

Nutrients

USDA's Center for Nutrition Policy and Promotion (CNPP) estimates the amounts per capita per day of food energy and 24 nutrients and food components in the U.S. food supply (table 42). Table 43 shows nutrient contributions from the major food groups for the years 1970 and 1994.

Food supply nutrient estimates are derived from data on the amount of food available for consumption and data on the nutrient composition of foods. ERS provides information on annual domestic per capita use for most foods. The food composition data come from the Primary Nutrient Data Set, a reference nutrient database 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 meat. Nutrient estimates are based on food disappearance data; thus, they represent nutrients in foods available for consumption and not actual nutrient intakes by individuals.

Nutrient levels in the food supply should exceed recommended allowances because further losses from trimming, cooking, plate waste, and spoilage are not accounted for in these values, and food is not distributed equally within the population. Per capita values are averages for the population.

Nutrient estimates reflect market conditions, technological developments, up-to-date food composition values, and nutrients added commercially through enrichment and fortification. Nutrient levels and nutrient contributions from major food groups to the U.S. food supply are used to examine historical trends and evaluate changes in the American diet over time. The following summary highlights trends in nutrient levels and their sources between 1970 and 1994, and nutrient contributions to the U.S. food supply from major food groups for the years 1970 and 1994.

Food Energy

The level of food energy in the U.S. food supply increased from 3,300 calories per capita per day in 1970 to 3,800 calories in 1994 (table 42). This 15-percent increase reflects higher levels of all three energy-yielding nutrients: carbohydrate, fat, and protein. The proportion of calories from carbohydrate increased from 47 to 51 percent while the share from fat decreased from 42 to 38 percent (fig. 22). Protein has consistently accounted for about 11 percent of calories.

In 1970, the meat-poultry-and-fish group and the grain-products group contributed equal amounts of food energy to the U.S. food supply—20 percent each, followed by caloric sweeteners at 18 percent, fats and oils at 18 percent, and dairy products at 11 percent (fig. 23, table 43). By 1994, grain products had become the leading source of food energy, providing 25 percent of the total; followed by fats and oils at 20 percent; caloric sweeteners at 18 percent; meat, poultry, and fish at 14 percent; and dairy products at 9 percent.

Carbohydrate

The level of carbohydrate in the U.S. food supply increased from 386 grams per capita per day in 1970 to 491 grams in 1994 (table 42). This 27-percent increase reflects greater use of grains and sweeteners. Carbohydrate from grain products increased from 134 to 199 grams, or 49 percent, between 1970 and 1994 (table 43). Carbohydrate from sugars and sweeteners rose from 152 to 184 grams, or 21 percent, during the same period.

In 1970, caloric sweeteners contributed the most carbohydrate to the U.S. food supply—39 percent, followed by grain products at 35 percent, vegetables at 10 percent, and dairy products and fruits at 6 percent each (fig. 24, table 43). By 1994, grain products had become the leading source of carbohydrate—providing 41 percent of the total, followed closely by caloric sweeteners at 37 percent. Vegetables, fruits,

and dairy products provided 8 percent, 6 percent, and 5 percent of total carbohydrate in 1994.

Protein

The level of protein in the U.S. food supply increased from 95 grams per capita per day in 1970 to 110 grams in 1994 (table 42). This 16-percent rise reflects increasing consumption of grain, poultry, and cheese.

In 1970, the meat, poultry, and fish group contributed the most protein to the food supply—40 percent, followed by dairy products at 21 percent, and grain products at 19 percent (table 43). By 1994, the meat, poultry, and fish group's contribution to total protein had dropped 1 percentage point to 39 percent, the dairy group's contribution had fallen 2 percentage points to 19 percent, and the grain group's contribution had jumped up 5 percentage points to 24 percent. The gain in protein from increased cheese consumption was not enough to offset the loss in protein from decreased beverage milk consumption. A 136-percent increase in per capita cheese consumption between 1970 and 1994 boosted cheese's contribution to total protein 3 percentage points, from 5 percent to 8 percent. A 21-percent decline in per capita beverage milk consumption during the same period lowered beverage milk's contribution to total protein 4 percentage points, from 12 percent to 8 percent.

Fat

The level of fat in the U.S. food supply increased from 154 grams per capita per day in 1970 to 159 grams in 1994 (table 42). This 3-percent gain in fat reflects increased use of salad and cooking oils and shortening. Between 1970 and 1994, animal sources' share of total fat declined from 61 to 48 percent, while vegetable sources' share jumped from 39 to 52 percent.

