

HANDS-ON Health

Health Wave Newsletter

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Balancing Calories to Manage Weight

Calories consumed must equal calories expended for a person to maintain the same body weight. Consuming more calories than expended will result in weight gain. Conversely, consuming fewer calories than expended will result in weight loss. This can be achieved over time by eating fewer calories, being more physically active or, best of all, a combination of the two.

Maintaining a healthy body weight and preventing excess weight gain throughout the lifespan are highly preferable to losing weight after weight gain. Once a person becomes obese, reducing body weight back to a healthy range requires significant effort over a span of time, even years.

People who are most successful at losing weight and keeping it off do so through continued attention to calorie balance.

The current high rates of overweight and obesity among virtually all subgroups of the population in the United States demonstrate that many Americans are in calorie imbalance—that is, they consume more calories than they expend. To curb the obesity epidemic and improve their health, Americans need to make significant efforts to decrease the total number of calories they consume from foods and beverages and increase calorie expenditure through physical activity. Achieving these goals will require Americans to select a healthy eating pattern that includes nutrient-dense foods and beverages they enjoy, meets nutrient requirements, and stays within calorie needs. In addition, Americans can choose from a variety of strategies to increase physical activity.

Poor diet and physical inactivity are the most important factors contributing to an epidemic of overweight and obesity in this country. Even in the absence of overweight, poor diet and physical inactivity are associated with major causes of morbidity and mortality. These include cardiovascular disease, hypertension, type 2 diabetes, osteoporosis, and some types of cancer.

While it is important for individuals to carry out all of the key recommendations in the Dietary Guidelines as part of an overall healthy eating pattern, this newsletter highlights the key recommendations made in Chapter Two: balancing calories to manage weight.

KEY RECOMMENDATIONS

1 Prevent and/or reduce overweight and obesity through improved eating and physical activity behaviors.

The prevalence of overweight and obesity in the United States is dramatically higher now than it was a few decades ago. This is true for all age groups, including children, adolescents, and adults. One of the largest changes has been an increase in the number of Americans in the obese category. As shown in Table 2-1, the prevalence of obesity has doubled and in some cases tripled between the 1970s and 2008.

These increased health risks are not limited to adults. Weight-associated diseases and conditions that were once diagnosed primarily in adults are now observed in children and adolescents with excess

body fat. For example, cardiovascular disease risk factors, such as high blood cholesterol and hypertension, and type 2 diabetes are now increasing in children and adolescents.

The adverse effects also tend to persist through the lifespan, as children and adolescents who are overweight and obese are at substantially increased risk of being overweight and obese as adults and developing weight-related chronic diseases later in life. Primary prevention of obesity, especially in childhood, is an important strategy for combating and reversing the obesity epidemic.

Children and adolescents who are overweight or obese should change their eating and physical activity behaviors so that their BMI-for-age percentile does not increase over time. Further, a health care provider should be consulted to determine appropriate weight management for the child or adolescent. Families, schools, and communities play important roles in supporting changes in eating and physical activity behaviors for children and adolescents.

2 Control total calorie intake to manage body weight. For people who are overweight or obese, this will mean consuming fewer calories from foods and beverages.

The current dietary intake of Americans has contributed to the obesity epidemic. Many children and adults have a usual calorie intake that exceeds their daily needs, and they are not physically active enough to compensate for these intakes. The combination sets them on a track to gain weight. On the basis of national survey data, the average calorie intake among women and men older than age 19 years are estimated to be 1,785 and 2,640 calories per day, respectively.

Table 2-1

Obesity in America ...Then and Now	
Obesity Then	Obesity Now
In the early 1970s, the prevalence of obesity was 5% for children ages 2 to 5 years, 4% for children ages 6 to 11 years, and 6% for adolescents ages 12 to 19 years.	In 2007–2008, the prevalence of obesity reached 10% for children ages 2 to 5 years, 20% for children ages 6 to 11 years, and 18% for adolescents ages 12 to 19 years.
In the late 1970s, 15% of adults were obese.	In 2008, 34% of adults were obese.
In the early 1990s, zero States had an adult obesity prevalence rate of more than 25%.	In 2008, 32 States had an adult obesity prevalence rate of more than 25%.
Sources: Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among U.S. adults, 1999–2008. <i>JAMA</i> . 2010;303(3):235-241. Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among U.S. children and adolescents, 1999–2000. <i>JAMA</i> . 2002;288(4):1728-1732. Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of high body mass index in U.S. children and adolescents, 2007–2008. <i>JAMA</i> . 2010;303(3):242-249. Centers for Disease Control and Prevention. U.S. Obesity Trends. Available at: http://www.cdc.gov/obesity/data/trends.html . Accessed August 12, 2010. [Note: State prevalence data based on self-report.]	

