

## **WEB MATERIAL**

### **Multiple Healthful Dietary Patterns and Type 2 Diabetes in the Women's Health Initiative**

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**Web Table 1.** Scoring Criteria for Diet Quality Indices Using MyPyramid Equivalents in the Women’s Health Initiative OS-CT <sup>a</sup>

	USDA Healthy Eating Index 2010 0-100 points 12 components, each 5–20 points				Alternate Healthy Eating Index 2010 0-110 points 11 components, each 10 points				Dietary Approaches to Stop Hypertension <sup>b</sup> 8–40 points 8 components, each 5 points				Alternate Mediterranean Diet Score 0–9 points 9 components, each 1 point			
	Min/Max Criteria and Score															
Fruit	0 cups	0	≥0.8 cup total fruit; ≥0.4 cup whole fruit/1,000 kcal	5	0 cups	0	> 2 cups, excl. juices	10	Low Quintile 0.46 cups	1	High Quintile 3 cups	5	< median	0	> median 1.51 cups/day	1
Vegetables	0 cups	0	≥1.1 cup total; ≥0.2 cup greens/beans	5	0 cups	0	> 2.5 cups	10	Low Quintile 0.44 cups	1	High Quintile 2 cups	5	< median	0	> median 1.05 cups/day	1
Dairy	0 cups	0	≥1.3 cup/1,000 kcal, includes high fat	10		0		10	Low Quintile 0.09 cups	1	High Quintile 3 cups	5				
Nuts and legumes			Allocated to total or plant proteins or vegetables		0 oz	0	> 1oz	10	High Quintile 0.09 oz	1	Low Quintile 2 oz	5	< median	0	> median 0.25 cups/day legumes, 0.15 oz/day nuts	1
Fish	0 oz	0	≥0.8 oz/1,000 kcal (Seafood/ plant proteins)										< median	0	> median 0.45 oz/day	1
Oils/fats			Ratio (PUFA+MUFA): SFA		>4% Trans; 0 mg EPA+DHA; < 2% PUFA	0	≤0.5% Trans; 250 mg EPA+DHA; ≥10% PUFA	10					< median	0	> median ratio MUFA:SFA 1.14	1
Total protein foods	0 oz	0	> 2.5oz/1,000 kcal	10												
Whole grains	0 oz	0	> 1.5oz/1,000 kcal	10	0 oz	0	> 5oz	10	Low Quintile 0.22 oz	1	High Quintile 3 oz	5	< median	0	> median 1.00 oz/day	1
Refined grains	≥4.3 oz	0	≤1.8 oz/1,000 kcal	10												
Sugar-sweetened beverages					>1 serving incl. juice	0	0 serv	10	High Quintile 1 serv/day	1	Low Quintile 0 serv/day	5				
Red and processed meats					> 2.5oz	0	0 oz	10	High Quintile 0.34 oz	1	Low Quintile 4 oz	5	> median	0	< median 1. oz/day	1
Sodium	≥2.0g	0	≤1.1g per 1,000 kcal	10	High Decile 1177 mg	0	Low Decile 4941 mg	10	High Quintile 1382 mg	1	Low Quintile 4314 mg	5				
Empty calories	≥50% kcal	0	≤19% kcal from solid fat, added sugars, alcohol													
Alcohol			> 2 drinks/day towards empty kcal		< 0.5 or >1.5 drinks; non-drinker 2.5 pts	0	0.5-1.5 drinks	10					<5 or >15g	0	5-15g	1

<sup>a</sup> Adapted from George et al. 2014.

<sup>b</sup> Mean values of high and low quintiles are shown.

**Web Table 2.** Participant Characteristics by Category of Standardized Diet Quality Scores (*n* = 101,504), Women’s Health Initiative, 1993–2013

