

Supplement:

Associations of alpha and gamma-tocopherol during early life with lung function in childhood

Authors: Rajesh Kumar MD MS^{1,2}, Ryan Ferrie BS², Lauren Balmert PhD², Matthew Kienzl², Sheryl L. Rifas-Shiman, MPH³, Diane R. Gold MD MPH^{4,5}, Joanne E. Sordillo ScD MS³, Ken Kleinman ScD MPH⁶, Carlos A. Camargo Jr. MD MPH DrPH^{5,7}, Augusto A. Litonjua MD MPH⁸, Emily Oken MD MPH³, Joan Cook-Mills PhD⁹

List of institutions

¹Lurie Children's Hospital, Chicago, IL, USA

²Northwestern University, Chicago, IL, USA

³ Division of Chronic Disease Research Across the Lifecourse, Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA USA

⁴ Department of Environmental Health, Harvard T.H. Chan School of Public Health, Boston, MA, USA

⁵ Channing Division of Network Medicine, Harvard Medical School, Brigham and Women's Hospital, Boston, MA, USA.

⁶ Department of Biostatistics and Epidemiology, University of Massachusetts, Amherst, MA, USA

⁷ Department of Emergency Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

⁸ Division of Pediatric Pulmonary Medicine, University of Rochester Medical Center, Rochester, NY

⁹ Herman B Wells Center for Pediatric Research, Departments of Pediatrics and Microbiology and Immunology, Indiana University School of Medicine, Indianapolis, IN

Corresponding author:

Joan Cook-Mills, Department of Pediatrics, Herman B Wells Center for Pediatric Research, Indiana University School of Medicine, VanNuys Medical Science Building MS 2059, 635 Barnhill Drive, Indianapolis, IN 46202

Telephone: 317-274-8989

Email: joancook@iu.edu

Table S1: Distribution of asthma and wheezing[†] by tertile of each isoform

Isoform studied in child (3 Y) and pregnant mother(2nd trimester)	Tertile of opposing tocopherol isoform	No asthma and no wheeze by age 7 (row %)	Asthma or wheeze by age 7 (row%)
Alpha-T, 3 y	1	72 (55.8)	57 (44.2)
	2	93 (73.2)	34 (26.8)
	3	85 (61.2)	54(38.9)
Gamma-T, 3y	1	93 (64.6)	51(35.4)
	2	73 (60.8)	47 (39.2)
	3	84 (64.1)	47 (35.9)
Alpha-T, 2 nd trimester	1	121 (66.1)	62 (33.9)
	2	130 (68.4)	60 (31.6)
	3	121 (69.5)	53 (30.5)
Gamma-T, 2 nd trimester	1	118 (66.7)	59 (33.3)
	2	131(69.7)	57 (30.3)
	3	123 (67.6)	59 (32.4)

[†] Parent report of a MD diagnosis of asthma at any point or a report of wheezing at any point on the questionnaires up to the mid childhood (7 year) visit.

Table S2: Distribution of use of controller medications[†] by tertile of tocopherol isoform within children with asthma*

Isoform studied in child with asthma (3y) and pregnant mother (2nd trimester)	Tertile of opposing tocopherol isoform	No controller med (row %)	Controller med (row%)
Alpha-T, 3 y	1	33 (57.9)	24 (42.1)
	2	14 (41.2)	20 (58.8)
	3	25 (46.3)	29(53.7)
Gamma-T, 3y	1	29 (56.7)	22(43.1)
	2	22 (46.8)	25 (53.2)
	3	21 (44.7)	26 (55.3)
Alpha-T, 2 nd trimester	1	32 (51.6)	30(48.4)
	2	29 (48.3)	31 (51.7)
	3	26 (49.1)	27 (50.9)
Gamma-T, 2 nd trimester	1	34 (57.6)	25 (42.4)
	2	24 (42.1)	33 (57.9)
	3	29 (49.2)	30 (50.9)

[†] This denotes asthma controller medications in the past year at the mid-childhood visit including

Asthma at the mid childhood visit was limited to subjects who had a physician diagnosis of asthma or wheezing in the last year.

Table S3:

Comparison of 2nd trimester tocopherol isoforms (μM) by any prenatal vitamin intake:

	No prenatal vitamins	Prenatal vitamins	P-value ¹
	(median, IQR)	(median, IQR)	
	(N=18)	(N=477)	
Alpha-T, 2 nd trimester	63.2 (41.3, 100.1)	62.8 (49.4, 83.3)	0.81
Gamma-T, 2 nd trimester	5.3 (4.5, 10.8)	4.3 (3.0, 6.4)	0.01

¹P-value from Wilcoxon rank sum test