In 1970, the fats and oils group contributed the most fat to the U.S. food supply—43 percent, followed by the meat, poultry, and fish group at 35 percent (fig. 25, table 43). By 1994, the fats and oils group's contribution to total fat had jumped up 9 percentage points, to 52 percent, probably due to the greatly

expanded consumption of fried foods in foodservice outlets, the huge increase in consumption of high-fat snack foods, and the increased use of salad dressings. In contrast, by 1994, the meat, poultry, and fish group's contribution to total fat had dropped 10 percentage points, to 25 percent, reflecting changes in fat-trimming practices at processor and retail levels, improvements in animal husbandry, and increasing substitution of poultry and fish for red meats. The dairy products group's contribution to total fat declined from 12.6 to 12.3 percent between 1970 and 1994, even as total grams of fat from dairy products increased from 19 to 20 grams per person per day. A fat decline accompanying a shift from whole milk to lower fat milks was offset by a fat increase associated with big hikes in cheese and cream products use.

Fatty Acids. Changes in levels of fatty acids reflect the shift from animal to vegetable sources of fat. Polyunsaturated fatty acids increased 19 percent between 1970 and 1994, from 26 to 31 grams per capita per day (table 42). Monounsaturated fatty acids increased 3 percent, from 63 to 65 grams. Saturated fatty acids declined 4 percent, from 54 to 52 grams.

In 1970, the meat, poultry, and fish group contributed the most saturated fat to the U.S. food supply—37 percent, followed by the fats and oils group at 33 percent (table 43). By 1994, the fats and oils group's contribution to total saturated fat had jumped up 8 percentage points, to 41 percent, and the meat, poultry, and fish group's contribution had dropped 11 percentage points, to 26 percent. The dairy group's contribution to total saturated fat increased a bit between 1970 and 1994, from 22 to 24 percent.

In 1970, the fats and oils group contributed the most monounsaturated fat to the U.S. food supply—45 percent, followed by the meat, poultry, and fish group at 37 percent (table 43). By 1994, the fats and oils group's contribution to total monounsaturated fat had jumped up 11 percentage points, to 56 percent, and the meat, poultry, and fish group's contribution had dropped 11 percentage points, to 26 percent. The dairy group contributed 9 percent of total monounsaturated fat in 1970 and in 1994.

In 1970, the fats and oils group also contributed the most polyunsaturated fat to the U.S. food supply—63 percent, followed by the meat, poultry, and fish group at 20 percent (table 43). By 1994, the fats and oils group's contribution had jumped up 6 percentage points, to 69 percent, and the meat, poultry, and fish group's contribution had dropped 5 percentage points, to 15 percent.

Cholesterol

The level of cholesterol in the U.S. diet declined from 470 milligrams per capita per day in 1970 to 410 milligrams in 1994 (table 42). This 13-percent decline reflects declining use of eggs, red meat, and fluid whole milk, as well as a growing preference for leaner animal products.

In 1970, the meat, poultry, and fish group contributed the most cholesterol to the U.S. diet—40 percent, followed by eggs at 39 percent, and the dairy group at 15 percent (table 43). By 1994, the meat, poultry, and fish group's contribution to total cholesterol increased 4 percentage points, to 44 percent, due to increased poultry and fish consumption. By 1994, eggs' contribution to total cholesterol consumption had declined 5 percentage points, to 34 percent. By 1994, the dairy group's contribution had increased 1 percentage point, to 16 percent.

Micronutrients

Vitamin B12 is the only micronutrient whose level in the U.S. per capita food supply declined between 1970 and 1994; the 19-percent decline in vitamin B12 reflects lower consumption of organ meats, such as liver, and of egg yolks (table 42). All other vitamins (A, C, E, B6, thiamin, riboflavin, niacin, and folate) and all minerals (calcium, phosphorus, magnesium, iron, zinc, copper, and potassium) show gains in per capita supply from 1970 to 1994.

Vitamin A. The level of vitamin A in the U.S. food supply increased from 1,500 retinol equivalents (RE) per capita per day in 1970 to 1,520 RE in 1994 (table 42). This 1-percent increase in vitamin A masks significant shifts in sources of vitamin A. A decrease in vitamin A associated with lower consumption of

organ meats and egg yolks nearly offset an increase in vitamin A accompanying higher consumption of dark green and deep yellow vegetables in 1994.

The meat, poultry, and fish group's contribution to total vitamin A declined 35 percent between 1970 and 1994, from 440 RE to 325 RE (table 43). In contrast, the dark-green and deep-yellow vegetables group's contribution to total vitamin A increased 41 percent during that period, from 305 RE to 431 RE. The level of carotene (a precursor of vitamin A) in the food supply increased from 510 RE in 1970 to 660 RE in 1994. This 29-percent gain in carotene reflects the development of new varieties of deep-yellow vegetables (for example, carrots) that contain more carotene than previous varieties. Greater use of broccoli and green peppers also boosted carotene levels.

