

# Doubled calorie intake from beverages likely contributes to adult obesity

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It's not just sugary sodas that are adding to the obesity crisis – it's fruit drinks, alcohol and a combination of other high-calorie beverages, say University of North Carolina at Chapel Hill School of Public Health researchers. And during the holidays, when eggnog, cocktails and spiced cider are abundant, the problem can be even more apparent.

Over the past 37 years, the number of calories adults get through beverages has nearly doubled, according to a UNC study published in the November issue of *Obesity Research* by Kiyah J. Duffey, a doctoral candidate in the department of nutrition, and Barry M. Popkin, Ph.D., professor of nutrition and a fellow at the Carolina Population Center.

The study used nationally representative data to quantify both trends and patterns in beverage consumption among 46,576 American adults aged 19 and older. Patterns and trends of all beverages adults consumed were examined between 1965 and 2002. Researchers found that, over these 37 years, total daily intake of calories from beverages increased by 94 percent, providing an average 21 percent of daily energy intake among U.S. adults. That amounts to an additional 222 calories from all beverages daily.

Water intake was measured from 1989 to 2002, and during that time, the amount of water consumed stayed roughly the same, but the average adult consumed an additional 21 ounces per day of other beverages, Popkin said.

“This has considerable implications for numerous health outcomes, including obesity and diabetes as this is just adding several hundred calories daily to our overall caloric intake,” Popkin said.

Most researchers agree that beverages do not fill you up, Popkin said. “Regardless of beverage type – water, sodas, milk, orange juice or beer – those extra calories are not compensated for by a reduction in food intake.”

Data analyzed for this study came from the federally funded Nationwide Food Consumption Surveys of 1965 and 1977-1978 and the National Health and Nutrition Examination Surveys of 1989-1994 and 1999-2002.

“For each exam year, we calculated total energy intake, percent consuming and calories per consumer for 16 different beverages, and determined total beverage intake (fluid ounces) for each beverage,” Duffey said. “Then, using a method that finds patterns within data, we generated 5 different groups of individuals who had similar patterns of beverage consumption and compared the beverages that comprised these groups in 1977 and 2002 to determine if the combinations of beverages were different.”

As it turns out, they were different.

“The biggest difference we observed was that the 2002 beverage patterns were more complex than they were in 1977,” she said. “For example, just five beverages dominated the patterns in 1977, but in 2002 there were eight beverages consumed in significant quantities – and new beverages appeared in these 2002 patterns. Fruit and vegetable juices and diet beverages were not important in 1977 patterns, but were in 2002.”

Equally important, Popkin noted, are the overall trends in total calories from beverages. In 1965, beverages accounted for just 12 percent of daily energy intake. That number jumped to 21 percent by 2002.

As noted in previous studies, 23 percent more adults reported drinking soda between 1965 and 2002 (accounting for an additional 108 calories per day) while calories from whole-fat milk declined nearly 45 percent (from 119 calories per day in 1965 to 69 calories per day in 2002). Alcohol (up 73 calories per day) and fruit juice (up 20 calories per day) had considerable increases in their contribution to daily energy intake as well.

“One of the strengths of this study,” Popkin said, “is that we examined the full range of beverages consumed, providing a broad understanding of the role of beverages, and patterns of beverages, to overall dietary intake.”

Because data are not collected on the same individuals over time, conclusions cannot be made about the influence of the observed trends or patterns on changes in individual health outcomes over time, but they can provide a starting point for future analyses to examine this issue.

Source: University of North Carolina at Chapel Hill

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