

## Learning Objectives

After reading this *CME Bulletin*, you should be able to:

- Describe the *Dietary Guidelines for Americans 2005* recommendations on fat, carbohydrates and protein.
- Communicate to patients the importance of adequate nutrient intake, including intake of fiber and nutrients that are considered inadequate in the typical American diet, such as calcium, potassium, magnesium, and vitamins A, C, D and E.
- Use the food groups to encourage messages to educate patients about ways to build a healthy diet based on fruits and vegetables, whole grains, and low- or nonfat milk or milk products.

## Nutrition Guidelines for Better Health

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*Disclosure Statements:* Dr. Fleming has returned a disclosure form indicating that he is a public member of the board of directors of the American Dietetic Association. Ms. Olenzki has returned a disclosure form indicating that she reviewed cardiovascular nutrition education material for Unilever in 2006. Dr. Domino and Ms. Garber have returned disclosure forms indicating that they have no financial interest in or affiliation with any commercial supporter or providers of any commercial services discussed in this educational material.

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## Introduction

Consider for a moment the stereotypical American diet. It contains an excess of quick and tasty but nutritionally deficient foods such as French fries, soft drinks, donuts, pizza, fast food burgers and chicken fingers, chips and candy... the list of high-fat, high-calorie and processed foods goes on. In addition, lifestyles have become increasingly sedentary. It's no wonder that overweight and obesity rates in the United States are on the rise. In fact, the percentage of people who are overweight or obese in the United States increased from 56 percent in the 1988-94 National Health and Nutrition Examination Survey (NHANES) study to 64 percent in the 1999-2000 study.<sup>1</sup> Americans overwhelmingly consume more calories than they need from foods devoid of the nutrients their bodies require.

Research shows that the general public both knows and is concerned about the obesity issues it faces.<sup>2</sup> Further, people are looking for guidance: 43 percent of consumers report that they like to hear about new health and nutrition studies, but over half of these people say that they don't understand what they hear.<sup>3</sup> Most patients find their health and nutrition information on television, in magazines and in newspapers.<sup>2</sup> This presents family physicians with the challenge of addressing patients' nutrition questions, concerns and misconceptions. For example, consider the recent media coverage regarding low-carbohydrate and other fad diets that promise dramatic results. The promise of fast weight loss is likely appealing to patients. Not only should family physicians be able to tell a patient that fad diets often aren't effective in the long-term, they should also offer a healthy alternative.

In 2005, the U.S. Department of Health and Human Services (HHS) and the U.S. Department of Agriculture (USDA) produced

the *Dietary Guidelines for Americans (DGA) 2005* with the goal of recommending a pattern of eating to help individuals improve their overall health and reduce the risk of some chronic diseases. A summary of the *DGA's* nutrition recommendations follows, including information about healthy macronutrient intake (see *Table 1*), adequate micronutrient intake and food groups to encourage.

It's important to remember the following points while reading this text:

- The recommendations that follow address the nutrition needs of the general adult population. Special populations (e.g., children and adolescents, pregnant or breastfeeding women, and older adults) are outside the scope of this *Bulletin*.
- When customizing an eating plan for a patient, remember that daily calorie requirements differ for each individual based on gender, age, current body mass index (BMI), medical status and activity level.
- Physical activity is a necessary component of any weight loss plan. Although specific recommendations are outside the scope of this *Bulletin*, remember that diet changes combined with physical activity can help a patient lose weight and reduce the risk of some chronic diseases better than just diet changes or increased activity alone.<sup>4</sup>
- It is up to the physician to initiate and guide the nutrition discussion, although, ultimately, adherence to a healthy diet depends upon the patient. The following tips can help you have a productive dialogue:
  - To start the discussion, ask your patient, "What are you eating that might not be helping you with your weight?" Most patients can easily identify their area(s) of weakness. Or, ask

**Table 1. Selected Macronutrient Components of Concern for a 2,000-Calorie Diet**

Macronutrient	Grams per day*	Practical Examples
<b>Fats</b>		
■ Saturated fat	20 g or less	One large order of French fries: 4 g to 6 g of saturated fat
■ <i>Trans</i> fatty acid	0 g	1 g to 8 g of <i>trans</i> fat
■ Cholesterol	300 mg or less	1 large egg: approx. 200 mg cholesterol
<b>Carbohydrates</b>		
■ Fiber	28 g	One slice of white bread: 0 g to 1 g of fiber One slice of whole grain bread: 2 g to 6 g of fiber

\*Grams per day are based on a 2,000 calorie per day diet.

