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Contributions of Nonalcoholic Beverages to the U.S. Diet

**Oral Capps, Jr., Annette Clauson,
Joanne Guthrie, Grant Pittman, and
Matthew Stockton**



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Abstract

This report analyzes consumer demand and nutritional issues associated with nonalcoholic beverages purchased for at-home use by looking at demographic variables such as household size, household income, education level, and region. The beverages include milk, carbonated soft drinks, bottled water, fruit juices, fruit drinks, coffee, tea, and isotonics (sports drinks). The report's focus is on the impact of nutritional quality from beverage purchase choices that a household makes, looking at the household's availability of calories, calcium, vitamin C, and caffeine from these beverage choices. Using the Daily Values on the Nutrition Facts portion of the food label as a reference, we find that nonalcoholic beverages purchased for at-home consumption provided, on a per-person basis:

- 10 percent of daily value for calories.
- 20 percent of the daily value for calcium.
- 70 percent of daily value for vitamin C.

Statistical analyses included the use of descriptive cross-tabulations and regression analyses, with profiles of households that were more or less likely to purchase the beverages, as well as key determinants associated with the probability of purchasing selected beverages.

Keywords: nonalcoholic beverages, nutrient intake, cross-tabulations, regression analyses, probit analyses

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Summary

Obesity is the most urgent nutrition-related health problem in America today, so the potential calorie and nutrient contribution of beverages to that increase in overweight and obesity is important to consider. Consumers are offered an ever-increasing number of choices among nonalcoholic beverages, and there is a trend toward decreased consumption of milk and increased consumption of other beverages, especially soft drinks and bottled water. Beverage choices may have important implications for intake of calories and therefore for obesity risk, as well as for adequacy of important nutrients such as calcium. The focus of this report is the nutrient availability from nonalcoholic beverages purchased for at-home consumption. Analyses are based on the 1999 ACNielsen Homescan data from 7,195 household panelists, who were nationally representative of all U.S. household level purchases.

Understanding beverage choices of households has policy significance for the U.S. Department of Agriculture (USDA) because it is the lead Federal agency that provides nutrition information to the public. Through the Food Guide Pyramid, the Dietary Guidelines for Americans, and related materials, USDA provides consumers with information on food and beverage choices that contribute to a healthful diet. Current USDA dietary guidance publications include advice on beverages. For example, the Food Guide Pyramid for Children recommends two servings from the milk group daily and includes a picture of a soft drink in the tip of the Pyramid, indicating that soft drinks should be consumed only occasionally.

USDA provided food assistance and nutrition benefits to one out of five Americans at a cost of \$41.6 billion in fiscal year 2003. The largest of these programs, the Food Stamp Program, allows consumers to make their own food purchase choices, while also attempting to educate low-income households to use their food assistance benefits to make wise food choices. Other programs, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Child and Adult Care Food Program (CACFP), and the School Meals Programs mandate certain choices. School Meal Program regulations require that soft drinks not be served while USDA-subsidized meals are served, and WIC vouchers are valid only for certain food purchases, with milk and vitamin C-rich fruit juices the only allowable beverage choices. The Child Nutrition Programs (CACFP, School Meal Programs, and Summer Food Service Program) require that the meals and snacks subsidized through these programs follow a nutritious pattern; fruit juice is a reimbursable item choice and milk is a required meal element.

Concerns have been raised that the trend of decreased milk consumption may contribute to excess calorie consumption and declining intakes of important nutrients such as calcium, especially for youths. Most Americans still eat many of their meals at home, but food prepared away from home—i.e., restaurant, fast-food, and take-out foods—plays a much more important role in today's diet than in previous decades. Given this shift, it is useful to consider how the beverage choices selected for at-home consumption may influence the beverage choices made by consumers when they are away from home.

Our findings demonstrate that household beverage choice can have an important impact on the nutritional quality of the household food supply. The beverage choices a household makes have important effects on household calories, an important consideration given America's current obesity problem. Beverage choices also have an impact on calcium availability in the home food supply. Our analysis indicates more households purchased soft drinks than milk.