Vitamin C. The level of vitamin C in the U.S. food supply increased from 107 milligrams per person per day in 1970 to 124 milligrams in 1994 (table 42). This 16-percent increase in vitamin C reflects higher fruit consumption, spurred by improvements in variety and year-round availability of many fresh fruits.

In 1970, the vegetable group contributed the most vitamin C to the U.S. food supply—50 percent, followed by the fruit group at 39 percent (table 43). By 1994, the vegetable group's contribution to total vitamin C had dropped 3 percentage points, to 47 percent, and the fruit group's contribution had jumped up 5 percentage points, to 44 percent.

Vitamin E. The level of vitamin E in the U.S. food supply increased from 14 milligrams per person per day in 1970 to 17 milligrams in 1994 (table 42). This 23-percent increase in vitamin E reflects greater use of salad and cooking oils.

In 1970, the fats and oils group contributed the most vitamin E to the U.S. food supply—64 percent, followed by the vegetable group at 8 percent; the meat, poultry, and fish group and the legumes, soy, and nuts group at 6 percent each; and the grain products group at 5 percent (table 43). By 1994, the fats and oils group's contribution had jumped up 4 percentage points, to 68 percent.

Folate. The level of folate in the U.S. food supply increased from 279 micrograms per person per day in 1970 to 331 micrograms in 1994 (table 42). This 19-percent increase in folate reflects greater use of grain products and citrus fruits.

In 1970, the vegetable group contributed the most folate to the U.S. food supply, 28 percent, followed by the legumes, soy, and nuts group at 20 percent; the grain products group at 13 percent; the meat, poultry, and fish group at 11 percent; and the fruit group at 10 percent (table 43). By 1994, the vegetable group's contribution had dropped 4 percentage points, to 24 percent; the grain products group's contribution had jumped up 9 percentage points, to 22 percent; the legumes, soy, and nuts group's contribution had remained stable at 20 percent; the fruit group's contribution climbed 2 percentage points, to 12 percent; and the meat, poultry, and fish group's contribution fell 3 percentage points, to 7 percent.

Vitamin B6. The level of vitamin B6 in the U.S. food supply increased from 2.0 milligrams per person per day in 1970 to 2.3 milligrams in 1994 (table 42). This 15-percent increase in vitamin B6 reflects greater use of grain products and noncitrus fruits.

In 1970, the meat, poultry, and fish group contributed the most vitamin B6 to the U.S. food supply, 39 percent, followed by the vegetable group at 23 percent, the dairy group at 12 percent, and the fruit group and the grain products group at 9 percent each (table 43). By 1994, the meat, poultry, and fish group's contribution had dropped 3 percentage points, to 36 percent; the vegetable group's contribution had remained stable at 23 percent; the grain products group's contribution had jumped up 4 percentage points, to 13 percent; the fruit group's contribution had risen 2 percentage points, to 11 percent; and the dairy products group's contribution had fallen 2 percentage points, to 10 percent.

Thiamin, Riboflavin, Niacin, and Iron. The levels of thiamin, riboflavin, niacin, and iron in the U.S. per capita food supply increased by 35, 13, 32, and 38 percent, respectively, between 1970 and 1994 (table 42). These increases in thiamin, riboflavin, niacin, and iron reflect hikes in enrichment levels of flour

called for by revisions in Federal standards in the 1970's as well as increased grain consumption in more recent years.

In 1970, the grain products group contributed the most thiamin to the U.S. food supply, 40 percent, followed by the meat, poultry, and fish group at 25 percent (table 43). By 1994, the grain products group's contribution had jumped up 15 percentage points, to 55 percent, and the meat, poultry, and fish group's contribution had dropped 6 percentage points, to 19 percent.

In 1970, the dairy products group contributed the most riboflavin to the U.S. food supply, 36 percent, followed by the meat, poultry, and fish group at 22 percent, and the grain products group at 19 percent (table 43). By 1994, the grain products group and the dairy group provided the same amount of riboflavin to the food supply, 31 percent each, followed by the meat, poultry, and fish group at 18 percent.

In 1970, the meat, poultry, and fish group contributed the most niacin to the U.S. food supply, 45 percent, followed by the grain products group at 28 percent. By 1994, the grain products group's contribution had jumped up 12 percentage points, to 40 percent, and the meat, poultry, and fish group's contribution had dropped 7 percentage points, to 38 percent.

In 1970, the grain products group contributed the most iron to the U.S. food supply, 37 percent, followed by the meat, poultry, and fish group at 23 percent, and the vegetable group at 14 percent (table 43). By 1994, the grain products group's contribution was up 14 percentage points, to 51 percent; the meat, poultry, and fish group's contribution was down 7 percentage points, to 16 percent; and the vegetable group's contribution was down 3 percentage points, to 11 percent.

