

Supplementary Online Content

Wang DD, Leung CW, Li Y, et al. Trends in dietary quality among adults in the United States, 1999 through 2010. *JAMA Intern Med*. Published online September 1, 2014. doi:10.1001/jamainternmed.2014.3422

eTable 1. Classification of the Alternate Healthy Eating Index-2010 Food Groups

eTable 2. Energy-Adjusted Alternate Healthy Eating Index-2010 Scores Without the Trans Fat Component

eTable 3. Energy-Adjusted Alternate Healthy Eating Index-2010 Component Scores, Without the Trans Fat Component, Across Subpopulations

eTable 4. Healthy Eating Index-2010 Scores Across Subpopulations

eTable 5. Healthy Eating Index-2010 Component Scores

eTable 6. Covariates-Adjusted Healthy Eating Index-2010 Score Across Subpopulations

eFigure 1. Healthy Eating Index-2010 Component Score Among Adults Aged 20-85 Years by the NHANES Survey Cycle

eFigure 2. Healthy Eating Index-2010 Score Among Different Socioeconomic Status (SES) by the NHANES Survey Cycle

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Classification of the Alternate Healthy Eating Index-2010 Food Groups

Food group	Full weight	Half weight	Exclusion	Serving size
Vegetables	Dark-green vegetables, deep-yellow vegetables, tomatoes (raw & cooked), and other vegetables (raw & cooked)	Tomato mixtures, tomato sandwiches, vegetables with sauces, vegetable soups, and baby foods	Potatoes and starchy vegetables, tomato juices, tomato sauces, olives, pickles, and relishes	65 g (0.5 cup)
Fruit	Citrus, dried fruits, other fruits, berries, and fruit mixtures	Mixtures with non-fruits and baby food mixtures	Juices, fruit desserts and fruit-flavored puddings	65 g (0.5 cup)
Whole grains	Brown rice, popcorn, and any grain food with a carbohydrate-to-fiber ratio $\leq 10:1$	NA	NA	40 g (1 cup) of cereal 75 g (0.5 cup) of pasta 30 g (1 slice) of bread
Sugar-sweetened beverages and fruit juice				
Sugar-sweetened beverages	Soft drinks, fruitades, other beverages, Frappuccino, fruit drinks, sweetened water, and smoothie drinks	Reduced sugar sodas	NA	226.8 g (8 oz)
100% juice	Citrus fruit juice, other fruit juice, nectars	Baby food fruit juice mixtures	NA	113.4 g (4 oz)
Nuts and legumes				
Nuts/Legumes/Seeds	Dried beans, dried bean mixtures, dried peas, lentils, and bean mixtures; nuts, nut mixtures, and seeds,	Frozen plate meals, soups, and legumes baby food	Soybean-derived products, meat substitutes, nut butters, coconut beverages, and carob products	50 g
Nut butters	Almond, cashew, and peanut butters	Peanut butter and jelly and nut butter sandwiches	Nut gravy and peanut sauce	32 g
Tofu	Soybean curd, soybeans, and soy nuts	Soy yogurt, soy dessert, tofu soup, and tofu mixed dishes	NA	50 g
Soy milk	NA	Regular and low-fat soy milk	NA	50 g
Red/processed meat				
Beef	Beef steak, ribs,	Beef baby food,	Beef bacon	100 g (3.5 oz)

	roasts, ground beef, patties, and meatballs	beef with gravy or sauce, beef with starch item, beef with starch item and vegetables, beef with vegetables, sandwiches, frozen meals, soups, broths, and extracts		
Pork	Pork chops, steaks, cutlets, ham, roasts, and spareribs	Pork baby food, beef with gravy or sauce, pork with starch item, pork with starch item and vegetables, pork with vegetables, sandwiches, frozen meals, soups, broths, and extracts	Canadian bacon, bacon/salt pork, and pork skin	100 g (3.5 oz)
Processed meat	Canadian bacon, bacon, salt pork, Frankfurters, sausages, lunchmeats, meat spreads, and pork skin	Sandwiches with frankfurters, luncheon meat, and potted meat sandwiches	NA	100 g (3.5 oz)
Alcohol	Beer, wine and distilled liquors	Cocktails	NA	141.75 g of wine 340.2 g of beer 42.53 g of liquor

eTable 2. Energy-Adjusted Alternate Healthy Eating Index-2010 Scores, Without the *Trans* Fat Component, Across Subpopulations. Data are based on adults aged 20-85 from NHANES 1999-2010^a

