

Cover Page for Supporting Information

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Table S1. Geometric mean concentration (ng/g lipid), selected percentiles, and their 95% confidence intervals (95% CI) for all participants in the NHANES 2003/04 for polybrominated diphenyl ether congeners detected in less than 60% of the participants. The limits of detection and congener abbreviations are given in Table 1. All data adjusted for design sampling weights.

Polybrominated Diphenyl ether congener	Percentiles		
	P75 (95% CI)	P90 (95% CI)	P95 (95% CI)
<i>2,2',4-tribromodiphenyl ether (BDE-17)</i>	<LOD	<LOD	<LOD
<i>2,3',4,4'-tetrabromodiphenyl ether (BDE-66)</i>	<LOD	<LOD(<LOD-1.0)	1.3(1.0-1.9)
<i>2,2',3,4,4'-pentabromodiphenyl ether (BDE-85)</i>	<LOD	<LOD(<LOD-2.6)	4.1(2.8-6.3)
<i>2,2',4,4',5,6'-hexabromodiphenyl ether (BDE-154)</i>	0.8(0.8-1.0)	2.0(1.7-2.6)	4.1(2.8-5.3)
<i>2,2',3,4,4',5',6'-heptabromophenyl ether (BDE-183)</i>	<LOD	<LOD	<LOD

Table S2. Least square geometric means (LSGM; ng/g lipid) and corresponding 95% confidence intervals (95% CI) for main effects (age, race/ethnicity, sex) and significant interaction terms for congeners detected in more than 60% of the participants. The limits of detection and congener abbreviations are given in Table 1.

Main Effects and Interaction terms	BB-153 LSGM (95% CI)	BDE-28 LSGM (95% CI)	BDE-47 LSGM (95% CI)	BDE-99 LSGM (95% CI)	BDE-100 LSGM (95% CI)	BDE-153 LSGM (95% CI)
Age Stratification (Years)						
12-19		1.3(1.2-1.5)	27.9(23.8-32.8)	6.8(5.9-7.7)	5.2(4.5-6.0)	8.0(6.6-9.5)
20-29		1.2(1.0-1.4)	22.9(19.2-27.3)	5.7(4.8-6.8)	4.8(4.1-5.4)	7.0(5.9-8.3)
30-39		1.1(0.9-1.4)	20.1(15.5-26.2)	4.8(3.7-6.3)	4.0(3.0-5.4)	6.3(4.6-8.6)
40-49		1.1(0.9-1.3)	17.2(13.7-21.6)	4.1(3.3-4.9)	3.3(2.7-4.2)	4.5(3.7-5.4)
50-59		1.1(0.9-1.5)	18.4(14.2-23.9)	4.8(3.9-6.0)	3.4(2.6-4.4)	4.7(3.6-6.0)
≥60		1.4(1.1-1.7)	20.4(16.4-25.5)	4.8(4.0-5.8)	3.6(3.0-4.4)	5.2(4.4-6.2)
Race/Ethnicity						
MA	1.4(1.2-1.7)		24.5(21.7-27.6)	5.7(5.2-6.2)		
NHB	2.7(1.9-3.8)		23.8(20.6-27.5)	6.1(5.3-7.0)		
NHW	2.5(2.0-3.2)		19.7(16.2-23.9)	4.8(4.1-5.6)		
Sex						
Female						4.8(4.2-5.5)
Male						6.8(5.9-7.8)
Sex / Age Interaction term						
Female: Age 10	0.9(0.8-1.2)					
Female: Age 25	1.2(1.0-1.6)					
Female: Age 35	1.6(1.3-2.1)					
Female: Age 45	2.2(1.7-2.9)					

Female: Age 55	2.8(2.1-3.7)
Female: Age 65	3.6(2.7-5.0)
Male: Age 15	1.2(1.1-1.4)
Male: Age 25	1.7(1.4-2.0)
Male: Age 35	2.3(1.9-2.9)
Male: Age 45	3.4(2.7-4.4)
Male: Age 55	4.5(3.4-5.8)
Male: Age 65	6.1(4.5-8.3)

Abbreviations: MA, Mexican Americans; NHB, Non-Hispanic Black; NHW, Non-Hispanic White; and P, percentile.

