

1 **Supplemental Material**

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3 **Urinary glyphosate and AMPA levels in a cross-sectional study of**
4 **postmenopausal women: associations with organic eating behavior and dietary**
5 **intake**

6 Rachel M. Lucia¹, Xiyue Liao, Ph.D.², Wei-Lin Huang, M.S.¹, Danielle Forman³, Alexis Kim³, Argyrios Ziogas,
7 Ph.D.³, Trina M. Norden-Krichmar, Ph.D.¹, Deborah Goodman, M.D., Ph.D., M.P.H.¹, Andrea Alvarez³,
8 Irene Masunaka, M.S.⁴, Khyatiben V. Pathak, Ph.D.^{5,6}, Marissa McGilvrey^{5,6}, Apurva M. Hegde, M.S.^{5,6},
9 Patrick Pirrotte, Ph.D.^{5,6}, Hannah Lui Park, Ph.D.^{1,3*}

10 ¹Department of Epidemiology and Biostatistics, University of California, Irvine, CA, USA

11 ²Department of Mathematics and Statistics, California State University, Long Beach, CA, USA

12 ³Department of Pathology and Laboratory Medicine, University of California, Irvine, CA, USA

13 ⁴Department of Medicine, University of California, Irvine, CA, USA

14 ⁵Integrated Mass Spectrometry Shared Resource, City of Hope Comprehensive Cancer Center, Duarte, CA, USA

15 ⁶Cancer & Cell Biology Division, Translational Genomics Research Institute, Phoenix, AZ, USA

16 *Correspondence: Tel: (949) 824-2651; E-mail: hlpark@uci.edu; Address: 839 Health Sciences Road, 218 Sprague
17 Hall, Irvine, CA 92617

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33 **List of food and beverage items included in additional categories**

Corn

Corn flakes, NFS
Corn Puffs
Corn, cooked, NS as to form, NS as to color, NS as to fat added in cooking
Corn, dried, cooked
Corn, white, cooked
Corn, yellow and white, cooked
Corn, yellow, cooked
Cornbread, made from home recipe
Cornbread, prepared from mix
Grits, cooked, corn or hominy, instant, fat not added in cooking
Mixed vegetables (corn, lima beans, peas, green beans, and carrots), cooked
Peas and corn, cooked, fat not added in cooking
Popcorn, any type
Salty snacks, corn based puffs and twists, cheese puffs and twists, lowfat
Salty snacks, corn or cornmeal base, corn chips, corn-cheese chips
Salty snacks, corn or cornmeal base, corn puffs and twists
Corn-cheese puffs and twists
Salty snacks, corn or cornmeal base, nuts or nuggets, toasted
Salty snacks, corn or cornmeal base, tortilla chips
Taco shell, corn
Tortilla, corn

Oats

Bread, oat bran, toasted
Bread, oatmeal
Cheerios
Cookie, oatmeal
Cookie, oatmeal, with raisins
Cracklin' Oat Bran
Granola bar, lowfat, NFS
Granola bar, NFS
Granola bar, reduced sugar, NFS
Granola with Raisins, lowfat, Kellogg's
Granola, homemade
Granola, lowfat, Kellogg's
Granola, NFS
Honey Bunches of Oats Honey Roasted Cereal
Honey Bunches of Oats with Almonds, Post
Honey Nut Cheerios

MultiGrain Cheerios
Nature Valley Chewy Trail Mix Granola Bar
Nature Valley Crunchy Granola Bar
Nature Valley Granola, with fruit and nuts
Nature Valley Sweet and Salty Granola Bar
Oatmeal, cooked, any type
Oats, raw
Quaker Chewy Granola Bar
Quaker Oatmeal Squares (formerly Quaker Oat Squares)
Snack bar, oatmeal

