

Online Supporting Material

Supplemental methods

To test whether the beta-coefficient for the HEI-2005 was different from the beta-coefficient for the AHEI-2010:

The Wald statistic was obtained by dividing the difference between the pooled beta-coefficients by its standard error. The standard error for the pooled beta-coefficients equals the square root of $\text{var}(\beta_1) + \text{var}(\beta_2) - 2\text{cov}(\beta_1, \beta_2)$, where β_1 and β_2 are the pooled beta-coefficients for the HEI-2005 and AHEI-2010, respectively. The term $\text{cov}(\beta_1, \beta_2)$ equals $w_1^{(1)} \times w_2^{(1)} \times \text{cov}(\beta_1^{(1)}, \beta_2^{(1)}) + w_1^{(2)} \times w_2^{(2)} \times \text{cov}(\beta_1^{(2)}, \beta_2^{(2)})$, where w is the weight given to the beta-coefficient in the random effects model used to produce the pooled result, the superscripts (1) and (2) refer to the NHS and HPFS, respectively, and subscripts 1 and 2 refer to HEI-2005 and AHEI-2010, respectively.

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Supplemental Table 1. The Healthy Eating Index 2005(4) scoring method and mean scores at baseline among women in the Nurses' Health Study (1984) and men in the Health Professionals Follow-up Study (1986)

Component	Criteria for minimum score (0) ¹	Criteria for maximum score ¹	Maximum score value	HEI-2005 ² in women Mean ± SD	HEI-2005 in men Mean ± SD
Total vegetables, <i>cup equivalents</i>	0	1.1	5	4.6 ± 0.8	4.3 ± 0.9
Dark green and orange vegetables, <i>cup equivalents</i>	0	0.4	5	3.0 ± 1.6	2.9 ± 1.6
Total fruit ³ , <i>cup equivalents</i>	0	0.8	5	4.2 ± 1.3	4.1 ± 1.3
Whole fruit, <i>cup equivalents</i>	0	0.4	5	4.3 ± 1.3	4.2 ± 1.4
Total grains ⁴ , <i>oz equivalents</i>	0	3	5	3.4 ± 1.1	3.4 ± 1.1
Whole grains, <i>oz equivalents</i>	0	1.5	5	0.9 ± 0.8	1.1 ± 1.0
Milk, <i>cup</i>	0	1.3	10	6.2 ± 2.8	5.6 ± 2.9
Meat and Beans, <i>oz</i>	0	2.5	10	9.7 ± 0.9	9.7 ± 0.9
Oils ⁵ , <i>g</i>	0	≥12	10	4.4 ± 2.4	4.6 ± 2.2
Saturated fat ⁵ , %energy	≥15%	≤7%	10	4.2 ± 3.0	5.9 ± 3.1
Sodium ⁷ , <i>mg</i>	Highest decile	Lowest decile	10	5.0 ± 3.2	5.0 ± 3.2
SoFAAs, %energy	≥50%	≤20%	20	10.3 ± 4.7	11.7 ± 5.1
Mean ± SD	0		100	60.2 ± 10.7	62.5 ± 11.6

¹ All scoring criteria are calculated per 1000 kcal/d, except saturated fat and SoFAAs, which are calculated as % total energy

² HEI = Healthy Eating Index; SoFAAs = calories from solid fat, alcohol and added sugars

³ Includes 100% fruit juices

⁴ 1 oz = 28.35 g

⁵ Includes non-hydrogenated vegetable oil and oils in fish, nuts and seeds

⁶ Saturated fat intake of <10% of kcal receives a score of 8 to reflect the 2005 Dietary Guidelines

⁷ The sodium component was based on deciles of sodium intake rather than the minimum (≥2.0 g/1000 kcal) and maximum (0.7 g/1000 kcal) scoring criteria from the HEI-2005. Values in lowest decile were ≤1112 mg in women and ≤1612 in men and in highest decile were ≥3337 mg in women and 5271 mg in men at baseline.