A descriptive analysis of the annual purchases (in gallons), annual expenditure (in dollars), and prices (dollars per gallon) is part of this report. Cross-tabulations were used to examine the relationship between demographic variables and nonalcoholic beverages. The list of demographics analyzed included: household income (above or below 130 percent of the poverty threshold, the eligibility level for the Food Stamp Program); household size; age, employment status, and education of the female head of household; race; region; ethnicity (Hispanic origin); and seasonality. The probit analyses featured ready-to-drink fruit juices (not frozen); ready-to-drink fruit drinks; isotonic; powdered soft drinks; tea; coffee; carbonated soft drinks; bottled water; and flavored and unflavored milk. Probit analyses for selected nonalcoholic beverages were conducted to determine the drivers associated with the decision to purchase the respective products. Cross-tabulations also were done to examine the average caloric, calcium, vitamin C, and caffeine available intake for all nonalcoholic beverages by demographic category. And, finally, regression analyses of daily nutrient intakes of calories, calcium, vitamin C, and caffeine were conducted. The purpose was to understand the key demographic factors associated with daily nutrient availability from nonalcoholic beverages.

Employment status of the household head, education of the household head, race, region, and the presence of children were statistically important in the determination of daily calories available per person. Available calcium intakes derived from nonalcoholic beverages were lower by 21 milligrams (mg) for households below the 130 percent of poverty threshold (table 1).

Table 1—Summary of nutrients available per person per day from the consumption of all nonalcoholic beverages, 1999

Demographic factor	Calories (kcal)	Calcium (mg ¹)	Vitamin C (mg)	Caffeine (mg)
All persons	194.60	196.16	41.42	87.68
> 130% poverty	194.29	197.39	41.77	87.47
< 130% poverty	199.58	176.47	35.89	91.12
Region				
East	187.33	183.54	45.49	95.56
Central	208.75	217.80	39.81	91.31
South	197.94	187.34	42.99	83.36
West	178.33	196.75	36.64	82.48
Race				
White	196.22	210.90	39.70	94.55
Black	190.99	107.43	55.65	51.30
Asian	135.83	133.77	36.99	42.37
Other	190.38	146.77	42.37	60.07

¹ mg = milligrams.

Source: ERS analysis of ACNielsen Homescan data.

Available calcium intakes also were lower by 95 mg for Blacks, relative to Whites, and they were lower by 61 mg for Asians in comparison with Whites. Education of the household head, race, region, and income were the key drivers associated with daily availability of vitamin C derived from nonalcoholic beverages. Available vitamin C intakes, on a daily basis, were 6 mg lower for households below the 130 percent of poverty threshold compared with households above the 130 percent of poverty threshold. Age of the household manager, race, and region were the primary determinants of daily caffeine intake per person. For example, caffeine availability per person per day was lower by 37 mg, 33 mg, and 19 mg for Blacks, Asians, and Other races, respectively, compared with Whites. For households located in the Central region, the South and the West, available caffeine intakes were lower by 8 mg, 11 mg, and 17 mg, respectively, relative to households located in the East.

To provide perspective on the contribution of nonalcoholic beverages to nutrient intake, this study found that on average, 10 percent of the Nutrition Label standard of 2,000 calories came from at-home purchases of nonalcoholic beverages, about 20 percent of the recommended daily intake of calcium came from at-home purchases of nonalcoholic beverages, and close to 70 percent of the recommended daily intake of vitamin C came from nonalcoholic beverages. On average, the daily available intake of caffeine from nonalcoholic beverages was equivalent to almost two 12-ounce cans of Coca-Cola or roughly, one 15-ounce glass of tea.

The probit analysis indicated that race and region were key demographics associated with the decision to purchase nonalcoholic beverages. Also, household size, age of the household head, and poverty status of the household head were statistically important determinants in the decision to buy nonalcoholic beverages.