

Supplemental Online Content

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

eMethods. Supplementary Methods

Dietary assessment

Diet was assessed in 1991, 1995, 1999, 2003, 2007, 2011 and 2015 in Nurses' Health Study II (NHSII) using a semi-quantitative food frequency questionnaire (FFQ, eFigure 1). Participants were asked how frequently they consumed each food item in common portion size during the past year, with nine possible responses ranged from "Never or less than once per month" to "6+ per day".

To estimate servings of food groups consumed per day, we first converted the FFQ responses to servings/day and then summed up all food items in each food group. For example, whole grains included oats, brown rice, dark bread, whole-grain cracker, whole-grain cereal, bran, and wheat germ, while refined grains included white bread, white rice, muffin, pancake, pasta, and tortilla. We used the Harvard T. H. Chan School of Public Health nutrient database updated during each questionnaire cycle to calculate nutrient intakes. Previous validation studies in men and women have demonstrated comparable reproducibility (intraclass correlation coefficients: 0.49-0.71 in women) and modest correlation (Spearman correlation coefficient r : 0.36-0.75 in women) between FFQs and one-week food diaries.^{1,2}

Specifically, for gluten intake, we first identified food items with gluten-containing ingredients like wheat, wheat bran, wheat germ, rye, barley, cereal, and pasta, according to the ingredient lists on commercial product labels provided by manufacturers and recipes on cookbooks for home-cooked items. Then, we quantified the gluten content of the gluten-containing ingredients in all food item by multiplying the protein content of these ingredients with an approximate proportion of gluten (75%), in line with previous studies,^{3,4} though the proportion of gluten in protein may be more variable in barley and rye than wheat.⁵ We did not calculate the trace amount of gluten in oats and certain condiments like soy sauce since the quantity of gluten in these foods would be negligible compared to the total gluten intake.⁶ Next, we added up gluten from all foods consumed to estimate total gluten intake.

In a recent validation study using 7-day dietary records, FFQ-derived gluten intake showed moderate to high validity (r : 0.58 for gluten, median r : 0.60 for gluten-rich foods).⁷ Another validation studies also showed reasonable correlation between FFQ-derived and 7-day diet records-derived major sources of gluten (e.g., r : 0.79 for cold cereal).⁸ Zong et al. has reported the trend of gluten intake over the past two decades in NHSII and major sources of gluten consumed in 2011, including whole-grain bread, pasta, cold cereal, pizza, and wheat products like pretzel, bagel, muffin, crackers, white bread, and tortilla.⁴

To account for confounding from total energy intake and potential under- or over-reporting, we adjusted gluten intake for total energy intake using the residual method. As previously described,⁹ absolute nutrient intake was regressed on total energy intake to get the nutrient residual, which was uncorrelated with the total energy intake, allowing direct evaluation of the variation in nutrient composition. To estimate long-term intakes, we averaged across FFQs preceding the cognitive assessment. For participants who completed cognitive assessment before the 2015 questionnaire cycle, we averaged daily gluten intake reported in 1991, 1995, 1999, 2003, 2007, and 2011. For the rest of participants, we averaged daily gluten intake reported in 1991, 1995, 1999, 2003, 2007, 2011, and 2015. We categorized participants into quintiles of energy adjusted gluten intake (0.1-<5.1, 5.1-<5.9, 5.9-<6.6, 6.6-<7.6, 7.6-<18.3 g/day) to assess potential non-linear relationships and threshold of effect.

Cognitive assessment

We used the CogState Brief Battery to assess cognitive function of participants.¹⁰ The CogState Brief Battery was self-administered at home via a web-based interface and took about 15-20 minutes to complete.¹⁰ As the battery were loaded from Internet and ran locally on participants' computers, the cognitive performance would not be affected by Internet connection and speed. Hardware differences would cause minimal time variation as well (on the order of milliseconds).¹¹ The validity of this unsupervised online battery has been well-demonstrated,¹²⁻¹⁴ and its utility has been evaluated in large population-based epidemiological studies.^{10,11} Moreover, the CogState battery was sensitive in detecting mild cognitive impairment^{12,15} and had comparable performance in supervised and unsupervised settings.¹⁴

The CogState Brief Battery contained four tasks in the following order, all involved images of playing cards: Detection, Identification, One Card Learning, and One Back.¹⁰ Participants had to view instructions and complete a practice trial before each task started. During each task, participants responded to playing cards by pressing the “K” and “D” computer keys, which meant “Yes” and “No”, respectively. As previously described,¹⁰⁻¹⁴ in Detection, which assessed psychomotor function and information processing speed, participants pressed the “K” key as quickly as possible when a joker card turned face-up. In Identification, which assessed visual attention and vigilance, participants pressed the “K” or “D” key as quickly as possible to indicate whether the faced-up joker card was red or not. In One Card Learning, which assessed visual recognition memory and attention, participants responded “K” or “D” if the faced-up card (normal playing card without joker) had appeared in the task before or not. In One Back, which assessed working memory and attention, participants responded “K” or “D” if the faced-up normal playing card was the same as the immediately previous card or not. The speed (mean reaction time in milliseconds) and accuracy (proportion correct) were recorded for each task. The performance on Detection, Identification, and One Back was measured based on the \log_{10} transformed reaction time for correct responses. These scores were then standardized by z-normalization and reversed so that a higher score indicated better performance. The performance on One Card Learning was measured based on arcsine square-root transformed proportion of correct responses. This score was also standardized using z-normalization. A validation study by Lim et al. found that patients with mild cognitive impairment and Alzheimer's disease had greatest impairment in memory (One Card Learning and One Back) and apolipoprotein E4 genotype had negative influence on performance in One Card Learning.¹⁵

Consistent with previous studies,¹¹⁻¹⁴ we computed composite scores on these tasks as these scores may be more sensitive to detect cognitive variations than individual task scores. We averaged the z-scores on Detection and Identification to calculate psychomotor speed/attention score, averaged the z-scores on One Card Learning and One Back to calculate learning/working memory score, and averaged the z-scores on all four tasks to calculate the global cognition score. These composite scores were then re-standardized using z-normalization so that one unit increase in score indicated 1 SD higher than the sample mean. The composite score was not computed if any of the contributing task scores was missing. We excluded implausibly low score based on cutoffs of percent correctness for each task recommended by CogState (Detection: <0.8; Identification: <0.8; One Card Learning: <0.5; One Back: <0.7), because they were likely due to technical errors. These composite scores have been shown to have high test-retest reliability ($r=0.95$) in identifying adults with cognitive impairment.¹² Sumner et al. has shown that the standardized loadings for responses times on Detection (0.68) and Identification (0.95) for the psychomotor speed/attention factor and the standardized loadings for responses times on One Card Learning (0.69) and One Back (0.85) for the learning/working memory factor were high in a confirmatory factor analysis of NHSII cohort,¹¹ indicating that these composite scores were applicable in our cohort.