Soy

Balance Original Bar
Boost, nutritional drink, ready-to-drink
Breakfast link, pattie, or slice, meatless
Chicken, meatless, breaded, fried
Clif Bar
Coffee, latte W/ SOY MILK
Coffee, latte, W/ SOY MILK, decaffeinated
Edamame
Ensure Plus, nutritional shake, ready-to-drink
Herbalife, nutritional shake mix, high protein, powder
Kashi GOLEAN
Kashi GOLEAN Crunch Honey Almond Flax
Milk, soy, any type
Nutrition bar or meal replacement bar, NFS
Nutritional drink or meal replacement, ready-to-drink, NFS
PowerBar
Protein powder, soy based, NFS
Slim Fast Original Meal Bar
Soybean curd
Soybean curd, deep fried
Soybean soup, miso broth
Tea, NS as to type, unsweetened, W/ SOY MILK
Tiger's Milk bar
Tofu and vegetables (including carrots, broccoli, and/or dark-green leafy vegetables (no potatoes)), with soy-based sauce (mixture)
Vegetarian burger or patty, meatless, no bun
Vegetarian burrito (made with meat substitute)
Vegetarian stroganoff (made with meat substitute)

Coffee

Blended coffee beverage, made with regular coffee, milk, and ice, sweetened
Cafe con leche
Cafe con leche prepared with sugar

Cappuccino
Cappuccino W/ 2% MILK
Cappuccino, decaffeinated
Coffee and cocoa (mocha), made from powdered instant mix, with whitener, presweetened
Coffee, decaffeinated, made from ground
Coffee, decaffeinated, made from powdered instant
Coffee, espresso
Coffee, espresso, decaffeinated
Coffee, Latte
Coffee, latte W/ 1% MILK
Coffee, latte W/ 2% MILK
Coffee, latte W/ SKIM MILK
Coffee, latte W/ WHOLE MILK
Coffee, latte, decaffeinated W/ 2% MILK
Coffee, latte, decaffeinated W/ SKIM MILK
Coffee, made from ground, equal parts regular and decaffeinated
Coffee, made from ground, regular
Coffee, made from liquid concentrate
Coffee, made from powdered instant mix, with whitener and low calorie sweetener
Coffee, made from powdered instant mix, with whitener and sugar, instant
Coffee, made from powdered instant, 50% less caffeine
Coffee, made from powdered instant, regular
Coffee, mocha
Coffee, mocha W/ WHOLE MILK
Coffee, regular, NS as to ground or instant
Coffee, regular, presweetened with sugar, pre-lightened

Tea

Half and Half beverage, half iced tea and half fruit juice drink (lemonade)
Tea, herbal
Tea, herbal, presweetened with low calorie sweetener
Tea, herbal, presweetened with sugar
Tea, hibiscus
Tea, leaf, decaffeinated, presweetened, NS as to sweetener
Tea, leaf, decaffeinated, unsweetened
Tea, leaf, presweetened with low calorie sweetener
Tea, leaf, presweetened with sugar
Tea, leaf, presweetened, NS as to sweetener
Tea, leaf, unsweetened
Tea, made from powdered instant, unsweetened
Tea, NS as to type, decaffeinated, presweetened with sugar
Tea, NS as to type, presweetened with low calorie sweetener
Tea, NS as to type, presweetened with sugar
Tea, NS as to type, presweetened, NS as to sweetener

Tea, NS as to type, unsweetened

Wine

Brandy

Wine cooler

Wine, dessert, sweet

Wine, rice

Wine, table, red

Wine, table, white

Beer

Beer, lite

Alcoholic malt beverage, sweetened

Spirits

Cocktail, NFS

Gin

Gin and Tonic

Liqueur with cream

Margarita

Martini

Rum

Vodka

Whiskey

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36 **Supplemental Table 1.** Self-reported organic eating frequencies for six food groups, overall and stratified by
 37 overall organic eating habits.

