American Eating Habits Changing: Part 1

Meat, Dairy, and Fats and Oils

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Slowly, and with fits and starts, Americans are shifting their eating patterns toward healthier diets. When it comes to meat, dairy, and fats and oils, on the menu are more low-fat and nonfat products and leaner cuts.

However, this trend has been undermined by a growing preference for high-fat convenience foods, fast foods, and snacks. More Americans eat out, eat on the run, and eat more often than ever before. In the process, some have unwittingly increased their consumption of fats and oils.

For example, the normally lower fat choices of chicken and fish, when served deep-fried in fast food sandwiches, can have a higher fat content than a quarter-pound cheeseburger.

Research indicates that consumer knowledge about dietary fats and other food components is poor. To follow general recommendations to eat less saturated fat or to eat more fiber, people need to better understand what the major food sources of these components are and how their present diet fits in.

Information is critical. The new food label required on almost all foods by mid-1994 (mandated by the Nutrition Labeling and Education Act of 1990) is a powerful tool to help give Americans the information they need to make healthful food choices.

Nutrition education programs can accelerate the shift toward healthier diets. To help consumers get the most from the new food label, government and industry are mounting a multiyear food labeling education campaign to increase consumers' knowledge and effective use of the new food label and assist them in making accurate and sound dietary choices in accordance with the Dietary Guidelines for Americans. In addition, more and more manufacturers are using USDA's Food Guide Pyramid to show how their product can fit into a healthy diet.

The food industry is responding to consumer demand and marketing opportunities for reduced-fat products by altering fresh meat production and merchandising

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practices and by introducing a host of reduced-fat product alternatives. Technological advances in food production and processing have given the food industry new tools, such as protein- or carbohydrate-based fat replacers, that will likely accelerate the introduction of tasty reduced-fat foods in the future.

This is the first article of a two-part series that uses U.S. per capita food supply data (called disappearance, see box for more details) to gauge in broad terms how our eating patterns are changing over time. The focus here is on animal products. A second article in an upcoming *FoodReview* will cover crop products.

Meat, Poultry, and Fish

In 1992, total red meat, poultry, and fish consumption reached a record 189 pounds (boneless, trimmed equivalent) per person, 6 percent above 1980-83. Red meat accounted for 60 percent of the total meat supply in 1992, compared with 70 percent in 1980-83. By 1992,

Behind the Data

USDA's Economic Research Service annually calculates the amount of food available for human consumption in the United States. The U.S. food supply series measures national consumption of several hundred foods. It is the only historical data on food and nutrient availability in the country.

The total food supply is based on records of commodity flows from production to end uses. Total available supply is the sum of production, beginning inventories, and imports. These three components are either directly measurable or estimated by government agencies using sampling and statistical methods.

For most commodities, measurable uses are exports, industrial uses, farm inputs (seed and feed), and yearend inventories. Human food use is normally not directly measured or statistically estimated. The availability of food for human use is, therefore, a residual component after subtracting other uses from the available total supply. In a few cases, food supplies are measured directly and one of the other use components becomes the residual category. This is the case for wheat, in which flour production is measurable and livestock feed becomes the residual.

The availability of food for human use represents disappearance of food into the marketing system. Hence, it is often referred to as food disappearance. Per capita food "consumption" or "use" usually is calculated by dividing total food disappearance by the U.S. total population. The food disappearance estimates measure supplies moving through trade channels for domestic consumption. However, because most foods are perishable, changes in disappearance presumably are associated with changes in actual consumption.

Food disappearance is often used as a proxy to estimate human consumption. Used in this manner, the data usually provide an upper bound on the amount of food available for consumption. Estimates can overstate actual intake because they include food that is discarded in processing, lost in spoilage, and thrown away at home or fed to pets. In general, food disappearance data serve more appropriately as indicators of trends in consumption over time than as measurements of absolute levels of total foods eaten. This is the case so long as changes over time in food production and marketing practices or consumer behavior do not alter the relative disparity between food disappearance and food actually eaten.

But, of course, changes in product forms, market channels, and consumer behavior over time do alter the relative disparity between food disappearance and food actually eaten. For example, consumers and restaurateurs want cut-up broilers, parts, boneless, and skinless items. Fortunately, survey data from the broiler industry allow us to adjust per capita consumption estimates for chicken to reflect changing trends. However, for many other foods (such as turkey and fats and oils) we do not have the data needed to make such adjustments.

Estimates of the nutrient content of the food supply are derived from data on quantities of foods available for consumption per capita per year and from data on the nutrient composition of foods. USDA's Human Nutrition Information Service (HNIS) annually estimates daily levels of food energy and 24 nutrients and food components in the U.S. food supply.

More details on ERS's food consumption series and HNIS's nutrient availability series can be found in *Food Consumption, Prices, and Expenditures, 1970-92*, SB-867. An electronic database also is available. Call toll free 1-800-999-6779 to order.

chicken and turkey accounted for 32 percent of total meat consumed, up from 23 percent in 1980-83. Fish and shellfish accounted for 8 percent in 1992 and 7 percent in 1980-83 (table 1).