Covariates

Participants self-reported date of birth, race (White/non-White), husband's education (high school or below, college, graduate, unmarried or missing), family income (dollar), personal history of diseases (hypertension, diabetes, hypercholesterolemia, myocardial infarction, depression, cancer, and dementia), body mass index (BMI, kg/m^2), smoking status (never, past, current, and missing $n=12$), regular use of medications (antidepressant, aspirin, non-steroidal anti-inflammatory drugs, postmenopausal hormone), use of multivitamin, and alcohol intake (g/day) in questionnaires. We averaged BMI, physical activity, total energy intake, and alcohol intake across questionnaire cycles from 1991 to the most recent questionnaire (2011, 2013, or 2015) prior to cognitive assessment, and acquired other covariates from the most recent questionnaire prior to cognitive assessment. Husband's education was measured in 1999 (missing $n=391$). We used husband's education as an indicator for socioeconomic status because participants in NHSII were nurses with similar education background. We included family income as a covariate to additionally capture another domain of socioeconomic status of participants, since it has been found to be associated with diet quality and cognitive function.^{16, 17}

We assessed current depression status based on self-reported depression diagnosis, treatment, and clinically relevant depressive symptoms (≥ 10) according to the validated 10-item Centre for Epidemiological Studies Depression Scale (CES-D-10), which was assessed in 2013. The CES-D-10 includes 3, 5, and 2 questions on depressed affect, somatic symptoms, and positive affect in the past week, respectively, with options ranging from “rarely or none of the time”, which contributes 0 score, to “all of the time”, which contributes 3 scores.¹⁸ We included depression status as a covariate because it has been shown that depression was associated with cognitive deficits.¹⁹

We computed the Alternative Health Eating Index 2010 (AHEI-10) as described previously,²⁰ without alcohol and whole grain components. The included AHEI-10 components each assigned a score of 0-10, with higher scores for higher intakes of vegetables, fruits, nuts and legumes, long-chain (n-3) fatty acids, and poly-unsaturated fatty acids, but lower scores for higher intakes of fruit juice and sugar-sweetened beverages, red and processed meats, trans fats, and sodium.²⁰ This score has been widely used in NHSII studies to assess diet quality^{4, 11} and was strongly associated with major chronic diseases like coronary heart disease, diabetes, and cancer.²⁰ Like other dietary variables, we averaged AHEI-10 scores across previous questionnaires.

For 22, 5, and 8 participants with missing information on family income, BMI, and AHEI-10, respectively, we imputed missing values with median values of these variables. For 2 participants with missing information on aspirin or non-steroidal anti-inflammatory drug use, we carried forward the last non-missing response.

Statistical analysis

We included the above covariates in our multivariable-adjusted linear regression model examining mean difference in each standardized cognitive score comparing across quintiles of gluten intake. We used a linear trend analysis to test the overall significance of the gluten variable and whether the cognitive score increased or decreased across gluten quintiles, by assigning the median quintile value to each gluten category (4.45 g/day, 5.48 g/day, 6.23 g/day, 7.03 g/day, 8.34 g/day) and testing this variable as a continuous variable. This trend test has been widely used in prior analyses of data from our cohort.^{3, 4, 20, 21} To test the robustness of this trend test, we modeled the continuous gluten intake variable in g/day to test its linear relationships with cognitive scores.

To assess whether gluten intake during different time periods relative to the cognitive assessment would produce different results, we first calculated gluten intake assessed during each 4-year FFQ cycle (≤ 4 years, 4-8 years, 8-12 years, 12-16 years, 16-20 years, and 20-24 years before cognitive assessment), average gluten intake in distant past (12-24 years), and average gluten intake in recent past (4-12 years), and then used each of these gluten variables in the linear model as the main exposure. To test whether change in gluten intake over time would affect cognitive function, we calculated the change in gluten intake from distant to recent past (mean: -0.87 g/day) and examined the mean difference in each cognitive score associated with per 1 SD (1.98 g/day) increase in gluten intake.

Other statistical analyses have been described in detail in the Methods section of main texts.

eTable 1. Mean Differences in Standardized Cognitive Scores Associated With Continuous Gluten Intake in Grams per Day Among 13 494 Women

Composite cognitive scores ^a	Age-adjusted		Multivariable-adjusted ^b	
	Estimate (95% confidence interval)	<i>P</i>	Estimate (95% confidence interval)	<i>P</i>
Psychomotor speed/attention	-0.003 (-0.01, 0.01)	0.63	-0.01 (-0.02, 0.004)	0.23
Learning/working memory	0.01 (-0.00001, 0.02)	0.05	0.005 (-0.01, 0.02)	0.39
Global cognition	0.004 (-0.01, 0.01)	0.47	-0.002 (-0.01, 0.01)	0.73

^a Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.

^b Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment. Model was adjusted for age (years), race (white, non-white), body mass index (kg/m²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).

eTable 2. Mean Differences in Standardized Cognitive Scores Associated With Deciles of Gluten Intake Among 13 494 Women^a

Model	Deciles of average gluten intake										P-trend ^b
	Q1 (lowest)	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10 (highest)	
Median gluten intake (g/day)	3.97	4.79	5.28	5.68	6.04	6.41	6.82	7.29	7.90	9.04	--
Psychomotor speed/attention^c											
Age-adjusted	Ref.	0.02 (-0.06, 0.09)	0.005 (-0.07, 0.08)	0.04 (-0.03, 0.12)	0.03 (-0.05, 0.10)	0.03 (-0.04, 0.10)	0.01 (-0.07, 0.08)	-0.02 (-0.09, 0.05)	0.02 (-0.06, 0.09)	-0.01 (-0.08, 0.06)	0.52
Multivariable-adjusted ^d	Ref.	0.01 (-0.06, 0.09)	-0.002 (-0.08, 0.07)	0.03 (-0.04, 0.11)	0.02 (-0.06, 0.09)	0.02 (-0.06, 0.09)	-0.0002 (-0.07, 0.07)	-0.04 (-0.11, 0.04)	0.005 (-0.07, 0.08)	-0.03 (-0.11, 0.04)	0.18
Learning/working memory^c											
Age-adjusted	Ref.	0.01 (-0.06, 0.09)	0.01 (-0.06, 0.08)	0.05 (-0.02, 0.13)	0.09 (0.01, 0.16)	0.11 (0.04, 0.18)	0.09 (0.01, 0.16)	0.05 (-0.02, 0.12)	0.06 (-0.01, 0.14)	0.05 (-0.03, 0.12)	0.05
Multivariable-adjusted ^d	Ref.	-0.00 (-0.07, 0.07)	-0.01 (-0.08, 0.06)	0.03 (-0.04, 0.11)	0.06 (-0.01, 0.14)	0.08 (0.01, 0.15)	0.06 (-0.01, 0.13)	0.02 (-0.05, 0.09)	0.03 (-0.04, 0.11)	0.01 (-0.06, 0.08)	0.38
Global cognition^c											
Age-adjusted	Ref.	0.02 (-0.05, 0.09)	0.01 (-0.06, 0.08)	0.06 (-0.02, 0.13)	0.06 (-0.01, 0.14)	0.08 (0.01, 0.15)	0.05 (-0.02, 0.13)	0.01 (-0.06, 0.09)	0.05 (-0.03, 0.12)	0.02 (-0.06, 0.09)	0.54
Multivariable-adjusted ^d	Ref.	0.01 (-0.07, 0.08)	-0.01 (-0.08, 0.07)	0.04 (-0.03, 0.11)	0.05 (-0.03, 0.12)	0.06 (-0.02, 0.13)	0.03 (-0.04, 0.11)	-0.01 (-0.09, 0.06)	0.02 (-0.05, 0.09)	-0.02 (-0.09, 0.06)	0.66

^a Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment.

^b P-trend was calculated using the median gluten intake for each decile as a continuous variable.

^c Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.