†Based on nutrition information from McDonald's, Burger King and Wendy's restaurants.

Information from references A and B.

if there are components of a healthy diet (e.g., fruit, vegetables, whole grains, fish, low-fat or fat-free dairy) that are missing from the patient's habitual intake.

- Then, ask him or her, “Would you like some suggestions that might help you make better choices?” The patient may have ideas about how he or she can overcome excesses and deficiencies, and may be willing to collaborate with you on a plan that includes accountability and follow-up. This might also be a good time to encourage a patient to quit smoking, increase physical activity or make other healthy lifestyle changes.
- Finally, to ensure your patients are informed and understand their role in making healthy food choices, tell them about or give them food and nutrition handouts from the American Academy of Family Physicians' (AAFP) patient education Web site, [familydoctor.org](http://familydoctor.org) (see *Table 2* for a list of relevant patient education handouts) or refer them to a registered dietician (RD) with whom you have a relationship. If you don't know an RD, the American Dietetic Association offers a tool for finding one in your area at [http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/home\\_4874\\_ENU\\_HTML.htm](http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_4874_ENU_HTML.htm).

### The Guidelines: Macronutrients

Macronutrients consist of fats, carbohydrates and protein, and are essential to a healthy diet. They are found in almost all foods and provide the calories that the body needs to fuel itself. However, not all types of macronutrients are beneficial; some have actually been shown to increase the risk of some chronic diseases. When choosing foods for a healthy diet, it's important to choose foods that contain the “good” macronutrients (i.e., the dietary fiber and intrinsic sugars found in fruits and vegetables, unsaturated fatty acids and lean protein).

#### Fats

Unsaturated fatty acids include monounsaturated and polyunsaturated fatty acids. There is some evidence to suggest that consuming monounsaturated fatty acids instead of saturated fatty acids can help lower low-density lipoprotein (LDL) cholesterol levels.<sup>5</sup> Consuming polyunsaturated fatty acids instead of saturated fatty acids may help lower the risk of coronary heart disease (CHD).<sup>5</sup> As such, the majority of fats consumed should come from the following sources:

**Table 2. Patient Education Handouts**

Visit <http://familydoctor.org/nutrition> to access the following patient education handouts:

- Nutrition: How to Read a Nutrition Facts Label
- Nutrition: Determine Your Calorie Needs
- Nutrition: How to Make Healthier Food Choices
- Nutrition: Tips for Improving Your Health
- Nutrition: Keeping a Food Diary
- Fiber: How to Increase the Amount in Your Diet
- Vitamins and Minerals: How to Get What You Need
- Nutrition for Weight Loss: Is a Low-Carb Diet Right for Me?
- Nutrition for Weight Loss: What You Need to Know About Fad Diets
- Nutrition for Weight Loss: What it Takes to Lose Weight
- Nutrition for Weight Loss: Choosing the Right Diet to Lose Weight

In addition, you may also visit <http://www.nationaldairycouncil.org/HealthierEating> to access a PDF of “Healthier Eating: Getting Where You Need to Be,” a handout produced by the National Dairy Council in cooperation with the American Academy of Family Physicians, the American Academy of Pediatrics, the National Medical Association and the American Dietetic Association.

