



Food Surveys Research Group
Dietary Data Brief No. 11
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Consumption of Pizza

What We Eat in America, NHANES 2007-2010

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Highlights

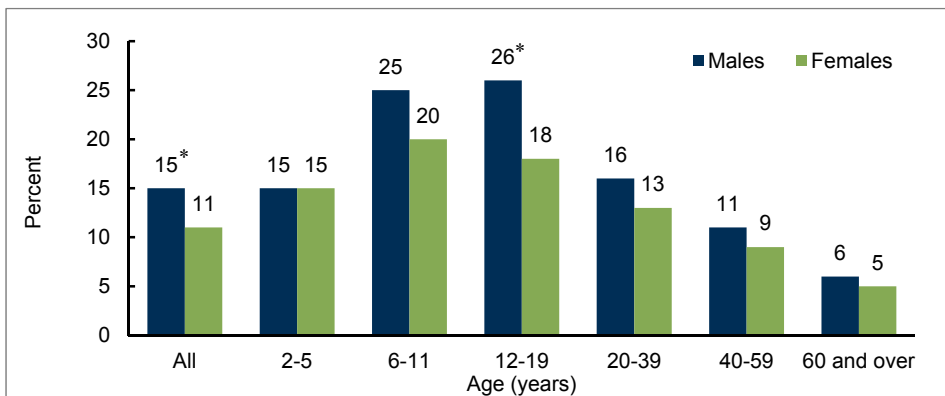
- About 1 in 8 Americans consumed pizza on any given day. More than 1 in 4 males, ages 6-19 years, consumed pizza on a day.
- For adults, whites were more likely to consume pizza than either blacks or Hispanics; for children, there were no differences by race/ethnicity.
- On the day consumed, pizza provided about one-fourth of the total daily energy.
- When consumed, pizza contributed about one-third of the daily intakes for sodium and calcium, and more than half of the daily intake for lycopene.
- For adults, the majority of pizza was consumed at dinner. For children, the distribution was similar for lunch and dinner.

Called the world's most popular food, pizza has experienced growth in sales at both big chain and independent restaurants. In addition, frozen/chilled pizza also reported growth (1). Pizza is recognized as a high consumption food and a contributor of nutrients of public significance in the American diet, including total fat, calcium and sodium (2). Depending on the age group, pizza ranks as one of the top three leading contributors of sodium to the American diet (3,4). This report presents results on pizza consumption among U.S. children and adults during 2007-2010 by gender, age, and race/ethnicity. For consumers of pizza - those individuals who reported pizza - the nutrient contribution from pizza and the eating occasion when pizza consumption occurs are also presented.

What percentage of the U.S. population consumed pizza?

Overall, 13% of the U.S. population aged 2 years and over, consumed pizza on any given day. The percentage consuming pizza ranged from approximately 22% among older children (6-11 years) and adolescents (12-19 years) to less than 6% among older adults, 60 years and over (Figure 1).

Figure 1. Percentage of U.S. population who consumed pizza on any given day, WWEIA, NHANES 2007-2010



*Significantly different from females ($p < 0.01$)