^d Model was adjusted for age (years), race (white, non-white), body mass index (kg/m²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).

eTable 3. Multivariable-Adjusted Differences in Standardized Psychomotor Speed and Attention Score Across Quintiles of Gluten Intake by Smoking Status With Additional Adjustment for Refined Grains Among 13 494 Women^a

Strata	n	Quintiles of gluten intake					P-trend ^b	P-interaction ^c
		Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)		
Women who never smoked	8,932	Ref.	0.02 (-0.05, 0.08)	0.02 (-0.04, 0.09)	0.01 (-0.05, 0.08)	0.02 (-0.05, 0.09)	0.69	0.02
Women who ever smoked	4,550	Ref.	0.01 (-0.08, 0.10)	0.02 (-0.07, 0.11)	-0.07 (-0.17, 0.02)	-0.06 (-0.17, 0.04)	0.09	

^a Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment. Model was adjusted for age (years), race (white, non-white), body mass index (kg/m²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), Alternative Healthy Eating Index score (excluding alcohol and whole grains), and refined grain intake. Standardized score for psychomotor speed and attention was calculated by standardizing the mean standardized scores of two CogState battery tasks, Detection and Identification. A higher score indicated better performance, with one unit increase representing 1 SD higher than the mean.

^b P-trend was calculated using the median gluten intake for each quintile as a continuous variable.

^c P-interaction was estimated using an interaction term of gluten intake and the respective stratifying variable.

eTable 4. Sensitivity Analysis of the Mean Differences in Standardized Cognitive Scores Associated With Quintiles of Gluten Intake Among 11 733 Women Who Had Never Reported Cancer Diagnosis^a

Model	Quintiles of average gluten intake					P-trend ^b
	Q1 (lowest)	Q2	Q3	Q4	Q5 (Highest)	
Psychomotor speed/attention^c						
Standardized score mean (SD)	-0.02 (1.03)	0.01 (1.00)	0.03 (0.96)	0.01 (0.99)	0.03 (0.99)	--
Age-adjusted	Ref.	0.02 (-0.04, 0.07)	0.02 (-0.04, 0.08)	-0.004 (-0.06, 0.05)	0.005 (-0.05, 0.06)	0.86
Multivariable-adjusted ^d	Ref.	0.01 (-0.04, 0.07)	0.01 (-0.04, 0.07)	-0.02 (-0.07, 0.04)	-0.01 (-0.07, 0.05)	0.44
Learning/working memory^c						
Standardized score mean (SD)	-0.05 (0.98)	0.01 (0.96)	0.08 (0.98)	0.07 (0.98)	0.06 (0.96)	--
Age-adjusted	Ref.	0.04 (-0.02, 0.10)	0.10 (0.04, 0.15)	0.08 (0.03, 0.14)	0.06 (0.003, 0.11)	0.02
Multivariable-adjusted ^d	Ref.	0.03 (-0.03, 0.08)	0.08 (0.02, 0.13)	0.06 (0.002, 0.11)	0.03 (-0.03, 0.09)	0.21
Global cognition^c						
Standardized score mean (SD)	-0.05 (1.02)	0.01 (0.98)	0.05 (0.98)	0.03 (1.00)	0.04 (0.98)	--
Age-adjusted	Ref.	0.03 (-0.02, 0.09)	0.07 (0.01, 0.12)	0.04 (-0.01, 0.10)	0.03 (-0.02, 0.09)	0.27
Multivariable-adjusted ^d	Ref.	0.02 (-0.03, 0.08)	0.05 (-0.005, 0.11)	0.02 (-0.04, 0.08)	0.01 (-0.05, 0.07)	0.88
^a Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment.						
^b P-trend was calculated using the median gluten intake for each quintile as a continuous variable.						
^c Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.						
^d Model was adjusted for age (years), race (white, non-white), body mass index (kg/m ²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).						

eTable 5. Sensitivity Analysis of the Mean Differences in Standardized Cognitive Scores Associated With Quintiles of Gluten Intake Among 13 486 women Who Had Never Reported Dementia Diagnosis^a

Model	Quintiles of average gluten intake					P-trend ^b
	Q1 (lowest)	Q2	Q3	Q4	Q5 (Highest)	
Psychomotor speed/attention^c						
Standardized score mean (SD)	-0.03 (1.03)	0.01 (1.00)	0.02 (0.96)	-0.002 (1.02)	0.02 (0.99)	--
Age-adjusted	Ref.	0.02 (-0.04, 0.07)	0.02 (-0.03, 0.07)	-0.01 (-0.07, 0.04)	-0.005 (-0.06, 0.05)	0.53
Multivariable-adjusted ^d	Ref.	0.01 (-0.04, 0.06)	0.01 (-0.04, 0.07)	-0.02 (-0.08, 0.03)	-0.02 (-0.07, 0.03)	0.21
Learning/working memory^c						
Standardized score mean (SD)	-0.04 (0.98)	0.001 (0.96)	0.07 (0.98)	0.05 (0.98)	0.05 (0.96)	--
Age-adjusted	Ref.	0.03 (-0.02, 0.08)	0.09 (0.04, 0.14)	0.06 (0.01, 0.11)	0.05 (-0.003, 0.10)	0.04
Multivariable-adjusted ^d	Ref.	0.01 (-0.04, 0.07)	0.07 (0.02, 0.13)	0.04 (-0.01, 0.09)	0.02 (-0.03, 0.07)	0.30
Global cognition^c						
Standardized score mean (SD)	-0.05 (1.02)	-0.0002 (0.98)	0.05 (0.97)	0.02 (1.02)	0.03 (0.97)	--
Age-adjusted	Ref.	0.02 (-0.03, 0.08)	0.06 (0.01, 0.12)	0.02 (-0.03, 0.07)	0.02 (-0.03, 0.07)	0.50
Multivariable-adjusted ^d	Ref.	0.01 (-0.04, 0.07)	0.05 (-0.003, 0.10)	0.01 (-0.05, 0.06)	-0.002 (-0.05, 0.05)	0.77
^a Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment.						
^b P-trend was calculated using the median gluten intake for each quintile as a continuous variable.						
^c Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.						
^d Model was adjusted for age (years), race (white, non-white), body mass index (kg/m ²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).						

eTable 6. Sensitivity Analysis of the Mean Differences in Standardized Cognitive Scores Associated With Quintiles of Gluten Intake Among 11 646 Women Who Completed All Food Frequency Questionnaires During 24-Year Follow-up Prior to Cognitive Assessment^a

