



Comparison of Beverage Choices among Children: What We Eat in America, NHANES 2007-2008 and 2017-2018

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Highlights

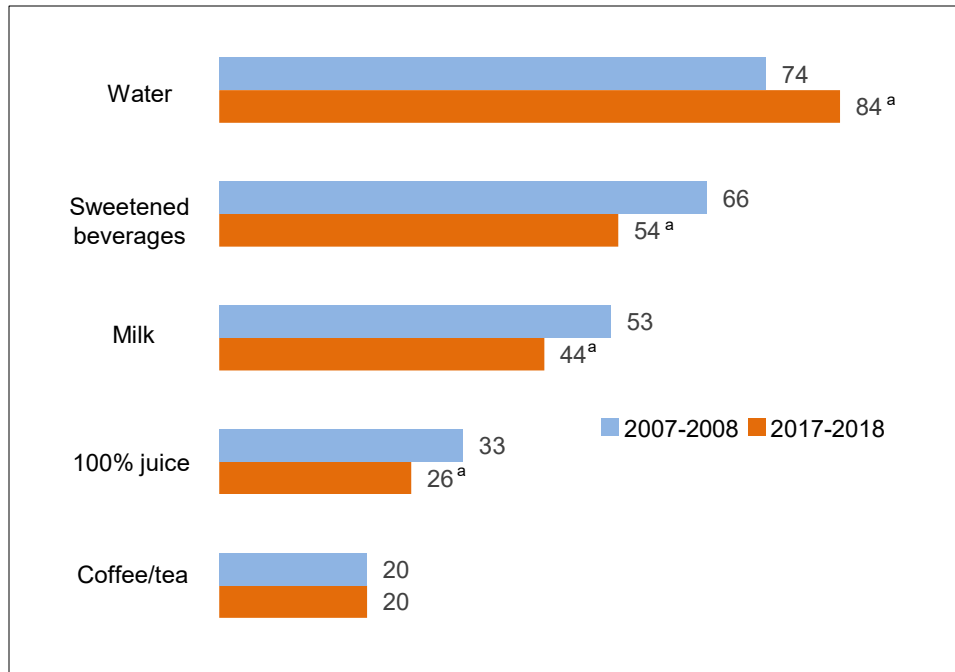
- Water, sweetened beverages, and milk were the most popular beverages in both 2007-2008 and 2017-2018.
- Sweetened beverages were reported less frequently among children ages 6-11 yrs and 12-19 yrs in 2017-2018 compared to 2007-2008.
- 100% juice was reported less frequently among children ages 2-5 yrs and 6-11 yrs in 2017-2018 compared to 2007-2008.
- Non-Hispanic (NH) White and NH Black children reported sweetened beverages less frequently in 2017-2018 than 2007-2008.
- Beverages contributed less energy and other nutrients to daily intake in 2017-2018.
- Daily intake of sweetened beverages in fluid ounces among children was lower in 2017-2018 than 2007-2008.

Beverages, a source of hydration, are an important contributor to energy and nutrients in the diet. This report presents results on beverage consumption on a single day among U.S. children, ages 2-19 years, using data from What We Eat in America, NHANES 2007-2008 and 2017-2018. For this report, beverages included liquids consumed as beverages and excluded liquids added to foods, such as milk to cereal.

Did beverage consumption change from 2007-2008 to 2017-2018?

The popularity of the different categories of beverages among children was the same in both timeframes with water reported by the highest percentage of children followed by sweetened beverages and milk. The percentage reporting water was higher in 2017-2018 compared to 2007-2008 whereas sweetened beverages, milk, and 100% juice were lower.

Figure 1. Percentage of children who consumed beverages* 2007-2008 and 2017-2018



* Beverage groups are defined on page 6

^a Significantly different from 2007-2008, (p<0.01)