Table 2-2 (see page 3) from the Dietary Guidelines provides the top sources of calories among Americans ages 2 years and older. The table reveals some expected differences in intake between younger (ages 2 to 18 years) and adult (ages 19 years and older) Americans. Although some of the top calorie sources by category are important sources of essential nutrients, others provide calories with few essential nutrients. Many of the foods and beverages most often consumed within these top categories are in forms high in solid fats and/or added sugars, thereby contributing excess calories to the diet.

The following guidance may help individuals control their total calorie intake and manage body weight:

INCREASE INTAKE OF WHOLE GRAINS, VEGETABLES, AND FRUITS:

Moderate evidence shows that adults who eat more whole grains, particularly those higher in dietary fiber, have a lower body weight compared to adults who eat fewer whole grains. Moderate evidence in adults and limited evidence in children and adolescents suggests that increased intake of vegetables and/or fruits may protect against weight gain.

REDUCE INTAKE OF SUGAR-SWEETENED BEVERAGES:

This can be accomplished by drinking fewer sugar-sweetened beverages and/or consuming smaller portions. Strong evidence shows that children and adolescents who consume more sugar-sweetened beverages have higher body weight compared to those who drink less, and moderate evidence also supports this relationship in adults. Sugar-sweetened beverages provide excess calories and few essential nutrients to the diet and should only be consumed when nutrient needs have been met and without exceeding daily calorie limits.

MONITOR INTAKE OF 100% FRUIT JUICE FOR CHILDREN AND ADOLESCENTS, ESPECIALLY THOSE WHO ARE OVERWEIGHT OR OBESE:

For most children and adolescents, intake of 100% fruit juice is not associated with body weight. However, limited evidence suggests that increased intake of 100% juice has been associated with higher body weight in children and adolescents who are overweight or obese.

Table 2-2

Top 25 Sources of Calories Among Americans Ages 2 Years and Older, NHANES 2005-2006 ^a			
Rank	All ages (2+ yrs) (Mean kcal/d; total daily calories=2,157)	Children and Adolescents, ages 2–18 yrs (Mean kcal/d; total daily calories=2,027)	Adults and Older Adults, ages 19+ yrs (Mean kcal/d; total daily calories=2,199)
1	Grain-based desserts ^b (138 kcal)	Grain-based desserts (138 kcal)	Grain-based desserts (138 kcal)
2	Yeast breads ^c (129 kcal)	Pizza (136 kcal)	Yeast breads (134 kcal)
3	Chicken and chicken mixed dishes ^d (121 kcal)	Soda/energy/sports drinks (118 kcal)	Chicken and chicken mixed dishes (123 kcal)
4	Soda/energy/sports drinks ^e (114 kcal)	Yeast breads (114 kcal)	Soda/energy/sports drinks (112 kcal)
5	Pizza (98 kcal)	Chicken and chicken mixed dishes (113 kcal)	Alcoholic beverages (106 kcal)
6	Alcoholic beverages (82 kcal)	Pasta and pasta dishes (91 kcal)	Pizza (86 kcal)
7	Pasta and pasta dishes ^f (81 kcal)	Reduced fat milk (86 kcal)	Tortillas, burritos, tacos (85 kcal)
8	Tortillas, burritos, tacos ^g (80 kcal)	Dairy desserts (76 kcal)	Pasta and pasta dishes (78 kcal)
9	Beef and beef mixed dishes ^h (64 kcal)	Potato/corn/other chips (70 kcal)	Beef and beef mixed dishes (71 kcal)
10	Dairy desserts ⁱ (62 kcal)	Ready-to-eat cereals (65 kcal)	Dairy desserts (58 kcal)
11	Potato/corn/other chips (56 kcal)	Tortillas, burritos, tacos (63 kcal)	Burgers (53 kcal)
12	Burgers (53 kcal)	Whole milk (60 kcal)	Regular cheese (51 kcal)
13	Reduced fat milk (51 kcal)	Candy (56 kcal)	Potato/corn/other chips (51 kcal)
14	Regular cheese (49 kcal)	Fruit drinks (55 kcal)	Sausage, franks, bacon, and ribs (49 kcal)
15	Ready-to-eat cereals (49 kcal)	Burgers (55 kcal)	Nuts/seeds and nut/seed mixed dishes (47 kcal)
16	Sausage, franks, bacon, and ribs (49 kcal)	Fried white potatoes (52 kcal)	Fried white potatoes (46 kcal)
17	Fried white potatoes (48 kcal)	Sausage, franks, bacon, and ribs (47 kcal)	Ready-to-eat cereals (44 kcal)
18	Candy (47 kcal)	Regular cheese (43 kcal)	Candy (44 kcal)
19	Nuts/seeds and nut/seed mixed dishes ^j (42 kcal)	Beef and beef mixed dishes (43 kcal)	Eggs and egg mixed dishes (42 kcal)
20	Eggs and egg mixed dishes ^k (39 kcal)	100% fruit juice, not orange/grapefruit (35 kcal)	Rice and rice mixed dishes (41 kcal)
21	Rice and rice mixed dishes ^l (36 kcal)	Eggs and egg mixed dishes (30 kcal)	Reduced fat milk (39 kcal)
22	Fruit drinks ^m (36 kcal)	Pancakes, waffles, and French toast (29 kcal)	Quickbreads (36 kcal)
23	Whole milk (33 kcal)	Crackers (28 kcal)	Other fish and fish mixed dishes ^o (30 kcal)
24	Quickbreads ⁿ (32 kcal)	Nuts/seeds and nut/seed mixed dishes (27 kcal)	Fruit drinks (29 kcal)
25	Cold cuts (27 kcal)	Cold cuts (24 kcal)	Salad dressing (29 kcal)