Consumption of beef during 1980-92 reached a high of 75 pounds (boneless, trimmed equivalent) per person in 1985, and then steadily declined to 63 pounds in 1992. Similarly, consumption of fish and shellfish reached a record high of 16.1 pounds per person in 1987 and then slid to 14.7 pounds in 1992. Gains in consumption of chicken, turkey, and pork from 1986 to 1992 more than offset the declines in beef and fish.

Prices explain some of the decline in per capita consumption of beef. Per pound retail prices for chicken and pork have remained well below those for beef. In 1992, consumers paid, on average, $1.41 per pound for broilers. In contrast, retail beef prices averaged $2.85 a pound, and pork sold for $1.98. However, boneless, skinless chicken breasts cost about the same at retail as the better cuts of beef. Between 1986 and 1992, retail prices rose 29 percent for seafood, 24 percent for beef and veal, 22 percent for pork, and 14 percent for broilers—and consumers went for the cheaper meat.

Income changes have done little to strengthen demand for beef in the past decade. Although incomes have grown (normally tending to strengthen beef demand), the growth has been for higher income people whose beef purchases are probably not very sensitive to increasing income. USDA's Nationwide Food Consumption Surveys revealed that meat quantities consumed rose with income in 1977-78, but the opposite was found in the 1987-88 survey. The decline in beef consumption was steep for all income groups, especially for the highest income group.

In addition to changes in prices and incomes, circumstantial evidence suggests that a change has occurred in consumer tastes and, hence, in the demand for beef.

Table 1

Americans Consumed Less Red Meat, More Poultry and Seafood in 1992

Item	Annual average			Change, 1980-83 to 1992	Share	
	1980-83	1991	1992		1980-83	1992
	Pounds per capita[1]			*Percent*[2]	*Percent*[2]	
Total meat	178.3	184.7	188.9	6.0	100.0	100.0
Red meats[3]	123.8	111.9	114.1	-7.8	69.5	60.4
Beef	72.9	63.1	62.8	-13.8	40.9	33.2
Veal	1.3	.8	.8	-37.2	.7	.4
Pork	48.6	46.9	49.5	1.9	27.3	26.2
Lamb and mutton	1.1	1.0	1.0	-5.1	.6	.5
Poultry[3]	41.8	58.0	60.1	43.9	23.4	31.8
Chicken	33.4	43.9	45.9	37.5	18.7	24.3
Turkey	8.4	14.1	14.2	69.3	4.7	7.5
Fish and shellfish	12.7	14.8	14.7	16.0	7.1	7.8
Fresh and frozen	7.9	9.6	9.8	23.5	4.5	5.2
Canned	4.4	4.9	4.6	3.7	2.5	2.4
Cured	.3	.3	.3	-.6	.2	.2

Notes: Totals may not add due to rounding. [1]Boneless, trimmed equivalent. [2]Calculated from unrounded data. [3]Excludes shipments to Puerto Rico and the Virgin Islands.

Interest in convenience and health has altered consumer meat choices. Hamburger, which can be prepared quickly, accounted for 45 percent of the beef consumed in 1992, compared with 35 percent in 1985 and 26 percent in 1970. In 1992, each American consumed an average 30 pounds of hamburger, up from 25 pounds in 1980 and 22 pounds in 1970. Purchases of steaks were down a little. Roasts, which take longer to prepare, were down sharply. In addition, a shift has occurred toward eating away from home, especially in fast food places that emphasize hamburgers, fries, and, increasingly in the last decade, chicken and pizza. As total per capita consumption of chicken has increased rapidly since 1980, the share provided by foodservice establishments climbed from 29 percent in 1981 to 40 percent in 1991.

Nutritional concern about fat and cholesterol has encouraged the production of leaner animals and the closer trimming of fat before retail sales. Most retailers now go beyond the quarter-inch trim for red meat cuts to one-eighth inch or closer, and some trim off all visible fat. Most also offer three or four kinds of ground beef with progressively lower fat content (at progressively higher prices). Some ground beef now contains as little as 4 percent fat—less fat than is in most ground chicken and ground turkey products. Many new packaged deli meats meet the definition for "low fat" under the new nutrition labeling rules.

For the millions of Americans who seek to restrict their fat and cholesterol intakes to recommended levels, manufacturers are required to offer pertinent information on their food products by mid-1994, such as: total calories; calories from fat; and the amounts of total fat, saturated fat, and cholesterol per product serving.

If tastes have changed, knowing why they have changed and how

they might shift again would help the industry plan marketing strategies. Major advertising campaigns for beef (and pork) started in the late 1980's, when promotional programs began. Evaluation indicates that beef consumption and prices have been unexpectedly higher since 1987 when changes in income and the prices of other goods are taken into account.

