U.S. Food Supply Providing More Food and Calories

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All three major per capita food supply measurements—food available for consumption, nutrients available for consumption, and the food supply adjusted for spoilage and other losses in the home and marketing system—suggest that Americans in the 1990's are consuming more food and several hundred more calories per person per day than did their counterparts in the late 1950's (when per capita calorie consumption was at the lowest level in this century), or even in the 1970's.

Meanwhile, as calorie-intake levels have risen, physical activity levels appear to have declined among the majority of Americans. More than 60 percent of American adults are not regularly physically active, and 25 percent of adults are not active at all, according to the U.S. Centers for Disease Control and Prevention. Increasing physical activity is a formidable public health challenge in a technologically advanced society. Few occupations today require significant physical activity, and most people use motorized transportation to get to work and to perform routine errands and tasks. Even leisure is increasingly filled with sedentary behaviors, such as watching television, "surfing" the Internet, and playing video games.

Not surprisingly, the trend in the prevalence of overweight and obesity is upward. About 97 million adults in the United States—55 percent of the population—are overweight or obese, based on data from the third National Health and Nutrition Examination Survey (NHANES III; 1988-94). These individuals face increased risk of illness from high blood pressure, high cholesterol, diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, and certain cancers. The total costs attributable to obesity-related disease approaches $100 billion annually, according to the National Institutes of Health.

Public Health Service guidelines define obesity (severe overweight) as a body mass index (BMI) of 30 and above, moderate overweight as a BMI of 25 to 29.9, normal (healthy) weight as a BMI of 18.5 to 24.9, and underweight as a BMI below 18.5 (fig. 1). A BMI of 30 is about 30 pounds overweight and equivalent to 221 pounds in a 6'0" person and to 186 pounds in one 5'6". The BMI numbers apply to both men and women. Some very muscular people may have a high BMI without health risks.

From 1960 to 1994, the age-adjusted prevalence of obesity in adults increased from nearly 13 percent to 22.5 percent of the U.S. population (40 million adults), with most of the increase in the 1990's. The prevalence of moderate overweight in adults, which has shown little or no increase over time, stands at 32 percent of the U.S. population (57 million adults). Alarmingly, an upward trend in obesity is also occurring for U.S. children.

The aggregate food supply in 1994 (the latest year for which nutrient data from USDA's Center for Nutrition Policy and Promotion are available) provided 3,800 calories per person per day, 500 calories above the 1983 level and 800 calories above the record low in 1957 and 1958 (fig. 2). Of that 3,800 calories, USDA's Economic Research Service (ERS) estimates that roughly 1,100 calories were lost to spoilage, plate waste, and cooking and other losses, putting dietary intake of calories in 1994 at just under 2,700 calories per person per day. ERS data suggest that average daily calorie intake increased 14.7 percent, or about 340 calories, between 1984 and 1994, and remained stable between 1994 and 1997. Of that 14.7-percent increase, grains (mainly refined grain products) contributed 6.2 percentage

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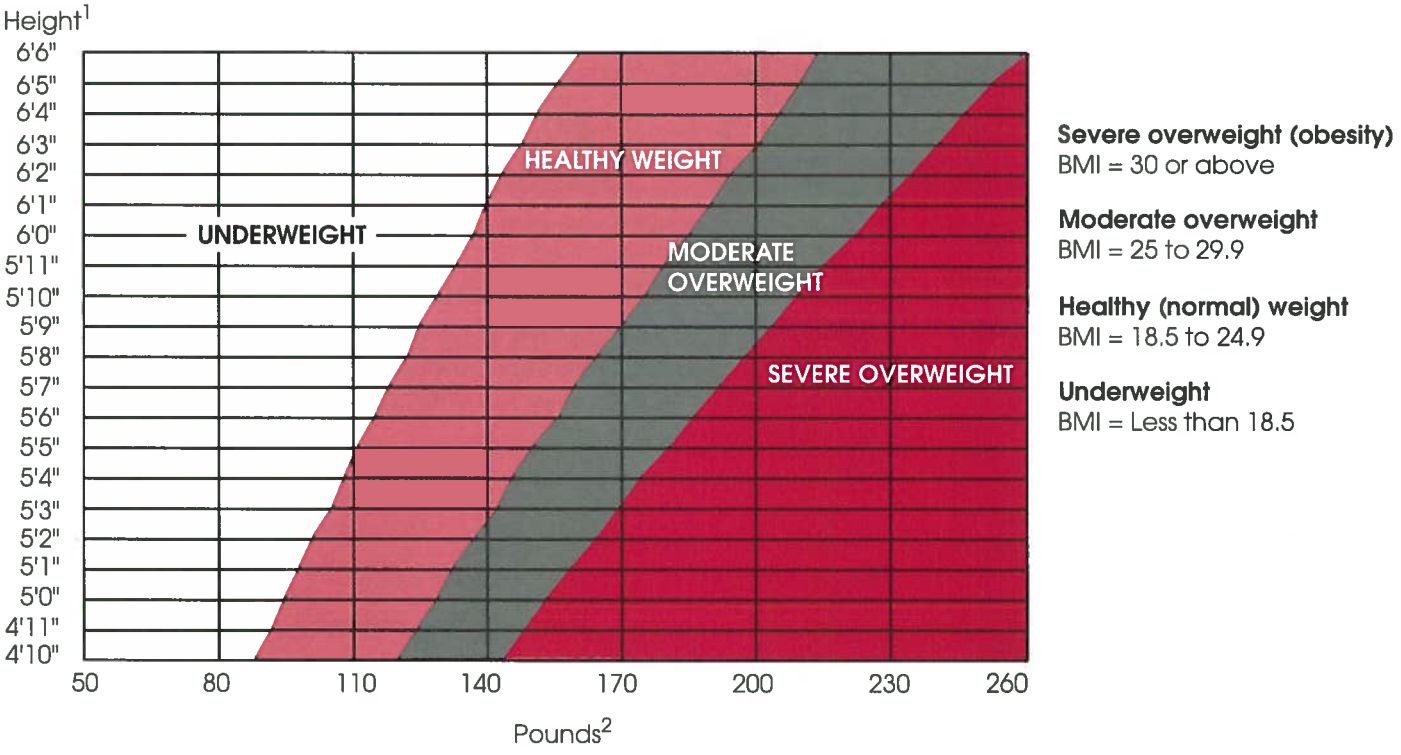
points; added fats and oils, 3.4 percentage points; added sugars, 3.4 percentage points; fruits and vegetables, 1.4 percentage points; and meats and dairy products together, 0.3 percentage point.