Model	Quintiles of average gluten intake					P-trend ^b
	Q1 (lowest)	Q2	Q3	Q4	Q5 (Highest)	
Psychomotor speed/attention^c						
Standardized score mean (SD)	-0.005 (0.97)	0.001 (1.00)	0.02 (0.95)	-0.01 (1.01)	0.03 (0.99)	--
Age-adjusted	Ref.	-0.01 (-0.07, 0.04)	-0.002 (-0.06, 0.05)	-0.05 (-0.10, 0.01)	-0.02 (-0.08, 0.04)	0.33
Multivariable-adjusted ^d	Ref.	-0.01 (-0.07, 0.04)	-0.004 (-0.06, 0.05)	-0.05 (-0.11, 0.01)	-0.03 (-0.09, 0.03)	0.18
Learning/working memory^c						
Standardized score mean (SD)	-0.04 (0.97)	-0.01 (0.95)	0.09 (0.97)	0.05 (0.98)	0.06 (0.97)	--
Age-adjusted	Ref.	0.01 (-0.05, 0.07)	0.10 (0.04, 0.16)	0.05 (-0.004, 0.11)	0.05 (-0.01, 0.11)	0.04
Multivariable-adjusted ^d	Ref.	0.0004 (-0.06, 0.06)	0.09 (0.03, 0.14)	0.04 (-0.02, 0.09)	0.03 (-0.03, 0.09)	0.20
Global cognition^c						
Standardized score mean (SD)	-0.03 (1.01)	-0.01 (0.98)	0.05 (0.96)	0.02 (1.02)	0.05 (0.98)	--
Age-adjusted	Ref.	-0.004 (-0.06, 0.05)	0.05 (-0.003, 0.11)	-0.002 (-0.06, 0.05)	0.01 (-0.04, 0.07)	0.67
Multivariable-adjusted ^d	Ref.	-0.01 (-0.07, 0.05)	0.04 (-0.01, 0.10)	-0.01 (-0.07, 0.04)	-0.003 (-0.06, 0.05)	0.83
^a Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment.						
^b P-trend was calculated using the median gluten intake for each quintile as a continuous variable.						
^c Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.						
^d Model was adjusted for age (years), race (white, non-white), body mass index (kg/m ²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).						

eTable 7. Multivariable-Adjusted Mean Differences in Standardized Cognitive Scores Associated With Quintiles of Gluten Intake by 4-Year Interval Prior to Cognitive Assessment Among 11 646 Women^a

Years prior to cognitive assessment	Quintiles of gluten intake					P-trend ^b
	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	
Psychomotor speed/attention^c						
20-24 years	Ref.	-0.01 (-0.07, 0.04)	-0.02 (-0.07, 0.04)	-0.02 (-0.07, 0.04)	-0.01 (-0.07, 0.04)	0.66
16-20 years	Ref.	0.003 (-0.05, 0.06)	0.005 (-0.05, 0.06)	-0.02 (-0.08, 0.04)	-0.01 (-0.07, 0.05)	0.53
12-16 years	Ref.	-0.03 (-0.08, 0.03)	0.01 (-0.05, 0.06)	-0.04 (-0.10, 0.01)	-0.03 (-0.09, 0.02)	0.22
8-12 years	Ref.	-0.02 (-0.08, 0.04)	-0.04 (-0.10, 0.02)	-0.03 (-0.08, 0.03)	-0.04 (-0.09, 0.02)	0.23
4-8 years	Ref.	-0.04 (-0.10, 0.02)	-0.06 (-0.12, -0.001)	-0.06 (-0.11, 0.0002)	-0.03 (-0.09, 0.03)	0.35
≤4 years	Ref.	0.01 (-0.04, 0.07)	0.01 (-0.05, 0.06)	0.02 (-0.03, 0.08)	-0.01 (-0.07, 0.04)	0.66
Distant past (12-24 years) [§]	Ref.	0.03 (-0.03, 0.09)	0.002 (-0.06, 0.06)	-0.01 (-0.07, 0.05)	-0.02 (-0.08, 0.05)	0.28
Recent past (4-12 years) ^d	Ref.	-0.04 (-0.10, 0.02)	-0.03 (-0.09, 0.03)	-0.04 (-0.10, 0.02)	-0.02 (-0.09, 0.04)	0.56
Learning/working memory^c						
20-24 years	Ref.	0.03 (-0.03, 0.08)	0.05 (-0.01, 0.11)	0.06 (0.00, 0.11)	0.03 (-0.02, 0.09)	0.21
16-20 years	Ref.	0.04 (-0.02, 0.10)	0.02 (-0.04, 0.07)	0.04 (-0.02, 0.09)	0.02 (-0.04, 0.07)	0.71
12-16 years	Ref.	0.07 (0.02, 0.13)	0.10 (0.04, 0.15)	0.09 (0.03, 0.14)	0.05 (-0.00, 0.11)	0.11
8-12 years	Ref.	0.02 (-0.03, 0.08)	0.03 (-0.02, 0.09)	0.02 (-0.03, 0.08)	0.01 (-0.05, 0.07)	0.79
4-8 years	Ref.	-0.003 (-0.06, 0.05)	-0.01 (-0.06, 0.05)	0.02 (-0.04, 0.07)	0.02 (-0.04, 0.07)	0.38
≤4 years	Ref.	0.05 (-0.01, 0.10)	0.04 (-0.01, 0.10)	0.05 (-0.01, 0.11)	0.04 (-0.02, 0.09)	0.28
Distant past (12-24 years) ^d	Ref.	0.03 (-0.02, 0.09)	0.05 (-0.01, 0.11)	0.02 (-0.04, 0.08)	0.03 (-0.03, 0.09)	0.50
Recent past (4-12 years) ^d	Ref.	0.002 (-0.05, 0.06)	0.04 (-0.02, 0.10)	0.02 (-0.03, 0.08)	0.01 (-0.06, 0.07)	0.70
Global cognition^c						
20-24 years	Ref.	0.01 (-0.05, 0.06)	0.02 (-0.04, 0.07)	0.02 (-0.04, 0.08)	0.01 (-0.05, 0.07)	0.71
16-20 years	Ref.	0.02 (-0.03, 0.08)	0.01 (-0.04, 0.07)	0.01 (-0.05, 0.06)	0.002 (-0.05, 0.06)	0.83
12-16 years	Ref.	0.02 (-0.03, 0.08)	0.06 (-0.00, 0.11)	0.02 (-0.04, 0.07)	0.01 (-0.05, 0.06)	0.98
8-12 years	Ref.	-0.002 (-0.06, 0.05)	-0.01 (-0.07, 0.05)	-0.01 (-0.06, 0.05)	-0.02 (-0.08, 0.04)	0.51
4-8 years	Ref.	-0.03 (-0.08, 0.03)	-0.04 (-0.10, 0.02)	-0.03 (-0.09, 0.03)	-0.01 (-0.07, 0.05)	0.88
≤4 years	Ref.	0.04 (-0.02, 0.09)	0.03 (-0.03, 0.08)	0.04 (-0.01, 0.10)	0.01 (-0.05, 0.07)	0.78
Distant past (12-24 years) ^d	Ref.	0.04 (-0.02, 0.10)	0.03 (-0.03, 0.08)	0.002 (-0.06, 0.06)	0.01 (-0.06, 0.07)	0.69
Recent past (4-12 years) ^d	Ref.	-0.03 (-0.08, 0.03)	0.0001 (-0.06, 0.06)	-0.02 (-0.08, 0.04)	-0.01 (-0.08, 0.05)	0.85
^a Energy-adjusted gluten intake was derived from individual assessment conducted in the respective year category, except for distant past and recent past intakes, which were cumulative averaged through 12-24 years and 4-12 years prior to cognitive assessment., respectively. Model was adjusted for age (years), race (white, non-white), body mass index (kg/m ²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).						
^b P-trend was calculated using the median gluten intake for each quintile as a continuous variable						
^c Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.						
^d Distant and recent past intakes were mutually adjusted.						

eTable 8. Multivariable-Adjusted Mean Differences in Standardized Cognitive Scores Associated With 1 SD (1.98 g/d) Increase in Mean Gluten Intake From Distant Past (12-24 y) to Recent Past (4-12 y) of Cognitive Assessment Among 11 646 Women^a