SOURCE: WWEIA, NHANES 2007-2008 and 2017-2018, day 1, individuals 2-19 years



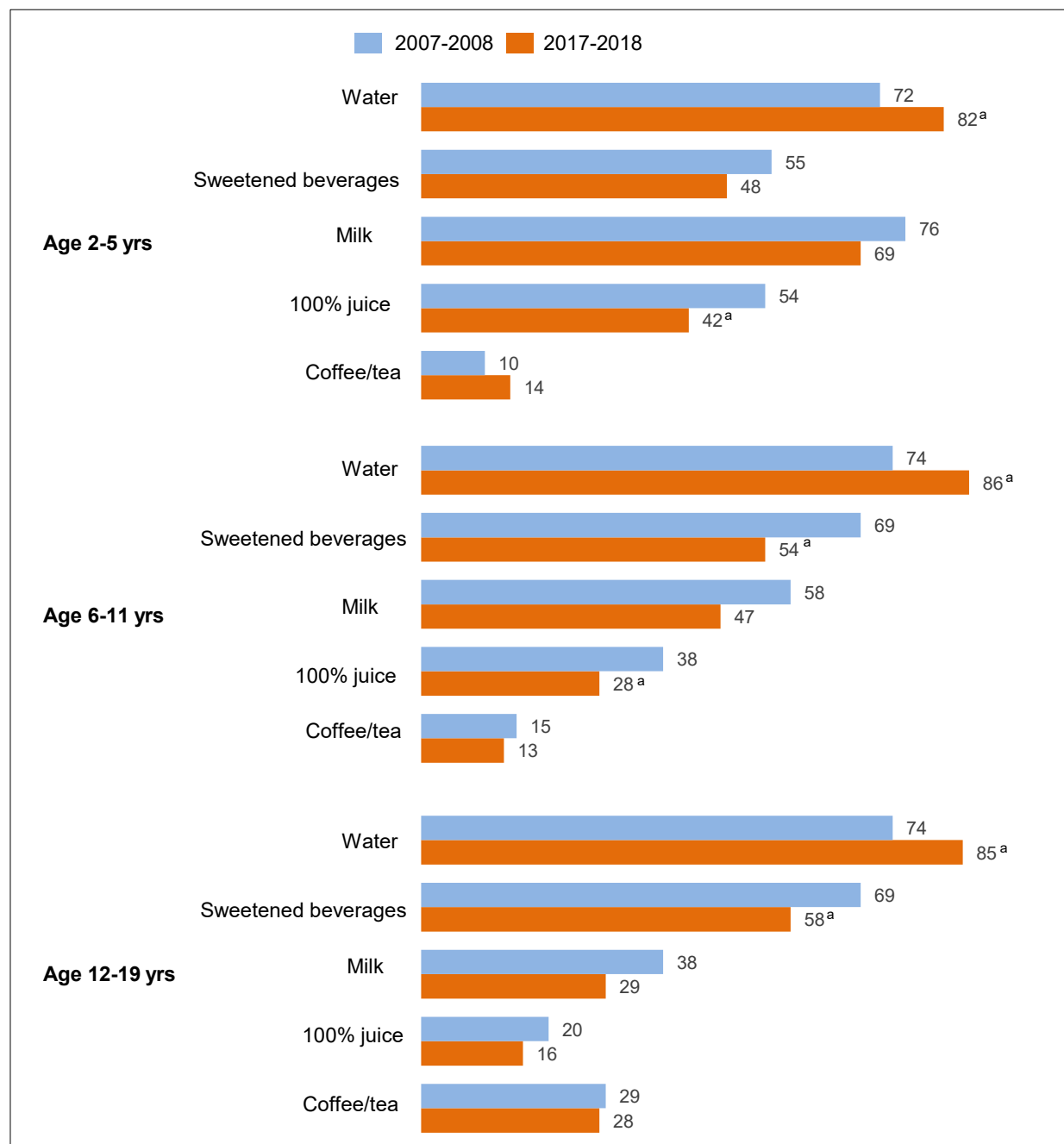
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Did beverage choice by age change from 2007-2008 to 2017-2018?

Comparing beverage choices in 2017-2018 to 2007-2008, a greater percentage of all age groups reported water whereas a lower percentage of children ages 2-5 yrs and 6-11 yrs reported 100% juice. The percentage reporting sweetened beverages was lower among children ages 6-11 yrs and 12-19 yrs.

Figure 2. Percentage of children consuming beverages by age, 2007-2008 and 2017-2018



