

Trends in food consumption among children ages 1-4 years by participation in the Special Supplemental Nutrition Program for Women, Infant, and Children (WIC), United States 2005-2018

Cheryl D. Fryar

Supplemental Table 1: Sample size, study population aged 1-4 years, by WIC participation, age, sex, and race and Hispanic origin, 2005-2018^{1,2}

		Recipient	Eligible non- recipient	Ineligible, non- recipient		Recipient	Eligible non- recipient	Ineligible, non- recipient		Recipient	Eligible non- recipient	Ineligible, non- recipient		Recipient	Eligible non- recipient	Ineligible, non- recipient
	n ³	Percent ⁴ (SE) ⁵			n ³	Percent ⁴ (SE) ⁵			n ³	Percent ⁴ (SE) ⁵			n ³	Percent ⁴ (SE) ⁵		
		Total				2005-2006				2007-2008				2009-2010		
Total Sample size ³	5568	2272	1488	1808	975	390	258	327	897	376	241	280	932	441	225	266
Total ⁶		30.3 (1.2)	24.1 (0.9)	45.6 (1.5)		28.7 (2.7)	22.6 (1.9)	48.6 (3.7)		28.4 (2.3)	22.3 (1.9)	49.2 (3.1)		32.9 (2.1)	22.0 (2.6)	45.1 (2.7)
Age (years)																
1	1542	38.8 (1.9)	18.6 (1.3)	42.6 (2.1)	283	34.0 (3.1)	17.6 (2.3)	48.4 (3.8)	261	43.7 (5.0)	11.3 (2.8)	45.0 (6.3)	273	41.8 (4.1)	15.0 (2.5)	43.2 (4.5)
2	1697	31.8 (1.8)	24.2 (1.5)	44.0 (1.9)	298	31.4 (4.8)	25.4 (2.9)	43.3 (5.2)	276	26.2 (3.6)	21.8 (2.9)	51.9 (4.0)	283	35.8 (3.2)	21.6 (4.0)	42.7 (5.2)
3	1127	26.5 (1.8)	23.6 (1.7)	49.9 (2.4)	183	23.0 (4.1)	18.2 (3.1)	58.8 (6.2)	172	26.7 (4.7)	28.3 (4.2)	45.0 (5.9)	177	27.3 (3.1)	22.6 (4.0)	50.2 (4.7)
4	1202	24.7 (1.8)	29.6 (1.8)	45.7 (2.2)	211	25.9 (4.6)	29.3 (4.3)	44.8 (6.3)	188	19.4 (4.2)	27.2 (4.8)	53.4 (6.6)	199	26.0 (3.5)	28.7 (4.3)	45.4 (3.2)
Sex																
Female	2723	30.9 (1.4)	23.9 (1.3)	45.3 (1.8)	488	30.2 (2.7)	25.5 (2.9)	44.4 (3.7)	413	29.5 (2.6)	20.1 (2.9)	50.5 (2.8)	441	31.5 (2.7)	23.9 (2.4)	44.6 (2.6)
Male	2845	29.8 (1.4)	24.4 (1.1)	45.9 (1.8)	487	27.4 (3.6)	20.0 (1.8)	52.6 (4.7)	484	27.5 (3.1)	24.5 (2.7)	48.1 (4.5)	491	34.0 (2.5)	20.4 (3.6)	45.6 (4.1)
Race and Hispanic origin																
Non-Hispanic White	1720	16.0 (1.3)	22.6 (1.3)	61.4 (2.0)	278	17.5 (3.0)	18.7 (3.2)	63.8 (4.4)	298	13.2 (4.0)	20.7 (1.8)	66.1 (4.6)	331	14.1 (2.1)	21.0 (3.6)	65.0 (4.6)
Non-Hispanic Black	1270	45.0 (2.1)	35.7 (1.8)	19.3 (1.7)	237	48.2 (6.2)	29.2 (4.3)	22.6 (5.2)	192	42.0 (3.5)	30.3 (4.5)	27.7 (4.6)	159	48.4 (5.3)	34.2 (4.9)	17.4 (2.9)
Mexican American	1387	59.2 (2.1)	21.8 (1.6)	19.1 (1.7)	351	47.4 (2.7)	27.6 (2.7)	25.0 (2.5)	235	59.5 (3.7)	20.8 (3.0)	19.8 (3.6)	270	77.0 (3.2)	11.1 (1.9)	11.9 (2.5)
		2011-2012				2013-2014				2015-2016				2017-2018		
Total Sample Size ³	829	359	222	248	710	295	188	227	678	229	182	267	547	182	172	193
Total ⁶		32.0 (3.2)	27.5 (1.7)	40.6 (3.2)		31.9 (4.9)	24.4 (2.7)	43.8 (5.0)		26.0 (3.1)	24.8 (3.0)	49.2 (5.2)		32.1 (2.6)	25.4 (1.8)	42.6 (3.6)
Age (years)																
1	185	40.0 (3.9)	15.8 (3.4)	44.2 (3.7)	195	39.5 (6.1)	21.0 (3.9)	39.4 (6.2)	188	34.1 (6.6)	27.2 (3.3)	38.7 (6.6)	157	37.4 (4.7)	24.4 (5.2)	38.2 (7.2)
2	263	34.3 (4.5)	27.5 (5.3)	38.2 (4.6)	205	35.1 (6.4)	26.0 (5.1)	38.9 (5.6)	210	27.8 (4.7)	21.8 (3.6)	50.4 (5.3)	162	32.2 (5.3)	26.2 (3.3)	41.6 (5.9)
3	195	29.9 (4.5)	31.4 (5.1)	38.7 (5.1)	149	24.3 (7.2)	21.9 (4.4)	53.8 (8.9)	135	20.3 (3.7)	20.7 (5.7)	59.0 (7.1)	116	31.5 (5.0)	21.0 (3.9)	47.5 (4.4)
4	186	25.5 (5.5)	32.4 (4.3)	42.1 (5.8)	161	27.1 (6.1)	29.2 (4.1)	43.7 (5.2)	145	22.7 (3.6)	29.8 (6.9)	47.5 (6.4)	112	27.5 (5.7)	31.5 (3.0)	41.0 (5.9)