- Monounsaturated fatty acids, which are found in vegetable oils (e.g., canola, olive and sunflower oils), nuts, avocados and legumes (dried beans).
- Polyunsaturated fatty acids, which are generally classified as omega-6 fatty acids or omega-3 fatty acids.
  - One of the omega-6 fatty acids, linoleic acid, is required in the diet, as humans aren't able to synthesize this acid. The main sources are vegetable oils that are fairly easy to find in the typical American diet, such as soybean, corn and safflower oils.
  - An omega-3 acid,  $\alpha$ -linolenic acid, is also required in the diet but is less prevalent in the American diet. It's found primarily in soybean oil, canola oil, walnuts and flaxseed. Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are two omega-3 fatty acids that are found in fish and shellfish. Two servings of fish high in EPA and DHA (e.g., salmon, trout, sardines, mussels and herring) are recommended per week.

### To help ensure proper fat intake, suggest that your patients:

- Cook fish or shellfish one or two times a week instead of beef.
- Use non-hydrogenated spreads or olive, canola or soybean oils instead of butter to sauté foods.
- Choose low-fat versions of the foods they enjoy (e.g., low-fat cheese and sour cream).
- Eat fewer commercially prepared foods, and shop primarily in the outside aisles of the grocery store (where they will find fruit, vegetables and low-fat dairy).

Saturated fatty acids are found primarily in animal products, such as meat and dairy. However, reduced-fat dairy products contain less saturated fat than full-fat dairy products. Saturated fats raise LDL cholesterol levels and increase the risk of CHD.<sup>5,6</sup> As such, the *DGA* states that adults should consume less than 10 percent of daily calories from saturated fatty acids.<sup>7</sup> For example, if your patient is on a 2,000-calorie diet, he or she should consume less than 20 g of saturated fat per day. A patient on a 1,600-calorie diet should consume less than 16 g of saturated fat per day.

*Trans* fatty acids are unsaturated fatty acids that predominantly occur from fats that have been subjected to the process

of hydrogenation. They appear most often as hydrogenated and partially hydrogenated vegetable oils found in processed foods such as baked goods, snack foods, fried foods and margarine. To a lesser extent, *trans* fatty acids are also naturally present in foods such as beef, lamb and dairy products. Industrially produced partially hydrogenated foods raise LDL cholesterol levels and increase the risk of CHD.<sup>5</sup> As such, very minimal consumption is recommended. (Note: It is necessary to read the ingredient label to determine whether a food contains *trans* fatty acids. Current regulations allow the *trans* fat food category on the label to appear as zero if one serving of food contains 0.5 g or less of *trans* fat.)

High cholesterol intake raises LDL cholesterol levels in the blood and increases the risk of CHD.<sup>5</sup> The *DGA* recommends that adults consume less than 300 mg of dietary cholesterol per day.<sup>7</sup>

### Carbohydrates

When choosing sugars and starches, it's important to choose food sources that are high in fiber and nutrients, such as fruits, vegetables and whole grains.

The USDA defines extrinsic sugars as sugars and syrups that are added to foods during processing or preparation (e.g., as in soft drinks, cookies, fruit punch and sweetened breakfast cereals), as well as sugars and syrups that are added at the table. In general, those who consume high amounts of added sugars tend to consume more calories but smaller amounts of micronutrients. Therefore, a reduced intake of added sugars is recommended.

Food and drink manufacturers in the United States commonly add "fruit juice" to sweeten foods. They often extract the fructose from pears, apples, grapes, corn, etc., and add it to foods or beverages; this high fructose content has been correlated with the increasing incidence of diabetes. Fructose in concentrated form provides only sweetness and calories, without the benefit of the vitamins or fiber contained in the whole food forms.

#### For carbohydrate and fiber tips, suggest that your patients:

- Eat fewer "white" foods (e.g., white bread, food made with white flours, white sugar, white rice), and look for foods made with whole grains instead.
- Eat a whole piece of fruit at breakfast instead of drinking fruit juice.
- Try one new fruit or vegetable each week.

### Dietary Fibers

When fiber is consumed as recommended (14 g of fiber per 1,000 calories consumed), the process whereby it passes through the digestive system relatively intact has a number of positive health benefits, including bowel regularity and reduced risk of type 2 diabetes and CHD.<sup>6</sup> Whole grain cereals, bran, nuts and seeds are the main sources of dietary fiber, along with fruit and vegetables.

