Supplementary Online Content

Chiu Y-H, Williams PL, Gillman MW, et al; for the EARTH Study Team. Association between pesticide residue intake from consumption of fruits and vegetables and pregnancy outcomes among women undergoing infertility treatment with assisted reproductive technology. *JAMA Intern Med*. Published online October 30, 2017. doi:10.1001/jamainternmed.2017.5038

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

eTable 1. Adjusted probability of clinical pregnancy and live birth according to high pesticide fruit and vegetable intake, restricting for different characteristics

Quartile of high pesticide fruit and vegetable intake	Adjusted [1] probability of clinical pregnancy (%)				
	Restricting to women <40 year (441 cycles)	Restricting to women without prior miscarriage history (424 cycles)	Restricting to cycles initiated within 1 year after FFQ completion (383 cycles)	Excluding egg donor (518 cycles)	Restricted to cycles with successful embryo transfer (424 cycles)
Q1	0.70 (0.57, 0.81)	0.69 (0.55, 0.79)	0.70 (0.56, 0.81)	0.64 (0.51, 0.75)	0.76 (0.64, 0.85)
Q2	0.71 (0.62, 0.79)	0.70 (0.60, 0.79)	0.69 (0.57, 0.78)	0.69 (0.59, 0.77)	0.73 (0.64, 0.81)
Q3	0.62 (0.51, 0.72)	0.57 (0.46, 0.68)	0.6 (0.47, 0.71)	0.56 (0.47, 0.65)	0.63 (0.53, 0.72)
Q4	0.47 (0.34, 0.61)*	0.46 (0.32, 0.61)	0.48 (0.34, 0.62)	0.48 (0.35, 0.61)	0.54 (0.41, 0.66)*
P, trend [3]	0.02	0.03	0.04	0.05	0.02
Quartile of high pesticide fruit and vegetable intake	**Adjusted [1] probability of live birth (%)**				
	Restricting to women <40 year (441 cycles)	**Restricting to women without prior miscarriage history (424 cycles)**	**Restricting to cycles initiated within 1 year after FFQ completion (383 cycles)**	**Excluding egg donor (518 cycles)**	**Restricted to cycles with successful embryo transfer (424 cycles)**
Q1	0.73 (0.59, 0.83)	0.66 (0.52, 0.78)	0.68 (0.54, 0.8)	0.64 (0.51, 0.76)	0.74 (0.62, 0.84)
Q2	0.57 (0.47, 0.66)	0.57 (0.46, 0.67)	0.52 (0.41, 0.63)	0.53 (0.44, 0.62)	0.58 (0.49, 0.67)*
Q3	0.51 (0.40, 0.63)	0.49 (0.38, 0.61)	0.50 (0.36, 0.63)	0.47 (0.37, 0.57)	0.54 (0.43, 0.64)*
Q4	0.36 (0.24, 0.5)	0.38 (0.24, 0.53)*	0.38 (0.25, 0.54)*	0.37 (0.25, 0.51)*	0.43 (0.30, 0.57)*
P, trend [3]	0.004	0.03	0.04	0.02	0.01

[1] Model was adjusted for age, BMI, smoking status, race, folate supplement, organic fruit and vegetable consumption frequency, residential pesticide exposure history, total energy intake, Western and Prudent dietary pattern scores, infertility diagnosis, and low pesticide fruit and vegetable intake.

[2] Adjusted mean was calculated at mean levels for continuous covariates and weighted average over categorical covariates.

[3] Tests for trend were performed using the median intake in each quartile as a continuous variable in the model.

eTable 2. Ovarian biomarker and ovarian stimulation outcomes according to quartile of fruit and vegetable intake, considering pesticide residue status, among 305 women (424 fresh cycles).

	Adjusted[1,2] mean (95%CI)				
	Day 3 FSH, IU/L	**Peak E2 trigger results, pmol/L**	**Endometrial thickness, mm**	**Total oocyte yield, count**	**MII Oocyte, count**
Quartile (range) of High Pesticide Fruit and Vegetable Intake[3] (servings/day)					
Q1 (0.3, 1.0)	6.9 (6.3, 7.4)	2315 (2108, 2523)	10.9 (10.2, 11.6)	13.4 (11.9, 15)	11.3 (10, 12.7)
Q2 (1.0, 1.6)	7.4 (6.9, 8.0)	2087 (1907, 2267)	10.0 (9.6, 10.5)	11.8 (10.7, 13)	9.4 (8.5, 10.3)
Q3 (1.6, 2.2)	7 (6.6, 7.4)	2110 (1935, 2286)	10.3 (9.9, 10.8)	10.6 (9.5, 11.9)	9.0 (8.0, 10.1)
Q4 (2.3, 6.8)	7.4 (6.8, 8.1)	1847 (1646, 2048)	10.3 (9.6, 11.0)	11 (9.4, 12.9)	9.2 (7.8, 10.8)
P, trend [5]	0.28	0.07	0.19	0.09	0.10
Quartile (range) of Low Pesticide Fruit and Vegetable intake[4] (servings/day)					
Q1 (0.5, 1.7)	6.9 (6.4, 7.5)	2152 (1920, 2384)	9.8 (9.2, 10.4)	11.2 (10.0, 12.6)	9.4 (8.4, 10.5)
Q2 (1.7, 2.5)	7.3 (6.8, 7.8)	2197 (2023, 2371)	10.7 (10.2, 11.2)	12.8 (11.4, 14.4)	10.6 (9.5, 11.9)
Q3 (2.5, 3.5)	7.1 (6.6, 7.5)	2067 (1908, 2226)	10.6 (10.1, 11.1)	10.9 (9.8, 12.1)	8.7 (7.8, 9.6)
Q4 (3.6, 11.5)	7.4 (6.7, 8.1)	1943 (1724, 2163)	10.5 (9.8, 11.1)	11.8 (10.3, 13.6)	10.1 (8.8, 11.7)
P, trend [5]	0.31	0.59	0.85	0.92	0.95