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Cheryl D. Fryar

Sex																	
	Female	429	34.4 (4.1)	24.9 (2.9)	40.7 (5.4)	348	33.4 (5.5)	26.4 (4.2)	40.2 (5.6)	334	24.9 (4.2)	25.8 (5.2)	49.3 (7.7)	270	32.3 (3.2)	20.1 (2.8)	47.6 (3.9)
	Male	400	29.7 (3.9)	29.9 (3.6)	40.4 (3.8)	362	30.3 (4.7)	22.4 (2.4)	47.4 (5.6)	344	27.3 (3.7)	23.6 (1.9)	49.1 (3.7)	277	31.9 (3.5)	29.9 (3.7)	38.2 (5.4)
Race and Hispanic origin																	
Non-Hispanic White		147	15.8 (3.8)	27.9 (3.5)	56.3 (5.5)	211	17.6 (5.6)	23.4 (4.0)	59.0 (6.7)	226	15.4 (2.7)	21.6 (3.1)	63.1 (5.3)	229	18.8 (1.7)	25.7 (4.3)	55.4 (5.0)
Non-Hispanic Black		249	51.7 (6.4)	36.1 (5.3)	12.2 (3.3)	164	44.8 (5.4)	34.5 (4.0)	20.7 (4.9)	149	36.3 (3.8)	42.3 (5.4)	21.4 (4.5)	120	40.0 (6.6)	47.3 (5.1)	12.7 (3.0)
Mexican American		177	53.1 (7.2)	22.5 (4.6)	24.4 (3.6)	150	60.3 (5.7)	23.6 (4.5)	16.2 (4.9)	132	46.1 (9.7)	27.7 (7.2)	26.2 (7.1)	72	66.2 (3.5)	21.3 (5.0)	12.4 (5.4)

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018
²WIC- Special Supplemental Nutrition Program for Women, Infants and Children
³Unweighted sample size includes responses from all reliable and complete recalls
⁴Weighted percentages may not add up to 100% due to rounding.
⁵SE-Standard error
⁶Total includes all other race and Hispanic origin groups not reported separately.

Cheryl D. Fryar

Supplemental Table 2: Unadjusted trends in percent of children aged 1-4 years consuming food groups/category, by WIC participation: United States 2005-2006 through 2017-2018^{1,2}

	2005-06		2007-08		2009-10		2011-12		2013-14		2015-16		2017-18		p value for trend	
	Percent ³	SE ⁴	Percent ³	SE ⁴	Percent ³	SE ⁴	Percent ³	SE ⁴	Percent ³	SE ⁴	Percent ³	SE ⁴	Percent ³	SE ⁴	Linear	Quadratic
WIC Recipient (n ⁵ =2,272)	(n=390)		(n=376)		(n=441)		(n=359)		(n=295)		(n=229)		(n=182)			
Whole fruit	70.9	3.7	67.6	3.4	76.3	2.8	77.1	2.9	64.8	3.4	76.3	3.1	80.1	3.1	0.07	0.49
Whole grains	64.7	4.2	58.5	2.8	64.7	2.8	68.6	2.7	68.8	4.1	62.5	3.3	58.3	2.8	0.69	0.05
Total vegetables	91.0	2.2	94.3	1.4	90.5	1.2	92.2	1.6	90.4	1.7	92.7	2.2	91.7	1.9	0.88	0.88
Total fruit	93.1	2.0	88.1	2.4	90.8	2.7	96.5	1.2	93.9	1.9	93.7	1.6	91.2	2.3	0.45	0.30
Added Sugars	100.0	0.0	98.5	0.6	99.2	0.5	99.8	0.2	98.2	1.1	99.6	0.3	100.0	0.0	0.55	0.03
Low-fat & nonfat milk	3.6	1.0	7.4	2.3	12.2	3.2	16.1	2.9	10.5	2.8	23.2	5.2	27.0	2.9	<0.001	0.40
Reduced fat milk	28.3	4.6	33.7	2.6	42.3	4.2	40.9	3.7	34.3	2.9	22.4	4.0	17.0	2.7	<0.01	<0.001
Whole milk	55.3	5.3	50.8	2.7	32.6	4.3	32.0	4.0	33.5	4.3	32.4	6.1	32.5	4.3	<0.001	0.007
Flavored milk	13.5	2.7	15.0	2.0	14.3	2.8	12.0	2.3	12.6	3.5	7.2	2.5	20.3	9.4	0.85	0.44
Ready-to-eat cereal, higher sugar	29.5	3.3	23.3	3.2	26.9	2.9	22.9	2.8	26.6	4.1	24.2	3.1	29.0	5.1	0.95	0.27
Ready-to-eat cereal, lower sugar	29.2	5.4	29.1	2.7	24.8	3.9	25.1	2.7	17.3	2.8	24.2	3.0	13.5	3.1	<0.01	0.72
WIC eligible, non-recipient (n ⁵ =1,488)	(n=258)		(n=241)		(n=225)		(n=222)		(n=188)		(n=182)		(n=172)			
Whole fruit	74.7	4.2	70.2	4.1	71.2	4.2	80.3	4.3	69.1	3.1	67.3	3.2	66.6	2.4	0.08	0.23
Whole grains	67.6	5.1	55.5	4.2	68.9	3.8	63.2	5.5	73.8	4.6	59.3	3.8	62.1	6.9	0.90	0.54
Total vegetables	92.3	3.0	94.6	2.2	93.2	2.2	91.1	2.8	93.0	2.9	90.8	2.5	93.6	2.7	0.79	0.75
Total fruit	88.6	3.9	85.7	2.3	89.8	3.3	93.4	1.9	90.2	1.8	87.9	2.6	89.1	1.9	0.68	0.28
Added Sugars	100.0	0.0	97.8	1.9	99.1	0.9	100.0	0.0	98.9	0.8	99.4	0.5	99.5	0.5	0.75	0.52
Low-fat & nonfat milk	8.4	2.7	7.3	2.1	14.6	4.1	15.2	4.6	6.6	2.1	4.3	1.6	5.4	2.4	0.07	0.06
Reduced fat milk	37.4	5.6	34.6	4.4	30.6	4.0	35.4	4.6	33.0	4.1	28.0	4.1	26.3	4.1	0.08	0.71
Whole milk	38.3	5.6	29.8	4.5	37.3	3.9	34.2	4.2	40.3	7.4	41.2	4.0	35.4	6.1	0.55	0.98
Flavored milk	12.5	2.2	22.3	4.4	11.1	3.2	14.6	4.6	8.2	3.5	14.7	4.1	21.9	4.8	0.62	0.12
Ready-to-eat cereal, higher sugar	45.9	5.6	23.3	3.6	33.3	4.8	39.7	5.9	31.6	3.9	31.9	4.8	29.1	4.9	0.19	0.76
Ready-to-eat cereal, lower sugar	16.5	4.8	16.1	4.3	9.8	2.2	8.2	2.1	14.2	4.0	16.2	4.5	4.3	1.6	0.11	0.98
WIC ineligible, non-recipient (n ⁵ =1,808)	(n=327)		(n=280)		(n=266)		(n=248)		(n=227)		(n=267)		(n=193)			
Whole fruit	78.6	3.9	83.3	3.3	88.8	2.9	86.3	3.4	88.6	2.1	87.2	2.2	87.3	3.3	0.05	0.12
Whole grains	74.5	3.1	70.0	3.0	81.5	2.8	77.1	1.9	72.4	3.8	70.4	3.6	74.2	3.1	0.61	0.31