Composite cognitive scores ^b	Estimate (95% confidence interval)	<i>P</i>
Psychomotor speed/attention	-0.01 (-0.03, 0.01)	0.32
Learning/working memory	-0.003 (-0.02, 0.02)	0.75
Global cognition	-0.01 (-0.02, 0.01)	0.62


^a Energy-adjusted gluten intake was cumulatively averaged from 1991 to the last questionnaire cycle preceding the cognitive assessment. Model was adjusted for age (years), race (white, non-white), body mass index (kg/m²), husband's educational attainment (high school or below, college, graduate school, unmarried/missing), family income (dollar), history of diabetes (yes, no), history of hypertension (yes, no), history of hypercholesterolemia (yes, no), history of myocardial infarction (yes, no), current depression status (yes, no), smoking (never, past, current, missing), aspirin or non-steroid anti-inflammatory drug use (yes, no), multivitamins use (yes, no), physical activity (metabolic equivalents/week), menopausal status and hormone use (pre-menopause, post-menopause and never/past/current user of hormone therapy), total energy intake (kcal/d), alcohol intake (g/d), and Alternative Healthy Eating Index score (excluding alcohol and whole grains).

^b Standardized scores for psychomotor speed/attention, learning/working memory, and global cognition were calculated by standardizing as the mean of the standardized scores of the following CogState battery tasks: Detection + Identification, One Card Learning + One-Back, and all four tasks, respectively. Higher scores indicate better performance, with one unit increase represents 1 SD higher than the mean.

eFigure 1. Nurses' Health Study II Questionnaire in 2015 Questionnaire Cycle

NURSES' HEALTH STUDY II

Channing Laboratory • 181 Longwood Avenue • Boston, Massachusetts 02115-5804



**HARVARD
T.H. CHAN**
SCHOOL OF PUBLIC HEALTH

Telephone (617) 525-2278
• Fax (617) 525-2008
• E-Mail NHS2@channing.harvard.edu

This is your ID →

3/4 PAPER

Your email:
Please print your email address in the box so that we may send you occasional updates from the Nurses' Health Study II.

Please print neatly and differentiate numbers and letters (e.g., 1 vs l or i, 0 vs O, 5 vs S)

We will not release your e-mail address to anyone!

INSTRUCTIONS

INTERNET:

Go to our website at www.NHS2.org and use your ID number (see front of this page) and your birth date to log in. Follow the instructions on the screen to complete the survey online.

PAPER FORM:

Please use an ordinary No. 2 pencil to answer all questions. Fill in the appropriate response circles completely. The form is designed to be read by optical-scanning equipment, so it is important that you keep any write-in responses within the spaces provided and erase any incorrect marks completely. If you have comments, please write them on a separate piece of paper.



EXAMPLE A) Mark "Yes" bubble and Year of Diagnosis bubble for each illness you have had diagnosed.

19. Since June 2013, have you had any of these clinician-diagnosed illnesses?

LEAVE BLANK FOR "NO", MARK HERE FOR "YES" →

	YEAR OF DIAGNOSIS		
	Before June 1 2013	June 13 to May 16 2015	After June 1 2015
Myocardial infarction (heart attack)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Angina pectoris	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Confirmed by angiography?	<input type="radio"/> No	<input checked="" type="radio"/> Yes	<input type="radio"/>
Coronary bypass, angioplasty or stent	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Transient ischemic attack (TIA)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please fill in the circles completely; do not mark this way: ✓ ✗ ◐

EXAMPLE B) AGE natural periods ceased:

AGE
4 6

Print numbers neatly within boxes. Your writing will be read by our scanner.

- Please tear off the cover letter (to preserve confidentiality) and return the questionnaire in the enclosed postage-paid envelope.
- If your name and address as printed on this questionnaire are no longer correct or are incomplete, or if you are providing your email address, please make any necessary changes on the letter and return it to us.
- Thank you for completing the 2015 Nurses' Health Study II Questionnaire.

Federal research regulations require us to include the following information:

There are no direct benefits to you from participating in this study. The risk of breach of confidentiality associated with participation in this study is very small. Your choice to participate in this study is completely voluntary and you may decline or withdraw at any time without penalty. You may skip any question you do not wish to answer. You will not receive monetary compensation for participating. If you have any questions regarding your rights as a research participant, you are encouraged to call a representative of the Human Subjects Committee at the Brigham and Women's Hospital (617-424-4100).

1. PLEASE USE PENCIL

CURRENT WEIGHT

POUNDS		
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

2. Do you currently smoke cigarettes?

No Yes \Rightarrow How many/day? 1-4 5-14 15-24 25-34 35-44 45+

3. Have you had your uterus removed?

No Yes \Rightarrow Date of surgery: Before June 1, 2013 After June 1, 2013

4. Have you ever had either of your ovaries surgically removed?

No Yes \Rightarrow a) How many ovaries do you have remaining? None One

5. Have your natural menstrual periods ceased PERMANENTLY?

No: Premenopausal

Yes: No menstrual periods \Rightarrow a) AGE natural periods ceased:

AGE	
-----	--

 \Rightarrow b) For what reason did your periods cease?

Yes: Had menopause but now have periods induced by hormones

Not sure (e.g., perimenopausal)

Natural Surgery

Endometrial ablation

Radiation or Chemo.

6. Are you currently using oral contraceptives for any reason?

No Yes

7. Since June 2013, have you used prescription female hormones? (Not including oral contraceptives.)

Yes \Rightarrow a) How many months did you use hormones since June 2013? 1-4 months 5-9 10-14 15-19 20-25 26-30 31-35 36+ months

No

b) Are you currently using them (within the last month)? Yes No If No, skip to Part d

c) Mark the type(s) of hormones you are CURRENTLY using:

Combined: Prempro Premphase Combipatch FemHRT

Estrogen: Oral Premarin or conjugated estrogen Patch Estrogen Vaginal Estrogen Estrace

Estrogen gels, creams, or sprays on skin Estratest Other Estrogen (specify in box below)

Progesterone/Progestin: Provera/Cytrin/MPA Vaginal Micronized (e.g., Prometrium)

Other progesterone (specify type) \Rightarrow

--

Other hormones CURRENTLY used: Bioidentical estrogen Testosterone

Bioidentical progesterone Other (specify in box)

--

d) If you used oral conjugated estrogen (e.g., Premarin) since June 2013, what dose did you usually take?

.30 mg/day or less .45 mg/day .625 mg/day .9 mg/day

1.25 mg/day or higher Unsure Did not take oral conjugated estrogen

8. Are you currently using any of these over-the-counter (OTC) preparations for hormone replacement?

Soy estrogen products Black cohosh (e.g., Remifemin) Natural progesterone cream/wild yam Other OTC

9. In the past two years, have you had two weeks or longer when nearly every day you felt sad, blue or depressed for most of the day?

No Yes

10. In the past two years, have you had gastrointestinal bleeding that required hospitalization or a transfusion?

No Yes

11. In the past year, have you been bothered by constipation for at least 12 weeks (not necessarily consecutive)?

No Yes \Rightarrow If Yes: I have seen my primary care physician I have seen a specialist (e.g., gastroenterologist) Neither

12. Has your spouse (or sleep partner) ever told you that you appear to "act out your dreams" while sleeping (punched or flailed arms in the air, shouted or screamed), on three or more occasions?