### Protein

While protein is an important part of adequate nutrition, most Americans already consume enough protein and do not need to increase their intake. Emphasis should be placed instead on selecting protein sources with little or no saturated and *trans* fatty acids, such as fish and shellfish, lean meats, poultry, legumes, and low- or nonfat milk or milk products.

### The Guidelines: Adequate Micronutrient Intake

There are at least 34 dietary nutrients that promote normal body function and growth, protect the body and its systems, and promote overall health. Of these 34 nutrients, the *DGA* identifies six that are considered inadequate in the typical American diet: calcium, potassium, magnesium, and vitamins A, C and E. In general, these micronutrients should come from the intake of whole foods, as opposed to vitamin pills and dietary supplements.

- Calcium: In addition to milk and milk products, other sources of calcium include fortified ready-to-eat cereals, sardines, soybeans and soy beverages, and collard, spinach, turnip, kale and beet greens.
- Fruits and vegetables are excellent sources of potassium, magnesium, and vitamins A and C. White and sweet potatoes, tomatoes, beet greens and legumes are especially rich in potassium. Dairy and fish are also rich in potassium and magnesium, with low-fat and fat-free dairy containing slightly more mineral content than full-fat dairy.
- Vitamin E is found primarily in foods with a higher fat content, such as nuts, vegetable oils and avocado. These foods should be included in a healthy diet, but correct portion sizes should be observed in order to prevent high fat and calorie intake. Vitamin E deficiency is rare, and it usually occurs only in people who cannot absorb dietary fat, people who have certain genetic abnormalities, and premature, very low birth weight infants.<sup>8</sup> Some studies have shown that high-dosage vitamin E supplementation may increase mortality in adults who have a chronic disease.<sup>9</sup> At this time, vitamin E supplementation is not recommended for the general public and should be avoided.

Although vitamin D is not cited as a nutrient of concern in the *DGA*, vitamin D deficiency is common in children and adults.<sup>10</sup> Vitamin D deficiency is associated with increased risk of osteopenia and osteoporosis, as well as breast, colon and prostate cancers. Vitamin D is found in the following food sources: milk and vitamin D-fortified milk products, salmon, shiitake mushrooms, sardines and eggs. Supplementation up to 2,000 IU (50 mcg) per day is safe and may be beneficial. Once a vitamin D deficiency has been identified, supplementation is generally recommended.

### Food Groups to Encourage

In very general terms, most Americans need to make two adjustments to their diets:

- 1) To increase micronutrient density, they need to consume a variety of foods and, preferably, noncaloric beverages, choosing items that are low in saturated and *trans* fats, cholesterol, added sugars, salt and alcohol.
- 2) They need to consume more fruits and vegetables, whole grains, and low- and nonfat milk and milk products. Despite all previous dietary recommendations, most Americans still don't consume adequate amounts of these foods to meet their nutrient needs.

When helping your patients plan a healthy diet, two existing eating plans exemplify the recommendations outlined in the *DGA*: the USDA Food Guide (see <http://www.mypyramid.gov>) and the Dietary Approaches to Stop Hypertension (DASH) Eating Plan (see [http://www.nhlbi.nih.gov/hbp/prevent/h\\_eating/h\\_eating.htm](http://www.nhlbi.nih.gov/hbp/prevent/h_eating/h_eating.htm)). These two eating plans illustrate how to incorporate nutrient-dense foods into the diet without exceeding appropriate calorie levels. Portion sizes and examples listed below are taken from these plans

Continued on page 4

and are based on a daily 2,000-calorie intake. Keep in mind that portion sizes for a specific patient may be higher or lower depending on his or her recommended calorie intake.

**4 or more cups per day of fruits and vegetables (see Table 3)**

Fruits and vegetables provide carbohydrates, fiber and a variety of nutrients, including potassium, magnesium, and vitamins A and C. In the fruit group, consuming fresh, frozen, canned or dried fruits rather than fruit juice will help ensure adequate fiber and micronutrient intake. The vegetable group can be broken into the following subgroups: dark green, orange, legumes (dry beans), starchy and other.