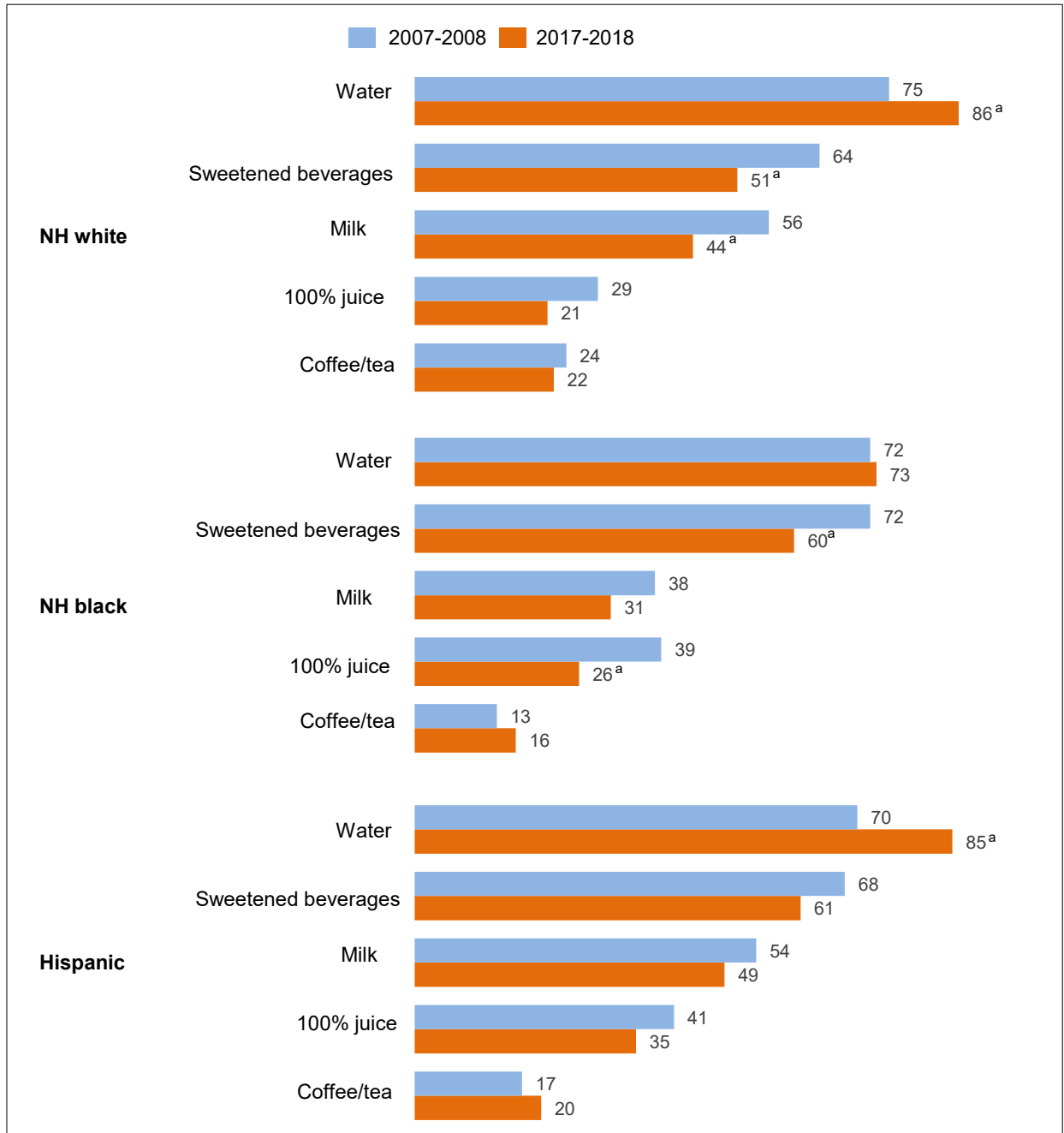
^a Significantly different from 2007-2008, (p<0.01)

SOURCE: WWEIA, NHANES 2007-2008 and 2017-2018, day 1, individuals 2-19 years

Did beverage choice by race/ethnicity change from 2007-2008 to 2017-2018?

When comparing beverages choices in 2017-2018 to 2007-2008, the percentage of both non-Hispanic (NH) white and Hispanic children reporting water was higher. Both NH white and NH black children had a lower percentage reporting sweetened beverages. A lower percentage of NH white and NH black children reported consuming milk and 100% juice, respectively.