Some of the observed increase in caloric intake may be associated with the increase in eating out. Data from USDA's food intake surveys show that the food-away-from-home sector provided 34 percent of total food energy consumption in 1995, up from 19 percent in 1977-78. The data also suggest that, when eating out, people either eat more or eat higher calorie foods—or both—and that this tendency appears to be increasing.

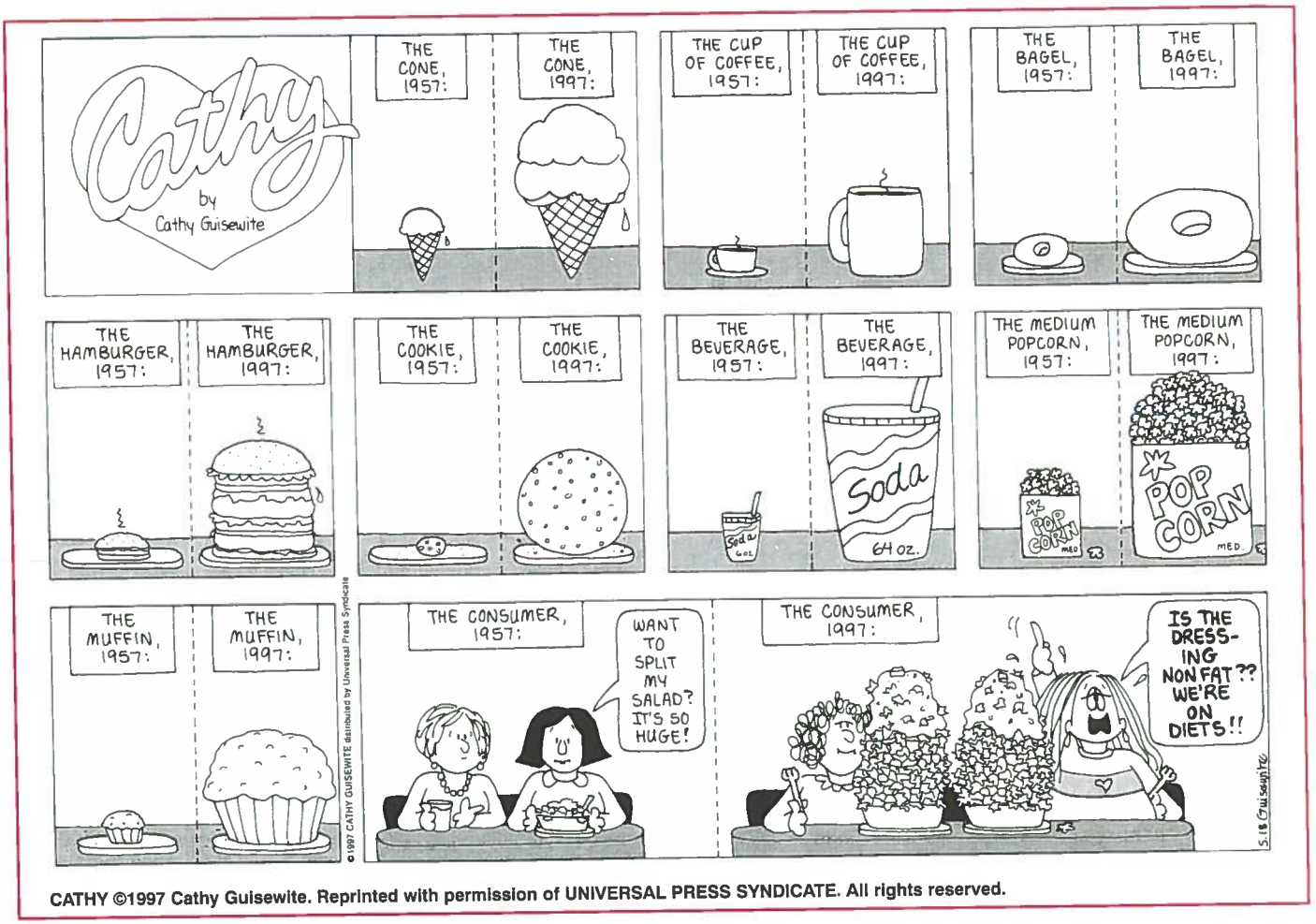
A comparison of foodservice portion sizes in 1957 and 1997 is illuminating (see *Cathy* cartoon). The typical fast-food outlet's hamburger in 1957 contained a little more than 1 ounce of cooked meat, compared with up to 6 ounces in 1997. Soda was 8 ounces in 1957, compared with 32 ounces to 64 ounces in 1997. A theatre serving of popcorn was 3 cups in 1957, compared with 16 cups (medium size popcorn) in 1997. A muffin was less than 1½ ounces in 1957, compared with 5 ounces to 8 ounces in 1997.