SD category	USDA Healthy Eating Index 2010			Alternate Healthy Eating Index 2010			Alternate Mediterranean Diet Score			Dietary Approaches to Stop Hypertension		
	SD < -1	SD -1 to 1	SD > 1	SD < -1	SD -1 to 1	SD > 1	SD < -1	SD -1 to 1	SD > 1	SD < -1	SD -1 to 1	SD > 1
Overall <i>N</i>	<i>N</i> =16,617	<i>N</i> =68,716	<i>N</i> =16,171	<i>N</i> =16,824	<i>N</i> =67,872	<i>N</i> =16,808	<i>N</i> =18,912	<i>N</i> =71,680	<i>N</i> =10,912	<i>N</i> =18,376	<i>N</i> =65,216	<i>N</i> =17,912
Median score (min-max)	50 (18-55)	68 (55-77)	80 (77-95)	35 (13-39)	50 (39-61)	66 (61-94)	2 (0-2)	4 (3-6)	7 (7-9)	17 (8-19)	24 (20-28)	30 (29-38)
	Mean (SD) or %											
Age, years	62 (7)	64 (7)	65 (7)	63 (7)	64 (7)	64 (7)	63 (7)	64 (7)	64 (7)	62 (7)	64 (7)	64 (7)
BMI, kg/m <sup>2</sup>	29 (7)	27 (6)	26 (5)	29 (6)	27 (6)	26 (5)	28 (6)	27 (6)	26 (5)	29 (6)	27 (6)	26 (5)
METs/week	8 (12)	14 (14)	18 (15)	8 (11)	13 (14)	20 (16)	9 (12)	14 (14)	19 (16)	8 (11)	14 (14)	20 (16)
Total energy, kcal	1818 (766)	1550 (567)	1427 (455)	1718 (627)	1552 (603)	1520 (537)	1350 (534)	1596 (603)	1826 (561)	1596 (638)	1551 (607)	1637 (529)
Alcohol, beverage/week	0.38 (1.08)	0.44 (0.81)	0.41 (0.65)	0.32 (0.99)	0.43 (0.84)	0.52 (0.63)	0.36 (0.9)	0.43 (0.84)	0.49 (0.68)	0.38 (0.88)	0.45 (0.85)	0.38 (0.71)
Neighborhood SES	74 (9)	76 (8)	77 (8)	74 (9)	76 (8)	78 (8)	75 (9)	76 (8)	78 (7)	73 (10)	76 (8)	78 (7)
Hormone therapy												
Current	34	43	46	34	42	48	36	42	47	34	43	46
Past	26	23	23	26	24	22	25	23	22	26	23	22
Never	38	34	31	38	34	30	37	35	31	38	34	32
Smoking status												
Current	15	6	3	12	6	3	12	6	3	14	6	2
Past	38	43	44	35	42	50	38	43	46	37	43	45
Never	46	50	52	52	50	45	49	50	49	47	50	52
Race/ethnicity												
Non-Hispanic white	78	86	89	80	85	89	83	85	89	75	87	91
Black	12	6	6	12	6	4	8	7	5	14	6	4
Hispanic/Latina	7	3	2	5	4	2	6	3	1	7	3	2
Asian	2	3	2	1	3	3	2	3	3	3	3	2
Other	2	1	1	1	1	1	1	1	1	2	1	1
College graduate	27	42	52	26	41	56	28	42	58	25	42	56
Family History of T2D	33	30	27	33	30	27	31	30	27	33	30	27

BMI = body mass index; MET = metabolic equivalent of task; SES = socioeconomic status; SD = standard deviation; T2D = type 2 diabetes.

**Web Table 3.** Association of Diabetes per Category and Standard Deviation Higher in Diet Quality in the Women's Health Initiative ( $n = 88,591$ ), After Excluding Women with Prevalent Chronic Disease, 1993–2013