Figure 3. Percentage of children consuming beverages by race/ethnicity, 2007-2008 and 2017-2018



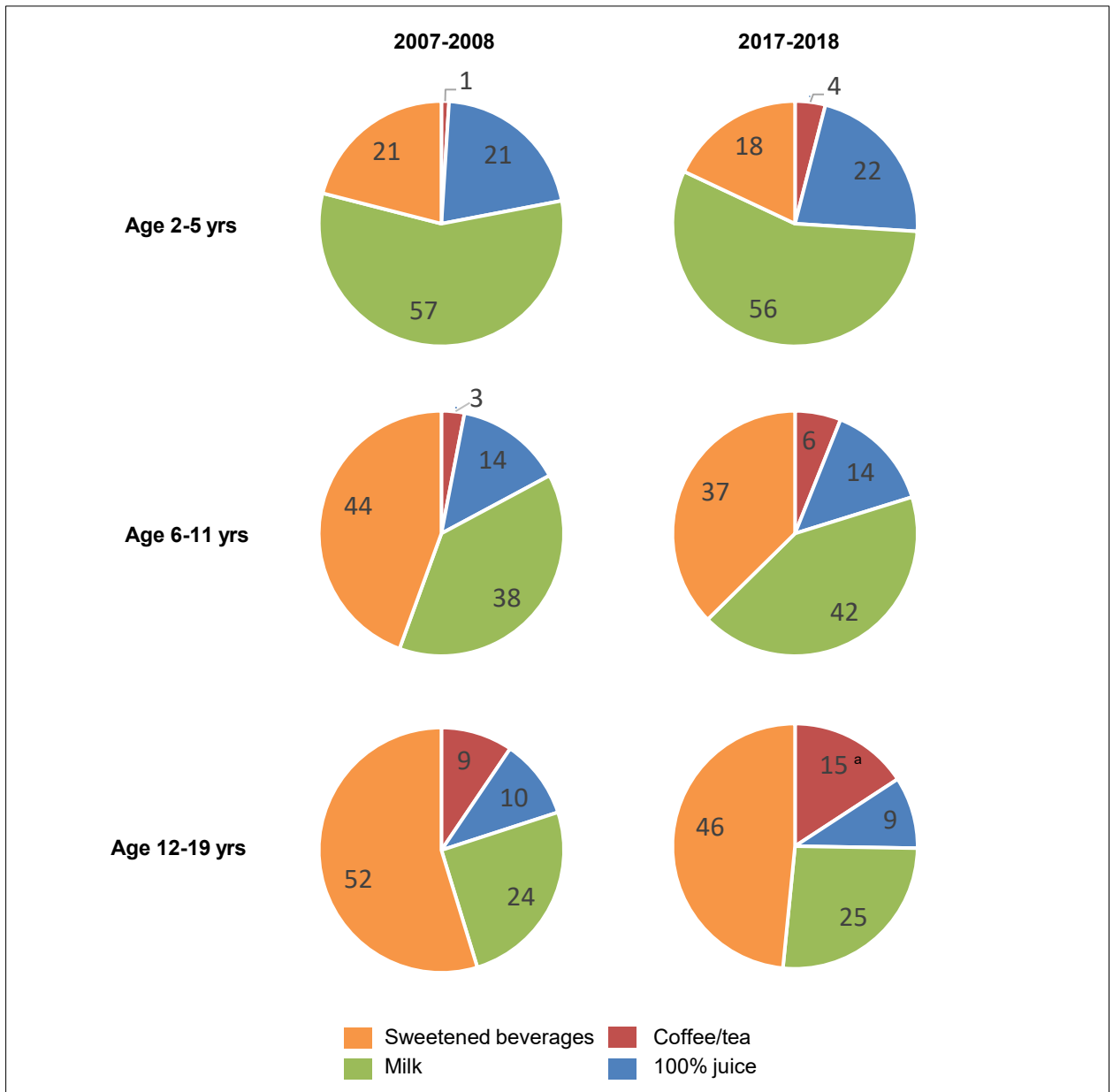
^a Significantly different from 2007-2008, (p<0.01)

SOURCE: WWEIA, NHANES 2007-2008 and 2017-2018, day 1, individuals 2-19 years

Did the types of beverages that contributed energy change from 2007-2008 to 2017-2018?

The contribution of energy from each beverage type was similar between 2007-2008 and 2017-2018 among all age groups with only the contribution from coffee/tea increasing among ages 12-19 yrs. Among the youngest age group (2-5 yrs), over half of the daily energy from beverages came from milk, while among the oldest age group (12-19 yrs) approximately half of the daily energy from beverages came from sweetened beverages during both timeframes.