According to USDA's latest food intake survey, Americans eat only about six servings a day from the grain group. But the food supply data adjusted for spoilage and waste suggest that Americans eat an average 10 servings a day. Methodological differences are not sufficient to explain this discrepancy. Americans' concept of serving size probably far exceeds the Food Guide Pyramid's. Changes in society—more women in the labor force, more discretionary income, and smaller households—continue to exert a tremendous influence on our dietary patterns. People in the

Figure 1
Weight Classification Based on Body Mass Index (BMI)



Note: BMI is significantly correlated with total body fat content and thus is a reliable indicator that someone may have a weight problem. BMI uses a mathematical formula that takes into account both a person's height and weight. BMI equals a person's weight in kilograms divided by height in meters squared. A nonmetric conversion formula for calculating BMI is as follows. Divide your weight in pounds by your height in inches, divide again by your height in inches, and then multiply by 704.5.
[1]Without shoes.
[2] Without clothes. The higher weights apply to people with more muscle and bone.
Source: Data taken from USDA and Public Health Service.

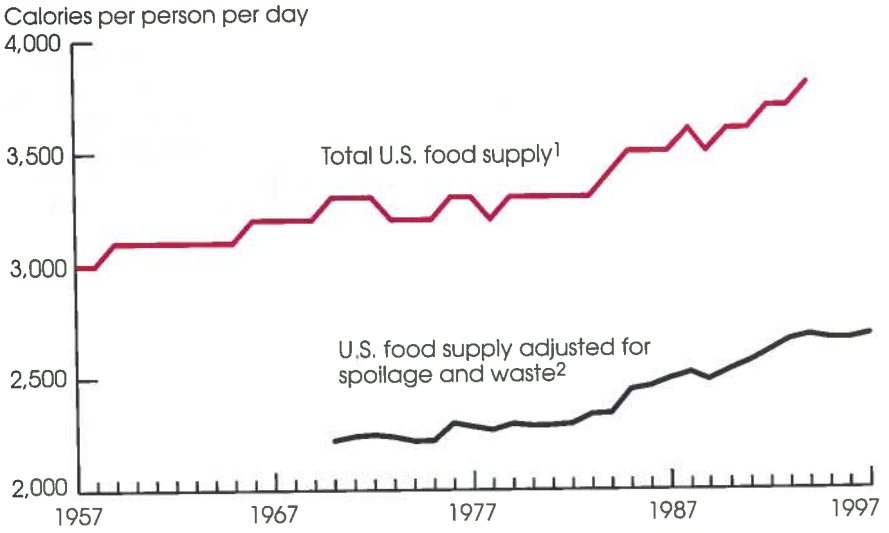


1990's are eating out or buying prepared foods and doing much less cooking and baking in the home than did their counterparts in previous decades, and are less familiar with standard servings.

Foods of low nutrient density such as cakes, cookies, soft drinks, syrups, jams, potato and corn chips, and popcorn are major contributors to intakes of energy, fats, and carbohydrates. Continued intake of these foods compromise intake of more nutritious foods.

A variety of factors are responsible for the changes in U.S. consumption patterns in the last 50 years, including changes in relative prices, increases in real (adjusted for inflation) disposable income, and more food assistance for the poor. New products, particularly more convenient ones, also contribute to shifts in consumption,

Figure 2
Calories from the Per Capita U.S. Food Supply, Adjusted for Spoilage and Waste, Increased 21 Percent Between 1970 and 1994
Three-quarters of that increase occurred between 1984 and 1994



[1]Rounded to the nearest hundred.
[2]Not calculated for years before 1970.
Source: USDA's Center for Nutrition Policy and Promotion; USDA's Economic Research Service

along with more imports, growth in the away-from-home food market, expanded advertising programs, and increases in nutrient-enrichment standards and food fortification.