SOURCE: What We Eat in America, NHANES 2007-2010, day 1, individuals 2+ years



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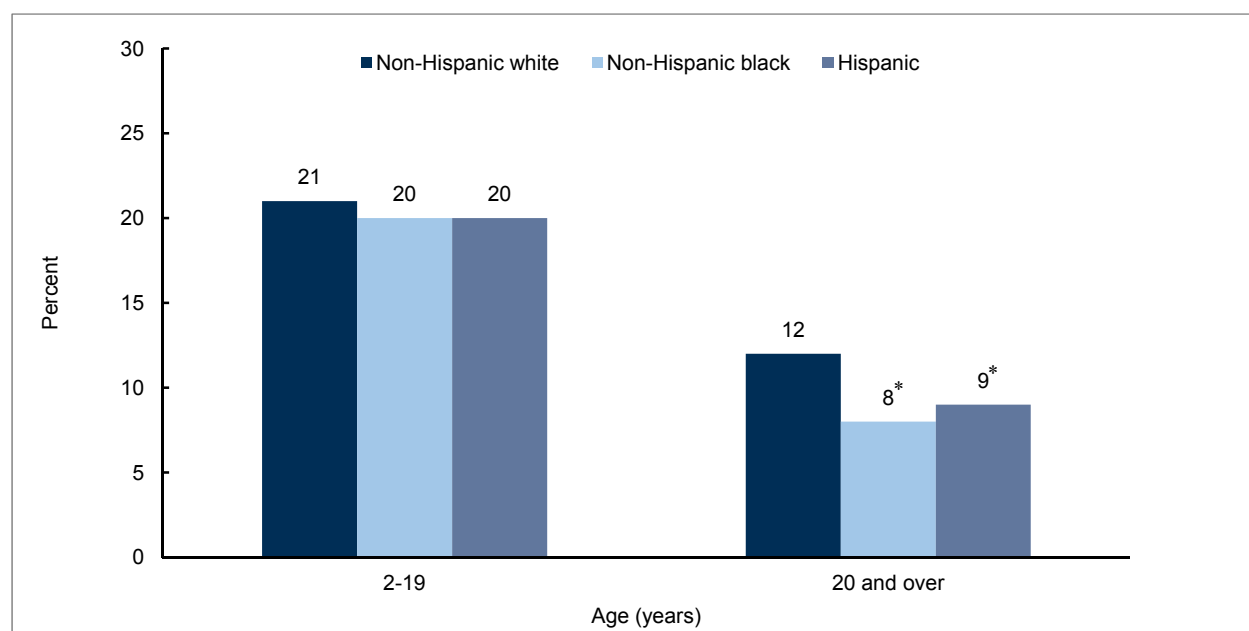
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For all individuals, a higher percentage of males (15%) than females (11%) consumed pizza on any given day. Across the selected age groups for 6 years and over, the percentage of males consuming pizza was directionally higher than the percentage of females. For the adolescent age group (12-19 years), the percentage of males consuming pizza was significantly higher compared to females in that age group.

Were there differences by race/ethnicity in pizza consumption?

Overall, a higher percentage of children (2-19 years) consumed pizza than adults (20 years and over): 20% vs. 11%, respectively. Pizza consumption differed by race/ethnicity for adults; a higher percentage of non-Hispanic white adults consumed pizza than either non-Hispanic black or Hispanic adults. For children there were no differences in pizza consumption by race/ethnicity (Figure 2).

Figure 2. Percentage of U.S. population who consumed pizza on any given day, by race/ethnicity, WWEIA, NHANES 2007-2010



*Significantly different from non-Hispanic white (p<0.01)

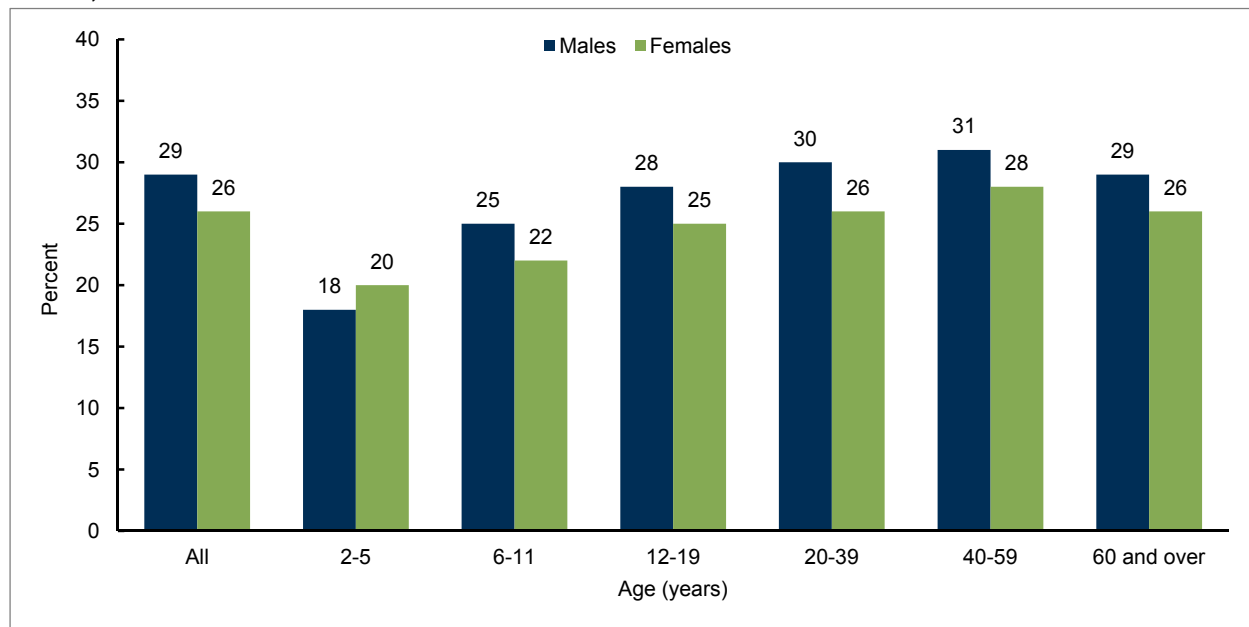
SOURCE: What We Eat in America, NHANES 2007-2010, day 1, individuals 2+ years