The pork industry has been very successful with its "Pork: The Other White Meat" advertising campaign, which portrays pork as a light and nutritious alternative to chicken. While pork rated high in convenience and taste, consumers perceived it negatively in terms of fat, calories, and cholesterol. The campaign focused on the industry's leaner cuts and lower fat products. In addition, pork processors are attempting to fully integrate operations—from the production unit to the meat case.

Hormel, the Nation's largest pork processor, introduced a Light & Lean 97-percent fat-free hot dog in 1991, and now has an entire line of meats that are 97-percent fat free. Its Austin hog slaughtering and further processing operation, which slaughters 12,000 hogs a day, moved to a 0.10-inch fat trim.

The poultry industry has enjoyed great success, partly by catering to consumers. Poultry has benefited from a lower real price than beef and from health-related concerns about beef. Health conscious consumers are using fresh ground chicken and turkey in place of hamburger in spaghetti sauces and other recipes.

The industry has provided scores of new brand-name, value-added products processed for consumers' convenience—as well as a host of fast food products. In fact, nearly one-quarter of the chicken Americans consumed in 1991 was prepared by fast food establishments. More than half of this was fried chicken. But roasted chicken is becoming popular. Roasted chicken contains less fat than fried chicken, particularly if a rotisserie is used—a cooking method that drains off fat. Consumers can reduce fat intake by as much as a fourth if they choose roasted over fried chicken, and by as much as two-thirds if they choose white meat over dark, trim away all visible fat, and discard the skin.

Consumers bent on changing food selections to bring about positive nutritional outcomes (such as fewer calories or less fat) still face a challenge when buying prepared foods or eating out—especially at fast food places—but have more options today. McDonald's patrons, for example, can choose among long-time favorites, such as the Quarter Pounder hamburger (410 calories, 20 grams fat) or McChicken Sandwich with its breaded chicken patty (470 calories, 25 grams fat), and new lower fat alternatives, such as the McLean Deluxe hamburger (320 calories, 10 grams fat) or McGrilled Chicken Sandwich (390 calories, 12 grams of fat) without the cheese and herb sauce (290 calories, 3 grams fat). Adding the mild or hot Picante sauce would add a dash of flavor and only 4 calories and 0.05 gram fat. Adding a half pint of McDonald's 1-percent fat milk to the meal would add only half the fat (2 grams) but 4 times the calcium the cheese would have provided.

The decade ahead is likely to bring more changes. Technological advances will mean a host of new products in the meat case. With little increase in overall consumption of meat products expected in the next decade, the beef, pork, poultry, and fish industries will try to capture a larger share of a stagnant market by offering more higher profit, value-added, prepared products.

Eggs

Average annual use of eggs declined 14 percent between 1980 and 1992, from 271 eggs per person to 234, despite relatively low prices. The increase from 1980 to 1992 in the Consumer Price Index for eggs was less than half that for all food at home, 22 percent versus 55 percent. In 1990, eggs contributed 2 percent of the total fat in the U.S. food supply, 2 percent of the saturated fat, and 33 percent of the cholesterol (see box and table).

Data from the individual intake portion of USDA's Nationwide Food Consumption Survey (NFCS) show that the proportion of individuals eating eggs at least once a day dropped from a third in 1977-78 to a fourth in 1987-88. Data from the household portion of the NFCS show that smaller households had a larger decrease in consumption. In 1987-88, per capita consumption of eggs declined as household income increased.

Table 2
Use of Processed Eggs Stemmed the Decline in Per Capita Egg Consumption[1]

Item	Annual average			Change, 1980-83 to 1992	Share	
	1980-83	1991	1992		1980-83	1992
	Number per capita			*Percent*	*Percent*	
Eggs	265	233	234	-11.6	100	100
In shell	231	182	180	-22.1	87	77
Processed	34	51	54	59.5	13	23

Note: [1]Excludes shipments to Puerto Rico and the Virgin Islands.

However, a 40-percent jump since 1985 in per capita use of eggs in commercially processed egg products has stemmed the long-term decline. Egg products were responsible for 23 percent of total egg consumption in 1992, up from 13 percent in 1980-83 (table 2).

The home-cooked, eggs-and-bacon breakfast continues to give way to ready-to-eat, "instant" grain-based products as well as processed egg products as dietary concerns grow and as the amount of time allotted to household meal preparation continues to decline.

Buying processed eggs relieves food manufacturers and foodservice operators of the time and expense of breaking eggs, and it keeps egg supplies readily available. Also, the pasteurization given all egg products reduces concerns about salmonella contamination. Consumers avoiding cholesterol and fat in egg yolks may use processed products, such as lower cholesterol, liquid, whole-egg mixes (that cook, look, and generally taste like scrambled eggs) or egg substitutes made with egg whites.

