Supplementary material for Biomarker-calibrated total sugars intake and risk of type 2 diabetes and cardiovascular disease in the Women's Health Initiative Observational Study

Web Table 1. Hazard Ratios and 95% CI for Specific Cardiovascular Disease Outcomes by 20% Increase of Calibrated and Uncalibrated Total Sugars Intake from Energy Substitution and Energy Partition Models in WHI Observational Study, From Baseline (1993-1998) through September 30, 2010 (n = 64,751)

Model	Calibrated total sugars[a]				Uncalibrated total sugars[a]			
	Energy substitution		Energy partition		Energy substitution		Energy partition	
	HR	95% CI	HR	95% CI	HR	95% CI	HR	95% CI
Nonfatal MI[b]								
Age- and energy-adjusted[c]	0.97	0.93, 1.02	1.00	0.90, 1.11	0.95	0.92, 0.97	0.95	0.93, 0.98
Multivariable 1[d]	0.96	0.85, 1.09	0.87	0.76, 0.98	0.98	0.94, 1.02	0.99	0.96, 1.02
Multivariable 2[e]	0.96	0.81, 1.14	0.87	0.78, 0.97	0.98	0.95, 1.02	0.99	0.96, 1.02
Coronary death[b]								
Age- and energy-adjusted	0.91	0.87, 0.96	0.91	0.80, 1.04	0.93	0.90, 0.97	0.94	0.91, 0.97
Multivariable 1	0.94	0.73, 1.20	0.97	0.78, 1.20	0.96	0.91, 1.02	0.97	0.93, 1.02

Multivariable 2	0.93	0.70, 1.25	0.93	0.79, 1.09	0.97	0.92, 1.03	0.98	0.94, 1.02
Heart failure[b]								
Age- and energy-adjusted	0.95	0.90, 0.99	1.05	0.92, 1.21	0.93	0.90, 0.95	0.94	0.92, 0.97
Multivariable 1	0.91	0.72, 1.14	0.97	0.71, 1.32	0.94	0.90, 0.98	0.95	0.92, 0.99
Multivariable 2	0.91	0.61, 1.37	0.87	0.72, 1.06	0.95	0.91, 0.99	0.96	0.93, 1.00
CABG[b]								
Age- and energy-adjusted	1.02	0.97, 1.07	1.14	1.02, 1.27	0.94	0.91, 0.98	0.95	0.92, 0.98
Multivariable 1	0.93	0.76, 1.14	0.84	0.69, 1.03	0.94	0.90, 0.98)	0.95	0.91, 0.99
Multivariable 2	0.93	0.67, 1.30	0.83	0.70, 0.98	0.94	0.90, 0.99	0.95	0.91, 0.99
PCI[b]								
Age- and energy-adjusted	1.02	0.97, 1.07	1.07	0.97, 1.18	0.95	0.92, 0.97	0.95	0.93, 0.97
Multivariable 1	0.97	0.83, 1.12	0.84	0.74, 0.96	0.96	0.93, 1.00	0.97	0.94, 1.00
Multivariable 2	0.97	0.72, 1.29	0.84	0.75, 0.95	0.97	0.93, 1.00	0.97	0.95, 1.00
Ischemic stroke[b]								
Age- and energy-adjusted	0.97	0.92, 1.02	0.98	0.91, 1.06	0.96	0.94, 0.99	0.97	0.94, 0.99
Multivariable 1	0.99	0.83, 1.18	1.02	0.89, 1.17	1.00	0.95, 1.04	0.99	0.96, 1.03
Multivariable 2	0.99	0.80, 1.23	0.99	0.88, 1.12	1.00	0.96, 1.04	1.00	0.96, 1.03

Hemorrhagic stroke[b]								
Age- and energy-adjusted	0.98	0.93, 1.03	0.88	0.78, 1.00	1.06	0.99, 1.13	1.03	0.97, 1.08
Multivariable 1	1.08	0.79, 1.47	0.87	0.68, 1.11	1.05	0.96, 1.15	1.02	0.95, 1.09
Multivariable 2	1.08	0.72, 1.63	0.86	0.64, 1.16	1.04	0.95, 1.14	1.01	0.95, 1.09

AREE, activity-related energy expenditure; CABG, coronary artery bypass graft; CHD, coronary heart disease; CVD, cardiovascular disease; HT, hormone therapy; MI, myocardial infarction; PCI, percutaneous coronary intervention.