	Total N (%)	Overall Organic Eating		
		Often/Always N (%)	Sometimes N (%)	Seldom/Never N (%)
Fruit				
Often/Always	112 (33.1%)	96 (75.0%)	16 (15.7%)	0 (0.0%)
Sometimes	79 (23.4%)	23 (18.0%)	56 (54.9%)	0 (0.0%)
Seldom/Never	143 (42.3%)	6 (4.7%)	29 (28.4%)	108 (100.0%)
Do not consume	4 (1.2%)	3 (2.3%)	1 (1.0%)	0 (0.0%)
Vegetables				
Often/Always	110 (32.5%)	97 (75.8%)	13 (12.7%)	0 (0.0%)
Sometimes	81 (24.0%)	25 (19.5%)	56 (54.9%)	0 (0.0%)
Seldom/Never	146 (43.2%)	6 (4.7%)	32 (31.4%)	108 (100.0%)
Do not consume	1 (0.3%)	0 (0.0%)	1 (1.0%)	0 (0.0%)
Grains				
Often/Always	56 (16.6%)	43 (33.6%)	13 (12.7%)	0 (0.0%)
Sometimes	48 (14.2%)	28 (21.9%)	20 (19.6%)	0 (0.0%)
Seldom/Never	220 (65.1%)	47 (36.7%)	65 (63.7%)	108 (100.0%)
Do not consume	14 (4.1%)	10 (7.8%)	4 (3.9%)	0 (0.0%)
Meat				
Often/Always	61 (18.0%)	49 (38.3%)	12 (11.8%)	0 (0.0%)
Sometimes	67 (19.8%)	36 (28.1%)	31 (30.4%)	0 (0.0%)
Seldom/Never	188 (55.6%)	30 (23.4%)	50 (49.0%)	108 (100.0%)
Do not consume	22 (6.5%)	13 (10.2%)	9 (8.8%)	0 (0.0%)
Eggs				
Often/Always	114 (33.7%)	86 (67.2%)	28 (27.5%)	0 (0.0%)
Sometimes	33 (9.8%)	13 (10.2%)	20 (19.6%)	0 (0.0%)
Seldom/Never	183 (54.1%)	25 (19.5%)	50 (49.0%)	108 (100.0%)
Do not consume	8 (2.4%)	4 (3.1%)	4 (3.9%)	0 (0.0%)
Dairy				
Often/Always	64 (18.9%)	49 (38.3%)	15 (14.7%)	0 (0.0%)
Sometimes	44 (13.0%)	22 (17.2%)	22 (21.6%)	0 (0.0%)
Seldom/Never	205 (60.7%)	40 (31.3%)	57 (55.9%)	108 (100.0%)
Do not consume	25 (7.4%)	17 (13.3%)	8 (7.8%)	0 (0.0%)

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 39 Overall organic eating was based on the response to the overall question “How often do you eat organic food?”
 40 while food group-specific categories were based on the response to questions for each food group, i.e. “How
 41 often do you eat organic fruit?” Individuals who responded “Seldom/Never” to the overall question were not
 42 asked food group-specific questions.

43 **Supplemental Table 2.** Association of demographic/behavioral variables with urinary glyphosate and AMPA levels. Base model adjusted for
 44 urinary creatinine with a random effect for individual; adjusted model additionally adjusted for average total Kcal, average recall-specific Healthy
 45 Eating Index (HEI), race/ethnicity, and physical activity level. BMI: body mass index, AMPA: aminomethylphosphonic acid