Sociodemographic trends also driving changes in food choices include smaller households, more two-earner households, more single-parent households, an aging population, and increased ethnic diversity. An expanded scientific base relating diet and health, new *Dietary Guidelines for Americans* designed to help people make food choices that promote health and prevent disease, improved nutrition labeling, and burgeoning consumer interest in nutrition also influence marketing and consumption trends.

ERS estimates per capita food and nutrient supplies, based on food disappearance data (see box). These data are used as a proxy to estimate human consumption. The data reported in tables 1 through 6 are unadjusted for spoilage and waste, so they may overstate what is actually eaten. The data are used more appropriately as indicators of trends in consumption over time.

Meat Consumption at Record High in 1999

Now more than ever, we are a Nation of meat eaters. In 1999, total meat consumption (red meat, poultry, and fish) is expected to reach 197 pounds (boneless, trimmed-weight equivalent) per person, 64 pounds above average annual consumption in the 1950's (table 1). Each American consumed an average of 12 pounds more red meat than in the 1950's, 48 pounds more poultry, and 4 pounds more fish and shellfish.

Nutritional concern about fat and cholesterol has encouraged the production of leaner animals (beginning in the late 1950's), the closer trimming of outside fat on retail

How Food Consumption Is Measured

The annual food supply series comprises three data sets—the primary data on food supply and utilization, estimates of the nutrient content of the food supply, and food supply data adjusted for spoilage and waste.

Primary Food Supply and Utilization Estimates. Food supply and utilization data, compiled and published annually by USDA's Economic Research Service (ERS), measure the flow of raw and semiprocessed food commodities through the U.S. marketing system and are a key component of the National Nutrition Monitoring and Related Research Program. The series provides continuous data back to 1909 and is typically used to measure changes in food consumption over time and to determine the approximate nutrient content of the food supply.

Food supply data, also known as food disappearance data, reflect the amount of the major food commodities entering the market, regardless of their final use. The total amount available for domestic consumption is estimated by food disappearance data as the residual after exports, industrial uses, seed and feed use, and year-end inventories are subtracted from the sum of production, beginning inventories, and imports. The use of conversion factors allows for some subsequent processing, trimming, spoilage, and shrinkage in the distribution system. However, the estimates also include residual uses for which data are not available (such as miscellaneous non-food uses, and changes in retail and consumer stocks). Because the food disappearance data come from market channels, the data are available only on a per capita basis and cannot be used to estimate consumption by age, sex, or demographic group. Consumption estimates derived from food disappearance data tend to overstate actual consumption because they include spoilage and waste accumulated through the marketing system and in the home. Food disappearance data are used more appropriately as indicators of trends in consumption over time.

Nutrients Available for Consumption. USDA's Center for Nutrition Policy and Promotion estimates the amounts per capita, per day of food energy (calories) and of 24 nutrients and food components in the U.S. food supply. Food supply nutrient estimates are derived from ERS data on the amount of food available for consumption and data on the nutrient composition of foods from USDA's Agricultural Research Service's National Nutrient Data Bank System. Nutrient values exclude nutrients from the inedible parts of foods, such as bones, rinds, and seeds, but include nutrients from parts of food that are edible but not always eaten, such as the separable fat on retail cuts of meat.

Food Supply Data Adjusted for Spoilage and Waste. ERS has developed new methods to adjust the food supply data for spoilage, plate waste, and cooking and other losses in the home and marketing system and to convert the data into Food Guide Pyramid servings. This allows researchers to gain a more complete understanding of U.S. dietary patterns by comparing food supply servings measured at the national level with the estimates generated at the individual level by USDA's food intake surveys. (Because caloric intake is subject to underreporting, caloric and nutrient estimates from dietary recall surveys represent a lower limit of actual intake.)

Table 1
In the 1990's, Americans Consumed an Average 57 Pounds More Meat Per Year Than in the 1950's, and a Third Fewer Eggs

Item	Annual averages 1950-59	1960-69	1970-79	1980-89	1990-99	1998	1999
	Pounds per capita, boneless-trimmed weight						
Total meats	133.0	161.8	177.1	182.9	190.7	195.3	197.2
Red meats	102.3	123.4	129.4	121.9	113.3	115.6	113.9
Beef	52.8	69.1	80.9	71.8	63.7	64.9	63.5
Pork	41.0	47.9	45.0	47.7	48.0	49.1	49.1
Veal and lamb	8.5	6.4	3.5	2.4	1.6	1.6	1.3
Poultry	19.8	27.7	35.2	46.8	62.6	65.0	68.4
Chicken	16.2	22.5	28.4	36.9	48.5	50.8	54.4
Turkey	3.5	5.1	6.8	9.9	14.1	14.2	14.1
Fish and shellfish	10.9	10.7	12.5	14.2	14.8	14.8	14.8
	Number per capita						
Eggs	373	320	285	257	238	244	249

Note: Totals may not add due to rounding; 1999 projection as of July 1999.
Source: USDA's Economic Research Service.

cuts of meat (beginning in 1986), the marketing of a host of lower fat ground and processed meat products, and consumer substitution of poultry for red meats since the late 1970's—significantly lowering the meat, poultry, and fish group's contribution to total fat and saturated fat in the food supply. Despite near record-high per capita consumption of total meat in 1994, the proportion of fat in the U.S. food supply from meat, poultry, and fish declined from 32 percent in the 1950's to 25 percent in 1994. Similarly, the proportion of saturated fat contributed by meat, poultry, and fish fell from 33 percent in the 1950's to 26 percent in 1994.