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Supplemental Table 2. Population characteristics according to the dietary scores at baseline among women in the Nurses' Health Study (1984) and men in the Health Professionals' Follow-up Study(1986)¹

	Quintiles of HEI-2005 ²			Quintiles of AHEI-2010		
	Q1	Q3	Q5	Q1	Q3	Q5
Women						
Median score	48.6	62.7	75.4	28.6	38.9	54.8
Age, y	50 ± 7	50 ± 7	50 ± 7	50 ± 7 ^b	50 ± 7	50 ± 7
BMI, kg/m ²	24.9 ± 4.9	24.9 ± 4.5	24.6 ± 4.3	25.5 ± 5.3	25.1 ± 4.9	24.6 ± 4.3
Moderate to vigorous exercise, h/wk	2.8 ± 2.0	3.3 ± 2.0	3.6 ± 2.1	2.6 ± 1.9	2.9 ± 2.1	3.4 ± 2.1
Current smoking, %	36	21	15	34	27	20
Regular aspirin use, %	20	19	17	23	19	19
Postmenopausal status, % ^{3,4}	47	47	49	47	47	48
Hormone therapy, %	11	14	15	11	12	14
Family history of MI, % ⁴	19	19	20	19	18	19
Family history of breast and colon cancer, % ⁴	10	10	10	9	10	10
Personal history of high cholesterol, %	6	7	10	7	7	8
Personal history of hypertension, %	19	19	21	22	20	19
Total energy, kcal/d	1960 ± 557	1707 ± 492	1476 ± 434	2042 ± 479	1844 ± 513	1646 ± 521
Men						
Median score	47.0	63.1	77.7	38.0	52.2	67.6
Age, y	53 ± 9	53 ± 9	53 ± 9	53 ± 9	53 ± 9	53 ± 9
BMI, kg/m ²	25.8 ± 3.6	25.6 ± 3.2	24.8 ± 3.1	25.8 ± 3.5	25.6 ± 3.2	25.0 ± 3.2
Moderate to vigorous exercise, h/wk	2.0 ± 3.6	2.8 ± 4.0	3.7 ± 4.4	2.0 ± 3.5	2.7 ± 4.0	3.9 ± 4.6
Current smoking, %	20	9	3	16	9	4
Regular aspirin use, %	28	27	24	27	27	25
Family history of MI, %	11	12	13	11	12	13
Family history of colon cancer,% ^{3,4}	2	2	2	2	2	2

Personal history of high cholesterol, %	8	10	14	8	10	13
Personal history of hypertension, % ³	19	19	20	18	19	19
Total energy, kcal/d	2252 ± 667	1990 ± 591	1732 ± 517	2125 ± 606	1975 ± 628	1904 ± 590

¹ All variables are age-standardized, with the exception of age

² AHEI = Alternative Healthy Eating Index; HEI = Healthy Eating Index

³ *P*-linear trend > 0.05 across quintiles of the AHEI-2010. Test for linear trend calculated by assigning the median value of diet score in each quintile and modeling this as a continuous variable in separate regression models with each characteristic as the outcome. The *P*-linear trend across quintiles of AHEI-2010 was < 0.05 for all other variables

⁴ *P*-linear trend > 0.05 across quintiles of the HEI-2005. Test for linear trend calculated by assigning the median value of diet score in each quintile and modeling this as a continuous variable in separate regression models with each characteristic as the outcome. The *P*-linear trend across quintiles of HEI-2005 was < 0.05 for all other variables

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Supplemental Table 3. Relative risks (95%CI) of major chronic disease, CHD and diabetes for individual components of the HEI-2005¹ and the AHEI-2010

