

Temporal variability of PBDE serum concentrations over one year

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Supporting information includes seven pages (S-1 to S-7) with three supplemental tables (T1, T2, and T3) and three supplemental figures (F1, F2, F3).

Supplemental Table 1. Polybrominated diphenyl ethers measured from 2010-11 in 52 participants over three sampling rounds. Total number of valid measurements above the limit of detection (LOD) and range of measurements.

Analyte	Abv.	Subjects	Serum Samples	LOD ng/g lipid	% Detect	Range
Polybrominated Diphenyl Ethers (PBDEs)						
2,2',4-tribromodiphenyl ether	BDE-17	52	142	0.2 - 0.8	1	<LOD - 0.8
2,4,4'-tribromodiphenyl ether	BDE-28	52	142	0.2 - 0.8	68	<LOD - 5.1
2,2',4,4'-hexabromodiphenyl ether	BDE-47	52	142	0.2 - 0.8	100	0.6 - 151
2,3',4,4'-tetrabromodiphenyl ether	BDE-66	52	142	0.2 - 0.8	1	<LOD - 0.7
2,2',3,4,4'-pentabromodiphenyl ether	BDE-85	52	142	0.2 - 0.8	22	<LOD - 4.0
2,2',4,4,5-pentabromodiphenyl ether	BDE-99	52	142	0.2 - 0.8	92	< LOD - 43.5
2,2',4,4',6-pentabromodiphenyl ether	BDE-100	52	142	0.2 - 0.8	89	< LOD - 44.1
2,2',4,4',5,5'-hexabromodiphenyl ether	BDE-153	52	142	0.2 - 0.8	100	0.06 - 96.7
2,2',4,4',5,6'-hexabromodiphenyl ether	BDE-154	52	142	0.2 - 0.8	19	< LOD - 4.5
2,2',3,4,4',5',6'-heptabromodiphenyl ether	BDE-183	52	142	0.2 - 0.8	12	< LOD - 3.3
2,2',3,3',4,4',5,5',6,6'-decabromodiphenyl ether	BDE-209	52	142	2.3 - 7.9	16	< LOD - 18.3

Supplemental Table 2. Estimated ICCs and variance components for selected PBDEs (participants=52, serum samples=142).

Parameters	∑PBDE	BDE - 28	BDE - 47	BDE - 99	BDE - 100	BDE - 153
	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)
ICC _{NULL} ^A	0.96	0.90	0.96	0.91	0.92	0.98
σ ² _{WNull} ^A	0.033 (0.03 to 0.05)	0.076 (0.06 to 0.1)	0.037 (0.03 to 0.05)	0.10 (0.08 to 0.15)	0.12 (0.09 to 0.14)	0.030 (0.02 to 0.04)
σ ² _{BNull} ^A	0.86 (0.5 to 1)	0.66 (0.4 to 0.9)	1.0 (0.6 to 1.4)	1.0 (0.6 to 1.4)	1.4 (0.8 to 2)	1.2 (0.7 to 1.7)
ICC _{LIPID} ^B	0.97	0.89	0.97	0.91	0.93	0.99
σ ² _{WLipid} ^B	0.025 (0.02 to 0.03)	0.069 (0.05 to 0.1)	0.030 (0.02 to 0.04)	0.096 (0.07 to 0.13)	0.10 (0.08 to 0.14)	0.020 (0.02 to 0.03)
σ ² _{BLipid} ^B	0.83 (0.5 to 1)	0.56 (0.3 to 0.8)	0.95 (0.6 to 1.3)	0.96 (0.6 to 1.4)	1.3 (0.8 to 1.8)	1.3 (0.8 to 1.8)
ICC _{FULL} ^C	0.97	0.89	0.97	0.91	0.93	0.98
σ ² _{WFull} ^C	0.025 (0.02 to 0.03)	0.069 (0.05 to 0.1)	0.029 (0.02 to 0.04)	0.098 (0.07 to 0.14)	0.097 (0.07 to 0.13)	0.02 (0.02 to 0.03)
σ ² _{BFull} ^C	0.85 (0.5 to 1)	0.53 (0.3 to 0.8)	0.94 (0.6 to 1.3)	0.97 (0.6 to 1.4)	1.3 (0.8 to 1.9)	1.2 (0.7 to 1.7)

