizing nutrient-dense foods and reducing intake of energy-dense foods while meeting overall energy needs typically results in:
 - less dietary fiber and reduced overall volume of food intake.
 - increased intake of dietary fat and risk of overweight and obesity.
 - greater likelihood of achieving recommended intake of essential nutrients.
 - dietary inadequacies that may contribute to nutrient deficiencies.
- The Dietary Guidelines for Americans (DGAs) are characterized by all of the following, EXCEPT:
 - they are updated every 10 years.
 - they are science-based guidelines used to promote health and reduce risk of chronic disease.
 - they stress consumption of nutrient-dense foods.
 - they encourage limiting added sugar intake to 10% of total calories.
- The DGAs recommend that sodium intake should:
 - be limited to 3000 milligrams/day for all Americans older than 2 years.
 - be restricted to 1500 milligrams/day for individuals with high blood pressure.
 - be balanced with overall calorie intake to prevent fluid retention.
 - be limited only if older than 30 years.
- All of the following are true regarding the USDA MyPlate food guide, EXCEPT:
 - it replaced the Food Guide Pyramid in 2011.
 - it has an online website to help individualize recommendations.
 - it is designed to depict food choices across food groups at meals.
 - it is designed specifically for use by children rather than adults.
- The World Health Organization's dietary guidelines:
 - reinforce recommendations from other countries around the world.
 - focus exclusively on malnutrition in the form of nutrient deficiency disease.
 - contradict the Dietary Guidelines for Americans.
 - recommend complete avoidance of sugar and salt.
- The Nutrition Labeling and Education Act (NLEA) of 1990 requires all of the following, EXCEPT:
 - having health claims approved by the FDA before they are used on food labels.
 - listing ingredients in a food product on the label.
 - using a standardized Nutrition Facts Panel on food products.
 - warning if a food product contains excessive amounts of sugar or sodium.
- Percent daily value (%DV) on processed food packages is:
 - developed specifically for use on food labels.
 - based on an average 1800-calorie intake.
 - the level of nutrients that should not be exceeded.
 - established by food manufacturers.
- On a nutrition label, the list of ingredients:
 - is in alphabetical order.
 - begins with the ingredient that comprises the highest proportion of the product's weight.

- c. begins with the ingredient with the highest caloric density.
 - d. begins with any potential ingredient that might cause an allergic reaction.
10. Currently, health claims that can appear on food labels:
- a. can guarantee that consumption of a food will reduce risk of specific diseases.
 - b. have been approved by the FDA.
 - c. can appear on any processed food even if it is high in saturated fat, cholesterol, or sodium.
 - d. are based exclusively on research and evidence provided by the food manufacturer.

TAKE IT FURTHER

More than 60% of U.S. consumers report referring to the Nutrition Facts Panel when selecting food products. Even if you do not typically look to food labels to guide your food selections and purchases, consider the information included on a standardized label. Discuss what you typically (or might) look at first on a food label and why. How does the information on the food label help you determine whether to purchase a particular product?