Even leaner meat group choices may help people meet fat recommendations. After adjusting for waste and cooking losses, the 1998 per capita meat supply provided the equivalent of 6.0 ounces of cooked meat (lean and fat portion) per day. The Food Guide Pyramid recommends 6 ounces of cooked lean meat equivalents per day for a 2,200-calorie diet. Red meats accounted for 71 percent of the total fat and 77 percent of the saturated fat in the 1994 meat supply. Red meat's fat content is widely variable; only the leanest cuts are as low in fat as broiled fish or skinless chicken breast. Red meat accounted for 49 percent of total meat-equivalent servings in 1998.

Rising consumer incomes, especially with the increase in two-income households, and meat prices in the 1990's that were often at 50-year lows, when adjusted for inflation, explain much of the increase in meat consumption. In addition, the meat industry has provided scores of new brand-name, value-added products processed for consumers' convenience, as well as a host of products for foodservice operators.

Between 1950 and 1989, annual consumption of eggs steadily declined nearly 4 eggs per person per year, from 390 eggs to 237. This long-term decline in per capita egg consumption leveled off in the early 1990's. From a record low of 234 eggs per person per year in 1990-91, egg consumption rose to 244 eggs in 1998, and is projected to rise to 249 eggs in 1999. The record high for U.S. per capita consumption was 403 eggs in 1945. Much of the decline in egg consumption since 1950 was due to changing lifestyles (for example, less time for breakfast preparation in the morning as large numbers of women joined the paid labor force) and the perceived ill effects of cholesterol intake associated with egg consumption.

Eating Out Cuts Milk, Boosts Cheese Consumption...

In 1998, Americans drank an average of 35 percent less milk and ate nearly 3 $^{2}/_{3}$ times as much cheese (excluding cottage, pot, and baker's cheese) as in the 1950's (table 2).

Consumption of beverage milk declined from an annual average of 36 gallons per person in the 1950's

Table 2
Americans Are Drinking Less Milk, Eating More Cheese and Frozen Dairy Products

Item	Unit	Per capita annual averages 1950-59	1960-69	1970-79	1980-89	1990-98	1998
All dairy products[1]	lb	700.0	619.0	548.0	575.0	577.0	591.0
Cheese[2]	lb	7.7	9.5	14.4	21.5	26.7	28.4
Cottage cheese	lb	3.9	4.7	4.9	4.1	2.9	2.7
Frozen dairy products	lb	22.8	27.4	27.8	27.4	29.1	29.1
Ice cream	lb	18.0	18.3	17.7	17.7	16.1	16.1
Lowfat ice cream	lb	2.7	6.3	7.6	7.3	7.5	7.5
Sherbet	lb	1.3	1.5	1.5	1.3	1.3	1.3
Other	lb	1.0	1.5	1.0	1.2	4.3	4.3
Nonfat dry milk	lb	4.9	5.9	4.1	2.4	3.1	3.4
Dry whey	lb	.2	.6	2.1	3.3	3.6	3.4
Condensed and evaporated milks	lb	21.4	15.7	9.4	7.5	7.6	6.6
Cream products	½ pt	18.0	13.3	10.1	12.8	15.6	17.3
Yogurt	½ pt	.1	.7	3.2	6.5	8.5	9.3
Beverage milk	gal	36.2	32.5	29.8	26.5	24.7	23.7
Whole	gal	33.3	28.8	21.7	14.3	9.2	8.3
Lower fat	gal	2.9	3.7	8.1	12.2	15.5	15.4

Note: Totals may not add due to rounding.
[1]Milk-equivalent, milkfat basis; includes butter. Individual items are on a product-weight basis.
[2]Natural equivalent of cheese and cheese products; excludes full-skim American, cottage, pot, and baker's cheese.
Source: USDA's Economic Research Service.

to 24 gallons in 1998. Consumption of soft drinks, fruit drinks and ades, and flavored teas may be displacing beverage milk in the diet. Big increases in eating away from home, especially at fast-food places, and in consumption of salty snack foods favored soft drink consumption.

The beverage milk trend is toward lower fat milk. While whole milk represented 92 percent of all beverage milk (plain, flavored, and buttermilk) in the 1950's, its share dropped to 35 percent in 1998.

Average annual consumption of cheese (excluding full-skim American and cottage, pot, and baker's cheeses) increased 269 percent between the 1950's and 1998, from 7.7 pounds per person to 28.4 pounds. Lifestyles that emphasize convenience foods were probably major forces behind the higher consumption. In fact, two-thirds of our cheese now comes in commercially manufactured and prepared foods (including foodservice), such as pizza, tacos, nachos, salad bars, fast-food sandwiches, bagel spreads, sauces for baked potatoes and other vegetables, and packaged snack foods. Advertising and new products—such as reduced-fat cheeses and resealable bags of shredded cheeses, including cheese blends tailored for use in Italian and Mexican recipes—also boosted consumption.