^A Equation (1) $Y_{ij} = \beta_0 + b_i + \epsilon_{ij}$

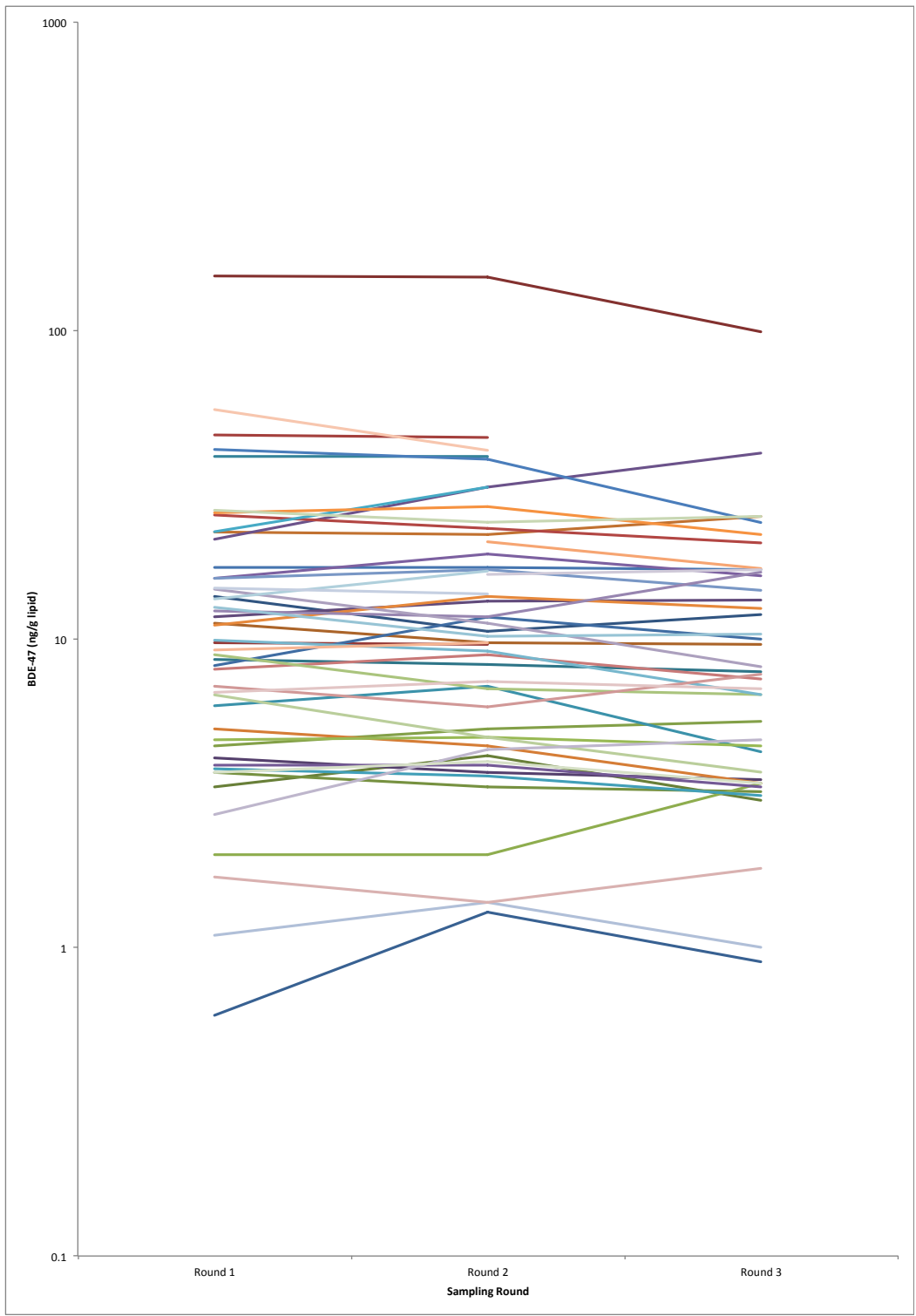
^B Equation (2) $Y_{ij} = \beta_0 + \beta_1 LIPID + b_i + \epsilon_{ij}$

^C Equation (4) $Y_{ij} = \beta_0 + \beta_1 TIME2 + \beta_2 TIME3 + \beta_3 AGE_i + \beta_4 SEX_i + \beta_5 BMI_i + \beta_6 LIPID_{ij} + b_i + \epsilon_{ij}$