No Yes I do not have a sleep partner

13. Please estimate an average of the time when you fall asleep and wake up, over the past 2 years on WORK-FREE DAYS, when you were without obligations and not using an alarm clock to wake up:

I usually fall asleep at

	hour		minute
--	------	--	--------

 AM PM (This is NOT when you get into bed!)

I usually wake up at

	hour		minute
--	------	--	--------

 AM PM (This may NOT be when you get OUT of bed!)

I always use alarm clock to wake up on free days

14. What proportion of the dairy products and fruit & vegetables you consume are organic?

Dairy products: None Less than 5% 5-10% 11-25% 26-50% 51-75% 75%+

Fruit & Vegetables: None Less than 5% 5-10% 11-25% 26-50% 51-75% 75%+

15. How often do you eat canned food? (e.g., vegetables, tuna, soup, tomato sauce, etc., in metal cans)

<1 per month 1 to 3 per month 1 to 4 per week 5 to 7 per week 2 per day 3+ per day

16. How often do you drink canned beverages? (e.g., soda, beer, juices, etc., in metal cans)

<1 per month 1 to 3 per month 1 to 4 per week 5 to 7 per week 2 per day 3+ per day

17. Has a clinician ever diagnosed you with any of the following conditions?

Celiac disease Fatty liver disease and/or cirrhosis Glaucoma Sarcoidosis None of these

18. In the past two years, have you been diagnosed with an episode of:

a) Diverticulitis (NOT diverticulis) that required antibiotics and/or hospitalization?

No Yes \Rightarrow If Yes, did you require surgery for diverticulitis? No Yes

b) Diverticular bleeding that required blood transfusion and/or hospitalization? No Yes

c) Diverticulosis of the colon WITHOUT diverticulitis or diverticular bleeding? No Yes

19. Since June 2013, have you had any of these clinician-diagnosed illnesses?

LEAVE BLANK FOR "NO", MARK HERE FOR "YES"

Table with columns for illness names and years of diagnosis (Before June 1 2013, June '13 to May '15, After June 1 2015). Includes conditions like Myocardial infarction, Angina pectoris, Breast cancer, Diabetes mellitus, etc.

20. In the past two years have you had: (If yes, mark all that apply)

Table with columns: No, Yes, for screening, Yes, for symptoms. Rows include: A physical exam?, Mammogram (or other breast imaging)?, Eye exam by doctor?, Fasting blood sugar?, Upper endoscopy?, (Virtual) CT Colonoscopy?, Colonoscopy?, Sigmoidoscopy?

Initial reason(s) you had Colonoscopy/Sigmoidoscopy?
Visible blood, Occult fecal blood, Abdominal pain, Diarrhea/constipation, Family history of colon cancer, Fecal/stool DNA testing, Follow-up of (virtual) CT colonoscopy, Prior polyps, Asymptomatic or routine screening

21. Regular Medication (Mark if used regularly in past 2 years.)

- Acetaminophen (e.g., Tylenol)
Days/week: 1, 2-3, 4-5, 6+ days
Tablets/wk: 1-2, 3-5, 6-14, 15+ tablets
"Baby" or low dose aspirin (100 mg or less/tablet)
Days/week: 1, 2-3, 4-5, 6+ days
Tablets/wk: 1-2, 3-5, 6-14, 15+ tablets
Aspirin or aspirin-containing products (325 mg or more/tablet)
Days/week: 1, 2-3, 4-5, 6+ days
Tablets/wk: 1-2, 3-5, 6-14, 15+ tablets
Ibuprofen (e.g., Advil, Motrin, Nuprin)
Days/week: 1, 2-3, 4-5, 6+ days
Tablets/wk: 1-2, 3-5, 6-14, 15+ tablets
Celebrex (COX-2 inhibitors)
Days/week: 1, 2-3, 4-5, 6+ days
Other anti-inflammatory analgesics, 2+ times/week (e.g., Aleve, Clinoril, Relafen, Indocin)
Thiazide diuretic, Lasix, Potassium
Calcium blocker (e.g., Calan, Procardia, Cardizem, Norvasc)
Beta-blocker (e.g., Lopressor, Tenormin, Corgard, Coreg)
ACE inhibitors (e.g., Capoten, Vasotec, Zestril)
Angiotensin receptor blocker (e.g., Diovan, Cozaar, Avapro)
Other anti-hypertensive (e.g., clonidine, doxazosin)
Coumadin, Pradaxa/Xarelto/Eliquis, Plavix
Prasugrel (Effient), Digoxin, Antiarrhythmic
Mevacor (lovastatin), Zocor (simvastatin), Crestor
Pravachol (pravastatin), Lipitor (atorvastatin), Other statin
Other cholesterol-lowering drug [e.g., niacin, Lipid (gemfibrozil), Tricor (fenofibrate), Questran (cholestyramine), Colestid, Zetia]
Steroids taken orally (e.g., Prednisone, Decadron, Medrol)
Insulin, Metformin, Other oral hypoglycemic agents
Thyroid hormone (e.g., Synthroid, Levothyroid, Levoxy)
Triptans (e.g., Imitrex, Maxalt, Zomig, Amerge, Replax)
Bisphosphonates (e.g., Fosamax, Boniva, Actonel)
Evista (raloxifene), Nolvadex (tamoxifen)
Anticholinergics (e.g., Detrol, Ditropan, Vesicare)
SSRIs (e.g., Celexa, Lexapro, Prozac, Paxil, Zoloft, Luvox)
Tricyclics (e.g., amitriptyline, nortriptyline, imipramine)
Other antidepressants (e.g., Wellbutrin, Effexor, Plamerson)
Minor tranquilizers (e.g., Valium, alprazolam, lorazepam)
Prilosec, Nexium, Prevacid, Protonix, Aciphex, Dexilant
H2 blocker (e.g., Pepcid, Tagamet, Zantac, Axid)

22. Is this your correct date of birth?

Yes/No radio buttons, date input field (MONTH / DAY / YEAR)

23. Do you currently take multivitamins? (Please report other individual vitamins in the next section.)

- Yes/No options, a) How many do you take per week? b) What specific brand (or equivalency) do you usually take?

Not counting multivitamins, do you take any of the following vitamin preparations?

- a) Vitamin A, b) Potassium, c) Vitamin C, d) Vitamin B6, e) Vitamin E, f) Calcium, g) Selenium, h) Vitamin D, i) Zinc

24. Are there other supplements that you take on a regular basis?

- Metamucil/Citrucel, Beta-carotene, Chromium, Folic Acid, Glucosamine/Chondroitin, Cod Liver Oil, Probiotics, Vitamin Water, B-Complex, Iron, Magnesium, Fish Oil, Melatonin, Coenzyme Q10, Ginkgo Biloba, Flax Seed Oil, Vitamin B12, Niacin, Lycopene, Other

25. How many teaspoons of sugar do you add to your beverages or food each day?

- Zero, 1 tsp., 2 tsp., 3 tsp., 4 tsp., 5 tsp., 6 tsp., 7 tsp., 8 tsp., 9 tsp., 10 tsp., More than 10? Write number here

26. What brand and type of cold breakfast cereal do you usually eat?

- Don't eat cold breakfast cereal. Specify cereal brand & type (e.g., Kellogg's Raisin Bran)

27. What form of margarine or spread do you usually use (exclude pure butter)?

- None, Form? Stick, Tub, Spray, Squeeze (liquid), Type? Reg, Light, Nonfat

28. For each food listed, fill in the circle indicating how often on average you have used the amount specified during the past year.