HEI-2005 components	RR comparing Q5 v. Q1 ²			AHEI-2010 components	RR comparing Q5 v. Q1 ³		
	Major chronic disease	CHD	Diabetes		Major chronic disease	CHD	Diabetes
Total vegetables	0.99 (0.95, 1.04)	0.97 (0.85, 1.11)	0.98 (0.89, 1.08)	Vegetables	0.99 (0.95, 1.03)	0.90 (0.81, 1.01)	1.02 (0.94, 1.11)
Dark green and orange vegetables	0.94 (0.90, 0.98)	0.81 (0.71, 0.93)	0.92 (0.75, 1.14) ⁴	Whole fruit	0.94 (0.87, 1.02) ⁴	0.94 (0.80, 1.10)	0.87 (0.74, 1.01)
Total fruit	1.03 (0.93, 1.14)	0.95 (0.72, 1.26)	1.09 (0.90, 1.31)	Whole grains	0.88 (0.85, 0.90)	0.79 (0.71, 0.87)	0.77 (0.71, 0.83)
Whole fruit	0.89 (0.84, 0.94)	0.92 (0.72, 1.18)	0.81 (0.72, 0.92)	Sugar-sweetened beverages	1.09 (1.06, 1.13)	1.09 (0.98, 1.21)	1.30 (1.19, 1.42)
Total grains	0.93 (0.89, 0.97)	0.90 (0.80, 1.01)	0.95 (0.87, 1.03)	Nuts	0.94 (0.90, 0.97)	0.96 (0.86, 1.07)	0.95 (0.88, 1.03)
Whole grains	0.91 (0.88, 0.94)	0.83 (0.75, 0.93)	0.80 (0.74, 0.87)	Red and processed meat	1.12 (1.07, 1.17)	1.16 (1.02, 1.31)	1.30 (1.24, 1.37)
Milk	0.94 (0.90, 0.97)	0.92 (0.83, 1.03)	0.87 (0.81, 0.95)	EPA+DHA	1.04 (1.00, 1.07)	0.99 (0.88, 1.12)	1.15 (1.04, 1.26)
Meat and Beans	1.01 (0.97, 1.05)	0.93 (0.82, 1.06)	1.01 (0.93, 1.10)	Polyunsaturated fat	0.97 (0.92, 1.01)	0.95 (0.79, 1.14)	1.01 (0.93, 1.10)
Oils	0.91 (0.88, 0.95)	0.86 (0.68, 1.07) ⁴	0.87 (0.80, 0.94)	<i>trans</i> fat	0.98 (0.94, 1.02)	1.01 (0.90, 1.15)	1.02 (0.92, 1.12)
Saturated fat	1.08 (1.00, 1.17)	1.02 (0.77, 1.36) ⁴	1.33 (1.08, 1.64) ⁴	Sodium	1.05 (1.00, 1.10)	0.98 (0.84, 1.13)	1.14 (1.03, 1.26)
Sodium	1.06 (1.01, 1.10)	0.95 (0.83, 1.09)	1.15 (1.03, 1.27)	Alcoholic drinks	0.90 (0.88, 0.93)	0.74 (0.67, 0.81)	0.64 (0.52, 0.78) ⁴
SoFAAS	0.94 (0.86, 1.02)	0.82 (0.69, 0.98)	0.74 (0.66, 0.82)				

¹AHEI = Alternative Healthy Eating Index; DHA = docosahexaenoic acid; EPA = eicosapentaenoic acid; HEI = Healthy Eating Index; Q = quintiles

²Estimated from Cox proportional hazards models adjusted for the other HEI-2005 components, age (in months), calories (continuous), smoking status (5 categories), BMI (8 categories), aspirin (0, 1-6, ≥7 d/wk), physical activity (5 categories), vitamin E supplementation, family history of MI and family history of colon cancer; in women, models adjusted for family history of breast

cancer, menopausal status and use of hormone therapy. All models were adjusted for history of hypertension and history of hypercholesterolemia, except where cancer was the only outcome.

³ Estimated from Cox proportional hazards models adjusted for the other AHEI-2010 components, age (in months), calories (continuous), smoking status (5 categories), BMI (8 categories), (0, 1-6, ≥ 7 d/wk), physical activity (5 categories), vitamin E supplementation, family history of MI and family history of colon cancer; in women, models adjusted for family history of breast cancer, menopausal status and use of hormone therapy. All models were adjusted for history of hypertension and history of hypercholesterolemia, except where cancer was the only outcome.

⁴ *P*- heterogeneity < 0.05 ; Sex-specific RR (95%CI) for major chronic disease: whole fruit (AHEI-2010): 0.90 (0.86, 0.95) in women and 0.98 (0.93, 1.04) in men; Sex-specific RR (95%CI) for CHD: Oils (HEI-2005): 0.76 (0.65, 0.88) in women and 0.95 (0.83, 1.09) in men and saturated fat (HEI-2005): 1.13 (0.96, 1.34) in women and 1.18 (1.00, 1.40) in men; Sex-specific RR (95%CI) for diabetes: dark green and orange vegetables (HEI-2005): 0.84 (0.75, 0.94) in women and 1.04 (0.87, 1.23) in men, saturated fat (HEI-2005): 1.19 (1.07, 1.32) in women and 1.47 (1.23, 1.75) in men and alcoholic beverages (AHEI-2010): 0.58 (0.53, 0.63) in women and 0.71 (0.62, 0.82) in men