	Glyphosate				AMPA			
	Base model		Adjusted model		Base model		Adjusted model	
	Relative difference (95% CI)	p	Relative difference (95% CI)	p	Relative difference (95% CI)	p	Relative difference (95% CI)	p
Age	1.02 (0.99, 1.05)	0.16	1.02 (0.99, 1.05)	0.13	1.00 (0.97, 1.03)	0.89	1.001 (0.97, 1.03)	0.92
Race/Ethnicity								
Non-Hispanic White	Ref		Ref		Ref		Ref	
Asian	0.81 (0.54, 1.21)	0.30	0.81 (0.54, 1.20)	0.29	1.21 (0.81, 1.81)	0.36	1.26 (0.84, 1.88)	0.26
Hispanic	1.07 (0.77, 1.47)	0.70	1.04 (0.76, 1.44)	0.80	1.03 (0.75, 1.42)	0.85	1.01 (0.73, 1.39)	0.97
Other Race	0.60 (0.34, 1.06)	0.08	0.59 (0.33, 1.05)	0.07	0.53 (0.29, 0.94)	0.03	0.50 (0.28, 0.90)	0.02
Education								
College Graduate	Ref		Ref		Ref		Ref	
Some College	1.05 (0.78, 1.42)	0.74	0.97 (0.71, 1.32)	0.85	1.17 (0.87, 1.57)	0.31	1.09 (0.80, 1.49)	0.58
High School Graduate	1.21 (0.73, 1.98)	0.46	1.11 (0.65, 1.89)	0.71	1.27 (0.77, 2.10)	0.35	1.14 (0.66, 1.94)	0.64
Some High School	1.83 (0.81, 4.12)	0.15	1.71 (0.73, 4.03)	0.22	0.51 (0.23, 1.14)	0.10	0.49 (0.21, 1.15)	0.10
Median Estimated Annual Household Income								
Less than \$100,000	Ref		Ref		Ref		Ref	
\$100,000 - \$149,999	0.95 (0.72, 1.26)	0.73	0.94 (0.71, 1.25)	0.71	1.18 (0.89, 1.56)	0.24	1.18 (0.89, 1.57)	0.30
\$150,000 or more	0.87 (0.63, 1.22)	0.43	0.89 (0.63, 1.26)	0.53	1.00 (0.71, 1.39)	0.99	1.06 (0.75, 1.50)	0.82
BMI	1.01 (0.99, 1.03)	0.25	1.01 (0.99, 1.03)	0.44	1.01 (0.99, 1.03)	0.17	1.01 (0.99, 1.03)	0.25
Physical Activity								
<150 minutes/week	Ref		Ref		Ref		Ref	
≥150 minutes/week	0.77 (0.61, 0.98)	0.03	0.77 (0.61, 0.98)	0.04	0.83 (0.66, 1.06)	0.14	0.87 (0.68, 1.10)	0.25
Smoking Status								
Never	Ref		Ref		Ref		Ref	
Former	1.01 (0.76, 1.34)	0.94	0.99 (0.75, 1.31)	0.96	0.80 (0.60, 1.05)	0.11	0.81 (0.61, 1.07)	0.13
Current	0.78 (0.43, 1.42)	0.42	0.73 (0.40, 1.33)	0.31	0.87 (0.48, 1.58)	0.65	0.89 (0.49, 1.63)	0.71
Fast Food Meals								
Less than 1 time/month	Ref		Ref		Ref		Ref	
1-3 times/month	0.95 (0.72, 1.26)		0.89 (0.67, 1.18)	0.42	1.07 (0.81, 1.41)	0.62	0.99 (0.74, 1.31)	0.92
1-3 times/week	1.19 (0.87, 1.64)	0.27	1.05 (0.75, 1.48)	0.76	1.24 (0.91, 1.71)	0.18	1.11 (0.79, 1.56)	0.55
4 or more times/week	2.14 (0.93, 4.90)	0.07	1.89 (0.82, 4.37)	0.14	3.94 (1.73, 8.98)	0.001	3.28 (1.43, 7.54)	0.006
Organic Eating Frequency								
Seldom/Never	1.23 (0.93, 1.64)	0.15	1.19 (0.89, 1.59)	0.24	1.31 (0.99, 1.75)	0.06	1.20 (0.90, 1.60)	0.22
Sometimes	1.13 (0.85, 1.50)	0.42	1.11 (0.84, 1.49)	0.46	1.25 (0.94, 1.67)	0.13	1.21 (0.90, 1.61)	0.21
Often/Always	Ref		Ref		Ref		Ref	
Primary Drinking Water Source								
Bottled	Ref		Ref		Ref		Ref	
Tap (Filtered)	0.94 (0.73, 1.21)	0.65	0.96 (0.74, 1.24)	0.74	0.93 (0.72, 1.20)	0.58	0.92 (0.71, 1.19)	0.52
Tap (Unfiltered)	0.95 (0.62, 1.46)	0.82	0.92 (0.59, 1.42)	0.70	0.73 (0.48, 1.13)	0.16	0.71 (0.46, 1.10)	0.12

47 **Supplemental Table 3.** Association of quartile of consumption of major food groups with urinary glyphosate and
 48 AMPA, stratified by self-reported food-group-specific organic eating habits. Adjusted for urinary creatinine, total
 49 Kcal, recall-specific Healthy Eating Index (HEI), race/ethnicity, and physical activity level. AMPA:
 50 aminomethylphosphonic acid