a. Data are drawn from analyses of usual dietary intakes conducted by the National Cancer Institute. Foods and beverages consumed were divided into 97 categories and ranked according to calorie contribution to the diet. Table shows each food category and its mean calorie contribution for each age group. Additional information on calorie contribution by age, gender, and race/ethnicity is available at <http://riskfactor.cancer.gov/diet/foodsources/>.

b. Includes cake, cookies, pie, cobbler, sweet rolls, pastries, and donuts.

c. Includes white bread or rolls, mixed-grain bread, flavored bread, whole-wheat bread, and bagels.

d. Includes fried or baked chicken parts and chicken strips/patties, chicken stir-fries, chicken casseroles, chicken sandwiches, chicken salads, stewed chicken, and other chicken mixed dishes.

e. Sodas, energy drinks, sports drinks, and sweetened bottled water including vitamin water.

f. Includes macaroni and cheese, spaghetti, other pasta with or without sauces, filled pasta (e.g., lasagna and ravioli), and noodles.

g. Also includes nachos, quesadillas, and other Mexican mixed dishes.

h. Includes steak, meatloaf, beef with noodles, and beef stew.

i. Includes ice cream, frozen yogurt, sherbet, milk shakes, and pudding.

j. Includes peanut butter, peanuts, and mixed nuts.

k. Includes scrambled eggs, omelets, fried eggs, egg breakfast sandwiches/biscuits, boiled and poached eggs, egg salad, deviled eggs, quiche, and egg substitutes.

l. Includes white rice, Spanish rice, and fried rice.

m. Includes fruit-flavored drinks, fruit juice drinks, and fruit punch.

n. Includes muffins, biscuits, and cornbread.

o. Fish other than tuna or shrimp.

Source: National Cancer Institute. Food sources of energy among U.S. population, 2005-2006. Risk Factor Monitoring and Methods. Control and Population Sciences. National Cancer Institute; 2010. <http://riskfactor.cancer.gov/diet/foodsources/>. Updated May 21, 2010. Accessed May 21, 2010.

Increase physical activity and reduce time spent in sedentary behaviors.

The total number of calories a person needs each day varies depending on a number of factors, including the person's age, gender, height, weight, and level of physical activity. In addition, a desire to lose, maintain, or gain weight affects how many calories should be consumed. Table 2-3 provides estimated total calorie needs for weight maintenance based on age, gender, and physical activity level. Estimates range from 1,600 to 2,400 calories per day for adult women and 2,000 to 3,000 calories per day for adult men, depending on age and physical activity level. Within each age and gender category, the low end of the range is for sedentary individuals; the high end of the range is for active individuals.