Table with columns for frequency (Never, 1-3 per month, 1 per week, 2-4 per week, 5-6 per week, 1 per day, 2-3 per day, 4-5 per day, 6+ per day) and rows for DAIRY FOODS (Milk, Cream, Yogurt, Cheese, etc.)

What type of cheese do you usually eat? Regular, Low-fat or Lite, Nonfat, None

28. (continued) For each food listed, fill in the circle indicating how often on average you have used the amount specified during the past year.

Please try to average your seasonal use of foods over the entire year. For example, if a food such as cantaloupe is eaten 4 times a week during the approximate 3 months that it is in season, then the average use would be once per week.

FRUITS		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day
Raisins (1 oz. or small pack) or grapes (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prunes or dried plums (1/2 cup canned or 1/4 cup dried)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bananas (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cantaloupe (1/4 melon)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avocado (1/2 fruit or 1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fresh apples or pears (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apple juice or cider (small glass)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tangerines, clementines, mandarin oranges (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oranges (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orange juice (small glass)	Calcium or Vit. D fortified	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Regular (not calcium fortified)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grapefruit (1/2)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grapefruit juice (small glass)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other fruit juices (e.g., cranberry, grape) (small glass)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strawberries, fresh, frozen or canned (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blueberries, fresh, frozen or canned (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peaches, plums or apricots (1 fresh or 1/2 cup canned)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

VEGETABLES		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day
Tomatoes (2 slices)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tomato juice or V-8 juice (small glass)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tomato sauce (1/2 cup) e.g., spaghetti sauce		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salsa, picante or taco sauce (1/4 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hummus (1/4 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
String beans (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beans or lentils, baked, dried (1/2 cup) or soup		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tofu, soy burger, soybeans, miso or other soy protein		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peas or lima beans (1/2 cup fresh, frz., canned) or soup		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Broccoli (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cauliflower (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cabbage or coleslaw (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brussels sprouts (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carrots, raw (1/2 carrot or 2-4 sticks)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carrots, cooked (1/2 cup) or carrot juice (2-3 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Corn (1 ear or 1/2 cup frozen or canned)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mixed or stir fry vegetables (1/2 cup) or soup		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yams or sweet potatoes (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dark orange (winter) squash (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eggplant, zucchini or other summer squash (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kale, mustard greens or chard (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spinach, cooked (1/2 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spinach, raw as in salad (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Iceberg or head lettuce (1 serving)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Romaine or leaf lettuce (1 serving)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peppers: green, yellow or red (2 rings or 1/4 small)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onions as a garnish or in salad (1 slice)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Onions as a cooked vegetable or rings (1/2 cup) or soup		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EGGS, MEAT, ETC.		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day
Eggs (1)	Omega-3 fortified including yolk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Regular eggs including yolk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beef or pork hot dogs (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chicken or turkey hot dogs or sausage (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chicken/turkey sandwich or frozen dinner		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other chicken or turkey, with skin (3 oz.)-including ground		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other chicken or turkey, without skin (3 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bacon (2 slices)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (W)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> (D)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. (continued) For each food listed, fill in the circle indicating how often on average you have used the amount specified during the past year.

MEAT, FISH		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day
Salami, bologna, or other processed meat sandwiches		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other processed meats, e.g., sausage, kielbasa, etc. (2 oz. or 2 small links)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hamburger (1 patty)	Lean or extra lean	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Regular	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beef, pork, or lamb as a sandwich or mixed dish, e.g., stew, casserole, lasagna, frozen dinners, etc.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pork as a main dish, e.g., ham or chops (4-6 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beef or lamb as a main dish, e.g., steak, roast (4-6 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canned tuna fish (3-4 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Breaded fish cakes, pieces, or fish sticks (1 serving, store bought)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shellfish e.g., shrimp, lobster, scallops, clams as main dish		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dark meat fish, e.g., tuna steak, mackerel, salmon, sardines, bluefish, swordfish (3-5 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other fish, e.g., cod, haddock, halibut (3-5 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

BREADS, CEREALS, STARCHES		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day
Cold breakfast cereal (1 serving)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cooked oatmeal/cooked oat bran (including instant) (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other cooked breakfast cereal (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bread (1 slice)	White bread, including pita	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Rye/Pumpernickel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Whole wheat, oatmeal, other whole grain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Crackers (6)	Whole grain/whole wheat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Other crackers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bagels, English muffins, or rolls (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Muffins or biscuits (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pancakes or waffles (2 small pieces)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brown rice (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White rice (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pasta, e.g., spaghetti, noodles, couscous, etc. (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tortillas: corn or flour (2)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
French Fries (6 oz. or 1 serving)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potatoes, baked, boiled (1) or mashed (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potato chips or corn/tortilla chips (small bag or 1 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pizza (2 slices)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