Food Group	Organic Eating	Glyphosate		AMPA	
		Relative difference (95% CI), adjusted model	Adjusted p	Relative difference (95% CI), adjusted model	Adjusted p
Fruit	Often/Always	0.91 (0.79, 1.05)	0.20	0.95 (0.80, 1.12)	0.52
	Sometimes	1.09 (0.90, 1.33)	0.37	0.84 (0.68, 1.03)	0.10
	Seldom/Never	0.98 (0.85, 1.14)	0.80	0.97 (0.82, 1.15)	0.73
Vegetables	Often/Always	0.88 (0.75, 1.03)	0.11	0.98 (0.83, 1.16)	0.84
	Sometimes	1.06 (0.90, 1.25)	0.47	0.95 (0.79, 1.14)	0.56
	Seldom/Never	0.96 (0.83, 1.11)	0.59	1.09 (0.91, 1.29)	0.36
Grains	Often/Always	1.28 (1.04, 1.57)	0.02	1.12 (0.88, 1.43)	0.36
	Sometimes	1.14 (0.87, 1.48)	0.36	1.09 (0.83, 1.43)	0.53
	Seldom/Never	1.13 (1.01, 1.27)	0.04	1.06 (0.92, 1.21)	0.44
Meat/Poultry	Often/Always	0.91 (0.76, 1.10)	0.34	0.84 (0.70, 1.02)	0.09
	Sometimes	0.88 (0.73, 1.06)	0.18	1.21 (0.98, 1.50)	0.08
	Seldom/Never	0.88 (0.77, 0.99)	0.04	1.00 (0.87, 1.15)	0.99
Eggs	Often/Always	1.03 (0.91, 1.16)	0.65	1.00 (0.87, 1.15)	0.97
	Sometimes	1.13 (0.85, 1.50)	0.42	0.96 (0.68, 1.36)	0.83
	Seldom/Never	0.99 (0.88, 1.11)	0.83	1.04 (0.91, 1.20)	0.54
Dairy	Often/Always	1.02 (0.85, 1.22)	0.87	0.96 (0.78, 1.18)	0.70
	Sometimes	0.99 (0.76, 1.29)	0.94	1.01 (0.77, 1.33)	0.94
	Seldom/Never	0.96 (0.86, 1.08)	0.48	0.90 (0.79, 1.03)	0.12

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53 **Supplemental Table 4.** Sensitivity analysis: association of dietary and demographic/behavioral variables with
 54 urinary glyphosate and AMPA levels, excluding poor-quality dietary recalls (remaining N = 461 recalls). Adjusted
 55 for urinary creatinine, total Kcal, recall-specific Healthy Eating Index (HEI), race/ethnicity, and physical activity
 56 level. BMI: body mass index, AMPA: aminomethylphosphonic acid