Spurred by food-safety concerns, a growing number of large restaurant chains and airlines are eliminating fresh, whole eggs from their kitchens and switching to processed products, such as pasteurized liquefied eggs. The impact on the egg market could be enormous if McDonald's decides to do so, since it is the country's largest user of fresh eggs.

Many analysts see significant restructuring in the industry, and bet that processed products will capture 40 to 50 percent of the egg market before the end of the decade.

Dairy Products

Per capita consumption of all dairy products (including butter) in 1992 came to 565 pounds (milk-equivalent, milkfat basis), the same as in 1991 but up 12 pounds from 1980 to 1983 (table 3). Between 1980 and 1992, Americans cut their average annual consumption of fluid whole milk by two-fifths, increased use of low-fat milk by two-fifths, and more than doubled consumption of skim milk. But because of the growing yen for cheese, the Nation failed to cut the overall use of milkfat (tables 3 and 4).

Annual per capita consumption of beverage milks declined by 2.3 gallons between 1980 and 1992, to 25.3 gallons per person. A 55-percent increase in per capita consumption of yogurt since 1980—to 0.5 gallon per person in 1992—partially offset the decline in beverage milks.

The trend is toward lower fat milk. While whole milk (plain and flavored) represented 62 percent of all beverage milks consumed in 1980, its share dropped to 38 percent in 1992. The lowfat and skim-milk share increased from 38 percent to 62 percent. Since 1989, 1-percent and skim milk have gained share as 2-percent and whole milk declined. If yogurt (more than 85 percent of which is now lowfat or nonfat) is grouped with beverage milks, the trend toward nonfat fluid milk is even greater.

Table 3
Consumption of Milkfat Remained Flat, Despite Lower Use of Whole Milk

Item	Annual average			Change, 1980-83 to 1992
	1980-83	1991	1992	
	Pounds per capita			*Percent*[1]
All dairy products, milk-equivalent, milkfat basis[2]	553	565	565	2.1
Cheese[3]	19.0	25.0	26.0	36.4
American	10.7	11.1	11.3	5.9
Cheddar	7.9	9.0	9.2	15.9
Italian	4.8	9.4	10.0	109.6
Mozzarella	3.2	7.2	7.7	137.7
Other[4]	3.6	4.6	4.7	30.3
Cream	1.1	1.6	1.7	64.6
Cottage cheese	4.3	3.3	3.1	-27.2
Frozen dairy products[5]	26.6	30.4	30.3	14.1
Ice cream	17.7	17.4	17.6	-.2
	Gallons per capita			*Percent*[1]
Beverage milk[6]	26.8	25.7	25.3	-5.5
Whole, plain	15.6	9.8	9.5	-39.2
2-percent, plain	6.7	9.1	9.1	35.9
0.5-percent and 1-percent, plain	1.8	2.4	2.4	37.6
Skim, plain	1.3	2.8	2.9	127.1
Yogurt (excluding frozen)	.3	.5	.5	55.3
Fluid cream products[7]	.7	.9	.9	36.7

Notes: Totals may not add due to rounding. [1]Calculated from unrounded data. [2]Total includes butter, dry milk products, and condensed and evaporated milk. Individual products are on a product-weight basis. [3]Natural equivalent of cheese and cheese products. Excludes full-skim American and cottage, pot, and baker's cheese. [4]Includes Swiss, Brick, Muenster, Neufchatel, Blue, Edam, and Gouda. [5]Includes ice milk, sherbet, and nonstandardized dairy products (including frozen yogurt). [6]Includes flavored milks and buttermilk. [7]Heavy, light, half and half, sour cream, and eggnog.

Total beverage milk contributed 25 percent less fat to the average American's diet in 1992 than it did in 1980 as a result of the pronounced trend toward lower fat milks and an 8-percent decline in overall per capita consumption of beverage milk (table 4). In contrast, rising consumption of fluid cream products meant that they contributed nearly 50 percent more milkfat to the average diet in 1992 than in 1980. On balance, however, per capita consumption of milkfat from all fluid milk and cream products declined 16 percent between 1980 and 1992.

These changes are consistent with increased public concern about cholesterol and animal fats. However, the decline in per capita consumption of fluid milk also may be attributed to declining numbers of U.S. teenage males (only partially offset by the rising numbers of infants), an increasing incidence of lactose intolerance among Americans due to the growing ethnic diversity and aging of the population, and increasing preference for soft drinks—especially diet soft drinks—in the last decade.

Price is also behind the shift to lower fat milks. Skim milk traditionally has been cheaper than whole milk (but this has not always been the case for 1-percent and 2-percent milks.) However, since 1980, the retail price for a half gallon of lowfat milk has averaged 5 cents below that for whole milk.

Over time, this has eased the way for consumers to accept and prefer the lower fat milk. Evidence of such acceptance is McDonald's switch from whole milk to 2-percent in 1986 and from 2-percent milk to 1-percent in 1991. And many foodservice operators now provide whole milk or 2-percent, instead of cream, as coffee whiteners. Schools remain a large market for milk, especially whole milk, which is a required offering in the National School Lunch Program.