Table 2-3

Estimated Calorie Needs Per Day by Age, Gender, and Physical Activity Level ^a				
Estimated amounts of calories needed to maintain calorie balance for various gender and age groups at three different levels of physical activity. The estimates are rounded to the nearest 200 calories. An individual's calorie needs may be higher or lower than these average estimates.				
		PHYSICAL ACTIVITY LEVEL ^b		
Gender	Age (years)	Sedentary	Moderately Active	Active
Child (female and male)	2-3	1,000-1,200 ^c	1,000-1,400 ^c	1,000-1,400 ^c
Female ^d	4-8	1,200-1,400	1,400-1,600	1,400-1,800
	9-13	1,400-1,600	1,600-2,000	1,800-2,200
	14-18	1,800	2,000	2,400
	19-30	1,800-2,000	2,000-2,200	2,400
	31-50	1,800	2,000	2,200
	51+	1,600	1,800	2,000-2,200
Male	4-8	1,200-1,400	1,400-1,600	1,600-2,000
	9-13	1,600-2,000	1,800-2,200	2,000-2,600
	14-18	2,000-2,400	2,400-2,800	2,800-3,200
	19-30	2,400-2,600	2,600-2,800	3,000
	31-50	2,200-2,400	2,400-2,600	2,800-3,000
	51+	2,000-2,200	2,200-2,400	2,400-2,800

a. Based on Estimated Energy Requirements (EER) equations, using reference heights (average) and reference weights (healthy) for each age/gender group. For children and adolescents, reference height and weight vary. For adults, the reference man is 5 feet 10 inches tall and weighs 154 pounds. The reference woman is 5 feet 4 inches tall and weighs 126 pounds. EER equations are from the Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington (DC): The National Academies Press; 2002.

b. Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life. Moderately active means a lifestyle that includes physical activity equivalent to walking about 1.5 to 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life. Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life.

c. The calorie ranges shown are to accommodate needs of different ages within the group. For children and adolescents, more calories are needed at older ages. For adults, fewer calories are needed at older ages.

d. Estimates for females do not include women who are pregnant or breast-feeding.

4 Maintain appropriate calorie balance during each stage of life—childhood, adolescence, adulthood, pregnancy and breastfeeding, and older age.

To address the current calorie imbalance in the United States, individuals are encouraged to become more conscious of what they eat and what they do. This means increasing awareness of what, when, why, and how much they eat, deliberately making better choices regarding what and how much they consume, and seeking ways to be more physically active. Several behaviors and practices have been shown to help people manage their food and beverage intake and calorie expenditure and ultimately manage body weight. The behaviors with the strongest evidence related to body weight include:

Focus on the total number of calories consumed.

Maintaining a healthy eating pattern at an appropriate calorie level within the AMDR is advisable for weight management. Consuming an eating pattern low in calorie density may help to reduce calorie intake and improve body weight outcomes and overall health.

Monitor food intake.

Monitoring intake has been shown to help individuals become more aware of what and how much they eat and drink. The Nutrition Facts label found on food packaging provides calorie information for each serving of food or beverage and can assist consumers in monitoring their intake. Also, monitoring body weight and physical activity can help prevent weight gain and improve outcomes when actively losing weight or maintaining body weight following weight loss.



When eating out, choose smaller portions or lower-calorie options.

When possible, order a small-sized option, share a meal, or take home part of the meal. Review the calorie content of foods and beverages offered and choose lower-calorie options. Calorie information may be available on menus, in a pamphlet, on food wrappers, or online. Or, instead of eating out, cook and eat more meals at home.

Prepare, serve, and consume smaller portions of foods and beverages, especially those high in calories.

Individuals eat and drink more when provided larger portions. Serving and consuming smaller portions is associated with weight loss and weight maintenance over time.

Eat a nutrient-dense breakfast.

Not eating breakfast has been associated with excess body weight, especially among children and adolescents. Consuming breakfast also has been associated with weight loss and weight loss maintenance, as well as improved nutrient intake.

Limit screen time.

In children, adolescents, and adults, screen time, especially television viewing, is directly associated with increased overweight and obesity. Children and adolescents are encouraged to spend no more than 1 to 2 hours each day watching television, playing electronic games, or using the computer (other than for homework). Also, avoid eating while watching television, which can result in overeating.

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