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Cheryl D. Fryar

Total vegetables	94.3	1.1	90.5	2.4	93.4	1.7	93.8	3.3	89.6	3.5	88.1	3.0	87.7	3.0	0.03	0.55
Total fruit	94.0	1.6	92.7	2.3	97.2	1.3	95.6	1.3	97.7	0.7	94.2	1.6	93.4	2.7	0.81	0.07
Added Sugars	99.9	0.1	100.0	0.0	99.4	0.4	100.0	0.0	100.0	0.0	99.1	0.6	99.8	0.2	0.25	0.69
Low-fat & nonfat milk	15.1	3.3	13.4	2.3	22.0	3.0	20.3	5.0	20.1	4.9	15.7	4.1	14.0	4.4	0.94	0.11
Reduced fat milk	33.8	4.0	35.6	4.5	29.5	5.9	37.2	7.9	29.6	3.4	35.7	3.7	31.7	4.7	0.80	0.95
Whole milk	35.6	3.7	38.8	4.5	32.0	2.6	36.3	6.4	31.3	4.4	29.2	3.1	33.4	4.3	0.18	0.81
Flavored milk	13.9	2.5	20.0	4.1	17.4	2.4	10.9	3.1	13.2	3.5	12.8	2.5	12.8	4.4	0.21	0.86
Ready-to-eat cereal, higher sugar	32.6	3.2	27.6	4.3	28.6	3.3	23.0	4.2	26.3	4.1	22.0	4.2	20.8	4.3	0.02	0.77
Ready-to-eat cereal, lower sugar	19.6	3.8	21.1	3.3	27.5	3.3	22.3	4.2	20.8	3.2	12.8	2.1	11.5	4.0	0.01	0.02

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018
²WIC- Special Supplemental Nutrition Program for Women, Infants and Children
³Estimates obtained through linear regression
⁴SE-standard error
⁵Unweighted sample size includes responses from all reliable and complete recalls

Cheryl D. Fryar

Supplemental Table 3. Unadjusted trends in mean intake of food groups/category among children aged 1-4 years, by WIC participation: United States, 2005-2006 through 2017-2018^{1,2}

	2005-06		2007-08		2009-10		2011-12		2013-14		2015-16		2017-18		p value for trend	
	Mean ³	SE ⁴	Mean ³	SE ⁴	Mean ³	SE ⁴	Mean ³	SE ⁴	Mean ³	SE ⁴	Mean ³	SE ⁴	Mean ³	SE ⁴	Linear	Quadratic
WIC recipient (n ⁵ =2,272)	(n=390)		(n=376)		(n=441)		(n=359)		(n=295)		(n=229)		(n=182)			
Total vegetables (cup equivalents)	0.7	0.0	0.7	0.0	0.6	0.0	0.6	0.1	0.6	0.1	0.6	0.0	0.7	0.0	0.74	0.12
Total fruit (cup equivalents)	1.7	0.1	1.5	0.1	1.6	0.1	1.4	0.1	1.4	0.1	1.5	0.1	1.4	0.1	0.06	0.47
Whole fruit (cup equivalents)	0.6	0.1	0.7	0.1	0.8	0.1	0.7	0.1	0.7	0.1	0.7	0.1	0.9	0.1	0.12	0.99
Whole fruit (% of total fruit)	37.1	2.3	47.6	3.1	50.9	2.5	48.4	3.1	43.4	3.1	53.1	2.6	61.8	4.1	<0.001	0.54
Whole grains (cup equivalents)	0.4	0.0	0.4	0.1	0.5	0.0	0.7	0.1	0.6	0.1	0.6	0.1	0.5	0.1	0.01	0.02
Whole grains (% of total grains)	11.5	0.9	11.8	1.6	13.8	1.2	17.2	1.8	13.8	0.9	15.0	1.9	12.4	1.6	0.28	0.01
Added Sugars (teaspoon equivalents)	11.0	0.5	10.5	0.6	10.4	0.4	9.8	0.5	9.2	0.9	8.1	0.5	10.1	1.3	0.07	0.32
Added Sugars (% of energy)	12.0	0.5	10.8	0.5	11.2	0.5	10.7	0.5	9.9	0.7	9.5	0.5	10.4	0.9	0.02	0.36
Low-fat & nonfat milk (cup equivalents)	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.0	0.3	0.1	0.4	0.1	<0.001	0.33
Low-fat & nonfat milk (% of total milk)	3.1	0.8	5.3	1.8	10.6	2.9	13.4	2.8	9.5	2.7	20.7	5.4	24.3	2.8	<0.001	0.32
Reduced fat milk (cup equivalents)	0.4	0.1	0.6	0.1	0.8	0.1	0.5	0.0	0.6	0.1	0.3	0.1	0.2	0.0	<0.001	<0.001
Reduced fat milk (% of total milk)	24.2	5.0	25.9	2.4	37.8	3.5	32.4	2.3	31.7	2.5	19.7	3.7	13.7	2.2	0.01	<0.001
Whole milk (cup equivalents)	1.1	0.1	1.1	0.1	0.7	0.1	0.6	0.1	0.7	0.1	0.5	0.1	0.5	0.1	<0.0001	0.05
Whole milk (% of total milk)	49.9	4.6	44.8	2.7	28.6	3.9	28.5	3.7	32.2	4.1	27.9	4.9	29.5	4.4	<0.001	0.01
Flavored milk (cup equivalents)	0.2	0.0	0.2	0.0	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.3	0.1	0.85	0.99
Flavored milk (% of total milk)	9.0	2.3	10.1	1.7	10.0	2.5	8.8	2.0	9.8	3.0	4.6	1.6	16.1	7.9	0.65	0.48
Ready-to-eat cereal, higher sugar (g)	8.2	1.3	7.0	1.1	7.3	1.0	6.7	1.0	8.0	1.3	6.0	0.9	7.7	1.4	0.76	0.56
Ready-to-eat cereal, higher sugar (% of total grams of cereal)	46.0	6.1	38.1	4.8	46.1	5.0	38.7	6.2	50.5	5.5	43.3	4.9	53.9	7.0	0.22	0.34
Ready-to-eat cereal, lower sugar (g)	7.1	1.5	7.6	0.9	5.7	1.1	6.0	0.9	3.7	0.7	6.3	2.1	3.0	0.8	0.01	0.85
Ready-to-eat cereal, lower sugar (% of total grams of cereal)	44.0	6.9	46.6	4.8	42.7	4.5	42.5	3.8	32.7	4.7	43.5	5.6	24.8	6.4	0.02	0.33
WIC eligible, non-recipient (n ⁵ =1,488)	(n=258)		(n=241)		(n=225)		(n=222)		(n=188)		(n=182)		(n=172)			
Total vegetables (cup equivalents)	0.7	0.1	0.7	0.0	0.6	0.1	0.6	0.1	0.6	0.1	0.7	0.1	0.5	0.0	0.08	0.82
Total fruit (cup equivalents)	1.2	0.1	1.4	0.1	1.2	0.1	1.4	0.1	1.2	0.1	1.1	0.1	1.4	0.2	0.84	0.96
Whole fruit (cup equivalents)	0.6	0.1	0.8	0.1	0.6	0.1	0.7	0.1	0.7	0.1	0.6	0.1	0.8	0.1	0.93	0.70
Whole fruit (% of total fruit)	52.8	3.4	58.8	5.1	53.4	5.0	52.9	3.7	51.2	3.6	50.6	4.3	52.3	3.8	0.35	0.96
Whole grains (cup equivalents)	0.4	0.1	0.5	0.1	0.7	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.7	0.1	0.03	0.54
Whole grains (% of total grains)	12.4	1.7	11.1	1.2	14.2	1.4	12.8	1.4	14.8	1.6	14.3	1.6	16.8	2.9	0.07	0.67