...and Swells Use of Baking and Frying Fats

Americans' mid-1990's push to cut dietary fat is apparent in the recent per capita food supply data, which show a modest decline in the use of added fats and oils since 1993. Annual per capita consumption of added fats and oils declined about 7 percent between 1993 and 1997, from a record-high 70.2 pounds (fat-content basis) per person to 65.6 pounds. (The decline in calories from added fats since 1993 has been more than offset by a rise in calories from grain products and added sugars.) However, average use of added fats and oils in 1997 remained 47 percent above the

1950's (table 3). Added fats and oils include those used directly by consumers, such as butter on bread, as well as shortenings and oils used in commercially prepared cookies, pastries, and fried foods. All fat naturally present in foods, such as in milk and meat, are excluded.

Americans in 1997 consumed, on average, three times more salad and cooking oils than they did in the 1950's, and nearly twice as much shortening. Average use of table spreads declined by 25 percent during the same period.

In the 1950's, the fats and oils group (composed of added fats and oils) contributed the most fat to the food supply (41 percent), followed by the meat, poultry, and fish group (32 percent). By 1994, the fats and oils group's contribution to total fat had jumped 11 percentage points to 52 percent, probably due to the much higher consumption of fried foods in foodservice outlets, the huge increase in consumption of high-fat snack foods, and the increased use of salad dressings. Magarine, salad dressings and mayonnaise, cakes and other sweet baked goods, and oils continue to appear in the top 10 foods for fat contribution, according to recent USDA food intake surveys, which indicates the ongoing prevalence of discretionary fats in Americans' diets.

In the last two decades, Americans have been more successful in reducing the fat density in home foods than in away-from-home foods, according to food intake surveys. In 1977-78, both home and away-from-home foods provided slightly more than 41 percent of their calories from fat. By 1987-88, the fat density of home foods had declined to 36.4 percent of total calories from fat, compared with 38.7 for away-from-home foods. Since then, the fat density of home foods declined steadily to 31.5 percent of calories from fat, but fat from away-from-home foods declined only slightly to 37.6 percent of calories.

Consumers may believe it less important to consider the fat content of food away from home or be less willing to sacrifice the taste when eating out—perhaps because they consider eating out to be an occasional treat that does not have the same effect on overall diet as food at home. Consumers may not realize how much more frequently they eat out or buy prepared foods than they did decades ago. Another factor may be related to differences in information, in that the fat content of away-from-home foods may be less readily apparent to consumers as that for food at home, especially for foods consumers may not be used to preparing themselves.

Fruit and Vegetable Consumption Continues To Rise

Americans in 1997 consumed more than a fifth (22 percent) more fruit and vegetables than did their counterparts in the 1970's (table 4). (Because of changes in data availability and methodology, ERS' fruit and vegetable consumption series

Table 3
Rising Salad/Cooking Oils and Shortening Use Boosted Consumption of Added Fats by 47 Percent Between 1950-59 and 1997

Item	Annual averages					
	1950-59	1960-69	1970-79	1980-89	1990-97	1997
	Pounds per capita[1]					
Total added fats and oils	44.6	47.9	53.6	61.1	66.6	65.6
Salad and cooking oils[2]	9.8	13.9	20.2	25.0	28.0	29.8
Baking and frying fats	21.3	20.8	20.7	23.8	26.9	25.6
Shortening	10.9	14.6	17.4	20.5	22.7	20.9
Lard and beef tallow[3]	10.4	6.2	3.3	3.4	4.1	4.7
Table spreads	17.0	16.5	15.9	15.3	14.5	12.8
Butter	9.0	6.6	4.7	4.6	4.5	4.2
Margarine	8.0	9.9	11.2	10.7	10.1	8.6

Note: Totals may not add due to rounding.
[1]Total added fats and oils is on a fat-content basis. Individual items are on a product-weight basis.
[2]Includes a small amount of specialty fats used mainly in confectionery products and nondairy creamers.
[3]Direct use; excludes use in margarine or shortening.
Source: USDA's Economic Research Service.

for the 1950's and 1960's is not comparable to that for the 1970's onward.) Restaurant salad bars became popular in the late 1970's. Most supermarket chain stores added salad bars in 1982-84. Fresh-cut fruits and vegetables, prepackaged salads, locally grown items, and exotic produce—as well as hundreds of new varieties and processed products—have been introduced or expanded since the early 1980's. Supermarket produce departments carry over 400 produce items today, up from 250 in the late 1980's and 150 in the mid-1970's. Also, the number of ethnic, gourmet, and natural foodstores, which highlight fresh produce, continues to rise. Because many exotic and specialty fruits and vegetables introduced to mainstream markets in the last decade are not yet included in ERS' database, the

Table 4
Per Capita Consumption of Fruit and Vegetables Increased 22 Percent Between 1970-79 and 1997