**3 or more ounce-equivalents per day of whole grains (see Table 4)**

Whole grains provide carbohydrates, fiber and a variety of nutrients. Whole grains contain the entire grain seed (consisting of

Continued on page 5

**Table 3. Fruit and Vegetable Servings**

Type	Women: 19 to 50 years old	Men: 19 to 50 years old
Fruits	2 cups per day (14 cups per week) age 19 to 30 1.5 cups per day (10.5 cups per week) age 31 to 50	2 cups per day (14 cups per week)
Vegetables		
■ Dark green vegetables (broccoli, spinach, greens)	3 cups or more per week*	3 cups or more per week*
■ Orange vegetables (carrots, sweet potatoes, winter squash)	2 cups or more per week*	2 cups or more per week*
■ Legumes (dry beans, chickpeas, tofu)	3 cups or more per week*	3 cups or more per week*
■ Starchy vegetables (corn, white potatoes, green peas)	3 cups or more per week	6 cups or more per week
■ Other vegetables (cabbage, onions, peppers, etc.)	6.5 cups per week	7 cups per week

*A ½-cup serving of fruit consists of one of the following: 1/2 cup of fresh, frozen or canned fruit; one piece of medium fruit; 1/4 cup of dried fruit; or 1/2 cup to 3/4 cup of fruit juice.*

*A ½-cup serving of vegetables consists of one of the following: 1/2 cup of cut-up raw or cooked vegetable; 1 cup raw leafy vegetable; or 1/2 cup to 3/4 cup of vegetable juice.*

*\*To improve overall dietary quality, the DASH Eating Plan and the USDA Food Guide suggest that it is especially important to increase intake of dark green vegetables, orange vegetables and legumes.*

*DASH = Dietary Approaches to Stop Hypertension; USDA = U.S. Department of Agriculture.*

*Information from references A and C.*

**Table 4. Grain Servings**

Type	Women 19 to 50 years old	Men 19 to 30 years old	Men 31 to 50 years old
Whole grains	3 ounce-equivalents per day	4 ounce-equivalents per day	3.5 ounce-equivalents per day
Other grains	3 ounce-equivalents per day	4 ounce-equivalents per day	3.5 ounce-equivalents per day

*One ounce-equivalent serving of grains consists of one of the following: one slice of bread; 1/2 cup cooked rice or pasta; or 1/2 cup to 1 1/4 cup of cereal, depending on the cereal type (read the food label for serving size).*

*Whole grains available in the United States include:*

<i>Whole wheat</i>	<i>Quinoa</i>	<i>Bulgur (cracked wheat)</i>	<i>Whole rye</i>	<i>Triticale</i>
<i>Popcorn</i>	<i>Brown rice</i>	<i>Whole oats/oatmeal</i>	<i>Buckwheat</i>	<i>Sorghum</i>
<i>Whole-grain barley</i>	<i>Wild rice</i>	<i>Whole-grain corn</i>	<i>Millet</i>	

*Information from references A and C.*

**Table 5. Milk and Milk Product Servings**

Milk and milk products	3 cups per day*
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*A serving of milk or milk products that supplies adequate calcium consists of one of the following: 1 cup of low- or nonfat milk or yogurt; 1 1/2 ounces of low- or nonfat natural cheese; or 2 ounces of low- or nonfat processed cheese.*

*\*Recommended amount for adults 19 to 50 years old.*

*Information from reference A.*

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the bran, the germ and the endosperm), as opposed to refined grains, which have had most of the bran and some of the germ removed. In general, at least half of grains consumed daily should come from whole grains. In order to determine whether a food contains whole grains, consumers should check the ingredient information on the label for the words “whole grain.” Wheat flour, enriched flour and degerminated cornmeal are not whole grains.