Figure 4. Percentage of daily energy from beverages by beverage type among children, 2007-2008 and 2017-2018



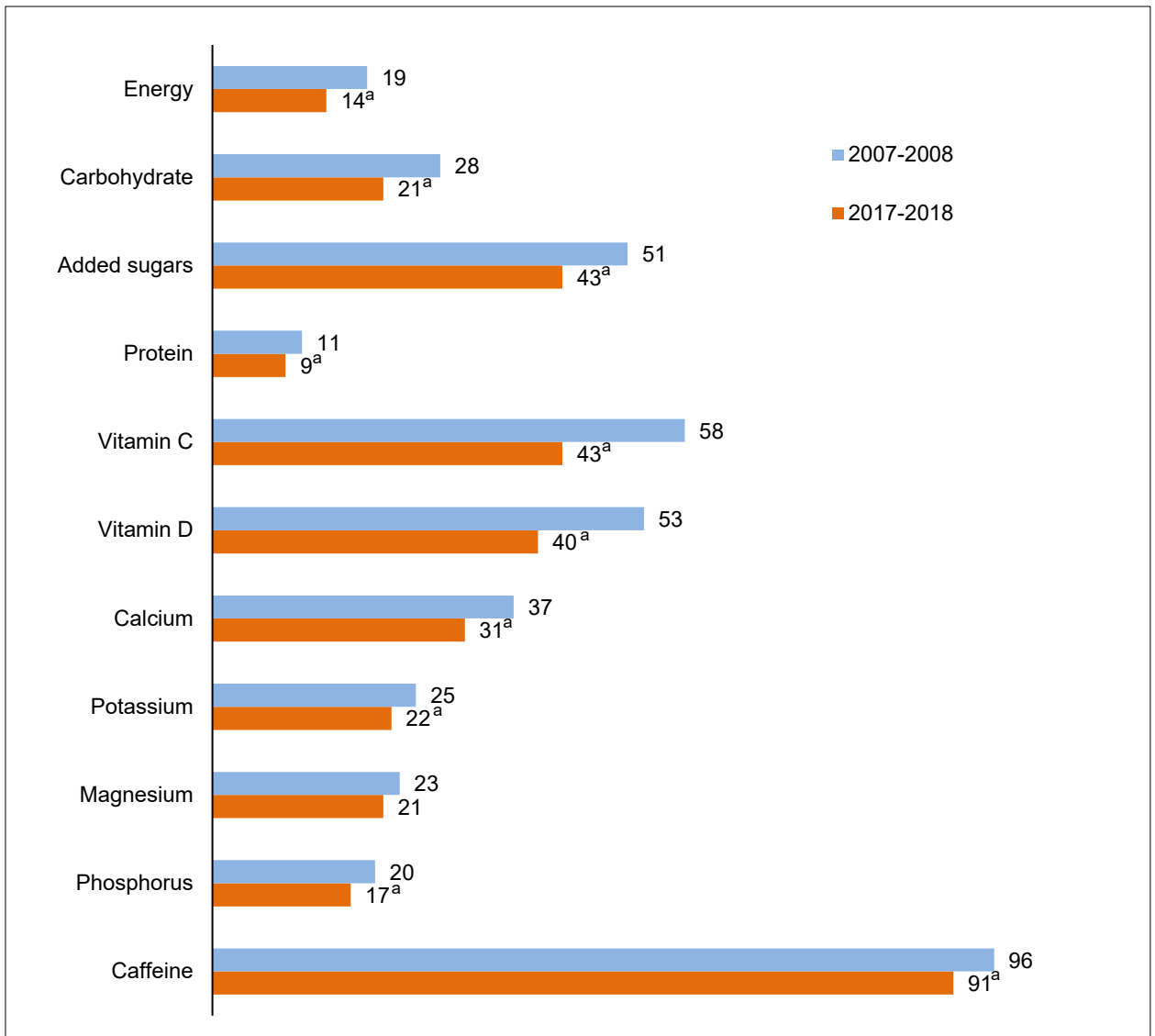
^a Significantly different from 2007-2008, (p<0.01)

SOURCE: WWEIA, NHANES 2007-2008 and 2017-2018, day 1, individuals 2-19 years

Did the contribution of daily nutrients from beverages change from 2007-2008 to 2017-2018?

When comparing the contribution of nutrients from beverages in 2017-2018 to 2007-2008, the contribution to daily energy intake and other dietary components was lower except for magnesium. When evaluated by age group, the contribution from beverages to daily energy, carbohydrate, vitamin C, and vitamin D was significantly lower among all age groups ($p < 0.01$; data not shown). Added sugars contribution from sweetened beverages was also lower among all age groups ($p < 0.01$; data not shown).

Figure 5. Percentage of daily energy and selected dietary components contributed by beverages among children, 2007-2008 and 2017-2018



^a Significantly different from 2007-2008, ($p < 0.01$)

SOURCE: WWEIA, NHANES 2007-2008 and 2017-2018, day 1, individuals 2-19 years

Did the daily intake of select beverages by reporters change from 2007-2008 to 2017-2018?