	1999-2000 (N=4247)	2001-2002 (N=4736)	2003-2004 (N=4447)	2005-2006 (N=4519)	2007-2008 (N=5416)	2009-2010 (N=5759)	<i>P</i> _{linear trend^b}	<i>P</i> _{quadratic term^c}
Total	34.2 (33.1, 35.2)	34.8 (34.2, 35.5)	34.9 (33.9, 35.9)	35.6 (34.6, 36.7)	35.9 (34.8, 37.0)	37.1 (36.6, 37.7)	<.001	0.36
Gender								
Female	35.5 (34.4, 36.7)	36.8 (36.0, 37.6)	36.4 (35.3, 37.6)	37.8 (36.6, 39.0)	37.8 (36.6, 38.9)	38.9 (38.3, 39.5)	<.001	0.73
Male	32.5 (31.2, 33.8)	32.6 (31.7, 33.4)	33.1 (32.1, 34.2)	33.2 (32.1, 34.2)	33.8 (32.4, 35.1)	35.1 (34.3, 35.9)	<.001	0.18
Age groups (years)								
20-39	30.3 (29.1, 31.4)	30.9 (29.8, 32.0)	31.5 (30.0, 32.9)	31.7 (30.1, 33.2)	31.8 (30.6, 33.0)	33.7 (32.7, 34.7)	<.001	0.37
40-59	35.5 (34.0, 37.0)	35.9 (35.0, 36.7)	35.2 (34.1, 36.3)	36.9 (35.5, 38.2)	36.8 (35.4, 38.2)	37.8 (37.0, 38.5)	<.001	0.33
≥60	38.2 (37.5, 38.8)	38.9 (38.0, 39.8)	39.5 (38.6, 40.3)	39.3 (38.4, 40.2)	40.4 (39.3, 41.5)	40.6 (39.8, 41.4)	<.001	0.99
Education								
< 12 years	33.2 (32.1, 34.2)	33.3 (32.4, 34.2)	33.7 (32.5, 34.8)	34.1 (33.2, 35.0)	34.2 (33.2, 35.2)	34.9 (33.7, 36.2)	0.02	0.69
Completed 12 years	32.3 (30.7, 33.9)	32.8 (31.7, 33.9)	32.3 (31.0, 33.5)	33.3 (32.0, 34.6)	33.0 (31.8, 34.2)	33.4 (32.5, 34.3)	0.16	0.87
Some college	33.6 (32.7, 34.6)	34.3 (33.4, 35.2)	34.8 (33.5, 36.1)	35.3 (33.7, 36.9)	35.7 (34.4, 37.0)	36.4 (35.5, 37.2)	<.001	0.98
Completed college	38.2 (36.5, 39.9)	38.2 (36.9, 39.5)	38.8 (37.8, 39.7)	38.9 (37.7, 40.2)	40.1 (38.6, 41.6)	41.9 (41.1, 42.8)	<.001	0.03
Family PIR								
< 1.30	32.6 (31.0, 34.1)	31.9 (30.3, 33.4)	32.5 (30.9, 34.1)	33.6 (32.4, 34.8)	32.8 (31.1, 34.6)	33.3 (32.7, 34.0)	0.15	0.93
1.30 - 3.49	32.9 (31.9, 33.8)	33.8 (32.9, 34.6)	34.8 (33.6, 35.9)	34.1 (32.9, 35.3)	35.5 (34.5, 36.5)	35.9 (35.0, 36.8)	<.001	0.94
≥ 3.50	36.1 (35.1, 37.1)	36.9 (36.1, 37.7)	36.4 (35.5, 37.3)	37.6 (36.4, 38.7)	37.1 (35.6, 38.5)	39.8 (38.8, 40.8)	<.001	0.03
Race/Ethnicity								
NH white	34.5 (33.2, 35.8)	35.1 (34.1, 36.0)	35.2 (34.0, 36.4)	36.1 (35.0, 37.1)	36.1 (34.4, 37.8)	37.6 (36.8, 38.4)	<.001	0.34