The percentages of people consuming total milk and milk products were similar across all income groups in USDA's 1989-90 Continuing Survey of Food Intake by Individuals. Nearly 8 of 10 Americans in each income group had one or more milk products on any given day. However, the type of milk and milk product varied by income group. Low-income people were less likely than people in the other income groups to drink lowfat or skim milk and more likely to drink whole milk. Low-income people also were less likely to eat milk desserts and cheese than were people

Table 4

Beverage Milk Contributes 25 Percent Less Fat to the Average American's Diet Than in 1980

Product	1980			1992			Change in per capita consumption, 1980-92	
	Average annual milkfat content	Per capita consumption		Average annual milkfat content	Per capita consumption			
		Product	Milkfat		Product	Milkfat	Product	Milkfat
	Percent	*Pounds*		*Percent*[1]	*Pounds*		*Percent*[1]	
Total fluid milk products	N/A	240.0	6.25	N/A	222.8	4.71	-7.2	-24.7
Total beverage milk	N/A	237.4	6.21	N/A	218.5	4.64	-8.0	-25.2
Plain	N/A	223.3	5.94	N/A	205.8	4.43	-7.9	-25.4
Whole	3.32	141.7	4.70	3.27	81.4	2.66	-42.5	-43.4
2-percent	1.94	54.7	1.06	1.95	78.4	1.53	43.2	44.0
1-percent	.91	15.3	.14	.92	21.0	.19	36.8	38.3
Skim	.27	11.6	.03	.18	25.0	.04	115.4	43.6
Flavored	N/A	10.0	.23	N/A	9.6	.18	-4.3	-20.3
Whole	3.21	4.7	.15	3.25	2.7	.09	-42.7	-42.0
Lowfat and skim[2]	1.42	5.3	.07	1.35	6.9	.09	30.3	23.9
Buttermilk	1.04	4.1	.04	.95	3.2	.03	-22.1	-28.8
Yogurt	1.87	2.6	.05	1.60	4.3	.07	66.4	42.4
Total fluid cream products	N/A	5.6	.88	N/A	8.0	1.35	43.2	52.8
Cream	N/A	3.4	.55	N/A	4.8	.87	43.2	58.0
Half and half	10.85	2.4	.26	10.57	3.2	.33	30.3	26.9
Light	18.54	.2	.04	18.20	.3	.06	42.5	39.9
Heavy	34.24	.7	.24	35.57	1.3	.47	88.2	95.6
Sour cream	16.92	1.8	.30	16.41	2.7	.45	51.5	47.0
Eggnog	7.08	.4	.03	7.59	.5	.03	7.8	15.6
Total fluid milk and cream products	N/A	245.6	7.13	N/A	230.8	6.05	-6.0	-15.1

Notes: N/A = Not applicable. Totals may not add due to rounding. [1]Calculated from unrounded data. [2]Includes flavored drinks.

Animal Products Contributed Less Fat and Cholesterol in the Food Supply in 1990 Than in 1980

Analysis of the nutrient content of the U.S. food supply by USDA's Human Nutrition Information Service indicates declines in per capita consumption of animal fat, saturated fat, and cholesterol between 1980 and 1990, even as per capita consumption of total fat increased.

The daily level of per capita food energy in the food supply increased from roughly 3,400 calories in 1980 to 3,700 calories in 1990. This 9-percent increase reflects higher levels of all three energy-yielding nutrients: fat, carbohydrates, and protein. The proportion of calories from fat decreased from 42 to 40 percent, while the share from carbohydrates increased from 47 to 49 percent. Protein has consistently accounted for about 11 to 12 percent of calories.

The daily per capita amount of fat in the U.S. food supply increased between 1980 and 1990, from 161 grams to 165 grams. (These food supply estimates include fat that is lost or discarded as waste and are thus much higher than estimates of actual intakes.) The distribution of types of fat in the food supply changed very slightly. The daily per capita amount of saturated fat dropped from 60 grams to 59 grams, while the amount of unsaturated fat rose from 101 grams to 106 grams.

Food groups contributing fat, saturated fat, and cholesterol in the food supply have shifted. For example, animal products contributed 52 percent of the total fat in the food supply in 1990, down from 59 percent in 1980. The proportion of total fats from meat, poultry, and fish declined to 30 percent in 1990 from 35 percent in 1980. The proportion of fat from red meats declined to 24 percent from 30 percent.

Based on USDA's Nationwide Food Consumption Surveys, fat accounted for about 36 percent of Americans' total energy intake in 1987-88, down from 40 percent in 1977-78. USDA's Dietary Guidelines recommend that Americans limit total fat and saturated fat in their diets to 30 percent of calories and 10 percent of calories, respectively.

Daily per capita levels of cholesterol in the food supply declined between 1980 and 1990, from 447 mg to 414 mg. The three major food groups supplying cholesterol in 1990 were meat, poultry, and fish (47 percent); eggs (33 percent); and dairy products (15 percent).