[a] Models with calibrated total sugars included calibrated estimates of energy, protein, and Na/K intake, and AREE, whereas models with uncalibrated total sugars included uncalibrated estimates of those exposures.

[b] Number of cases: Nonfatal MI = 1,598; Coronary death = 732; Heart failure = 969; CABG = 821; PCI = 1,855; Ischemic stroke = 1,418; Hemorrhagic stroke = 314.

[c] Cox models stratified by 5-yr age groups, and adjusted for age as continuous variable and energy intake (total energy intake in energy substitution models; non-sugars non-alcohol energy in energy partition models);

[d] Additionally adjusted for race/ethnicity (White, Black, Hispanic and other races), education (high school or less, more than high school and College degree or higher), smoking (never, past and current smoker), history of treated hypertension (yes, no), treated hypercholesterolemia (yes, no), family history of CVD (yes, no), HT use (never, estrogen alone and estrogen + progestin user), alcohol (never or past drinker, <1/wk, 1-<7/wk, ≥7/wk), AREE and Na/K intake.

[e] Multivariable 1 + BMI.

Web Table 2. Calibration Equation Coefficients (β) and Their Standard Error Estimates for Multivariable Energy Substitution Models for Type 2 Diabetes From the Women's Health Initiative Nutrition and Physical Activity Assessment Study, 2007-2010

	T2D Multivariable model 1 & 2			T2D Multivariable model 3		
	Sugars β (SE)	TEI β (SE)	AREE β (SE)	Sugars β (SE)	TEI β (SE)	AREE β (SE)
Intercept	-2.334 (2.890)	7.481 (0.140)	5.413 (0.474)	-2.667 (3.098)	7.344 (0.165)	5.546 (0.564)
Log(FFQ sugars, g/1000 kcal)	0.735 (0.150)	0.003 (0.026)	0.107 (0.087)	0.705 (0.158)	0.006 (0.027)	0.130 (0.091)
log(FFQ total energy intake, kcal/d)[a]	0.114 (0.116)	0.084 (0.020)	0.160 (0.068)	0.133 (0.123)	0.082 (0.021)	0.171 (0.072)
Age,[b] y	0.996 (0.605)	-0.008 (0.001)	-0.026 (0.005)	1.061 (0.629)	-0.009 (0.001)	-0.025 (0.005)
BMI,[b,c] kg/m^2	-0.260 (0.228)	0.013 (0.001)	0.012 (0.005)	-0.206 (0.365)	0.011 (0.002)	0.019 (0.007)
Alcohol intake						
< 1 drink/week	0.125 (0.121)	0.065 (0.021)	0.131 (0.070)	0.119 (0.126)	0.067 (0.021)	0.133 (0.073)
1- <7 drinks/week	0.003 (0.122)	0.065 (0.021)	0.056 (0.071)	0.002 (0.126)	0.069 (0.021)	0.055 (0.073)
≥ 7 drinks/week	0.126 (0.159)	0.044 (0.028)	-0.046 (0.091)	0.123 (0.167)	0.055 (0.028)	-0.012 (0.095)
AREE[d]	0.029 (0.097)	0.019 (0.017)	0.104 (0.057)	0.048 (0.101)	0.021 (0.017)	0.101 (0.060)