NH black	31.9 (30.6, 33.2)	32.4 (31.1, 33.7)	31.6 (30.3, 32.9)	32.0 (30.6, 33.3)	33.0 (32.0, 34.1)	33.3 (32.3, 34.3)	0.03	0.24
Mexican American	35.2 (33.6, 36.8)	36.1 (34.9, 37.2)	35.6 (33.9, 37.2)	36.4 (34.7, 38.2)	36.8 (35.6, 38.0)	37.2 (36.6, 37.9)	0.005	0.79
Other	33.3 (31.6, 34.9)	34.4 (32.3, 36.4)	36.2 (34.7, 37.7)	35.5 (33.0, 38.0)	36.6 (34.8, 38.5)	37.5 (36.3, 38.8)	<.001	0.71
BMI (kg/m ²)								
<25	34.0 (32.0, 36.0)	35.6 (34.6, 36.6)	35.1 (33.5, 36.7)	36.3 (35.0, 37.5)	36.3 (34.5, 38.1)	37.8 (36.7, 38.9)	<.001	0.64
25-30	34.7 (33.6, 35.7)	34.6 (33.8, 35.5)	35.8 (34.6, 36.9)	35.8 (34.6, 37.0)	35.8 (34.2, 37.4)	38.1 (37.1, 39.0)	<.001	0.15
30-35	33.5 (32.5, 34.6)	34.3 (33.1, 35.5)	33.6 (32.5, 34.6)	34.9 (33.7, 36.1)	35.7 (34.5, 37.0)	36.0 (35.5, 36.5)	<.001	0.38
≥35	33.7 (32.5, 34.9)	33.8 (32.4, 35.2)	34.1 (32.1, 36.1)	34.7 (33.3, 36.1)	35.4 (34.4, 36.4)	35.2 (33.9, 36.5)	0.04	0.89
SES								
Low	33.5 (32.2, 34.9)	32.1 (31.1, 33.1)	32.4 (30.9, 33.8)	34.5 (33.2, 35.8)	33.0 (31.0, 35.0)	32.8 (31.5, 34.0)	0.89	0.74
Medium	33.1 (31.9, 34.3)	33.8 (33.2, 34.5)	34.0 (33.1, 35.0)	34.0 (33.0, 35.1)	35.0 (33.9, 36.0)	35.7 (35.1, 36.2)	<.001	0.43
High	37.1 (35.8, 38.4)	37.6 (36.5, 38.6)	37.3 (36.2, 38.4)	38.6 (37.4, 39.9)	38.3 (36.9, 39.8)	41.0 (40.1, 41.8)	<.001	0.03

Abbreviations: NH Black: non-Hispanic Black; NH White: non-Hispanic White; PIR: poverty income ratio; BMI: body mass index; SES: socioeconomic status

^a Values are energy-adjusted means (95% confidence interval)

^c Models include time trend as a single continuous term adjusted for total energy intake; the midpoint of each survey time interval was used as a scored trend variable.

³ Models include time trend as a continuous term and quadratic term adjusted for total energy intake. Only *P*-value for the quadratic term is presented.

eTable 3. Energy-Adjusted Alternate Healthy Eating Index-2010 Component Scores Without the Trans-Fat Component. Data are based on adults aged 20-85 from NHANES 1999-2010^a

	1999- 2000	2001- 2002	2003- 2004	2005- 2006	2007- 2008	2009- 2010	$P_{\text{linear trend}}^b$
Vegetables	3.0 (2.8, 3.3)	2.9 (2.7, 3.2)	2.9 (2.8, 3.1)	3.0 (2.7, 3.2)	2.8 (2.7, 3.0)	2.9 (2.7, 3.1)	0.26
Fruit	2.5 (2.2, 2.9)	2.7 (2.5, 2.9)	2.6 (2.3, 2.8)	2.8 (2.5, 3.0)	2.9 (2.7, 3.2)	3.2 (3.1, 3.3)	<.001
Whole grains	1.7 (1.5, 1.9)	1.8 (1.6, 2.0)	1.7 (1.5, 1.9)	1.6 (1.5, 1.7)	1.8 (1.6, 2.0)	2.2 (2.0, 2.3)	<.001
Sugar-sweetened beverages and fruit juice	3.5 (3.2, 3.8)	3.7 (3.5, 4.0)	3.7 (3.5, 4.0)	4.3 (3.9, 4.6)	4.2 (3.9, 4.4)	4.4 (4.2, 4.6)	<.001
Nuts and legumes	2.0 (1.7, 2.2)	2.0 (1.8, 2.2)	2.1 (1.9, 2.3)	2.1 (1.9, 2.3)	2.2 (1.9, 2.5)	2.4 (2.2, 2.5)	<.001
Red/processed meat	5.6 (5.3, 5.9)	5.7 (5.5, 5.9)	5.7 (5.5, 5.9)	5.6 (5.4, 5.8)	5.7 (5.5, 6.0)	5.8 (5.6, 6.0)	0.25
Long-chain (n-3) fats (EPA+DHA)	2.3 (2.1, 2.5)	2.2 (2.1, 2.4)	2.4 (2.2, 2.6)	2.5 (2.3, 2.7)	2.4 (2.3, 2.6)	2.5 (2.3, 2.6)	0.07
PUFA	5.6 (5.4, 5.7)	5.5 (5.4, 5.7)	5.9 (5.7, 6.1)	5.9 (5.7, 6.0)	6.0 (5.9, 6.2)	6.1 (6.0, 6.3)	<.001
Sodium	5.0 (4.8, 5.1)	5.1 (4.9, 5.2)	4.9 (4.7, 5.0)	4.8 (4.7, 4.9)	4.8 (4.7, 5.0)	4.5 (4.4, 4.7)	<.001
Alcohol	3.0 (2.9, 3.2)	3.0 (2.9, 3.2)	3.0 (2.9, 3.2)	3.1 (3.0, 3.3)	3.0 (2.9, 3.2)	3.1 (3.0, 3.3)	0.22

Abbreviations: EPA: eicosapentaenoic acid; DHA: docosahexaenoic acid; PUFA: polyunsaturated fatty acids

^a Values are energy-adjusted means (95% confidence interval). For fruits, vegetables, whole grains, nuts and legumes, long-chain (n-3) fats, PUFA, and alcohol, a higher score corresponded to higher intake. For *trans* fat, sugar-sweetened beverages, red/processed meat, and sodium, a higher score corresponded to lower intake.