Table S3. Level of significance for all comparisons of Least Square Geometric Means (LSGM; main effects and significant interaction terms). LSGMs (ng/g lipid) are given in Table S2 and congener abbreviations are given in Table 1.

Model	BB-153		BDE-28		BDE-47		BDE-99		BDE-100		BDE-153	
Parameter	β	p	β	p	β	p	β	p	β	p	β	p
Sex												
Female	0										0	
Male	0.18	<0.01									0.15	<0.001
Race/Ethnicity												
MA	-0.28	<0.01			0.011	0.76	-0.031	0.36				
NHB	0				0		0					
NHW	-0.027	0.66			-0.081	0.11	-0.10	0.02				
Age												
Age	0.012	<0.01	0.00077	0.18	-0.0020	0.01	-0.0019	0.01	-0.0028	<0.01	-0.0035	<0.001
Age-squared	-0.00031	<0.01	0.00009	0.04	0.00012	0.01	0.00012	<0.01	0.00010	0.045	0.00012	0.022
Age/Sex Interaction term												
Age*Male	0.0023	0.02										
Age*Female	0											

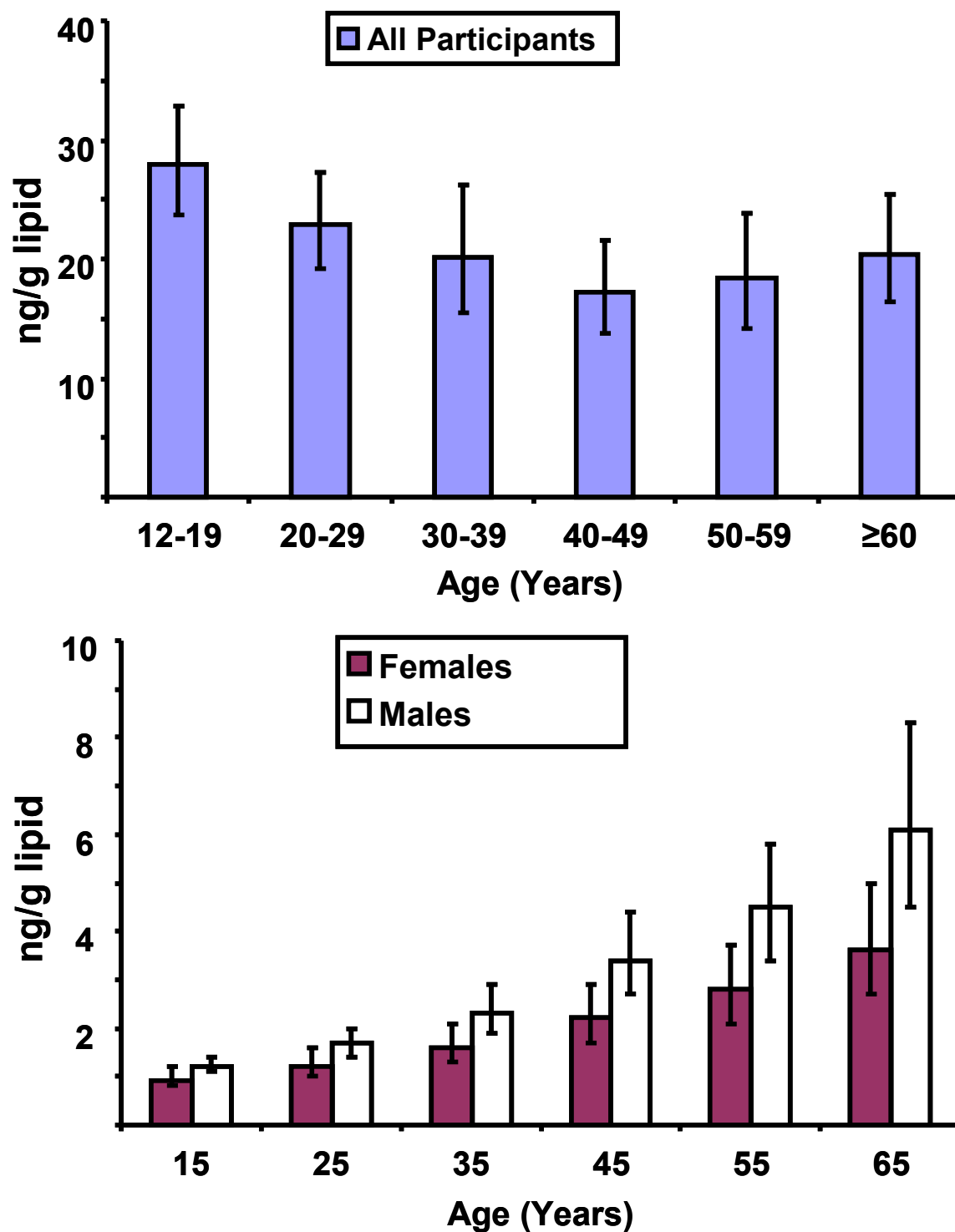
Abbreviations: MA, Mexican Americans; NHB, Non-Hispanic Black; NHW, Non-Hispanic White; n/a, non-applicable.