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Cheryl D. Fryar

Added Sugars (teaspoon equivalents)	12.2	0.5	13.2	0.6	12.1	0.7	13.4	1.1	10.0	0.8	10.0	1.2	11.0	1.4	0.03	0.62
Added Sugars (% of energy)	13.6	0.6	13.6	0.7	13.0	0.8	13.1	0.7	11.8	0.9	10.8	0.6	11.4	0.9	<0.01	0.72
Low-fat & nonfat milk (cup equivalents)	0.1	0.1	0.1	0.0	0.2	0.1	0.4	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.07	0.11
Low-fat & nonfat milk (% of total milk)	6.0	2.0	5.3	1.7	11.3	3.4	11.5	4.0	5.5	1.8	3.6	1.4	3.2	1.4	0.06	0.04
Reduced fat milk (cup equivalents)	0.6	0.1	0.5	0.1	0.4	0.1	0.6	0.1	0.4	0.1	0.4	0.1	0.4	0.1	0.09	0.67
Reduced fat milk (% of total milk)	31.3	5.1	27.5	3.8	23.7	3.1	29.6	3.8	30.8	3.8	24.8	4.1	24.4	4.0	0.41	0.89
Whole milk (cup equivalents)	0.7	0.1	0.5	0.1	0.7	0.1	0.5	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.97	0.59
Whole milk (% of total milk)	32.7	4.9	25.9	4.3	33.1	3.9	29.2	3.4	37.3	6.9	35.9	3.4	32.3	5.7	0.38	0.97
Flavored milk (cup equivalents)	0.2	0.0	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.76	0.46
Flavored milk (% of total milk)	7.9	1.6	16.0	3.5	7.7	2.6	8.8	2.7	5.3	1.9	9.7	3.2	16.5	3.9	0.50	0.06
Ready-to-eat cereal, higher sugar (g)	13.0	1.8	7.6	1.1	9.2	1.6	13.5	2.2	8.6	1.4	10.3	2.9	7.9	1.3	0.24	0.72
Ready-to-eat cereal, higher sugar (% of total grams of cereal)	68.9	7.1	49.5	7.2	63.0	4.7	65.4	7.2	56.5	6.3	59.0	7.0	63.9	7.8	0.78	0.55
Ready-to-eat cereal, lower sugar (g)	3.9	1.4	4.7	1.3	2.2	0.6	2.7	0.8	3.5	1.2	3.5	1.2	1.4	0.6	0.14	0.92
Ready-to-eat cereal, lower sugar (% of total grams of cereal)	23.1	7.2	33.9	6.9	16.8	3.1	13.4	3.9	25.3	6.8	28.1	6.5	8.0	3.0	0.22	0.83
WIC ineligible, non-recipient (n⁵=1,808)	(n=327)		(n=280)		(n=266)		(n=248)		(n=227)		(n=267)		(n=193)			
Total vegetables (cup equivalents)	0.7	0.1	0.6	0.0	0.6	0.0	0.6	0.1	0.6	0.1	0.6	0.0	0.7	0.1	0.36	0.11
Total fruit (cup equivalents)	1.4	0.1	1.6	0.1	1.5	0.1	1.4	0.2	1.3	0.1	1.1	0.1	1.6	0.2	0.45	0.87
Whole fruit (cup equivalents)	0.7	0.1	0.9	0.1	1.0	0.1	0.9	0.1	0.9	0.0	0.9	0.1	1.1	0.1	0.10	0.74
Whole fruit (% of total fruit)	54.4	3.0	61.2	3.9	63.9	2.9	63.0	3.2	67.9	3.1	78.4	3.0	74.3	3.1	<0.001	0.88
Whole grains (cup equivalents)	0.5	0.1	0.4	0.0	0.8	0.1	0.7	0.1	0.9	0.1	0.7	0.1	0.8	0.1	<0.01	0.20
Whole grains (% of total grains)	13.3	1.4	14.1	0.9	20.5	1.6	16.7	1.7	18.9	1.8	17.5	1.4	17.2	1.7	0.03	0.03
Added Sugars (teaspoon equivalents)	10.6	0.6	10.2	0.3	9.7	0.3	9.6	0.6	9.6	0.7	8.6	0.2	9.1	0.7	0.01	0.60
Added Sugars (% of energy)	11.7	0.9	11.8	0.4	10.8	0.3	10.9	0.5	10.5	0.6	10.0	0.4	9.9	0.6	0.01	0.89
Low-fat & nonfat milk (cup equivalents)	0.3	0.1	0.2	0.1	0.3	0.0	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.14	0.45
Low-fat & nonfat milk (% of total milk)	11.9	3.2	9.1	1.5	16.7	2.0	17.3	4.2	14.3	4.1	14.4	3.6	13.1	4.1	0.42	0.28
Reduced fat milk (cup equivalents)	0.4	0.1	0.6	0.1	0.5	0.1	0.5	0.1	0.4	0.1	0.6	0.1	0.4	0.1	0.91	0.29
Reduced fat milk (% of total milk)	25.4	3.2	27.6	5.0	24.5	3.9	27.0	5.7	23.9	3.2	30.4	3.9	28.4	4.4	0.53	0.67
Whole milk (cup equivalents)	0.7	0.1	0.8	0.1	0.7	0.1	0.6	0.1	0.7	0.1	0.5	0.1	0.6	0.1	0.02	0.71
Whole milk (% of total milk)	30.8	3.1	31.7	4.1	28.1	2.4	29.8	5.9	26.9	4.0	26.4	2.8	32.8	4.5	0.65	0.40
Flavored milk (cup equivalents)	0.2	0.1	0.3	0.0	0.2	0.0	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.04	0.52
Flavored milk (% of total milk)	8.8	1.9	13.0	2.9	10.6	1.5	7.3	2.7	8.0	2.0	8.6	2.1	8.5	2.8	0.28	1.00