^b Models for time trend adjusted for total energy intake; the midpoint of each survey time interval was used as a scored trend variable.

eTable 4. Healthy Eating Index 2010 Scores Across Subpopulations. Data are based on adults aged 20-85 from NHANES 1999-2010^a

	1999- 2000 (N=4236)	2001- 2002 (N=4736)	2003- 2004 (N=4447)	2005- 2006 (N=4519)	2007- 2008 (N=5416)	2009- 2010 (N=5759)	P linear trend ^b	P quadra tic ^c term
Total	46.6 (45.0, 48.2)	47.7 (46.7, 48.6)	47.5 (46.2, 48.7)	48.7 (47.7, 49.6)	49.0 (47.6, 50.3)	49.6 (48.9, 50.4)	<.001	0.94
Gender								
Female	47.3 (45.3, 49.3)	48.7 (47.4, 49.9)	48.3 (46.7, 49.8)	50.0 (48.9, 51.1)	50.0 (48.3, 51.8)	51.1 (50.3, 51.9)	<.001	0.99
Male	45.9 (44.4, 47.3)	46.6 (45.6, 47.7)	46.6 (45.5, 47.7)	47.2 (46.1, 48.2)	47.7 (46.5, 48.9)	48.0 (47.0, 48.9)	0.007	0.85
Age groups (years)								
20-39	42.8 (41.3, 44.4)	43.7 (42.3, 45.1)	44.2 (42.6, 45.9)	45.1 (43.7, 46.5)	45.6 (44.1, 47.1)	46.9 (45.7, 48.1)	<.001	0.70
40-59	47.3 (45.0, 49.6)	49.0 (47.9, 50.0)	47.8 (46.3, 49.2)	49.2 (47.9, 50.6)	49.4 (47.4, 51.4)	50.4 (49.4, 51.4)	0.008	0.53
≥60	52.1 (51.0, 53.2)	52.2 (51.0, 53.5)	52.3 (51.2, 53.4)	53.4 (52.3, 54.6)	53.5 (52.2, 54.8)	52.4 (51.4, 53.4)	0.25	0.14
Education								
< 12 years	44.7 (43.3, 46.1)	44.4 (42.8, 45.9)	45.6 (44.3, 46.8)	46.9 (45.5, 48.3)	45.3 (43.9, 46.7)	46.7 (45.4, 48.0)	0.02	0.81
Completed 12 years	44.8 (43.0, 46.6)	45.2 (43.8, 46.6)	44.8 (43.3, 46.3)	45.8 (44.6, 47.0)	46.6 (45.2, 48.0)	46.1 (44.7, 47.4)	0.09	0.93
Some college	46.4 (44.7, 48.0)	47.5 (46.3, 48.6)	47.2 (45.7, 48.6)	48.1 (47.0, 49.2)	49.4 (48.0, 50.7)	48.9 (48.0, 49.7)	0.002	0.70
Completed college	51.5 (49.2, 53.8)	52.6 (50.9, 54.2)	52.1 (50.7, 53.5)	53.2 (51.8, 54.6)	53.5 (51.9, 55.1)	55.0 (53.8, 56.1)	<.001	0.40
Family PIR								
< 1.30	44.0 (42.2, 45.8)	43.7 (42.4, 45.0)	44.5 (42.5, 46.6)	46.5 (44.9, 48.1)	45.2 (43.2, 47.3)	46.0 (45.1, 46.9)	0.01	0.81
1.30 - 3.49	45.5 (44.1, 46.8)	46.6 (45.2, 48.0)	47.5 (45.9, 49.1)	47.3 (46.2, 48.3)	48.5 (47.2, 49.8)	48.6 (47.5, 49.8)	<.001	0.69
≥ 3.50	48.8 (46.7, 51.0)	50.2 (49.0, 51.4)	48.9 (47.6, 50.3)	50.6 (49.2, 51.9)	50.6 (49.0, 52.1)	52.1 (50.9, 53.4)	0.001	0.30
Race/Ethnicity								
NH white	46.9 (44.8, 49.0)	48.0 (46.8, 49.2)	47.7 (46.2, 49.2)	49.3 (48.3, 50.3)	49.2 (47.2, 51.2)	50.2 (49.2, 51.1)	0.001	0.99
NH black	43.8	44.4	44.7	45.1	45.8	46.0	0.04	0.79