Race/ethnicity						
Black	0.073 (0.138)	-0.028 (0.024)	-0.011 (0.081)	0.117 (0.149)	-0.026 (0.025)	-0.014 (0.087)
Hispanic	0.224 (0.146)	-0.106 (0.025)	-0.028 (0.083)	0.198 (0.152)	-0.098 (0.026)	-0.016 (0.087)
Other	0.269 (0.268)	-0.032 (0.046)	-0.050 (0.161)	0.265 (0.273)	-0.026 (0.046)	-0.037 (0.164)
Smoking - Current	-0.387 (0.249)	-0.047 (0.043)	-0.108 (0.143)	-0.394 (0.254)	-0.051 (0.043)	-0.101 (0.145)
Education						
< High school	0.447 (0.333)	-0.000 (0.058)	-0.084 (0.206)	0.422 (0.343)	-0.000 (0.058)	-0.080 (0.210)
High school graduate	0.303 (0.175)	0.061 (0.030)	0.133 (0.100)	0.285 (0.185)	0.077 (0.031)	0.151 (0.105)
Some college	0.131 (0.101)	0.004 (0.017)	-0.045 (0.058)	0.120 (0.105)	0.010 (0.018)	-0.045 (0.061)
Marital status						
Divorced	0.016 (0.223)	-0.000 (0.039)	0.130 (0.131)	-0.079 (0.241)	0.006 (0.041)	0.181 (0.142)
Widowed	0.034 (0.243)	-0.022 (0.042)	0.147 (0.142)	-0.058 (0.261)	-0.021 (0.044)	0.201 (0.153)
Married/living as married	0.069 (0.209)	-0.040 (0.036)	0.089 (0.123)	-0.022 (0.226)	-0.030 (0.038)	0.137 (0.133)
Estrogen alone use - Yes	0.282 (0.199)	-0.002 (0.034)	-0.030 (0.114)	0.293 (0.203)	-0.006 (0.034)	-0.026 (0.116)
Estrogen + progestin use - Yes	0.231 (0.301)	0.012 (0.052)	-0.179 (0.184)	0.262 (0.309)	0.002 (0.053)	-0.141 (0.189)
History of treated hypertension - Yes	0.005 (0.093)	-0.023 (0.016)	-0.054 (0.054)	0.014 (0.098)	-0.024 (0.016)	-0.062 (0.056)

History of CVD - Yes	0.097 (0.202)	0.040 (0.034)	0.086 (0.123)	0.089 (0.211)	0.059 (0.035)	0.126 (0.128)
Family History of T2D - Yes	-0.120 (0.098)	0.041 (0.017)	0.093 (0.057)	-0.099 (0.102)	0.040 (0.017)	0.090 (0.059)
Hypercholesterolemia - Yes	-0.058 (0.176)	-0.028 (0.030)	-0.164 (0.103)	-0.063 (0.180)	-0.032 (0.030)	-0.155 (0.105)
Waist circumference (cm)				-0.000 (0.005)	0.001 (0.001)	-0.003 (0.003)
Log(FFQ protein, g/1000 kcal)	0.185 (0.235)	-0.015 (0.041)	-0.100 (0.135)	0.177 (0.245)	-0.006 (0.041)	-0.114 (0.140)

AREE: activity-related energy expenditure; BMI: body mass index; CVD: cardiovascular disease; FFQ: food frequency questionnaire; SE, standard error; T2D: Type 2 Diabetes; TEI: total energy intake.

[a] Log-transformed values are centered at the sample mean.

[b] In models with sugars, age and BMI were log-transformed; otherwise, untransformed values were used, centered at the sample mean.

[c] Body Weight (kg)/Height $(m)^2$.

[d] In models with sugars, the square root of AREE was used; otherwise, a log-transformed term was used.

Web Table 3. Calibration Equation Coefficients (β) and Their Standard Error Estimates for Multivariable Energy Partition Models for Type 2 Diabetes From the Women's Health Initiative Nutrition and Physical Activity Assessment Study, 2007-2010

	T2D Multivariable model 1			**T2D Multivariable model 2**		
	Sugars	**TEI**	**AREE**	**Sugars**	**TEI**	**AREE**