Trends in food consumption among children ages 1-4 years by participation in the Special Supplemental Nutrition Program for Women, Infant, and Children (WIC), United States 2005-2018

Cheryl D. Fryar

Ready-to-eat cereal, higher sugar (g)	8.8	1.0	6.4	1.0	5.8	0.8	4.9	1.0	6.9	1.6	5.4	1.0	4.7	1.2	0.02	0.30
Ready-to-eat cereal, higher sugar (% of total grams of cereal)	55.6	4.7	49.7	5.9	43.5	3.7	42.4	7.9	46.9	6.2	51.9	7.4	49.4	7.5	0.61	0.12
Ready-to-eat cereal, lower sugar (g)	4.2	1.2	4.3	1.0	5.8	1.2	5.0	1.2	4.1	1.0	2.2	0.5	2.3	0.9	0.03	0.08
Ready-to-eat cereal, lower sugar (% of total grams of cereal)	32.8	5.5	36.0	6.6	41.8	5.8	41.1	7.3	36.8	4.8	27.6	4.5	26.4	8.2	0.32	0.08

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018
²WIC- Special Supplemental Nutrition Program for Women, Infants and Children; SE-standard error
³Estimates obtained through linear regression.
⁴SE-Standard error
⁵Unweighted sample size includes responses from all reliable and complete recalls

Cheryl D. Fryar

Supplemental Table 4: Fruit and vegetable consumption on a given day among children 1-4 years, adjusted for age, sex and race/Hispanic origin, by WIC participation status, US 2005-2018^{1,2}

	2005-06		2007-08		2009-10		2011-12		2013-14		2015-16		2017-18		p value for trend	
	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Linear	Quadratic
WIC recipient (n ⁵ =2,272)	(n=390)		(n=376)		(n=441)		(n=359)		(n=295)		(n=229)		(n=182)			
<i>Percent consuming (%)</i>																
Total fruit	92.4	2.3	87.5	2.4	91.7	2.6	97.7	1.3	94.0	1.8	94.5	1.8	89.9	2.7	0.49	0.32
Whole fruit	70.2	4.5	68.1	3.4	78.4	2.2	78.7	3.8	65.3	3.0	77.7	3.5	77.4	3.8	0.11	0.55
Total vegetables	89.8	2.3	95.0	1.3	90.7	1.2	92.7	1.8	90.4	2.1	94.0	2.1	93.8	2.1	0.96	0.94
<i>Mean intake</i>																
Total fruit (cup equivalents)	1.7	0.2	1.5	0.1	1.7	0.1	1.5	0.1	1.3	0.1	1.5	0.1	1.4	0.1	0.05	0.45
Whole fruit (cup equivalents)	0.6	0.1	0.8	0.1	0.9	0.1	0.7	0.1	0.7	0.1	0.7	0.1	0.9	0.1	0.17	0.98
Whole fruit (% of total fruit)	36.4	2.7	50.1	3.5	53.1	3.2	48.6	3.6	43.9	2.5	53.6	2.2	62.1	4.4	<0.001	0.67
Total vegetables (cup equivalents)	0.7	0.1	0.7	0.0	0.6	0.0	0.6	0.1	0.6	0.0	0.6	0.0	0.7	0.0	0.69	0.12
WIC eligible, non-recipient (n ⁵ =1,488)	(n=258)		(n=241)		(n=225)		(n=222)		(n=188)		(n=182)		(n=172)			
<i>Percent consuming (%)</i>																
Total fruit	88.7	4.0	85.4	2.6	89.4	3.5	93.4	2.0	90.6	1.8	88.3	2.7	90.3	1.8	0.64	0.28
Whole fruit	75.2	4.5	70.8	4.5	70.8	4.1	80.6	4.8	69.5	3.1	68.4	3.4	68.0	2.3	0.09	0.20
Total vegetables	91.5	2.9	93.5	2.3	93.2	2.1	90.5	2.7	93.0	2.8	90.9	2.8	92.2	2.8	0.84	0.69
<i>Mean intake</i>																
Total fruit (cup equivalents)	1.2	0.1	1.3	0.1	1.2	0.1	1.4	0.1	1.2	0.1	1.1	0.1	1.4	0.2	0.75	0.91
Whole fruit (cup equivalents)	0.6	0.1	0.8	0.1	0.6	0.1	0.7	0.1	0.7	0.1	0.5	0.1	0.8	0.1	0.81	0.69
Whole fruit (% of total fruit)	53.3	3.2	59.3	5.1	53.9	5.0	53.7	3.2	51.8	3.8	51.7	4.5	52.9	4.2	0.36	0.95
Total vegetables (cup equivalents)	0.7	0.1	0.7	0.0	0.6	0.1	0.6	0.0	0.5	0.1	0.7	0.1	0.5	0.0	0.11	0.76
WIC ineligible, non-recipient (n ⁵ =1,808)	(n=327)		(n=280)		(n=266)		(n=248)		(n=227)		(n=267)		(n=193)			
<i>Percent consuming (%)</i>																
Total fruit	94.4	1.4	93.2	2.3	96.7	1.5	94.6	1.4	97.5	0.7	93.6	1.8	93.6	2.5	0.80	0.06
Whole fruit	78.8	3.8	82.7	3.1	87.5	3.1	84.8	3.8	87.9	2.8	85.9	2.5	88.5	2.9	0.06	0.11
Total vegetables	95.3	1.1	90.7	2.3	93.2	1.8	93.9	3.0	89.7	3.4	87.3	3.0	87.0	3.3	0.03	0.54
<i>Mean intake</i>																
Total fruit (cup equivalents)	1.4	0.1	1.6	0.1	1.5	0.1	1.4	0.2	1.3	0.1	1.1	0.1	1.6	0.2	0.44	0.90
Whole fruit (cup equivalents)	0.7	0.1	0.9	0.1	0.9	0.1	0.9	0.1	0.9	0.0	0.9	0.1	1.1	0.1	0.11	0.71

Trends in food consumption among children ages 1-4 years by participation in the Special Supplemental Nutrition Program for Women, Infant, and Children (WIC), United States 2005-2018

Cheryl D. Fryar

Whole fruit (% of total fruit)	54.6	2.5	59.6	3.7	62.2	2.8	62.4	3.6	67.2	3.5	77.6	2.8	73.8	3.5	<0.001	0.94
Total vegetables (cup equivalents)	0.7	0.1	0.6	0.0	0.6	0.0	0.6	0.0	0.6	0.1	0.6	0.0	0.7	0.1	0.35	0.09

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018

²WIC- Special Supplemental Nutrition Program for Women, Infants and Children

³Estimates obtained through linear regression, adjusted for age, sex, and race and Hispanic origin; Percent or mean intake values are shown in Figure 1