	(42.0, 45.6)	(42.3, 46.6)	(43.1, 46.2)	(43.4, 46.9)	(44.7, 46.9)	(44.3, 47.7)		
Mexican American	47.4 (46.2, 48.6)	48.5 (47.2, 49.8)	47.3 (45.0, 49.7)	48.2 (46.1, 50.2)	48.9 (48.0, 49.9)	48.1 (47.3, 48.9)	0.21	0.93
Other	47.1 (44.7, 49.4)	48.0 (46.1, 50.0)	49.5 (47.7, 51.4)	48.6 (47.3, 49.9)	50.9 (49.2, 52.6)	50.8 (49.8, 51.8)	0.002	0.75
BMI (kg/m²)								
<25	47.2 (44.6, 49.7)	49.4 (48.2, 50.6)	47.4 (45.5, 49.3)	49.4 (48.0, 50.8)	49.7 (47.8, 51.7)	51.0 (50.0, 52.1)	0.001	0.47
25-30	47.5 (46.3, 48.8)	47.4 (46.1, 48.8)	48.8 (47.5, 50.2)	49.6 (48.6, 50.7)	49.0 (47.2, 50.8)	50.6 (49.6, 51.5)	0.001	0.99
30-35	45.0 (43.7, 46.3)	46.3 (44.9, 47.6)	46.0 (44.8, 47.2)	47.5 (46.6, 48.4)	48.1 (46.7, 49.4)	48.2 (47.3, 49.1)	<.001	0.65
≥35	44.6 (42.9, 46.3)	45.6 (44.0, 47.2)	46.0 (44.5, 47.4)	46.1 (44.3, 47.9)	48.0 (46.9, 49.2)	46.9 (45.1, 48.8)	0.03	0.54
SES								
Low	44.6 (43.4, 45.8)	42.9 (40.9, 45.0)	44.3 (42.7, 45.9)	46.0 (44.2, 47.7)	43.8 (41.7, 46.0)	44.9 (43.7, 46.0)	0.56	0.72
Medium	45.5 (44.0, 47.0)	46.6 (45.7, 47.5)	46.7 (45.2, 48.1)	47.1 (46.1, 48.1)	48.1 (46.7, 49.6)	48.4 (47.6, 49.3)	<.001	0.90
High	50.2 (47.6, 52.7)	51.1 (49.8, 52.5)	49.9 (48.6, 51.1)	52.0 (50.6, 53.4)	52.0 (50.6, 53.4)	53.1 (52.0, 54.3)	0.001	0.42

Abbreviations: NH Black: non-Hispanic Black; NH White: non-Hispanic White; PIR: poverty income ratio; BMI: body mass index; SES: socioeconomic status

^a Values are means (95% confidence interval)

^b Models include time trend as a single continuous term; the midpoint of each survey time interval was used as a scored trend variable.

^c Models include time trend as a continuous term and quadratic term. Only *P*-value for the quadratic term is presented.

eTable 5. Healthy Eating Index-2010 Component Scores. Data are based on adults aged 20-85 from NHANES 1999-2010^a

	1999- 2000	2001- 2002	2003- 2004	2005- 2006	2007- 2008	2009- 2010	$P_{\text{linear trend}}^b$
Adequacy components							
Total vegetables	3.1 (3.0, 3.1)	3.1 (3.0, 3.1)	3.1 (3.0, 3.2)	3.1 (3.0, 3.2)	3.1 (3.1, 3.2)	3.0 (3.0, 3.1)	0.36
Greens and beans	1.1 (1.0, 1.3)	1.2 (1.1, 1.2)	1.2 (1.1, 1.3)	1.2 (1.1, 1.3)	1.2 (1.1, 1.3)	1.2 (1.2, 1.3)	0.32
Total fruit	2.1 (1.9, 2.3)	2.2 (2.1, 2.3)	2.2 (2.0, 2.3)	2.3 (2.2, 2.4)	2.3 (2.2, 2.4)	2.4 (2.4, 2.5)	<.001
Whole fruit	1.9 (1.7, 2.1)	2.0 (1.9, 2.1)	2.0 (1.8, 2.2)	2.1 (2.0, 2.3)	2.2 (2.1, 2.3)	2.3 (2.3, 2.4)	<.001
Whole grains	1.7 (1.5, 1.8)	2.1 (1.9, 2.2)	2.0 (1.8, 2.2)	2.4 (2.2, 2.6)	2.3 (2.1, 2.5)	2.4 (2.3, 2.5)	<.001
Dairy	4.7 (4.5, 4.9)	4.8 (4.7, 5.0)	4.9 (4.6, 5.1)	5.1 (4.9, 5.3)	4.9 (4.7, 5.2)	5.0 (4.9, 5.1)	0.06
Total protein foods	3.9 (3.8, 3.9)	4.0 (3.9, 4.1)	4.1 (4.1, 4.2)	4.2 (4.1, 4.2)	4.2 (4.1, 4.3)	4.2 (4.1, 4.2)	<.001
Seafood and plant proteins	1.8 (1.6, 1.9)	1.7 (1.7, 1.8)	1.9 (1.7, 2.0)	1.9 (1.8, 2.0)	1.9 (1.8, 2.0)	2.0 (1.9, 2.1)	<.001
Fatty acids	4.8 (4.6, 5.0)	5.0 (4.8, 5.1)	5.0 (4.8, 5.1)	4.7 (4.6, 4.8)	4.9 (4.7, 5.0)	5.0 (4.8, 5.1)	0.49
Moderation components							
Sodium	4.9 (4.7, 5.1)	5.2 (5.0, 5.4)	4.8 (4.6, 5.0)	4.5 (4.4, 4.7)	4.5 (4.4, 4.6)	4.0 (3.9, 4.2)	<.001
Refined grains	6.1 (5.9, 6.3)	5.8 (5.6, 6.0)	5.8 (5.6, 6.0)	5.9 (5.7, 6.0)	5.9 (5.7, 6.0)	5.9 (5.7, 6.1)	0.67
Empty calories	10.6 (10.0, 11.2)	10.7 (10.2, 11.1)	10.5 (10.0, 11.1)	11.3 (10.9, 11.7)	11.5 (11.0, 12.0)	12.1 (11.8, 12.5)	<.001