Cholesterol is a fat-like substance present in all animal foods—meat, poultry, fish, milk and milk products, and egg yolks. Both the lean and fat of meat and the meat and skin of poultry contain cholesterol. In milk products, cholesterol is mostly in the fat, so lower fat products contain less cholesterol. Egg yolks and organ meats, like liver, are high in cholesterol. Plant foods do not contain cholesterol.

Dietary cholesterol, as well as saturated fat, raises blood cholesterol levels in many people, increasing the risk for heart disease. Some health authorities recommend that dietary cho-

in the middle and upper income groups.

The average American is consuming 1.5 times as much cheese now—excluding cottage types—as in 1980, 26 pounds in 1992 compared with 17.5 pounds 12 years earlier. Two-thirds comes in commercially manufactured and prepared foods (including food service), such as pizza, tacos, nachos, salad bars, fast food sandwiches, bagel spreads, sauces for baked potatoes and other vegetables, and packaged snack foods.

From 1980 to 1992, consumption of Cheddar cheese, America's favorite cheese, increased 34 percent to 9.2 pounds per capita. Consumption of Italian cheeses more than doubled during the same period, to 10 pounds per person in 1992. For example, per capita consumption of Mozzarella—the main pizza cheese—in 1992 was 7.7 pounds, more than 2.5 times higher than in 1980, making it America's second favorite cheese. Cream cheese overtook Swiss in the 1980's to become America's third favorite cheese, at 1.7 pounds per person in 1992. Per capita consumption of cottage cheese declined 1.4 pounds during 1980-92, to 3.1 pounds.

While cheese is high in calcium and protein, it is also high in saturated fat, cholesterol, and sodium. For example, a 1.5-ounce serving of natural cheese supplies the same amount of calcium as 1 cup of milk or yogurt, but contains 12 to 14 grams (3 to 3.5 teaspoons) of fat. In comparison, the amount of fat in 1 cup of milk is 8 grams (2 teaspoons) for whole milk, 5 grams for 2-percent, 3 grams for 1-per-

terol be limited to an average of 300 mg or less per day. Data from the 1987-88 Nationwide Food Consumption Survey put average cholesterol consumption at just under 300 mg per capita per day (roughly 350 mg for men and 250 mg for women).

Per Capita Levels of Fat, Saturated Fat, and Cholesterol in the U.S. Food Supply, 1980 and 1990

Item	Fat				Saturated fat				Cholesterol			
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
	Grams per day		*Percent of total*		*Grams per day*		*Percent of total*		*mg per day*		*Percent of total*	
Total fat	160.7	164.6	100.0	100.0	60.1	58.6	100.0	100.0	446.6	414.0	100.0	100.0
Vegetable	66.2	79.3	41.2	48.2	13.5	16.5	22.5	28.2	0	0	0	0
Animal	94.4	85.3	58.8	51.8	46.6	42.1	77.5	71.8	446.6	414.0	100.0	100.0
Meat, poultry, and fish	56.8	49.9	35.3	30.3	26.2	22.4	43.6	38.2	204.6	196.0	45.8	47.3
Red meat	48.8	39.9	30.4	24.2	24.0	19.6	40.0	33.5	152.1	129.4	34.1	31.3
Poultry	7.0	9.3	4.4	5.6	2.0	2.6	3.3	4.5	40.6	52.8	9.1	12.8
Fish and shellfish	1.0	.7	.6	.4	.2	.1	.3	.2	11.9	13.8	2.7	3.3
Eggs	3.8	3.2	2.3	2.0	1.2	1.0	1.9	1.7	159.8	137.5	35.8	33.2
Dairy (excluding butter)	18.5	19.4	11.5	11.8	11.6	12.2	19.3	20.8	58.9	60.0	13.2	14.5
Cheese	6.2	8.3	3.9	5.0	4.0	5.3	6.6	9.0	20.1	26.4	4.5	6.4
Beverage milks	7.7	6.0	4.8	3.7	4.9	3.8	8.1	6.6	31.5	24.8	7.1	6.0
Frozen desserts	2.7	2.7	1.7	1.7	1.7	1.7	2.8	2.9	.6	.6	.1	.1
Cream products	1.1	1.5	.7	.9	.7	1.0	1.1	1.6	3.4	4.8	.8	1.2
Canned and dried products	.6	.7	.4	.4	.4	.4	.7	.7	3.2	3.3	.7	.8
Fats and oils	71.2	78.3	44.3	47.6	18.5	12.9	30.8	22.0	23.3	20.5	5.2	4.9
Butter, lard, beef tallow	15.4	12.8	9.6	7.8	7.6	6.5	12.7	11.1	23.3	20.5	5.2	4.9
Vegetable fats and oils	55.7	65.5	34.7	39.8	10.9	6.4	18.1	10.9	0	0	0	0
Legumes, nuts, and soy	4.7	6.0	3.0	3.7	.9	1.1	1.4	1.8	0	0	0	0
Fruit, vegetables, grains, and sweeteners	3.4	4.3	2.1	2.6	.6	.8	1.0	1.3	0	0	0	0
Miscellaneous items[1]	2.3	3.5	1.5	2.1	1.1	1.8	1.9	3.0	0	0	0	0

Notes: Totals may not add due to rounding. [1]Includes chocolate liquor, which is what remains after cocoa beans have been roasted and hulled.
Source: USDA's Human Nutrition Information Service.

cent, and a trace for skim milk and nonfat yogurt.