For consumers of pizza, what percentage of daily energy came from pizza?

For the U.S. population, pizza contributed 6% of the total energy for all children and 4% of the total energy for all adults (data not shown). This data brief will now present results among consumers of pizza – individuals who reported pizza, in any amount, at least once on the intake day.

On the day consumed, pizza provided approximately 27% of total energy among all consumers. Depending on the age and gender group, the percent of total daily energy intake coming from pizza ranged from 18% to 31% among consumers (Figure 3). Among consumers of pizza, the mean energy intake obtained from pizza was 538 kilocalories for children and 744 kilocalories for adults (data not shown). The amount of energy contained in a slice of cheese pizza (1/8th of a medium, all crust types) ranged from approximately 220-370 kilocalories (5).

Figure 3. Percentage of daily energy intake contributed by pizza among consumers of pizza, WWEIA, NHANES 2007-2010

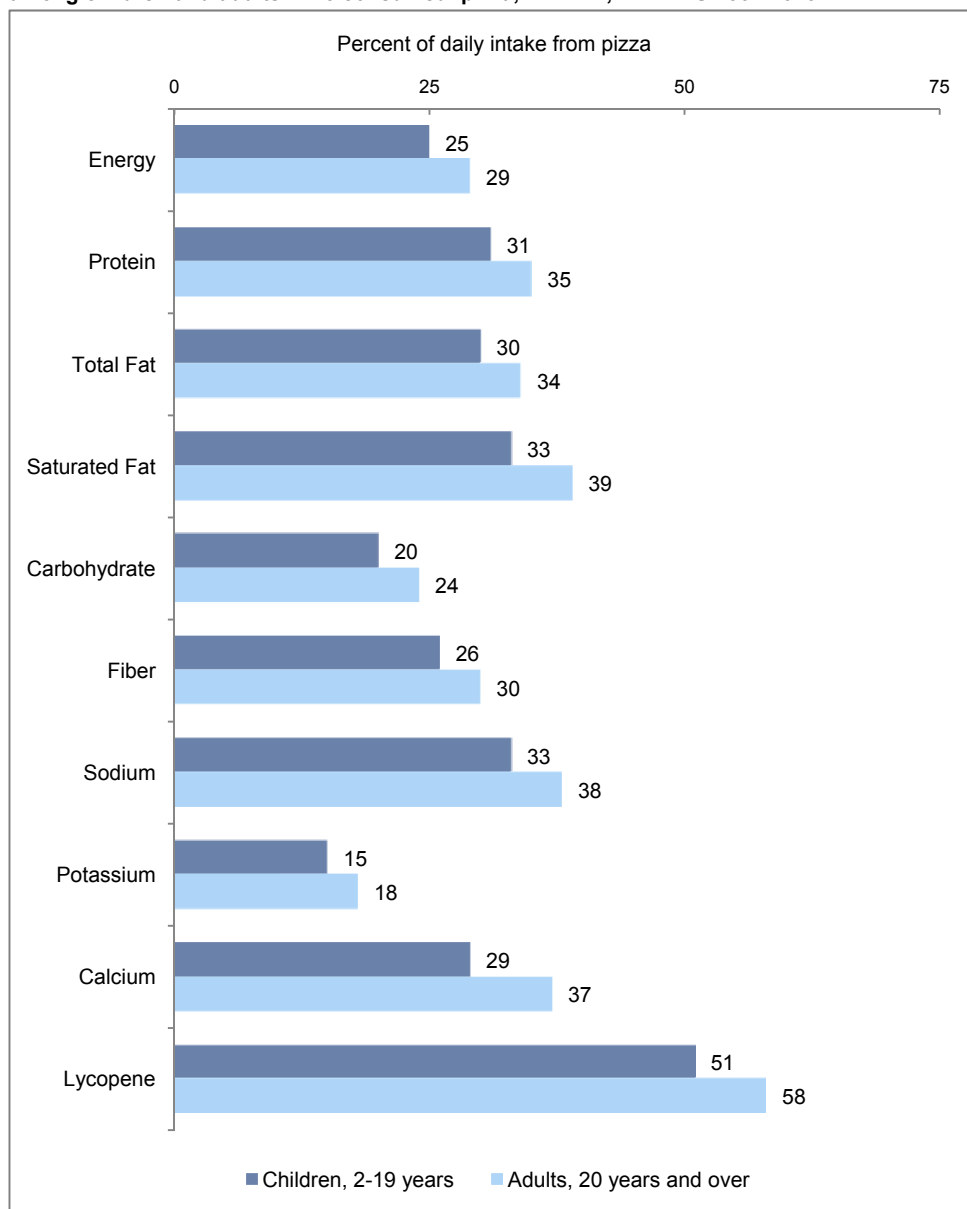


SOURCE: What We Eat in America, NHANES 2007-2010, day 1, individuals 2+ years