	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Intercept	4.532 (3.120)		3.678 (1.079)	4.472 (3.333)		3.693 (1.145)
Log(FFQ sugars, g/d)	0.459 (0.116)		0.132 (0.071)	0.469 (0.123)		0.154 (0.075)
Log(FFQ non-sugars non-alcohol energy intake, kcal/d)[a]	-0.457 (0.236)		0.222 (0.141)	-0.434 (0.247)		0.242 (0.147)
Age,[b] y	0.238 (0.562)		-0.025 (0.005)	0.209 (0.587)		-0.025 (0.005)
BMI,[b,c] kg/m^2	0.137 (0.222)		0.012 (0.005)	0.150 (0.346)		0.019 (0.007)
Alcohol intake						
< 1 drink/week	0.111 (0.112)		0.130 (0.070)	0.102 (0.116)		0.133 (0.073)
1- <7 drinks/week	-0.075 (0.112)		0.064 (0.069)	-0.061 (0.117)		0.065 (0.072)
≥ 7 drinks/week	0.015 (0.143)		-0.035 (0.085)	0.032 (0.151)		0.000 (0.089)
AREE[d]	0.034 (0.023)		0.110 (0.057)	0.031 (0.025)		0.107 (0.059)
Race/ethnicity						
Black	0.047 (0.129)		-0.014 (0.080)	0.032 (0.140)		-0.019 (0.086)
Hispanic	0.105 (0.135)		-0.030 (0.083)	0.082 (0.142)		-0.020 (0.086)
Other	0.258 (0.255)		-0.056 (0.160)	0.232 (0.260)		-0.044 (0.163)
Smoking - Current	-0.476 (0.256)		-0.111 (0.142)	-0.515 (0.261)		-0.104 (0.144)

Education						
< High school	0.258 (0.279)		-0.086 (0.204)	0.402 (0.302)		-0.080 (0.209)
High school graduate	0.207 (0.155)		0.124 (0.099)	0.203 (0.162)		0.142 (0.105)
Some college	0.087 (0.095)		-0.048 (0.058)	0.104 (0.100)		-0.048 (0.060)
Marital status						
Divorced	0.030 (0.215)		0.122 (0.130)	-0.065 (0.237)		0.170 (0.141)
Widowed	0.034 (0.235)		0.145 (0.141)	-0.073 (0.256)		0.198 (0.152)
Married/living as married	0.070 (0.202)		0.087 (0.122)	-0.027 (0.222)		0.134 (0.132)
Estrogen alone use - Yes	0.229 (0.185)		-0.033 (0.113)	0.272 (0.196)		-0.029 (0.115)
Estrogen + progestin use - Yes	0.338 (0.267)		-0.179 (0.183)	0.350 (0.274)		-0.138 (0.188)
History of treated hypertension - Yes	-0.010 (0.088)		-0.056 (0.053)	0.009 (0.092)		-0.063 (0.056)
History of CVD - Yes	0.162 (0.186)		0.072 (0.119)	0.154 (0.193)		0.113 (0.124)
Family history of T2D - Yes	-0.114 (0.091)		0.097 (0.056)	-0.068 (0.096)		0.096 (0.058)
Hypercholesterolemia - Yes	-0.016 (0.158)		-0.160 (0.102)	-0.035 (0.162)		-0.150 (0.104)
Waist circumference, cm				0.000 (0.005)		-0.003 (0.003)
Log(FFQ protein, g/d)	0.189 (0.224)		-0.191 (0.134)	0.176 (0.233)		-0.219 (0.138)

AREE: activity-related energy expenditure; BMI: body mass index; CVD: cardiovascular disease; FFQ: food frequency questionnaire; SE, standard error; T2D: Type 2 Diabetes; TEI: total energy intake.

[a] Log-transformed values are centered at the sample mean.

[b] In models with sugars, age and BMI were log-transformed; otherwise, untransformed values were used, centered at the sample mean.

[c] Body Weight (kg)/Height $(m)^2$.

[d] In models with sugars, the square root of AREE was used; otherwise, a log-transformed term was used.