Item	Annual averages 1970-79	1980-89	1990-97	1997
	Pounds per capita, fresh-weight equivalent			
Total fruit and vegetables	584.5	622.9	682.4	710.8
Total fruit	246.7	271.2	281.0	294.7
Fresh fruit	99.5	113.2	123.9	133.2
Citrus	27.2	24.2	24.0	26.8
Noncitrus	72.3	89.0	99.9	106.4
Processed fruit	147.2	158.1	157.1	161.5
Frozen fruit, noncitrus	3.3	3.3	3.7	3.5
Dried fruit, noncitrus	9.8	12.0	12.0	10.8
Canned fruit, noncitrus	24.5	21.2	20.3	20.5
Fruit juices	109.0	121.2	120.8	126.1
Total vegetables	337.8	351.7	401.5	416.0
Fresh vegetables	146.9	155.8	174.7	185.6
Potatoes	52.5	48.5	49.1	47.9
Other	94.4	107.3	125.6	137.7
Processing vegetables	190.8	195.9	226.8	230.4
Vegetables for canning	101.0	99.0	110.0	105.9
Tomatoes	62.9	63.5	74.9	72.7
Other	38.2	35.4	35.1	33.2
Vegetables for freezing	52.1	61.1	76.3	81.5
Potatoes	36.1	42.8	54.3	59.0
Other	16.0	18.2	22.0	22.5
Dehydrated vegetables and chips	30.8	29.5	32.5	34.5
Pulses	7.0	6.6	8.0	8.5

Source: USDA's Economic Research Service.

Table 5
Consumption of Grain Products Has Been Rising in the Last 2 Decades

Item	Annual averages 1950-59	1960-69	1970-79	1980-89	1990-97	1997
	Pounds per capita					
Total grain products[1]	155.4	144.8	138.2	157.5	191.0	200.1
Wheat flour	125.7	114.0	113.6	122.8	142.5	149.7
Corn products	15.4	15.0	11.0	17.3	22.4	23.1
Rice	5.4	7.2	7.3	11.5	18.2	19.5

[1]Includes oat products, barley products, and rye flour not shown separately.
Source: USDA's Economic Research Service.

actual increase in fruit and vegetable consumption is probably higher than the data indicate. For example, imports of chayote, jicamas, dasheens, and cassava, if included, would add nearly a pound to per capita vegetable consumption in 1998.

Total fruit consumption in 1997 was 19 percent above average annual fruit consumption in the 1970's. Fresh fruit consumption (up 34 percent during the same period) outpaced processed fruit consumption (up 10 percent). Noncitrus fruits accounted for all of the growth in fresh fruit consumption.

Total vegetable consumption in 1997 was 23 percent above average annual vegetable consumption in the 1970's. As in the case of fruit, fresh vegetable use (up 26 percent during the same period) outpaced processed vegetable use (up 21 percent). The introduction of pre-cut and packaged value-added products and increasing health consciousness among consumers boosted average fresh broccoli consumption by a third between 1995 and 1998 and average fresh carrot consumption by more than a fifth. Highly publicized medical research linking compounds in broccoli with strong anti-cancer activity in the body has added a powerful incentive to consumption.

The popularity of pizza and other ethnic foods in the 1990's boosted average consumption of canned tomato products, but consumption of other canned vegetables declined 13 percent between the 1970's and 1997. The popularity of french fries, eaten mainly in fast-food eateries, spawned a 63-percent increase in average consumption of frozen potatoes during the same period; consumption of other frozen vegetables rose 41 percent.

Credit: USDA

Consumers Eat Enough Grain Foods but Not Whole Grains

Per capita use of flour and cereal products reached 200 pounds in 1997 from an annual average of 155 pounds in the 1950's and 138 pounds in the 1970's, when grain consumption was at a record low (table 5). The expansion in supplies reflects ample grain stocks; strong consumer demand for variety breads, other instore bakery items, and grain-based snack foods; and increasing fast-food sales of products made with buns, doughs, and tortillas.

Many consumers' diets now meet the Food Guide Pyramid serving recommendation for grain products. The Pyramid recommends 9 daily servings of grain products for a 2,200-calorie diet. The food supply, adjusted for waste in the home and throughout the marketing system, provided an average of 10 daily servings of grain in 1997.

However, most people's diets fall well short of the recommended several daily servings of whole grain products. In 1992, the latest year for which data are available, whole-wheat flour accounted for less than 2 percent of total wheat flour—or one-tenth of a slice of bread per person per day. The mean daily intake of foods made from whole grains was one serving in USDA's 1996 *Continuing Survey of Food Intakes by Individuals*. According to the survey, only 7 percent of Americans ate the recommended three or more servings of whole-grain foods a day.

Since July 1999, companies that produce grain products rich in whole grains and low in fat can advertise that their products may reduce the risk of heart disease and certain cancers. This health claim, approved by the U.S. Food and Drug Administration (FDA), is restricted to foods that contain at least 51 percent whole grains by weight and list a whole grain as the first ingredient. Each serving of the food must provide a minimum of 16 grams of whole grain and have less than 3 grams of fat.