^a Values are means (95% confidence interval).

^b Models include the midpoint of each survey time interval was used as a scored time trend variable.

eTable 6. Covariate-Adjusted Healthy Eating Index-2010 Score Across Subpopulations. Data are based on adults aged 20-85 from NHANES 1999-2010

	N	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	$P_{\text{linear trend}}^c$	$P_{\text{interaction}}^d$
Gender^a									
Female	151 40	48.5 (46.9, 50.1)	49.6 (48.5, 50.8)	49.4 (48.1, 50.7)	50.7 (49.6, 51.7)	50.8 (49.4, 52.2)	51.6 (50.7, 52.5)	<.001	0.02
Male	139 69	47.5 (46.2, 48.8)	47.5 (46.6, 48.5)	47.7 (46.7, 48.7)	48.0 (47.2, 48.9)	48.5 (47.5, 49.4)	48.5 (47.7, 49.4)	0.04	
$P_{\text{gender effect}}^b$		0.21	<.001	0.03	<.001	<.001	<.001		
Age groups (years)^a									
20-39	101 71	43.8 (42.5, 45.2)	44.2 (43.0, 45.4)	45.0 (43.9, 46.1)	45.5 (44.2, 46.7)	45.9 (44.9, 47.0)	47.0 (46.0, 48.0)	<.001	<.001
40-59	898 3	47.0 (45.0, 49.0)	48.4 (47.5, 49.2)	47.4 (46.0, 48.7)	48.5 (47.1, 49.8)	48.7 (47.0, 50.5)	49.7 (48.7, 50.7)	0.006	
≥60	995 5	52.9 (51.8, 54.0)	52.7 (51.5, 53.8)	52.7 (51.6, 53.8)	53.8 (52.5, 55.1)	53.6 (52.5, 54.6)	52.4 (51.4, 53.5)	0.95	
$P_{\text{age effect}}^b$		<.001	<.001	<.001	<.001	<.001	<.001		
Education^a									
< 12 years	886 4	45.7 (44.5, 46.8)	46.0 (44.6, 47.3)	46.6 (45.4, 47.7)	47.9 (46.6, 49.2)	46.6 (45.6, 47.6)	47.9 (46.4, 49.3)	0.02	0.21
Completed 12 years	692 0	47.1 (45.4, 48.8)	47.6 (46.2, 49)	47.1 (45.9, 48.2)	47.7 (46.5, 49.0)	48.4 (47.0, 49.7)	48.1 (47.0, 49.3)	0.10	
Some college	772 1	47.1 (45.4, 48.9)	47.9 (46.6, 49.2)	48.0 (46.6, 49.3)	48.8 (47.8, 49.9)	49.7 (48.3, 51.1)	49.2 (48.2, 50.2)	0.004	
Completed college	555 9	51.3 (49.1, 53.4)	52.1 (50.4, 53.8)	51.9 (50.3, 53.5)	52.5 (50.8, 54.3)	52.9 (51.0, 54.9)	54.5 (53.1, 55.9)	0.003	
$P_{\text{education effect}}^b$		<.001	<.001	<.001	<.001	<.001	<.001		
Family PIR^a									
< 1.30	761 3	47.3 (45.4, 49.2)	47.3 (46.4, 48.1)	48.3 (46.7, 49.9)	49.7 (48.3, 51.0)	48.9 (47.4, 50.3)	49.1 (48.3, 50.0)	0.02	0.94
1.30 - 3.49	103 86	47.8 (46.5, 49.1)	48.5 (47.3, 49.7)	49.1 (47.9, 50.4)	49.2 (48.0, 50.3)	50.1 (48.8, 51.3)	50.1 (48.9, 51.2)	0.005	
≥ 3.50	850 8	48.4 (46.8, 50.1)	49.3 (48.0, 50.6)	48.2 (46.9, 49.6)	49.5 (48.4, 50.7)	49.6 (48.4, 50.9)	50.6 (49.4, 51.8)	0.01	
$P_{\text{PIR effect}}^b$		0.003	<.001	0.11	0.03	0.003	0.004		
Race/Ethnicity^a									
NH white	143 74	46.5 (45.0, 48.0)	47.2 (46.4, 48.0)	47.0 (46.0, 48.0)	48.1 (47.3, 48.9)	48.1 (46.5, 49.7)	48.8 (47.9, 49.7)	0.002	0.37

