



Food Surveys Research Group
Dietary Data Brief No. 3
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Fluid Milk Consumption in the United States

What We Eat In America, NHANES 2005-2006

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Highlights

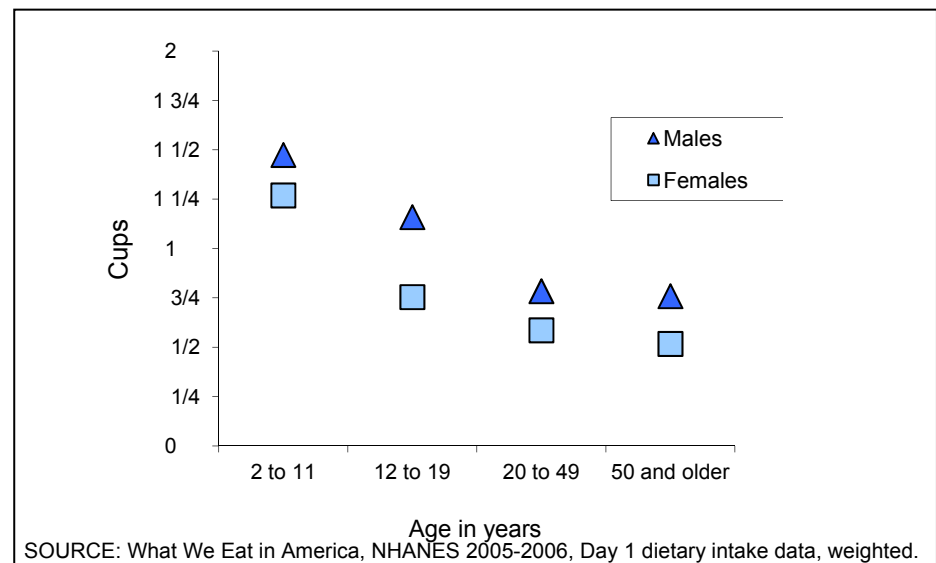
- ▶ In 2005-2006, among all Americans age 2 years and older, children age 2-11 years consumed the most milk – about twice as much as adults.
- ▶ Since 1977-1978, mean intakes of milk have decreased for children and adolescents. The percent of individuals reporting any milk has declined in all age groups. Among adolescents, the percent reporting milk was 76% in 1977-1978 but only 48% in 2005-2006.
- ▶ Milk intake was related to race/ethnicity but not income. Non-Hispanic blacks consumed less milk than non-Hispanic whites and Mexican Americans.
- ▶ About half of all fluid milk consumed was plain milk that was drunk as a beverage. The remainder was consumed either as flavored milk, with cereal, or added to a drink.
- ▶ Milk contributed substantially to nutrient intake. Those who consumed milk had higher intakes of several key nutrients.

Milk and milk products are widely recognized as important sources of nutrients typically low in the American diet, including vitamin D, calcium, magnesium, and potassium (1-4). In the context of current dietary practices, it is difficult for most individuals to meet national nutrition guidance goals unless they are consuming dairy products (5). Scientific studies provide evidence that intake of milk and milk products is related to improved bone health and lower risk of cardiovascular disease, hypertension, and type 2 diabetes (6-7). Due to these recognized benefits, all Americans ages 9 and older are encouraged to consume three cups per day of fat-free or lowfat fluid milk or equivalent milk products (7). On the other hand, milk has been recognized as a considerable source of both calories and saturated fat (2, 4), dietary components that are consumed in excess in the typical American diet. In 1999-2002, the mean intake of dairy products by Americans age 2 years and over was less than 2 cups, with nearly two-thirds consumed as fluid milk and slightly over one-third as cheese (8). Fluid milk consumption patterns of individuals age 2 years and over and the contributions of fluid milk to nutrient intakes are described in this report.

Who is consuming milk?

Not surprisingly, children consumed the most milk in 2005-2006, followed by teenagers and then adults. The average intake of fluid milk (*see definition on page 7*) was slightly more than 3/4 cup for individuals 2 years of age and over. (One cup equals 8 fluid ounces or about 237 milliliters.)