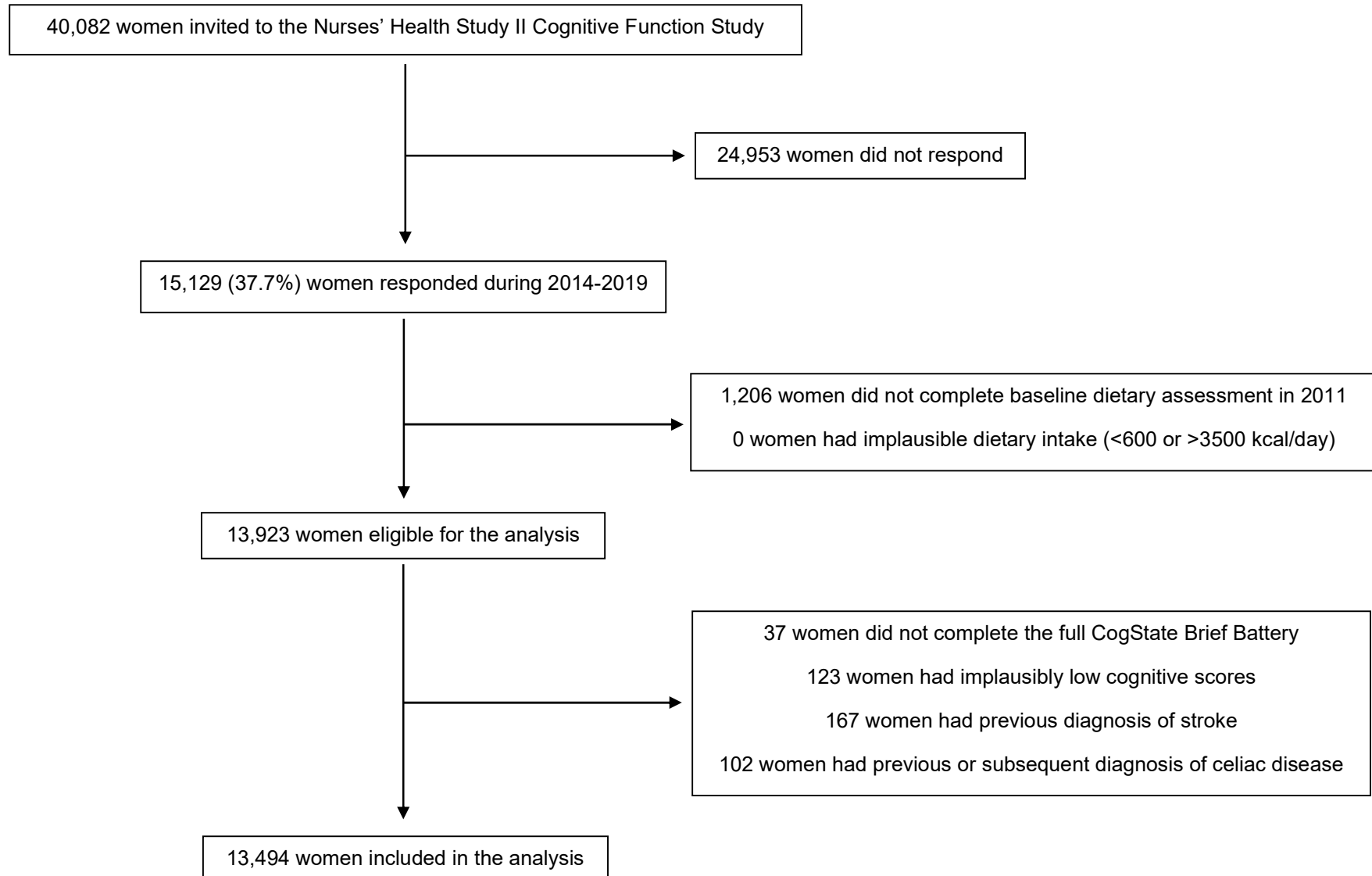
BEVERAGES		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day	
CARBONATED BEVERAGES Consider the serving size as 1 glass, bottle or can for these carbonated beverages.	Low-Calorie (sugar-free) types	Low-calorie beverage with caffeine, e.g., Diet Coke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Regular types (not sugar-free)	Other low-cal bev. without caffeine, e.g., Diet 7-Up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
OTHER BEVERAGES	Regular types (not sugar-free)	Carbonated beverage with caffeine & sugar, e.g., Coke, Pepsi, Mt. Dew, Dr. Pepper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
		Other carbonated beverage with sugar, e.g., 7-Up, Root Beer, Ginger Ale, Caffeine-Free Coke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	OTHER BEVERAGES	Other sugared beverages: Punch, lemonade, sports drinks, or sugared ice tea (1 glass, bottle, can)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Beer, regular (1 glass, bottle, can)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Light Beer, e.g., Bud Light (1 glass, bottle, can)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Red wine (5 oz. glass)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		White wine (5 oz. glass)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Liquor, e.g., vodka, gin, etc. (1 drink or shot)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Plain water: bottled, sparkling, or tap (8 oz. cup)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Decaffeinated tea, exclude herbal (8 oz. cup)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tea with caffeine (8 oz. cup), including green tea	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
Decaffeinated coffee (8 oz. cup)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
Coffee with caffeine (8 oz. cup)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		
Dairy coffee drink (hot/cold), e.g., Cappuccino (12 oz.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		

28. (continued) For each food listed, fill in the circle indicating how often on average you have used the amount specified during the past year.

SWEETS, BAKED GOODS, MISCELLANEOUS		Never, or less than once per month	1-3 per month	1 per week	2-4 per week	5-6 per week	1 per day	2-3 per day	4-5 per day	6+ per day
Milk chocolate (bar or pack), e.g., Hershey's, M&M's		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dark chocolate, e.g., Hershey's Dark or Dove Dark		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Candy bars, e.g., Snickers, Milky Way, Reese's		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Candy without chocolate (1 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cookies (1) or Brownies (1)	Fat free or reduced fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Other ready made or from mix or dough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Home-baked, from scratch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Doughnuts (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cake, homemade or ready made (slice)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pie, homemade or ready made (slice)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jams, jellies, preserves, syrup, or honey (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peanut butter (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Popcorn (2-3 cups)	Fat free or light	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Regular	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sweet roll, coffee cake or other pastry (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Snack bars, e.g., Nutrigrain, Kashi, granola, Planter's (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy bars or high protein bars, e.g., Clif, Zone, etc.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diet nutrition drinks, e.g. Slimfast (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ensure, Boost or other meal replacement drinks (1)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pretzels (1 small bag or serving)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peanuts (small packet or 1 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walnuts (1 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other nuts (small packet or 1 oz.)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dried cranberries (1/4 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mixed dried fruit (1/4 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oat bran, other bran (wheat, etc.), added to food (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wheat germ (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chowder or cream soup (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tomato soup (1 cup)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ketchup or red chili sauce (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flaxseed (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Garlic, fresh or powdered (1 clove or 4 shakes)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Olives, any type (3)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Olive oil added to food or bread (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low-fat or fat-free mayonnaise (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular mayonnaise (1 Tbs)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salad dressing (1-2 Tbs)	How often? <input type="radio"/> Never <input type="radio"/> 1-3 times per week <input type="radio"/> 4-6 times per week <input type="radio"/> Daily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Type(s): <input type="radio"/> Nonfat <input type="radio"/> Low-fat <input type="radio"/> Olive oil <input type="radio"/> Other vegetable oil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Artificial sweeteners (1 packet)	How often? <input type="radio"/> Never <input type="radio"/> 1-3 times per week <input type="radio"/> 4-6 times per week <input type="radio"/> Daily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Type(s): <input type="radio"/> Splenda <input type="radio"/> Equal <input type="radio"/> NutraSweet <input type="radio"/> Sweet'N Low <input type="radio"/> Saccharin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Liver: beef, calf or pork (4 oz.)	<input type="radio"/> Never <input type="radio"/> Less than 1/mo <input type="radio"/> 1/mo <input type="radio"/> 2-3/mo <input type="radio"/> 1/week or more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liver: chicken or turkey (1 oz.)	<input type="radio"/> Never <input type="radio"/> Less than 1/mo <input type="radio"/> 1/mo <input type="radio"/> 2-3/mo <input type="radio"/> 1/week or more	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. How often do you eat fried or sautéed food at home? (Exclude "Pam"-type spray)	<input type="radio"/> Less than once a week <input type="radio"/> 1-3 times per week <input type="radio"/> 4-6 times per week <input type="radio"/> Daily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. What kind of fat is usually used for frying and sautéing at home? (Exclude "Pam"-type spray)	<input type="radio"/> Real butter <input type="radio"/> Margarine <input type="radio"/> Olive oil <input type="radio"/> Vegetable oil <input type="radio"/> Veg. shortening <input type="radio"/> Lard <input type="radio"/> N/A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. What kind of fat is usually used for baking COOKIES at home?	<input type="radio"/> Real butter <input type="radio"/> Margarine <input type="radio"/> Olive oil <input type="radio"/> Vegetable oil <input type="radio"/> Veg. shortening <input type="radio"/> Lard <input type="radio"/> N/A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. What type of cooking oil is usually used at home? (e.g., Mazola Corn Oil) Specify brand and type	<input type="radio"/> <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. How often do you eat deep fried chicken, fish, shrimp, clams or onion rings away from home?	<input type="radio"/> Less than once a week <input type="radio"/> 1-3 times per week <input type="radio"/> 4-6 times per week <input type="radio"/> Daily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. How often do you eat toasted breads, bagel or English muffin (slice or 1 half bagel)?	<input type="radio"/> Less than once a week <input type="radio"/> 1-3 times per week <input type="radio"/> 4-6 times per week <input type="radio"/> Daily <input type="radio"/> 2+ times/day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you! Please return form to: Nurses' Health Study, 161 Longwood Ave., Boston, MA 02115-5804

eFigure 2. Study Flow Diagram



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