		48.1)	48.0)	48.0)	49.0)	49.8)	49.7)		
NH black	571 7	45.8 (44.2, 47.4)	46.0 (44.0, 47.9)	45.9 (44.5, 47.3)	46.4 (45.0, 47.8)	46.6 (45.5, 47.7)	47.3 (45.6, 49.1)	0.12	
Mexican American	592 2	49.2 (48.0, 50.3)	50.4 (50.3, 50.5)	49.3 (49.2, 49.3)	49.8 (49.7, 49.8)	50.7 (50.7, 50.8)	49.8 (49.8, 49.8)	0.46	
Other	309 6	48.6 (46.0, 51.2)	49.2 (47.4, 51.0)	50.6 (48.8, 52.3)	49.6 (47.7, 51.6)	51.7 (50.1, 53.3)	51.3 (50.1, 52.5)	0.01	
$P_{\text{race effect}}^b$		<.001	<.001	<.001	<.001	<.001	0.002		
BMI (kg/m²)^a									
<25	861 6	48.5 (46.7, 50.3)	50.0 (48.9, 51.2)	48.5 (47.1, 49.9)	49.7 (48.6, 50.9)	50.4 (49.0, 51.7)	51.1 (50.0, 52.2)	0.005	0.55
25-30	100 01	48.9 (47.8, 50.0)	48.4 (47.2, 49.7)	49.4 (48.1, 50.8)	50.3 (49.2, 51.4)	49.4 (47.8, 50.9)	51.0 (50.0, 52.0)	0.007	
30-35	577 3	45.9 (44.5, 47.3)	47.3 (46, 48.6)	47.3 (46.3, 48.4)	48.4 (47.5, 49.3)	48.9 (47.8, 49.9)	48.9 (47.9, 49.9)	<.001	
≥35	416 3	45.9 (43.9, 47.8)	45.9 (44.2, 47.6)	46.7 (45.4, 47.9)	46.5 (44.8, 48.1)	48.4 (46.9, 49.9)	47.2 (45.5, 48.9)	0.09	
$P_{\text{BMI effect}}^b$		<.001	<.001	0.07	0.003	0.07	0.001		

Abbreviations: NH Black: non-Hispanic black; NH white: non-Hispanic white; PIR: poverty income ratio; BMI: body mass index.