For children and adult consumers of pizza, what percentage of daily nutrients came from pizza?

Pizza contributed substantially to total nutrient intake among consumers on the day of the recall. Relative to energy contribution, pizza provided higher percentages of the day's total intake for protein, total fat, saturated fat, fiber, calcium, and lycopene among both children and adult consumers of pizza (Figure 4). Among consumers, pizza provided about one-third of the day's total intake for calcium and more than one-half of the day's total intake for lycopene. Pizza contributed 33% and 38% of the daily intake for sodium among children and adult consumers, respectively. For consumers of pizza, the mean sodium intake obtained from pizza was 1136 mg for children and 1599 mg for adults (data not shown).

Figure 4. Percentage of daily intake of energy and selected nutrients contributed by pizza among children and adults who consumed pizza, WWEIA, NHANES 2007-2010



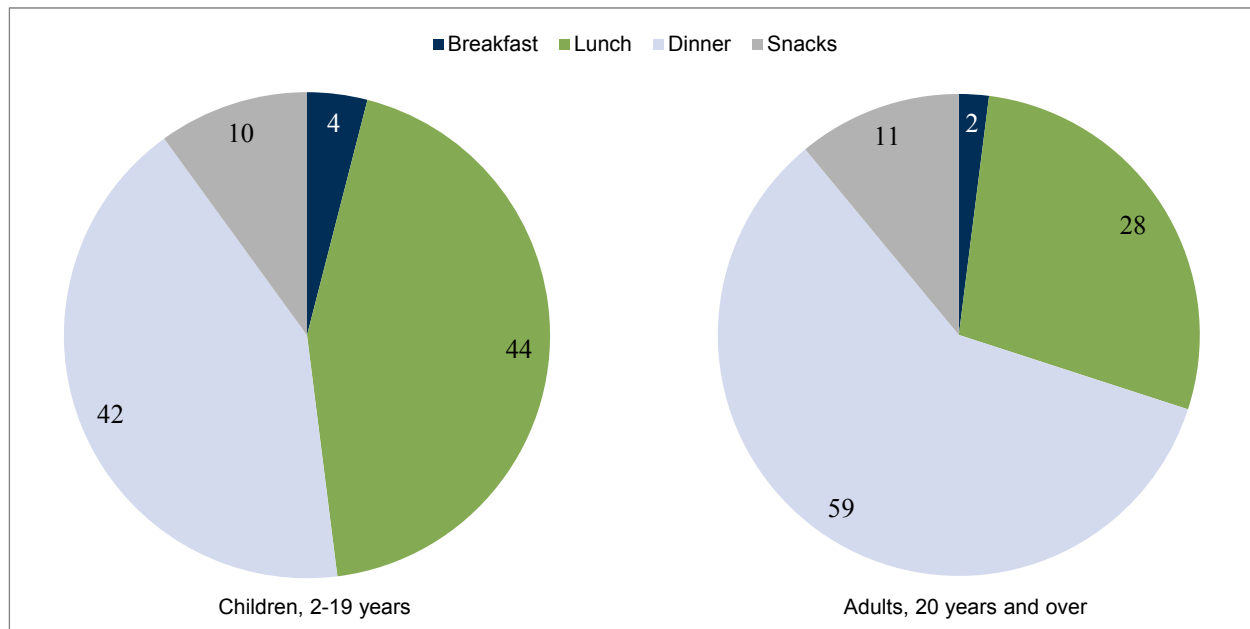
SOURCE: What We Eat in America, NHANES 2007-2010, day 1, individuals 2+ years