**3 cups per day of low- or nonfat milk or milk products, or substitutes (see Table 5)**

Milk and milk products provide protein and a variety of nutrients, including calcium, vitamin D, magnesium and potassium. It’s

important to encourage consumption of low- or nonfat milk and milk products, as opposed to milk, cheese, cottage cheese and yogurt made from whole milk. Whole milk products contain more saturated fats.

**Food Substitutions**

Both the USDA Food Guide and the DASH Eating Plan are flexible enough to accommodate food substitutions and still ensure adequate nutrient intake. Keep in mind that cultural norms, vegetarianism, lactose intolerance or other patient preferences may make food substitutions necessary. However, for lactose intolerant patients, lactose-reduced or low-lactose milk and milk products are available.

Article references are available online at <http://www.aafp.org/cmebulletin>.

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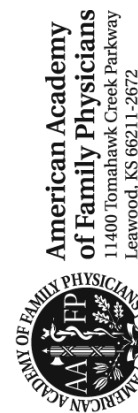
CME Bulletin is published by the American Academy of Family Physicians, 11400 Tomahawk Creek Parkway, Leawood, Kansas 66211-2672 [www.aafp.org](http://www.aafp.org)

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## Self-Assessment Quiz

- According to recommendations, how many servings of fish high in eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) should an adult consume each week?
  - One serving.
  - Two servings.
  - Three servings.
  - Four servings.
- Which one of the following statements about *trans* fatty acids is true?
  - Trans* fatty acids are not naturally present in any animal products.
  - Evidence suggests that consuming *trans* fatty acids can lower low-density lipoprotein (LDL) cholesterol levels.
  - If a food's label lists "zero" in the trans fat category, consumers can be sure that the food does not contain any *trans* fat.
  - Trans* fatty acids are found primarily in processed foods such as baked goods, snack foods, fried foods and margarine.
- Which one of the following statements about micronutrients is true?
  - According to the *Dietary Guidelines for Americans (DGA) 2005*, micronutrients that are considered inadequate in the typical American diet include calcium, potassium, magnesium, and vitamins A, C and E.
  - Vitamin E is found primarily in fruits and vegetables, particularly tomatoes, beet greens and legumes.
  - In most cases, supplementation is not recommended for patients who have a vitamin D deficiency.
  - Vitamin E deficiency is common in children and adults, and supplementation is the recommended treatment.
- Which one of the following statements is true?
  - Whole grains include wheat flour, enriched flour and degerminated corn meal.
  - It is recommended that an average adult on a 2,000-calorie diet should consume 14 g of fiber per day.
  - Consuming the recommended amount of daily fiber can have a number of health benefits, including a reduced risk of type 2 diabetes.
  - In general, no more than one-quarter of grains consumed daily should come from whole grains.
- According to the U.S. Department of Agriculture (USDA) Food Guide, what is the recommended daily intake of low- or nonfat milk or milk products for an adult 19 to 50 years of age on a 2,000-calorie diet?
  - Two cups.
  - Three cups.
  - Four cups.
  - Five cups.
- Research shows that the general public both knows and is concerned about the obesity issues it faces; however, many consumers are looking for guidance to understand health and nutrition information and apply it to their lives.
  - True.
  - False.

Answers: 1. B, 2. D, 3. A, 4. C, 5. B, 6. A

Vol. 6/No. 9 • January 2008 • Nutrition Guidelines for Better Health • Web site: <http://www.aafp.org/cmebulletin>

## CME Bulletin Evaluation / Self-Assessment Quiz Answer Sheet

Note: On this scale, 5 is the highest rating, 1 is the lowest.

Relevance of topic to my practice	5	4	3	2	1
Currency of clinical information	5	4	3	2	1
Usefulness of clinical information	5	4	3	2	1
Overall rating	5	4	3	2	1
What changes will you make to your practice based on this information?					

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### Answers (Please circle one or more):

- |            |            |
|------------|------------|
| 1. A B C D | 4. A B C D |
| 2. A B C D | 5. A B C D |
| 3. A B C D | 6. A B     |

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