Despite a recent flurry of lower fat cheese introductions, these products still account for only about 5 percent of total cheese consumption. Their share in retail stores—which sell roughly a third of all cheese consumed—is higher (9 percent) than in food service and in manufactured foods. New food labeling regulations—which, for the first time, make nutrition labeling mandatory for almost all processed foods—will give industry further incentive to use lower fat cheese in the future.

Per capita consumption of frozen dairy products increased 14 percent between 1980-83 and 1992. All of the increase was due to higher consumption of ice milk and frozen yogurt. *New Product News* found that 54 percent of frozen dairy products introduced in 1990 (excluding novelties) carried lowfat or nonfat claims, 50 percent in 1991, and 23 percent in 1992.

Milk and milk products are the primary dietary source of calcium, which is essential for the growth and maintenance of bones and teeth. One cup of milk has about 300 milligrams (mg). The daily Recommended Dietary Allowance (RDA) for calcium for children under age 11 is 800 mg, 1,200 mg for teenagers and young adults, and 800 mg for most adults. A report of the National Institutes of Health recommends that postmenopausal women, who are particularly subject to osteoporosis (a gradual weakening of the bone structure, which puts them at greater risk for

fractures), maintain a daily intake of 1,000 to 1,500 mg of calcium.

Overall, the U.S. food supply contains an adequate amount of calcium for the population. But while there is enough calcium out there, many people do not get their recommended daily allowance. With about 75 percent of dietary calcium coming from dairy products on average, consumers who do not eat dairy products would be at a disadvantage.

Many Americans fall far short of meeting the recommended dairy servings listed in USDA's Food Guide Pyramid. *Healthy People 2000* challenges the Nation to increase calcium intake by the year 2000, so that at least 50 percent of youth aged 12 through 24 and 50 percent of pregnant and lactating women consume 3 or more servings daily of foods rich in calcium, and at least 50 percent of people aged 25 and older consume 2 or more servings daily. Baseline data from USDA's 1985-86 Continuing Survey of Food Intake by Individuals indicate that 7 percent of women and 14 percent of men aged 19 through 24 and 24 percent of pregnant and lactating women consumed 3 or more servings, and 15 percent of women and 23 percent of men aged 25 through 50 consumed 2 or more servings daily.

Some manufacturers see an opportunity to provide alternative sources of dietary calcium through product fortification. For example, Procter & Gamble introduced Sunny Delight Florida Citrus Punch with calcium in early 1993. The juice drink contains a form of calcium developed by the company. Calcium absorption studies performed at Creighton University showed that Procter & Gamble's product either in citrus juice or apple juice provided superior absorbability compared to spinach (5 percent absorbability), milk, calcium carbonate, or dry calcium. The company is using these results to try to get calcium-fortified fruit juices added to the standard list of calcium sources, which now includes dairy products, tofu (bean curd) if made with calcium sulfate, spinach, broccoli, turnip greens, fortified instant oatmeal, and canned fish (such as salmon and sardines) with bones.

Fats and Oils

Although the total quantities of fats and oils in the per capita food supply have not declined in the past decade, there has been a shift toward a greater proportion from vegetable fats and oils and away from animal fats. This may reflect consumers' efforts to switch from saturated fats to unsaturated fats and oils (table 5).

Annual per capita consumption of added fats and oils apparently increased 7 pounds between 1980-83 and 1992, to 66 pounds per year (fat-content basis). These included fats and oils used directly by consumers, such as butter on bread, as well as shortenings and oils used in commercially prepared cookies, pastries, and fried foods. Excluded is all fat naturally present in foods, such as in milk and meat.

However, the apparent increase in the level of added fat in the food supply does not accurately reflect trends in actual consumption—mainly because more and more fats and oils are used and discarded from the growing number of away-from-home eating establishments, particularly fast food places.