⁴SE-standard error

⁵Unweighted sample size includes responses from all reliable and complete recalls

Cheryl D. Fryar

Supplemental Table 5: Milk consumption on a given day among children 1-4 years, adjusted for age, sex and race/Hispanic origin, by WIC participation status, US 2005-2018^{1,2}

	2005-06		2007-08		2009-10		2011-12		2013-14		2015-16		2017-18		p value for trend	
	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Linear	Quadratic
WIC recipient (n ⁵ =2,272)	(n=390)		(n=376)		(n=441)		(n=359)		(n=295)		(n=229)		(n=182)			
<i>Percent consuming (%)</i>																
Low-fat & nonfat milk	5.5	1.5	9.7	2.8	15.5	3.3	20.7	4.4	13.9	3.2	24.9	6.2	29.3	3.1	<0.001	0.46
Reduced fat milk	29.6	5.5	37.1	2.5	43.2	4.4	41.6	4.4	33.8	4.0	21.3	4.6	17.7	2.3	<0.001	<0.001 ⁶
Whole milk	51.0	6.3	41.8	3.5	26.7	4.1	27.8	4.7	29.0	3.2	30.4	6.3	28.6	4.2	<0.001	<0.01 ⁷
Flavored milk	15.1	3.3	18.9	2.6	17.8	3.4	12.0	3.0	15.3	3.2	7.7	2.7	20.6	8.9	0.97	0.53
<i>Mean intake</i>																
Low-fat & nonfat milk (cup equivalents)	0.1	0.0	0.2	0.0	0.2	0.0	0.3	0.1	0.2	0.0	0.3	0.1	0.4	0.1	<0.001	0.30
Low-fat & nonfat milk (% of total milk)	4.8	1.3	6.6	2.0	13.0	2.9	17.2	4.2	12.2	2.8	22.3	6.2	27.0	2.9	<0.001	0.36
Reduced fat milk (cup equivalents)	0.4	0.1	0.6	0.1	0.8	0.1	0.5	0.1	0.6	0.1	0.3	0.1	0.2	0.0	<0.001	<0.001 ⁸
Reduced fat milk (% of total milk)	24.4	5.9	29.3	2.3	37.5	3.8	31.8	3.1	30.6	3.1	18.6	4.3	14.0	2.0	0.01	<0.001 ⁹
Whole milk (cup equivalents)	1.0	0.1	0.8	0.1	0.5	0.1	0.5	0.1	0.6	0.1	0.4	0.1	0.5	0.1	<0.001	0.02 ¹⁰
Whole milk (% of total milk)	46.2	5.4	36.3	3.1	22.1	3.4	25.0	4.3	27.5	3.0	26.1	5.4	25.3	4.3	<0.01	<0.01 ¹¹
Flavored milk (cup equivalents)	0.2	0.0	0.3	0.0	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.3	0.1	0.94	0.83
WIC Eligible, non-recipient (n ⁵ =1,488)	(n=258)		(n=241)		(n=225)		(n=222)		(n=188)		(n=182)		(n=172)			
<i>Percent consuming (%)</i>																
Low-fat & nonfat milk	9.3	2.8	6.9	2.4	12.9	4.0	13.7	4.1	6.3	2.1	5.4	2.0	4.9	1.9	0.12	0.06
Reduced fat milk	36.4	5.7	33.3	3.6	29.2	4.2	34.5	4.3	32.5	4.5	27.9	4.0	26.1	4.3	0.10	0.77
Whole milk	38.6	6.1	32.9	4.8	41.0	3.9	38.3	4.2	42.1	7.1	41.2	3.5	37.1	6.3	0.63	0.84
Flavored milk	11.8	2.6	21.0	3.8	9.7	2.7	13.3	4.3	8.1	3.3	14.4	3.8	21.7	4.5	0.50	0.10
<i>Mean intake</i>																
Low-fat & nonfat milk (cup equivalents)	0.2	0.1	0.1	0.0	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.10	0.09
Low-fat & nonfat milk (% of total milk)	7.0	2.2	5.3	1.8	10.3	3.3	10.3	3.6	5.4	1.8	4.6	1.8	2.3	1.2	0.09	0.03 ¹²
Reduced fat milk (cup equivalents)	0.6	0.1	0.5	0.1	0.4	0.1	0.6	0.1	0.4	0.1	0.5	0.1	0.4	0.1	0.07	0.58
Reduced fat milk (% of total milk)	30.6	5.3	26.7	3.3	23.2	3.3	28.7	3.6	30.4	4.2	25.1	4.0	24.6	4.2	0.48	0.89
Whole milk (cup equivalents)	0.7	0.1	0.6	0.1	0.8	0.1	0.6	0.1	0.7	0.1	0.6	0.1	0.7	0.1	0.77	0.81
Whole milk (% of total milk)	33.0	5.3	29.5	4.4	37.0	3.8	33.0	3.4	38.9	6.6	36.0	3.0	34.1	6.1	0.45	0.78
Flavored milk (cup equivalents)	0.2	0.0	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.3	0.1	0.87	0.40

Trends in food consumption among children ages 1-4 years by participation in the Special Supplemental Nutrition Program for Women, Infant, and Children (WIC), United States 2005-2018

Cheryl D. Fryar

Flavored milk (% of total milk)	7.6	1.9	15.1	3.0	6.9	2.3	7.9	2.5	5.3	1.8	9.7	3.0	16.5	3.8	0.39	0.05
WIC ineligible, non-recipient (n ⁵ =1,808)	(n=327)		(n=280)		(n=266)		(n=248)		(n=227)		(n=267)		(n=193)			
<i>Percent consuming (%)</i>																
Low-fat & nonfat milk	13.6	2.8	12.2	2.1	20.4	2.8	17.7	4.2	17.7	4.5	14.3	3.7	12.6	4.6	0.93	0.06
Reduced fat milk	33.4	3.3	34.2	4.3	29.6	5.8	37.3	7.3	30.2	2.8	36.4	3.5	31.3	5.1	0.56	0.99
Whole milk	38.0	3.2	42.6	4.3	34.4	2.8	36.8	5.8	33.6	4.4	30.2	2.9	35.3	4.4	0.25	0.73
Flavored milk	13.2	2.6	18.4	3.7	15.5	2.5	11.8	3.1	11.4	3.2	12.6	2.2	12.7	4.4	0.22	0.90
<i>Mean intake</i>																
Low-fat & nonfat milk (cup equivalents)	0.3	0.1	0.2	0.1	0.3	0.0	0.2	0.1	0.2	0.1	0.2	0.0	0.1	0.0	0.12	0.38
Low-fat & nonfat milk (% of total milk)	10.4	2.6	8.3	1.5	15.4	2.0	15.2	3.7	12.4	3.8	12.9	3.3	11.7	4.1	0.41	0.24
Reduced fat milk (cup equivalents)	0.4	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.4	0.1	0.6	0.1	0.4	0.1	0.76	0.26
Reduced fat milk (% of total milk)	25.7	2.6	25.9	4.6	25.0	4.0	28.0	5.4	24.9	2.8	30.7	3.7	28.0	4.9	0.76	0.70
Whole milk (cup equivalents)	0.7	0.1	0.9	0.1	0.7	0.1	0.6	0.1	0.7	0.1	0.5	0.0	0.6	0.1	0.03	0.76
Whole milk (% of total milk)	32.9	2.7	35.0	3.7	31.0	2.4	29.9	5.1	29.5	3.9	27.3	2.4	35.0	4.5	0.83	0.34
Flavored milk (cup equivalents)	0.2	0.1	0.2	0.0	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.04	0.55
Flavored milk (% of total milk)	8.3	2.0	11.5	2.6	8.9	1.4	7.9	2.6	6.6	1.9	8.2	1.8	8.8	3.0	0.28	0.96