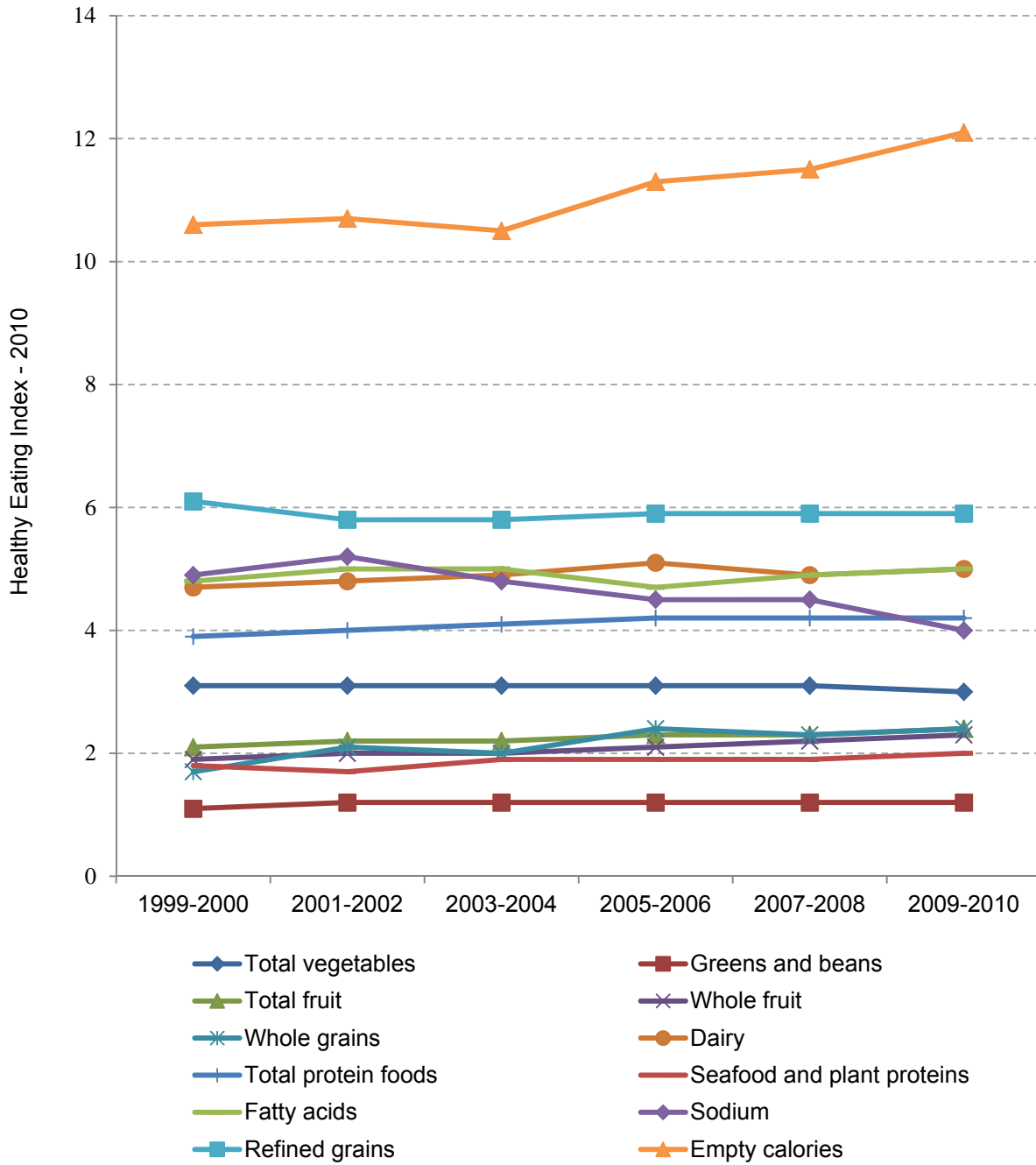
^a Values are adjusted mean HEI-2010 scores (95% confidence interval) estimated by multivariate linear regressions. Adjusted covariates are gender (male, female), age group (20-39, 40-64, ≥65 years), PIR (<1.30, 1.30-3.49, ≥3.50), education (<12 years, completed 12 years, some college, completed college), race/ethnicity (non-Hispanic white, non-Hispanic black, Mexican American, other), and household size, except the variable of stratification.

^b *P*-values for homogeneity estimated by the adjusted Wald F test with Bonferroni correction for multiple comparisons in multivariate linear regressions adjusted for covariates mentioned above.

^c Multivariate linear regression models include time trend as a single continuous term; the midpoint of each survey time interval was used as a scored trend variable; models adjusted for covariates mentioned above, except the variable of stratification.

^d *P*-values for interaction between socioeconomic variables and scored trend variable (midpoint of each survey time interval) in multivariate linear regressions adjusted for covariates mentioned above, except the variable of stratification. Age group, education, and family PIR were treated as ordinal variable by using medium value of each category; *P*_{interaction} was calculated from the Wald t test. Race/ethnicity was treated as nominal variable; *P*_{interaction} was calculated from the adjusted Wald F test.

eFigure 1. Healthy Eating Index-2010 Component Among Adults Aged 20-85 Years by the NHANES Survey Cycle



Data are presented as means. For total fruit, whole fruit, total vegetables, greens and beans, whole grains, dairy, total protein foods, seafood and plant protein, and fatty acids, a higher score corresponded to higher intake. For refined grains, sodium, and empty calories, a higher score corresponded to lower intake.

eFigure 2. Healthy Eating Index-2010 Score Among Different Socioeconomic Status by the NHANES Survey Cycle



Data are presented as covariate-adjusted means and 95% confidence intervals. Participants with more than 12 completed years of education attainment and a PIR ≥ 3.5 were categorized into high SES; participants with less than 12-year education attainment and a PIR < 1.30 were categorized into low SES; and others were classified as medium SES. Values were estimated from multivariate linear regression by adjusting for gender (male, female), age group (20-39, 40-64, ≥ 65 years), race/ethnicity (non-Hispanic white, non-Hispanic black, Mexican American, other), and household size.