Web Table 4. Calibration Equation Coefficients and Their Standard Error Estimates for Multivariable Energy Substitution and Energy Partition Models for Cardiovascular Disease From the Women's Health Initiative Nutrition and Physical Activity Assessment Study, 2007-2010

	Energy Substitution Multivariable Model 1 & 2				**Energy Partition Multivariable Model 1 & 2**			
	Sugars	**TEI**	**AREE**	**Na/K**	**Sugars**	**TEI**	**AREE**	**Na/K**
Intercept	-1.324 (2.817)	7.546 (0.173)	5.484 (0.564)	-0.123 (0.552)	1.853 (2.752)		5.107 (0.631)	0.785 (0.597)
Log(FFQ sugars, g/1000 kcal)	0.459 (0.198)	-0.009 (0.035)	0.135 (0.113)	0.041 (0.109)				
Log(FFQ sugars, g/d)					0.235 (0.151)		0.101 (0.090)	0.038 (0.0.87

log(FFQ total energy intake, kcal/d)[a]	0.193 (0.115)	0.078 (0.020)	0.151 (0.067)	-0.086 (0.064)				
Log(FFQ non-sugars non-alcohol energy intake, kcal/d)[a]					0.016 (0.181)		0.066 (0.107)	-0.130 (0.106)
Age,[b] y	1.092 (0.579)	-0.007 (0.001)	-0.022 (0.005)	-0.001 (0.004)	0.457 (0.547)		-0.022 (0.005)	0.000 (0.004)
BMI,[b,c] kg/m^2	-0.273 (0.225)	0.014 (0.001)	0.013 (0.004)	0.012 (0.004)	0.050 (0.218)		0.013 (0.004)	0.012 (0.004)
Alcohol intake								
< 1 drink/week	0.108 (0.116)	0.042 (0.020)	0.077 (0.067)	0.019 (0.062)	0.078 (0.109)		0.076 (0.067)	0.020 (0.062)
1- <7 drinks/week	0.018 (0.120)	0.042 (0.021)	0.007 (0.069)	-0.085 (0.063)	-0.098 (0.112)		0.009 (0.068)	-0.089 (0.062)
≥ 7 drinks/week	0.019 (0.157)	0.034 (0.028)	-0.042 (0.089)	-0.072 (0.085)	-0.093 (0.142)		-0.051 (0.083)	-0.080 (0.080)
AREE[d]	0.049 (0.094)	0.022 (0.017)	0.113 (0.055)	0.014 (0.051)	0.032 (0.023)		0.115 (0.054)	0.013 (0.051)
Log(Na/K, mg/d)[a]	-0.280 (0.213)	-0.032 (0.038)	-0.077 (0.122)	0.487 (0.126)	-0.381 (0.215)		-0.122 (0.126)	0.521 (0.131)
Race/ethnicity								
Black	0.095 (0.132)	-0.004 (0.023)	0.053 (0.077)	0.255 (0.074)	0.096 (0.127)		0.066 (0.077)	0.247 (0.074)
Hispanic	0.230 (0.145)	-0.090 (0.025)	0.010 (0.082)	0.174 (0.078)	0.109 (0.136)		0.012 (0.082)	0.172 (0.077)
Other	0.444 (0.256)	-0.036 (0.045)	-0.155 (0.151)	-0.036 (0.142)	0.365 (0.248)		-0.164 (0.151)	-0.035 (0.142)