Figure 1. Mean intakes of fluid milk by gender and age, WWEIA, NHANES 2005-2006



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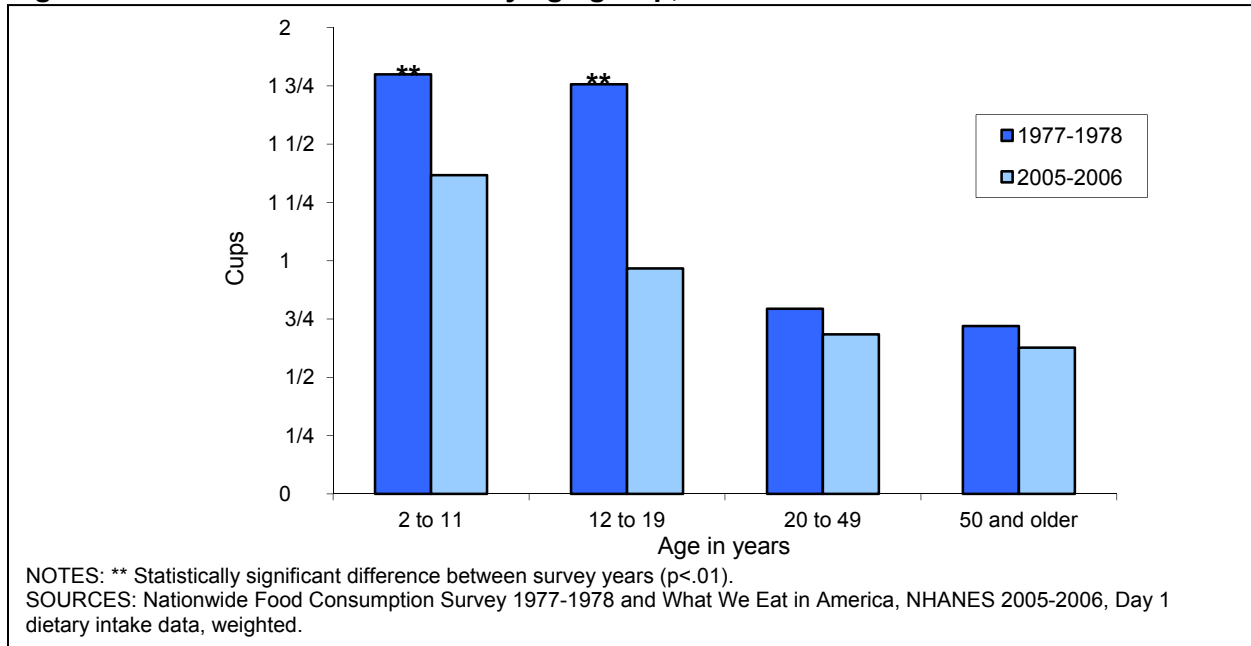
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Has intake of fluid milk changed since 1977-1978?

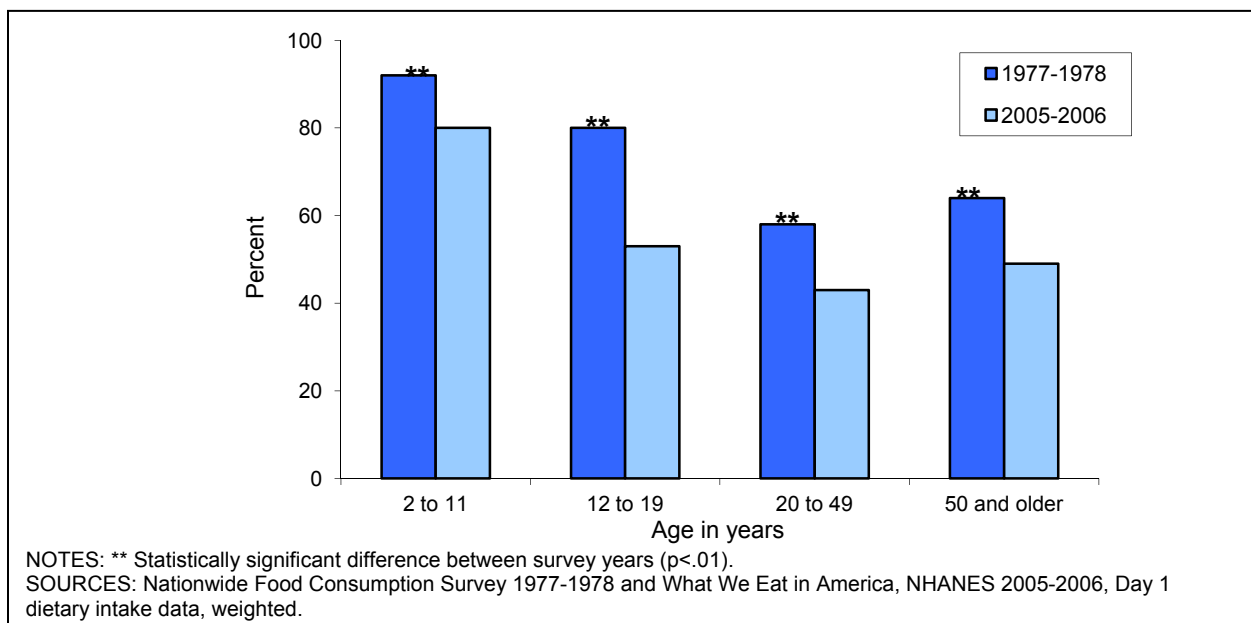
Yes. Fluid milk intakes by children and adolescents decreased, though intakes by adults did not. Among children age 2-11 years, overall consumption was about 1/2 cup (3-1/2 fluid ounces) less in 2005-2006 than in 1977-1978. The greatest change between 1977-1978 and 2005-2006 was observed for adolescents age 12-19 years, whose mean intake of milk decreased by nearly one-half – from about 1-3/4 cup (14 fluid ounces) per day in 1977-1978 to slightly less than 1 cup (7-3/4 fluid ounces) in 2005-2006.