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018

² WIC- Special Supplemental Nutrition Program for Women, Infants and Children

³Estimates obtained through linear regression, adjusted for age, sex, and race and Hispanic origin; Percent and mean intake values are shown in Figure 2

⁴SE-Standard error

⁵Unweighted sample size includes responses from all reliable and complete recalls

⁶Percent consumption increased from 2005-2006 to 2009-2010 (P< 0.01) and then decreased through 2018 (P<0.001); difference in slopes (P <0.001).

⁷Percent consumption decreased from 2005-2006 to 2009-2010 (P< 0.01) and then did not change significantly through 2018 (P = 0.85); difference in slopes (P <0.01).

⁸Mean Intake increased from 2005-2006 to 2009-2010 (P< 0.01) and then decreased through 2018 (P <0.001); difference in slopes (P <0.001).

⁹Mean Intake increased from 2005-2006 to 2009-2010 (P< 0.01) and then decreased through 2018 (P <0.001); difference in slopes (P <0.001).

¹⁰Mean Intake decreased from 2005-2006 to 2009-2010 (P< 0.001) and then did not change significantly through 2018 (P=0.23); difference in slopes (P <0.01).

¹¹Mean Intake decreased from 2005-2006 to 2009-2010 (P< 0.001) and then did not change significantly through 2018 (P=0.71); difference in slopes (P <0.01).

¹²Mean Intake did not change significantly from 2005-2006 to 2011-2012 (P=0.12) and then decreased through 2018 (P<0.01); difference in slopes (P=0.03).

Cheryl D. Fryar

Supplemental Table 6: Breakfast cereal and whole grain consumption on a given day among children 1-4 years, adjusted for age, sex and race/Hispanic origin, by WIC participation status, US 2005-2018^{1,2}

	2005-06		2007-08		2009-10		2011-12		2013-14		2015-16		2017-18		p value for trend		
	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Linear	Quadratic	
WIC Recipient (n ⁵ =2,272)	(n=390)		(n=376)		(n=441)		(n=359)		(n=295)		(n=229)		(n=182)				
<i>Percent consuming (%)</i>																	
Whole grains	66.3	4.7	58.2	3.5	70.0	2.2	70.0	2.6	69.3	4.8	64.4	3.8	59.3	2.8	0.83	0.04⁶	
Ready-to-eat cereal, higher sugar	30.1	3.6	23.8	3.2	25.1	3.0	22.3	3.8	26.8	3.9	25.1	3.8	27.4	5.1	0.97	0.28	
Ready-to-eat cereal, lower sugar	30.7	6.1	27.8	2.6	27.8	4.5	25.7	3.3	18.2	2.4	24.1	3.4	15.2	3.5	<0.001	0.61	
<i>Mean intake</i>																	
Whole grains (cup equivalents)	0.4	0.0	0.4	0.1	0.6	0.0	0.7	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.01	0.01⁷	
Whole grains (% of total grains)	11.5	1.0	12.2	1.8	15.8	0.9	18.2	1.8	14.8	1.2	15.7	2.1	13.3	2.0	0.21	0.01⁸	
Ready-to-eat cereal, higher sugar (g)	7.8	1.3	7.2	1.1	6.5	0.9	6.5	1.2	8.5	1.3	6.4	1.2	7.9	1.5	0.74	0.58	
Ready-to-eat cereal, higher sugar (% of total grams of cereal)	46.1	7.2	40.3	4.9	42.7	5.6	38.0	6.7	51.4	4.8	45.1	5.4	50.5	7.1	0.24	0.39	
Ready-to-eat cereal, lower sugar (g)	7.7	1.5	7.3	0.8	6.6	1.2	6.3	1.0	3.9	0.6	6.4	2.3	3.4	1.0	<0.01	0.65	
Ready-to-eat cereal, lower sugar (% of total grams of cereal)	46.0	7.6	44.1	4.3	47.7	4.9	43.0	3.8	33.8	4.4	42.8	6.3	27.5	7.1	0.01	0.23	
WIC eligible, non-recipient (n ⁵ =1,488)	(n=258)		(n=241)		(n=225)		(n=222)		(n=188)		(n=182)		(n=172)				
<i>Percent consuming (%)</i>																	
Whole grains	68.7	5.2	55.6	4.2	68.2	3.7	63.8	5.4	73.8	4.6	60.6	3.6	60.4	6.6	0.84	0.57	
Ready-to-eat cereal, higher sugar	45.6	5.5	21.8	3.6	31.0	4.4	38.3	5.5	30.8	3.8	32.3	4.7	29.7	4.5	0.26	0.64	
Ready-to-eat cereal, lower sugar	17.0	4.6	15.4	5.0	10.1	2.1	9.5	2.3	15.0	4.1	16.7	5.1	2.9	1.9	0.11	0.97	
<i>Mean intake</i>																	
Whole grains (cup equivalents)	0.5	0.1	0.4	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.6	0.1	0.7	0.1	0.02	0.64	
Whole grains (% of total grains)	12.6	1.6	11.3	1.3	14.0	1.6	13.4	1.5	14.9	1.6	14.5	1.6	16.5	3.0	0.06	0.60	
Ready-to-eat cereal, higher sugar (g)	12.4	1.7	6.9	1.1	8.4	1.4	13.0	2.1	8.4	1.4	10.1	2.9	7.9	1.4	0.41	0.83	
Ready-to-eat cereal, higher sugar (% of total grams of cereal)	68.3	7.0	47.8	8.2	58.7	4.5	62.2	7.3	55.5	5.8	58.3	6.9	68.2	6.9	0.90	0.41	
Ready-to-eat cereal, lower sugar (g)	3.9	1.3	4.3	1.5	2.1	0.6	2.9	0.9	3.7	1.3	3.7	1.2	1.1	0.6	0.16	0.93	
Ready-to-eat cereal, lower sugar (% of total grams of cereal)	23.7	6.8	35.4	8.0	19.7	2.9	15.6	4.4	28.2	6.2	29.0	6.6	5.2	4.0	0.16	0.71	
WIC ineligible, non-recipient (n ⁵ =1,808)	(n=327)		(n=280)		(n=266)		(n=248)		(n=227)		(n=267)		(n=193)				
<i>Percent consuming (%)</i>																	
Whole grains	73.0	2.8	70.1	2.8	78.0	3.2	75.6	2.1	72.0	4.0	68.8	3.9	74.4	3.0	0.70	0.30	
Ready-to-eat cereal, higher sugar	32.4	3.2	28.0	3.9	31.0	3.4	24.4	4.1	26.5	4.2	21.3	3.8	21.6	4.8	0.02	0.73	