Smoking - Current	-0.409 (0.246)	-0.041 (0.043)	-0.121 (0.139)	-0.005 (0.132)	-0.414 (0.246)		-0.125 (0.139)	-0.006 (0.131)
Education								
Post High school	-0.158 (0.150)	-0.021 (0.027)	-0.126 (0.086)	-0.025 (0.079)	-0.098 (0.135)		-0.127 (0.086)	-0.023 (0.079)
College	-0.309 (0.153)	-0.021 (0.027)	-0.080 (0.088)	-0.145 (0.081)	-0.179 (0.137)		-0.081 (0.088)	-0.143 (0.081)
Estrogen alone use - Yes	0.295 (0.197)	-0.007 (0.035)	-0.020 (0.111)	0.263 (0.103)	0.246 (0.185)		-0.021 (0.111)	0.264 (0.103)
Estrogen + progestin use - Yes	0.324 (0.301)	0.019 (0.053)	-0.153 (0.182)	0.232 (0.147)	0.374 (0.271)		-0.159 (0.182)	0.233 (0.147)
History of treated hypertension - Yes	0.069 (0.091)	-0.030 (0.016)	-0.087 (0.052)	-0.028 (0.050)	0.025 (0.087)		-0.087 (0.052)	-0.029 (0.049)
Family History of CVD - Yes	-0.124 (0.092)	-0.018 (0.016)	-0.005 (0.052)	0.101 (0.049)	-0.057 (0.087)		-0.006 (0.052)	0.103 (0.049)
Hypercholesterolemia - Yes	0.078 (0.168)	-0.008 (0.030)	-0.140 (0.097)	-0.061 (0.088)	0.093 (0.155)		-0.138 (0.096)	-0.061 (0.088)
Income, annual								
$20 – 34K				0.059 (0.103)				0.057 (0.103)
$35 – 49K				0.053 (0.102)				0.054 (0.102)

$50 – 74K				0.143 (0.103)				0.143 (0.103)
≥ 75K				0.034 (0.104)				0.032 (0.104)
Supplementation – Yes				-0.070 (0.047)				-0.070 (0.046)

AREE: activity-related energy expenditure; BMI: body mass index; CVD: cardiovascular disease; FFQ: food frequency questionnaire; SE, standard error; T2D: Type 2 Diabetes; TEI: total energy intake.

[a] Log-transformed values are centered at the sample mean.

[b] In models with sugars, age and BMI were log-transformed; otherwise, untransformed values were used, centered at the sample mean.

[c] Body Weight (kg)/Height $(m)^2$.

[c] In models with sugars, the square root of AREE was used; otherwise, a log-transformed term was used.

Web Table 5. Baseline Characteristics of Participants in the Women's Health Initiative Observational Study, Enrolled During 1993 – 1998, and Nutrition and Physical Activity Assessment Study, Enrolled During 2007-2009, in the CVD and T2D analytical cohort

	CVD			**T2D**		
	WHI OS (n=64,751)	**NPAAS** (n=342)		**WHI OS** (n=75,320)	**NPAAS** (n=383)	

	N	%	N	%	*P*-value[a]	N	%	N	%	*P*-value
Age group at screening					<0.0001					<0.0001
≤59 years	22300	34.5	239	69.9		24399	32.4	260	67.9	
60-69 years	28426	43.9	86	25.1		33120	44.0	99	25.8	
≥70 years	14025	21.7	17	5.0		17801	23.6	24	6.2	
Race/ethnicity					<0.0001					<0.0001
White	55132	85.1	226	66.1		65198	86.6	261	68.1	
Black	4391	6.8	52	15.2		4577	6.1	59	15.4	
Hispanic	2195	3.4	52	15.2		2303	3.1	51	13.3	
Other or unknown	3033	4.8	12	3.5		3242	4.3	12	3.1	
College degree or higher	28670	44.3	176	51.5	0.020	33314	44.2	205	53.5	0.0009
Presently married/living as married	41509	64.1	223	65.2	0.002	48013	63.7	259	67.6	0.0006
Family history of T2D	19925	31.9	106	32.5	0.802	23632	31.4	123	32.1	0.755
Family history of CVD	43170	66.7	217	63.5	0.205	50803	68.1	237	62.2	0.014
History of T2D	1957	3.0	0	0.0	0.001					