Calcium. The level of calcium in the U.S. food supply increased from 890 milligrams per person per day in 1970 to 960 milligrams in 1994 (table 42). This 8-percent increase in calcium reflects higher cheese consumption and the switch to lower fat beverage milks and yogurt from whole milk products. (Lower

fat milks contain a little more calcium per cup than does whole milk.) The dairy group contributes the most calcium to the U.S. food supply, 75 percent in 1970 and 73 percent in 1994 (table 43).

Phosphorus. The level of phosphorus in the U.S. food supply, excluding the phosphorus contained in carbonated cola soft drinks, increased from 1,460 milligrams per person per day in 1970 to 1,680 milligrams in 1994 (table 42). This 15-percent increase in phosphorus reflects higher grain consumption in 1994.

In 1970, the dairy products group contributed the most phosphorus to the U.S. food supply, 36 percent, followed by the meat, poultry, and fish group at 27 percent, and the grain products group at 14 percent (table 43). By 1994, the dairy products group's contribution had dropped 3 percentage points, to 33 percent; the meat, poultry, and fish group's contribution had fallen 2 percentage points, to 25 percent; and the grain products group's contribution had jumped up 7 percentage points, to 21 percent.

Soft drinks have not been a part of the U.S. food supply nutrient database because of concern about double counting the caloric sweeteners and calories they contain. However, improved data availability now makes it possible to measure the phosphorus content of colas; CNPP researchers will adjust the food supply nutrient database to include the phosphorus contribution from colas in the coming year. An average 12-ounce carbonated cola drink contains about 46 milligrams of phosphorus. The 111-percent increase in per capita consumption of carbonated soft drinks, most of which are colas, between 1970 and 1994 means that the increase in the total per capita supply of phosphorus during those years was greater than the 15 percent indicated by the data in table 42.

Magnesium. The level of magnesium in the U.S. food supply increased from 320 milligrams per person per day in 1970 to 380 milligrams in 1994 (table 42). This 16-percent gain in magnesium reflects higher use of grain products.

In 1970, the dairy products group contributed the most magnesium to the U.S. food supply, 20 percent,

followed by the grain products group at 18 percent, and the vegetable group at 17 percent (table 43). By 1994, the grain products group's contribution had jumped up 8 percentage points, to 26 percent; the dairy products group's contribution had declined 4 percentage points, to 16 percent; and the vegetable group's contribution had declined 3 percent, to 14 percent.

Zinc. The level of zinc in the U.S. food supply has increased from 12.2 milligrams per person per day in 1970 to 13.2 milligrams in 1994 (table 42). This 8-percent increase in zinc reflects increased consumption of grain products.

In 1970, the meat, poultry, and fish group contributed the most zinc to the U.S. food supply, 48 percent, followed by the dairy products group at 19 percent, and the grain products group at 12 percent (table 43). By 1994, the meat, poultry, and fish group's contribution had dropped 6 percentage points, to 42 percent; the dairy products group's contribution had remained stable at 19 percent; and the grain products group's contribution had jumped up 6 percentage points, to 18 percent. Beef and liver of all kinds are excellent sources of zinc; per capita consumption of these foods declined between 1970 and 1994. Fortified breakfast cereals, yogurt, chicken, and turkey are good sources of zinc; per capita consumption of these foods increased during the same period.

Copper. The level of copper in the U.S. food supply has increased from 1.6 milligrams per person per day in 1970 to 1.9 milligrams in 1994 (table 42). This 19-percent increase in copper reflects increased consumption of grain, legumes, soy, and nuts (table 43).

In 1970, vegetables contributed the most copper to the U.S. food supply, 24 percent, followed by the meat, poultry, and fish group at 19 percent, the grain products group at 17 percent, and the legumes, soy, and nuts group at 16 percent. By 1994, the grain products group had jumped up 6 percentage points to take the lead at 23 percent; the legumes, soy, and nuts group had jumped up 4 percentage points, to 20 percent; the vegetable group had dropped 4 percentage points, to 20 percent; and the meat, poultry, and

fish group had fallen 5 percentage points, to 14 percent.

Potassium. The level of potassium in the U.S. food supply has increased from 3,510 milligrams per person per day in 1970 to 3,780 milligrams in 1994 (table 42). This 8-percent increase in potassium reflects increased consumption of grain products and fruits, especially bananas and orange juice.

In 1970, vegetables contributed the most potassium to the U.S. food supply, 28 percent, followed by the

dairy products group at 22 percent; the meat, poultry, and fish group at 17 percent; the fruit group at 9 percent; and the grain products group at 6 percent. By 1994, the vegetable group, the dairy products group, and the meat, poultry, and fish group had retained their first, second, and third place standings.

However, the fruit group's contribution to total potassium intake had jumped up 3 percentage points, to 12 percent, and the grain products group's contribution had jumped up 4 percentage points, to 10 percent.