Trends in food consumption among children ages 1-4 years by participation in the Special Supplemental Nutrition Program for Women, Infant, and Children (WIC), United States 2005-2018

Cheryl D. Fryar

	Ready-to-eat cereal, lower sugar	18.5	3.2	22.1	3.3	25.1	3.0	21.0	3.9	19.7	3.0	12.5	2.0	11.1	3.8	0.02	0.02 ⁹
<i>Mean intake</i>																	
	Whole grains (cup equivalents)	0.5	0.1	0.4	0.0	0.8	0.1	0.7	0.1	0.9	0.1	0.7	0.1	0.8	0.1	<0.001	0.18
	Whole grains (% of total grains)	13.2	1.4	13.8	1.0	19.1	1.6	15.5	1.3	18.2	1.9	17.0	1.5	16.6	1.3	0.01	0.02 ¹⁰
	Ready-to-eat cereal, higher sugar (g)	9.3	1.0	6.6	0.8	6.8	0.8	5.4	0.9	6.6	1.5	5.3	1.0	4.6	1.1	0.02	0.27
	Ready-to-eat cereal, higher sugar (% of total grams of cereal)	55.8	4.2	48.9	5.3	47.8	3.5	45.3	7.5	46.8	5.4	51.1	7.1	49.9	7.0	0.69	0.20
	Ready-to-eat cereal, lower sugar (g)	3.8	1.0	4.6	0.9	5.3	1.0	4.7	1.1	3.9	0.9	2.1	0.6	2.2	0.9	0.03	0.08
	Ready-to-eat cereal, lower sugar (% of total grams of cereal)	31.2	4.6	37.1	6.3	37.1	5.3	39.0	7.0	34.4	4.7	27.5	4.0	25.6	7.1	0.27	0.13

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018

²WIC- Special Supplemental Nutrition Program for Women, Infants and Children

³Estimates obtained through linear regression, adjusted for age, sex, and race and Hispanic origin; Percent and mean intake values are shown in Figure 3

⁴SE-standard error

⁵Unweighted sample size includes responses from all reliable and complete recalls

⁶Precent consumption did not change significantly from 2005-2006 to 2011-2012 (P=0.07) and then decreased through 2018 (P<0.01); difference in slopes (P=0.02).

⁷Mean Intake increased from 2005-2006 to 2011-2012 (P< 0.01) and then did not change significantly through 2018 (P=0.26); difference in slopes (P <0.01).

⁸Mean Intake increased from 2005-2006 to 2011-2012 (P< 0.01) and then did not change significantly through 2018 (P=0.07); difference in slopes (P <0.01).

⁹Precent consumption did not change significantly from 2005-2006 to 2009-2010 (P=0.09) and then decreased through 2018 (P <0.001); difference in slopes (P=0.01).

¹⁰Mean Intake increased from 2005-2006 to 2009-2010 (P< 0.01) and then did not change significantly through 2018 (P=0.43); difference in slopes (P <0.01).

Cheryl D. Fryar

Supplemental Table 7: Added sugars consumption on a given day among children 1-4 years, adjusted for age, sex and race/Hispanic origin, by WIC participation status, US 2005-2018^{1,2}

	2005-06		2007-08		2009-10		2011-12		2013-14		2015-16		2017-18		p value for trend	
	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Percent ³ or mean	SE ⁴	Linear	Quadratic
WIC recipient (n ⁵ =2,272)	(n=390)		(n=376)		(n=441)		(n=359)		(n=295)		(n=229)		(n=182)			
Percent consuming	100.0	0.1	98.9	0.6	99.5	0.3	99.8	1.2	98.7	1.0	99.8	0.3	100.0	0.1	0.79	0.05
Mean intake (teaspoon equivalents)	11.4	0.6	11.6	0.6	11.3	0.5	10.2	0.6	9.7	1.0	8.3	0.7	10.6	1.4	0.04	0.51
Mean intake (% of energy)	12.3	0.6	11.8	0.7	11.8	0.5	11.1	0.6	10.6	0.6	9.8	0.7	10.8	1.0	0.01	0.57
WIC eligible, non-recipient (n ⁵ =1,488)	(n=258)		(n=241)		(n=225)		(n=222)		(n=188)		(n=182)		(n=172)			
Percent consuming	100.0	0.0	97.3	2.1	99.1	0.8	100.0	0.0	98.9	0.6	99.5	0.4	99.6	0.4	0.67	0.46
Mean intake (teaspoon equivalents)	11.9	0.6	12.5	0.6	11.5	0.7	12.8	1.0	9.8	0.8	9.8	1.1	10.8	1.3	0.05	0.80
Mean intake (% of energy)	13.2	0.7	13.0	0.7	12.6	0.9	12.7	0.7	11.7	0.9	10.7	0.6	11.1	0.8	<0.01	0.93
WIC ineligible, non-recipient (n ⁵ =1,808)	(n=327)		(n=280)		(n=266)		(n=248)		(n=227)		(n=267)		(n=193)			
Percent consuming	99.9	0.1	100.0	0.2	99.1	0.5	100.0	0.0	99.6	0.2	98.9	0.6	99.7	0.2	0.34	0.69
Mean intake (teaspoon equivalents)	10.6	0.6	9.9	0.4	9.3	0.4	9.7	0.6	9.2	0.6	8.6	0.2	8.8	0.7	0.01	0.54
Mean intake (% of energy)	11.7	0.8	11.5	0.4	10.6	0.4	10.9	0.6	10.1	0.5	9.9	0.4	9.8	0.7	<0.01	0.85

¹Data Source: National Health and Nutrition Examination Survey, 2015-2018

²WIC- Special Supplemental Nutrition Program for Women, Infants and Children

³Estimates obtained through linear regression, adjusted for age, sex, and race and Hispanic origin; Percent and mean intake values are shown in Figure 4

⁴SE-standard error

⁵Unweighted sample size includes responses from all reliable and complete recalls