The mean daily intake of soft drinks and nonfat milk in fluid ounces (fl oz) by reporters was lower in 2017-2018 compared to 2007-2008. The percentage of children reporting soft drinks, 100% juice, fruits drinks, and reduced fat milk were also lower.

Table 1. Mean daily intake of select beverages by reporters, 2007-2008 and 2017-2018

Beverage	2007-2008		2017-2018	
	% reporting	Intake fl oz	% reporting	Intake fl oz
Soft drinks, sweetened	42	18	29 ^a	14 ^a
100% juice	33	10	26 ^a	10
Fruit drinks	31	13	24 ^a	12
Sports drinks	9	17	10	15
Milk, whole	15	13	13	12
Milk, reduced fat	27	12	17 ^a	11
Milk, lowfat	9	11	9	9
Milk, nonfat	4	14	6	9 ^a
Other milk drinks	3	9	4	10

^a Significantly different from 2007-2008, (p<0.01)

SOURCE: WWEIA, NHANES 2007-2008 and 2017-2018, day 1, individuals 2-19 years

Definitions

Beverages: Beverages identified using WWEIA Food Categories including any additions to those beverages (e.g., sugar, milk) and excluded any beverages added to foods such as milk to cereal or water to soup.

Beverage Groups:

Milk: Plain and flavored milk, other milk drinks and milk substitutes.

100% Juice: 100% fruit and/or vegetable juice.

Coffee/tea: Regular and decaffeinated coffee or tea with additions such as milk, cream and/or sweeteners, and coffee and tea drinks, including ready-to-drink.

Diet beverages: Diet soft drinks, diet sport/energy drinks and other diet drinks that are low- and no-calorie-sweetened, containing 40 kcal or less per reference amount customarily consumed.

Sweetened beverages: Energy containing soft drinks, fruit drinks, and sports/energy drinks that contain more than 40 kcal per reference amount customarily consumed.

Soft drinks: Energy-containing drinks made with carbonated water.

Fruit Drinks: Energy-containing fruit and/or vegetable drinks that are not 100% juice.

Sports/energy drinks: Energy-containing sport/energy drinks, nutritional beverages and protein/nutritional powders consumed with a beverage, smoothies and grain drinks. Note: The categories for protein/nutritional powders and smoothies and grain drinks were not created until WWEIA 2011-2012 and 2013-2014, respectively. For the purpose of this study, these categories were added for 2007-2008 and relevant food codes from that time period included.

Water: Tap, bottled, flavored, carbonated and enhanced/fortified water.

Data Source

Estimates in this report are based on one day of dietary intake data collected in *What We Eat in America* (WWEIA), the dietary intake interview component of the National Health and Nutrition Examination Survey (NHANES), in 2007-2008 and 2017-2018. The study sample included 3,109 children age 2-19 years in 2007-2008 (age 2-5 year, n= 832; age 6-11 years, n=1,121; age 12-19 years, n=1,156) and 2,380 children age 2-19 years in 2017-2018 (age 2-5 year, n= 540; age 6-11 years, n=795; age 12-19 years, n=1,045) who provided complete and reliable dietary intake data. Only in the race-specific analysis, non-Hispanic individuals who were multi-racial or of a racial group other than those presented (154 and 476 children in 2007-2008 and 2017-2018, respectively) were excluded. Sample weights were applied in all analyses to produce nationally representative estimates. Dietary intake of beverages were collected from an in-person 24-hour recall using the interviewer-administered 5-step USDA Automated Multiple-Pass Method (1). Intakes of energy and nutrients were calculated using the 4.1 (2007-2008) and 2017-2018 version of USDA's Food and Nutrient Database for Dietary Studies (2). Intake of added sugars was estimated using the 2007-2008 and 2017-2018 Food Patterns Equivalents Database (3).

References

1. USDA Food Surveys Research Group. *AMPM - USDA Automated Multiple Pass Method*. <http://www.ars.usda.gov/nea/bhnrc/fsrg/ampm>. Updated January, 2021.
2. USDA Food Surveys Research Group. *FNDDS Documentation and Databases*. <http://www.ars.usda.gov/fsrg/fndds/download>. Updated February, 2023.
3. USDA Food Surveys Research Group. *FPED Databases and SAS Data Sets*. <http://www.ars.usda.gov/fsrg/fped/download>. Updated July, 2023.

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