History of CVD						14271	18.9	55	14.4	0.022
Treated hypertension	14229	22.0	48	14.0	0.0004	17829	23.7	57	14.9	<0.0001
Smoking status					0.178					0.103
Never	33155	51.2	192	56.1		38094	50.6	213	55.6	
Past	27732	42.8	133	38.9		32724	43.4	153	39.9	
Current	3864	6.0	17	5.0		4502	6.0	17	4.4	
Alcohol intake					0.443					0.186
Never drinker	6772	10.5	36	10.5		7740	10.3	39	10.2	
Past drinker	11035	17.0	49	14.3		12836	17.0	52	13.6	
< 1 drink/week	20668	31.9	111	32.5		24092	32.0	122	31.9	
1 - <7 drinks/week	17546	27.1	105	30.7		20438	27.1	122	31.9	
≥ 7 drinks/week	8730	13.5	41	12.0		10214	13.6	48	12.5	
Use of hormone therapy[b]										
Current E-alone	16070	24.8	80	23.4	0.540	19051	25.3	100	26.1	0.713
Current E+P	13940	21.5	94	27.5	0.007	15723	20.9	99	25.8	0.016
Treated high cholesterol	8003	12.4	24	7.0	0.003	10549	14.0	27	7.0	<0.0001

Aspirin use (≥ 80 mg)	11744	18.1	45	13.2	0.017	15964	21.2	60	15.7	0.0079
Statin use	4205	6.5	11	3.2	0.014	5827	7.7	11	2.9	0.0004
	GM	**95% CI[c]**	**GM**	**95% CI**	***P*-value**	**GM**	**95% CI**	**GM**	**95% CI**	***P*-value**
BMI,[d] kg/m^2	26.50	26.46, 26.54	27.24	26.64, 27.86	0.016	26.45	26.41, 26.49	27.00	26.42, 27.59	0.064
Waist circumference, cm	83.17	83.07, 83.27	82.97	81.55, 84.41	0.769	83.10	83.01, 83.18	82.42	81.08, 83.78	0.325
FFQ total energy, kcal	1469	1465, 1473	1542	1478, 1608	0.024	1471	1467, 1475	1539	1481, 1599	0.015
Calibrated total energy, kcal	2156	2155, 2158	2250	2223, 2277	<0.0001	2173	2172, 2175	2273	2246, 2300	<0.0001
FFQ total sugars density, g/1000 kcal	61.4	61.2, 61.5	60.0	58.0, 62.1	0.212	61.9	61.8, 62.0	60.6	58.7, 62.5	0.183
Calibrated total sugars density, g/1000 kcal	95.0	94.6, 95.3	86.4	82.3, 90.7	0.0001	84.3	84.1, 84.6	78.7	76.2, 81.4	<0.0001
FFQ Protein density, g/1000 kcal	41.5	41.4, 41.6	40.9	40.1, 41.7	0.177	41.5	41.4, 41.5	41.1	40.3, 41.8	0.316
Calibrated protein density, g/1000 kcal	36.4	36.3, 36.4	35.8	35.3, 36.4	0.064	34.7	34.7, 34.7	34.2	33.9, 34.5	0.005

FFQ Na/K	0.98	0.98, 0.98	1.00	0.97, 1.03	0.226					
Calibrated Na/K	1.33	1.32, 1.33	1.40	1.36, 1.44	<0.0001					
PHQ leisure AREE, kcal	411.6	409.6, 413.5	431.3	406.7, 457.3	0.116	407.5	405.7, 409.3	422.4	399.2, 446.9	0.210
Calibrated AREE, kcal	859.7	858.1, 861.4	977.6	952.0, 1004.0	<0.0001	854.0	852.4, 355.6	986.2	961.6, 1011.4	<0.0001

AREE, activity-related energy expenditure; CI, confidence interval; CVD, cardiovascular disease; FFQ, food frequency questionnaire; GM, geometric mean; NPAAS, Nutrition and Physical Activity Assessment Study; PHQ, personal habits questionnaire; T2D, Type 2 Diabetes; WHI OS, Women's Health Initiative Observational Study.

[a] Based on a chi-square or t-test comparing participants in NPAAS versus the remaining WHI-OS participants not enrolled in NPAAS.

[b] Estrogen (E) alone or estrogen (E) + progestin (P) user

[c] Naïve 95% CIs and p-values reported for both uncalibrated and calibrated estimates.

[d] Body Weight (kg)/Height $(m)^2$.