Index Quintile (Q) (Min-Max Score)	$n$ (Cases)/ $n$ (Total)	Age-Adjusted Hazard Ratio and 95% CI		Multivariable-Adjusted Hazard Ratio and 95% CI		Multivariable- and BMI-Adjusted Hazard Ratio and 95% CI		
		Cases: 9,268; 8.01 Cases/1,000 p-y <sup>a,b</sup>						
Alternate Mediterranean Diet Score		Per SD increase	0.84	0.83, 0.86	0.90	0.88, 0.92	0.95	0.93, 0.97
		Per 10% increase	0.91	0.90, 0.92	0.95	0.93, 0.96	0.97	0.96, 0.98
Q1 (0-2)	1,986 / 16471	Q1	Ref.		Ref.		Ref.	
Q2 (3-3)	1,648 / 15727	Q2	0.81	0.76, 0.86	0.86	0.80, 0.92	0.89	0.83, 0.95
Q3 (4-4)	1,905 / 17727	Q3	0.80	0.75, 0.85	0.89	0.83, 0.95	0.94	0.88, 1.00
Q4 (5-5)	1,696 / 16478	Q4	0.74	0.70, 0.79	0.86	0.80, 0.92	0.93	0.87, 1.00
Q5 (6-9)	2,033 / 22188	Q5	0.61	0.58, 0.65	0.74	0.69, 0.79	0.85	0.79, 0.91
USDA Healthy Eating Index 2010		Per SD increase	0.78	0.76, 0.79	0.89	0.87, 0.91	0.94	0.91, 0.96
		Per 10% increase	0.79	0.78, 0.81	0.90	0.88, 0.92	0.94	0.92, 0.96
Q1 (18 - 57)	2,384 / 17718	Q1	Ref.		Ref.		Ref.	
Q2 (57 - 65)	1,913 / 17718	Q2	0.73	0.69, 0.77	0.86	0.81, 0.92	0.90	0.85, 0.96
Q3 (65 - 70)	1,844 / 17719	Q3	0.66	0.62, 0.70	0.85	0.80, 0.91	0.91	0.86, 0.97
Q4 (70 - 76)	1,636 / 17718	Q4	0.55	0.52, 0.59	0.77	0.72, 0.82	0.85	0.79, 0.91
Q5 (76 - 95)	1,491 / 17718	Q5	0.49	0.46, 0.52	0.71	0.67, 0.77	0.83	0.77, 0.89
Alternate Healthy Eating Index 2010		Per SD increase	0.77	0.75, 0.79	0.87	0.85, 0.89	0.92	0.90, 0.94
		Per 10% increase	0.77	0.75, 0.79	0.87	0.85, 0.89	0.92	0.90, 0.94
Q1 (13 - 41)	2,387 / 17718	Q1	Ref.		Ref.		Ref.	
Q2 (41 - 47)	2,025 / 17718	Q2	0.80	0.75, 0.85	0.91	0.86, 0.96	0.95	0.89, 1.01
Q3 (47 - 53)	1,789 / 17719	Q3	0.67	0.63, 0.71	0.81	0.76, 0.86	0.87	0.81, 0.92
Q4 (53 - 60)	1,641 / 17718	Q4	0.58	0.55, 0.62	0.77	0.72, 0.82	0.85	0.79, 0.90
Q5 (60 - 94)	1,426 / 17718	Q5	0.49	0.46, 0.52	0.68	0.64, 0.73	0.79	0.73, 0.84
Dietary Approaches to Stop Hypertension		Per SD increase	0.75	0.73, 0.76	0.86	0.84, 0.88	0.90	0.88, 0.93
		Per 10% increase	0.82	0.81, 0.83	0.90	0.89, 0.92	0.93	0.92, 0.95
Q1 (8 - 19)	2,257 / 16,040	Q1	Ref.		Ref.		Ref.	
Q2 (20 - 22)	1,872 / 17,134	Q2	0.70	0.66, 0.74	0.83	0.78, 0.88	0.86	0.81, 0.91
Q3 (23 - 25)	2,168 / 21,099	Q3	0.60	0.56, 0.63	0.77	0.73, 0.82	0.83	0.78, 0.88
Q4 (26 - 28)	1,703 / 18,697	Q4	0.50	0.47, 0.53	0.69	0.65, 0.74	0.76	0.71, 0.82
Q5 (29 - 38)	1,268 / 15,621	Q5	0.43	0.40, 0.46	0.64	0.60, 0.68	0.74	0.69, 0.80

<sup>a</sup> Analyses excluded participants with baseline cardiovascular disease or cancer, and adjust for race/ethnicity [non-Hispanic black, Hispanic, other, non-Hispanic white (reference), or missing], age [50-54, 55-59, 60-69, and 70-79 years], and covariates measured at the screening visit, including educational attainment [<General Educational Development/high school, some college or vocational training, college graduate, or post-graduate education (reference)], quintiles of MET-hours/week of recreational physical activity, post-menopausal hormone use (current, former or never [ref reference family history of diabetes (yes/no), smoking status [current, former or never (reference)], study arm [randomization status for Calcium/Vitamin D Trial, Hormone Replacement Therapy, or no assignment (reference)], and dietary energy intake. Additionally adjusted for BMI category where indicated [<18.5, 18.5–24.9, 25.0–29.9, 30.0–34.9, 35.0-39.9, >40 kg/m<sup>2</sup>].

<sup>b</sup> All  $P$  trend values were computed using the median of the quintile as a continuous variable;  $P < 0.001$ .

BMI = body mass index; CaD = Calcium and Vitamin D; GED = General Education Development; HRT = hormone replacement therapy; MET = metabolic equivalent of task; SD = standard deviation; USDA = United States Department of Agriculture.