Table S4. Pearson correlation coefficients and corresponding p-values for all congeners detected in more than 60% of measurements.

The number of measurements for each correlation is given. Congener abbreviations are given in Table 1.

Congener	BB-153	BDE-28	BDE-47	BDE-99	BDE-100	BDE-153
[Valid N]	Corr (p-value)	Corr (p-value)	Corr (p-value)	Corr (p-value)	Corr (p-value)	Corr (p-value)
BB-153 [N]	1	0.021 (0.36)	-0.047 (0.035)	-0.038 (0.089)	-0.029 (0.19)	0.037 (0.10)
BDE-28 [N]	[1979]	1	0.88 (<0.001)	0.78 (<0.001)	0.82 (<0.001)	0.56 (<0.001)
BDE-47 [N]	[2008]	[1963]	1	0.90 (<0.001)	0.93 (<0.001)	0.62 (<0.001)
BDE-99 [N]	[1978]	[1959]	[1985]	1	0.86 (<0.001)	0.60 (<0.001)
BDE-100 [N]	[2032]	[1987]	[2016]	[1985]	1	0.78 (<0.001)
BDE-153 [N]	[2032]	[1986]	[2015]	[1984]	[2039]	1

Figure S1. Least square geometric mean (LSGM) concentration (ng/g lipid) by age group for BDE-47 (top graph) and BB-153 (bottom graph). Model parameters and levels of significant are given in Tables ST3-ST4. Congener abbreviations are given in Table 1.



Supporting Information (SI-1) - Detailed information on the determination of the limit of detection (LOD).

The limit of detection (LOD) was calculated using two different methods and the higher of the two was employed for each measurement. First, the LOD was calculated in direct relationship to method blanks, as three times the standard deviation of the method blanks and secondly, in relation to the lowest standard in the calibration curve producing a signal to noise (S/N) ratio greater than three. From each sample result, the average method blank concentration was subtracted. If the resulting amount was found to be less than the highest LOD calculated, the resulting value was substituted by the LOD and the measurement flagged as less than the LOD. The lipid adjusted concentrations, expressed as ng/g serum lipids of the BFRs, were calculated by dividing the whole weight concentration by the total lipid (TL) concentration in the serum. The TL concentration was calculated from the concentration of triglyceride (TG) and total cholesterol (TG) (1), measured using enzymatic methods. Using this approach we derive an LOD that varies with the amount of serum analyzed. In order to prevent biasing the data set, we plotted the LOD vs. the sample size and determined that the LOD increases at a sample size of less than 1.4 grams and that a small number of samples (n=28) had a smaller sample size than 1.4 grams. We then set all data less than the LOD with a smaller sample size than 1.4 gram to non-reportable. The number of results that was set to non-reportable, due to a low sample size, varied by congener but ranged from 3 to 27. We define the LOD from a 1.4 gram sample as the maximum LOD. The maximum LODs for measured congeners are given in Table 1.

Literature Cited

1. Phillips, D.; Pirkle, J.; Burse, V.; Bernert, J.; Henderson, L.; Needham, L.
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Arch Environ Contam Toxicol **1989**, 18, 495-500.