Figure 2. Mean intake of fluid milk by age group, 1977-1978 and 2005-2006



Even though the mean intake of fluid milk did not change for adults, the percentage of individuals consuming milk decreased significantly between 1977-1978 and 2005-2006 for both of the adult age groups, as it also did for children and adolescents.

Figure 3. Percent of individuals consuming fluid milk by age group, 1977-1978 and 2005-2006

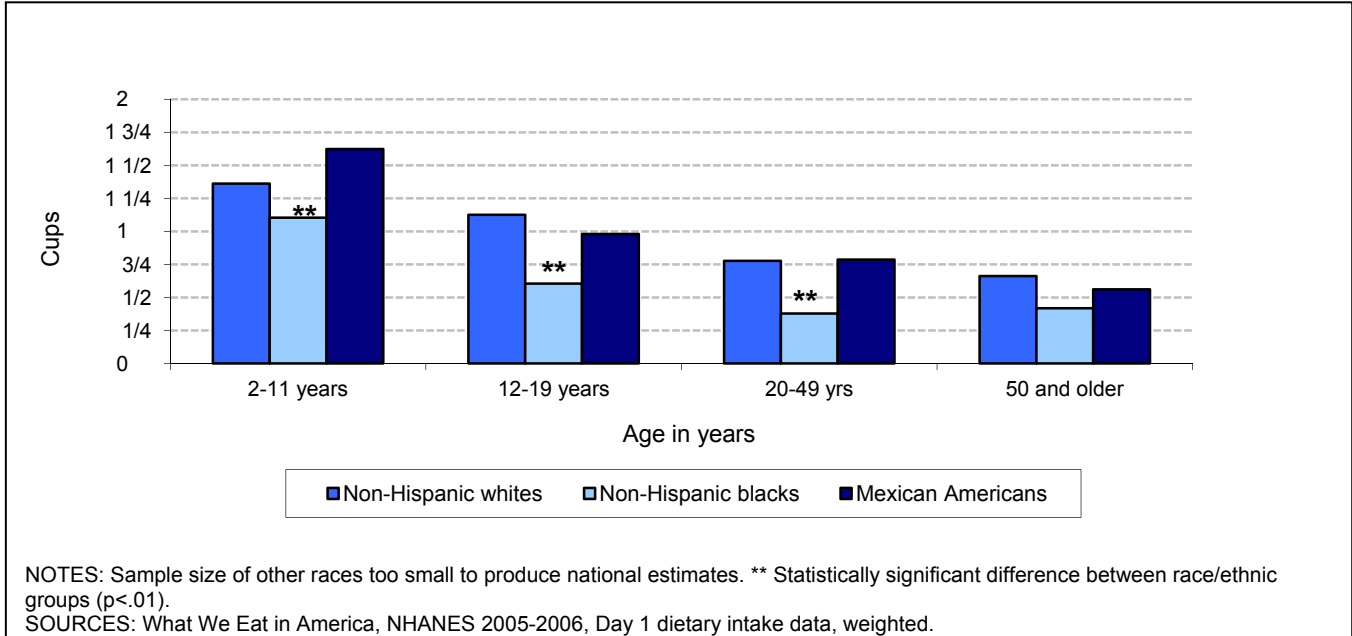


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Does milk consumption differ by race and ethnicity?