Table 5

Bakery Products, Snack Foods, French Fries, and Salad Dressings Are Behind the 12-Percent Rise in Fats and Oils

Item	Annual average					Change, 1980-83 to 1992	Share	
	1980-83	1984-87	1988-91	1991	1992		1980-83	1992
	Pounds per capita[1]					Percent[2]	Percent[2]	
Fats and oils (product weight)	61.3	65.7	65.4	66.7	68.6	12.0	100.0	100.0
Butter	4.5	4.8	4.4	4.2	4.2	-6.8	7.3	6.1
Margarine	11.0	10.8	10.5	10.6	11.0	0	17.9	16.0
Lard (direct use)[3]	2.4	1.9	1.8	1.7	1.7	-31.4	3.9	2.4
Edible tallow (direct use)[3]	1.3	1.6	.8	1.4	2.4	77.7	2.2	3.5
Shortening	18.4	21.9	21.9	22.4	22.4	21.5	30.1	32.6
Salad and cooking oils	22.1	23.2	24.8	25.2	25.6	15.9	36.1	37.3
Other edible fats and oils[4]	1.5	1.6	1.3	1.3	1.4	-8.2	2.5	2.0
Fats and oils (fat content)	58.2	62.6	62.4	63.8	65.6	12.7	100.0	100.0
Vegetable	46.3	50.2	52.4	54.2	55.2	19.2	79.6	84.1
Animal	11.9	12.4	10.0	9.5	10.4	-12.3	20.4	15.9

Notes: Totals may not add due to rounding. [1]Includes the quantity of frying fat disposed of by food manufacturers and foodservice operators. This quantity may have been as much as 10 percent or more of per capita consumption of fats and oils in 1992. [2]Calculated from unrounded data. [3]Direct use excludes use in margarine, shortening, and nonfood products. [4]Includes specialty fats and oils used in such items as confectionery products and coffee creamers.

These outlets discard significant amounts of fats used in frying foods. A 1987 study commissioned by Procter & Gamble and conducted by the research and consulting firm SRI, International indicates that the quantity of frying fat discarded by foodservice outlets and sold to renderers to be processed for use in animal feeds, pet foods, industrial operations, and for export annually amounts to about 9 percent of the 1992 total supply of added fats. A 1993 study indicates that about 50 percent or more of deep frying fat used in foodservice operations is discarded after use and is not available for consumption.

If these supplies were accounted for, per capita levels of added fats and oils since 1980 would be lower, but the 1992 level probably would still be higher than in 1980. Whatever the increase, if any, it probably results from the greatly expanded market for fried foods in foodservice outlets and the increased use in salad dressings, sweet baked goods, snack foods, and prepared foods.

The 1-pound increase in per capita consumption of edible beef tallow in 1992 is perplexing and requires further study. Edible tallow production increased 26 percent in 1992, according to Commerce Department data. As the task of trimming excess fat from retail cuts of beef has shifted since the late 1980's from retailers to large meatpackers, the trimmed fat has become an important byproduct used in the production of edible tallow. Larger supplies of edible tallow have pushed its price to levels very near that for inedible tallow. This may prompt use of edible tallow in the production of nonfood items; to what extent such substitution is occurring, we do not know. Low prices also continue to encourage use in baking and frying fats, although a number of major restaurant chains, including McDonald's, Burger King, Wendy's, and Hardee's, have switched to pure vegetable oil for deep-frying.

"In 1992, each American consumed an average of 63 pounds (on a boneless, trimmed-weight basis) of beef, 50 pounds of pork, 46 pounds of chicken, 15 pounds of fish and shellfish, 14 pounds of turkey, and about 1 pound each of lamb and veal (table 1). That's 12 pounds less red meat, 19 pounds more poultry, and 2 pounds more fish and shellfish than in 1980."

Companies have responded to consumers' desires for fat and oil products that are reduced in fat, saturated fat, and cholesterol. Major shortening manufacturers removed all animal fats from their products. Salad and cooking oil manufacturers introduced new vegetable oil blends containing canola oil. Canola oil, made from rapeseed plants, has the lowest saturated fat content of all vegetable oils. It also contains omega-3 fatty acid akin to the cholesterol-countering kind found in fish oil.

There are a host of reduced-fat table spreads and reduced-fat and nonfat salad dressings and mayonnaises on supermarket shelves and in foodservice outlets. McDonald's Corporation has reduced the fat content of its Big Mac sauce and tartar sauce 50 percent. Using reduced-fat tartar sauce in its Filet-O-Fish sandwich, for example, lowered the calorie count of the sandwich by 70 calories and reduced the fat content 31 percent from 26 to 18 grams. Most longtime patrons probably have not detected any change in the sandwich.

Fat replacement has become an ambitious goal of making baked goods, including sweet baked goods traditionally high in fat, without any fat at all, or at the most with only a minor amount of unsaturated shortening. In 1987, for example, Entenmann's began developing a line of cakes and cookies that contain no fat or cholesterol, and fewer than 100 calories per serving. However, fat-free products remain a small niche in the sweet baked goods market.

Recent product reformulations to reduce added fats are evident in numerous product categories, from frozen entrees to soups and spaghetti sauces. In 1994, USDA's Economic Research Service will gain a new database with much more specific information about consumer retail purchases of reduced-fat and lowfat products. Fat use trends in the away-from-home market will remain largely a mystery. ■