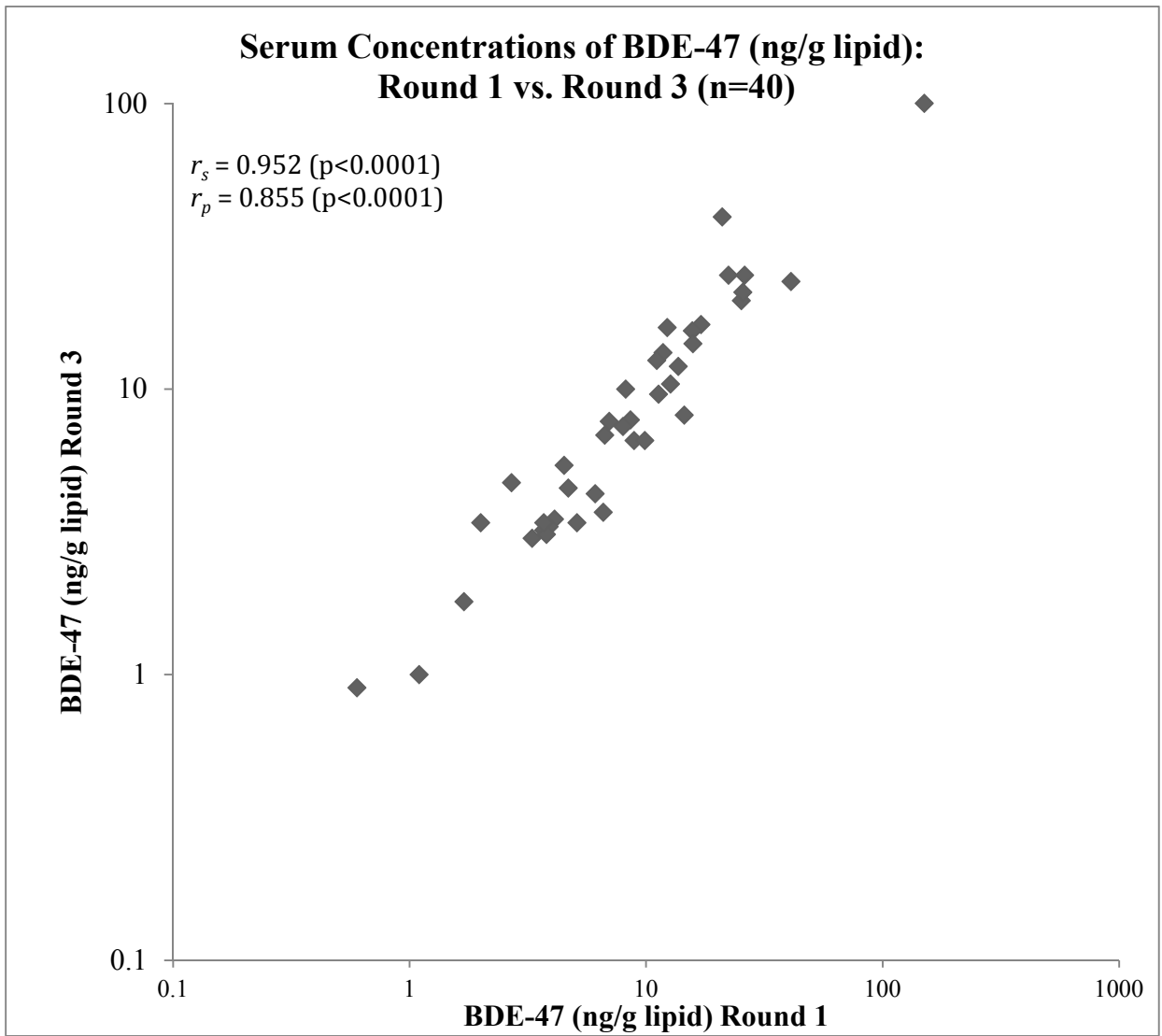
Supplemental Table 3. Estimated kappa statistics and 95% confidence intervals assessing agreement between Round 1 and Round 2 categorization. (participants=52, serum samples=142).

Parameters	Σ PBDE	BDE - 28	BDE - 47	BDE - 99	BDE - 100	BDE - 153
	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)	Estimate (95% CI)
<i>Median Classification</i>						
κ	0.90 (0.77 to 1)	0.85 (0.69 to 1)	0.80 (0.61 to 0.99)	1 (1 to 1)	0.90 (0.77 to 1)	0.90 (0.77 to 1.0)
<i>Tertile Classification</i>						
κ_{weighted}	0.77 (0.63 to 0.92)	0.70 (0.51 to 0.89)	0.72 (0.56 to 0.88)	0.69 (0.52 to 0.86)	0.94 (0.87 to 1)	0.94 (0.87 to 1)
<i>Quartile Classification</i>						
κ_{weighted}	0.88 (0.79 to 0.97)	0.82 (0.70 to 0.94)	0.88 (0.78 to 0.97)	0.84 (0.74 to 0.94)	0.96 (0.91 to 1)	0.96 (0.91 to 1)

Supplemental Figure 1. Serum concentrations of BDE-47 (ng/g lipid) from repeated samples collected from 52 adult men and women over approximately a one year period.



Supplemental Figure 2. Correlation of BDE-47 (ng/g lipid) in serum for individuals in round 1 and round 3.



r_s = spearman correlation coefficient
 r_p = pearson correlation coefficient

Supplemental Figure 3. Contingency tables of BDE-47 by type of exposure classification (participants=40).

Median

	Round 3		Total
Round 1	Low	High	
Low	18	2	20
High	2	18	20
Total	20	20	40

Tertiles

	Round 3			Total
Round 1	Low	Medium	High	
Low	10	3	0	13
Medium	3	8	3	14
High	0	3	10	13
Total	13	14	13	40

Quartiles

	Round 3				Total
Round 1	Low	Medium	High	Very High	
Low	9	1	0	0	10
Medium	1	7	2	0	10
High	0	2	7	1	10
Very High	0	0	1	9	10
Total	10	10	10	10	40