Yes. In all age groups except adults age 50 years and older, non-Hispanic blacks consumed significantly less milk than non-Hispanic whites and Mexican Americans. In 2005-2006, among adults age 20 years and older, non-Hispanic whites and Mexican Americans consumed on average about 3/4 cup of milk (about 6 fluid ounces), whereas non-Hispanic blacks consumed a little over 1/3 cup (about 3 fluid ounces).

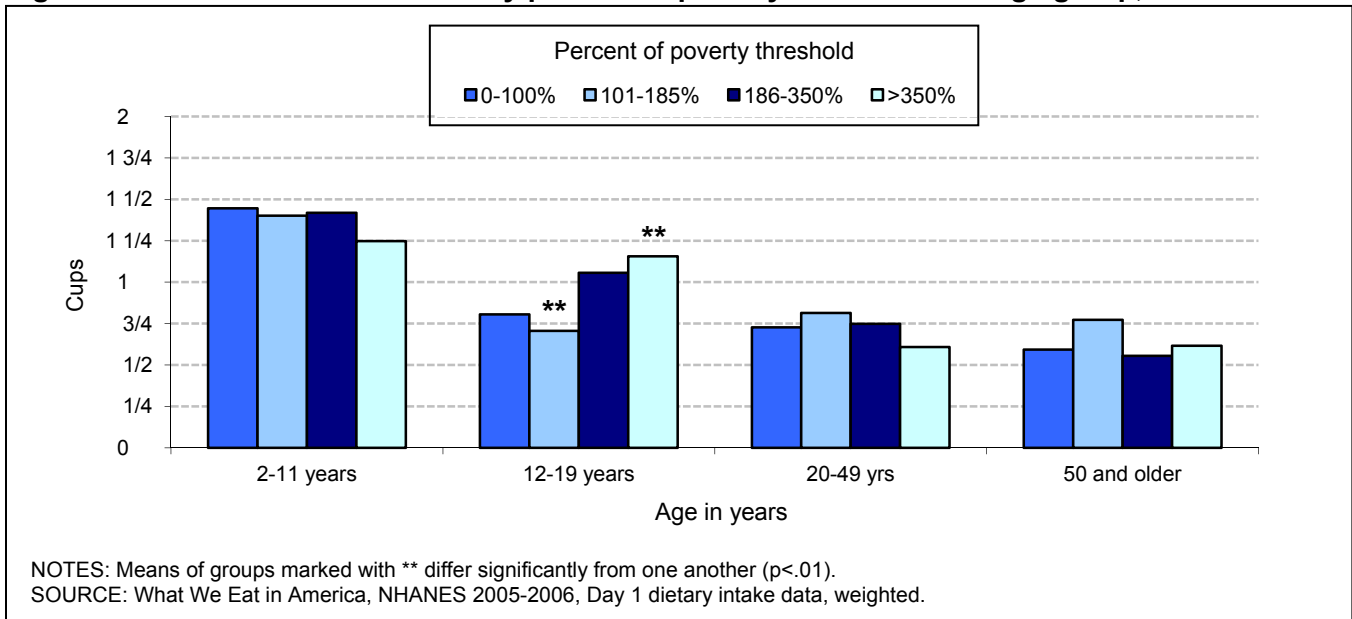
Figure 4. Mean intake of fluid milk by race/ethnicity and age group, 2005-2006



Does milk consumption vary by income?

Although no overall trend was seen, adolescents in the highest income group consumed significantly more milk than those with income at 101-185 percent of the poverty threshold (*see definition on page 7*). There were no significant differences in other age groups.