At what eating occasion was pizza consumed by children and adults?

For children, 44% of pizza consumption occurred at lunch and 42% occurred at dinner. However, for adults, the majority of pizza consumption was at dinner. Overall, almost 10% of pizza consumption occurred at a snack occasion (Figure 5).

More than half (59%) of pizza consumption occurred in the home. More adults (65%) than children (49%) consumed pizza at home (data not shown).

Figure 5. Percentage of pizza consumed by eating occasion for children and adults, WWEIA, NHANES 2007-2010



SOURCE: What We Eat in America, NHANES 2007-2010, day 1, individuals 2+ years

Definitions

Pizza: Includes all food codes defined by the What We Eat in America Food Categories (6) as ‘pizza’ (4- digit category number = 3602).

Pizza consumer: Any individual who reported pizza, in any amount, at least once on the intake day.

Eating occasion: A distinct eating/drinking occurrence reported during the 24-hour dietary interview that consists of one or more food/beverage item. The name of the eating occasion was selected from a fixed list provided during the interview. English and Spanish eating occasion names were grouped as follows:

Breakfast: breakfast, desayuno, and almuerzo

Lunch: brunch, lunch, and comida

Dinner: dinner, supper, and cena

Snack: snack, drink, extended consumption (items that were consumed over a long period of time), merienda, entre comidas, botana, bocadillo, tentempie, and bebida.

At home: During the 24-hour dietary interview, respondents were asked where each reported food/beverage was eaten – at home or away from home?

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 interview component of the National Health and Nutrition Examination Survey (NHANES). Data from WWEIA NHANES 2007-2008 and 2009-2010 were combined. The study sample included 17,571 individuals, aged 2 years and over (excluding breast-fed children), with complete and reliable intakes. Sample weights were applied in all analyses to produce nationally representative estimates. Dietary intake of foods and beverages were obtained from an in-person 24-hour recall, collected using the interviewer-administered 5-step USDA Automated Multiple-Pass Method. The WWEIA Food Categories (6) were used to define the food group – pizza.

References

1. Barrett L. Pizza power 2013 state of the industry report. PMQ Pizza Magazine. December 2012. www.pmq.com
2. Nickle M, Pehrsson P. USDA updates nutrient values for fast food pizza. *Procedia Food Science* 2013;2: 87-92.
3. Centers for Disease Control and Prevention. Vital signs: food categories contributing the most to sodium consumption — United States, 2007–2008. *MMWR Morb Mortal Wkly Rep* 2012;61:92-98.
4. Drewnowski A, Rehm CD. Sodium intakes of US children and adults from foods and beverages by location of origin and by specific food source. *Nutrients* 2013; 1840-1855.
5. Ahuja JKA, Montville JB, Omolewa-Tomobi G, Heendeniya KY, Martin CL, Steinfeldt LC, Anand J, Adler ME, LaComb RP, and Moshfegh AJ. 2012. USDA Food and Nutrient Database for Dietary Studies, 5.0. U.S. Department of Agriculture, Agricultural Research Service. Food Surveys Research Group, Beltsville, MD.
6. U.S. Department of Agriculture, Agricultural Research Service. 2013. What We Eat in America Food Categories 2009-2010. Available: www.ars.usda.gov/ba/bhnrc/fsrg

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