Abbreviations: E2, estradiol; FSH: follicle-stimulating hormone; MII, metaphase II.

[1] Model was adjusted for age, BMI, smoking status, race, folate supplements, organic fruit and vegetable consumption frequency, residential pesticide exposure history, total energy intake, Western and Prudent dietary pattern scores, and infertility diagnosis. Adjusted means are calculated at the mean level of continuous covariates and weighted average over levels of categorical covariates.

[2] Adjusted mean was calculated at mean levels for continuous covariates and weighted average over categorical covariates.

[3] Model additionally adjusted for low pesticide FV intake.

[4] Model additionally adjusted for high pesticide FV intake

[5] Tests for trend were performed using the median intake in each quartile as a continuous variable in the model.

eTable 3. Fertilization and embryo quality according to fruit and vegetable intake, considering pesticide residue status, in 305 women (424 fresh cycles) from EARTH study.

	Adjusted[1,2] proportion (95%CI)				
	Fertilization	**Accelerated embryo cleavage**	**Slow embryo cleavage**	**Poor quality embryo**	**≥ 1 best quality embryos on day 2 and day 3**
Quartile (range) of High Pesticide Fruit and Vegetable intake [3] (servings/day)					
Q1 (0.3, 1.0)	0.69 (0.63, 0.75)	0.10 (0.06, 0.17)	0.26 (0.19, 0.35)	0.15 (0.10, 0.23)	0.60 (0.46, 0.73)
Q2 (1.0, 1.6)	0.73 (0.67, 0.78)	0.15 (0.1, 0.21)	0.21 (0.16, 0.26)	0.16 (0.12, 0.22)	0.63 (0.52, 0.72)
Q3 (1.6, 2.2)	0.71 (0.67, 0.74)	0.10 (0.08, 0.14)	0.24 (0.20, 0.30)	0.19 (0.14, 0.25)	0.59 (0.48, 0.70)
Q4 (2.3, 6.8)	0.71 (0.64, 0.77)	0.08 (0.05, 0.14)	0.32 (0.23, 0.44)	0.17 (0.12, 0.25)	0.51 (0.35, 0.67)
P, trend [5]	0.94	0.30	0.27	0.72	0.56
Quartile (range) of Low Pesticide Fruit and Vegetable intake [4] (servings/day)					
Q1 (0.5, 1.7)	0.71 (0.65, 0.76)	0.13 (0.08, 0.19)	0.22 (0.16, 0.30)	0.15 (0.10, 0.21)	0.63 (0.50, 0.75)
Q2 (1.7, 2.5)	0.70 (0.65, 0.75)	0.15 (0.11, 0.20)	0.24 (0.19, 0.29)	0.17 (0.13, 0.23)	0.63 (0.52, 0.74)
Q3 (2.5, 3.5)	0.70 (0.65, 0.74)	0.08 (0.05, 0.11)	0.28 (0.21, 0.35)	0.18 (0.13, 0.25)	0.49 (0.38, 0.59)
Q4 (3.6, 11.5)	0.73 (0.66, 0.79)	0.09 (0.05, 0.15)	0.3 (0.21, 0.40)	0.17 (0.11, 0.26)	0.58 (0.42, 0.73)
P, trend [5]	0.58	0.39	0.28	0.87	0.17

[1] Model was adjusted for age, BMI, smoking status, race, folate supplements, organic fruit and vegetable consumption frequency, residential pesticide exposure history, total energy intake, Western and Prudent pattern scores, and infertility diagnosis.

[2] Adjusted proportions were calculated at mean levels for continuous covariates and weighted average over categorical covariates.

[3] Model additionally adjusted for low pesticide FV intake.

[4] Model additionally adjusted for high pesticide FV intake

[5] Tests for trend were performed using the median intake in each quartile as a continuous variable in the model.

eFigure. Overview of 541 initiated cycles in the EARTH Study between April 2007 and August 2016. Abbreviations: N, number of women; IUP, intrauterine pregnancy; IVF, in vitro fertilization; IUI, intrauterine insemination; SAB, spontaneous abortion; SB, stillbirth; TAB, therapeutic abortion; EARTH, Environment and Reproductive Health.