Figure 5. Mean intake of fluid milk by percent of poverty threshold and age group, 2005-2006



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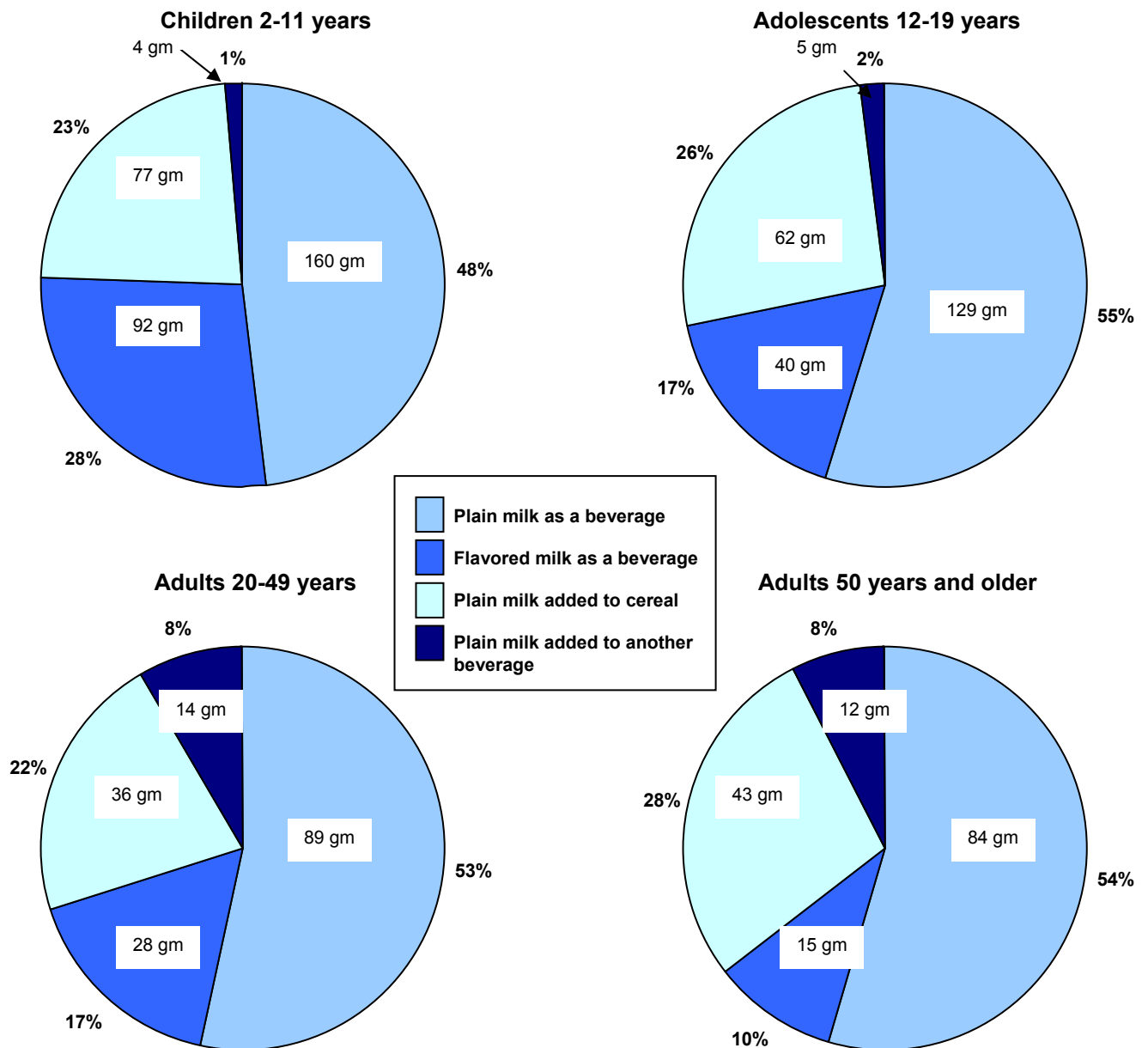
How is milk consumed?

In 2005-2006, over 99 percent of total fluid milk was consumed in one of four ways (*see definitions on page 7*):

- Plain (unflavored) milk consumed as a beverage
- Flavored milk and milk drinks
- Plain milk added to cereal
- Plain milk added to another beverage

Although females consumed less milk than males, the proportion of milk consumed in each of the four ways by males and females was comparable. For all age groups, plain milk consumed as a beverage was the largest contributor to total milk intake. However, mean amounts of plain milk consumed as a beverage by older groups were considerably lower than those consumed by younger groups.

Figure 6. Milk consumption patterns by age group, WWEIA/NHANES 2005-2006



NOTES: 1 cup of milk weighs approximately 244 grams.

SOURCE: What We Eat in America, NHANES 2005-2006, Day 1 dietary intake data, weighted.

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How does drinking plain milk impact nutrient intakes?