	Glyphosate		AMPA	
	Relative difference (95% CI), adjusted model	Adjusted p	Relative difference (95% CI), adjusted model	Adjusted p
Dietary Recall Characteristics				
Major Food Groups (Quartile)				
Fruit	0.99 (0.89, 1.10)	0.86	0.90 (0.80, 1.01)	0.08
Vegetables	0.96 (0.87, 1.07)	0.48	0.98 (0.88, 1.10)	0.77
Grains	1.15 (1.04, 1.28)	0.01	1.08 (0.96, 1.22)	0.21
Whole Grains	1.12 (1.02, 1.24)	0.02	0.97 (0.87, 1.08)	0.58
Refined Grains	1.12 (1.00, 1.26)	0.04	1.19 (1.05, 1.35)	0.01
Protein Foods	0.90 (0.81, 0.99)	0.03	1.05 (0.94, 1.17)	0.42
Meat and Poultry	0.91 (0.82, 1.00)	0.05	1.02 (0.91, 1.13)	0.78
Dairy	0.94 (0.85, 1.04)	0.22	0.92 (0.83, 1.03)	0.14
Selected Foods and Beverages (Yes/No)				
Legumes	1.22 (0.96, 1.55)	0.10	0.97 (0.74, 1.27)	0.81
Corn	0.88 (0.71, 1.11)	0.29	0.67 (0.52, 0.87)	0.003
Oats	1.67 (1.27, 2.20)	<0.001	1.12 (0.83, 1.51)	0.47
Eggs	0.95 (0.76, 1.19)	0.64	1.06 (0.82, 1.37)	0.67
Soy Protein	0.93 (0.71, 1.22)	0.62	1.31 (0.97, 1.77)	0.08
Soy Protein, Milk, Other Soy Foods	0.89 (0.71, 1.12)	0.32	1.19 (0.93, 1.54)	0.17
Nuts and Seeds	1.09 (0.87, 1.36)	0.46	1.04 (0.81, 1.34)	0.76
Coffee	1.07 (0.84, 1.36)	0.59	1.01 (0.78, 1.31)	0.93
Tea	0.98 (0.77, 1.23)	0.83	1.10 (0.86, 1.42)	0.44
Alcohol	1.05 (0.82, 1.34)	0.70	1.63 (1.26, 2.12)	<0.001
Wine	1.05 (0.81, 1.37)	0.71	1.63 (1.22, 2.16)	0.001
Beer	0.84 (0.54, 1.31)	0.45	1.37 (0.84, 2.23)	0.22
Spirits	1.23 (0.80, 1.89)	0.35	1.25 (0.77, 2.02)	0.36
Diet Quality				
HEI (for individual dietary recall)	1.00 (0.99, 1.01)	0.95	0.99 (0.99, 1.00)	0.18
Individual Characteristics				
Age	1.03 (1.00, 1.06)	0.08	1.01 (0.98, 1.04)	0.56
Race/Ethnicity				
Non-Hispanic White	Ref		Ref	
Asian	0.73 (0.48, 1.13)	0.16	1.08 (0.69, 1.67)	0.74
Hispanic	1.10 (0.78, 1.55)	0.58	0.98 (0.69, 1.38)	0.89
Other Race	0.62 (0.32, 1.19)	0.15	0.44 (0.22, 0.87)	0.02
Education				
College Graduate	Ref		Ref	
Some College	0.90 (0.64, 1.25)	0.52	1.06 (0.76, 1.48)	0.74
High School Graduate	1.14 (0.65, 2.00)	0.64	1.15 (0.64, 2.04)	0.64
Some High School	1.67 (0.67, 4.15)	0.27	0.56 (0.23, 1.41)	0.22

Median Estimated Annual Household Income				
Less than \$100,000	Ref		Ref	
\$100,000 - \$149,999	0.99 (0.73, 1.34)	0.95	1.21 (0.89, 1.63)	0.23
\$150,000 or more	1.04 (0.72, 1.51)	0.84	1.06 (0.73, 1.54)	0.77
BMI	1.00 (0.98, 1.02)	0.95	1.01 (0.99, 1.03)	0.57
Physical Activity				
<150 minutes/week	Ref		Ref	
≥150 minutes/week	0.79 (0.61, 1.02)	0.07	0.86 (0.67, 1.12)	0.26
Smoking Status				
Never	Ref		Ref	
Former	1.04 (0.77, 1.40)	0.79	0.84 (0.62, 1.14)	0.26
Current	0.79 (0.41, 1.50)	0.47	0.77 (0.40, 1.49)	0.44
Fast Food Meals				
Less than 1 time/month	Ref		Ref	
1-3 times/month	0.83 (0.61, 1.12)	0.22	0.93 (0.68, 1.27)	0.63
1-3 times/week	1.09 (0.76, 1.56)	0.63	1.06 (0.74, 1.54)	0.74
4 or more times/week	1.39 (0.55, 3.49)	0.49	2.06 (0.80, 5.30)	0.13
Organic Eating				
Seldom/Never	1.25 (0.91, 1.68)	0.17	1.27 (0.92, 1.73)	0.14
Sometimes	1.21 (0.89, 1.65)	0.23	1.19 (0.86, 1.62)	0.30
Often/Always	Ref		Ref	
Primary Drinking Water Source				
Bottled	Ref		Ref	
Tap (Filtered)	0.93 (0.70, 1.22)	0.60	0.88 (0.66, 1.17)	0.37
Tap (Unfiltered)	0.94 (0.60, 1.48)	0.80	0.73 (0.46, 1.16)	0.18