Beginning January 1, 1998, FDA has required that all enriched grain

foods—including ready-to-eat breakfast cereals, pasta, bread, rolls, flour, cakes, and cookies—be fortified with folic acid (the synthetic form of folate, a B-vitamin). Folic acid fortification of grain foods should reduce the risk of neural tube birth defects like spina bifida, and may protect adults from heart disease and reduce the chances of cervical cancer in women. Folate is found naturally in legumes; liver; many vegetables, especially green leafy ones like spinach; citrus fruits and juices; whole-grain products; and eggs.

A study conducted by Tufts University researchers and published in the May 13, 1999, issue of the New England Journal of Medicine showed that since FDA's folic acid fortification regulation, the levels of folic acid in the bloodstream of study participants have nearly doubled. In addition, the number of people with insufficient folic acid levels declined from 22 percent to less than 2 percent.

Consumption of Caloric Sweeteners Hits Record High

Americans have become conspicuous consumers of sugar and sweet-tasting foods and beverages. Per capita consumption of caloric sweeteners (dry-weight basis)—mainly sucrose (table sugar made from cane and beets) and corn sweeteners (notably high-fructose corn syrup, or HFCS)—increased 45 pounds, or 41 percent, between 1950-59 and 1997 (table 6). In 1997, each American consumed a record average 154 pounds of caloric sweeteners. That amounted to more than two-fifths of a pound—or 53 teaspoonfuls—of added sugars per person per day in 1997. Of that 53 teaspoons, ERS estimates that Americans wasted or otherwise lost 20 teaspoons, putting added sugars intake at about 33 teaspoons per person per day. USDA's Food Guide Pyramid recommends that people consuming 1,600 calories a day limit their intake of added sugars to 6 teaspoons per day. The daily suggested limit increases to 12 teaspoons for those consuming 2,200 calories, and to 18 teaspoons for those consuming 2,800 calories.

A coalition of leading health experts and organizations concerned about the climbing rates of obesity and the rising level of sugar consumption in the United States asked the FDA on August 3, 1999, to require that food labels provide more information about added sugars. Food labels already list total sugars, but they do not tell the consumer which sugar is naturally occurring and which is from an added ingredient like honey, corn syrup, fructose, white sugar, brown sugar, fruit juice concentrate, and molasses. Likewise, food labels do not provide a standard by which consumers can benchmark the amount of sugars depending on one's calorie needs.

The petition asks FDA to require two additions to the food label's Nutrition Facts panel: a breakdown of added and naturally occurring sugars in grams (4 grams is equivalent to 1 teaspoon) and inclusion of added sugars among the food components—total fat, saturated fat, cholesterol, sodium, total carbohydrate, and fiber—for which daily values are presented. Further, the petition asks the FDA to adopt USDA's Food Guide Pyramid suggestions as a recommended daily intake limit for added sugars. USDA recommends that the average person on a 2,000-calorie daily diet include no more than 40 grams of added sugars. That's about 10 teaspoons, or the amount of sugar in a 12-ounce soft drink.

Nutritionists agree that the body cannot tell the difference between

Table 6
America's Sweet Tooth Increased 41 Percent Between 1950-59 and 1997 As Use of Corn Sweeteners Octupled

Item	Annual averages 1950-59	1960-69	1970-79	1980-89	1990-97	1997
	Pounds per capita, dry weight					
Total caloric sweeteners	109.6	114.4	123.7	126.5	145.3	154.1
Cane and beet sugar	96.7	98.0	96.0	68.4	65.1	66.5
Corn sweeteners	11.0	14.9	26.3	56.8	78.9	86.2
High fructose corn syrup	0	0	5.5	37.3	55.5	62.4
Glucose	7.4	10.9	16.6	16.0	19.4	19.9
Dextrose	3.5	4.1	4.3	3.5	3.9	3.8
Other caloric sweeteners[1]	2.0	1.5	1.3	1.3	1.4	1.4

Note: Totals may not add due to rounding.
[1] Edible syrups (sugarcane, sorgo, maple, and refiner's), edible molasses, and honey.
Source: USDA's Economic Research Service.

naturally occurring and added sugars because they are identical chemically. However, they caution about eating sugars in large amounts and about frequent snacks of foods and beverages containing sugars that supply unnecessary calories and few nutrients.

Sugar—including sucrose, corn sweeteners, honey, maple syrup, and molasses—is ubiquitous and often hidden. In a sense, sugar is the number one food additive. It turns up in some unlikely places, such as pizza, bread, hot dogs, boxed mixed rice, soup, crackers, spaghetti sauce, lunch meat, canned vegetables, fruit drinks, flavored yogurt, ketchup, salad dressing, mayonnaise, and some peanut butter. Carbonated sodas provided more than a fifth (22 percent) of the refined and added sugars in the 1994 American food supply.

In the 1950's, much of the sugar produced went directly into the home, which meant control was in the hands of the person who bought it. In contrast, more than three-quarters of the refined and processed sugars produced today goes to food and beverage industries, and less than a quarter is being brought home as consumers do much less baking and cooking than did their counterparts decades ago.

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