Fluid milk contributed substantially to total daily nutrient intake. Milk provided over 50 percent of the daily intake of vitamin D, over 30 percent of calcium, and over 20 percent of vitamin A, riboflavin, vitamin B₁₂, and phosphorus for milk reporters (*see definition on page 7*). Because young children (age 2-11 years) consumed significantly more milk than teens or adults, milk provided higher proportions of their total intake of many nutrients.

Table 1. Fluid milk's contributions to nutrient intakes for those who consumed fluid milk on the intake day, 2005-2006

Percent of daily intake contributed by milk	Selected Nutrients	
	Age 2-11 years	Age 12+ years
51+	Vitamin D	Vitamin D
41-50	Calcium	–
31-40	Vitamin A Riboflavin Vitamin B ₁₂ Phosphorus	Calcium
21-30	Protein Total sugars Saturated fat Choline Magnesium Potassium	Vitamin A Riboflavin Choline (12-19 yrs) Vitamin B ₁₂ Phosphorus Potassium (12-19 yrs)
10-20	Food energy (calories) Carbohydrate Total fat Cholesterol Thiamin Vitamin B ₆ Zinc	Food energy (12-19 yrs) Protein Total sugars Saturated fat Cholesterol (12-19 yrs) Choline (20+ yrs) Magnesium Potassium (20+ yrs) Zinc
<10	Dietary fiber Niacin Folate Vitamin C Vitamin E Iron Sodium	Food energy (20+ yrs) Carbohydrate Dietary fiber Total fat Cholesterol (20+ yrs) Thiamin Niacin Vitamin B ₆ Folate Vitamin C Vitamin E Iron Sodium

NOTE: Total sugars include both naturally-occurring and added sugars.

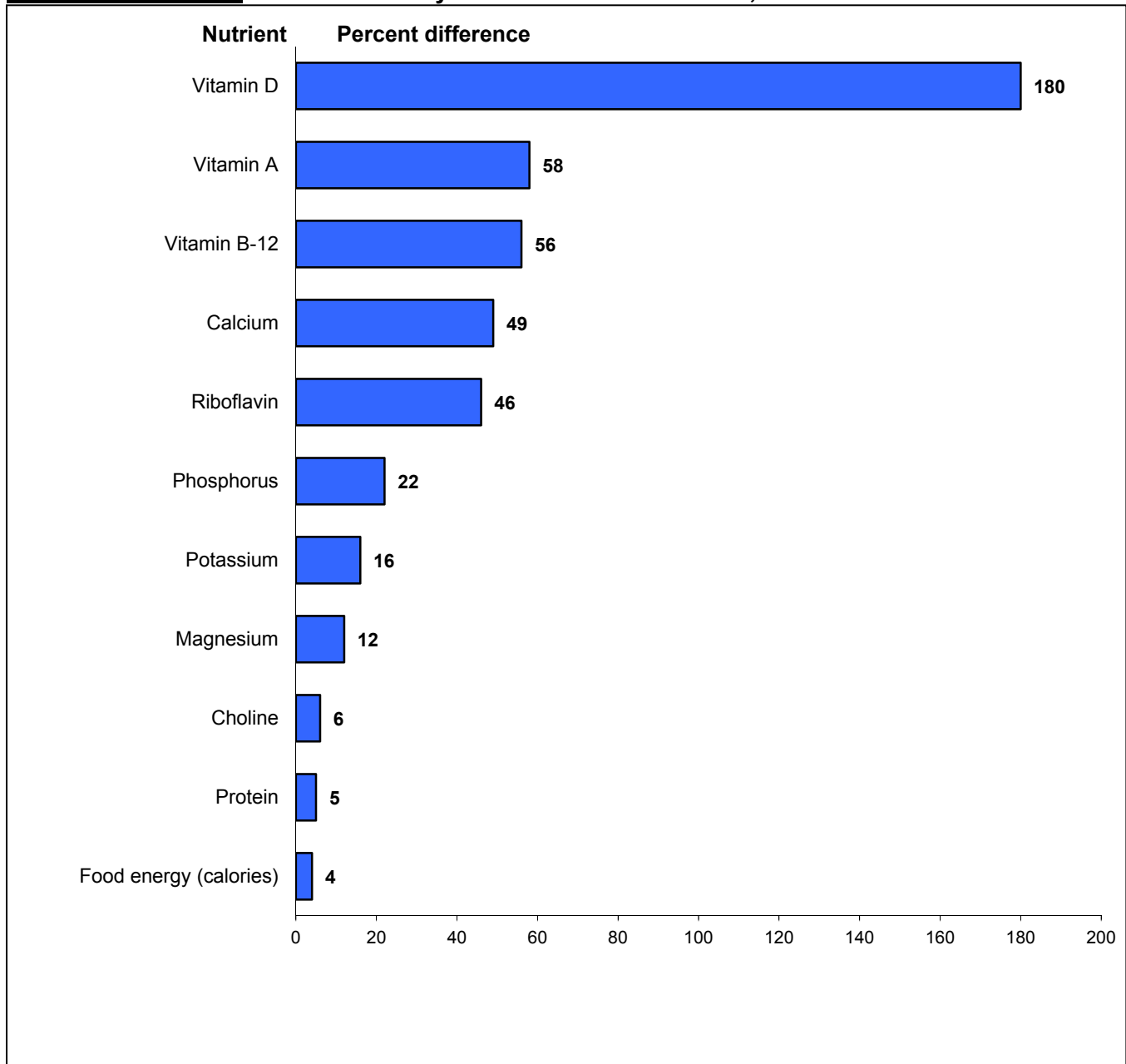
SOURCE: What We Eat in America, NHANES 2005-2006, 1 Day dietary intake data, weighted.

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Is consuming milk associated with more favorable nutrient intakes?

Yes, for many nutrients. Individuals who reported milk on the intake day consumed slightly more food energy (calories), but not more total fat or saturated fat (not shown), than individuals who did not report milk. Milk reporters also had significantly higher intakes of several “shortfall” nutrients, i.e., nutrients that are usually low enough in the diets of both children and adults to be of national concern (7). For milk reporters, intakes of the shortfall nutrients potassium and calcium were 16 percent higher and 49 percent higher, respectively, than those of nonreporters. The most favorable difference seen was in vitamin D intake. Milk reporters obtained 180 percent more vitamin D than nonreporters, which means that the vitamin D intake of milk reporters was nearly three times that of nonreporters.

Figure 7. Percent difference between mean intakes of selected nutrients *for those who consumed fluid milk* on the intake day versus those who did not, 2005-2006



Definitions

Flavored milk and milk drinks: Milk-based drinks with caloric additions. Included in this category are such beverages as chocolate- and fruit-flavored milk, milk shakes, hot chocolate/cocoa, malted milk, and eggnog.

Fluid milk: Includes plain and flavored milk and milk drinks.

Milk reporters: For the purposes of this data brief, “reporting milk” means consuming milk on the intake day. Some people who did not report milk on this day may have consumed it on other days.

Plain milk: Cow’s or goat’s milk with no flavoring or anything else added to it. Includes whole, reduced fat (2%), lowfat (1%), nonfat/skim, and acidophilus milk; buttermilk; and reconstituted dry milk. Excludes (a) milk substitutes such as soy milk and rice milk, and (b) milk that was an ingredient in a food item, e.g., milk in a cream soup or in macaroni and cheese.

Poverty thresholds: Percent of poverty level is based on family income, family size, and composition using U.S. Census Bureau poverty thresholds. The poverty threshold categories are related to Federal Nutrition Assistance Programs, www.fns.usda.gov.

Data Source

Estimates for 2005-2006 are based on data from What We Eat in America (WWEIA), the dietary intake interview component of the National Health and Nutrition Examination Survey (NHANES) (9). The NHANES sample was designed to represent the civilian, noninstitutionalized U.S. population. In 2005-2006, a total of 8,552 individuals age 2 years and older provided complete and reliable dietary intake data. Pregnant and lactating females (n=404) and breastfeeding children (n= 3) were excluded, yielding a final sample of 8,145 (4,146 males and 3,999 females). Results presented for 1977-1978 are based on Nationwide Food Consumption Survey data from 29,098 individuals (15,945 males and 13,153 females) (10). Sample weights were applied in all analyses to produce nationally representative estimates.

In this report, one day of 24-hour dietary recall data was used for each individual. In 2005-2006, 24-hour recall data were obtained by a trained interviewer using the Automated Multiple Pass Method (AMPM). The AMPM is a research-based, multiple-pass approach employing 5 steps designed to enhance complete and accurate food recall. Nutrient intakes were based on intakes of foods and beverages only, not supplements.

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